FRANKLIN COUNTY CONVENTION FACILITIES AUTHORITY

PROJECT MANUAL

for the

Greater Columbus Convention Center
Starbucks Renovation

Technical Specifications Prepared By:

BBCO

September 2025

NOTICE TO BIDDERS
FRANKLIN COUNTY CONVENTION FACILITIES AUTHORITY
Greater Columbus Convention Center Starbucks Renovation

Sealed bids will be received by the Franklin County Convention Facilities Authority, hereinafter referred to as the "Owner" of the Greater Columbus Convention Center ("GCCC"), 400 N. High St., Columbus, Ohio 43215 until **Monday September 29, 2025 at 3:00 PM** local time and will be publicly opened and read aloud immediately thereafter, for the furnishing of materials and performing the labor for the execution and construction of:

Bid Package 2025-05 - GCCC Starbucks Renovation

Owner's Estimate: $220,000

in accordance with specifications prepared by BBCO. All information for bidders, including the Project Manual, Form of Proposal, plans, Technical Specifications, Contract Bond and other contract documents may be examined at the following offices:

Franklin County Convention Facilities Authority
The Greater Columbus Convention Center
400 N. High Street, 4th Floor
Columbus, Ohio 43215

Requests for copies of bid documents as well as questions regarding plans and specifications should be addressed to Jordan Edmonds, In-House Counsel, Franklin County Convention Facilities Authority, email: jedmonds@fccfa.org.

No bidder may withdraw their bid within 60 days after the actual date of the bid opening, except as provided for in the Project Manual.

Each proposal must be accompanied by a Bid Guaranty and Contract Bond in the exact form included in the Project Manual and meeting the requirements of Section 153.54 of the Ohio Revised Code.

State of Ohio prevailing wage rates and Equal Employment Opportunity requirements are applicable to this bid invitation for all work performed pursuant to this contract.

The Franklin County Convention Facilities Authority reserves the right to waive any informalities or in its sole discretion, to reject any or all bids.

Bids shall be sealed and delivered on or before September 29, 2025, at 3:00 PM EST to:

Franklin County Convention Facilities Authority
400 North High Street, 4th Floor
Columbus, Ohio 43215

INSTRUCTIONS TO BIDDERS

GENERAL REQUIREMENTS & INFORMATION

a) Bidder shall inspect all plans and specifications and visit the site of the work to verify existing conditions and to become familiar with the conditions under which the project work will be performed.

b) The Form of Proposal, Bid Guaranty, Responsibility Analysis Form, Project Schedule, and all other required submittals, each fully executed, are to be submitted in sealed form and addressed to the Franklin County Convention Facilities Authority as provided for in the Notice to Bidders. **Interested bidders must provide one original and three hard copies of all required submittals.**

c) Owner & Architect:

1) The Owner is:

Franklin County Convention Facilities Authority (FCCFA)
400 North High Street, 4th Floor
Columbus, Ohio 43215-2096
Phone: 614-827-2800

2) The Architect is:

BBCO Design, LLC
326 South High Street, Suite 500
Columbus, Ohio 43215
Phone: 614-443-2524

d) The Project consists of providing all labor, materials, equipment, and services necessary for the timely and proper completion of construction for the Greater Columbus Convention Center's Starbucks Renovation as described within the Project Manual, drawings and technical specifications.

Bidders are responsible for visiting the site to determine existing conditions. No plea of ignorance of conditions that exist, or of conditions or difficulties that may be encountered in the execution of the work, as a result of the failure to make such examination and investigation, will be accepted as an excuse for any failure or omission on the part of the bidders to fulfill in every respect all the requirements of the contract, nor will the same be accepted as a basis for any claim whatsoever for extra compensation or for an extension of time.

ARTICLE 1. PROPOSALS

a) For lump sum bids, separate bids will be received for any or all divisions of work shown on the Form of Proposal. If not bidding a given contract on the Form of Proposal mark it "N/A".

b) In the case of unit price bids, the contractor shall submit bids on all items listed, unless other instructions are noted in the Form of Proposal.

Unless otherwise expressly provided in the Project Manual and related bid documents, such unit prices shall be fully-loaded rates that include, but are not limited to, all overhead, profit, labor, materials, equipment, services, insurance and bonding costs necessary for the timely and proper installation of the item for which the unit prices are requested. The unit prices quoted in the proposal shall be the basis for any change orders entered into under the contract, unless the Architect determines that the use of such unit prices will cause substantial inequity to either the Contractor or the Owner.

c) **The Proposal shall contain the following documents:**

1) The Form of Proposal (bid)
2) The Bid Guaranty
3) EEO Certification Clause
4) Non-Discrimination Policy Compliance
5) Contractor's Review Certificate
6) Manufacturer's Declaration and Subcontractor Declaration
7) Declaration of Insurance
8) Project Schedule
9) Responsibility Analysis Form

d) The wording of the Form of Proposal shall be used without change, alteration, or addition (except as provided for in the Project Manual). Any other change in the wording may cause the Proposal to be rejected; however, the Owner reserves the right to waive any informalities not affecting the substance of the Proposal.

e) The forms used in submitting the Proposal shall be those furnished by the Owner in the Project Manual.

f) The Proposal shall contain the Bid Guaranty meeting the requirements of Section 153.54 of the Ohio Revised Code.

g) Bidders shall take the following precautions in preparing Proposals:

1) Sign the Proposal. Failure to do so shall result in rejection of the bid. Bids shall be signed with the name typed below the signature. A bidder that is a corporation shall sign its bid with the legal name of the corporation followed

by the name of the state of incorporation and the legal signature, including title, of an officer authorized to bind the corporation to a contract.

2) Alternates:

The Owner may request bids on alternates. If the Owner requests bids on alternates, the bidder should include the cost of the alternates requested on its Form of Proposal.

Where the Form of Proposal provides for quoting either an addition or deduction for an "Alternate," indicate whether the sum named is an addition or deduction by ruling out the words not applicable. Any alteration or erasure must be initiated by the bidder.

All requested alternates, if any, shall be bid by all bidders. If no change in the base bid is required enter "no change". Do not mark with any notation other than the cost change or "no change" (e.g., "N/A" or "No Bid", shall be taken as meaning "No Change" and a cost of $0.00 shall be used in determining the lowest and best bidder and preparation of the contract). If a bidder does not accept a value of $0.00 for any incorrectly marked alternates accepted by the Owner, the bid shall be considered non-responsive and be grounds for the rejection of the bid. At the time of awarding the contract, the Owner will select or reject alternates as it determines is in its best interest.

If, during the progress of the work, the Owner desires to reinstate any alternate not included in the contract, the Owner reserves the right to reinstate the alternate at the price bid by the bidder provided that such action is taken in sufficient time so as not to delay the progress of the work or cause the bidder additional expense.

3) Complete and sign the Equal Employment Opportunity Certification attached to the Form of Proposal.

4) Bidders shall acknowledge and note receipt of addenda on the Form of Proposal.

5) Bids shall not be submitted by facsimile transmission.

6) Bids shall be enclosed in a sealed opaque envelope with the bidder's name and the title of the project printed in the upper left-hand corner and addressed as follows: Offices of the Franklin County Convention Facilities Authority, 400 N. High St., Fourth Floor, Columbus, Ohio 43215.

h) All bids are valid for a period of sixty (60) days after the date of opening bids. A bidder for a contract with the Owner may withdraw their bid from consideration if the price

bid was substantially lower than the other bids, providing the bid was submitted in good faith and the reason for the price bid being substantially lower was a clerical mistake as opposed to a judgment mistake and was actually due to an unintentional and substantial quantity of work, labor, or material made directly in the compilation of the bid. Request to withdraw such bid must be made in writing and filed with the Owner within two (2) business days after the opening of bids.

ARTICLE 2. METHOD OF AWARD

a) The Owner will receive bids for each of the contracts as set forth on the Form of Proposal and as defined in the Project Manual.

Subject to the right of the Owner to reject any and all bids and as provided below, the Owner will award a single contract for each of the contracts/bid packages listed in the Project Manual or one or more combined contracts for combination(s) of the bid packages. Bidders must furnish all information requested on or accompanying the Form of Proposal. Failure to do so may result in disqualification of the bid.

b) Determination of Lowest and Best Bid (see Instructions to Bidder's Responsibility Analysis Form):

Subject to the right of the Owner to reject any or all bids, the Owner will award the contract for the work to the bidder submitting the lowest and best bid, taking into consideration accepted alternates. In determining which bid is the lowest and best bid, the Owner may take into consideration not only the amount of the bid but such of the following criteria as it, in its sole discretion, deems appropriate and may give such weight thereto as it deems appropriate:

1) The bidder's financial ability to complete the contract successfully and on time without resort to its Surety;

2) The bidder's prior experience with similar work on comparable or more complex projects;

3) The bidder's prior history of the successful and timely completion of similar projects;

4) The bidder's equipment and facilities;

5) The adequacy, in numbers and experience, of the bidder's work force to complete the contract successfully and on time;

6) The bidder's prior experience on other projects of the Owner, including the bidder's demonstrated ability to complete its work on these projects in accordance with the Contract Documents and on time, and its ability to work with the Owner.

7) The bidder's compliance with federal, state, and local laws, rules, and regulations, including but not limited to, prevailing wage laws and the Occupational Safety and Health Act.

8) All of the foregoing with respect to each of the subcontractors which the bidder intends to use on the Project; and

9) Depending upon the type of work, other essential factors, as the Owner may determine.

Absent special circumstances, no bidder shall be deemed responsible unless the bidder has been in existence at least thirty-six months.

c) Acceptance of the contract within the 60-day period following the opening of bids automatically assumes that if materials, labor or subcontract cost increases, they shall be absorbed by the contractor. Award of contracts beyond the 60-day period shall be reviewed for increased costs after award of the contract only if the cause for delay is no fault of the contractor.

d) If, in the opinion of the Owner, the acceptance of the lowest bid is not in the best interest of the Owner, the Owner may accept at its discretion, another proposal so opened, or reject all proposals and advertise for other bids. Such advertisement will be for such time, in such form and in such newspapers as may be directed by the Owner.

e) No contract shall be awarded if the low bidder is more than 20% below the median of all others bids received for projects where the estimate is $100,000 or more, and no contract shall be awarded if the low bidder is more than 25% below the median of all other bids received for projects where the estimate is less than $100,000, unless the following occurs and/or are reviewed.

1) An interview with the bidder, the purpose of which is to determine what, if anything, has been overlooked in the bid in question, and to analyze the process envisioned by the bidder to complete the contract in question.

2) The financial status of the bidder and its Surety based upon certified financial statements submitted by each.

3) Receipt of written confirmation by the Surety that it has reviewed the bid in question.

4) The record of the bidder in performing other public works projects in the past.

If after review and consideration, the acceptance of the lowest and best bid is not in the best interest of the Owner, the Owner may accept another proposal so opened or reject all proposals and advertise for other bids.

f) In accordance with Ohio Revised Code 153.12, no contract will be awarded if the price of the contract exceeds the published estimate by more than 20%.

g) If individual and combined contract bids are included on the Form of Proposal and a bidder opts to submit multiple bids, a bidder shall not be permitted to be determined to be the low bidder for any individual contract bid if that bidder withdraws a lower combination contract bid for any reason (including omission of any work item or math/clerical errors).

h) The Owner reserves the right to disqualify bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices on the part of the bidder.

i) After determination of the lowest and best bid, the selected contractor shall receive a Recommendation of Award, a copy of the full unexecuted contract and an unexecuted copy of the Notice of Authority to Proceed (NTP) with construction. The successful bidder shall then provide the required items for formal execution of the contract and NTP by the Owner all in accordance with Article 8. If the Project Schedule requires that the contractor commence work (or make commitments and preparations to commence the work) prior to receipt of the fully executed contract and NTP, the contractor, in order to meet the requirements of the Project Schedule, shall be solely responsible to notify the Owner in writing 10 business days before the date that such NTP is required. The Owner may direct the contractor to proceed with the work with an executed NTP before the formal execution of the contract. If the contractor has met all of the requirements for executing a contract and the Owner chooses not to execute the contract, the contractor shall be reimbursed for all reasonable costs incurred as a result of starting work under the NTP and prior to receipt of a fully executed contract.

j) No contract shall be entered into until:

1) The Industrial Commission has certified that the corporation, partnership, or person so awarded the contract has complied with Sections 4123.01 to 4123.99 (Workers' Compensation), inclusive of the Ohio Revised Code;

2) If the bidder so awarded the contract is a foreign corporation, the Secretary of State has certified that such corporation is authorized to do business in this state; and, if the bidder so awarded the contract is a non-Ohio person or partnership, then until the bidder has filed with the Secretary of State a Power of Attorney designating the Secretary of State as its agent for the purpose of accepting service of summons in any action brought under Section 153.05 of the Revised Code or under Sections 4123.02 to 4123.99 inclusive, of the Ohio Revised Code.

3) The successful bidder shall notify the Owner, within 3 calendar days after receipt of the Recommendation of Award, the provisions the bidder has made or reasonably can be expected to make in order to meet the provisions of the

Owner's Disadvantaged Business Participation Plan. Notification shall include a statement of the bidder's present intention concerning which portions of the contract will be awarded to disadvantaged business subcontractors and materialmen and the identity of the intended subcontractor or materialman, if any. Within such five (5) calendar day period, the successful bidder may request in writing a longer period of time to meet the provisions of the plan. Such request shall set forth the reasons additional time is required. The Owner shall notify the successful bidder in writing of its approval or disapproval of the request. If additional time is approved by the Owner or if formal execution of the contract is delayed due to any failure of the bidder to meet the requirements of the Owner's Disadvantaged Business Participation Plan, the bidder shall remain responsible for all the requirements and timelines of the Project.

4) The required certificates of insurance coverage (as set forth in the contract) and bond are submitted to the Owner.

5) A copy of the contract is forwarded to the successful bidder by the Owner, signed by the successful bidder and returned to the Owner.

6) All requirements of Article 8 herein have been satisfied.

The contract cannot be fully executed until this information is provided. If the bidder fails to provide the documents within the required time, the bidder is solely responsible to meet all Project Schedule requirements regardless of the date of the formal execution of the contract.

ARTICLE 3. BID GUARANTY

a) All Bid Guaranties and Contract Bonds must be satisfactory to the Owner.

b) The Bid Guaranty and Contract Bond meeting the requirements of Section 153.54(B) of the Ohio Revised Code, as furnished by the Owner, shall be used without change or wording.

c) <u>If the amount is left blank, the penal sum of the Bid Guaranty and Contract Bond will be the full amount of the bidder's base bid plus add alternates; alternatively, if completed, the amount must not be less than the full amount of the base bid plus add alternates, stated in dollars and cents. A percentage is not acceptable.</u>

d) The Bid Guaranty and Contract Bond must be signed by an Authorized Agent of an acceptable Surety Bonding Company and by the bidder. The bond must be issued by a surety company authorized by the Ohio Department of Insurance to transact business in the State of Ohio. It is essential that the bond be issued by a surety company which can adequately demonstrate a record of competent underwriting, efficient management, adequate reserves, and soundness of investments.

The requirements of Section 3905.41 of the Ohio Revised Code are mandatory and require the Bid Guaranty and Contract Bond to be countersigned by an Ohio resident agent. It is the duty of the bidder to determine the applicability of Section 3905.41. Non-compliance with Section 3905.41 will cause the bidder's proposal to be rejected.

e) Bid Guaranties and Contract Bonds must be supported by credentials showing the Power of Attorney of the Agent.

f) In lieu of the Bid Guaranty referred to in Article 2(b) above, the bidder may submit the Bid Guaranty provided in Division (C) of Section 153.54 of the Ohio Revised Code, in the form of a Certified Check, Cashier's Check, or Letter of Credit pursuant to Chapter 1305 of the Ohio Revised Code. A Bid Bond is not acceptable for use as a Bid Guaranty.

g) The amount of the Certified Check, Cashier's Check or Letter of Credit shall be equal to 10% of the base bid plus add alternates.

h) The Bid Guaranty shall be payable to the Franklin County Convention Facilities Authority.

i) Bid Guaranties shall be returned to all unsuccessful bidders immediately after the contract is executed.

j) The Certified Check, Cashier's Check or Letter of Credit shall be returned to the successful bidder upon filing of the Bond required in Division (C), Section 153.54 of the Ohio Revised Code. The Performance Bond shall not be deemed "filed" until the Contract is fully executed.

ARTICLE 4. STANDARDS – SUBSTITUTIONS

a) Those articles, devices, materials, forms of construction, fixtures, etc., named in the specifications to denote the kind and quality required shall be known as "Standards" and all bids shall be based on the same.

b) Where two or more "Standards" are named together, the successful bidder may furnish any one of the "Standards" named, but contractors shall make their selections known to the Owner within thirty (30) days following the award of the contract. Failure to comply with this requirement will automatically hold up payment requests from the contractor in view of possible improper materials being used on the project. The first "Standard" listed shall be considered as the basis of design. If a contractor opts to use a named "Standard" other than the basis of design and this results in any necessary modifications to any other element of the contract documents, the same contractor shall be responsible for all associated additional costs.

c) Bidders desiring consideration for the use of material, equipment, etc., not named in the specifications may submit written proposals for the substitution of same for

"Standards" as specified and listing, for each proposed change: (1) the "Standard" specified, (2) the substitution, and (3) the change in bid price, (or "no change"). Proposed substitutions must be submitted in writing to be considered. Complete specifications and descriptions of any proposed substitutions being considered for acceptance shall be furnished to the Owner promptly upon request. Acceptance of substitutes shall be at the sole discretion of the Owner.

d) Any substitution accepted must be incorporated in the formal contract.

e) Substitution shall not affect the determining of lowest and best bid.

f) No substitution will be considered prior to receipt of bids unless written request for approval has been received by the Owner at least **10 days prior to the date for receipt of bids**. A statement setting forth changes in other materials, equipment, or other portions of the work, including changes in the work of other contractors that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Owner's decision of approval or disapproval of a proposed substitution shall be final. If the brand or product is acceptable, the Owner will approve it prior to bidding in an addendum issued by the Owner to all bidders on record.

g) In proposing a substitution, the bidder represents and warrants that each proposed substitution will not result in any changes to the project, including changes to the work of other contractors, or any decrease in the performance of any equipment or systems to be installed in the project and agrees to pay any additional costs incurred by the Owner as a result of a substitution which is accepted.

h) **Following the award of the contract, there shall be no substitutions**, except pursuant to a change order. The Owner in its sole discretion may decline to consider a substitution for a change order.

i) If the specified materials and/or manufacturers are no longer available, it is the bidder's responsibility to notify the Owner during the bidding period. Substitutions made during the construction period resulting from these conditions (i.e., failure of the bidder to notify Owner) will be made solely at the Owner's discretion.

ARTICLE 5. EXAMINATION OF DOCUMENTS

a) Each bidder shall examine all bid documents, including, but not limited to, the Project Manual, Project Schedule, Notice to Bidders, Form of Proposal, addenda, plans, specifications, etc., for all other divisions of the work as well as its own, noting particularly all requirements which will affect its work in any way. These Bid Documents shall become the contract documents, as defined in the contract that governs the relationship between the successful bidder and the Owner when the contract is executed. Failure of a bidder to become fully acquainted with the amount and nature of work required to complete its division of the work in conformity with all

requirements for the project as a whole will not be considered subsequently as a basis for extra compensation.

b) Should any requirements in the plans and/or specifications for the project, as a whole, appear to a bidder to be in disagreement with those for the part of the work on which the bidder proposes to bid or in the case of a discrepancy in the plans and specifications, a request for clarification, in writing should be addressed to the Owner at least 5 calendar days prior to the date set for opening bids. The Owner will reply to all such inquires through an addendum. Verbal interpretations will not be honored and are not legally binding. The Owner will forward a copy of same to all individuals holding plans and specifications. If, in examining the contract documents, the bidder discovers an apparent violation of the Ohio Basic Building Code, or other applicable statute or regulation, the bidder shall report such apparent violation to the Owner promptly. However, this provision shall not be construed as imposing responsibility on the bidder to ensure conformity of the plans and specifications to the Ohio Basic Building Code and other applicable regulations.

c) No allowance will be made subsequently for any omission, error, or negligence of the bidder.

d) Unless specifically assigned to one contract for all aspects of the project, each bidder is responsible to include all requirements for all sections contained in the Project Manual, and Project Schedule, in the base bid amount. (Contract is not limited to only those specifications sections listed in the contract summary of work).

ARTICLE 6. OPENING OF BIDS

Bids shall be opened and read publicly at the time and place named in the Notice to Bidders. The time for opening bids shall be extended at the discretion of the Owner with no further advertising when an addendum to the plans or specifications is issued within 72 hours of the scheduled bid opening, excluding Saturdays, Sundays and Legal Holidays.

ARTICLE 7. ADDENDA

a) Any explanation, interpretation, correction, or modification of the Project Manual or Bid Documents will be issued in the form of an addendum, which shall be the only means considered legally binding; explanations, interpretations, etc., made by any other means shall <u>not</u> be legally binding. All addenda shall become a part of the Contract Documents.

b) Bidders shall submit questions to the Owner no later than 5 days prior to the advertised bid date, to allow sufficient time for the Owner to respond. All addenda will be issued except as hereafter provided and mailed or otherwise furnished to persons who have obtained Bid Documents for the project, at least 72 hours prior to the published time for the opening of bids; excluding Saturdays, Sundays, and legal holidays. If any addendum is issued within such 72-hour period, then the time for opening of bids shall be extended one week with no further advertising of bids required.

c) Copies of each addendum will be sent only to the bidders to whom Bid Documents have been issued. Receipt of addenda shall be indicated by bidders in the space provided on the Form of Proposal.

d) Each bidder shall carefully read and review the Bid Documents and immediately bring to the attention of the Owner any error, omission, inconsistency, or ambiguity therein.

e) If a bidder fails to indicate receipt of all addenda through the last addendum issued by the Owner on its Form of Proposal, the bid of such bidder will be deemed to be responsive only if:

1) The bid received clearly indicates that the bidder received the addendum, such as where the addendum added another item to be bid upon and the bidder submitted a bid on that item; or

2) The addendum involves only a matter of form or is one which has either no effect or has merely a trivial or negligible effect on price, quantity, quality, or delivery of the item bid upon.

ARTICLE 8. ADDITIONAL SUBMITTAL REQUIREMENTS

a) Upon receipt of the Notification of Recommendation of Award (NOA), the successful bidder will submit the following to the Owner:

1) One copy of an Executed Contract;
2) Contract Bond;
   a) Including Certificate of Compliance issued by the Department of Insurance, showing the Bonding Company is Licensed to do business in the State of Ohio.
   b) Including a Financial Statement of the Bonding Company.
3) Certificate of Insurance;
4) Completed W-9 Form;
5) Workers' Compensation Certificate (Industrial Commission certification of O.R.C. requirements).

If the bidder fails to provide the documents within the required time, the bidder is solely responsible to meet all Project Schedule requirements regardless of the date of the formal execution of the contract. Failure of the bidder to provide these documents within 15 days of receipt of the NOA may result in rejection of the bid.

b) The successful bidder shall notify the Owner, within three calendar days of receipt of the NOA, of the provisions the bidder has made or reasonably can be expected to make in order to meet the provisions of the Owner's Disadvantaged Business Participation Plan.

c) Within fifteen calendar days of receipt of the NOA or such longer time as may be permitted in writing by the Owner, the apparent low bidder will submit the following to Owner:

1) The list of all proposed subcontractors, suppliers, manufacturers, and vendors.

   After approval by the Owner of the list submitted by the successful bidder, the list shall not be changed unless written approval of the change is authorized by the Owner.

2) Schedule of Values – the breakdown of labor and material for the project, including the sum thereof.

3) A current name of the person or persons proposed to represent the bidder as project manager(s) or superintendent(s).

4) A shop drawing and submittal schedule (includes every submittal requirement in the specifications).

d) Within 15 calendar days of receipt of the NOA, the successful bidder is required to submit a Project Schedule to the Owner which shall, at a minimum, show detailed work operations and durations. The intent of this requirement is to allow the Owner an opportunity to more fully understand how the contractor intends to complete the detail of the project. This detailed working schedule shall identify workforce requirements and be thoroughly coordinated with the Owner and all other subcontractors. The Owner anticipates that construction work on the project will begin on November 4, 2025 and be completed by December 31, 2025.

ARTICLE 9. TAXES

Materials purchased for use or consumption in connection with the proposed work will be exempt from the State of Ohio Sales Tax as provided for in Section 5739.02 of the Ohio Revised Code and also from the State of Ohio Use Tax, Section 5741.01.

ARTICLE 10. LIQUIDATED DAMAGES

Liquidated damages shall apply to the terms of the contract.

ARTICLE 11. PROJECT SCHEDULE

Each bidder is required to submit a Project Schedule with the bid which shall at a minimum, show work operations and duration. The bidder shall prosecute its work, at the direction of the Owner, furnishing at all times sufficient skilled workers, materials, and equipment to perform its work to meet the line item progress required by the Project Schedule, so as not to delay the completion of the whole or any part of the work. The Owner anticipates that construction work on the project will begin on November 4, 2025 and be completed by December 31, 2025.

ARTICLE 12. PRE-BID MEETING

A pre-bid meeting and site tour will be held on Wednesday September 17, 2025, at 4:00 PM EST. Interested bidders should plan to meet at the Greater Columbus Convention Center Starbucks, centrally located within the facility, at 400 N. High St., Columbus, OH 43215.

ARTICLE 13. OWNER'S RIGHT TO WAIVE DEFECTS AND IRREGULARITIES

a) The Owner reserves the right to waive any and all irregularities provided that the defects and irregularities do not affect the amount of the bid in any material respect or otherwise give the bidder a competitive advantage.

b) By submitting the bid, the bidder agrees that (i) the Owner's determination of whether a defect or irregularity affects the amount of the bid in any material respect or otherwise gives the bidder a competitive advantage will be final and conclusive, and (ii) the bidder will pay the Owner's attorneys' and consultants' fees related to any challenge to the bid procedure or process, brought directly or indirectly by the bidder and/or any of its affiliates, which is unsuccessful.

ARTICLE 14. CONTINUITY OF CONVENTION CENTER OPERATIONS

The successful bidder shall plan and perform all work without creating any interruption or disruption to normal Greater Columbus Convention Center operations and functions. All necessary interruptions and disruptions must be minimized, planned, scheduled, and approved by the Owner. In preparation of the bid, bidders may not assume the use of any activity or operation that will result in the disruption of convention center activities without the prior approval of the Owner.

ARTICLE 15. PREVAILING OR MINIMUM WAGE RATES

a) Each laborer, worker or mechanic employed by the bidder for the work herein specified or by the subcontractor or by other persons performing work for the project shall be paid not less than the prevailing wage rates as determined by the Department of Industrial Relations of the State of Ohio in accordance with Chapter 4115 of the Ohio Revised Code.

b) In the event the wage rate for any labor classification is changed between the time the rates are published herein and the time the work required by this contract is performed, or in the event any class of labor employed is not included in the published schedule of prevailing wages, then the rate prevailing at the time the work is actually performed, as ascertained and determined by the Department of Industrial Relations of the State of Ohio or the US Department of Labor, shall govern the work under this contract. No increase in the contract sum will be allowed for any later increase in the prevailing rates or wages as they may apply to this work.

ARTICLE 16. PAYROLL SUBMITTAL

a) All contractors and subcontractors shall keep full and accurate payroll records covering all disbursements of wages to their employees to whom they are required to pay not less than the prevailing rate of wages, as set forth in the contract documents. Such records shall be preserved for a period of three years from the date of completion of the contract.

b) Every contractor and subcontractor shall deliver to the Owner a certified copy of their payroll, with each month's payment application for the previous month's weekly payrolls which shall show for each employee paid any wages, their name, current address, social security number, number of hours worked each day during the pay period and the total hours worked for each week, their hourly rate of pay, their job classification, fringe payments, and deductions from their wages. In addition, the contractor, at the beginning of the performance under the contract, shall give to the Owner a schedule of the dates during the life of the contract with the Owner on which the contractor is required to pay wages to employees and a complete list of all subcontractors. Upon completion of the contract and prior to final payment, each contractor and subcontractor shall file with the Owner an affidavit stating full compliance with Chapter 4115 of the Ohio Revised Code. The Owner will withhold payment of any monthly/partial and/or final payment until all requirements have been met in accordance with the terms of the contract.

ARTICLE 17. INSURANCE

Insurance requirements shall be defined in the contract.

NON-DISCRIMINATION ("DEI") POLICY

Through the adoption of this Diversity, Equity and Inclusion Policy ("DEI Policy") the Franklin County Convention Facilities Authority ("FCCFA") affirms its commitment to equal opportunity and non-discrimination in all aspects of its operations including, but not limited to, contracting and procurement, employee recruitment and selection, compensation and benefits, professional development and training, promotions, transfers, layoffs, and terminations. Pursuant to this DEI Policy the FCCFA will not participate in either active or passive unlawful discrimination of any type and will strive to maintain an open, diverse, and inclusive workplace for all employees, officers, contractors, and subcontractors.

It is the position of the FCCFA that discrimination of any kind based upon age, sex, race, color, religion, disability, national origin, genetic information, ethnicity, ancestry, sexual orientation, gender identity or expression, family or marital status, military or veteran status, or any other basis prohibited by the laws of the United States, the State of Ohio, or the City of Columbus ("Protected Status") is prohibited. No person shall be unlawfully denied the benefit of, or otherwise be discriminated against in connection with their employment, the award or performance of any contract, or the modification of any contract or award.

The fundamental tenets of this DEI Policy are as follows:

- All Contractors shall have an equal opportunity to compete with respect to contracting and procurement activities of the FCCFA, regardless of age, sex, race, color, religion, disability, national origin, genetic information, ethnicity, ancestry, sexual orientation, gender identity or expression, family or marital status, military or veteran status, or any other Protected Status;

- No Contractor or FCCFA employee shall have engaged or shall engage in any kind of unlawful discrimination involving age, sex, race, color, religion, disability, national origin, ethnicity, ancestry, genetic information, sexual orientation, gender identity or expression, family or marital status, or any other Protected Status, whether or not such unlawful discrimination is related to the FCCFA or any contract with the FCCFA;

- The FCCFA and any Contractor seeking to do business with the FCCFA shall, whenever possible, craft bid specifications which enable MBE/WBE participation that is consistent with demographics for the City of Columbus;

- The FCCFA through its staff, facility management companies and other contractors will (i) monitor and provide periodic reports to the FCCFA Board of Directors regarding compliance by the FCCFA and its Contractors with this DEI Policy; (ii) collect and record information on the inclusion of minorities and women in their contracting, procurement, and workforce activities; and (iii) analyze data to evaluate the inclusion of minorities and women in the FCCFA's contracting, procurement, and workforce activities. Specific reporting requirements shall include:

- Semi-annual diversity profile updates from all key service partners and facility management companies;
- Documentation of contractor compliance with this DEI Policy in any recommendation of award presented to the FCCFA Board of Directors;
- Monthly board reports describing MWBE participation rates for all ongoing construction projects.

- The FCCFA shall review this DEI Policy periodically to ensure that it effectively promotes and achieves diversity, equity, inclusion, non-discrimination and equal opportunity in connection with the FCCFA's operations, and all contracting and procurement activities; and

- All Contractors and employees shall comply with this DEI Policy. A Contractor's success or failure to comply with this DEI Policy will be a factor in any award of a contract to such Contractor. An employee's success or failure to comply with this DEI Policy will be a factor considered in connection with any disciplinary measures or continued employment with FCCFA.

The FCCFA through its staff, facility management companies and other contractors shall be responsible for implementing, monitoring and evaluating this DEI Policy.

If the FCCFA determines that the objectives of this DEI Policy are not being achieved, the FCCFA Board of Directors may, in their discretion, direct the Executive Director to conduct further investigations into the reasons for not achieving such objectives.

This DEI Policy applies to all contracting and procurement activities of the FCCFA, including contracting for construction, professional and non-professional services and procurement of goods and supplies.

This DEI Policy shall be referenced in each bid and Request for Proposal or Qualifications document issued by the FCCFA. A Contractor's failure to comply with this DEI Policy may result in (a) debarment from participation in future FCCFA contracting opportunities, (b) liability for breach of contract and (c) the enforcement of any other remedies available under the related contract or applicable law.

FORM OF PROPOSAL

Submitted By:_____

on:_____ , 2025

To: Franklin County Convention Facilities Authority
400 North High Street, 4th Floor
Columbus, Ohio 43215-2096

having read the Project Manual, Specifications and examined the Drawings entitled:

2025-05 – Greater Columbus Convention Center Starbucks Renovation

as prepared by the Franklin County Convention Facilities Authority for the construction of said project and having also received, read and included their provisions in the bid all addenda thereto as follows:

Addendum No:_____ Dated: _____ Addendum No: _____ Dated: _____

Addendum No:_____ Dated: _____ Addendum No: _____ Dated: _____

and having also inspected the site of and the conditions affecting and governing the construction of said project, the undersigned proposes to furnish all materials and perform all labor as specified, described, shown, and required in the Project Manual, Specifications and Drawings for the Work, for the indicated sum:

(NOTE: Fill in all spaces of items being bid and quote the sum in both words and figures.)

ESTIMATE FOR PROJECT
($220,000)

Total material, labor and services for the project – **2025-05 – Greater Columbus Convention Center Starbucks Renovation** - for the lump sum amount of:

_____

Dollars ($ _____)

FORM OF PROPOSAL (continued)

EXECUTION OF PROPOSAL

NOTE A: TIME OF COMPLETION

a) It is understood and agreed that the work embodied in this contract shall be completed no later than the completion date stated within the contract, unless an extension of time is granted by the Owner.

b) Upon failure to have all work completed within the period of time above mentioned, the Contractor shall forfeit and pay, or cause to be paid, to the Owner for and as liquidated damages to be deducted from any payment due or to become due to the said contractor, the sum set forth in the following table for the size of contract, for each and every day thereafter that the said work remains in an unfinished condition.

DOLLAR AMOUNT OF CONTRACT	DOLLARS PER DAY
$0 to $100,000.00	$250.00
$100,000.01 to $500,000.00	$500.00
$500,000.01 to $1,000,000.00	$1,000.00
$1,000,000.01 to $10,000,000.00	$2,500.00
$10,000,000.01 and up	$5,000.00

NOTE B: Failure to sign proposal may result in rejection of the Bid.

THIS PROPOSAL SUBMITTED BY: _____

_____
Name of Contractor

BY: _____
Signature of Contractor or Authorized Representative

DATE: _____

Contact Person for contract processing: _____

Mailing Address if different from above: _____

_____

FRANKLIN COUNTY CONVENTION FACILITIES AUTHORITY

Non-Discrimination Policy

_____ hereby has reviewed the FCCFA's non-discrimination policy.
(Name of Contractor)

The contractor agrees to comply with all policy requirements and, directly or indirectly, (1) has not engaged, is not engaged, and will not engage in any kind of unlawful discrimination involving race, color, sex, disability, age, religion, veteran status or national origin, whether or not such discrimination is related to a contract or procurement activity with or for the FCCFA and (2) will not, for any purpose related to its engagement by the FCCFA, employ or contract with persons or businesses which the Contractor knows or has reason to know have engaged, are engaged, or will engage in any kind of unlawful discrimination involving race, color, sex, disability, age, religion, veteran status or national origin, whether or not such unlawful discrimination is related to a contract or procurement activity with or for the FCCFA. The contractor further agrees to incorporate these requirements in all subcontracts on this project regardless of tier.

Date: _____ _____
Signature of Contractor or Authorized Representative

( ) Submitted own Affirmative Action Plan.

( ) Contractor has been certified as a minority and/or female owned business.
(Submit copy of certification as received from the federal government and/or any Ohio government unit or public authority).

Note: This certification must be filled and signed. Failure to comply may invalidate your bid.

DECLARATION OF INSURANCE TO THE
FRANKLIN COUNTY CONVENTION FACILITIES AUTHORITY

THIS IS TO CERTIFY THAT THE FOLLOWING DESCRIBED POLICIES OF INSURANCE HAVE BEEN ISSUED AND ARE IN FULL FORCE AND EFFECT AT THIS TIME:

1. Name Insured (Contractor):

2. Address:

3. Title and Location: (Contract Job Site) — Franklin County Convention Facilities Authority - Greater Columbus Convention Center

4. Project: — GCCC Starbucks Renovation

5. Policy Number(s), Carriers and Expiration Dates:

TYPE OF INSURANCE		LIMITS OF LIABILITY IN $1,000 AMOUNTS Each Occurrence	Aggregate
GENERAL LIABILITY			
Comprehensive Form Premises-Operations	Bodily Injury	$	$
Explosion and Collapse Hazard Underground Hazard	Property Damage`	$	$
Products/Completed Operations Hazard	Combined	$	$
Contractual Hazard Broad Form Property Damage	Single Limit	$	$
Independent Contractors Personal Injury	Personal Injury	$	$
AUTOMOBILE LIABILITY Comprehensive Form	Bodily Injury Each Person	$	
Owned	Bodily Injury Each Accident	$	

Hired Non-Owned	Property Damage	$	
EXCESS LIABILITY	Combined Single Limit	$	
Umbrella Form	Combined Single Limit	$	$
Following Form	Self-Insured	$	

List any manuscript or unusual exclusions for forms and attach copies.

Check those of the following operations which are excluded:

_____ Asbestos removal or abatement _____ PCP Removal _____ Demolition

It is agreed that sixty (60) days written notice of cancellation or material change in the described policy(s) will be given to the holder of this certificate, known as the Franklin County Convention Facilities Authority, 400 North High Street, Columbus, OH 43215.

Insurance Agency:

Address: Telephone:

Contractor's Signature: **Agent's Signature:**

_____ _____

Date: _____ Date: _____

ADDITIONAL INSURED WITH RESPECT TO THIS JOB ONLY; AS THEIR INTEREST MAY APPEAR:

1. Franklin County Convention Facilities Authority, its other contractors and own forces, if any, and the subcontractors, sub-subcontractors, consultants, agents, and employees of any of them, in their individual capacities as such:
2. The Franklin County Convention Facilities Authority Board, its members, consultants, agents, and employees of any of them, in their individual capacities as such;
3. The Architect/Engineer its consultants, agents, and employees of any of them, in their individual capacities as such;
4. ASM Global, its consultants, agents, and employees of any of them, in their individual capacities as such.

FRANKLIN COUNTY CONVENTION FACILITIES AUTHORITY
MANUFACTURER'S DECLARATION

Part A

Contractor's Name and Address:

Project Title and Location**:** Greater Columbus Convention Center Starbucks Renovation

Part B (Complete for all suppliers but do not include subcontractors.)

Name: Type/Brand Name of Supplies:

Address: Phone:

Minority/Female Business: _____ Yes
_____ No

Name: Type/Brand Name of Supplies:

Address: Phone:

Minority/Female Business: _____ Yes
_____ No

Name: Type/Brand Name of Supplies:

Address: Phone:

Minority/Female Business: _____ Yes
_____ No

Name: Type/Brand Name of Supplies:

Address: Phone:

Minority/Female Business: _____ Yes
_____ No

(attach additional pages as needed)

FRANKLIN COUNTY CONVENTION FACILITIES AUTHORITY
SUBCONTRACTOR DECLARATION

Part A

Contractor's Name and Address:

Project Title and Location**:** Greater Columbus Convention Center Starbucks Renovation

Part B (Complete for all subcontractors, specify brand name of their material)

Name: Type Work:

FTID#:
Address: Brand Name(s):

Minority/Female Business: _____ Yes
_____ No

Phone:

Name: Type Work:

FTID#:
Address: Brand Name(s):

Minority/Female Business: _____ Yes
_____ No

Phone:

Name: Type Work:

FTID#:
Address: Brand Name(s):

Minority/Female Business: _____ Yes
_____ No

Phone:

(attach additional pages as needed)

FRANKLIN COUNTY CONVENTION FACILITIES AUTHORITY
CONTRACTOR'S REVIEW CERTIFICATE

The undersigned acknowledges that:

(1) the contractor's authorized agent has carefully read and understood all of the Bid Documents submitted for the GREATER COLUMBUS CONVENTION CENTER STARBUCKS RENOVATION, including, but not limited to, the Notice to Bidders, Instructions to Bidders, Form of Proposal, Substitution Sheet, Prevailing Wage Determination, Form of Bid Guaranty and Contract Bond, this Contractor's Review Certificate, Project Manuals, Specifications and Drawings; and

(2) the Bid Documents are sufficient and adequate for the undersigned to perform the Work; and

(3) the contractor's authorized agent has carefully reviewed the site and conditions under which the Work will be performed, or has been given ample opportunity to do so, and fully assumes the risk for any condition at the site that could have been discovered by a careful and diligent review of the site; and

(4) the contractor's authorized agent has confirmed that the contractor's surety is authorized to do business in the State of Ohio.

Dated: _____

CONTRACTOR: _____

By: _____
SIGNATURE

_____
TYPED OR PRINTED NAME

Its: _____

NOTE: The Bidder should review the Bid Documents and the site and conditions under which the Work will be performed so that the Bidder can give the acknowledgments contained in this Certificate.

BID GUARANTY AND CONTRACT BOND

KNOW ALL MEN BY THESE PRESENT, that we, the undersigned

(Name and Address)

as Principal and

(Name of Surety)

as Surety, are hereby held and firmly bound unto the Franklin County Convention Facilities Authority as Obligee in the penal sum of the dollar amount of the bid submitted by the Principal to the Obligee on this _____day of _____, 2025 to undertake the project known as the Replacement of the Greater Columbus Convention Center Starbucks Renovation. The penal sum referred to herein shall be the dollar amount of the Principal's bid to the Obligee, incorporating any additive or deductive alternative proposals made by the Principal on the date referred to above to the Obligee, which are accepted by the Obligee. In no case shall the penal sum exceed the amount of _____ dollars ($_____).

(If the above line is left blank, the penal sum will be the full amount of the Principal's bid, including add alternates.) Alternatively, if completed, the amount stated must not be less than the full amount of the bid, including add alternates, in dollars and cents. A percentage is not acceptable. For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal has submitted a bid on the above referred to Project;

NOW, THEREFORE, if the Obligee accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the Principal pays to the Obligee the difference, not to exceed ten percent of the penalty hereof, between the amount specified in the bid and such larger amount for which the Obligee may in good faith contract with the next lowest bidder to perform the Work covered by the bid; or in the event the Obligee does not award the Contract to the next lowest bidder and resubmits the Project for bidding, the Principal will pay the Obligee the difference, not to exceed ten percent of the penalty hereof, between the amount specified in the bid, or the costs, in connection with the resubmission, or printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect. If the Obligee accepts the bid of the Principal and the Principal, within ten days after the awarding of the Contract, enters into a proper contract in accordance with the bid, plans, details, specifications, and bills of material, which said Contract is made a part of this Bond the same as though set forth herein; and

IF THE SAID Principal shall well and faithfully perform each and every condition of such Contract; and indemnify the Obligee against all damage suffered by failure to perform such Contract according to the provisions thereof and in accordance with the plans, details,

specifications, and bills of material therefor; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said Contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman, subcontractor or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said Contract or in or to the plans and specifications therefor shall in any way affect the obligations of said Surety on its Bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the Contract or to the Work or to the specifications.

SIGNED AND SEALED This _____ day of _____, 2025.

PRINCIPAL:

BY:

TITLE:

SURETY

SURETY COMPANY ADDRESS:

Street

City State Zip

Telephone:

BY:

Attorney-in-Fact

If the requirements of Section 3905.41 of the Ohio Revised Code are applicable or if Surety Agent's Address is other than Ohio, and the Ohio Department of Insurance's Certificate of Compliance is not attached, please complete Ohio Resident Agent Information as follows:

SURETY AGENT'S ADDRESS:

_____	_____
Agency Name:	Agency Name:
_____	_____
Street	Street
_____	_____
City State Zip	City State Zip
_____	_____
Telephone	Telephone

NOTE Failure by any party to sign this Bid Guaranty and Contract Bond shall result in rejection of bid.

INSTRUCTIONS TO BIDDERS
RESPONSIBILITY ANALYSIS FORM

FRANKLIN COUNTY CONVENTION FACILITIES AUTHORITY
DETERMINATION OF LOWEST AND BEST BID

This form must be completed in its entirety and submitted with the Bid Form. Attach additional sheets if necessary to provide complete answers to the questions below. Do not include any misleading statements and make sure to include all facts necessary to make the statements made not misleading. The term "Project" means the project for which the attached bid is submitted. All references to "**Bidder**" should be answered with respect to the **actual legal entity** submitting the bid.

Subject to the right of the Owner to reject any or all bids, the Owner will award the Contract for the Work to the Bidder submitting the lowest and best bid, taking into consideration accepted alternates. In determining which bid is the lowest and best bid, the Owner may take into consideration not only the amount of the bid but such of the following criteria as the Owner, in its sole discretion, deems appropriate, and may give such weight thereto as it deems appropriate:

Bidder Name _____

Bid Package No.:2025-05_____ Contract No(s).: _____

Trade/Service _____

Product (s) Supplied _____

1. Bidder shall provide all information listed below with its bid, unless otherwise noted. Failure to do so may, at the Owner's discretion, result in rejection of the bid.

2. The Owner reserves the right to reject all bids.

3. Will the Bidder employ supervisory personnel on this Project that have three (3) or more years in the specific trade and/or maintain the appropriate state license?

   _____Yes _____No

4. On a separate sheet, provide information to demonstrate the following:

   - Bidder's previous performance to complete its work on projects of similar size and scope.
   - Bidder's previous ability to complete these same projects on time.
   - Bidder's previous ability to work with this Owner, Architect, Engineer and/or Construction Manager.

5. Bidder shall not have an EMR (Workers' Compensation Interstate/Intrastate Experience Modification Rate) greater than 1.5. If Bidder's EMR is above 1.0, Bidder shall provide a letter from Insurance Broker providing EMR for the most recent five (5) years, reasoning for EMR being above 1.0 and incident rates for that time period.

6. Has the Bidder been in existence at least 36 months?

_____Yes _____No

7. Has the Bidder, or any principal, owner, officer, stockholder, affiliate or any person involved in the bidding, contracting or leasing process been cited in the last five (5) years for violations of or failure to comply with any laws including without limitation:

a. Workers' compensation laws _____Yes _____ No

b. Wage and hour laws (including the Davis-Bacon Act and the Ohio Prevailing Wage Act) _____Yes _____ No

c. Unemployment laws _____Yes _____ No

d. Tax laws _____Yes _____ No

e. Fair Labor Standards Act _____Yes _____ No

f. Immigration laws _____Yes _____ No

g. Licensing requirements _____Yes _____ No

h. OSHA _____Yes _____ No

i. EPA _____Yes _____ No

j. Any items below: _____Yes _____ No

1. A judgment or conviction for any business-related conduct constituting a crime under federal, state or local government law including, but not limited to, fraud, extortion, bribery, racketeering, price-fixing or bid collusion or any crime related to truthfulness and/or business conduct.

2. A criminal investigation or indictment for any business-related conduct constituting a crime under federal, state or local government law including, but not limited to, fraud, extortion, bribery, racketeering, price-fixing or bid collusion or any crime related to truthfulness and/or business conduct.

3. An unsatisfied judgment, injunction or lien for any business-related conduct obtained by any federal, state or local government agency including, but not limited to, judgments based on taxes owed and fines and penalties assessed by any federal, state, or local government agency.

4. An investigation for a civil or criminal violation for any business-related conduct by any federal, state or local agency.

5. A grant of immunity for any business-related conduct constituting a crime under federal, state or local governmental law including, but not limited to, fraud,

extortion, bribery, racketeering, price-fixing, bid collusion or any crime related to truthfulness and/or business conduct.

6. An administrative proceeding or civil action seeking specific performance or restitution in connection with any federal, state or local contract or lease.

7. A sanction imposed as a result of judicial or administrative proceedings relative to any business or professional license.

8. A consent order with the Ohio Environmental Protection Agency, or a federal, state or local government enforcement determination involving a violation of federal, state, or local environmental laws.

If yes, on a separate sheet, provide complete details including the date of each citation or violation; the nature of each violation; and the sanction for each violation. If the Bidder was fined, include the dollar amount.

For purposes of 7.a. above, a violation of the Workers' compensation laws is a determination by the Ohio Bureau of Workers Compensation that the contractor is not in compliance with Ohio Workers' Compensation laws and regulations.

For purposes of 7.b. above, a violation of the Ohio Prevailing Wage Act is a determination by the Ohio Department of Commerce, Division of Labor and Worker Safety, Wage and Hour Division, or successor that the contractor is not in compliance with the provisions, duties, obligations and is subject to the remedies and penalties of Chapter 4115 of the Ohio Revised Code.

8. Does Bidder have any outstanding liens? If yes, on a separate sheet identify each circumstance and Bidder's response.

_____Yes _____ No

9. Has Bidder been party to litigation or arbitration proceedings in connection with any work performed, services rendered, or products supplied in the last five years? If yes, on a separate sheet, provide complete details, including dates, parties, whether Bidder was a plaintiff/claimant or defendant/respondent, the nature of the dispute and the ultimate determination or other resolution (i.e. settlement).

_____Yes _____ No

10. In the last five years, has Bidder had work rejected as defective (other than minor re-work accomplished without formal notice)? If yes, on a separate sheet identify each circumstance and Bidder's response.

_____Yes _____ No

11. In the last five years, has Bidder's contract or employment been terminated prior to completion of a project for any reason other than convenience of the Owner? If yes, on a separate sheet identify each such circumstance and provide full details.

_____Yes _____ No

12. Bidder shall secure any required bonds from a surety licensed to do business in the State of Ohio with an A.M. Best Company rating of at least A. Has Bidder met this requirement?

_____Yes _____ No

13. Has Bidder's construction license ever been revoked in any state?

    _____Yes _____ No

14. In the last five years, has Bidder had its own forces supplemented by an Owner, contractor or construction manager or had a claim made against it for defective, delayed or non-compliant work? If yes, on a separate sheet identify each such circumstance and provide full details.

    _____Yes _____ No

15. Bidder for a skilled contract (i.e. plumbing, electrical, HVAC, or fire safety) shall certify that Bidder will not subcontract greater than 50% of its awarded contract.

16. Does Bidder provide a minimum healthcare medical plan for those employees working on the project? If yes, list the healthcare plan provider below.

    _____Yes _____No

    Healthcare Medical Plan Provider: _____

17. Does Bidder contribute to an employee pension or retirement plan for those employees working on the project? If yes, list the pension or retirement plan provider below.

    _____Yes _____No

    Pension Plan or Retirement Plan Provider: _____

    The contractor may be asked to provide ERISA form 5500 for the retirement plan.

18. Has Bidder implemented an OSHA compliant Safety Program?

    _____Yes _____No

19. Does Bidder maintain a substance abuse policy that meets or exceeds requirements of the Ohio BWC and that its personnel are subject to on this Project?

    _____Yes _____No

20. Is the bidder a foreign corporation (i.e. not incorporated under the laws of Ohio) or an individual or partnership?

    _____Yes _____No

21. If yes to Item 20 above, provide proof of a Certificate of Good Standing from the Secretary of State showing the right of the Bidder to do business in the State and/or proof of filing with the Secretary of State a Power of Attorney designating the Secretary of State as Bidder's agent.

22. Bidder shall certify that the Bidder's subcontractors / vendors shall meet all requirements contained herein.

23. The Owner reserves the right to request the following information within 48 hours of the bid date:

    a. On a separate sheet, list all projects greater than $1,000,000 completed by Bidder in the preceding five years and for each, provide Bidder's original contract amount, final contract amount and a reference name and phone number.

    b. For the three largest projects listed from Item 3 above list your average manpower and peak manpower along with the original duration of the project and final duration of the project.

    c. On a separate sheet, provide Bidder's current work load under contract. List each current project and its respective contract amount and scheduled duration.

    d. On a separate sheet, provide information on Bidder's equipment and facilities.

    e. Bidder shall provide sufficient financial information to demonstrate fiscal capability to perform the project. All financial information identified by the Bidder as a trade secret and contained herein shall be treated as a trade secret and exempt from Ohio's Public Records laws, but the Owner's sole duty shall be to notify Bidder of any requests for that information so that Bidder is afforded the opportunity, at Bidder's expense, to contest in court the disclosure of any such information. The Owner may, but shall not be obligated to, contest any request for the disclosure of such information.

    f. On a separate sheet, identify, in numbers and experience, the Bidder's work force. Differentiate between hourly and salaried staff. Describe Bidder's workforce, focusing on worker experience and continuity.

    g. Bidder for a skilled trade contract or fire safety contract shall certify and upon request, provide evidence that Bidder is a state licensed heating, ventilating, and air conditioning contractor, refrigeration contractor, electrical contractor, plumbing contractor, or hydronics contractor or licensed by the State Fire Marshall and uses skilled, trained personnel.

    h. Identify the number of man hours and associated wages for each trade classification included in the Contractor's and Subtiers' Base Bid. Separately list the subtier's information. Provide additional sheet if more room is needed. DO NOT include payroll taxes, assessments or fringe benefits of any kind in the Wage amounts.

Trade	Man Hours	Wages (No fringes or OH&P)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

The Undersigned certifies under oath that the information provided herein and on all supplemental pages of explanation is true, complete and correct.

_____
Company

By _____

Title _____
(Signature must be notarized)

Sworn to and subscribed in my presence this_____ day of _____,
_____

By _____ , the _____ of

_____ , a_____on

behalf of the _____ .

_____
Notary Public

My Commission Expires: _____

Franklin County Convention Facilities Authority
Bid Evaluation Process:

In determining the lowest and best bid for construction contracts, the Franklin County Convention Facilities Authority will take the following steps and consider the following items in making this determination. The Authority reserves its discretion to evaluate the price and quality of bids to ensure that the lowest and best bid is selected. The Authority reserves its discretion to modify this process at any time and for any reason without notice.

1. Select which alternates will be accepted.

2. Identify the apparent low bidder based on the accepted alternates.

    2.1 Is the apparent low bid responsive? Are all required bid submissions included?

    2.2 Has the bidder qualified their bid in a way that would disqualify the bid?

3. Meet with the bidder to determine that all project scope is clearly understood and included. Discuss project schedule, safety and all project requirements. Identify key project staff. Identify subcontractors. Identify long lead time equipment. Discuss submission, review and approval process. Identify and discuss other items pertinent to the job.

4. Is the bidder well qualified?

    4.1 Background Check:
        Check Dun and Bradstreet.
        Run Lexus/Nexus check.
        Check for prevailing wage and workers compensation compliance.

    4.2 Is the bidder qualified for a job of this scope? (Questions 4, 6, 15, 23.a, b,c,d,e)

    4.3 Has the bidder demonstrated that they will provide qualified, well trained staff? (Questions 3, 23.f, g)

    4.4 Does the bidder provide a minimum healthcare medical plan for those employees working on the project? (Question 16)

        Does the bidder contribute to an employee pension or retirement plan for those employees working on the project? (Question 17)

    4.5 Does the bidder have a history of providing quality construction services? (Questions 6, 9, 10, 11, 13, 14)

    4.6 Does the bidder maintain a safe workplace? (Questions 5, 18, 19)

    4.7 Does the bidder follow all applicable laws? (Question 7)

    4.8 Is the bidder financially stable? (Questions 7.j.3, 8, 12, 23.e)

5. If it is determined that the apparent low bid is responsive, valid and the bidder is well qualified:

5.1 Assemble all necessary documentation and paperwork required in the bid documents.

5.2 Submit a resolution for board approval to enter into the contract.

5.3 Issue a notice to proceed.

5.4 Sign a contract with the successful bidder.

Technical Specifications & Drawings

Starbucks Renovation – Greater Columbus Convention Center

400 North High Street

Columbus, OH 43215

Project Manual

Bid Documents

09/10/2025

Prepared By:

BBCO DESIGN

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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Definitions
2. Special work requirements.
3. Separate work.
4. Owner-furnished Contractor installed products.
5. Coordination.
6. Reference standards.
7. Applicable codes.
8. Field engineering.
9. Applications for payment
10. Request for interpretation

B. This Section applies to all Technical Specification Sections and supplements the General and Supplemental Conditions.

1.2 DEFINITIONS

A. The following abbreviations are used throughout Division 01 and the Technical Sections as applicable:
1. SDRC: Store Development Resource Center: Web-based access for Starbucks construction templates, forms and tools.
2. SDS: Store Delivery Schedule
3. NIC: Not In Contract
4. FOIC: Furnished by Owner, Installed by Contractor
5. FOIO: Furnished by Owner, Installed by Owner
6. CR: Construction Representative
7. PMC: Project Manager of Construction; also referred to as CM: Construction Manager.
8. PCM: Project Cost Management
9. RCDC: Required Construction Documentation Checklist
10. CAF: Claim Adjustment Form
11. PDM: Project Development Manager; functions as PMC/CM on Licensed Store Turnkey Project.

1.3 SPECIAL WORK REQUIREMENTS

A. Limit use of premises to allow for construction operations, and to allow for Owner occupancy and work by other Contractors.

B. Smoking is prohibited on site, except for areas designated by the Contractor. No smoking is allowed within enclosed areas.

C. Owner Occupancy:
1. Owner may require access to premises during periods of construction. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.
2. Maintain free and safe passage to and from occupied portions of the existing building, in accordance with Code and the Owner's occupancy requirements.
3. Temporary mobile unit shall remain operational during normal business hours, unless approved otherwise. Notify the owner a minimum of 48 hours prior to affecting the normal operation of existing occupied spaces.
4. Perform no utility shutdowns unless approved by the Owner.
5. Perform demolition to minimize interference with adjacent occupied and public spaces.
6. To the greatest extent possible, select materials and sequence work in an area as required so that the work may be completed overnight and returned to use the next day in that area.
7. Unless approved otherwise by the Owner or suitably isolated, do not perform loud, disruptive, dusty, or odor producing work during business hours. Perform such work only during hours that occupied spaces are closed to the public.

D. Licensee Occupancy:
   1. Licensee will occupy premises during periods of construction for installation of work. Cooperate with Licensee to minimize conflict, and to facilitate Licensee's operations.
   2. Coordinate use of premises under direction of Owner.
   3. Maintain free and safe passage to and from occupied portions of the existing building, in accordance with Code and the Licensee's occupancy requirements.
   4. Temporary mobile unit shall remain operational during normal business hours, unless approved otherwise. Notify the owner a minimum of 48 hours prior to affecting the normal operation of existing occupied spaces.
   5. Perform no utility shutdowns unless approved by the Owner.
   6. Perform demolition to minimize interference with adjacent occupied and public spaces.
   7. To the greatest extent possible, select materials and sequence work in an area as required so that the work may be completed overnight and returned to use the next day in that area.
   8. Unless approved otherwise by the Owner or suitably isolated, do not perform loud, disruptive, dusty, or odor producing work during business hours. Perform such work only during hours that occupied spaces are closed to the public.

E. Noise Producing Activities:
   1. Comply with Section 015000 requirements for sound levels and noise control.

F. Select materials, utilize personnel, perform preparatory work, and sequence work in an area as required so that the work may be completed in the least amount of time possible.

G. All work shall be performed in a manner to maintain a normal business environment to the greatest extent possible.

1.4 SEPARATE WORK

A. Owner will enter into a separate contract for the furnishing and installation of items, including but not limited to the following:
   1. Signage.
   2. Security.
   3. Water filtration.
   4. Equipment racks.
   5. Data cabling.

B. Items noted "NIC" (Not in Contract) or FOIO (Furnished by Owner, Installed by Owner), will be furnished and installed by Owner.

C. Items noted “SB” (Starbucks) will be furnished and/or installed by Owner as noted in responsibility columns in schedules and on detail notes.

1.5 OWNER-FURNISHED CONTRACTOR INSTALLED PRODUCTS

A. Coordinate work to facilitate installation of products furnished by the Owner for Installation by the Contractor, as directed, and as indicated "FOIC," on the Drawings.

B. Coordinate work to facilitate installation of products furnished by the Licensee for Installation by the Contractor, as directed, and as indicated "FOIC," on the Drawings on Licensed Store Turnkey project.

C. Owner's Responsibilities:
   1. Provide Store Delivery Schedule (SDS) to Contractor for coordination of product delivery dates.
   2. Where noted by section, arrange for and deliver shop drawings, product data, cut sheets and samples to Contractor.
   3. Arrange and pay for product delivery to site.
   4. Submit claims for transportation damage.
   5. Arrange for replacement of damaged, defective, or missing items.
   6. Arrange for manufacturers' warranties, inspections, and service.

D. Contractor's Responsibilities:
   1. Provide quantity take-offs to Owner allowing sufficient time for ordering, delivery and handling.
   2. Indicate submittal and delivery dates for each product in the Progress Schedule.

3. Complete requested delivery dates on SDS per construction schedule.
4. Review shop drawings, product data, cut sheets and samples.
5. Become familiar with all requirements for Owner-furnished items.
6. Report discovered discrepancies between cut sheets and drawings prior to proceeding with work.
7. Receive and unload products at site; inspect for completeness, and communicate any damage immediately to the Construction Manager.
8. Handle, store, install and finish products.
9. Repair or replace items damaged by Work of this Contract.
10. Remove, safely store and relocate items indicated in the drawings to be relocated or reused including disconnection, reconnection and cleaning.

E. Receipt of Furniture, Fixtures & Equipment and Reporting Freight Damage:
   1. Introduction:
      a. The General Contractor is responsible for inspection of product as it is removed from the delivery truck(s).
      b. Freight claims occur when there is damage or shortage noted against any delivery of Starbucks products to a construction project. If the Contractor signs carrier's delivery receipt without noting damage/discrepancies, they are waiving Starbucks right to file a damage claim with the carrier. Failure of Contractor to report damage per the procedures below within 24 hours may result in charge back of damage or replacement costs to the Contractor.
   2. Receiving Procedure:
      a. CR will email Contractor with a copy of the Items Ordered List from Compass PCM, then any shipping notices from suppliers or Starbucks warehouses. CR should communicate status of backorder items to Contractor.
      b. Contractor is responsible for communicating changes to delivery and installation dates to PMC and CR as detailed in the Create and Send Store Delivery Schedule process.
      c. Contractor must be adequately staffed to receive and inspect deliveries on the expected delivery dates.
      d. Contractor inspects deliveries to confirm quantity and condition of the items received. Contractor must make note of the following on the carrier's bill of lading:
         1) Quantity of pallets picked up vs. quantity delivered (i.e. 5 pallets picked up; 4 pallets delivered).
         2) Is tile shrink-wrapped securely to a dedicated pallet or is it on a pallet with other items?
         3) Visible damage to the packaging or product needs to be noted on the BOL then follow the Damage Reporting Procedure below (crushed carton, water damage, puncture, etc.). Make sure to quantify the damage - i.e. 1 crushed carton, 2 water damaged, equipment dented etc.
   3. Damage Reporting Procedure:
      a. It is critical that Contractor inspects deliveries and records variances or damage on the carrier's BOL before the carrier leaves the site.
      b. Contractor reports damage with the below documentation of damage within 24-hours to the CR.
         1) Carrier's BOL with notation of damage, variance in number of pallets, evidence that product has been re-packaged.
         2) Photos of damage are required and must be taken before product is unpackaged/removed from carton/crate.
         3) Copy of supplier invoice if it was included with the delivery.
      c. CR submits CAF with the above documentation to Owner freightclaims@starbucks.com within 24-hours.
      d. Anything submitted after 48 hours of receipt is not eligible for claim.

1.6 COORDINATION

A. Coordinate work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.

B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduits, as closely as practical; make runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

E. Execute cutting and patching to integrate elements of Work, uncover ill-timed, defective, and non-conforming work, provide openings for penetrations of existing surfaces, and provide samples for testing. Seal penetrations through floors, walls, and ceilings.

1.7 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Where multiple standards or associations are noted, comply with all as applicable to the jurisdiction of the work. Not all references will be applicable in all countries.

C. The date of the standard is that in effect as of the Bid date, or date of Owner-Contractor Agreement when there are no bids, or date of Licensed Store Turnkey Services Supplement, except when a specific date is specified, or when a specific date is required under the applicable building code.

D. Obtain copies of standards when required by Contract Documents. Maintain copy at jobsite during progress of the specific work.

1.8 APPLICABLE CODES

A. Conform to the codes listed on the Drawings.

1.9 FIELD ENGINEERING

A. Provide field engineering services; establish grades, lines, and levels, by use of recognized engineering survey practices.

B. Control points are those shown on Drawings. Locate and protect control and reference points. Notify the Construction Manager if reference points cannot be located.

1.10 APPLICATIONS FOR PAYMENT

A. Complete and submit Applications for Payment in compliance Section 012900 – Payment Procedures.

1.11 REQUEST FOR INTERPRETATION

A. A Request for Interpretation (RFI) is a request from the Contractor directed to the Construction Manager for clarification, interpretation, or direction regarding the Work as described by Contract Documents.

B. Coordinate and submit in timely manner so as not to impede delivery, work, and other conditions that may be detrimental to construction progress

C. Use Contractor’s standard "Request for Interpretation" form.

D. Allow sufficient time in construction schedule for Construction Manager’s response to the RFIs.

END OF SECTION

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Procedures for preparation and submittal of Applications for Payment.

B. Related Sections:
   1. Owner-Contractor Agreement: Contract Sum and Unit Prices, Amounts of Progress Payments, and Retainages, and times for submittals.
   2. Licensed Store Turnkey Services Supplement: Licensed Store Turnkey project.
   3. 011000 – Summary: Abbreviations used in this Section.
   4. 013300 - Submittals: Submittal procedures; Schedule of Values.
   5. 017700 - Closeout Procedures: Contract Closeout Procedures; Final Payment.

C. This Section supplements the General and Supplementary Conditions.

1.2 FORMAT

A. For each item, provide a column for listing: Item Number; Description of work; Scheduled Value, Previous Applications; Work in Place and Stored Materials under this Application; Authorized Change Orders; Total Completed and Stored to Date of Application; Percentage of Completion; Balance to Finish; and Retainage.

1.3 PROGRESS PAYMENT PROCEDURES

A. General Contractor (GC) shall initiate Payment Request via Compass.

B. Provide percentage value for each line item for portion of Work performed and product procured at time of Payment Request.

C. Starbucks ensures that Lien Waivers (US), Statutory Declarations (Canada), and updated Subcontractor List have been received in accordance with Payment Schedule and approves request in Compass.

D. Starbucks distributes Payment Application using DocuSign.

E. Starbucks ensures that all required signatures have been made.

F. Starbucks releases the approved Payment Application via Compass for final approvals.

1.4 PAYMENT SCHEDULES

A. Unless otherwise required by Master Services Agreement (MSA), or Licensed Store Turnkey Services Supplement, provide payment applications in accordance with the following Payment Application Schedule~~s~~:

		US			CAN	
PAYMENT TIMELINE	**PAYMENT %**	**RETAINAGE %**	**GC Lien Waivers**	**Subcontractor Lien Waivers**	**RETAINAGE %**	**GC & Sub Statutory Declarations**
On or before Construction Start	**Optional:** GC-procured materials	5%	C	C	10%	N/A
0 – 30 DAYS	**Progress Payment:** Payment Request to be issued in Compass by GC for Work performed and materials procured within previous 30 days.	5%	C	C or U	10%	Y or N/A
31 – 60 DAYS		5%	C	C or U	10%	Y
61 – 90 DAYS		5%	C	C or U	10%	Y
91 – 120 DAYS		5%	C	C or U	10%	Y
121 – 150 DAYS		5%	C	C or U	10%	Y
151 – 180 DAYS		5%	C	C or U	10%	U
Retainage Release	**Final Payment:** 100% of contract; retainage release	0%	U	U	0%	Y

N/A = Not applicable
Y = Required
C = Conditional (progress payment)
U = Unconditional (final payment)

B. *Optional:* Submit a Payment Request on or before Construction Start for any products or materials procured by Contractor in advance.
   1. Payment request to include materials costs only; no labor is to be requested at this point.
   2. Proof of purchase must be uploaded to Box for all purchased products and materials.
   3. Payment Application cannot be completed without an executed Contract.

C. Progress Payments can be requested every 30 days for work performed. Final Payment can be requested following Construction Complete and acceptance of all final Change Requests.
   1. If project is less than 30 days in duration, the 0-30 DAYS Payment Request can be made at Construction Complete.
   2. If project is greater than 180 days in duration, Payment Requests can be continued every 30 days in the same cadence.

D. The Lien Waivers required are Exhibit 1-4 attached to the MSA. Alternative, non-Starbucks Lien Waivers will not be accepted. The following are requirements for Lien Waiver submittal:
   1. Lien waivers are to be submitted by GC in accordance with above Payment Schedules.
   2. GCs are required to provide a conditional lien waiver with each Progress Payment and an unconditional lien waiver at Final Payment.
   3. Lien waivers are required from all Subcontractors with Payment Request. If the Subcontractor is receiving their final payment, an unconditional lien waiver is to be provided, otherwise provide a conditional lien waiver.
   4. Lien waivers are to be notarized and provided electronically. Hard copy lien waivers are not required.
   5. Subcontractor lien waiver values are to match contract value provided in Subcontractor List.

E. Subcontractor List is to be provided on each project in accordance with the Project Authorization Form. As Subcontractors are added, removed, or have an approved change in contract value, an updated Subcontractor List is to be submitted with the subsequent Payment Application.

1.5 PROCEDURES FOR CHANGES IN SCOPE OF WORK

A. All changes in scope will require a Change Request to be submitted in Compass. These Change Requests must be accepted by Starbucks before Contractor can perform the work.

B. Contractor submits Rough Order of Magnitude (ROM) for the change in scope via Compass, documenting any change to the scope, contract sum and/or contract schedule, and may proceed with work once accepted.

C. Contractor revises Change Request with actual costs once available and submits for approval as soon as reasonably possible based on project lead discretion.

D. Starbucks Project Lead reviews the changes ensuring:
   1. Work description is as agreed and is not included in the original contract.
   2. Work is not the responsibility of a third party (e.g. Landlord). If the work is the responsibility of a third party, ensure the work is properly documented so that it may be submitted for reimbursement.
   3. Costs provided are acceptable.
   4. Appropriate detail and backup provided to support labor, materials, and overhead costs.
   5. Overhead and profit percentages are per contract.
   6. Appropriate ‘reason code’ and impact are used to define the reason for change.

E. Once the change has been approved by Starbucks, a revised Contract will be issued.

F. Payment for all approved changes will be released via the same process as the Progress Payments

1.6 SUBSTANTIATING DATA

A. When Starbucks requires substantiating information, submit data justifying line item amounts in question.

B. Provide data with cover letter. Show Application number and date, and line item by number and description.

1.7 FINAL PAYMENT PROCEDURES

A. Once the Contractor has completed the project in accordance with contract documents, all held retainage of the contract sum will be released to the Contractor.

B. Prior to releasing the Final Application and Certificate for Payment Owner must receive all documents on the RCDC and the Punchlist must be complete.

C. Contractor submits request for Final Payment in Compass.

D. Contractor submits all required documents per the RCDC.

E. After Starbucks validates that the Punchlist is complete and that all required documents have been received, the Final Payment will be released.

F. Final Payment will be released via the same process as the Progress Payments.

PART 2 - PRODUCTS

A. Not Used.

PART 3 - EXECUTION

A. Not Used.

END OF SECTION

012901 SUBCONTRACTOR LIST

Starbucks July 2021

STORE NAME:
CPN:

Subcontractor List

Trade	Subcontractor	Contact	Email	Phone Number	Diversity Certifications							Subcontractor Contract Details		
					Minority	Women	Veteran	LGBTQ	Disability	Small Business	N/A	Original Contract Amount	Change Order Amount	Revised Contract Amount
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Total Subcontractor Contract Amount:												$ -	$ -	$ -

SECTION 013113 - PROJECT COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. General coordination provisions.
   2. Requirements for coordination of space.
   3. Use of coordination drawings.

B. This Section applies to all Technical Specification Sections, and supplements the General and Supplementary Conditions.

1.2 GENERAL COORDINATION PROVISIONS

A. Coordinate work of various specification sections to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.

B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of work. Promptly advise Construction Representative of any error, inconsistency, omission, or apparent discrepancy discovered.

C. Allot time in construction scheduling for liaison with Construction Representative and Architect. Establish procedures for handling queries and clarifications. Use Contractor's standard "Request for Interpretation" form to initiate clarifications. Allow sufficient time in construction schedule for Architect's response to the request.

D. In addition to meetings specified in Section 013119, hold coordination meetings and conferences with personnel and subcontractors to assure coordination of the work.

E. Coordinate scheduling, submittals, and work of various specification sections to ensure efficient and orderly sequence of installation of independent construction elements.

F. Verify that characteristics of operating equipment are compatible with building utilities and services.

G. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate work of various specification sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

H. In finished areas, except as otherwise indicated, conceal pipes, conduit and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

I. Execute cutting and patching to integrate elements of work, uncover ill-timed, defective, and non-conforming work, provide openings for penetrations of existing surfaces, and provide samples for testing. Seal penetrations through floors, walls, and ceilings.

1.3 COORDINATION OF SPACE

A. The Contractor shall be responsible for coordinating the actual layout of plumbing, fire protection, HVAC, electrical, and other similar elements, as necessary to avoid interference, maintain the configurations of architectural elements, maintain minimum ceiling and clearance heights as required by code, and accommodate existing obstructions which are to remain.

B. Layouts shown on the Drawings are diagrammatic. Follow routings shown for pipes, ducts, and conduit as closely as practical. Where routing changes are required in exposed locations within public spaces, or will affect architectural elements, verify modifications with the Construction Representative prior to proceeding.

C. Develop coordination drawings, and other preinstallation coordination methods as necessary to coordinate layouts prior to installation. Coordination drawings shall be based on the approved structural steel framing shop drawings, and shall consist of overlay drawings, or other similar methods to graphically indicate plumbing, fire protection, HVAC, electrical, and other similar elements in a single location in order to identify conflicts.

D. Where coordination drawings, or other preinstallation coordination methods show that available space is inadequate or that modifications will affect architectural elements, request information from the Construction Representative before proceeding with work. No additional payment will be made for installation conflicts which could have been identified by coordination drawings or other preinstallation coordination methods.

E. Provide clear access to control points, clean-outs, valves, strainers, control devices, and specialty items of every nature to such systems and equipment to obtain maximum head room. Provide adequate clearances as necessary for operation and maintenance.

F. Make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

PART 2 - PRODUCTS

A. Not Used.

PART 3 - EXECUTION

A. Not Used.

END OF SECTION

SECTION 013119 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Contractor participation in pre-construction conferences.
   2. Contractor administration of progress meetings and pre-installation conferences.

B. This Section applies to all Technical Specification Sections, and supplements the General and Supplemental Conditions.

1.2 GENERAL MEETING REQUIREMENTS

A. Make physical arrangements for meetings; notify participants, prepare agenda with copies for each attendee.

B. Take meeting minutes, and distribute copies within 2 days to the Construction Manager~~, Architect,~~ and all attendees. Distribute copies to other parties as appropriate.

C. All representatives attending meetings shall be authorized to act on behalf of the entity each represents.

1.3 PRECONSTRUCTION CONFERENCES

A. The Construction Manager will administer pre-construction conference for execution of Owner-Contractor Agreement, or Licensed Store Services Supplement, and exchange of preliminary submittals.

B. The Construction Manager will administer site mobilization conference at Project site for clarification of Owner and Contractor responsibilities in use of site and for review of administrative procedures.

1.4 PROGRESS MEETINGS

A. Schedule and administer progress meetings throughout the Work at interval determined by Owner's Construction Manager.

B. Attendance: Job superintendent, major subcontractors and suppliers, Construction Manager, and others as appropriate to the meeting agenda.

C. Suggested Agenda:
   1. Review of Work progress.
   2. Status of progress schedule and adjustments.
   3. Delivery schedules.
   4. Submittals.
   5. Maintenance of quality standards.
   6. Pending changes and substitutions
   7. Status of sustainable practices.
   8. Other items affecting progress of Work.

1.5 PRE-INSTALLATION CONFERENCES

A. Where required in a specification Section, schedule and administer a pre-installation conference prior to commencing work of the Section.

B. Unless otherwise required, notify the Construction Manager a minimum of 7 calendar days prior to each scheduled meeting.

C. Require the attendance of entities directly affecting, or affected by, the work of the Section.

D. Review conditions of installation, preparation and installation procedures, and coordination with related work.

END OF SECTION

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Preconstruction photographs.
   2. Periodic construction photographs.
   3. Final Completion Photographs

B. Related Requirements:
   1. 013300 - Submittal Procedures
   2. 017700 - Closeout Procedures: Submitting photographic documentation as Project Record Documents at Project closeout.

1.2 SUBMITTALS

A. Digital Photographs: Submit unaltered, original, full-size image files.
   1. Digital Camera: Minimum sensor resolution of 8 megapixels.
   2. Identification: Provide the following information with each image description in file metadata tag:
      a. Name of Project including Store Number. Use Capital Project Number if Store Number is not yet determined.
      b. Name and contact information for photographer.
      c. Date photograph was taken.
      d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
   3. Number and name photos to clearly describe what is being communicated with the photo. Photos with only generic camera-generated names will not be accepted.
   4. Format: Upload in digital compressed format to appropriate Box folder. Inform Construction Manager by email of submittal.

1.3 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, with minimum size of 8 megapixels. Do not submit photos as PDFs.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
   1. Date and Time: Include date and time in file name for each image.
   2. Store Number: Include Store Number in file name for each image. Use Capital Project Number if Store Number is not yet determined.
   3. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Construction Representative.

C. If photos need to be marked up, manipulated or otherwise modified in order to communicate a particular concern or area of interest, photo should be duplicated and unaltered photo should be accompanied with similar file name for identification.

D. Periodic Construction Photographs: Take (minimum) 20 color photographs weekly, with timing adjusted to coincide with the progress meetings specified in Section 013119. Select vantage points to show status of construction and progress since last photographs were taken. Ensure photos are taken both in general of entire space at maximum range of field as well as close ups of specific work completed.

E. Take photographs at completion of framing, re-bar tie in, under slab work and service rough in. Provide photos with ample time in advance of concealment for consultant comment. Take additional photos at completion of each distinct phase of construction.

F. Final Completion Construction Photographs: Take minimum 20 color photographs after date of Substantial Completion for submission as Project Record Documents. Construction Representative will inform photographer of desired vantage points.

G. Additional Photographs: Construction Representative may request photographs in addition to periodic photographs specified.
   1. Three days' notice will be given, where feasible.
   2. Circumstances that could require additional photographs include, but are not limited to, the following:
      a. Immediate follow-up when on-site events result in construction damage or losses.
      b. Photographs to be taken at fabrication locations away from Project site.
      c. Substantial Completion of a major phase or component of the Work.
      d. Extra record photographs at time of final acceptance.
      e. Receipt of damaged products upon delivery prior to unpacking or removal from carton/crate.

END OF SECTION

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Submittal form requirements.
   2. Submittal schedule.
   3. Contractor responsibilities.
   4. Requirements for each type of submittal.

B. Related Sections:
   1. 007200 - General Conditions of the Contract: Additional submittal requirements.
   2. 013546 - Sustainable Design Requirements: Sustainability submittals.
   3. 016000 - Product Requirements: Substitution submittals.
   4. 017700 - Closeout Procedures: Closeout submittals.

C. This Section applies to all Technical Specification Sections, and supplements the General and Supplementary Conditions.

1.2 SUBMITTAL FORM REQUIREMENTS

A. Provide the following, as applicable, on each submittal:
   1. The Project name and number.
   2. Present and Previous submittal dates.
   3. Contractor’s submittal number.
   4. Subcontract identification.
   5. The names of:
      a. Contractor.
      b. Supplier.
      c. Manufacturer.
   6. Identification of revisions on resubmittals.
   7. For each product, reference corresponding specification section and paragraph number.
   8. A 3 x 2 inch (75 x 25 mm) blank space for Contractor and Architect stamps.

B. Deliver submittals to the Construction Manager. Include name of contact person identified at the time of Agreement.

C. Transmit submittals under AIA form G810 or similar.

D. Submittals in graphic form shall be clear readable copies with Contractor's original or digital stamp. Submittal by email is preferred, unless jurisdiction requires hard copies.

1.3 SUBMITTAL SCHEDULE

A. Make submittals to the Construction Manager as required, causing no delay in the work.

B. Allow a minimum of 3 working days from receipt, for the Construction Manager to review each submittal. Allow additional time for large and complex submittals representing major portions of the Work, such as fire protection, HVAC Equipment, Plumbing fixtures, structural steel, or curtain wall.

C. Schedule submittals to allow sufficient time for possible revision and resubmittal of the rejected submittals, without affecting the construction schedule.

D. Make the following submittals to the Construction Manager prior to starting construction and within 10 working days of the Notice to Proceed:
   1. Certificates of insurance.
   2. List of subcontractors and suppliers.
   3. Construction schedule.
   4. Submittal log/schedule.
   5. Products list.

E. Submit Schedule of Values prior to first application for payment.

1.4 GENERAL REQUIREMENTS FOR SUBMITTALS

A. Make submittals to the Construction Manager of (3) copies, if in hard copy, unless otherwise directed.

B. Review submittals prior to submittal to the Construction Manager. Verify specified requirements for products, field measurements, and field construction requirements. All options, features and accessories must be checked or indicated. Starbucks Design ID (DIDs) numbers must be indicted on top right-hand corner of the first page.

C. Stamp and sign each submittal as certification that the submittal has been reviewed by the Contractor. Submittals not stamped and signed by the Contractor will be returned by the Construction Manager without review for resubmittal.

D. Notify the Construction Manager in writing, at time of submission, of all deviations in the submittals from requirements of the Contract Documents.

E. Incorporation of substitutions into submittals will be considered cause for rejection of the submittal.

F. Make additional copies of approved submittals as necessary to implement the Work.

G. Review and approval of a submittal by the either the Construction Manager or the Architect shall not relieve the Contractor from responsibility for the proper fitting, finishing, quantities, and erection of the work in strict accordance with the Contract requirements.

H. Review and approval of a submittal by the Construction Manager or the Architect shall not relieve the Contractor from the responsibility for providing work not indicated on the submittal, but otherwise required for the completion of the work.

I. Do not fabricate or erect work prior to approval of the submittals.

J. Should discrepancies become evident, immediately notify Construction Manager for resolution before proceeding with shop work.

K. Submittals will be reviewed by the Construction Manager or Architect for conformance to the design concept, only. This review of vendor designed items shall not relieve the Contractor of responsibility for compliance with specified performance requirements.

L. If the Contractor fails to review Shop Drawings, Product Data, or Samples to determine their responsiveness to the Contract Documents, or fails to substantially respond to Architect's review comments prior to resubmittal, or if the Contractor makes submittals which substantially alter the Contract Documents, the Contractor shall reimburse the Owner for the charges of the Architect for extra services required to review such submittals.

1.5 CONSTRUCTION SCHEDULE

A. Prepare schedule in the form of a network planning system (CPM) for scheduling and controlling the work. Note the critical path.

B. Show commencement and completion dates proposed for each subdivision of work.

C. Allow for sufficient time for necessary inspections and field reviews by AHJ and Consultants as needed. If re-inspections are required by either AHJ or Consultant(s), Contractor shall reimburse Owner for any delays in store opening or rescheduling of vendors.

D. Update and submit weekly. Indicate actual start and completion of all completed activities. Graphically indicate changes from previously issued schedule.

E. Incorporate remedial construction into schedule when remedial work is required.

F. Show submittal dates required for shop drawings, product data, and samples, and product delivery dates, including those furnished by Owner.

G. Coordinate with the Owner's schedule, showing all Contract activities to be performed by the Owner including their start, duration, completion, float and critical path.

1.6 SUBMITTAL LOG/SCHEDULE

A. List each type of submittal, and the date that the submittal will be made. Indicate Owner ~~Architect~~ review time proposed.

1.7 PRODUCTS LIST

A. Complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

1.8 SCHEDULE OF VALUES

A. Submit Schedule of Values prior to first Application for payment.

B. Submit schedule on AIA Form G703 or similar. Contractor's standard form or media-driven printout will be considered on request.

C. Format: Table of Contents of this Project Manual. Identify each line item with number and title of the major Specification Sections.

D. Include in each line item a directly proportional amount of Contractor's overhead and profit.

E. Revise schedule to list change orders, for each application for payment.

1.9 SHOP DRAWINGS

A. Submit Shop Drawings required by individual Sections of the Specifications, and as otherwise required for proper performance of the work.

B. Illustrate fully the requirements of the Specifications and the Contract Drawings, and accurately show quantities, Owner specified Design IDs (DIDs), kinds of materials, all accessories, options and functions, methods of assembly, and all data required for fabrication, erection, and installation.

C. Show the relationship of adjoining work, relevant field conditions and dimensions; coordinate with affected subcontractors and suppliers if in conflict. Where specific items such as field dimensions, clearances, adjacent construction, mounting configurations, access requirements, structural calculations, etc. are required by the technical specification Sections, failure to provide such information on the shop drawings may be cause for rejection without review.

D. Submit to the Construction Manager one electronic copy for review.

E. Shop drawings will be reviewed for conformance to the design concept, only.

F. The Construction Manager will return an electronic copy to Contractor with corrections, notations and reviews stamp indicating action to be taken.

G. In the case of rejected Shop Drawings, the Construction Manager will return the electronic copy to the Contractor for his use in the preparation of revised drawings for resubmittal.

H. Should discrepancies become evident, immediately notify Construction Manager for resolution before proceeding with shop work.

I. CADD generated drawings may be obtained from the Owner only for use in preparation of shop drawings for this Project.
   1. Release of CADD information will be restricted to the following categories:
      a. Architectural floor plans.
      b. RCP’s.
      c. Casework drawings.
      d. MEP’s.
   2. The CADD drawings will contain only the background information; reference symbols, and other similar data will not be included.
   3. The CADD files are generated on PC hardware with REVIT software. Architect and Owner have the capability to develop CADD output of the following file formats:
      a. AutoCAD (.dwg)
      b. Drawing Interchange Format (.dxf)
      c. Revit (.rvt)

4. When requesting CADD drawings, specify the output form required and the specific sheets required.
5. Request documents by submitting an executed copy of the Architect's or Engineer's "Agreement Concerning Use of Electronic Media" or similar when applicable. Example of the form is bound in this manual following this Section. Use of such documents implies Contractor's and subcontractors' agreement to the terms described on the form. Fully describe requirements for each request.
6. CADD exchange shall only occur one time and will include the specific sheet numbers requested by the Contractor at the time of the request.
7. Contractor shall maintain a log of requests and shall submit the final log for review at Project Closeout.

1.10 PRODUCT DATA

A. Mark each copy to identify applicable products, models, options, and other data. Include manufacturer's printed installation instructions.

B. Number of copies: One electronic copy. The Construction Manager will return an electronic copy to Contractor with corrections, notations and review stamp indicating action to be taken.

C. Modify product data and installation instructions to delete information which is not applicable to the work.

D. Supplement standard information to provide information specifically applicable to the work.

1.11 SAMPLES

A. Submit samples as specified in the technical Sections.

B. Include identification on each sample, giving full information.

C. Submit the number of samples specified in the technical Sections. Where quantity is not specified, submit 3 samples. One will be retained by the Construction Manager.

D. Unless specified otherwise, submit full range of manufacturers' standard colors, textures, and patterns for Owner's selection.

E. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes general requirements and procedures for compliance with air quality management and construction practices on new store and major renovation projects:
   1. Description of the Construction Indoor Air Quality (IAQ) Management Plan
   2. IAQ Construction Requirements to meet the sustainability requirements for the Project.

B. Related sections:
   1. 013300 – Submittals
   2. 013546 – Sustainable Design Requirements: Sustainable practices requirements.

C. Construction Indoor Air Quality Requirements:
   1. The Owner has set indoor air quality goals for job site operations on project, within the limits of the construction schedule, contract sum, and available materials, equipment, products and services. These goals include:
      a. Protect workers on the site from undue health risks during construction.
      b. Install low-VOC materials as specified in Part 2 – Products.
      c. Prevent residual problems with indoor air quality in the completed building.

D. This Section applies to all Technical Specification Sections, and supplements the General and Supplementary Conditions.

E. Substitutions: Substitutions will be considered only under the terms and conditions of Section 016000.

1.2 REFERENCES

A. Sheet Metal and Air Conditioning National Contractors Association (SMACNA)*:*
   ~~1.~~ IAQ Guideline for Occupied Buildings Under Construction, current edition.

B. ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality (Canada)

1.3 SUSTAINABILITY SUBMITTALS

A. Submit the following in accordance with Section 013300 – Submittals.

B. Indoor Air Quality Management Plan:
   1. Develop and submit a written construction indoor air quality management plan to meet the sustainability goals of the Project.
   2. Submit within fourteen days after receipt of Notice to Proceed and prior to beginning any work on the site.
   3. The IAQ management plan shall comply with the five requirements of SMACNA *IAQ Guideline for Occupied Buildings under Construction*, current edition ~~1995, Chapter 3~~: HVAC protection, source control, pathway interruption, housekeeping, and scheduling and shall include:
      a. List of IAQ protective measures to be instituted on the site:
         1) HVAC system protection during construction.
         2) Source control through specification and installation of low-toxic or non-toxic materials.
         3) Pathway interruption to isolate work areas where emitting materials are being installed.
         4) Housekeeping to protect materials that are stored before installation and to avoid spreading contamination through the Project.
         5) Sequencing installation of materials to avoid contaminating absorptive materials during construction.
      b. Schedule for inspection and maintenance of IAQ measures.

C. IAQ Documentation: Provide form declaring that the requirements of IAQ Plan have been met. See Section 013546 for these submittal requirements.

PART 2 - PRODUCTS

2.1 MATERIALS AND PRODUCTS

A. Low emitting products have been specified in appropriate sections.

B. If air handlers must be used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grille.

PART 3 - EXECUTION

3.1 ALL PHASES

A. Meet or exceed the minimum requirements of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings Under Construction, ~~1995,~~ as applicable to new buildings. As a minimum, this means:
   1. Protect the ventilation system components from contamination:
      a. Store HVAC equipment in a clean, dry location.
      b. Seal all HVAC inlets and outlets.
      c. Seal HVAC components during installation.
      d. Use a temporary ventilation system during construction.
      e. Use temporary filtration media.
         1) Filtration media shall have a Minimum Efficiency Reporting Value [MERV] of 8 on any return air systems operational during construction.
         2) Replace all filtration media immediately prior to occupancy.
      f. Clean air plenums before closing them in.
      g. Inspect filters regularly.
   2. Provide pollution source control:
      a. Protect on-site stored and installed absorptive materials (such as insulation, drywall, and wood) from moisture damage and from contamination by construction dust, debris, and fumes during all phases of construction, both before and after installation.
      b. Do not install moisture-damaged materials.
      c. Ensure that construction detailing will not result in moisture intrusion.
      d. Use low-emitting products (specified in appropriate sections).
      e. Provide strategies to avoid tracking pollutants into the work areas (such as walk-off mats).
      f. Allow high-VOC materials to off-gas prior to installation. For example, all dry furnishing and materials (such as carpet, floor tile, acoustical tile, textiles, office furniture, wood shelving, etc.) shall be allowed to “air-out” in clean environments prior to installation in a building.
      g. Use the least amount of "wet" materials (such as adhesives, sealants, glazes, caulks, paints, etc.) during construction and product applications while still maintaining installation protocol required to meeting for manufacturer’s warrantee requirements.
      h. Cut and fabricate materials outside whenever possible.
      i. Use electric tools with vacuum-assist, rather than gas-powered tools.
   3. Provide interruption of pollutant pathways.~~:~~
   4. Use an air barrier or pressure differential to isolate areas at different stages of completion.
   5. Practice healthy housekeeping.
      a. Minimize accumulation of dust and other contaminants.
      b. Confine dust-generating activities.
      c. Suppress dust.
         1) Use wet sanding for gypsum board assemblies. Exception: Dry sanding allowed subject to Construction Representative approval of the following measures:
            a) Full isolation of space under finishing
            b) Plastic protection sheeting is installed to provide air sealing during the sanding
            c) Closure of all air system devices and ductwork
            d) Sequencing of construction precludes the possibility of contamination of other spaces with gypsum dust
            e) Worker protection is provided
      d. Clean up dust.
      e. Clean up spills.

f. Keep work area dry.
g. Seal containers of volatile liquids.

6. Schedule construction activities to reduce exposure to VOCs.
   a. Install porous materials only after closing in the building.
   b. Account for curing time and off-gassing when scheduling construction activities.
   c. Allow wet-spray cellulose to dry before covering.
   d. Install carpeting, acoustical panels, and furnishings after interior finishes have been allowed time to cure/dry in accordance with other good building practices.
   e. Provide adequate ventilation during curing period.
      1) Provide supplemental (spot) ventilation for at least 72 hours after work is completed. Preferred HVAC system operation uses supply air fans and ducts only; exhaust provided through windows. Use exhaust fans to pull exhaust air from deep interior locations. Stair towers and other paths to exterior can be useful during this process.

B. Use safety meetings, signage, and subcontractor agreements to communicate the goals of the construction indoor air quality management construction plan.

C. Conduct regular inspection and maintenance of indoor air quality measures including ventilation system protection, and ventilation rate.

D. Require VOC-safe masks for interior and exterior workers installing VOC-emitting products (products that contain 150 g/L or more VOCs).

E. Use low-toxic cleaning supplies for surfaces, equipment, and worker's personal use. Options include several soybean-based solvents and cleaning options and citrus-based cleaners. (SoySolv provides several soy-based solvents and cleaning options. Phone 1-800-231-4274 or www.soysolv.com.)

F. Smoking is prohibited inside the building once the building is closed in by any means or absorptive materials are located within the structure.

END OF SECTION

SECTION 014500 - QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. General requirements.
   2. Workmanship.
   3. Special installation procedures
   4. Manufacturer's instructions.
   5. Manufacturer's certificates.
   6. Mock-ups.
   7. Manufacturers' field services.
   8. Testing laboratory services.
   9. Contractor tests and inspections.

B. Related Sections:
   1. 011000 - Summary: Applicability of specified reference standards.
   2. 013300 - Submittal Procedures: Submittal of manufacturer's instructions.
   3. 017421 - Construction Waste Management And Disposal: Mock-Ups.

C. This Section applies to all Technical Specification Sections, and supplements the General and Supplemental Conditions.

1.2 GENERAL QUALITY CONTROL

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

1.3 WORKMANSHIP

A. Comply with industry standards, except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform work with persons qualified to produce workmanship of specified quality.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.4 SPECIAL INSTALLATION PROCEDURES

A. Make no attachment to structural concrete, steel members, or wood decking in the building in such a way as to overload or impair the structural integrity of the member.

B. Steel Decking:
   1. Where fastening into bottom of steel decking is required, fasten only into lower flutes.
   2. Do not use fasteners in steel deck which penetrate more than 1 inch (25mm).
   3. Do not use powder driven fasteners into steel roof deck. Where anchorage to structural framing members is impractical, supports for items such as suspended ceiling systems, ductwork, and aluminum conduit 1-1/2 inches (40mm) or less may be supported from steel roof decking by sheet metal screws, screwed into the bottom flute of the roof deck, and in sufficient quantity to adequately support the load. Equipment supports, hangers for mechanical piping and other items requiring more than incidental support, shall not be secured to the roof decking.

1.5 MANUFACTURERS' INSTRUCTIONS

A. Unless specified otherwise, comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Construction Manager before proceeding.

1.6 MANUFACTURERS' CERTIFICATES

A. When required by individual Specifications Section, submit, in duplicate, manufacturer's certification that products meet or exceed specified requirements.

1.7 MOCK-UPS

A. Provide mock-ups as specified in the individual specification sections. When the initial mock-up is unacceptable to the Construction Manager, provide additional mock-ups until approval is obtained.

B. Unless specified or approved otherwise, schedule mock-ups for completion a minimum of 10 working days prior to actual commencement of the work represented by the mock-up.

C. Notify the Construction Manager a minimum of 5 working days prior to mock-up.

D. For each mock-up, provide conditions which will replicate the conditions of the actual installation, including lighting, to the greatest reasonable extent.

E. Approved mock-up shall be the standard of workmanship and materials for the remainder of the related work.

F. Contractor may proceed with the work upon Construction Manager's approval of the mock-up

G. Obtain Construction Manager’s written approval for each mock-up.
   1. Allow access to the mock-up for Construction Manager’s review and for review by manufacturer and trade representatives as the Construction Manager deems appropriate.
   2. Proceed with the work upon Construction Manager's approval of the mock-up. Each approved mock-up shall represent the standard of workmanship and materials for the remainder of the related work.
   3. Modify and correct mock-up as necessary to obtain Construction Manager’s approval; allow time in construction schedule for adjustment or reconstruction of mock-up to obtain approval. Claims for delays due to unacceptable field samples will not be considered.

H. Maintain mock-up in approved condition, until directed otherwise.

I. Disposition of Mock-Ups:
   1. Rejected mock-ups shall be selectively demolished to accommodate new mock-ups, or completely removed as appropriate.
   2. Mock-ups constructed as part of the proposed work, and which have been approved by the Construction Manager, may be incorporated into the work.
   3. Unless specified or directed otherwise, approved mock-ups which are not incorporated into the work shall be removed upon project completion.

1.8 MANUFACTURERS' FIELD SERVICES

A. When specified, require product manufacturer to furnish qualified personnel to observe field conditions and quality of workmanship, and to provide recommendations, certifications, and other specified services.

B. Representative shall submit written report to Construction Manager listing observations and recommendations.

1.9 TESTING LABORATORY SERVICES

A. The Construction Manager will arrange for the services of an Independent Testing Laboratory to inspect and test the Work in accordance with regulatory requirements and to verify compliance with the contract documents.

B. Contractor's Responsibilities:
   1. Cooperate with Testing Laboratory personnel, and furnish access, tools, samples, certifications, test reports, design mixes, equipment, storage, and assistance as requested by the Testing Laboratory.
   2. Notify Construction Manager and Testing Laboratory 48 hours prior to expected time for operations requiring inspection and testing. When tests or inspections cannot be performed, through the fault of the Contractor, reimburse the Owner for the additional costs incurred.
   3. Remove and replace all work found not complying with the Contract Documents. Remedies shall be in accordance with the Contract Documents and code requirements.
   4. If initial tests and inspections indicate deficient work, the Contractor shall reimburse the Owner for the costs of all subsequent tests and inspections related to the deficiency.

5. All damage which may occur to the work as a result of normal testing operations shall be repaired to match surrounding surfaces.
6. Schedule testing and inspection so that the work of testing and inspection personnel will be as continuous and brief as possible.
7. Reimburse the Owner for travel and lodging expenses incurred for testing and inspection services performed outside a radius of 100 miles of the site.

C. The Owner may have the tests and inspections performed as listed below:
1. Water testing.
2. HVAC balancing and controls.

D. Tests and inspections shall be in accordance with code requirements and as otherwise required to verify conformance to Contract requirements.

1.10 CONTRACTOR TESTS AND INSPECTIONS

A. Contractor's Convenience Testing: Inspection and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. General requirements.
2. Electricity, lighting.
3. Heat, ventilation, cooling.
4. Telephone service.
5. Water.
6. Sanitary facilities.
7. Barriers.
8. Closures.
9. Protection of installed work.
10. Security.
11. Safety.
12. Site water control.
13. Cleaning during construction.
14. Project identification.
15. Contractor designated areas.
16. Removal.

B. Related Sections:
1. 011000 - Summary: Work sequence. Contractor use of premises.
2. 013544 - Construction Indoor Air Quality Management: Indoor air quality management plan and post construction flush-out.
3. 013546 – Sustainable Design Requirements: Sustainability requirements.
4. 017421 – Construction Waste Management and Disposal: Construction waste management plan.
5. 017700 - Closeout Procedures: Final cleaning.

C. This Section applies to all Technical Specification Sections, and supplements the General and Supplemental Conditions.

1.2 GENERAL REQUIREMENTS

A. Temporary facilities and controls shall conform to the requirements of the jurisdictional code authorities.

1.3 ELECTRICITY, LIGHTING

A. Use existing power and lighting to the greatest practical extent. When approved by the Construction Representative, provide service required for construction operations, with branch wiring and distribution boxes located as necessary for additional service and lighting

B. Provide additional temporary lighting for construction operations.

C. Repair all existing lighting and power equipment, when damaged due to construction operations.

D. The Owner will pay for power used. Take measures to conserve energy.

1.4 HEAT, VENTILATION

A. Existing heating and ventilation systems may be used. Coordinate use of existing systems with the Construction Representative. Extend existing systems and provide additional temporary units as required to maintain specified conditions for construction operations, and to protect materials and finishes from damage due to temperature or humidity.

B. Owner will pay costs of energy used. Take measures to conserve energy.

C. Provide temporary ventilation of enclosed areas to cure materials, disperse humidity, and prevent accumulations of dust, fumes, vapors, or gases.

D. Provide maintenance and repair of existing systems damaged by construction operations.

E. Clean or replace all HVAC system filters in compliance with Section 013544 immediately prior to Substantial Completion.

1.5 WATER

A. Use existing water outlets to the greatest extent possible. Extend branch piping with outlets only as approved by the Construction Representative.

1.6 SANITARY FACILITIES

A. Designated existing facilities may be used during construction operations only as approved by the Construction Representative. Maintain in sanitary condition. Provide daily cleaning as necessary to accommodate public use. Coordinate with Construction Representative cleaning operations.

1.7 BARRIERS

A. Provide as required to prevent public entry to construction areas to provide for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks. Construction: Commercial grade chain link fence.

C. Provide barricades and covered walkways as required by governing authorities for public rights-of-way and for public access to existing building.

D. Provide barriers around trees and plants designated to remain. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.

E. Provide barricades around openings in floors and roof decks.

1.8 CLOSURES

A. Interior Closures:
   1. Provide temporary closures to prevent penetration of dust and moisture into occupied areas separate from work areas, damage to operating systems and components, and to create environmental conditions necessary for the proper installation of materials and systems.
   2. Construction: Framing and sheet materials with closed joints and sealed edges at intersections with existing surfaces; STC rating 35 in accordance with ASTM E90; Flame Spread Rating of 25 in accordance with ASTM E84 in US and exclusively Can/ULC-S102 in Canada; paint surfaces exposed to view from Owner occupied areas.
   3. Conform to Construction Indoor Air Quality Management requirements specified in Section 013544.

B. Installed construction which has been damaged due to lack of protection shall be replaced or restored to original or new condition. This includes construction required to be protected under Construction Indoor Air Quality Management requirements specified in Section 013544.

C. Pay all costs to replace tenant construction and property, including food products and merchandise, damaged due to lack of proper protection.

D. Provide enclosures as necessary to maintain the requirements of the Health Department in food service areas.

1.9 PROTECTION OF INSTALLED WORK

A. Provide temporary protection for installed work, including protection from impact, water, dust contamination, overspray, and similar damage. Conform to Construction Indoor Air Quality Management requirements specified in Section 013544.

B. Secure temporary protections as necessary to prevent blow off during inclement weather.

C. Provide protective coverings at exposed exterior walls and horizontal surfaces, projections, and window and door openings.

D. Protect finished surfaces from damage caused by traffic, movement of heavy objects, and storage of materials. Where necessary, control traffic in immediate area as necessary to minimize the risk of impact damage.

E. Prohibit traffic and storage on waterproofed and roofed surfaces, on lawn and landscaped areas.

F. Installed construction which has been damaged due to lack of protection shall be replaced or restored to original or new condition.

1.10 SECURITY

A. Provide security program and facilities to protect Work, materials stored off-site, existing facilities, and Owner's operations from unauthorized entry, vandalism, and theft. Coordinate with Owner's security program.

1.11 SAFETY

A. Furnish safety program and facilities to protect the safety of workers and other persons affected by the Work.

1.12 TEMPORARY CONTROLS

A. Fire Sprinkler Supervision/Control:
   1. If existing building is sprinklered, sprinklers shall remain in use during construction. When sprinkler system is not in use, provide 24-hour fire watch.
   2. Prior to the time of installation of finish materials such as carpet, wall panels, delivery of case work to the site, and other similar conditions, provide temporary tamper and water flow supervision monitoring of the fire sprinkler system.
   3. System shall be monitored, via temporary telephone lines, by a UL or ULC listed central station. Contractor shall be responsible to make arrangements for monitoring the system.
   4. Perform temporary monitoring up to time of building acceptance by the Owner, or building turn-over, whichever is later.

B. Dust Control:
   1. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent airborne dust from dispersing into the atmosphere.
   2. *Protect existing diffusers from construction debris.*
   3. Provide temporary dust-proof partitions to protect public areas, occupied spaces, and adjacent mall areas.

C. Water Control:
   1. Comply with applicable jurisdictional requirements regarding water usage, conservation, detention, pollution, and permits.
   2. Provide methods to control surface water to prevent damage to the Project, the site, or adjoining properties.
   3. Control fill, grading and ditching to direct surface drainage away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff.
   4. Provide, operate and maintain pumping equipment of adequate capacity to control surface water, including water accumulated during excavation operations, below grade.
   5. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

D. Construction Waste Control:
   1. Maintain all areas under Contractor's control free of debris.
   2. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas, or along access roads and haul routes.
   3. Schedule periodic collection and disposal of debris to a legal off-site location.
   4. Provide additional collections and disposals of debris whenever the periodic schedule is inadequate to prevent excessive accumulation.
   5. Clean interior areas prior to start of the finish work. Maintain the areas free of dust and other contaminants during finishing operations.

6. Construction Waste Management: In compliance with Section 017421.

E. Pollution Control: Provide methods, means and facilities required by law to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.

F. Noise Control:
1. Construction operations must be performed in accordance with local regulations, ordinances, and jurisdictional Code authorities.
2. Use of private radios and other similar portable sound equipment is prohibited.

G. Smoking, Eating, and Drinking: These activities shall be permitted only in designated locations selected by the Contractor; these activities are not permitted in interior spaces after carpeting and fixtures arrive on site.

1.13 CLEANING DURING CONSTRUCTION

A. Control accumulation of waste materials and rubbish on a daily basis, and dispose of off-site or in a designated container on site. Conform to Construction Waste Management and Disposal requirements specified in Section 017421.

B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

C. Remove excess debris from cavities which are to be concealed in the finished Work.

D. Clean the sanitary system to ensure it is not blocked by construction debris.

E. Work areas to remain accessible to the public shall have tools, materials, and construction debris removed, broom cleaned, and prepared to receive floor mopping or other cleaning performed by the Owner’s maintenance personnel.

F. Tenant spaces which have not been adequately protected from construction and demolition operations shall be cleaned and prepared for business immediately. Cleaning shall include, without limitation, vacuuming, dusting, stain and dirt removal, and cleaning of glass, countertops, and merchandise.

1.14 PROJECT IDENTIFICATION

A. Provide project signage only as allowed by Owner.

B. Allow no other signs to be displayed.

1.15 CONTRACTOR DESIGNATED AREAS

A. The Construction Representative will designate interior and exterior areas of the site in coordination with the Owner which will be available to the Contractor for staging and storage of materials. Exterior storage areas shall be enclosed by a construction chain link fence with a vision barrier.

B. The Construction Representative will designate areas of the Site for Contractor and employee parking in coordination with the Owner.

1.16 REMOVAL

A. Completely remove temporary materials and equipment when their use is no longer required. Conform to Construction Waste Management and Disposal requirements specified in Section 017421.

B. Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations to a depth of 2 feet (610 mm); grade site as indicated. Restore existing facilities used during construction to specified, or to original, condition.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Products.
   2. Transportation and handling.
   3. Storage and protection.
   4. General installation requirements.
   5. Product options.
   6. Substitutions.

B. Related Sections:
   1. 011000 - Summary: Owner-furnished products.
   2. 013546 - Sustainable Design Requirements
   3. 014500 - Quality Control: Submittal of manufacturers' certificates.
   4. 017700 - Closeout Procedures: Systems demonstration, operation and maintenance data, warranties and guarantees, spare parts and maintenance materials.

C. This Section applies to all Technical Specification Sections, and supplements the General and Supplementary Conditions.

1.2 PRODUCTS

A. Products include material, equipment, and systems.

B. Comply with size, make, type, and quality specified, unless otherwise approved in writing by the Construction Manager. Specifications and referenced standards are minimum requirements.

C. All components required to be supplied in quantity shall be identical, whether furnished under one or several Sections of the specifications.

D. Unless specified or indicated otherwise, materials employed for construction purposes, such as formwork, scaffolding, and temporary lighting, shall not be incorporated into the work.

E. Unless indicated or specified otherwise, all products incorporated into the Work shall be of the most suitable grade of their respective kinds for the intended use.

F. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

1.3 TRANSPORTATION AND HANDLING

A. Transport by methods to avoid product damage.

B. Deliver products in manufacturer's original containers or packaging, with identifying labels intact and legible. Where options exist, select container or packaging systems that can be recycled or reused.

C. Furnish equipment and personnel to handle products by methods to prevent soiling or damage.

D. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

E. Immediately replace non-conforming products with new conforming products, at no additional cost to the Owner.

1.4 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.

B. Store sensitive products in weather-tight enclosures. Maintain within temperature and humidity ranges required by manufacturer's instructions, and as otherwise required to prevent damage.

C. For exterior storage of fabricated products, place on sloped supports above ground. Protect from soiling or staining through ground contact. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

E. Arrange storage of products to furnish convenient access for inspection and inventory.

1.5 GENERAL INSTALLATION REQUIREMENTS

A. Unless indicated or specified otherwise, install each product in accordance with the product manufacturer's instructions.

B. Distribute copies of manufacturer's instructions to parties involved in the installation.

C. Maintain one set of complete instructions at the job site during installation and until completion.

1.6 PRODUCT OPTIONS

A. Product Specified by Reference Standards or by Description Only: Provide product meeting those standards.

B. Product Specified by Naming One or More Manufacturers with an "or approved" provision: Use specified product or submit a request for substitution in accordance with the specified substitution requirements. When approved a substitute product may be used.

C. Product Specified by Naming One or More Manufacturers, without a provisions for Substitution: No substitution will be allowed, except as specified under the Article on Substitutions.

1.7 SUBSTITUTIONS

A. Timing: Substitution requests will be considered by the Construction Manager until 10 working days prior to bid opening or 15 days after date of Owner-Contractor agreement, as established in Notice to Proceed, as pertinent to that phase of work for which the product substitution is proposed. Substitution requests received less than 10 days prior to bid opening will be considered at the Construction Manager’s option.

B. Subsequent substitutions will be considered only for the following reasons:
   1. A product becomes unavailable due to no fault of the Contractor.
   2. Subsequent information or changes indicate that the specified product will not perform as intended.
   3. A substitute product will be in the Owner's best interest.
   4. A substitute product will improve the likelihood of meeting the sustainability requirements for the Project

C. Substitution requests shall be submitted only through the General Contractor.

D. Documentation:
   1. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
   2. Indicate the reason for the substitution request per the list of reasons noted above.
   3. Requests for substitution shall be made on a form acceptable to the Construction Manager.
   4. Limit each request to one proposed product or system.
   5. For substitutions prior to Agreement, signature and projected cost data are not required.
   6. Submit product data and other supporting documentation necessary to verify that the proposed product meets the sustainability requirements for the Project.
   7. Submit Substitution Request to Construction Manager.

E. Request for substitution constitutes a representation that the proposer:
   1. Certifies that the proposed substitute item has been fully investigated and has been determined to be equal or superior to that specified in all respects.
   2. Certifies that the same or greater warranty will be furnished
   3. Certifies that required maintenance service and source for replacement parts are available
   4. Certifies that incorporation of the proposed substitute item will not affect functional clearances.

5. Warrants that coordination, installation, and changes to the project as necessary to accommodate the proposed substitution shall be the Contractor's responsibility, that use of the substitute item(s) will not delay project completion
6. Warrants that claims for additional costs related to its incorporation which may become subsequently apparent will be borne by the Contractor.
7. Has verified that the specified product will not adversely affect the Sustainability ~~LEED rating~~ requirements for the Project.

F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals.

G. Review: The Owner will be the judge of the acceptability of the proposed substitution; in the judgment of Owner the product shall meet the following criteria:
1. It is equal or superior in quality and serviceability to the specified product.
2. Its use will not entail unacceptable changes in details and construction of related work, nor negative impacts to construction schedule.
3. Its design and artistic effect complies with design concept.

H. The Construction Manager will review requests for substitutions with reasonable promptness, and request additional information, documentation, or samples, as necessary for evaluation of the request. Within two weeks of receipt of the completed request, the Construction Manager will take one of the following actions.
1. If the substitution is allowed by the Owner prior to the cutoff date, an Addendum to the Bid Documents will be issued by the Construction Manager.
2. If the substitution is allowed by the Owner after the cutoff date, the Construction Manager will notify the General Contractor and issue the appropriate Construction Change Authorization, Supplemental Instruction, or Proposal Request.
3. If the request for substitution is denied, the proposer will be notified of the rejection. If a decision on the substitution request cannot be made or obtained within the time allocated, use the specified product.

END OF SECTION

SECTION 017329 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Patching of existing construction.

B. Related Sections:
   1. 011000 - Summary: Cutting and patching to remove ill-timed, defective, or non-conforming work.
   2. 015000 - Temporary Facilities and Controls: Temporary enclosures, protection of installed work; cleaning during construction.
   3. 024119 - Selective Demolition: Removal and storage of products to be reinstalled.

C. Drawings, the provisions of the Agreement, including bonds and certificates, the General Conditions, and Division 1 specification sections apply to all work of this Section.

1.2 QUALITY ASSURANCE

A. Unless indicated otherwise, patching, extending, or matching shall be performed as necessary to make the Work complete, with all components matching and consistent.

B. Patching materials shall meet the requirements of the jurisdictional code authorities.

C. Major patching procedures shall be reviewed with the Construction Representative, prior to proceeding.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Patching Materials: Match the existing construction, unless approved otherwise.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that demolition is complete and that existing surfaces are ready for patching.

B. Coordinate installation of new materials with the patching and repair of existing construction.

C. Beginning of restoration work constitutes acceptance of existing conditions.

D. Determine type and quality of existing products by inspection or non-destructive testing. Destructive testing may be performed when approved by the Construction Representative. Patch all test locations.

3.2 PREPARATION

A. Cut, move, or remove items as necessary for access to alterations and renovations work; replace and restore at completion.

B. Contact the Construction Representative when unsuitable materials not marked for removal - such as rotted wood, rusted metals, and deteriorated concrete and masonry are discovered.

C. Provide additional construction and materials as required to support patching.

D. Remove debris and abandoned items from area and from concealed spaces.

E. Prepare surfaces and remove surface finishes to provide for proper installation of new work and new finishes.

3.3 PATCHING

A. Patch and refinish existing surfaces which are damaged, lifted, discolored, missing, or showing other localized imperfections directly or indirectly caused by work under this contract. Patched work shall match existing adjacent work in texture and appearance.

B. When existing finish cannot be matched, refinish entire surface to nearest intersections. Finish patches to produce uniform finish and texture over entire area.

C. Provide a neat and smooth transition to new construction. Where finished surfaces are cut so that smooth transition to new work is not possible, terminate existing surface along a straight line at a natural line of division. Review condition with the Construction Representative.

D. Trim existing doors as necessary to clear new floor finishes; refinish trimmed areas.

E. Where existing items are indicated as cut or reconfigured, cap and finish all exposed edges to match the existing construction to remain. Provide new or relocated supports spaced to be consistent with the installation.

F. Existing Sprayed Fireproofing: Patch and repair existing sprayed fireproofing to match the fire rating of the existing construction. Hand patch using UL or ULC-approved materials and procedures.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Construction waste management requirements.

B. Incorporate the work of this section into the Project when the construction waste handlers in the Project area have sufficient capability to implement the specified requirements for the Project. Confirm construction waste management goals with the Construction Manager.

C. Related Sections:
   1. 015000 – Temporary Facilities and Controls.

D. This Section applies to all Technical Specification Sections, and supplements the General and Supplementary Conditions.

1.2 DEFINITIONS

A. Commingled or Off-site Separation: Collecting all material types into a single bin or mixed collection system and separating the waste materials into recyclable material types in an off-site facility.

B. Construction, Demolition and Land Clearing Waste (CDL): For purpose of this section, includes all non-hazardous solid wastes such as building materials, packaging, rubbish, debris and rubble resulting from construction, remodeling, alterations, repair, deconstruction, demolition and land clearing.

C. Deconstruction: The process of removing existing building materials from renovation and demolition projects for the purposes of reuse, and recycling, in as efficient and safe manner as possible.

D. Hazardous Waste: As defined by the state where the Project is located.

E. Proper Disposal: As defined by the jurisdiction receiving the waste.

F. Recyclable Materials: Products and materials that can be recovered and remanufactured into new products.

G. Recycling: The process of sorting, cleaning, treating and reconstituting materials for the purpose of using the material in the manufacture of a new product. Can be conducted on site (as in the grinding of concrete for reuse on site).

H. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of a new product. Recycling facilities have their own specifications for accepting materials.

I. Salvage and Reuse: Existing usable product or material that can be saved and reused in some manner on the project site. Materials that can be salvaged and reused on site must comply with the applicable technical specifications.

J. Salvage for Resale: Existing usable product or material that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.

K. Source-Separated Materials: Materials that are sorted at the site for the purpose of reuse or recycling.

L. Sources Separation: Sorting the recovered materials into specific material types with no or a minimum amount of contamination on site.

M. Time-Based Separation: Collecting waste during each phase of construction or deconstruction that results in primarily one major type of recovered material. The material is removed before it becomes mixed with the material from the next phase of construction.

N. Trash: Product or material unable to be salvaged for resale, salvaged and reused, returned, or recycled.

O. Waste: Excess materials generated by the construction and demolition operations of the Project that are produced on site or brought to the site. Waste includes, without limitation, packaging materials

such as banding, crates, pallets, plastic film, polystyrene, and cardboard. Waste does not include excavated soils, rocks, vegetation, and hazardous waste removed from the site.

1.3 WASTE MANAGEMENT REQUIREMENTS

A. Minimize the creation of construction and demolition waste on the job site. Minimize factors that contribute to waste, such as excess packaging, improper storage, ordering errors, poor planning, breakage, mishandling, and unnecessary contamination.

B. The following waste materials may be diverted from landfill to the greatest extent possible to meet the specified requirements:
   1. Clean dimensional wood, pallet wood, plywood, OSB, and particleboard
   2. Concrete
   3. Ferrous and non-ferrous metals
   4. Gypsum products.
   5. Acoustical ceiling tile.
   6. Glass, both window and bottle.
   7. Plastics, including plastic film.
   8. Carpet and pad.
   9. Cardboard, paper, paper-based packaging
   10. Insulation
   11. Batteries.
   12. Doors, windows frames, relites, hardware, millwork.
   13. Equipment and appliances
   14. Paint.

C. Hazardous materials such as paints, solvents, adhesives, batteries, and fluorescent light bulbs and ballasts which cannot be reused shall be disposed of at authorized hazardous waste outlets.

1.4 CONSTRUCTION WASTE MANAGEMENT PLAN

A. Develop and submit to the Construction Manager a Construction Waste Management Plan narrative in accordance with the sustainability requirements for the Project. Revise and resubmit the Plan until approval is obtained.

B. Unless approved otherwise, no waste generating construction work may proceed until the Construction Waste Management Plan is approved. Approval of the Contractor's Construction Waste Management Plan will not relieve the Contractor of responsibility for meeting the waste management goals specified.

C. The Construction Waste Management Plan shall include the following:
   1. A list of waste materials that will be salvaged for resale, salvaged for reuse, recycled, and disposed.
   2. Estimated quantities of each waste material.
   3. Description of waste handling methods to be used, including one or more of the following:
      a. Requiring subcontractors to take their waste to a recycling facility.
      b. Contracting with diversion/recycling hauler to haul recyclable waste to an approved recycling or material recovery facility.
      c. Processing and reusing materials on-site.
      d. Self hauling to a recycling or material recovery facility.
   4. Name, address and phone number and qualifications of each proposed diversion/recycling hauler that will be used in the Project.
   5. Identification of each recycling or material recovery facility to be utilized.
   6. Description of the method to be employed in collecting, and handling, waste materials, including a description of the methods that will be used to protect recycled materials from contamination.
   7. Description of the means of transportation of waste materials.
   8. Description of methods to communicate waste management plan to personnel and subcontractors.

D. Calculation shall be done by weight (tons or kilograms) or by volume (cubic yards or cubic meters) but shall be consistent throughout.

E. Include the Construction Waste Management Plan with the Submittal Template.

F. Implement procedures to communicate the construction waste management plan to personnel and subcontractors.

1.5 CONSTRUCTION WASTE MANAGEMENT PROGRESS REPORTS

A. Submit a Construction Waste Management Progress Report with each Application for Payment. Failure to submit this report renders the Application for Payment incomplete and is grounds for delaying the Progress Payment.

B. Use the Waste Management Plan template from the Starbucks resource website.

C. The Waste Management Progress Report shall list the following for the time period covered by the Application for Payment:
   1. Each waste material recycled, salvaged, or reused from the Project.
   2. Quantities for each waste material.
   3. Total quantity of waste removed from the site.
   4. Name of each diversion/recycling hauler or the location and name of each recycling or material recovery facility as appropriate.

D. Calculations shall be done by weight (tons or kilograms) or by volume (cubic yards or cubic meters) but shall be consistent throughout.

E. Attached manifests, weight tickets, receipts or invoices which validate the calculations.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with applicable requirements of the jurisdictional authorities, local ordinances and regulations concerning management of construction waste, clearing, and inert materials.

B. Preconstruction Meeting:
   1. Prior to beginning work at the site, schedule and conduct a meeting to review the Waste Management Plan and discuss procedures, schedules, coordination and specific requirements for waste materials recycling and disposal.
   2. Discuss coordination and interface between Contractor, sub-contractors, architect, engineers, project manager, Construction Manager, and other C&D activities. Identify and resolve problems of compliance with requirements.
   3. Record minutes of the meeting, identifying conclusions reached and matters requiring further resolution. Maintain waste management as an agenda item at future construction meetings.
   4. Attendees: Contractor and related contractor personnel associated with work of this section, including personnel in charge of the waste management program; C&D Quality Manager; architect; engineers; material and equipment suppliers where appropriate; Construction Manager and such additional Owner personnel as Owner deems appropriate.
   5. Plan Revision: Make revisions to C&D Waste Management Plan agreed upon during the meeting and incorporate resolutions agreed to be made subsequent to the meeting. Submit revised plan to the Construction Manager.

C. Progress Meetings: Waste management goals and issues shall be discussed at regularly scheduled progress meetings as specified in Section 013119 Project Meetings.

D. Disposal Site, Recyclers and Waste Materials Processors: Use only facilities properly permitted in the State where the Project is located, and/or by local authorities where applicable.

PART 2 - PRODUCTS

2.1 WASTE CONTAINERS

A. Durable, covered, secured, reusable container for each category or waste.

B. All recycling containers shall be clearly marked and shall list the materials which can be recycled as well as appropriate materials which cannot.

PART 3 - EXECUTION

3.1 PROJECT / SITE CONDITIONS

A. Use construction methods that reduce construction waste. When possible:
   1. Order materials precut to required size.
   2. Order exact quantity required.
   3. Use temporary materials and facilities that will be reused at other projects.

B. Field Measurements: Contractor is to verify that field measurements are as indicated on construction and/or shop drawings before confirming product orders or proceeding with work, in order to minimize waste due to excessive materials.

C. Protect products from damage during storage, installation and in-place. Materials that become wet, damp or unusable for any reason due to improper storage shall be replaced at the Contractor's expense.

D. Request or require products delivered to the Site with packing materials that can be returned to sender, reused by others, or easily recycled.

E. Use detailed take-offs to identify location and uses in structure to reduce risk of unplanned and potentially wasteful cuts.

3.2 PACKING AND SHIPPING

A. Shipping: Coordinate the schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Packing: Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.3 CUTTING AND PATCHING

A. Use on-site waste as primers, sealers, underlayments, supports, backing, blocking, furring, suspension systems, and accessories as required for any purpose in patching existing work.

B. Provide environmentally benign non-hazardous or recycled content materials for cutting and patching.

END OF SECTION

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Closeout procedures.
2. Punchlist procedures
3. Final cleaning.
4. Project record documents.
5. Operation and maintenance data (Turnover Book).
6. Operation instruction.
7. Manufacturer's warranties.
8. Guaranties.
9. Spare parts and maintenance materials.
10. Closeout sustainability documentation.
11. Required Construction Document Checklist
12. Turnover Book Checklist
13. Document archiving procedures.
14. Walkthrough Assessment Tool

B. Related Sections:
1. 011000 - Summary: Partial Owner occupancy.
2. 013544 - Construction Indoor Air Quality Management: Indoor air quality management plan and post construction flush-out.
3. 015000 - Temporary Facilities and Controls: Cleaning during construction.
4. 017421 - Construction Waste Management and Disposal: Construction waste management plan.
5. Division 22, 23 and 26 for special closeout requirements for mechanical and electrical systems, and plumbing commissioning and backflow device test reports.
6. Licensed Store Turnkey Services Supplement: Licensee shall perform Operations and Facilities functions during closeout procedures on Licensed Store Turnkey projects.

C. This Section applies to all Technical Specification Sections, and supplements the General and Supplemental Conditions.

1.2 CLOSEOUT PROCEDURES

A. Comply with procedures stated in General Conditions of the Contract for Substantial and Final Completion and in these Division 01 sections.

B. Certain areas may be subject to partial occupancy or use as specified in Section 011000.

C. Submit all certificates of approval issued by the governing authorities, including, without limitation, the following:
1. Certificate of occupancy.
2. Inspection cards.

D. Prior to final payment, submit the following affidavits using the forms listed below:
1. Contractor's Affidavit of Payment of Debts and Claims AIA Document G706.
2. Consent of Surety to Final Payment AIA Document G707.
3. Contractor's lien release, and lien releases from each subcontractor; Contractor's Affidavit of Release of Liens AIA Document G706A.
4. Submit a Statutory Declaration related to Substantial Performance on Canadian Construction Document Form 9A.
5. Submit letter from WCB stating the Contractor and all Subcontractors are in good standing.

E. Submit final Application for Payment identifying total adjusted contract sum, previous payments, and sum remaining due, in compliance with Section 012900 – Payment Procedures.

F. Submit record documents and building inspection signoff sheets to the Construction Manager.

1.3 PUNCHLIST PROCEDURES

A. Introduction:
   1. The intent of the Punchlist is to inspect Contractor's, Supplier's and Landlord's Work to ensure conformance to Construction Documents and identify and document any items that need to be corrected or completed.
   2. The Construction Punchlist walk-through occurs the week prior to Retail Turnover therefore, every effort should be made to ensure that all outstanding items noted on the Construction Punchlist are completed prior to that event.
   3. The completed Punchlist must be signed off on by the PMC, FSM, Operations, and the Contractor.

B. Procedure:
   1. Responsibilities at the Punchlist walk-through are assigned according to role and expertise as follows:
      a. PMC is responsible for documenting all incomplete and/or unsatisfactory work items as identified by all parties at the walk-through on a Punchlist form.
      b. Operations, FSM and PMC will review the construction documents and note any deficiencies.
         1) FSM review will be specifically related to electrical, mechanical, plumbing and equipment for PMC to add to list.
         2) Operations and FSM review will focus on quality of finishes, completeness of work and cleanliness of store.
      c. The Contractor ensures a clear understanding of the work required for all items documented.
   2. PMC schedules date and time for Punchlist walk-through with Contractor, FSM and Operations by e-mail at least two (2) weeks in advance.
   3. Punchlist will indicate who is responsible for completing the item i.e. Contractor, Starbucks Supplier or Landlord.
   4. PMC confirms all required licenses and permits have been received.
   5. All data and phone lines, utilities and dumpster for trash removal should be installed and in working order.
   6. The Contractor, FSM, Operations, District Manager and/or Store Manager all receive a copy of the Punchlist.
   7. Contractor will correct all items assigned to them prior to Retail Turnover.
   8. CR will ensure items assigned to Owner's Suppliers are completed.
   9. Final payment to the Contractor will not be released until all parties sign off on the completed Punchlist(s).
   10. Completed and signed Punchlist is to be saved on Box in accordance with the RCDC.
   11. Because the Construction Punchlist is a requirement for the Contractor's final payment, the FSM and Operations may not withhold signing off the Construction Punchlist due to missing Starbucks or Landlord Supplied materials and services.
   12. PMC and CR shall be responsible for tracking completion of Starbucks Supplied materials and services.

C. If required by AHJ, Consultants may also provide their own Punchlists or Field Review reports and walk-throughs for these may occur simultaneously or separately from walk-through with Owner. All terms and procedures above apply to Consultant Punchlists and walk throughs as well. All items identified as code or life safety deficiencies must be rectified to Consultant's satisfaction before item is closed.

D. Guidelines:
   1. Punchlist signoff can happen via on-site meeting or electronic signature.
   2. PMC communicates expectations with Contractor prior to Punch date to ensure site readiness.
      a. PMC may elect to do a separate walk-through with the Contractor prior to the scheduled Punchlist walk- through to identify and resolve any issues.
      b. PMC should arrive early to confirm conditions with Contractor (paint, furniture, artwork, chair rail, lighting).

c. Some regions may request the Landlord attend, to ensure all Landlord items are corrected (i.e. exterior lighting).

1.4 FINAL CLEANING

A. Execute prior to final inspection.

B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Clean equipment and fixtures to a sanitary condition.

D. Clean or replace filters of mechanical equipment.

E. Remove waste and surplus materials, rubbish, and construction facilities from the Project and from the site. Conform to Construction Waste Management and Disposal requirements specified in Section 017421.

F. Cleaning procedures shall be in accordance with Indoor Air Quality Management Plan specified in Section 013544.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain a complete set of record documents which clearly and neatly indicate, in red pencil/pen, all changes from the Contract Documents, and all uncovered existing conditions which will be subsequently concealed. All noted changes to the original documents shall be “clouded”.

B. Record documents shall include:
   1. Contract drawings.
   2. Specifications.
   3. Reviewed shop drawings, product data, and samples

C. Record documents shall be used for no other purpose and shall be stored separate from those used for construction and printed on a different color bond when possible.

D. Keep documents current; do not permanently conceal any work until required information has been recorded.

E. Mark specifications legibly in red pencil/pen and record at each Product section a description of actual products installed. Include the manufacturer's name and product model and number.

F. Drawings shall indicate exact installed locations and dimensions of all concealed work, including, without limitation, conduit, piping, ducts, mechanical and electrical equipment, and foundations. Indicate all changes to details which involve concealed construction.

G. Prior to approving each Payment Request, the Construction Manager reserves the right to inspect the Record Documents. The Payment Request may not be approved until the record documents are current to the Date of the Payment Request.

H. At Contract Closeout, submit record documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor.

I. As-built record documents are to be scanned and uploaded to Box per the Required Construction Document Checklist (RCDC).

1.6 OPERATION AND MAINTENANCE DATA

A. General:
   1. Furnish published operation and maintenance (O&M) information covering all equipment and finish materials installed on the project. Whether specified or not, furnish published information whenever special maintenance procedures are required to assure the proper operation and durability of project material, equipment, and finishes.
   2. Organize O&M information into sections that correspond to the applicable specification sections. Include a Table of Contents summarizing O&M information listed in CSI order.
   3. Number of copies: Unless otherwise specified, submit four of each at time of project substantial completion.

B. Contractor is responsible for the collection of all permits, manufacturer cut sheets and/or specifications, supplier, supplier and subcontractor instructional/maintenance manuals, asset information, document supporting warrantee or rebates, documents required for Starbucks Sustainability certification and any other information relevant to maintaining equipment. Collectively, these documents need to be presented at Retail Turnover as the Turnover Book.

C. Turnover Book Procedures:
   1. Contractor will assemble and provide the Turnover Book using the Retail Turnover Book Checklist as follows:
      a. Heavy-duty, 3-ring, vinyl covered, loose-leaf binder, thickness as necessary to accommodate contents and sized to receive 8 ½ x 11" (215 x 280 mm) paper
      b. Provide heavy paper dividers with plastic covered tabs labeled for each separate warranty. Mark the tab to identify the product or installation using the Turnover Book Checklist as a guide.
      c. Identify and label the front and spine of the binder with Store Name, Store Number and name of Contractor.
      d. Include table of contents in CSI order and divider tabs to separate data for each component. Include name of Project, Contractor, and the Construction Manager.
      e. Sample Turnover Book Checklist is bound into this Project Manual at the end of this Section. Digital version is available at Store Development Resource Center (SDRC).
   2. PMC confirms Turnover Date with Contractor, FSM, and Operations by e-mail a minimum of two (2) weeks in advance.
   3. PMC provides the Construction Punchlist signed by the PMC, Contractor, FSM, and Operations to the FSM.
   4. PMC works with the Contractor to ensure completeness of all items below and that the store is ready for occupancy by Operations:
      a. Store is dusted, polished and cleaned.
      b. All inspections are completed and passed and the Certificate of Occupancy (C of O) has been issued. In some markets, a Temporary Certificate of Occupancy (TCO) may be issued.
      c. Exception: PMC should obtain a "Stocking Permit" if a Certificate of Occupancy or TCO has not yet been issued.
      d. Originals of all permits, inspections, certificates, and licenses are kept on site.
      e. Operations receives the keys to the store from the Contractor.
      f. PMC verifies all discrepancies noted on the Construction Punchlist are complete.
   5. If PMC and FSM identify incomplete items, PMC is to schedule as appropriate and send a list of these items, including estimated completion dates to FSM.
   6. PMC and Operations must negotiate completion of any work remaining as to not interfere with Operations' use of store.
   7. Contractor will provide the Turnover Book to Construction PMC at Retail Turnover.

D. Guidelines:
   1. The Turnover Book must be received prior to processing the Contractor final payment.
   2. Retail Turnover occurs when Operations takes possession of the completed New Store and is the formal transition of a Project from the Construction Team to the Facilities and Operations Team.
   3. Every effort must be made to ensure all outstanding items noted on the Construction Punchlist are resolved.
   4. During this event, the keys to the store and all documentation needed to operate and maintain the store are provided to the appropriate Operations and Facilities teams.

1.7 OPERATION INSTRUCTION

A. Prior to Final Completion, instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment and systems. Provide instruction at mutually agreed upon times.

B. Use experienced personnel trained and experienced in the operation and maintenance of the building equipment or system involved.

C. Use operation and maintenance manuals for each piece of equipment or system as the basis of instruction. Review contents in detail to explain all aspects of operation and maintenance.

D. Refer to the individual technical Sections for additional requirements for instruction of Owner's personnel.

1.8 MANUFACTURER'S WARRANTIES

A. Furnish original and duplicate copies of each manufacturer warranty executed to the Owner.

B. Execute Contractor's submittals to the manufacturers, and assemble documents executed by the manufacturers.

C. Provide table of contents and assemble in binder with durable plastic cover.

D. Submit material prior to final application for payment in accordance with Section 013300. For equipment put into use with Construction Manager's permission during construction, submit warranty within 10 days after first operation. For items of Work delayed materially beyond Date of Substantial Completion, furnish warranty within ten days after acceptance, listing date of acceptance as start of warranty period.

E. In addition to binder, scan and upload all warranties to Starbucks file sharing website.

1.9 GUARANTIES

A. Furnish written guarantee ~~guaranty~~, executed to the Construction Manager, from each subcontractor performing work covered by the additional guarantee ~~guaranty~~ requirements specified in the technical sections. The guarantee ~~guaranty~~ shall commence on the date of Substantial Completion or the Owner's acceptance of that portion of the work whichever is first.

B. Transmit through the Construction Manager in accordance with Section 013300.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

A. Furnish products, spare parts, and maintenance materials in quantities specified in each Section, in addition to that used for construction of Work. Coordinate with Construction Manager, deliver to Project site and obtain receipt prior to final payment.

B. Unless specified otherwise, deliver materials in manufacturer's original factory cartons or containers.

C. Materials shall be clearly labeled, and shall include designations used in the Contract Documents.

1.11 KEYS

A. Deliver properly identified and tagged keys and hardware maintenance tools to the Construction Manager, including those specified in Sections other than 087100.

B. Obtain itemized receipt for all keys and tools.

1.12 CLOSEOUT SUSTAINABILITY DOCUMENTATION

A. Submit all required sustainability documentation prior to Final Payment. Allow sufficient time for review and approval of documentation. Incomplete documentation is grounds for delay of Final Payment.

B. Obtain required sustainability documentation submittals from each subcontractor prior to final payment to each subcontractor.

1.13 REQUIRED CONSTRUCTION DOCUMENT CHECKLIST

A. Starbucks retention policy requires certain construction documents be permanently retained. Refer to the Required Construction Document Checklist (RCDC) for specifics. A sample of the RCDC is bound into this Project Manual at the end of this Section.

B. Procedures: This procedure covers construction contract documents for new, relocation and renovation construction projects.
   1. CR will create a RCDC for each project and keep it with their project binder/folder the reference it throughout the project to ensure the Contractor is providing the required documents. Sample of

the RCDC is attached at the end of this Section. Digital version is available at Store Development Resource Center (SDRC).

2. Using the RCDC as a guide, the Contractor will submit required documents to CR. The RCDC will indicate whether the document can be submitted directly to Box or if it needs to be submitted via a hard copy.
3. CR must review these documents to ensure they are complete, legible and saved to the correct Box folder before releasing Contractor progress payments or final retention.
4. At project completion, the CR, PMC and SPM must sign off on the RCDC indicating that all required documents have been received.

1.14 ARCHIVING PROCEDURES

A. For project documents that can be archived electronically, the RCDC must be uploaded to the Box folder indicated on the RCDC.

B. For project documents that must be archived in paper format, a signed, hard copy of the RCDC must be printed and attached to the Project Folder, then sent to Iron Mountain:
   1. Purge the folder of any documents that are not required to be archived in paper format.
   2. Ensure the RCDC is inserted as the top page of the folder.
   3. If you are storing hard copies of the As-Builts, fold them per the instructions on the Required Documents Checklist.
   4. Ship via Fedex or UPS ground to Iron Mountain: Iron Mountain - SD RM Project, 21320 66th Ave. S., Kent, WA 98032.

C. Iron Mountain Archiving Instructions is attached at the end of this Section.

END OF SECTION

TURNOVER BOOK CHECKLIST

☐ U.S. ☐ Canada Date:

Store # / CPN:	Region:
Store Name:	PMC:
Project Type: ☐New ☐Reno ☐Relo ☐Exp	CR:

Item #	Check when Completed	Document
		TURNOVER BOOK DOCUMENTS
1	☐	GC Contacts for Store Manager
2	☐	Subcontractor Contact List
3	☐	Keys with Labels
4	☐	Description, Spec Sheets, Invoice/Receipt for custom items purchased by GC (i.e. furniture, art, etc.)
5	☐	Fire Inspection Report
6	☐	Patio Permit
7	☐	Copy of Certificate of Occupancy (Original Posted at Manager's Desk)
8	☐	Finish Schedule
		EQUIPMENT MANUALS
9	☐	Electrical Panel Schedule
10	☐	EMS Commissioning
11	☐	HVAC Operating Manual
12	☐	HVAC Balancing Report
13	☐	HVAC Cut Sheet
14	☐	HVAC Warranty Information (if GC provided)
15	☐	Water Heater Operating Manual, Cut Sheet and Warranty
16	☐	Air Curtain(s) Operating Manual, Cut Sheet and Warranty
17	☐	Exhaust Fan(s) Operating Manual, Cut Sheet and Warranty
	☐	
	☐	
	☐	

Approved By:

Project Manager Construction (PMC) Date

Facilities Service Manager (FSM) Date

Store Manager (SM) Date

IRON MOUNTAIN ARCHIVING INSTRUCTIONS FOR DOCUMENTS WITH "WET" SIGNATURES (I.E. LIEN WAIVERS AND PAPER PUNCHLISTS)

Construction Representatives must:

1. Create project folder label to include:
   a. Store Number:
   b. Project Number:
   c. Store Name:
   d. Project Type:
   e. Region:

   Store #12345
   Project #55555-020
   Store Name: 1st & Main Streets
   Project Type: Relocation
   Region: Pac Northwest
2. Attach completed Required Construction Documentation Checklist to each project file.
3. Place multiple project files in box (from the same fiscal year). Keep a cover list of labels to note which projects are included in box. When box is full of closed projects, it is ready to ship.
4. E-mail Records Management: Terrie Rucker (trucker@starbucks.com) when you are ready to send boxes, indicating how many you are sending. Records Management will alert Iron Mountain and work with them to ensure they process the records per Starbucks storage and retention requirements.
5. Ship via Ground to:
   Iron Mountain – SD RM Project
   21320 66th Ave. S.
   Kent, WA 98032
6. Contact Records Management if you need additional empty storage boxes. Include physical address, any special instructions for delivery, and you full GL billing code for the purchase of the boxes (e.g. 100.000000.000000). Boxes come in bundles of 10 with the barcode label attached to each box.
7. Contact Iron Mountain if needed: Jackie Terry – (425) 864-9371

DESIGN & CONSTRUCTION
SUPPORT SERVICES

April 2020

SUBSTANTIAL COMPLETION WALKTHROUGH ASSESSMENT

Store Open Date: **4/15/2020**

U.S. ▫ Canada ▫ Walkthrough Date:

Store # / CPN:					Region:	
Store Name:					PMC:	
Project Type:	☐NEW	☐RENO	☐RELO	☐EXP	CR:	

		Check if Present at Walkthrough
Starbucks Construction Representative	**<CR Name>**	▫
	<Telephone>	
	<email>	
Starbucks Project Manager	**<PMC Name>**	▫
	<Telephone>	
	<email>	
Starbucks GC Construction Manager	**<GC Name>**	▫
	<Telephone>	
	<email>	
Starbucks District Manager	**<DM Name>**	▫
	<Telephone>	
	<email>	
Starbucks Store Manager	**<SM Name>**	▫
	<Telephone>	
	<email>	
Starbucks Facilities Service Manager	**<FSM Name>**	▫
	<Telephone>	
	<email>	
Design Manager	**<Designer Name>**	▫
	<Telephone>	
	<email>	

SUBSTANTIAL COMPLETION WALKTHROUGH ASSESSMENT

Review items as you walk through, noting their completion & condition & operationality if deficient. Be specific with deficiencies and to whom the task for construction completion is assigned. Upon completion of walkthrough, filter the CONSTRUCTION COMPLETE column to only show DEFICIENCIES.

GC SCOPE LOCATION (as defined per the CDs)	COMPLETE	CONDITION	OPERATIONAL	CONSTRUCTION COMPLETE	EXPECTED COMPLETION DATE	DEFICIENCIES	ASSIGNED TO
	YES	GOOD	FULLY	SCOPE COMPLETE			
	NO	UN-SATISFACTORY	BROKEN	DEFICIENCIES			
	N/A	N/A	N/A	N/A			
SITE							
PARKING LOT (inc. sidewalks & ADA reg.)	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
DOORS	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINISHES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LIGHTING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PATIO	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
ROOF	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SIGNAGE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
UTILITIES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
DRIVE-THROUGH							
ENTRANCE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
ORDER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
WINDOW	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
ENTRANCE							
ART	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
DOORS	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINISHES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIRE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIXTURES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FURNITURE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
HVAC	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LIGHTING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
MUSIC	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SECURITY	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SIGNAGE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
CAFE SEATING							
ART	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
CEILING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINISHES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIRE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FURNITURE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LIGHTING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
POWER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SECURITY	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		

GC SCOPE LOCATION	COMPLETE	CONDITION	OPERATIONAL	CONSTRUCTION COMPLETE	EXPECTED COMPLETION	DEFICIENCIES	ASSIGNED TO
	YES	GOOD	FULLY	SCOPE COMPLETE			
ENGINE BACKLINE							
EQUIPMENT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINISHES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIXTURES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LIGHTING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PLUMBING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
POWER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
ENGINE FRONTLINE							
FIXTURES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FURNITURE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LIGHTING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
POWER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SAFE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
BARISTA BAR							
EQUIPMENT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIXTURES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PLUMBING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
POWER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
DRIVE-THROUGH BUMP							
EQUIPMENT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINISHES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIXTURES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PLUMBING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
POWER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
WINDOW	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PUBLIC HALL/VESTIBULE							
FINISHES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LIGHTING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
WORKROOM							
CEILING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
DOOR	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
EQUIPMENT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINISHES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIRE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIXTURES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FURNITURE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
MUSIC	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PLUMBING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
POWER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		

GC SCOPE LOCATION	COMPLETE	CONDITION	OPERATIONAL	CONSTRUCTION COMPLETE	EXPECTED COMPLETION	DEFICIENCIES	ASSIGNED TO
	YES	GOOD	FULLY	SCOPE COMPLETE			
RESTROOMS							
DOORS	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
EQUIPMENT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINISHES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIXTURES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
HVAC	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LIGHTING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PLUMBING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
POWER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SYSTEMS (inc. applicable O&Ms)							
FIRE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
HVAC	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LOW-VOLTAGE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
POWER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SECURITY	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FOG	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SUSTAINABILITY COMPONENTS							
CO MONITOR	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
DISHWASHER COLD WATER-PLUMBED (inc. dated photo) gpf: _____	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
EMS COMMISSIONED: #_____	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LIGHTING	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
LOW-FLOW FLUSH FIXTURES (inc. cutsheets)	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
RECYCLING SET UP	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
WATER HEATER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
GENERAL/ADDITIONAL							
DUMPSTER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FENCING/BARRIERS	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINAL CLEAN	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PORTA-POTTY	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PROJECT SIGN	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
STAGING AREA	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OFFSITE STORAGE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
OTHER	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
GC DELIVERABLES (TURNOVER ITEMS)							
ALARM CODES	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
CUSTOM ITEMS SPECS/RECEIPTS	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FINISH SCHEDULE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FIRE INSPECTION PERMIT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
FPT REPORT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
GC CONTACT LIST	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
IAQ SITE COMPLIANCE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
KEYS WITH LABELS	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PANEL SCHEDULE	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
PATIO PERMIT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
SUB CONTACT LIST	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
TAB REPORT	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
TCO	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		
WARRANTY INFORMATION	YES	GOOD	FULLY	SCOPE COMPLETE	4/15/2020		

SECTION 019100 - COMMISSIONING

PART 1 - GENERAL

1.1 SUMMARY

A. The Owner will employ an independent Commissioning Authority. The Commissioning Authority is an independent and knowledgeable third party, hired to verify that the systems work as intended. The Commissioning Authority will inform the Owner of the results of commissioning and provide recommendations for final acceptance of commissioned systems.

B. Commissioning is the process to verify to the Owner that critical mechanical, plumbing and electrical systems, as well as other special systems, function together properly to meet the facility performance requirements and design intent as described in the Contract Documents. The Contractor shall be responsible for participation in the commissioning process as outlined below, and in references and attachments throughout the Contract Documents. The Contractor shall furnish labor and materials sufficient to meet all requirements of building commissioning under this contract.

C. The Commissioning Authority, acting on the behalf of the Owner, will be cognizant of the Owner's Facilities Staff's need to be informed and given the opportunity to participate actively in the commissioning process to ensure a complete, thorough turnover of systems once the project is complete. To this end, the Commissioning Authority will ensure that Facilities Personnel are informed of commissioning activity and schedule, and of any coordination issues, such as special testing procedures or opportunity for hands-on training during functional testing.

D. The Commissioning Authority is not authorized to modify, add to, or revoke the requirements of the Contract Documents. A change in the work can only be made as provided in the General Conditions.

1.2 RELATED WORK

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to the work of this section.

B. General requirements for testing agencies as specified in Section 014500 – Quality Control.

C. Applicable Divisions 22 and 23 sections identifying the requirements for plumbing and HVAC systems relating to the installation of mechanical equipment and systems, particularly with respect to equipment and system testing, start-up and performance demonstration/observation. Coordinate with the work of Division 26.

D. Applicable Division 26 sections specifying the requirements for materials and installation of electrical equipment and systems, particularly with respect to equipment and system testing, start-up and performance demonstration/observation. Coordinate with the work of Divisions 22 and 23.

1.3 TERMS

A. Acceptable Performance: A component or system being able to meet specified design parameters under actual load, including satisfactory documented completion of all start-up, functional performance tests, control system trending, and resolution of outstanding issues.

B. Commissioning Authority: An independent and knowledgeable third party hired to verify that the systems achieve acceptable performance.

C. Commissioning Team: The term used to define the overall group associated with performing commissioning work, including designated representatives of the Owner, Facilities Staff, Design Professionals, Construction Team, and the Commissioning Authority.

D. Construction Team: The term used to define the overall group responsible for performing the work to complete the work on the Contract Documents, including the Construction Manager, Contractor, the Mechanical Contractor and associated subcontractors, and the Electrical Contractor and associated subcontractors.

E. Testing, Adjusting, and Balancing Contractor (TAB): Subcontractor hired by Contractor from list of Owner-approved providers, to provide testing, adjusting and balancing services required in the Documents.

F. Design Intent: Documentation behind design decisions that were made to meet the Owner's project requirements. The design intent describes the systems, components, conditions and methods to provide a fully functioning building.

G. Start-up or pre-functional testing: Checks, tests, and demonstrations carried out by the Construction Team as required by the manufacturer or the Commissioning Authority to confirm all commissioned systems, components, and system interfaces are complete and ready for functional performance testing.

H. Functional Performance Testing (FPT): Full range of checks, tests and demonstrations carried out to determine that all components, sub-systems, systems, and interfaces between the systems function in accordance with the Contract Documents. In this context, function includes all modes and sequences of control operation, all interlocks and conditional control responses, and all specified responses to abnormal emergency conditions.

I. Owner Project Requirements (OPR): The OPR details the functional requirements of the project, and the expectations of the buildings use and operation as it relates to the systems being commissioned. The Contract Documents will serve as the OPR.

1.4 DUTIES OF CONTRACTOR

A. Incorporate commissioning activities into the overall construction schedule.

B. Coordinate participation of the Mechanical, Electrical, Plumbing and Controls Contractors in the commissioning process.

C. Collect and provide to the Commissioning Authority information requested for development of a complete commissioning plan, pre-functional test checklists, Commissioning Field Notebook, and functional test procedures.

D. Review the commissioning plan, project communication reports and test results, and submit comments to the Commissioning Authority.

E. Provide equipment submittals for systems to be commissioned to the Commissioning Authority.

F. Coordinate participation of the Mechanical, Electrical and Controls contractor in the commissioning kickoff meeting. This meeting will include the forum to develop final sequences of operations with all of the known equipment submittals.

G. Manage, track and complete the Commissioning Field Notebook, including prefunctional test checklists, commissioning related specification requirements, and commissioning meeting notes.

H. Provide Progress Photos for the Commissioning Authority to verify correct installation of equipment and systems, prior to concealment of installations by finishes.

I. Verify that coordination, installation, quality control, and final testing have been completed such that installed systems and equipment comply with construction documents.

J. Provide Commissioning Authority with controls system wiring diagrams and narrative sequences of operation in time for use in preparing the functional test procedures.

K. Participate in any efforts to finalize sequences of operations with Owner, Designers, and Commissioning Authority.

L. In a timely manner, address issues identified during construction that may affect the commissioning process or final system performance.

M. Participate in commissioning meetings with the Commissioning Authority.

N. Provide preliminary TAB Report, indicating all actual field values recorded, to the Commissioning Authority prior to initiation of functional testing. These reports shall be incorporated in the Commissioning Field Notebook.

O. Issue a written notice of readiness for each system to the Commissioning Authority, approximately one (1) week prior to FPT, upon completion of all systems work, start-up, and prefunctional test requirements by trade Contractors.

P. Operate equipment and systems, as required, for functional performance testing. This includes, but is not limited to, manipulating the appropriate controls systems to achieve the expected response for the functional test procedure.

Q. Participate in the fine-tuning or troubleshooting of system performance if either of these measures becomes necessary during FPT.

R. Provide training to Owner's personnel for the systems specified.

S. Correct deferred deficiencies indicated on Punch List.

T. Provide Turnover Checklist and Required-Construction-Document-Checklist (RCDC) as specified in Section 017700.

1.5 DUTIES OF COMMISSIONING AUTHORITY

A. Provide Contractor with expected durations of commissioning activities for inclusion in the construction schedule.

B. Collect and review design intent from the Design Team.

C. Review the Contract Documents as OPR.

D. Develop the commissioning plan.

E. Develop pre-functional equipment verification checklists (EVCs) for each piece of commissioned equipment.

F. Develop the Commissioning Field Notebook for use by the Contractor. Provide supplemental documentation, as necessary, to ensure that all aspects of start-up and testing have been complete and documented prior to functional testing.

G. Organize a commissioning kickoff meeting and present the commissioning plan to the Commissioning Team. Determine final sequences of operations with all the known equipment submittals.

H. Review the Contractor submittals relative to the systems to be commissioned.

I. Review Testing, Adjusting, and Balancing (TAB) Report for compliance with design intent.

J. Perform construction installation inspections to verify system installation quality and readiness for testing.

K. Observe the start-up activities and initial testing of equipment and systems, as required, and review Contractor start-up documentation. Review of start-up activities and documentation may be remote.

L. Develop functional test procedures from Contractor submittals, including designer-approved control documentation, and narrative sequences of operation and control diagrams.

M. Direct and perform functional test with assistance from Contractor.

N. Provide site observation, functional test and other project reports in a timely manner. Document inconsistencies or deficiencies in system operations and system compliance.

O. Witness and verify satisfactory completion of equipment and component tests and systems and inter-systems functional performance tests.

P. Maintain the commissioning deficiency log. Verify resolution of deficiencies identified through the commissioning process.

Q. Complete a Commissioning Report.

R. Validate any deferred corrections from either Punch or FPT Report. If an on-site visit is necessary for validation or re-testing, the additional service will be charged to the Contractor.

1.6 DUTIES OF PLUMBING, MECHANICAL AND ELECTRICAL SUBCONTRACTORS

A. Organization of the commissioning program is primarily the responsibility of the Commissioning Authority. Execution of the program is primarily the responsibility of the Contractor with support from the plumbing, mechanical and electrical contractors for, but not limited to, the following:

1. Testing and start-up of the plumbing, mechanical, and electrical equipment.
2. Completion and endorsement of prefunctional equipment verification checklists (EVCs) provided by the Commissioning Authority to assure that equipment and systems are fully operational and ready for functional testing.
3. Providing qualified personnel to assist the Commissioning Authority with functional testing to verify equipment/system performance.
4. Providing equipment, materials, and labor necessary to correct deficiencies found during the commissioning process which fulfill contract and warranty requirements.
5. Providing training for the systems specified in Divisions 22, 23, and 26 with coordination of Owner by the General Contractor.

B. Plumbing, mechanical, and electrical contractors shall cooperate with the Commissioning Authority in the following manner:
   1. Allow sufficient time before final completion dates so that test and balance, controls point-to-point checkout, and functional testing can be accomplished.
   2. Provide labor and material to make corrections when required without undue delay.
   3. Put all plumbing, heating, ventilating, and air conditioning, and electrical systems and equipment into full operation, and continue the operation of the same during each working day of commissioning.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. Standard certified test equipment for commissioning will be provided by the Commissioning Authority.

B. Proprietary test equipment required by the manufacturer shall be provided by the manufacturer of the equipment. Manufacturer shall provide the test equipment, demonstrate its use, and assist the Commissioning Authority in the commissioning process.

PART 3 - EXECUTION

3.1 WORK PRIOR TO COMMISSIONING

A. Specific pre-commissioning responsibilities of Divisions 22, 23, and 26 are as follows:
   1. Normal start-up services required to bring each system into a fully operational state. This includes motor rotational check, cleaning, filling, purging, control sequences of operation, leak testing, full-load and part-load performance, etc.
   2. Factory start-up services for key equipment and systems specified in Divisions 22, 23, and 26.
   3. Normal testing, adjusting and balancing services required to verify each system is operating at design capacities. Execute functional tests and complete pre-functional equipment verification checklists (EVCs) for all systems. Systems include but are not limited to the following:
      a. Heat pumps, terminal units, make-up air units, fans
      b. Auxiliary heating and cooling systems (air conditioning/condensing units, unit heaters, etc.)
      c. Lighting control, day lighting control and occupancy sensors.
      d. Portions of mechanical equipment start-up requiring electrical connections and measurements
      e. Power systems and metering.
      f. Automated control systems
      g. Systems on emergency power
      h. Fuel system

B. Factory start-up services for key equipment and systems specified in Divisions 22, 23, and 26. The subcontractor shall coordinate this work with the manufacturer and the Commissioning Authority.

3.2 SUBCONTRACTOR PARTICIPATION IN COMMISSIONING

A. Subcontractor shall provide skilled technicians to start-up and debug all systems within the work of Divisions 22, 23, and 26. These same technicians shall be made available to assist the Commissioning Authority in completing the commissioning program as it relates to each system and

their technical specialty. Work schedules, time required for testing, etc., will be requested by the Commissioning Authority and coordinated by the Contractor. Subcontractor will ensure the qualified technician(s) are available and present during the agreed upon schedules, and of sufficient duration to complete the necessary tests, adjustments and/or problem resolutions.

1. The Commissioning Authority reserves the right to judge the appropriateness and qualifications of the technicians relative to each item of equipment, system, and/or sub-system. Qualifications of technicians include expert knowledge relative to the specific equipment involved, adequate documentation and tools to service/commission the equipment, and an attitude/willingness to work with the Commissioning Authority to get the job done. A liaison or intermediary between the Commissioning Authority and qualified factory representatives does not constitute the availability of a qualified technician for purposes of this work.

3.3 COMMISSIONING PROCESS

A. Commissioning Schedule
   1. Contractor to incorporate commissioning activities into the overall construction schedule. If construction is phased, commissioning activities are to be included in all phases of the schedule. The schedule defines the milestones and conditions that must be achieved before functional testing can commence. The schedule also includes the expected duration of the various tasks. The Commissioning Authority will provide the Contractor with expected durations of commissioning activities.
   2. On-site activities within the Commissioning Authority's scope are to be conducted approximately one (1) week prior to the store open date.
   3. Commissioning activities to be included in the overall construction schedule include, but are not limited to:
      a. Power to equipment complete
      b. Mechanical equipment start-up
      c. Prefunctional test endorsement
      d. Controls system checkout completion
      e. Controls system fully operational
      f. Functional performance testing
      g. Owner personnel training

B. Contract Document Review
   1. The Commissioning Authority will collect and review Contract Documents to develop the commissioning plan, prefunctional tests, and functional performance tests.

C. Commissioning Plan
   1. The Commissioning Authority will develop a commissioning plan for the project. The commissioning plan is a tool through which the commissioning process is described and incorporates the Owner, Designers, Contractor and Commissioning Authority's rolls relative to the commissioning process. The commissioning plan will include the following:
      a. Purpose of commissioning.
      b. Detail the commissioning process.
      c. Identify commissioning team members.
      d. Include a commissioning team organization chart.
      e. Define commissioning team member responsibilities.
      f. Describe prefunctional and functional test procedures.
      g. Outline systems to be commissioned.
      h. Provide the commissioning schedule.

D. Pre-functional Equipment Verification Checklists (EVC)
   1. The Commissioning Authority will develop prefunctional test checklists for each piece of commissioned equipment. The prefunctional test checklist will outline required steps for the Contractor to complete prior to functional testing. Prefunctional test checklists verify installation, start-up and operational assessments have been completed for the equipment.
   2. Manufacturer start-up forms provided with pieces of equipment will be collected in addition to the prefunctional test checklists.

E. Commissioning Field Notebook
   1. The Commissioning Authority will develop a Commissioning Field Notebook to be used and completed by the Contractor. The notebook will identify and track all pertinent commissioning documentation required during the installation, start-up, and checkout phases. The notebook will be maintained by the Contractor on-site and will be made available to all Subcontractors for their use. The notebook provides a central location for the Subcontractors and Commissioning Authority to identify, copy, and organize all pertinent commissioning information. The Commissioning Field Notebook will contain:
      a. Summary describing the notebook's contents and use.
      b. Commissioning plan for Contractor field reference.
      c. Tabs for each system, with copies of prefunctional and functional test check sheets for pieces of equipment identified as part of that system.
      d. Commissioning project communication reports, deficiency logs, schedule information, or any other documentation provided by the Commissioning Authority.

F. Commissioning Kickoff Meeting
   1. The commissioning plan will be presented to the Commissioning Team during a commissioning kickoff meeting. The kickoff meeting may be remotely conducted via conference call or web-based platform. The Commissioning Team will review the plan and provide comments to the Commissioning Authority. The Commissioning Authority will incorporate appropriate comments into the plan and a finalized commissioning plan will be distributed to the Commissioning Team.
   2. The Commissioning Field Notebook will be presented to the Contractor during the commissioning kickoff meeting. Instruction for its use will be conveyed during the meeting.
   3. The Commissioning Team will finalize the controls sequences of operations for all commissioned systems. During this meeting each sequence will be scrutinized to develop operational parameters that meet the needs of the commissioning team.
      a. If there are any cost changes in this process those changes will be formally tracked through the normal contractual arrangement set forth in Division 1.
      b. The final agreed to sequences of operations will be documented by the controls contractor and submitted with their controls submittal for Starbucks approval.

G. Installation Inspections
   1. During the course of construction, the Commissioning Authority will perform installation inspections for commissioned equipment and systems through review of Progress Photos. Deficiencies will be noted and conveyed in project communication reports to the appropriate Commissioning Team members.

H. Prefunctional Test Checklist Completion
   1. Using the prefunctional test checklists developed by the Commissioning Authority, the Contractor will verify that the systems they install are in compliance with the construction documents and are fully functional. Functional testing will only begin when checklists are completed by the appropriate subcontractors, initialed, signed, and returned to the Commissioning Authority indicating specific system completion.
   2. Contractor will issue a written notice of readiness to the Commissioning Authority upon completion of all systems work, start-up and endorsement of prefunctional tests.

I. Contractor Submittal Review
   1. In preparation for development of functional test procedures, the Commissioning Authority will review Contractor submittals for commissioned equipment and systems.
   2. The Contractor will provide copies of the submittals for commissioned systems and equipment to the Commissioning Authority for use in development of functional test procedures. Submittals will be reviewed for conformity with the design intent.

J. Functional Performance Testing (FPT) Procedures
   1. The Commissioning Authority will develop functional test procedures for each piece of commissioned equipment. The functional tests outline the process for testing the building’s systems. Functional tests verify the performance of equipment adhere to the design intent.
   2. Functional test procedures include, but are not limited to, the following:

a. Air-handling systems, make-up air units, heat pumps, terminal units, fans, coils, dampers, valves, motor controllers, fire alarm interface devices, automated control components (HVAC, EMS), exhaust fans, and air curtains.
b. Auxiliary heating and cooling equipment, including air conditioning/condensing units; unit heaters, radiant heaters, fire alarm interface devices, and automated control components.
c. Domestic water systems, including domestic water heaters and associated pumps, expansion tanks, and automated control components.
d. Automated control system, including equipment operational sequences, point-to-point checkout, control component calibration, metering, graphics, alarming, fire alarm interface, and trending.
e. Lighting system controls, including switches, photocells, occupancy sensors, timers and other devices affecting lighting system operation.

K. Functional Performance Testing
1. Functional testing is intended to begin upon completion of a system. The Commissioning Authority will not begin the functional testing process until each system is complete and documented. Testing may proceed prior to the completion of systems and/or sub-systems if expediting this work is in the best interests of the Owner.
2. Functional testing is performed by the Contractor and witnessed by the Commissioning Authority to verify proper sequencing, operation, and performance of installed equipment and systems under realistic operating conditions. As tests are successfully completed, systems will be deemed acceptable by the Commissioning Authority.
3. The Contractor is responsible for coordinating participation of Commissioning Authority and Subcontractors in functional testing.
4. For security and fire alarm systems, the installing contractor will be responsible for providing point-to-point documentation and functional test documentation.

L. Commissioning Deficiency Log
1. When acceptable performance cannot be achieved by tested equipment and systems, the cause of the deficiency will be identified. Deficiencies will be collected and tracked in a commissioning deficiency log maintained by the Commissioning Authority.

M. Corrective Measures
1. If acceptable performance cannot be achieved by a piece of equipment or a system, and if the deficiency is caused by installation error by the Contractor, the necessary corrective measures shall be carried out by the Contractor. Once corrective measures have been completed, the equipment or system will be retested by the Commissioning Authority until acceptable performance is achieved.
2. The Contractor will be allowed one retest by the Commissioning Authority after initial testing of the equipment. If acceptable performance is not achieved after the initial retest during functional performance testing, the Contractor shall be financially responsible at standard rates to reimburse the Owner's representatives for the additional time taken to resolve the deficiency.
3. Whereas all members will have input and the opportunity to discuss, debate, and work out problems, Starbucks will have final jurisdiction on the necessary work to be done to achieve performance and/or design intent.

N. Project Communication Reports
1. In addition to the prefunctional test checklists, functional test procedures and the commissioning deficiency log, project communication reports will be delivered for all other commissioning activities performed by the Commissioning Authority. Project communication reports will be issued to the Contractor and key members of the Commissioning Team to document apparent deficiencies identified during examination of design and construction documents, daily activities on-site, installation deficiencies, and successful or unsuccessful functional testing results.

O. Training
1. A training plan will be developed by the Contractor outlining functionally-tested equipment that requires training, who will perform the training, and when the training will occur. The Owner will provide that the appropriate personnel to attend the training.

2. The Subcontractors for Divisions 22, 23, and 26 will be required to participate in the training of the Owner's engineering and maintenance staff for each functionally-tested system and the related components.

P. Commissioning Report
1. Once acceptable performance is achieved, the Commissioning Authority will complete a commissioning report. The report shall include:
   a. A commissioning activity executive summary
   b. The finalized commissioning plan
   c. The completed Commissioning Field Notebook, including prefunctional test checklists and specified commissioning related documentation
   d. Completed functional performance testing procedures report
   e. Commissioning project communication reports
   f. Up-to-date commissioning deficiency log

END OF SECTION

REQUIRED CONSTRUCTION DOCUMENT CHECKLIST

☐ U.S. ☐ Canada Date:

Store # / CPN:	Region:
Store Name:	PMC:
Project Type: ☐NEW ☐RENO ☐RELO ☐EXP	CR:

Completed or N/A	Document & Naming Convention	Provided By	Location / BOX Folder
-Select-	Upload meter photos, if applicable* Review Utilities status with the Utilities Dynamic View	CR/GC	Utility Meter Submission Form
-Select-	DocuSigned Delivery of Possession, if applicable* **[CPN]_[Store # & Name]_Delivery of Possession**	PMC	1.b. Due Diligence → Lease
☐	Approved Final R2PF or Proforma **[CPN]_[Store # & Name]_Stage_Proforma** **[CPN]_[Store # & Name]_CRiM_[Version]**	PMC	1.c. Due Diligence → CRIM-GIP
☐	As-Builts / Record (Redline) Drawings **[CPN]_[Store # & Name]_As-Built**	GC	4.g. Drawings → Record Drawings
-Select-	Approved Landlord Construction Drawings, if applicable* **[CPN]_[Store # & Name]_Landlord Drawings**	PMC	4.h. Drawings → Landlord Progress Drawings
-Select-	Copy of Building and Health Permits, if applicable* **[CPN]_[Store # & Name]_BUILDING PERMIT** **[CPN]_[Store # & Name]_HEALTH PERMIT**	GC	5.a.iii. Construction Admin → Permitting → Permits
☐	Items Ordered List **[CPN]_[Store # & Name]_IOL**	CR	5.e.ii. Construct. Admin → Site Visits → GC Progress Report
-Select-	TAB Report, if applicable* **[CPN]_[Store # & Name]_TAB Report**	PMC	5.d.i. Construct. Admin → Sustainability Program → TAB Report
-Select-	EMS Commissioning Number, if applicable* **[CPN]_[Store # & Name]_EMS Commissioning Number**	GC	5.d.ii. Construct. Admin → Sustainability Program → EMS
-Select-	Greener Stores Documents, if applicable*	GC	5.d.iv. Construct. Admin → Sustainability Program → Greener Stores
☐	Meeting Minutes, Jobsite Photos/OpenSpace link, Inspections, Correspondence, and/or Testing Reports **[CPN]_[Store # & Name]_[Document Name]_[Date]**	PMC	5.e.ii. Construct. Admin → Site Visits → GC Progress Report
☐	Final Photos (and/or OpenSpace link if applicable) **[CPN]_[Store # & Name]_Construction Photos**	GC	5.e.iii. Construct. Admin → Site Visits → Construction Photos
☐	Signed Punch List **[CPN]_[Store # & Name]_Punch List Signed**	PMC	5.f. Construction Admin → Punch List

DESIGN & CONSTRUCTION
SUPPORT SERVICES

May 2022

☐	Copy of Certificate of Occupancy and/or Final Inspection **[CPN]_[Store # & Name]_CoO** **[CPN]_[Store # & Name]_Final Inspection**	GC	5.g.i. Constru. Admin→ Close Out → C of O; Original in Store's BOH
☐	Subcontractor List with Contact Information **[CPN]_[Store # & Name]_Subcontractor List_[Version]**	GC	6.c.iv. Contract Admin → Contracts → Invoicing_GC Draws
☐	Smartsheet submission of Subcontractor List with Inclusion & Diversity Information - Subcontractor List Template	CR	Upload to Smartsheet
-Select-	Turnover Checklist, if applicable* **[CPN]_[Store # & Name]_Turnover Checklist**	GC	5.g.iii. Construct. Admin → Close Out → Project Binder
-Select-	DocuSigned Bid Policy Exception Form, if applicable* **[CPN]_[Store # & Name]_Bid Exception Form**	PMC	6.b.ii. Contract Admin → Bidding → Bid Alternates
☐	DocuSigned Contract Cover Sheet + Attachments **[CPN]_[Store # & Name]_[Supplier Name]_GC Contract**	CR	6.c.i. Contract Admin → Contracts → Service Agreements
-Select-	DocuSigned Contract Changes with Supporting Backup, if applicable* **[CPN]_[Store # & Name]_[Supplier Name]_GC Contract Change_[#]**	CR	6.c.iii. Contract Admin → Contract → Change Orders
☐	DocuSigned Application and Certification of Payment with Continuation Sheet **[CPN]_[Store # & Name]_Pay App_[#]**	CR	6.c.iv. Contract Admin → Contract → Invoicing GC Draws
-Select-	**US:** Notarized Conditional and Unconditional GC/Sub Lien Waivers per the Payment Application Schedules *(Electronic Only)* **[CPN]_[Store # & Name]_Lien Waiver**	GC	6.c.v. Contract Admin → Contracts → Lien Waivers;
-Select-	**Canada:** Statutory Declarations per the Payment Application Schedules *(Hardy Copy Required**)* **[CPN]_[Store # & Name]_Statutory Declaration**	GC	6.c.v. Contract Admin → Contracts → Lien Waivers; Original in Project Folder
☐	DocuSigned Required Construction Document Checklist **[CPN]_[Store # & Name]_Signed Required Construction Document Checklist**	CR	6.c.vi. Contract Admin → Contracts → Financial Closeout; Original in Project Folder

*If Document does not apply, you must select N/A

** Hard copies must be archived to Iron Mountain

Approved By:

Construction Representative (CR) Date

Project Manager Construction (PMC) Date

Senior Project Manager Construction (SPMC) Date

DESIGN & CONSTRUCTION
SUPPORT SERVICES

IRON MOUNTAIN ARCHIVING INSTRUCTIONS FOR CANADA

Construction Representatives must:

1. Create project folder label to include:
    a. Store Number:
    b. Project Number:
    c. Store Name:
    d. Project Type:
    e. Region:

    Store #12345
    Project #55555-020
    Store Name: 1st & Main Streets
    Project Type: Relocation
    Region: Pac Northwest
2. Attach completed Required Construction Documentation Checklist to each project file.
3. Place multiple project files in box (from the same fiscal year). Keep a cover list of labels to note which projects are included in box. When box is full of closed projects, it is ready to ship.
4. E-mail Records Management: Terrie Rucker (trucker@starbucks.com) when you are ready to send boxes, indicating how many you are sending. Records Management will alert Iron Mountain and work with them to ensure they process the records per Starbucks storage and retention requirements.
5. Ship via Ground to:
    Iron Mountain – SD RM Project
    21320 66th Ave. S.
    Kent, WA 98032
6. Contact Records Management if you need additional empty storage boxes. Include physical address, any special instructions for delivery, and you full GL billing code for the purchase of the boxes (e.g. 100.000000.000000). Boxes come in bundles of 10 with the barcode label attached to each box.
7. Contact Iron Mountain if needed: Jackie Terry – (425) 864-9371

DESIGN & CONSTRUCTION
SUPPORT SERVICES

May 2022

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Demolition and removal from the site of existing construction to accommodate the new construction.
   2. Removal of existing components for reinstallation.
   3. Salvaging of existing materials.
   4. Capping and identification of utility lines.
   5. Contractor design of shoring and bracing.

B. Related Sections:
   1. 011000 - Summary: Contractor's use of the site; Owner occupancy requirements; Special work requirements.
   2. 015000 - Temporary Facilities and Controls: Temporary enclosures, guardrails, barriers, barricades, lighting and dust control.
   3. 017329 - Cutting and Patching.
   4. 017700 - Closeout Procedures: Project record documents.

C. Drawings, the provisions of the Agreement, the General Conditions, and Division 1 specification sections apply to all work of this Section.

D. Substitutions: Substitute products will be considered only under the terms and conditions of Section 016000.

1.2 SUBMITTALS

A. Make submittals in accordance with Section 013300, unless specified otherwise.

B. Submit certification that temporary shoring, support, and restraining systems have been designed by a structural engineer licensed to practice in the State or Province of the Project.

1.3 QUALITY ASSURANCE

A. Comply with the applicable health and safety regulations of the jurisdictional authorities.

B. Regulatory Requirements: Comply with governing environmental notification requirements and regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Obtain and pay for all permits required for the demolition work.

D. Obtain approval of demolition procedures which affect the normal operation of Owner occupied spaces. Make every effort to avoid disruption of Owner occupation or adjacent businesses.

E. The design of shorings, temporary supports, and restraining systems shall be the responsibility of the Contractor. Such elements shall be designed and stamped by a Structural Engineer licensed to practice in the State of the Project.

F. Pre-bid Inspection: Visit the Site to determine existing conditions, and as much as possible to determine the extent of demolition required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Utilize patch and repair materials to match demolished material to fullest extent possible, if actual product match is not possible. Performance of those materials should meet or exceed that of existing materials. Comply with material and installation requirements from individual specification sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to starting work, carefully inspect existing conditions and verify that the work of this Section may properly commence. Notify the Construction Manager ~~Architect~~ in writing of conditions detrimental to the proper and timely completion of the work.

B. Do not begin demolition until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective demolition caused by prior observable conditions.

C. When unanticipated mechanical, electrical, structural or other elements that conflict with intended function or design are encountered, investigate and ascertain the nature and extent of conflict. Promptly submit a written report to Construction Manager. Perform no further demolition in such areas, unless approved by the Construction Manager.

3.2 PREPARATION

A. Provide and maintain all temporary barriers, warning signs and systems and security devices necessary for the demolition work and protection of workmen, Owner forces and the public. Conform to requirements of Section 015000.

B. Provide protection to all surrounding public spaces. Perform work and provide temporary construction as approved by the local jurisdictional code authorities.

C. Protect existing construction which will not be subject to demolition.

3.3 DEMOLITION

A. Perform demolition as indicated and as required to accommodate the new work. Demolish in an orderly and careful manner. Where demolition exceeds that indicated, verify such demolition with the Construction Manager prior to proceeding.

B. Protect existing structural members. Contact the Construction Manager prior to modifying structural members beyond the extent indicated. Cease operations and notify the Construction Manager immediately if continued demolition operations might endanger the existing structure.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.

D. In areas where items are required to penetrate a fire separation, restore the fire protection with firestopping materials and methods acceptable by the authorities having jurisdiction.

E. Where fireproofing membranes or coverings to existing structural steel members and open web steel joists are disturbed, restore the fire protection with materials and methods acceptable by the authorities having jurisdiction.

F. Notify the Owner of hazardous materials discovered during demolition operations. If materials are suspected to contain hazardous materials, do not disturb. Immediately notify Architect and Owner.

G. Provide Contractor designed temporary shoring as required to support existing construction against movement or overload during demolition operations, until permanent supports are in place.

H. Except where noted or specified otherwise, take possession of materials being demolished, and immediately remove from site. Do not overload existing construction to remain with demolished materials. Demolished materials which cannot be recycled or reused shall be disposed of at a legal dump site.

I. If relics, antiques, corner stones and their contents, commemorative plaques and tablets, or other similar items are discovered, they shall remain the property of the Owner. Notify the Construction Manager prior to removal, and obtain approval on method of removal.

J. Carefully remove, store, and protect all materials and components to be reused.

K. Where removal of materials indicated to remain is necessary to facilitate new construction, carefully remove, store, and protect such materials for future reinstallation.

L. Carefully remove, protect, and turn over as directed, materials and components claimed by the Owner for salvage. Prior to demolition, contact the Owner to determine which items will be claimed.

M. Where cut edges of the existing construction will be visible in the completed work, cut in uniform straight lines. Account for patterns and seams in finishes being demolished to maintain whole tiles, grout lines, etc. Concrete and masonry shall be sawcut or core drilled.

N. Coring into post-tensioned beams or structural slabs is not allowed unless x-ray surveying, scanning, or another submitted and approved method has been performed to accurately locate post-tensioned tendons. X-ray surveying at coring locations may be performed by the testing and inspection agency or by another testing agency under the General Contractor's direction. Trades requesting the coring shall pay surveying costs. No coring operations shall commence without the prior written approval of the Structural Engineer of Record or base building structural engineer. General Contractor is responsible for any damage to existing reinforcing.

O. Repair all demolition performed in excess of that required, at no additional cost to the Owner.

P. Remove all disconnected utility lines. Cap remaining ends. Place markers to indicate location of disconnected utilities. Indicate location of disconnected utilities on the Project Record drawings as specified in Section 017700.

Q. Pay for and coordinate the work performed by public utilities. Notify the affected utility company well in advance of the scheduled work.

R. Dust producing demolition operations shall be sprinkled in areas not subject to water damage. Provide other approved means of controlling dusting in areas subject to water damage.

S. Electrical Demolition Requirements:
   1. Remove electrical system components as indicated on the electrical drawings

T. Plumbing Demolition Requirements:
   1. Abandoned underslab piping shall be cut off flush with the floor line and sealed. Patch flush with the floor.
   2. Abandoned piping which is exposed and readily accessible shall be removed.
   3. Leave abandoned piping which is concealed in existing construction to remain.

U. Exterior Walls: In areas where items are removed from exterior walls and patching is required, repair wall construction with materials compatible with existing wall construction. Maintain continuity of air and vapor barrier, and insulation inside wall cavity. Leave site in a condition acceptable to the Owner at all times. Remove demolished materials from site daily as work progresses. Do not overload existing structure with demolished materials.

3.4 CLEANUP

A. After each demolition phase, leave the area broom clean and ready for the work of other Sections.

B. Occupied spaces which receive demolition work shall be thoroughly and completely cleaned prior to Owner's daily operations. Cleaning shall include: vacuuming, dusting, stain and dirt removal.

END OF SECTION

SECTION 030100 - CONCRETE SLAB REPAIR AND RESURFACING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Repairing of existing slab surfaces.
   2. Sanding or grinding of existing concrete slab.
   3. Application of surface refinement grout.
   4. Application of concrete overlay.
   5. Application of cementitious underlayments.
   6. Application of concrete sealer.

B. Drawings, the provisions of the Agreement, including bonds and certificates, the General Conditions, and Division 1 specification sections apply to all work of this Section.

1.2 SUBMITTALS

A. Make submittals in accordance with Section 013300.

B. Product Data: Submit manufacturer's literature for each product listed.

1.3 QUALITY ASSURANCE

A. Provide materials for system produced by one manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver material to the jobsite in the manufacturer’s original, new, unopened packages and containers bearing manufacturer’s name and label in good condition.

B. Store materials not in actual use in tightly covered containers at ambient air temperature range of 40 to 90 degrees F (4.5 to 32 degrees C). Storage area should be clean, free of contamination, and in accordance with Data Sheet compliance.

1.5 PROJECT CONDITIONS

A. Environmental Conditions: Where ambient air temperature does not fall within the range of 40 to 90 degrees Fahrenheit (4.5 to 32 degrees Celsius), or in conditions with extremely high relative humidity, special application products and methods may be required. Contact manufacturer for specific job conditions and technical support.

B. Installer is required to visit site and verify conditions prior to bidding.

C. Permanent lighting shall be in place and operational prior to commencement of the work of this Section.

D. Variations in conditions may require modification to preparation and installation requirements; failure to verify modifications may result in an unacceptable finish.

1.6 WARRANTY

A. Furnish manufacturer's two-year warranty against failure of the concrete stain system by use of a defective product, in accordance with Section 017700.

1.7 SUBCONTRACTOR GUARANTEE

A. Furnish Subcontractor Guarantees in accordance with Section 017700.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Metzger/McGuire, (603)-224-6122, www.metzgermcguire.com.

B. CTS Cement Manufacturing Corp. (Garden Grove, CA; 800-929-3030)

C. Hi-Tech Systems, 2764 S. Vista Ave Bloomington, CA 92316, https://hitechpolyurea.com/

D. Ardex Inc., www.ardexamericas.com

E. Laticrete International, Inc., www.laticrete.com

F. Mapei Corporation, www.mapei.com

G. Sika, www.usa.sika.com

H. Prosoco, www.prosoco.com

I. W.R. Meadows, www.wrmeadows.com

2.2 MATERIALS

A. Concrete Repair Compounds for Polished Floors:
   1. Structural Epoxy Mortar:
      a. Armor Hard Extreme by Metzger/McGuire, (603)-224-6122, www.metzgermcguire.com.
   2. Low Viscosity Structural Repair Polymer:
      a. Rapid Refloor by Metzger/McGuire
   3. Cement Overlay:
      a. CTS Cement Manufacturing Corp. (Garden Grove, CA; 800-929-3030) Rapid Set TRU PC Architectural Topping and TXP Fast Epoxy Primer: 5,000 psi rapid setting overlay cement.
         1) 5,000 psi at 24 hours, 7,000 psi at 28 days.
   4. Surface Refinement Grout:
      a. Metzger/McGuire (603)-224-6122, www.metzgermcguire.com; SRG Surface Refinement Grout.

B. Joint Repair Compounds for Polished Floors:
   1. Semi-Rigid Polyurea Joint Filler:
      a. Edge-Pro 80 and Spal-Pro RS 88, Metzger/McGuire.
      b. PE 85MI, Hi-Tech Systems.

C. Concrete Repair Compounds for Non-Polished Floors:
   1. Self Leveling Underlayment System: Self-leveling, pourable, cement-based material, minimum 28 day compressive strength 2,000 psi; minimum bond strength 200 psi; one of the following.
      a. “K-15" Self-Leveling Underlayment Concrete, Ardex Inc.
      b. “Laticrete 86 LatiLevel Thin Pour Underlayment,” Laticrete International, Inc.
      c. Ultraplan Easy; Mapei Corporation “Ultraplan 1.”
      d. “TRU Self-Levelling” fast-setting, high-strength underlayment, CTS Cement Manufacturing Corp.
      e. Sikafloor Level 125, Sika Canada Ltd.
      f. Floor-Top STG (Canada), W.R. Meadows of Canada
   2. Trowelable Underlayment System:
      a. “SD-P" Fast-Setting Underlayment, Ardex Inc.
      b. “Laticrete 220 Medium Bed Mortar mixed with Laticrete 3701 Latex Mortar Admix,” Laticrete International, Inc.
      c. Mapei Corporation "Mapacem 100" or "Planitop 10".
      d. CTS Cement Manufacturing Corp. “CR Concrete Resurfacer” fast-setting, high-strength trowelable underlayment.

D. Primers: As recommended by cement materials manufacturer for conditions.

E. Sealers & Densifiers for Polished Floors: Refer to Section 033514 for specification of densifiers and sealers for polished floors.

F. Penetrating Sealer for Non-Polished Floors: Water-based penetrating sealer meeting VOC limits of 100g/L or less.
   1. “Consolideck Concrete Protector SB” by Prosoco Inc. (Lawrence, KS; 800-255-4255).
   2. “Liqui-Hard Concrete Densifier & Chemical Hardener” by W.R. Meadows, Inc.

3. “SEAL HARD” Concrete Densifier by L&M Construction Chemicals, LATICRETE International, Inc.
4. “Sikafloor-3S Liquid-Applied Concrete Densifier” by Sika Canada Ltd.

PART 3 - EXECUTION

3.1 GENERAL PROCESS AND PROCEDURE

A. Refer to Attachment 030101 Guide to Basic Floor Repairs (Metzger/McGuire) for instructions and illustrations related to various repair conditions.

3.2 EXAMINATION

A. Examine substrates and conditions under which concrete resurfacing will be performed for compliance with requirements for applications of flooring materials. Do not proceed with application until unsatisfactory conditions have been corrected. Start of any of the resurfacing work will be construed as the Applicator’s acceptance of the floor and environment conditions.
   1. The scope of repairs shall be confirmed by the Owner and Architect of Record prior to commencement of work.

B. Condition of Substrate: Verify that all jobsite conditions are within the product manufacturer’s Data Sheet parameters. Report discrepancies to the Construction Manager.
   1. Surface temperature of slab must be at least 40 degrees F. (4.5 degrees C.) and no more than 90 degrees F. (32 degrees C.) for crack and joint fillers and coating.
   2. If there are any indications of a moisture problem, contact the Architect.

3.3 PREPARATION

A. Comply with the product manufacturer recommendations and as follows: Prepared surface shall be smooth and free of ridges and irregularities including those occurring in concrete and from mastics.

B. Protect surface of slab immediately adjacent to defect under repair.

C. Initial Concrete Slab Preparation: Provide initial preparation of concrete surface as follows.
   1. Remove dirt, oil, soap, grease, mastic, and other bond-breaking contaminants.
   2. Surface shall be smooth and free of unwanted ridges from by either mastics or concrete.
   3. Remove loose chipped concrete down to solid substrate.

3.4 SURFACE REPAIR - GENERAL

A. Fill holes, spalls, cracks, voids and joints as recommended by the system manufacturer with minimal residue on surrounding surface and as required to provide a smooth, level and even substrate.

B. For surface spalling repair, joint repair and crack repair, refer to 030101 Guide to Basic Floor Repairs for instructions.

3.5 SURFACE REFINEMENT GROUT FOR FLOORS TO RECEIVE POLISHED FINISH

A. Preparation for floors with pitting and other shallow and small blemishes. Prepare in accordance with grout manufacturer recommendations.

B. Apply grout over entire area that will be visible as a “room” or “section” to receive new finishing. Do not limit grout application to only portions with specific obvious surface blemishes. Prepare for burnishing/polishing specified in Section 033514.

3.6 CEMENT OVERLAY FOR FLOORS TO RECEIVE POLISHED FINISH

A. Preparation: At locations where floor requires full overlay, prepare existing surface in accordance with overly manufacturers recommendations.

B. Route or grind edges of are to receive cement overlay to 3/8 inch (9.5 mm) depth to create clean flush meeting edge with adjacent existing slab to remain.

C. Apply epoxy primer to repaired concrete slab substrate.

D. Apply cement overlay 3/8 inch thick over whole area to be polished.

E. Prepare for burnishing/polishing specified in Section 033514.

3.7 APPLICATION OF REPAIR AND RESURFACING MATERIALS

A. Install trowelable underlayment at locations where slopes are indicated and at other locations as appropriate to installation conditions; install self-leveling underlayment at other locations as necessary to correct slab flatness and levelness.

B. Set screeds, markers, and reference blocks. Set screeds at all construction and control joints to establish weakened plane joints in underlayment.

C. Install patching compounds in accordance with the manufacturer's recommendations. Where subsequent finishing of the material is required, float to level surface. Do not trowel.

D. Apply primer to all areas to receive underlayment; repeat application if necessary to achieve proper build.

E. Mix materials and pour or pump and squeegee into place to achieve appropriate thickness. At areas to receive cork tile flooring, provide fill thickness as necessary to align cork flooring with adjacent floor surfaces.

F. Finish to a smooth level surface within tolerances specified for concrete floors.

G. Cure in accordance with the manufacturer's instructions.

H. Tolerances: As specified in Section 033000.

3.8 APPLICATION OF SEALER (FOR NON-POLISHED FLOORS)

A. Do not apply sealer to slabs or portions of slabs indicated to receive polishing system or a finished flooring material.

B. Remove all dirt, debris, or curing compounds using surface preparation cleaners as recommended by manufacturer for conditions. Allow cleaning waters used in surface preparation to dry.

C. Application:
   1. Apply a single coat of sealer using a low pressure sprayer fitted with a 0.5 gpm (1.8 lpm) spray tip.
   2. On most surfaces, apply in a single saturating application.
   3. Even out puddles with a microfiber applicator before material has a chance to fully dry.
   4. If needed, an additional coat can be applied after material has dried for at least 1 hour. The second coat will require less material.
   5. For optimum stain repellency on porous surfaces, apply a saturating coat and allow to dry thoroughly before applying a second saturating coat. Less material will be required on the second application. Over-application may change surface appearance.

D. Allow treated surfaces to dry.

E. Remove any dried powder residue using stiff broom, power sweeper or floor scrubbing machine.

F. Do no subsequent buffing or burnishing of slab.

3.9 CLEAN-UP

A. During progress of work, remove from site discarded materials, rubbish, cans and rags at end of each work day.

B. Upon completion of work, clean spattered surfaces. Remove spattered coating by proper method of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

3.10 PROTECTION

A. Protect completed concrete coating work against damage.

B. Close application area after completion of each stage for a minimum of 48 hours and longer if required by the manufacturer.

C. Protect coatings from general construction when tack-free with ¼ inch (6 mm) tempered hardboard, smooth side down. Remove prior to completion of Project.

D. Correct damage by cleaning, repairing or replacing, and refinishing, as acceptable to the Construction Manager.

END OF SECTION



METZGER/McGUIRE

GUIDE TO BASIC FLOOR REPAIRS

Basic Repair Guidelines for Common Floor Defects

Including RANDOM CRACKS, SPALLED JOINTS,

GOUGES, JOINT FILLER SEPARATION AND MORE...

METZGER/McGUIRE

A Note about Metzger/McGuire Floor Joint Protection Systems

For nearly 50 years, Metzger/McGuire has been the industry leader in developing joint protection systems for trafficked concrete floors. Our Heavy Duty Semi-Rigid Epoxy Joint Filler, MM-80, was the industry's first semi-rigid epoxy joint filler and set the standards by which all joint fillers are evaluated today.

Prior to the development of semi-rigid filler concept, the widely accepted joint treatment practice was to "seal" joints with an elastomeric sealant such as a polyurethane. Elastomeric sealants were well suited for preventing the intrusion of moisture and dirt into the joint cavity, but lacked sufficient rigidity to protect the joint edge itself. Over time some contractors and designers recognized the protection limitations of sealants and accordingly some moved instead towards the use of high strength epoxies to provide joint edge protection. Unfortunately, such products often brought their own potential issues, including brittleness and joint restraint.

As a caulking contractor struggling with these imperfect options, Steve Metzger developed a notion that what was really needed was a product that was both "firm and flexible." Steve retained a chemist and began field trials on some of his projects using multiple formulations with varying adhesive, tensile and hardness properties until he found a product with the ideal balance of these properties. The result was a product with a Shore Hardness of A 80 and accordingly he named it MM-80. For the next several years the product was tested and monitored in some of the most demanding floors in the country, showing excellent results. Based on this proven success, in the late 1970's the American Concrete Institute (ACI), the Portland Cement Association (PCA) and other industry organizations began recommending A 80+ semi-rigid fillers as the best known solution to prevent joint edge deterioration. These same standards remain in place today.

Since the creation of our MM-80 Semi-Rigid Joint Filler, many industry changes have occurred which have had a direct impact on semi-rigid fillers. Changes in the material handling industry - to smaller wheels and heavier loading - changes in floor construction techniques such as joint spacing and finishing practices, and changes in construction schedules, including fast track buildings and multi-use spaces, have all lead to the need for continual evolution and innovation in floor joint filler technology.

At Metzger/McGuire, we have always done our best to anticipate, monitor and evaluate change and to adjust our products or develop new ones to meet the industry's ever evolving needs. As a recognized industry leader with a singular focus on joint fillers and joint edge protection, we take our obligation to the industry seriously. Providing "industry standard" products is the foundation of our company. Pairing these products with unequaled technical support, field support and customer service is the only way we know how to do things. Satisfying the building owner's long term floor protection needs is critical to our ongoing success and to ensuring that we remain "Known by the Floors We Protect."

If allowed the opportunity to partner with you on your next concrete floor project, rest assured you can place your confidence and trust in the entire Metzger/McGuire team to do everything in our power to meet or exceed your expectations and to provide you with the best floor joint protection systems the industry has to offer.

Your Partner in Floor Protection,

Scott Metzger

800-223-MM80 P.O. Box 2217 Concord, NH 03302 **www.metzgermcguire.com**

4 CRITICAL STEPS TOWARDS ACHIEVING PERMANENT, DURABLE FLOOR REPAIRS

1. DETERMINE CAUSE(S) OF FLOOR DETERIORATION

Before you begin repairing floor defects, it's important to identify their underlying causes in order to determine the best long-term repair strategy.

Example: Joint spalling may be the result of an improper joint filler installation (i.e. low filler profile or poor joint cleaning prior to filling), the wrong joint filler (i.e. urethane that is too soft to support traffic), or no joint filler at all. These are material problems. Joint spalling could also result from differing slab elevations (slab curl) or rocking slab conditions (subgrade deficiencies or voids). These are structural problems that need to be corrected prior to performing standard joint repair.

2. SELECT APPROPRIATE FLOOR REPAIR MATERIAL(S)

It's important to choose the repair material(s) best suited to meet the requirements of the facility's operations. Considerations may include frequency of traffic, vehicle loading and types, building temperature, time allowed to perform repairs, defect width, etc.

Example: The repair material best suited for repairing a spalled joint may be heavy-duty, semi-rigid epoxy or polyurea or a structural epoxy mortar... depending upon the width of the spalled joint (wider exposures require more rigid products), the access time required (will an epoxy take too long to cure?), structural condition of the floor (are the joints still opening?), is the defect in a freezer/cooler (polyurea is likely best)...

3. PREPARE DEFECT FOR REPAIR MATERIAL

The key to achieving long-lasting repairs is making sure the edges of the defect are defined and the defect is cleaned properly prior to filling with repair material.

Failure to properly clean and prepare a floor defect is probably the #1 cause of ultimate failure. Even the best possible repair material will not function properly if it's placed into a poorly cleaned joint or crack, or if the repair material is "feather-edged" along the outside of the defect. The edges of joints, cracks, and surface spalls all should be at least 1/2" deep vertically, and clean and dry prior to filling, to ensure the long term durability and structural stability of any repair.

4. FINISHED REPAIR SHOULD BE FLUSH WITH FLOOR

The goal in any floor defect repair is to restore a smooth, continuous transition across the floor surface. To achieve a flush profile, repair materials should be placed slightly higher than the floor, then shaved or ground flush with the surface.

The finished profile of any repair should be "flush" with the floor's surface. Simply filling a defect "even" with material generally results in a finished profile that is concave or dished, as repair materials typically settle a bit during cure. Repair materials should always be placed slightly higher than the floor surface and be allowed to cure. Once cured, excess material can be shaved or ground flush with the surface.

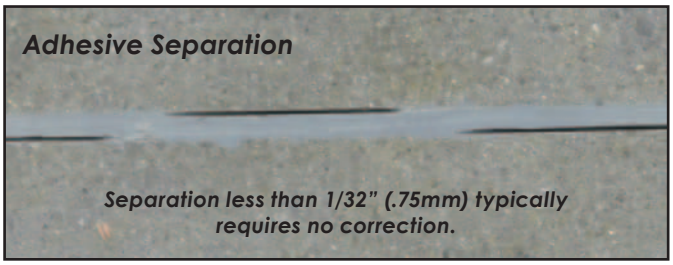
(I) = INDUSTRIAL OR HEAVY DUTY APPLICATION
(D) = DECORATIVE OR RETAIL APPLICATION

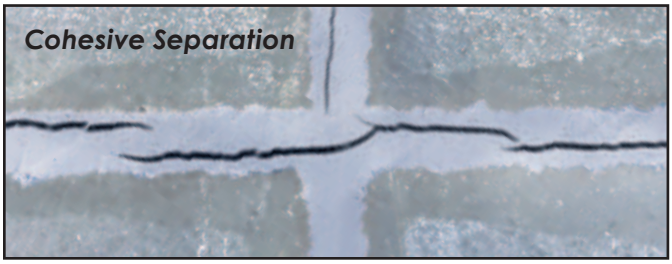
JOINT FILLER SEPARATION

Minor to Severe

Difficulty Of Repair

METZGER/McGUIRE





REPAIR MATERIAL OPTIONS

Semi-Rigid Epoxy or Polyurea Joint Filler
MM-80 (I)
MM-80P (I)
Rapid Access
Edge-Pro 90 (I)
Spal-Pro RS-88 (I)
Edge-Pro 80 (D)
Spal-Pro RS-65 (D)
Freezer/Cooler
Spal-Pro 2000 or RSF (I)

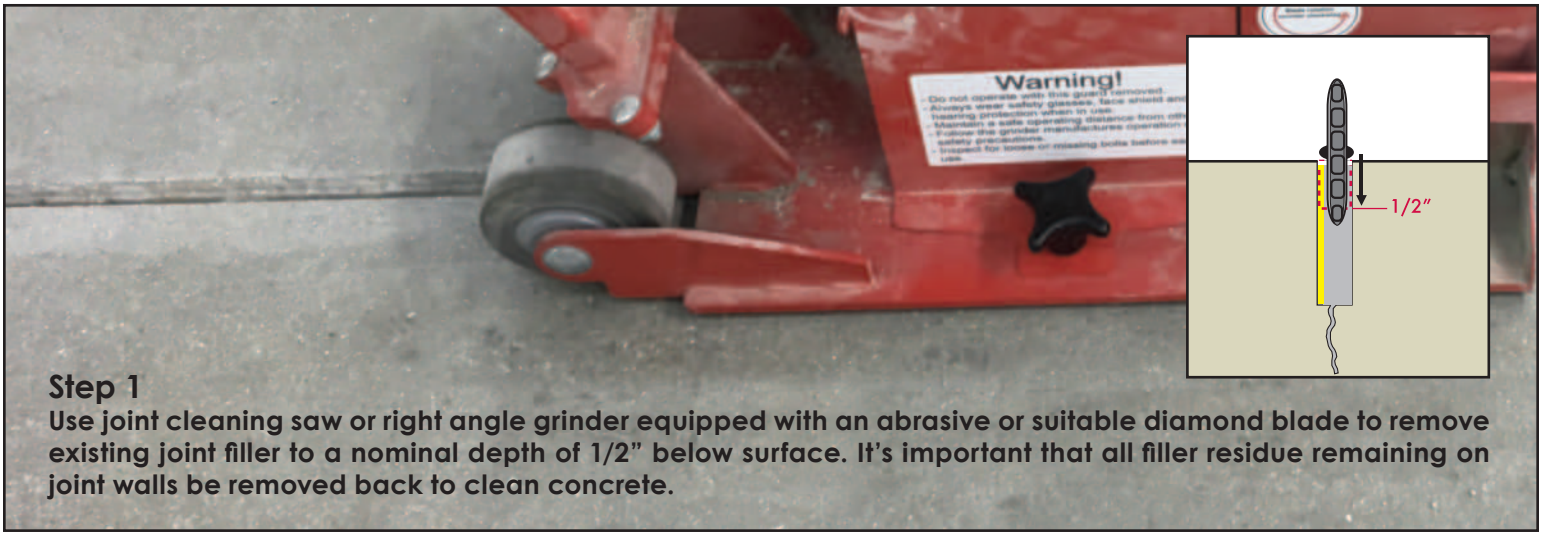
TOOLS & EQUIPMENT NEEDED

Preferred:
Joint clean-out saw with dustless shroud, Abrasive Blade, Diamond blade, Vacuum system, Razor scraper/heat (***MM-80/MM-80P***)

Minimal:
Right angle grinder, Nyalox wheel, Shop vacuum, Razor scraper/heat (***MM-80/MM-80P***)

OPTION 1 Partial Removal of Existing Filler

Before choosing this option, ensure that existing filler is well bonded structurally to one or both sides of the joint, and exhibits signs of being properly installed originally (i.e. flush with floor, proper depth, etc). If filler is not well bonded or original installation appears deficient, remove filler completely and re-apply with new material.



Step 1
Use joint cleaning saw or right angle grinder equipped with an abrasive or suitable diamond blade to remove existing joint filler to a nominal depth of 1/2" below surface. It's important that all filler residue remaining on joint walls be removed back to clean concrete.





(I) = Industrial **(D)** = Decorative

JOINT FILLER SEPARATION

Minor to Severe *(Continued)*

Difficulty Of Repair

METZGER/McGUIRE



Click to watch Joint Filler Replacement using Spal-Pro RS-88 or scan→

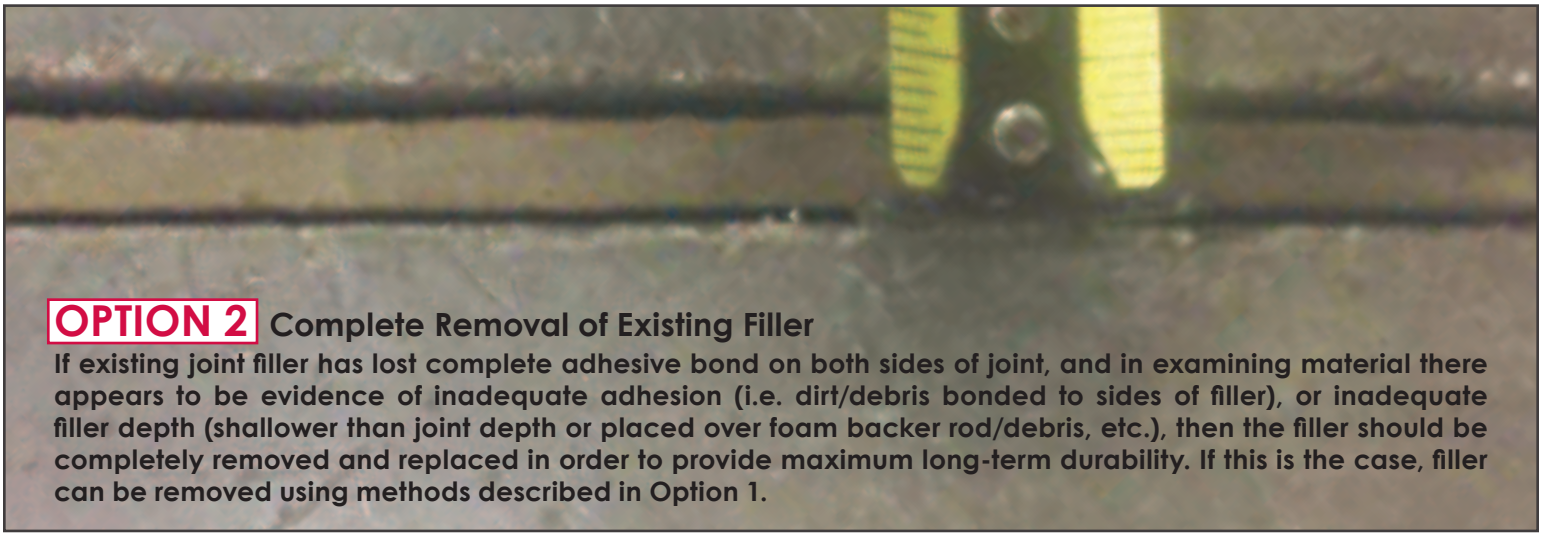
Step 3

Overfill joint with appropriate semi-rigid filler. Monitor carefully during initial material placement as filler may run through joint bottom and leave filler profile low when cured.



Step 4

Allow filler to cure, then razor flush with floor surface. (*MM-80/MM-80P* heat, then shave)



OPTION 2 Complete Removal of Existing Filler

If existing joint filler has lost complete adhesive bond on both sides of joint, and in examining material there appears to be evidence of inadequate adhesion (i.e. dirt/debris bonded to sides of filler), or inadequate filler depth (shallower than joint depth or placed over foam backer rod/debris, etc.), then the filler should be completely removed and replaced in order to provide maximum long-term durability. If this is the case, filler can be removed using methods described in Option 1.

(I) = Industrial **(D)** = Decorative

JOINT SPALLING, MINOR
Up to 1" Wide

Difficulty Of Repair

METZGER/McGUIRE



REPAIR MATERIAL OPTIONS

Semi-Rigid Epoxy or Polyurea Joint Filler

MM-80 (I)
MM-80P (I)

Rapid Access

Edge-Pro 90 (I)
Spal-Pro RS-88 (I)
Edge-Pro 80 (D)
Spal-Pro RS-65 (D)

Freezer/Cooler

Spal-Pro 2000 or RSF (I)

TOOLS & EQUIPMENT NEEDED

Preferred:
Joint clean-out saw with dustless shroud, Abrasive Blade, Diamond blade, Vacuum system, Razor scraper/heat (***MM-80/MM-80P***)

Minimal:
Right angle grinder, Nyalox wheel, Shop vacuum, Razor scraper/heat (***MM-80/MM-80P***)

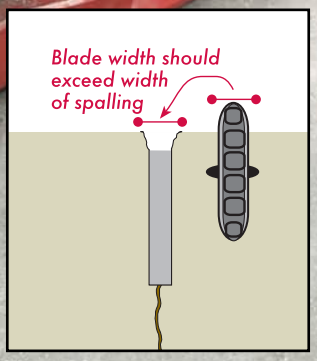
OPTION 1 Semi Rigid Filler (Neat)

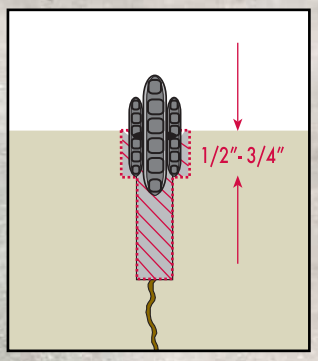
The final width of a spalled joint, including the spalls, will determine the best cleaning/re-sawing method required to recreate a proper joint for filling. If spalled joint is narrow, it may be possible to use a single diamond blade to cut a "new" joint to the same depth as the original joint (or 2" minimum).

Step 1

If joint spalling is wider than a single blade width can achieve, consider the use of a series of blades to reach the proper width. If using multiple blades, the center blade should reach the depth of the original joint and the outer blades should achieve a cutting depth of 1/2" - 3/4", creating a "T" shape after cutting.

Click to watch Minor Spalled Joint Preparation Up to 1" video or scan →

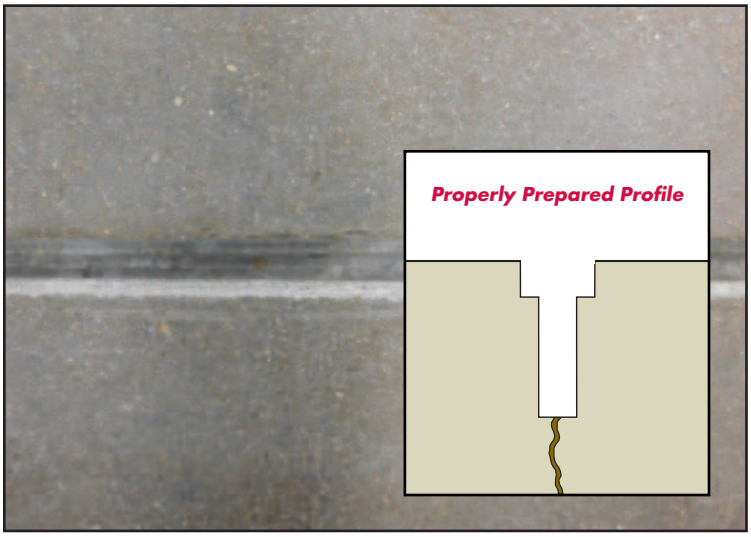




Step 2

Clean out any remaining debris or loose elements. Vacuum thoroughly joints should be dry.





(I) = Industrial **(D)** = Decorative

JOINT SPALLING, MINOR

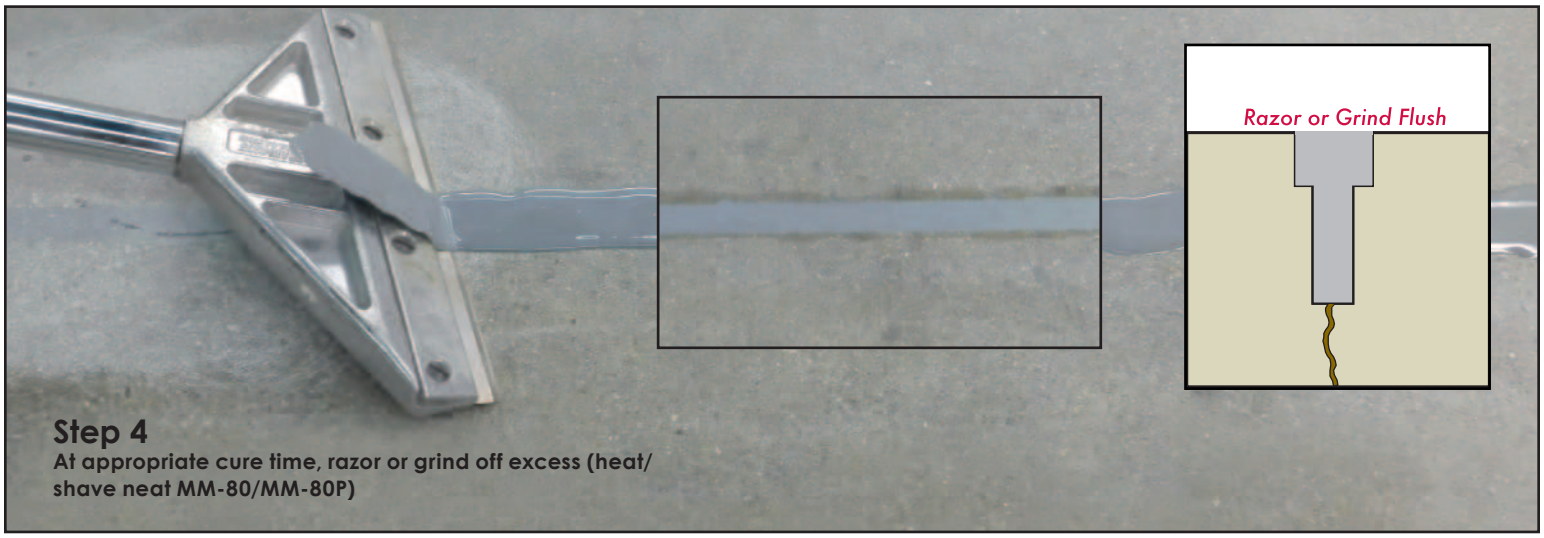
Up to 1" Wide *(Continued)*

Difficulty Of Repair

METZGER/McGUIRE



Step 3
Slightly overfill cleaned joint with semi rigid filler (several passes may be required) and allow to cure.



Step 4
At appropriate cure time, razor or grind off excess (heat/ shave neat MM-80/MM-80P)

OPTION 2 *(I)* **SAND MODIFIED MM-80/MM-80P**

(Follow Steps 1 & 2 for joint preparation)



Step 3
If using MM-80/MM-80P and joint width exceeds 1/2", it is preferable to modify the MM-80/MM-80P with silica sand. Most common ratio is 1 part mixed MM-80/MM-80P to 1 part silica, by volume.

(I) = Industrial **(D)** = Decorative

JOINT SPALLING, MINOR

Up to 1" Wide *(Continued)*

Difficulty Of Repair

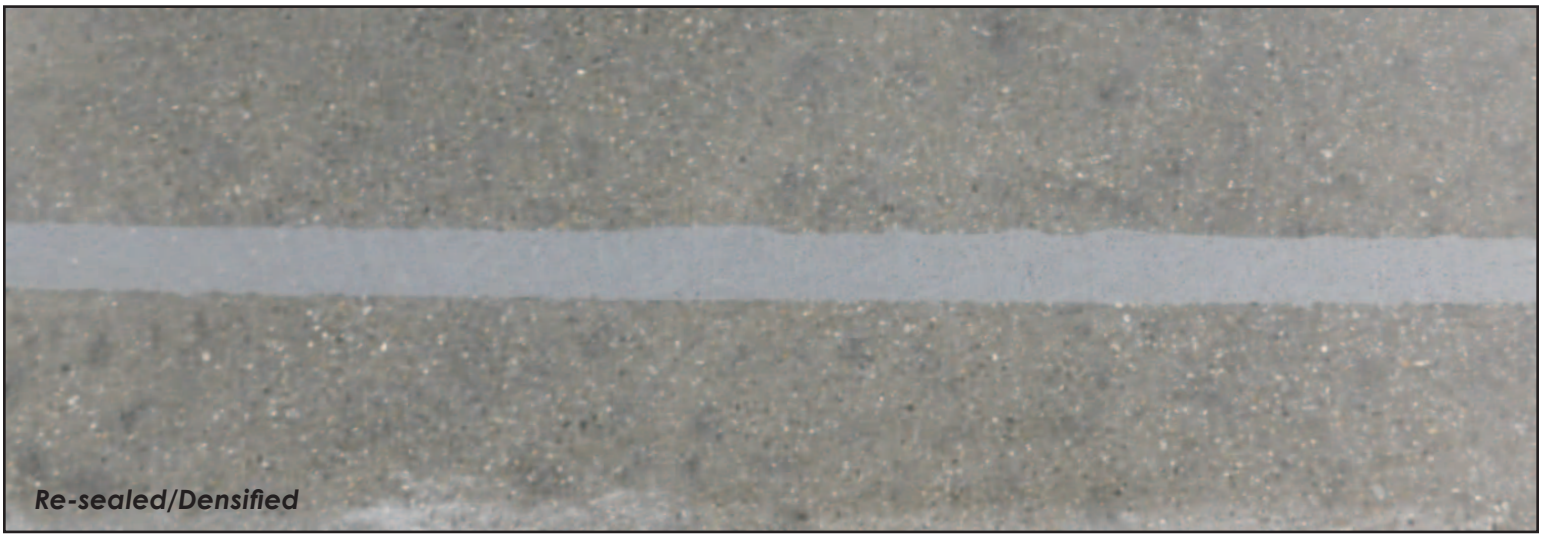
METZGER/McGUIRE



Step 4
After cure grind flush with floor surface. Grinding pad may be a diamond cup wheel, or similar silicon carbide disc.



Step 5
Re-seal/densify slab surface if necessary.



Re-sealed/Densified

(I) = Industrial **(D)** = Decorative

JOINT SPALLING, MAJOR
Greater than 1”

Difficulty Of Repair

METZGER/McGUIRE



Click to watch Spalled Joint Repair Preparation Greater Than 1” video or scan →

REPAIR MATERIAL OPTIONS

Structural Epoxy Mortar
Armor-Hard (I)
Armor-Hard Extreme (I)
Armor-Hard Primer (I)

Sand Modified Semi Rigid Epoxy
MM-80/MM-80P (I)

Freezer/Cooler
Spal-Pro 2000 or RSF (I)

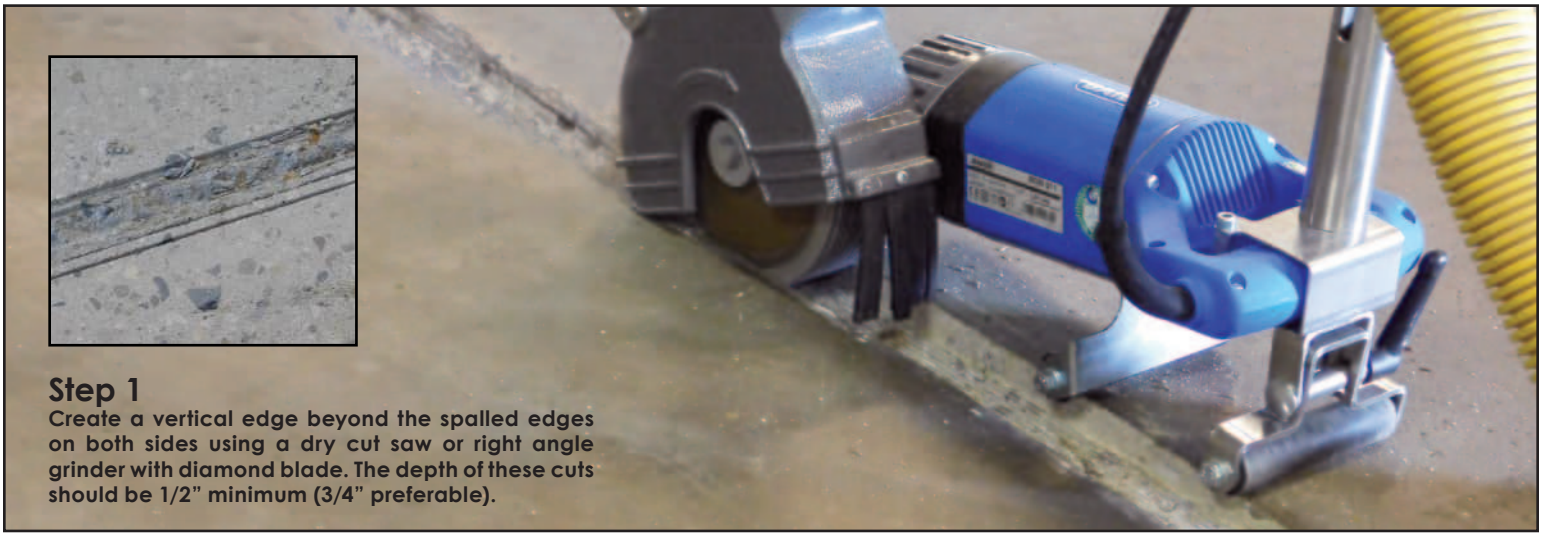
TOOLS & EQUIPMENT NEEDED

Preferred:
Stand up walk behind dry cut saw with dustless shroud, Diamond blades, Vacuum system, Razor scraper/heat (***MM-80/MM-80P***), Pneumatic/electric chipper, Diamond cup wheel or similar

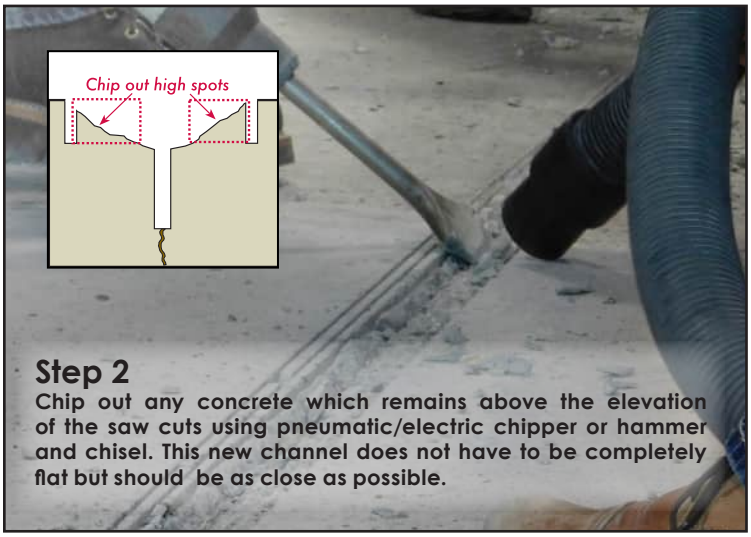
Minimal:
Right angle grinder with dustless shroud, Nyalox wheel, Shop vacuum, Razor scraper/heat (***MM-80/MM-80P***), hammer/chisel, Diamond cup wheel or similar

OPTION 1 Structural Epoxy Mortar

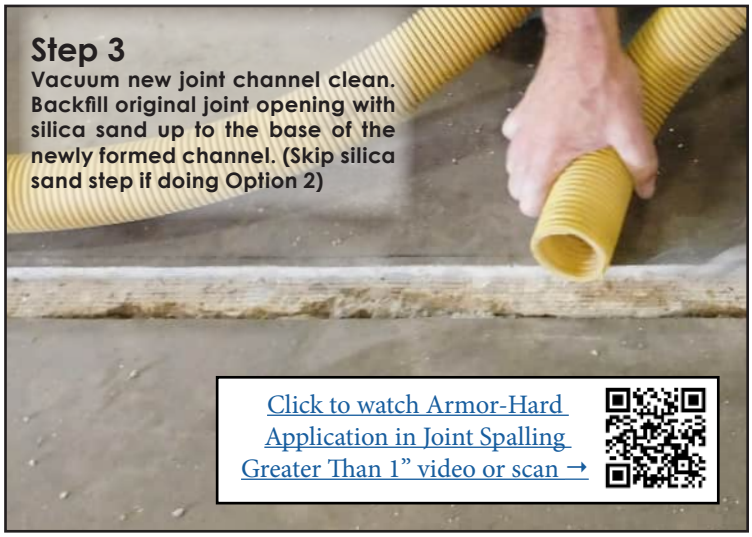
OPTION 2 Sand Modified MM-80/MM-80P



Step 1
Create a vertical edge beyond the spalled edges on both sides using a dry cut saw or right angle grinder with diamond blade. The depth of these cuts should be 1/2” minimum (3/4” preferable).



Step 2
Chip out any concrete which remains above the elevation of the saw cuts using pneumatic/electric chipper or hammer and chisel. This new channel does not have to be completely flat but should be as close as possible.



Step 3
Vacuum new joint channel clean. Backfill original joint opening with silica sand up to the base of the newly formed channel. (Skip silica sand step if doing Option 2)

Click to watch Armor-Hard Application in Joint Spalling Greater Than 1” video or scan →

(I) = Industrial **(D)** = Decorative

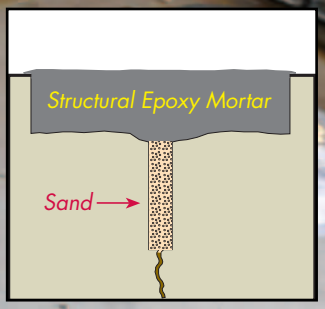
JOINT SPALLING, MAJOR

Greater than 1" *(Continued)*

Difficulty Of Repair

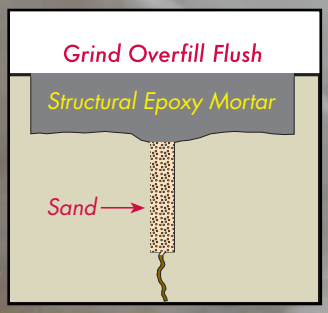
METZGER/McGUIRE

OPTION 1 Structural Epoxy Mortar



Step 4

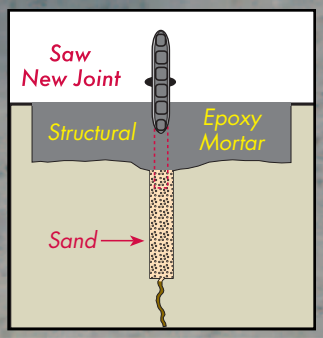
Trowel *Armor-Hard/Armor-Hard Extreme* mortar smooth and only slightly higher than edges of the slab panels. Pending how dry of mix is used, priming repair area first with Armor-Hard Primer may be required.



Step 5

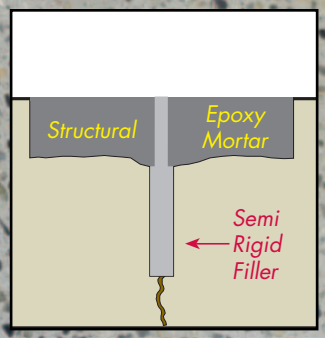
Allow mortar to cure. Grind off overfill until repair surface and edges are flush with both slab panels.

Click to watch Edge Pro-90 Joint Filling in Armor-Hard Repair video or scan →



Step 6

Using joint cleaning saw and diamond blade, create a new joint through structural repair mortar. Ensure depth of cut exceeds depth of mortar. Depth of cut should equal depth of original joint (or 2" minimum).



Step 7

Overfill newly formed joint with semi-rigid epoxy or polyurea joint filler. Allow to cure. Razor off excess filler flush with repair mortar.

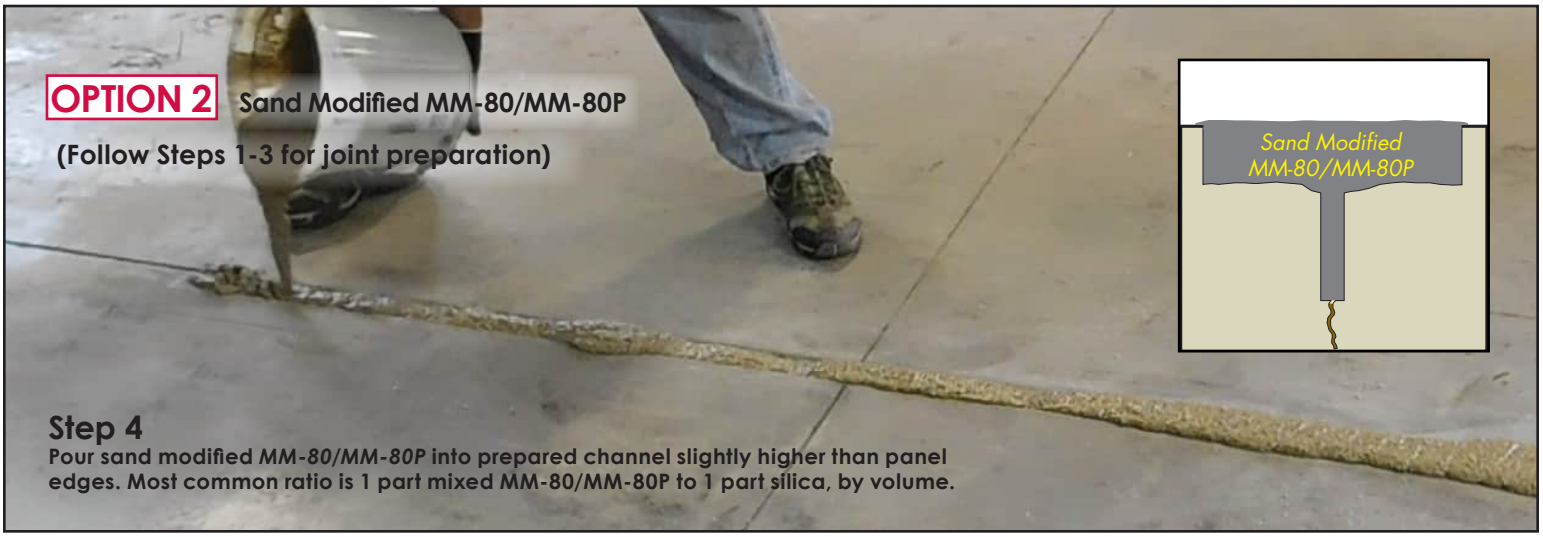
(I) = Industrial **(D)** = Decorative

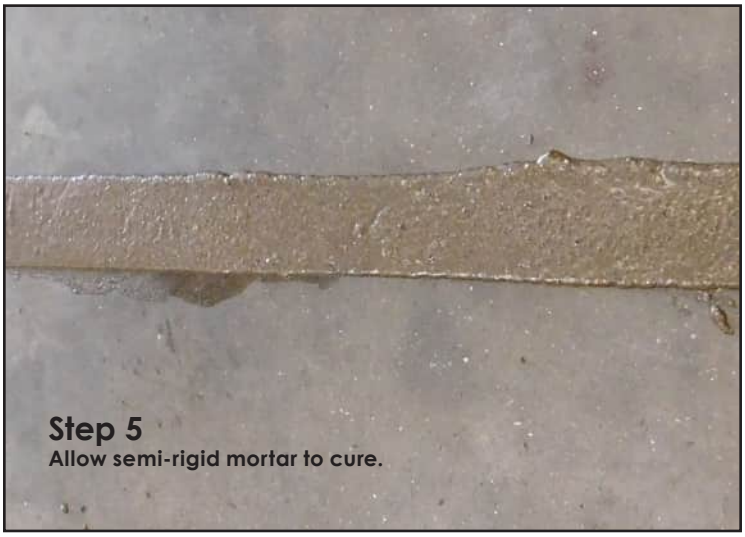
JOINT SPALLING, MAJOR

Greater than 1" *(Continued)*

Difficulty Of Repair

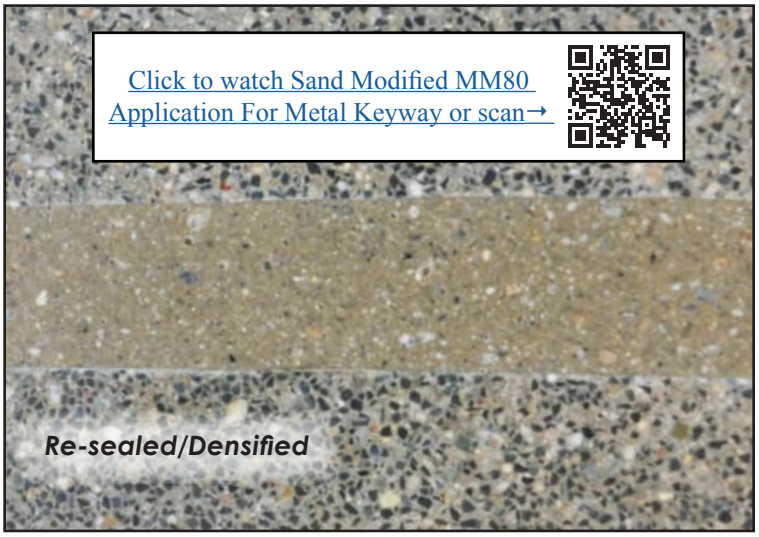
METZGER/McGUIRE











(I) = Industrial **(D)** = Decorative





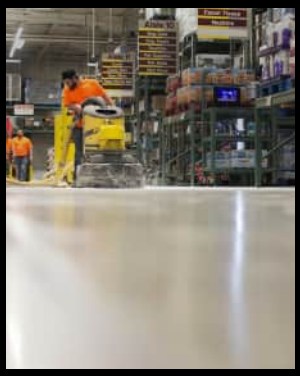


FLOOR JOINT FILLERS FOR CONCRETE FLOORS

For more than 45 years, Metzger/McGuire has been the world leader in concrete floor joint protection systems. From MM-80, the industry's first and widely acknowledged industry standard heavy-duty epoxy joint filler, to the cutting edge Spal-Pro and Edge-Pro lines of rapid-setting polyurea joint fillers, you can rely on Metzger/McGuire joint fillers to provide superior joint edge protection and to enhance the long term durability of your industrial or retail floor.

PRODUCT	SPAL-PRO RS 65 Semi-Rigid Polyurea Joint Sealant		EDGE-PRO 80 SEMI-RIGID POLYUREA JOINT FILLER		SPAL-PRO RS 88 Semi-Rigid Polyurea Joint Filler (LEED v4)		SPAL-PRO RSF			MM-80 (LEED v4)	EDGE-PRO 90 (LEED v4)	
	NEW CONSTRUCTION		NEW CONSTRUCTION		NEW CONSTR./REPAIR		NEW CONSTR./REPAIR			NEW CONSTR./REPAIR	NEW CONSTR./REPAIR	
APPLICATION RANGE	Ambient	Cooler	Ambient	Cooler	Ambient	Cooler	Ambient	Cooler	Freezer	Ambient	Ambient	Cooler
PRODUCT DESCRIPTION	Rapid-Set Semi-Rigid Polyurea Joint Sealant		Moderate-Duty Semi-Rigid Polyurea Joint Filler		Rapid-Set Semi-Rigid Polyurea Joint Filler		Low-Temp Semi-Rigid Polyurea Joint Filler			Heavy-Duty Semi-Rigid Epoxy Joint Filler	Heavy-Duty Semi-Rigid Polyurea Joint Filler	
TYPICAL USES	Seal control and construction joints in retail and commercial concrete floors. Repair active cracks exceeding 1/8" in width.		Fill and protect joints in exposed concrete retail floors and in moderate-duty warehouse concrete floors.		Fill or repair control and construction joints in industrial and retail concrete floors. Repair active cracks exceeding 1/8" in width.		Fill and protect joints in freezer/cooler or ambient concrete floors subject to hard wheels and heavy loads.			Fill and protect joints in heavy duty industrial concrete floors subjected to frequent and demanding traffic. Repair joint deterioration.	Fill and protect joints in heavy duty industrial concrete floors subjected to frequent and demanding traffic. Repair joint deterioration.	
SHORE HARDNESS	A 64-69		A 80-81		A 86-90		A 88-94			A 90-95	A 90-92	
TENSILE STRENGTH	393 psi		505 psi		970 psi		930 psi			1200 psi	920 psi	
TENSILE ELONGATION	162%		152%		180%		170%			80-90%	238%	
ADHESION TO CONCRETE	350-400 psi		350-400 psi		350-400 psi		350-400 psi			300-350 psi	300-350 psi	
APPLICATION METHOD	Dual Pump or Cartridge		Dual Pump or Cartridge		Dual Pump or Cartridge		Dual Pump or Cartridge			Dual Pump or Hand Mix	Dual Pump or Cartridge	
POT LIFE	NA-No Hand Mix		NA-No Hand Mix		NA-No Hand Mix		NA-No Hand Mix			10-15 minutes	NA-No Hand Mix	
TACK FREE AT 70°F	10-15 minutes		3 minutes		5 minutes		30 minutes (at 32° F)			5 hours	10-15 minutes	
FULL TRAFFIC READY	30-60 minutes		1 hour		1 hour		3-5 hours (at 32° F)			8-12 hours	45 minutes	
COLORFAST	Yes		Yes		Yes		No			No	Yes	
MIX RATIO	1:1 by Volume		1:1 by Volume		1:1 by Volume		1:1 by Volume			1:1 by Volume	1:1 by Volume	
AVAILABLE PACKAGING	600 ml dual cartridge 10 gallon unit		600 ml dual cartridge 10 gallon unit		600 ml dual cartridge 10 gallon unit		1500 ml dual cartridge 10 gallon unit			1 gallon unit (MM-80) 10 gallon unit	600 ml dual cartridge 10 gallon unit	

When it comes to concrete floor joint fillers and repair products, "standard gray" is no longer the only color standard...





RAPID SET CONCRETE FLOOR REPAIR PRODUCTS

No one offers more innovative and durable repair solutions for industrial and polished concrete floors than Metzger/McGuire. Our rapid-setting repair products offer unequaled long-term durability with fast access times, thus ensuring minimal interruption to facility operations. All Metzger/McGuire products are 100% solids with no/minimal odor for safe and hassle free installation in all types of facilities.

SPAL PRO 2000	SRG LEED v4	Rapid Refloor PIT GROUT LEED v4	Rapid Refloor LEED v4	Rapid Refloor XP	ARMOR-HARD KIT	ARMOR-HARD XTREME
REPAIR	**REPAIR**	**REPAIR**	**REPAIR**	**REPAIR**	**REPAIR**	**REPAIR**
Ambient / Cooler / Freezer	Ambient	Ambient	Ambient / Cooler	Ambient / Cooler	Ambient	Ambient / Cooler
Rapid-Set Semi-Rigid Polyurea Joint Polymer	Rapid-Set Surface Restoration Poylmer	Fast-Set Low Viscosity Surface Repair Product	Fast-Set Low Viscosity Structural Repair Product	Fast-Set Extended Pot Life Structural Repair Product	Early-Set Structural Epoxy Mortar	Quick-Set Multi-Temp Structural Epoxy Mortar
Repair control/construction joints and cracks in ambient or freezer/cooler concrete floors.	Fill/repair concrete floor surface imperfections such as air holes, popouts, surface pitting, scratches and gouges, etc.	Structurally repair concrete Fill/repair concrete floor surface imperfections such as air holes, popouts, surface pitting, scratches and gouges, etc.	Structurally repair concrete surface defects, including popouts, gouges, nail holes, etc. Repair static cracks less than 1/8" wide.	Repair surface defects in industrial or stained/polished concrete floors including surface spalls/popouts, surface pitting, bolt-holes, random cracks and more.	Early-set system designed specifically for the repair of industrial concrete floors. Rebuild joint edges or repair large surface defects.	Rebuild/repair control and construction joints in industrial and retail concrete floors. Repair large surface defects.
D 95-100	D 70-75	D 70-75	D 70-75	D 75-80	D 86+	D 92
2850 psi	4184 psi	5100 psi	5500 psi	4300 psi	1400 psi	2000 psi
Not Tested	2.8%	7-9%	6-8%	14-18%	NA	NA
350 psi	Concrete Fails	Concrete Fails	Concrete Fails	Concrete Fails	Concrete Fails	Concrete Fails
Dual Pump or Cartridge	Hand Mix	Cartridge	Cartridge	Hand Mix	Hand Mix	Hand Mix
NA-No Hand Mix	5 minutes	1-1½ minutes	NA-No Hand Mix	3½-4 minutes	30-40 minutes	12-15 minutes
3-5 minutes	20-30 minutes	15 minutes	5-8 minutes	5-8 minutes	3-4 hours	1 hour
30 minutes	1 hour	45 minutes	15-30 minutes	60-120 minutes	4-8 hours	2-4 hours
No	Yes	Yes	Yes	Yes	No	No
2:1 by Volume	1:1 by Volume	1:1 by Volume	1:1 by Volume	1:1 by Volume	4:1 by Volume	5:1 by Volume
450 & 900 ml dual cartridge 15 gallon unit	2 gallon unit 10 gallon unit	1500 ml dual cartridge	600 ml dual cartridge 250 ml universal cartridge	2 gallon unit 10 gallon unit	540 cubic inch kit (2.3 gallons)	300 cubic inch kit (1.3 gallons) Liquids only: 1 gallon unit and 30 gallon unit

With the increased use of integral colors, stains and polishing on concrete floors, concrete has gone from being a simple, utilitarian gray work surface to a canvas of creativity. Exposed, decorative concrete is rapidly replacing traditional floor coverings as a cost-effective and earth friendly alternative work and showroom surface. Today's floors demand the availability of joint fillers and repair products in a range of colors to both protect and enhance the floor, while offering cost-effective and durable solutions. *Metzger/McGuire's* ColorFast line is the perfect solution when aesthetics are just as important as durability and longevity.

PCC022020

RANDOM CRACKS
1/8” Width or Less

Difficulty Of Repair

METZGER/McGUIRE



REPAIR MATERIAL OPTIONS

Low Viscosity Structural Repair Polymer
Rapid Refloor (I, D)
Rapid Refloor XP (I, D)
SRG (D)

Freezer/Cooler
Rapid Refloor (I, D)

TOOLS & EQUIPMENT NEEDED

Preferred:
Drill with Nyalox wheel, Medium grit grinding pad, Vacuum

Minimal:
Wire Brush, Vacuum

If crack is approximately 1/8” wide or less and slab cure time is over 1 year, we recommend not to rout the crack wider. If future movement is anticipated, 1/8”-1” crack repair detail may be a better option.













(I) = Industrial **(D)** = Decorative

RANDOM CRACKS
1/8 - 1” Wide

Difficulty Of Repair

METZGER/McGUIRE



REPAIR MATERIAL OPTIONS

Semi-Rigid Epoxy or Polyurea Filler
MM-80/MM-80P (I)
(Neat or Sand Modified)
Spal-Pro 2000 (I)
Edge-Pro 90 (I)
RS-88 (I/D)
***EP-80* (D)**
***RS-65* (D)**

Freezer/Cooler
Spal-Pro 2000 or RSF (I)

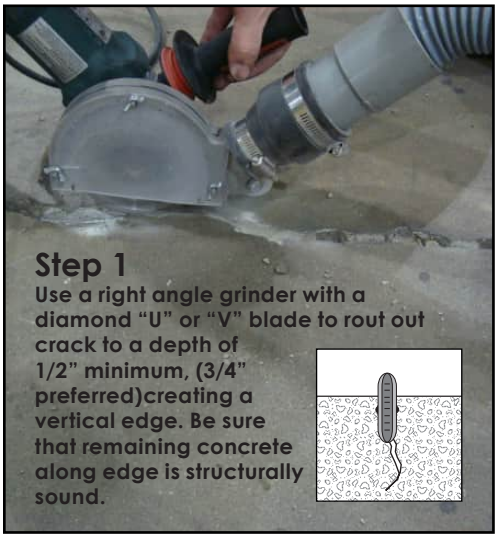
TOOLS & EQUIPMENT NEEDED

Preferred:
Right angle grinder, with dustless shroud, Crack chasing saw, Diamond blades “U” or “V” shaped, Vacuum system, Razor scraper / heat (***MM-80/MM-80P***)

Minimal:
Right angle grinder, Diamond blades “U” or “V” shaped, shop vacuum, Razor scraper / heat (***MM-80/MM-80P***)

Click to watch Industrial Random Cracks 1/4” to 1” Preparation video or scan →

RS-88 for Retail Cracks 1/4” to 1 “ Installation Instructions

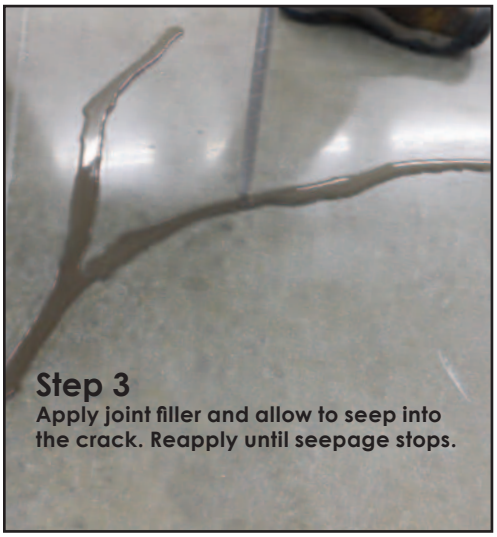


Step 1
Use a right angle grinder with a diamond “U” or “V” blade to rout out crack to a depth of 1/2” minimum, (3/4” preferred)creating a vertical edge. Be sure that remaining concrete along edge is structurally sound.



Step 2
Clean out any remaining debris or loose elements. Vacuum thoroughly.

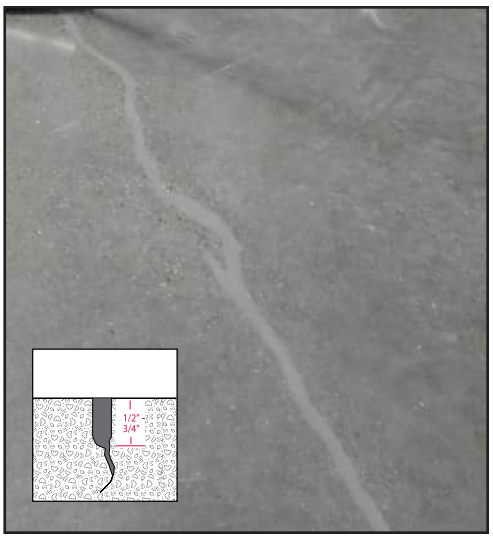




Step 3
Apply joint filler and allow to seep into the crack. Reapply until seepage stops.



Step 4
Allow to cure. Razor off excess. (If using neat MM-80/MM-80P, apply heat prior to shaving). Grind flush if using sand modified MM-80/MM-80P.



(I) = Industrial **(D)** = Decorative

SURFACE SPALLS/DEFECTS

Less than 6” Unmodified

Difficulty Of Repair

METZGER/McGUIRE



REPAIR MATERIAL OPTIONS

Low Viscosity Structural Repair Polymer (Neat)
Rapid Refloor (I, D)
Rapid Refloor XP (D)
SRG (D)

Freezer/Cooler
Rapid Refloor (I, D)

TOOLS & EQUIPMENT NEEDED

Preferred:
Drill with Nyalox or soft wire wheel, Chipping hammer/hammer & chisel, Medium grit grinding pad, Vacuum

Minimal:
Wire brush, Vacuum, Medium grit grinding pad

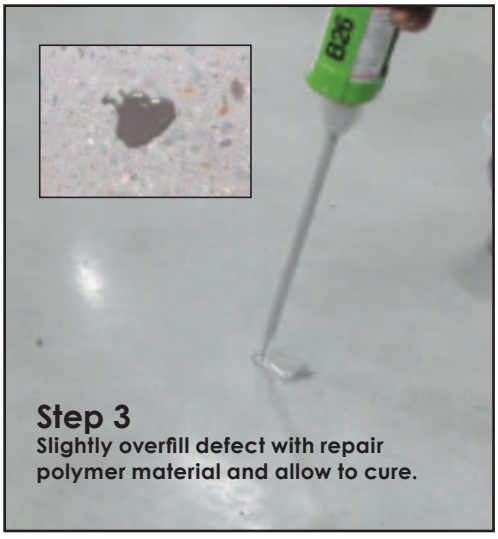
Note: These repairs do not need to be “squared up” (such as structural epoxy/mortar repair) These products are designed to adhere in a “feathered edge” application.



Step 1
Remove any unsound or loose concrete. Run drill with Nyalox or soft wire wheel over defects twice (in opposite directions). If bolt is present pound/cut down to allow 1/2” material cover.



Step 2
Clean out any remaining debris or loose elements. Vacuum thoroughly. Repair surface must be dry.



Step 3
Slightly overfill defect with repair polymer material and allow to cure.



Step 4
Grind off overfill flush to floor surface with Norton Rapid strip pad or similar medium grit grinding pad.



(I) = Industrial **(D)** = Decorative

SURFACE SPALLS/DEFECTS
Less than 6” Modified

Difficulty Of Repair

METZGER/McGUIRE



REPAIR MATERIAL OPTIONS

Low Viscosity Structural Repair Polymer
Rapid Refloor (I, D)
Rapid Refloor Pit Grout (I, D)
Rapid Refloor XP (D)
SRG (D)

TOOLS & EQUIPMENT NEEDED

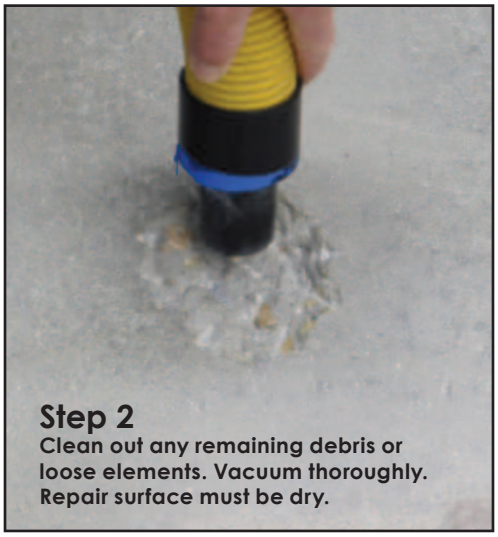
Preferred:
Drill with Nyalox or soft wire wheel, Chipping hammer/hammer & chisel, Vacuum, Diamond cup wheel or similar

Minimal:
Wire brush, Hammer & Chisel, Vacuum, Diamond cup wheel or similar

Note: Polymer modification will depend highly on which product is chosen. Polymers with very rapid initial set times (Rapid Refloor & Rapid Refloor Pit Grout, 1-1$^{1/2}$ minutes) may allow a quick sprinkling/mixing of dry sand/aggregate. Polymers with a slower initial set time (Rapid Refloor XP & SRG, 3-5 minutes) allow for a more customized blend to be added.



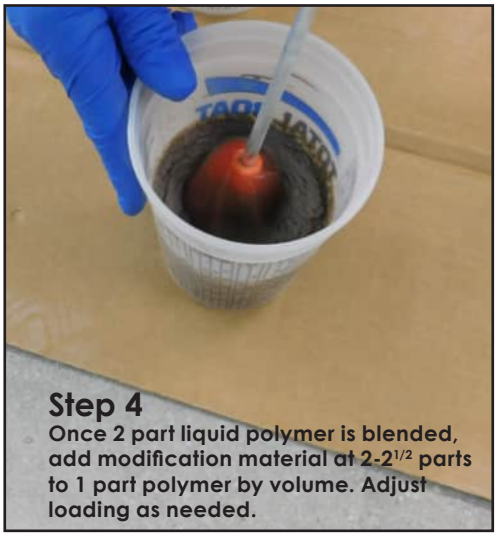
Step 1
Remove any unsound or loose concrete. Run drill with Nyalox or soft wire wheel over defects twice (in opposite directions). If bolt is present pound/cut down to allow 1/2” material cover.



Step 2
Clean out any remaining debris or loose elements. Vacuum thoroughly. Repair surface must be dry.



Step 3
If a dry mix is preferred, pre-prime repair with mixed polymer liquid.



Step 4
Once 2 part liquid polymer is blended, add modification material at 2-2$^{1/2}$ parts to 1 part polymer by volume. Adjust loading as needed.



Step 5
Slightly overfill area with repair material.



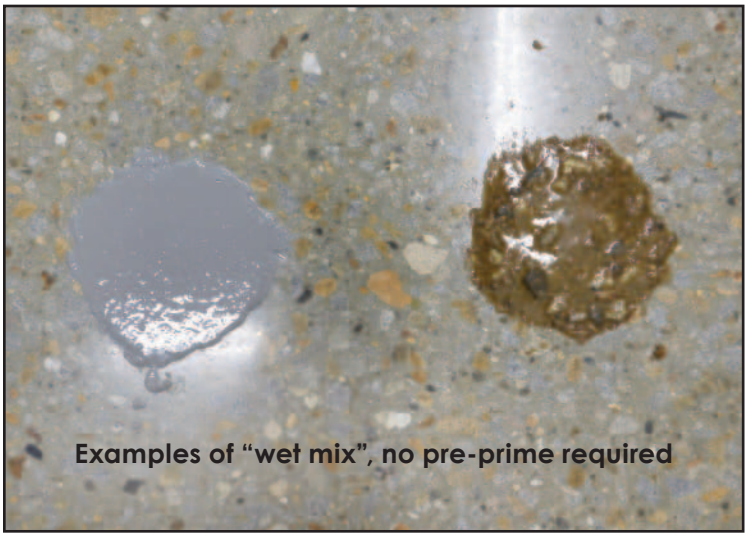
Step 6
Trowel smooth, slightly high.

(I) = Industrial **(D)** = Decorative

SURFACE SPALLS/DEFECTS
Less than 6” Modified

Difficulty Of Repair

METZGER/McGUIRE



Examples of “wet mix”, no pre-prime required



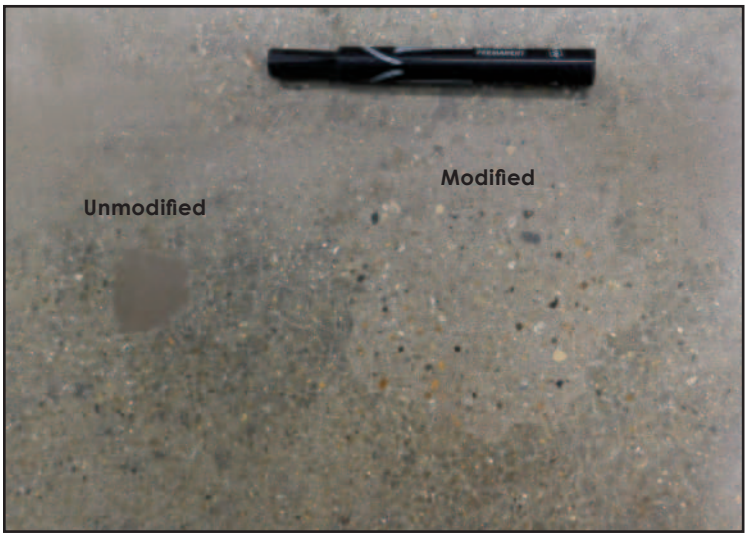
Step 7
Remove overfill to create smooth, flush surface by grinding flush with cup wheel or similar.

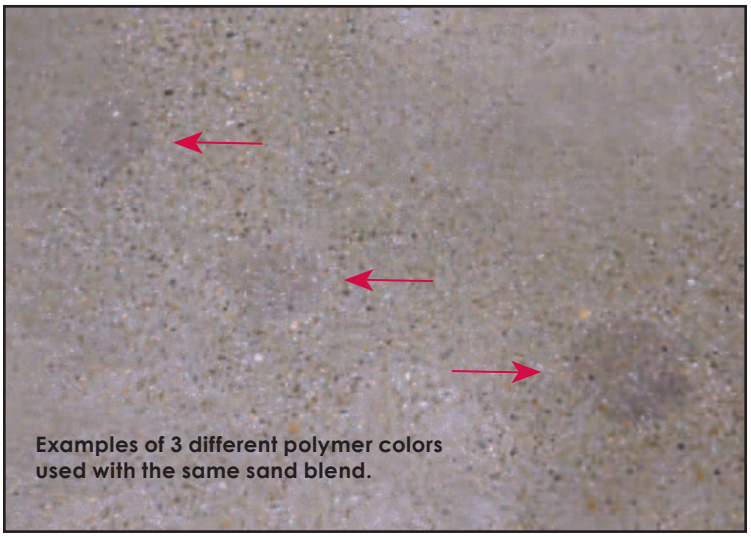


If ‘pin holes” are present at surface, a “grout coat” may be desired.



Step 8 (Optional)
Grout surface area with color matching Rapid Refloor Pit Grout or SRG - remove grout coat film upon cure, and continue with finishing steps.





Examples of 3 different polymer colors used with the same sand blend.

(I) = Industrial **(D)** = Decorative

SURFACE SPALLS/DEFECTS

Larger than 6”

Difficulty Of Repair

METZGER/McGUIRE



REPAIR MATERIAL OPTIONS

Structural Epoxy Mortar
Armor-Hard (I)
Armor-Hard Extreme (I)
Armor-Hard Primer (I)

Rapid Access
Rapid Refloor XP (D)
SRG (D)

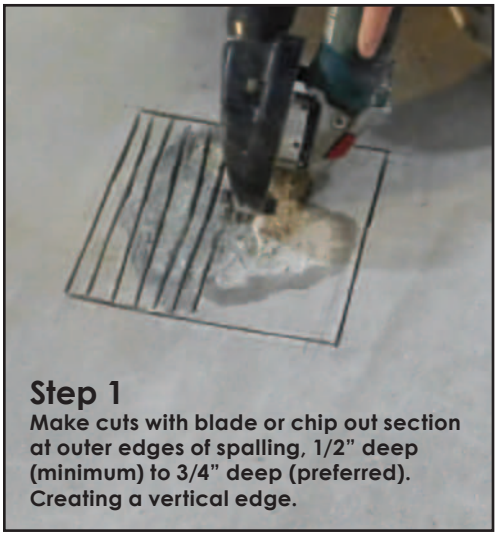
Freezer/Cooler
Spal-Pro 2000 (I)
Armor-Hard Extreme (I)

TOOLS & EQUIPMENT NEEDED

Preferred:
Right angle grinder with dustless shroud, Diamond blades, Chipping hammer, Diamond cup wheel or similar, Vacuum system

Minimal:
Right angle grinder with dustless shroud, Diamond blades, 3 lb. hammer, Cold chisel, Diamond cup wheel or similar, Shop vacuum

Note: This same process can also be used for defects less than 6” in heavy trafficked floors.



Step 1
Make cuts with blade or chip out section at outer edges of spalling, 1/2” deep (minimum) to 3/4” deep (preferred). Creating a vertical edge.



Step 2
Chip or grind out any high spots above level of cuts.



Step 3
Clean out any remaining debris or loose elements. Vacuum thoroughly. Repair surface must be dry. If a dry mix is preferred, prime repair area with Armor-Hard Primer prior to placement of Armor-Hard/Armor-Hard Extreme.



Step 4
Slightly overfill area with repair material and trowel smooth, slightly high.



Step 5
Remove overfill to create smooth, flush surface by grinding flush with Diamond cup wheel or similar.



(I) = Industrial **(D)** = Decorative

SURFACE REFINEMENT

Difficulty Of Repair

METZGER/McGUIRE



REPAIR MATERIAL OPTIONS

Low Viscosity Structural Repair Polymer

Rapid Refloor Pit Grout (I, D)

SRG (D)

Proper grinding/polishing equipment is necessary for use of these products. Please speak directly to Metzger/McGuire technical support for guidance.

TOOLS & EQUIPMENT NEEDED

Preferred:

Shot blast equipment, Drill with Nyalox or soft wire wheel, Vacuum, Steel trowel (stand up)

Minimal:

Drill with Nyalox or soft wire wheel, vacuum, Hand held steel trowel

Note: When grinding and polishing interior floors there may be small surface imperfections which need to be filled. These imperfections may vary from small air (pin) holes to larger surface deterioration. This system encapsulates surface repairs less than 1/2" in diameter.



Step 1

Perform initial grind on floor up to 70/80 metal step (or similar). **All steps must be dry**



Step 2

Properly repair any surface defects 1/2" diameter or larger.



Step 3

Thoroughly vacuum slab surface.



Step 4

Apply pre-mixed polymer generously to floor surface and spread with either stand up hard edge tool or hand held steel trowel. Pull material down tightly to the floor surface.



(I) = Industrial **(D)** = Decorative

SURFACE REFINEMENT

Difficulty Of Repair

METZGER/McGUIRE

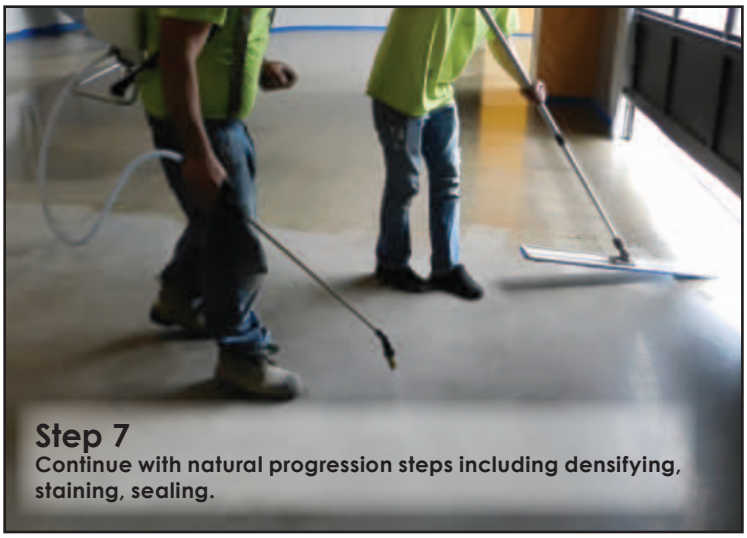


Step 5
Allow polymer to cure (approximately 45-60 minutes at 70˚F)

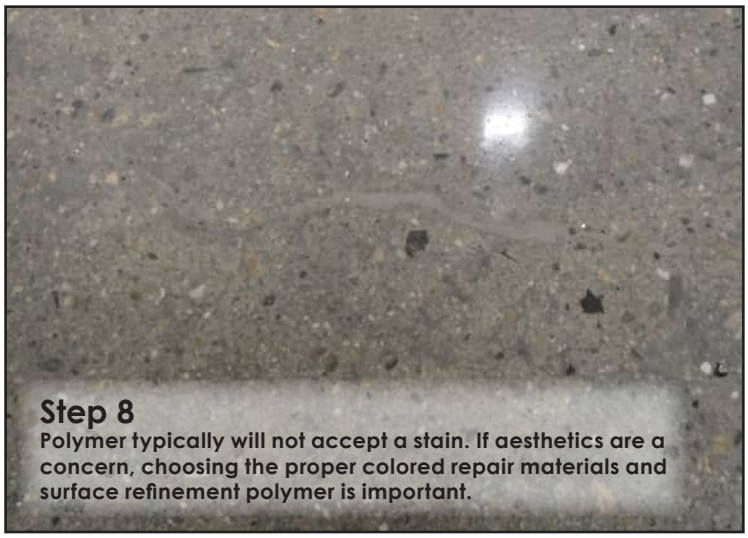


Click to watch SRG Installation Instructions video or scan →

Step 6
Use least aggressive tooling on grinder to remove surface film, typically this will be the next natural progression step in the grinding/polishing process.



Step 7
Continue with natural progression steps including densifying, staining, sealing.



Step 8
Polymer typically will not accept a stain. If aesthetics are a concern, choosing the proper colored repair materials and surface refinement polymer is important.





(I) = Industrial **(D)** = Decorative

TOOLS & ACCESSORIES REFERENCED IN THIS GUIDE

— TYPICAL EXAMPLES —

DIAMOND U BLADE



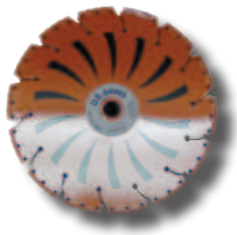
JOINT CLEANING/PREP DIAMOND BLADE



STELLITE JOINT FILLER REMOVAL BLADE



JOINT FILLER REMOVAL BLADE



HEAVY ABRASIVE PAD



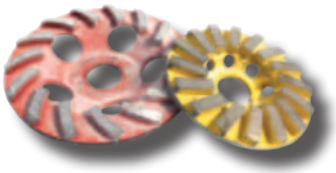
TELESCOPING FLOOR RAZOR SCRAPER



DUAL CARTRIDGE DISPENSING GUN



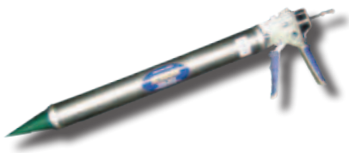
DIAMOND CUP WHEEL





DUSTLESS SHROUD FOR ANGLE GRINDER

SINGLE CHAMBER BULK-TYPE CAULKING GUN



MEDIUM GRIT FINISHING PAD



.75" NYALOX END BRUSH

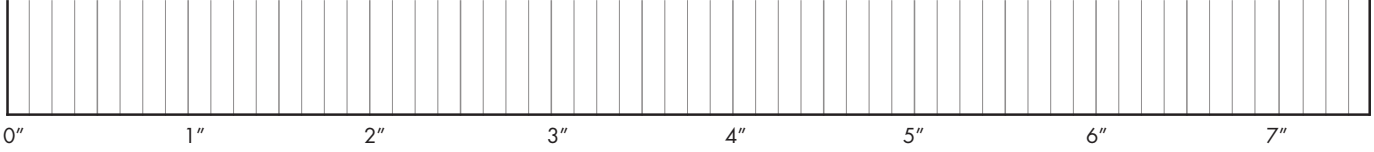


2.5" NYALOX CUP BRUSH



3" & 4" NYALOX WHEEL





APPROXIMATE MATERIAL COVERAGE RATES

Narrow Joints and Cracks

1/8 x 3/4″	= 200 lf/gal.	3/16 x 3/4″	= 135 lf/gal.	1/4 x 3/4″	= 100 lf/gal.
1/8 x l″	= 150 lf/gal.	3/16 x 1″	= 100 lf/gal.	1/4 x 1″	= 80 lf/gal.
1/8 x 1-1/4″	= 125 lf/gal.	3/16 x 1-1/4″	= 85 lf/gal.	1/4 x 1-1/4″	= 60 lf/gal.
1/8 x 1-1/2″	= 100 lf/gal.	3/16 x 1-1/2″	= 70 lf/gal.	1/4 x 1-1/2″	= 50 lf/gal.
1/8 x 1-3/4″	= 85 lf/gal.	3/16 x 1-3/4″	= 60 lf/gal.	1/4 x 1-3/4″	= 45 lf/gal.
1/8 x 2″	= 75 lf/gal.	3/16 x 2″	= 50 lf/gal.	1/4 x 2″	= 40 lf/gal.

Wider Joints and Cracks

3/8 x 3/8″	= 135 lf/gal.	3/4 x 1/2″	= 50 lf/gal.	1 x 3/4″	= 25 lf/gal.
3/8 x 1/2″	= 100 lf/gal.	3/4 x 3/4″	= 35 lf/gal.	1 x 1″	= 20 lf/gal.
1/2 x 1/2″	= 80 lf/gal.	1 x 1/2″	= 40 lf/gal.	1 x 2″	= 10 lf/gal.

Converting Gallon Coverage Rates for Cartridge Units

To determine coverage rates for cartridge units divide the gallon rates listed above by the following factors:

450 ML Divide Gal. Yield by 8

600 ML Divide Gal. Yield by 6

900 ML Divide Gal. Yield by 4

1500 ML Divide Gal. Yield by 2.5

250 ML Divide Gal. Yield by 15

Sand Modification Yields

Liquid Epoxy + Silica Sand = Mortar Yield

GAL. EPOXY	+ GALS. SAND	= GALS. MORTAR
1	1	1.6
1	1.5	1.9
1	2	2.2
1	2.5	2.5
1	3	2.8

Defect Repair Yields

Standard Material Kit and Cartridge Units

UNIT SIZE	NET MATERIAL YIELD
250 ML UNIT	16.50 cubic inches
450 ML UNIT	28.75 cubic inches
600 ML UNIT	38.34 cubic inches
900 ML UNIT	57.50 cubic inches
1500 ML UNIT	98.83 cubic inches
GALLON UNIT	230.00 cubic inches

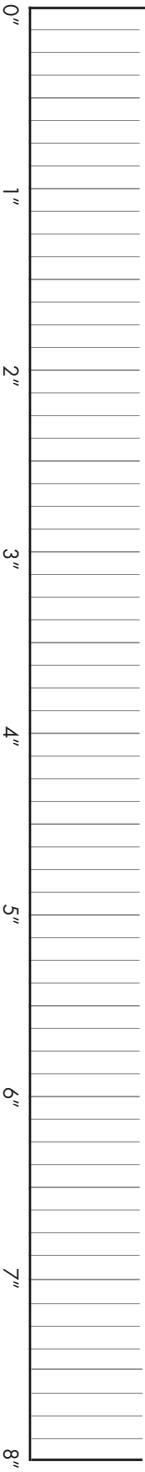
Note: The above figures are approximate and for estimating purposes only. The rates shown do not allow for substantial waste, overfill, etc. Results may vary due to factors including material loss at joint base, grade of silica used, etc. Metzger/McGuire assumes no liability for results from using these figures.

METZGER/McGUIRE

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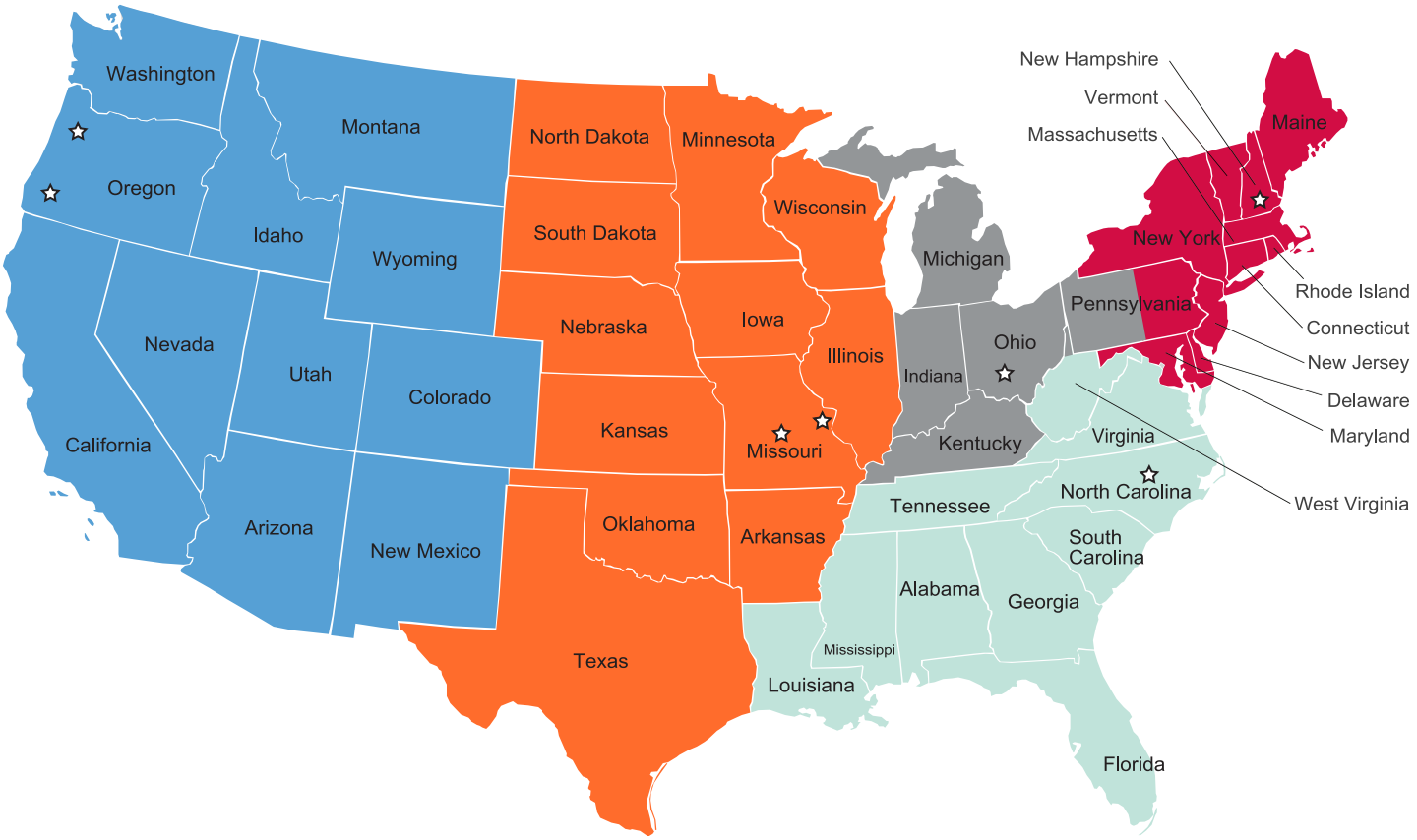
Click here or scan QR code to use our Coverage Calculator!



METZGER/McGUIRE

INDUSTRY STANDARD INDUSTRIAL FLOOR JOINT FILLERS AND REPAIR PRODUCTS

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SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Miscellaneous sheathing.
   2. Blocking, nailers, and curbing.
   3. Plywood terminal back boards.

B. Related Sections:
   1. 092200 – Lightgauge Metal Support Framing: Support framing; metal backing.
   2. 092900 - Gypsum Board:

C. Drawings, the provisions of the Agreement, the General Conditions, and Division 1 specification sections apply to all work of this Section.

D. Substitutions: Substitutions will be considered only under the terms and conditions of Section 016000.

1.2 REFERENCES

A. American Plywood Association (APA)

B. American Society for Testing and Materials (ASTM):
   1. D2898 - Test Method for Accelerated Weathering of Fire-Retardant Treated Wood for Fire Testing.
   2. E84 - Test Method for Surface Burning Characteristics of Building Materials.

C. American Wood Preservers' Association: Book of Standards (AWPA).

D. National Lumber Grading Authority of Canada (NLGA).

E. Product Standard (PS): PS-20 - American Softwood Lumber Standard.

F. Southern Pine Inspection Bureau (SPIB)].

G. West Coast Lumber Inspection Bureau (WCLB): Standard Grading Rules for West Coast Lumber.

H. Western Wood Products Association (WWPA).

I. American National Standards Institute / National Particleboard Association (ANSI/NPA)
   1. ANSI/NPA A208.1-[2009], Particleboard.

J. ASTM International:
   1. ASTM A 123/A 123M-[09], Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
   2. ASTM A 653/A 653M-[09a], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealled) by the Hot-Dip Process.
   3. ASTM C 578-[10], Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
   4. ASTM C 1289-[10], Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
   5. ASTM C 1396/C 1396M-[09a], Standard Specification for Gypsum Board.
   6. ASTM D 1761-[06], Standard Test Methods for Mechanical Fasteners in Wood.
   7. ASTM D 5055-[10], Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
   8. ASTM D 5456-[10], Standard Specification for Evaluation of Structural Composite Lumber Products.

1.3 SUBMITTALS

A. Make submittals in accordance with Section 013300.

B. Product Data: Submit complete technical and product data on the following:
   1. Preservative and fire retardant wood treatments.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Work shall conform to the requirements of the currently enforced Building Code as adopted by the jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store and protect products under provisions of Section 016000.

PART 2 - PRODUCTS

2.1 DIMENSION LUMBER

A. Lumber shall be manufactured in accordance with PS 20, and shall be stamped and graded in accordance with WWPA, WCLB, NLGA, or SPIB grading rules.

B. Moisture Content: Kiln dried to 19% maximum moisture content, except for material whose least dimension is 4 inches thick or greater.

C. Species: Hem-Fir, Spruce-Pine-Fir (SPF), or Douglas Fir Larch, unless indicated or specified otherwise.

D. Structural Lumber Grades: As indicated on the Structural Drawings.

E. Architectural Lumber Grades: Unexposed non-structural wood framing and blocking indicated on the Architectural Drawings shall be graded as follows:
   1. Blocking and Nailers: "Utility - Light Framing," or better.

F. Lumber: softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
   1. CSA O141.
   2. NLGA Standard Grading Rules for Canadian Lumber

G. Glulam in accordance with Structural Glued-Laminated Timber CAN/CSA-O122.

H. Wood I-joists in accordance with Prefabricated Wood I-Joists ASTM D 5055.

I. Light-frame trusses in accordance with "Truss Design and Procedures for Light Metal Connected Wood Trusses", The Truss Plate Institute of Canada.

J. Structural Composite Lumber (SCL) in accordance with ASTM D 5456.

K. Plywood, OSB and wood based composite panels: to CSA O325

L. Douglas fir plywood (DFP): to CSA O121, standard construction.

M. Canadian softwood plywood (CSP): to CSA O151, standard construction.

N. Poplar plywood (PP): to CSA O153, standard construction.

O. Interior mat-formed wood particleboard: to ANSI/NPA 208.1

2.2 PANEL MATERIALS

A. Miscellaneous Sheathing: APA Rated Sheathing; Structural I; CD grade; Exterior; unless approved otherwise; thicknesses as indicated.

B. Terminal Backboards: APA AC grade exterior; fire retardant treated.

2.3 ACCESSORIES

A. Fasteners:
   1. Hot-dipped galvanized steel for exterior, high humidity, and fire treated wood locations.
   2. For Use With Preservative Treated Wood: 300 Series stainless steel.
   3. Screws: Self tapping; countersunk or low profile head.
   4. Nails, spikes and staples: to CAN/CSA B111

2.4 WOOD TREATMENT

A. Wood Preservative (Pressure Treatment):
   1. Preservative treat all exterior lumber, including roofing nailers, curbs and other wood in contact with concrete, masonry, and moist conditions.
   2. For above ground use, use AWPA certified Ammonium Copper Quaternium (ACQ) or Copper Hydroxide Sodium Dimethyldithiocarbamate (CDDC) waterborne preservative with 0.25 pounds per cubic foot (4 kg/m3) of wood retention.
   3. Treated lumber shall be kiln dried to a maximum moisture content of 19%; treated plywood shall be kiln dried to a maximum moisture content of 15%.
   4. Treated lumber shall bear the quality stamp of an inspection agency approved by the jurisdictional code authorities.

B. Fire Retardant Treatment:
   1. Fire retardant treat all interior concealed lumber and plywood, and other wood as indicated or specified. Provide exterior fireproofing at rooftop blocking, nailers, curbs, sheathing, and other locations subject to wetting during construction operations.
   2. All fire retardant treated wood materials shall bear a UL "FR-S" label, or a label from an approved inspection agency certifying that the material meets the requirements of AWPA C-20 Type A for lumber and AWPA C-27 Type A for plywood.
   3. Treated lumber shall be kiln dried to a maximum moisture content of 19%; treated plywood shall be kiln dried to a maximum moisture content of 15%.
   4. Exterior fire retardant treated wood shall be treated by means of a system which has been demonstrated to exhibit no increase in fire hazard classification in accordance with ASTM E84 test after having been subjected to accelerated weather conditioning in accordance with ASTM D2898.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the Construction Manager in writing of conditions detrimental to the proper and timely completion of the work.

B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.2 SHEATHING

A. Install sheathing as indicated.

B. Secure sheathing with edges on firm bearing. Provide solid edge blocking between sheets.

3.3 BLOCKING, NAILERS, AND CURBS

A. Provide blocking, nailers, and curbs for sheathing, roof construction, metal flashing, and other construction as indicated, and as necessary for firm support. Unless otherwise indicated, solid wood backing shall be minimum 2 inch nominal thickness; plywood shall be minimum 3/4 inch thick, except that sloped parapet caps may be 1/2 inch thick.

B. Blocking: Install wood blocking to receive mechanical fasteners for support of plumbing and electrical fixtures and equipment, shelving, cabinets, door stop plates, millwork, wainscots, coat hooks, toilet and bath accessories, kitchen equipment, and all other wall and ceiling mounted components.

C. Screw fasten wood components to metal framing and support elements.

D. For attachment of plywood backing, kerf plywood 1/4" maximum if required for heavy gauge studs to receive flange return or crimp the return closed; provide supplementary sheet metal angle attached to back of stud where necessary to support backing. Screws into edge of plywood are unacceptable.

3.4 PLYWOOD TERMINAL BACKBOARDS

A. Provide a fire retardant treated plywood terminal backboard for telephone systems and data racks where indicated on the drawings.

B. Mechanically apply directly over gypsum backing board.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Installation of Owner furnished casework and millwork.
   2. Statements of required quantities of Owner-furnished millwork.
   3. Transportation of casework and millwork from warehouse to jobsite.
   4. Substrate preparation.
   5. Coordination and installation of carpeted base to display casework.
   6. Accessories.

B. Related Sections:
   1. 061000 - Rough Carpentry: Blocking for finish carpentry.

C. Drawings, the provisions of the Agreement, the General Conditions, and Division 1 specification sections apply to all work of this Section.

D. Substitutions: Substitute products will be considered only under the terms and conditions of Section 016000.

1.2 REFERENCES

A. American National Standards (ANSI)
   1. ANSI A208.1 - Standard for Particleboard
   2. ANSI A208.2 - Standard for Medium Density Fiberboard (MDF)
   3. ANSI/HPVA HP-1-[04], Standard for Hardwood and Decorative Plywood.

B. American Society for Testing and Materials (ASTM)
   1. C1036 Standard Specification for Flat Glass
   2. E84 Test Method for Surface Burning Characteristics of Building Materials

C. American Plywood Association (APA)

D. Architectural Woodwork Institute (AWI): Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program (Current Edition).

E. Business Institutional Furniture Manufacturer's Association (BIFMA)

F. West Coast Lumber Inspection Bureau (WCLB): Standard Grading Rules No. 16.

G. U.S. Product Standard (PS) PS 1 Product Standard for Construction and Industrial Plywood.

H. ASTM International
   1. ASTM E 1333-[96(2002)], Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
   2. ASTM D 2832-[92(R2005)], Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings
   3. ASTM D 5116-[06], Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.

I. Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
   1. Architectural Woodwork Quality Standards Illustrated, (current edition at date of tender)

J. Canadian General Standards Board (CGSB)
   1. CAN/CGSB-71.20-[M88], Adhesive, Contact, Brushable.

K. CSA International
   1. CSA B111-[74(R2003)], Wire Nails, Spikes and Staples.
   2. CSA O112.4 SERIES-[M1977(R2006)], Standards for Wood Adhesives.
   3. CSA O121-[08], Douglas Fir Plywood.
   4. CSA O141-[05], Softwood Lumber.
   5. CSA O151-[09], Canadian Softwood Plywood.

6. CSA O153-[M1980(R2008)], Poplar Plywood.

L. National Hardwood Lumber Association (NHLA)
1. Rules for the Measurement and Inspection of Hardwood and Cypress

M. National Lumber Grades Authority (NLGA)
1. Standard Grading Rules for Canadian Lumber

1.3 QUANTITY STATEMENTS

A. Casework and millwork, including pertinent installation information will be furnished by Owner.

B. Quantities of millwork purchased will be based on the approved Quantity Statement furnished by the Contractor for the exact amount required for the installation. Overage quantities will be added separately by the Owner for each type of millwork.

C. Types and locations of each type of casework and millwork shall be as scheduled and indicated on the Owner's Purchase Order; base bid on special requirements for each woodwork type, including requirements for special veneer and pattern matching.

D. Contractor shall be responsible for accuracy of quantity statements. In the event that insufficient quantity is discovered after order has been placed, proceed as follows:
1. Immediately notify the Owner in writing of the additional quantities required, whereupon the Owner will, at his cost, obtain the additional quantities.
2. Install additional quantities at no additional cost to the Owner.
3. Pay for unusual transportation costs incurred in obtaining additional materials.

1.4 DEFINITIONS

A. Exposed Portions of Casework: Those surfaces visible when doors and drawers are closed, including edges of doors and drawers, edges of cabinet boxes visible between doors and drawers, backs of hinged doors, interiors behind glass doors, and interiors in open cabinets.

B. Semi-Exposed Portions of Casework: Those areas not defined as exposed, but visible when solid (not glazed) doors and drawers are opened.

C. Concealed Portions of Casework: All remaining areas not defined as exposed or semi-exposed.

1.5 SUBMITTALS

A. Make submittals in accordance with Section 013300.

B. Submittals Prior to Sub-bid:
1. List of proposed bidders.
2. For each proposed bidder, include evidence of compliance with installer qualification requirements.

C. Submittal With Sub-Bid:
1. Submit preliminary quantity statements for millwork from each prospective subcontractor. Base quantity statements on Drawings. Do not include overages in Quantity Statement.
2. Architect will return acceptable quantity statements to the Contractor. Only sub-bidders with acceptable quantity statements shall be considered for subcontract.

D. Submit following within 30 days after award of architectural woodwork subcontract:
1. Quantity statements indicating proposed adjustments.

E. Guarantee Drafts: Concurrent with initial product data submittal, submit draft of installers guarantee for Construction Manager's review.

1.6 QUALITY ASSURANCE

A. Fabricator: A minimum of 5 years experience in the fabrication of custom architectural woodwork of the type specified.

B. All Architectural Woodwork shall be under the responsibility of a single fabricator.

C. Qualifications of Installers: Use only journeyman finish carpenters who are thoroughly trained and skilled in the work, and who are completely familiar with the materials and quality standards specified. No allowance will be made for lack of skill on the part of workmen.

D. Conform to AWI Custom grade standards except use premium grade standards for clearances and tolerances, unless specified or indicated otherwise.

E. Solid Surfacing Fabricator Qualifications: Certified by the solid surfacing materials manufacturer.

1.7 DELIVERY, STORAGE AND HANDLING

A. Comply with provisions of Section 016000.

B. Owner furnished materials will be delivered to the Owner's warehouse facility; refer to Section 015000. Transport materials from the warehouse to the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Finished Millwork Lumber: Furnished by Owner.

B. Panel Products:
   1. Finished Millwork Paneling: Furnished by Owner.
   2. Accessory Panel Products:
      a. Softwood Plywood: DOC PS 1; 3/4 inch thick AC exterior grade unless indicated or specified otherwise; touch sanded where plastic laminate veneers are to be applied
      b. Veneer-Faced Panel Products (Hardwood Plywood):
         1) HPVA HP-1, made with adhesive containing no urea formaldehyde.
         2) Wood Veneer Flitches: AWI Grade AA; American Black Walnut; plain sliced; hand selected for limited sapwood.

C. Pre-finished Board: Low pressure melamine over particle board, MDF, or hardboard core; formaldehyde free; colors as selected from manufacturer's standard.

D. Plastic Laminate:
   1. Brands and colors as scheduled on Drawings.
   2. Exposed: NEMA LD-3; general and vertical grade,
   3. Backing Sheets: NEMA LD-3; backing grade; undecorated.

E. Solid Surfacing:
   1. Product as listed in the Finish Legend.
   2. Fabricate solid surface elements to the configurations indicated in accordance with the manufacturer's recommendations.

2.2 ACCESSORY MATERIALS

A. Cabinet Hardware: As scheduled on the Drawings.

B. Closet Hardware:
   1. Closet Rod: Knape & Vogt # 770 5; 1-5/16 inch diameter; chrome finish.
   2. End Flanges: Knape & Vogt # 764/766; chrome finish.

C. Wall Shelf Hardware:
   1. Brackets: Knape & Vogt # 185 Anochrome finish; length as appropriate for shelving indicated.
   2. Standards: Knape & Vogt # 85 Anochrome finish.

D. Counter Support Brackets:
   1. Manufacturer/Source
      a. Oodles of Parts Plus (Patchogue, NY; 800-286-5471)
      b. A&M Hardware Inc. (Manheim PA; 888-647-0200)
      c. Steelcase
      d. Herman Miller

2. Bracket: "Work Station Bracket"; 1/8" steel; 24" x 24" size unless otherwise indicated; prime paint finish.

E. Hanging Hardware: Brooklyn Hardware LLC (Portland OR; 888-232-1151) "Panelclip," Doug Mockett and Company (Manhattan Beach CA.; 800-523-1269) ZC3 "Z-Clips," or approved; interlocking aluminum clip.

F. Contact Bond Adhesive: Water based low VOC.

G. Plastic Laminate Faced Countertops:
1. Fabricate to AWI Custom grade.
2. Fabricate countertops from particle board and general purpose grade plastic laminate in the shapes indicated.
3. Where countertops are indicated with sinks, use moisture resistant MDF in lieu of particle board.

H. Wall and Closet Shelf Fabrication:
1. Fabricate from prefinished board; edge banded with matching PVC edging unless indicated otherwise.
2. Provide minimum 3/4 inch (19mm) thick shelves, except provide thicker shelves as required to support the loads and spans indicated without significant deflection.

I. Hardware:
1. Unless otherwise shown or specified, all drawers shall be equipped with standard full extension slides.
2. Install hardware straight and true and in perfect alignment horizontally and vertically with adjacent casework and hardware.
3. Carefully fit and securely attach cabinet hardware in accordance with manufacturers' printed instructions, and exercise caution not to mar or injure finish surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the Construction Manager in writing of conditions detrimental to the proper and timely completion of the work.

B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.2 PREPARATION

A. Coordinate the installation of blocking and other supports required for the installation of architectural woodwork elements.

3.3 STANDING AND RUNNING TRIM INSTALLATION

A. Jointing: Make all joints to conceal shrinkage; miter all exterior corners; cope all interior corners, miter or scarf all end-to-end joints; install all trim pieces as long as possible, jointing only where solid support is obtained. Make no joints closer than 4 feet to corners.

B. Lengths of Material: Use random lengths and show typical joint locations on shop drawings. The minimum length shall be 8 feet, except where short lengths are required by installation conditions.

C. Fastening:
1. Install all items straight, true, level, plumb, and firmly anchored in place; where blocking or backing is required, coordinate as necessary with other trades to ensure placement of all required backing and blocking in a timely manner.
2. Fasten trim with finish nails or screws of proper dimension to hold the member firmly in place without splitting the wood.
3. On exposed finish work, set all nails and screws; fill to match adjacent finish.
4. Align exposed fasteners for uniform pattern; random or "shotgun" patterns will not be accepted.

D. Select and arrange standing and running trim so that abutting members have a similar grain and color match to the greatest extent possible

3.4 VENEER PANELING

A. Install paneling as indicated in accordance with AWI Section 500C Premium grade standards.

B. Install wood paneling over wall surfaces by concealed clips, hangers, or blind fasteners, unless approved otherwise.

C. Cut and fit each panel to it particular position including cutting around items which cannot be remounted to panel face, and predrilling for holes for wire access for electrical devices to be mounted on the panel face.

3.5 CASEWORK INSTALLATION

A. Coordinate casework installation with work of other trades for final electrical and mechanical connections.

B. Install all casework accurately, plumb, square, and level, and permanently secured in precise position as indicated on the Drawings. Casework shall be scribed to adjacent surfaces as follows:
   1. Countertops and splashes to wall surfaces.
   2. Cabinet endwalls and other exposed surfaces to walls.
   3. Cabinet bases to floors.

C. The casework installation shall be made complete with all required fastenings, clip angles, braces, anchors, shims, and other fittings as required to render the work rigid and secure.

D. All fasteners securing casework shall be in concealed or semi-concealed locations, unless approved otherwise.

E. Avoid damaging finished surfaces. Repair or replace all damaged materials and surfaces in a manner approved by the Architect.

F. Upon completion of work, demonstrate hardware to work freely as intended.

3.6 CLEANING UP

A. Keep the premises in a neat, safe, and orderly condition at all times during execution of this portion of the work, free from accumulation of sawdust, cut-ends, and debris.

B. At the end of each working day, or more often if necessary, thoroughly sweep and/or vacuum surfaces. Remove the refuse to the area of the job site set aside for its storage.

END OF SECTION

SECTION 066416 - CUSTOM PLASTIC FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Clear plastic fabrications.
   2. Architectural acrylic-based Point-Of-Sale (POS) shielding.

B. Related Sections:
   1. 061000 - Rough Carpentry: Blocking.
   2. 079200 - Joint Sealants.

1.2 DESIGN REQUIREMENTS

A. Architectural plastic and fastening system shall be designed, engineered, fabricated, and installed to conform to state and local codes, and Architect's design.

1.3 SUBMITTALS

A. Make submittals in accordance with Section 013300.

B. Product Data: Complete published product literature for each material or component being used.

C. Shop Drawings: Indicate
   1. Design load parameters, dimensions, materials, thicknesses, and relationship to adjacent construction.
   2. Methods of support, joinery, and anchorage.
   3. Fabrication details including number and arrangement of fasteners, required clearances, field jointing, tolerances, colors and finishes.

D. Samples: Submit three, 6” x 6” samples showing color, texture and finish; include 90 degree corner.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in architectural plastic panel and resin components with 10 years documented experience.

B. Obtain plastic panel components from a single source manufacturer that has the ability and resources to comply with the requirements and schedule of the project.

C. Fabricate architectural plastic fabrications based upon provisions published in one of the following:
   1. “Plexiglass Acrylic Sheet Fabrication Manual" as available through Curbell Plastics (888-287-2355).
   2. “Acrylite Technical Manuals” (https://www.acrylite.co/tech-briefs.html).
   3. Other resources as indicated throughout this Section.

D. Inspect each molded piece to ensure that it complies with specified requirements, including nominal dimensions. Require fabricator to supply replacement piece.

1.5 DELIVERY, STORAGE AND HANDLING

A. In accordance with 016000 and material manufacturer’s instructions.

B. Contractor shall inspect all pieces upon arrival. Reject non-conforming pieces damaged in shipping and replace with new.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sheet Product:
   1. Acrylic Sheet: Cell-cast sheet; Plexiglas/Acrylite, Lucite, Plaskolite or approved.
   2. Properties:

Physical	TEST METHOD	UNITS	
Specific Gravity/Relative Density	ASTM D792		1.19
Optical Refractive Index	ASTM D542		1.49
Light Transmission -Total	ASTM D1003	%	92
Sound Transmission	ASTM E90 / E413	dB	27

Mechanical	TEST METHOD	UNITS	
Tensile Strength	ASTM D638	psi	11,030
Tensile Eiongation — Max.	ASTM D638	%	5.8
Tensile Modulus of Elasticity	ASTM D638	psi	490,000
Flexural Strength	ASTM D790	psi	17,000
Flexural Modulus of Elasticity	ASTM D790	psi	490,000
Izod Impact Strength — Molded Notch	ASTM D256	ft-lb/in Notch	0.4
Izod Impact Strength — Milled Notch	ASTM D256	ft-lb/in Notch	0.28
Tensile Impact Strength	ASTM D1822	ft-lb/in2	20

B. Aluminum Framing and Stanchions:
   1. Extrusions: ASTM B221, 6063-T5 alloy and temper.
   2. Sheet: ASTM B209, 5005-H32 alloy and temper.
   3. Finish: Organic; minimum 50 percent resin Kynar 500 or Hylar 5000 PVDF system complying with AAMA 2604; custom non-exotic color as indicated or selected.

C. Stainless Steel: ASTM A167 Type 302 or 304; dull finish.

D. Accessories:
   1. Exposed Machine Screw Fasteners: Pan head hex or square drive; stainless steel; finish to match aluminum frame or stanchions.
   2. Mechanical Attachment Methods: Comply with recommendations in “Part Design & Assembly Mechanical Attachments“ by Arkema Group, Division of Altuglas International (https://www.plexiglas.com/export/sites/plexiglas/.content/medias/downloads/resins-docs/part-design-mechanical-attachments.pdf)
   3. Provide anchors, fasteners, and sealant and other accessories for proper installation as recommended by fabrication manufacturer.

E. Adhesives:
   1. Solvent Cements: 70% MDC, 20% MMA (methyl methacrylate inhibited monomer) and 10% GAA (glacial acetic acid). Solvent cement may not be used for on-site fabrication or assembly.
   2. Polymerizable Cement: 2-part catalyzing acrylic monomer cement; “Cement PS-30” and “Weld-On 40” or similar approved.
   3. Comply with recommendations in “Plexiglas Sheet: Cementing and troubleshooting” by Arkema Group, Division of Altuglas International (https://www.plexiglas.com/export/sites/plexiglas/.content/medias/downloads/plexiglas-expert-pdf/Fabrication-Guidelines-Plexiglas-Cementing.pdf).

2.2 SHOP FABRICATION

A. Panel Surface: Smooth and clear.

B. Finish other surfaces not in contact with the mold to match the molded surfaces in appearance.

C. Finish trim corners and edges.

D. Custom Pattern/Mockups: Patterns and mockups shall be hand carved and/or CNC machined by skilled pattern makers with minimum of ten (10) years experience with architectural elements. Patterns & mockups shall be available at manufacturing facility for architect's inspection and approval before molds are produced.

E. Cornice sections shall be manufactured with sealable lap and/or butt joints. Cornice joints shall be manufactured to accommodate adjoining sections and alignment of cornice surface sections.

F. Factory inside corners, outside corners, end returns, and unique transition sections shall be shop fabricated. Field corner fabrication will not be permitted.

G. Metal trim, framing and stanchions shall be shop finished or fabricated from coil-coated materials.

2.3 FORMING AND BENDING

A. Cold Forming:
   1. Definition: When sheet material is bent at room temperature and held in place by a curved channel support or similar.
   2. Comply with minimum radius of curvature values recommended in “Plexiglas Sheet: Cold Forming” by Arkema Group, Division of Altuglas International (https://www.plexiglas.com/export/sites/plexiglas/.content/medias/downloads/plexiglas-expert-pdf/Fabrication-Guidelines-Plexiglas-Cementing.pdf).

B. Thermoforming: All thermoforming processes, including heated extrusion and cell casting, shall comply with the recommendations of “Plexiglas Sheet: Thermosetting” by Arkema Group, Division of Altuglas International (https://www.plexiglas.com/export/sites/plexiglas/.content/medias/downloads/plexiglas-expert-pdf/Fabrication-Guidelines-Plexiglas-Cementing.pdf).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work and dimensions are as indicated on shop drawings.
   1. Carefully observe and verify field conditions that substrates are ready for installation of architectural fiberglass cornice. Contractor shall verify on site dimensions with shop drawings and assume full responsibility for fitting the components to the structure.
   2. Verify that bearing surfaces are true and level.
   3. Verify that support framing has been constructed to allow accurate placement, alignment and connection of architectural fiberglass cornice to structure.
   4. Report discrepancies between design dimensions and field dimensions, which could adversely affect cornice installation, to the Architect and/or Owner's Representative.
   5. Do not proceed with installation until discrepancies are corrected, or until installation requirements are modified and approved by the Architect and / or Owner's Representative.
   6. Beginning of installation means acceptance of existing conditions and fiberglass materials.

3.2 INSTALLATION

A. Install fabrications in accordance with shop drawings and fabricator's instructions.
   1. Install architectural fabrications in accordance with manufacturer's instructions and approved shop drawings.
   2. Erect required connection blocking, framing, and stanchions, plumb, square, and true to line and level to substrate. Recess blocking or notch continuous blocking behind each panel joint per manufacturer's instructions. The installer shall supply connectors, blocking and framing approved by manufacturer.
   3. Do not field cut fabrications where the finish cannot be field restored. Installer may repair small unnoticeable finish repairs with manufacturer's supplied patching material.
   4. Countersink all exposed fasteners and repair with manufacturer's supplied patching material. Repairs shall be made with care to be undetectable.

3.3 TOLERANCE

A. Maximum variation from true position: 1/4 inch.

B. Maximum Offset from true alignment: 1/8 inch.

3.4 CLEANUP

A. Clean components of foreign material without damaging finished surface.

B. Clean fabrications in accordance with material manufacturer's instructions. At acrylic sheet, comply with recommendations in "Plexiglass Sheet: Handling and Maintenance" by Arkema Group, Division of Altuglas International (https://www.plexiglas.com/export/sites/plexiglas/.content/medias/downloads/plexiglas-expert-pdf/Fabrication-Guidelines-Plexiglas-Cementing.pdf).

3.5 PROTECTION

A. Comply with manufacturer recommendations and instructions.

END OF SECTION

SECTION 078400 - FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Firestopping systems for sealing penetrations through fire-rated construction.

B. Related Sections:
   1. 014500 – Quality Control: Requirements for Owner paid inspections.
   2. 078500 - Fire Rated Joint Assemblies: Fire rated construction at fire rated building joint assemblies
   3. Division 22 Mechanical: Penetrating elements.
   4. Division 23 Electrical: Penetrating elements.

C. Drawings, the provisions of the Agreement, the General Conditions, and Division 1 specification sections apply to all work of this Section.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. E119 - Method for Fire Tests of Building Construction and Materials.
   2. E814 - Methods for Fire Tests of Through-Penetration Fire Stops.

B. Underwriters Laboratories (UL): 1479 - Fill, Void or Cavity Materials and Through-Penetration Firestop Systems.

1.3 SYSTEM DESCRIPTION

A. Each firestopping system shall be selected to maintain fire rating of the assembly in which it is used.

B. Firestopping systems shall be resilient as necessary to accommodate differential movement between assemblies.

C. Where firestopping is used to seal penetrations through floors with waterproof membranes, system shall be selected for compatibility with membrane material.

1.4 SUBMITTALS

A. Make submittals in accordance with Section 013300.

B. Provide the following submittals for review and approval by the Architect and Engineers of Record for each system required by the project before starting any work of this Section:
   1. Underwriter’s Laboratory design system references and printed instructions for installation. Where multiple components are possible or components are listed as optional, ensure all options are clearly indicated, including penetrant material used, where applicable. Submittals without Contractor mark ups will be automatically rejected.
   2. Manufacturer's product data for each material and prefabricated device in the system. Ensure descriptions are sufficient for identification at site or ensure copies of products are kept on site for consultant review.
   3. Shop drawings in the form of floor and ceiling plans showing location of all systems covered under this section. Shop drawings shall indicate every Underwriter’s System Listing used.

C. Where the assembly to be protected does not correspond exactly to a tested assembly, determine system from available engineering studies, or correspondence with the labelling agency indicating the effect of the differences on the fire separation of the assembly; confirm acceptance of system by local authorities having jurisdiction in writing.

D. Construction details should accurately reflect actual job conditions.

E. Upon completion of the work and prior to project close out, provide a digitally or hand signed letter on installer letterhead indicating that all systems have been installed per the submitted Underwriter’s System Listings and to meet all required codes and requirements of the authority having jurisdiction. Reference every system listing used in this letter and ensure it corresponds to the shop drawings submitted. If there are any discrepancies shop drawings and submittals shall be resubmitted for consultant review.

1.5 QUALITY ASSURANCE

A. Code Verification: Prior to installation of fire stopping systems obtain approval from the jurisdictional code authorities for the fire stopping systems and applications proposed.

B. Firestopping: Tested in accordance with ASTM E119 or UL 1479 in the US and CAN/ULC S115 in Canada to meet the hourly fire ratings of the construction being sealed. Provide F rated assemblies, except where T rated assemblies are required by the code authority.

C. Firestopping systems shall be UL/ULC assemblies.

D. Fire-resistive treatment shall be in compliance with requirements of local jurisdictional authorities.

E. Subcontractor Qualifications: Firestopping work shall be performed by a single firestopping subcontractor, specializing in the installation of firestopping systems with a minimum of five (5) years proven experience.

F. Obtain through penetration firestop and joint systems, for each kind of penetration and construction condition indicated, from a single source of installation responsibility.

G. Use only components specified by firestopping and smokeseals system manufacturer and approved by the qualified testing and inspecting agency for firestopping and smokeseals systems indicated.

H. The firestopping systems shall be subject to Owner paid inspection.

I. Develop and maintain a system to quickly and easily identify each firestop assembly in the Project. The system shall include a graphic picture of each fire rated assembly being used. Make the system readily available to the Building Inspector, the Architect, and the Owner paid inspector.

J. Pre-Installation Conference: Convene a meeting between related sections following award of contract to discuss firestopping requirements. Ensure that other sections are aware of the maximum and minimum clearance requirements to the penetration stipulated by the Underwriter's Design Listing.

1.6 DELIVERY, STORAGE, AND HANDLING

A. In accordance with Section 016000.

B. Deliver and store materials in a dry, protected area, off ground in original, undamaged, sealed containers with manufacturer's labels and seals intact.

C. Use stock before its expiration date.

1.7 ENVIRONMENTAL CONDITIONS

A. Environmental Requirements: Comply with manufacturer's recommendations.

B. Maintain maximum ventilation to remove volatile emissions produced during the installation process.

PART 2 - PRODUCTS

2.1 FIRESTOPPING SYSTEMS

A. Systems meeting the requirements specified and suitable for the conditions indicated as manufactured by one or more of the following.
   1. Metacaulk.
   2. Tremco Inc.
   3. Hilti USA / Hilti Canada Ltd.
   4. Grace Construction Products.
   5. Specified Technologies, Inc.
   6. 3M.

B. Electrical Box Inserts:
   1. Manufacturer: Rectorseal (Houston TX; 713-263-8001; 800-231-3345).
   2. Fire Rated Pads intumescent pads; sized to fit electrical boxes; classified by UL/ULC; minimum 2 hour rating.

C. Systems with sodium silicate shall not be used.

D. Systems shall be asbestos-free.

E. Fire-resistance rating of installed fire stopping assembly in accordance with the applicable National or Provincial building code for the place of work.

F. Fire resistance rating of installed firestopping and smokeseals assembly not less than the fire resistance rating of surrounding floor and wall assembly.

G. Firestopping and Smokeseals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal; do not use a cementitious or rigid seal at such locations. Exemption to fire dampers.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the Construction Manager in writing of conditions detrimental to the proper and timely completion of the work.

B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.2 INSTALLATION OF FIRESTOPPING

A. Proceed with installation only when submittals have been reviewed by Architect and Engineers of Record.

B. Provide firestopping at mechanical, electrical, and plumbing penetrations through fire rated floors, walls, and ceilings, and other locations as indicated on the Drawings.

C. Use self contained sealing systems at all data, video, and communications cable locations.

D. Install firestopping in strict accordance with the Underwriter’s Listings, manufacturer's recommendations, accepted and approved test assemblies, approved details and as necessary to meet the specified fire rating requirements.

E. Coordinate sizing of sleeves, openings, core drilled holes, or cut openings to accommodate firestopping and smokeseals systems.

F. Seal holes or voids made by through penetrations, poke through termination devices, and unpenetrated openings or joints and verify continuity and integrity of fire separation are maintained.

G. Install floor fire stopping before interior partition erections.

H. Metal deck bonding: fire stopping to precede spray applied fireproofing to ensure required bonding.

I. Ensure mechanical pipe insulation installation precedes fire stopping installation.

J. Tool or trowel exposed surfaces to a neat finish.

K. Remove excess compound promptly as work progresses and upon completion.

L. Where firestopping is used to seal around penetrations through waterproof membranes, install to maintain integrity of waterproof barrier.

M. For sealing electrical boxes, coordinate installation with Division 26. Comply with manufacturer's recommendations for preparation and installation. Install in locations as required by Code for protection of openings through fire rated partitions.

N. Sequence work to permit installation of firestopping and smoke seal materials to be installed after adjacent work is complete and before closure of spaces.

O. All firestopping installations to be inspected by Consultants or building inspector as required by authorities having jurisdiction.

3.3 PATCHING OF HOLES IN EXISTING CONSTRUCTION

A. Fill open holes which remain after removal of existing mechanical, electrical, and plumbing components. Patch and repair holes as necessary to match the adjacent construction and to maintain the fire rating of the assemblies. Firestopping systems may be used to fill holes which will be concealed in the finish construction.

B. Where firestopping systems are used to fill floor openings in occupied areas, provide minimum 16 gauge sheet metal covers as necessary to support floor loads and to prevent damage to the fire stopping assemblies. Secure sheet metal as necessary to prevent irregularities from telegraphing through the floor finishes over the sheet metal.

3.4 CLEANING

A. Trim excess material flush with adjacent surface.

B. Remove spills, leave area in undamaged, clean condition.

3.5 SCHEDULE

A. Fire stop and smoke seal at:
   1. Penetrations through fire-resistance rated masonry, concrete, and gypsum board floors, partitions and walls.
   2. Edge of floor slabs at curtain wall and precast concrete panels.
   3. Top of fire-resistance rated masonry and gypsum board partitions.
   4. Intersection of fire-resistance rated masonry and gypsum board partitions.
   5. Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
   6. Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
   7. Openings and sleeves installed for future use through fire separations.
   8. Around mechanical and electrical assemblies penetrating fire separations.

END OF SECTION

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Cleaning and preparation of joint surfaces.
   2. Sealant and backing materials.
   3. Sustainable design requirements.

B. Related Sections:
   1. 078400 - Firestopping: Fire penetration sealants.
   2. 093000 - Tiling: Grout color samples; mock-up.

C. Drawings, the provisions of the Agreement, the General Conditions, and Division 1 specification sections apply to all work of this Section.

D. Substitutions: Substitute products will be considered only under the terms and conditions of Section 016000.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. C834 - Standard Specification for Latex Sealants.
   2. C919 - Practice for Use of Sealants in Acoustical Applications.
   3. C920 - Standard Specification for Elastomeric Joint Sealants.
   4. C1193 - Guide for Use of Joint Sealants.
   5. C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.
   6. C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
   7. D2240 - Standard Test Method for Rubber Property—Durometer Hardness.

1.3 SUBMITTALS

A. Make submittals in accordance with Section 013300.

B. Product Data: Submit for each sealant material used. Include manufacturer's surface preparation, priming, and installation instructions for each proposed sealant.

C. Samples:
   1. Submit cured samples of each sealant type and color proposed for the work.
   2. For each sealant type indicated for "color as selected," or for which no color is indicated, submit color card indicating available stock colors from manufacturer's complete line of pre-formulated colors for each type of sealant.
   3. For custom colors, request color selection from the Architect prior to sample submittal. Custom colors to match grout joints in tile shall match the sample submitted from the tile installer as specified in Section 093000.

D. Quality Control Submittals:
   1. Schedule of sealant types, colors and respective locations.

E. Sustainable Design Submittal:
   1. MSDS Sheets: Submit MSDS sheets for interior sealant systems to meet submittal sustainable design requirements.

1.4 QUALITY ASSURANCE

A. Installers:
   1. Use only skilled workmen specially trained in the techniques of sealing, and familiar with the published recommendations of the manufacturers of the sealants being used.

B. Verify that sealants are compatible with the substrates and accessory materials provided under other Sections.

1.5 ENVIRONMENTAL CONDITIONS

A. Unless recommended otherwise by the manufacturer, install sealant systems as follows:
   1. Do not apply sealant when ambient temperatures are below 40 degrees F, or expected to fall below 40 degrees F before sealant cure is complete.
   2. Do not apply sealant to substrates or accessories that are moist.
   3. Joint widths are within tolerances of those permitted by joint sealant manufacturer for applications indicated
   4. Substrates are free from contaminants capable of interfering with adhesion.

1.6 GUARANTEE

A. Furnish guarantees in accordance with Section 017700.

B. Furnish a 2 year installer's guarantee covering defects in installation.

C. Furnish Type S sealant manufacturer's 20 year material guarantee.

PART 2 - PRODUCTS

2.1 SEALANTS

A. Type S - Neutral Cure Silicone Sealants:
   1. Dow Corning, 790 Silicone Building Sealant, or "795 Silicone Structural Glazing and Weatherproofing Sealant."
   2. Pecora "890 Architectural Silicone Sealant."
   3. Spectrem 3 by Tremco Incorporated.

B. Type P: ASTM C920, Type M, grade NS, Class 25; Tremco "Dymeric," Chem-Calk 500, Pecora "Dynatrol II," Sonneborn "Sonalastic NP-II", PRC "Permapol RC-2," or approved.

C. Type PT: ASTM C920, Type M, Grade P, class 25; Tremco "THC 900", Sonneborn/ChemRex "Sonolastic SL 2", Pecora "Urexpan NR-200", or approved; standard colors as selected.

D. Type PTNS: ASTM C920, Type M, grade NS, Class 25, Use T; Pecora "Dynatred," Tremco "THC901," Sika "Sikaflex-2c NS TG," or approved; custom colors to match the Architect's samples.

E. Type A:
   1. Sealants shall meet the requirements of the Southern California South Coast Air Quality Management District (SCAQMD) Rule 1168. (maximum VOC content of 250 grams/liter).
   2. “AC20+Silicone” by Pecora (800-523-6688). Select standard color to match adjacent finishes as close as possible.

F. Type SM: Mildew Resistant Silicone Sealant:
   1. Sealants shall meet the requirements of the Southern California South Coast Air Quality Management District (SCAQMD) Rule 1168. (maximum VOC content of 250 grams/liter).
   2. “898 Silicone” by Pecora (800-523-6688), or approved. Select standard color to match adjacent finishes as close as possible; clear color, except use white at white fixtures.

2.2 ACCESSORY MATERIALS

A. Primer:
   1. Non-staining type, recommended by sealant manufacturer to suit application.
   2. Primers for interior sealants shall meet the requirements of the Southern California South Coast Air Quality Management District (SCAQMD) Rule 1168. (maximum VOC content of 250 grams/liter for non-porous surfaces; 750 grams/liter for other surfaces).

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Backer Rod: Closed or open cell foam as recommended by the sealant manufacturer for the application; round profile; thickness approximately 130 percent of joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Masking Tape: Non-staining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the Construction Manager ~~Architect~~ in writing of conditions detrimental to the proper and timely completion of the work.

B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

C. Verify joint dimensions and conditions are acceptable to receive the work of this Section.

3.2 PREPARATION

A. Clean and prepare joints in accordance with manufacturer's instructions. Remove any loose materials and other foreign matter which might impair adhesion of sealant.

B. Apply masking tightly around joints to protect adjacent surfaces from excess sealant.

C. Prime as required for proper bond to substrate materials.

D. Backing Materials:
   1. Place backer rod to achieve proper sealant width/depth ratios and to prevent sealant sag.
   2. Use bond breaker where there is insufficient depth to use joint filler.
   3. Do not use backer rod and bond breaker at joints to receive Type PTNS sealant.

3.3 COMPRESSIBLE FOAM TAPE INSTALLATION

A. Install in accordance with manufacturer's recommendations.

B. Install sufficiently deep to accommodate the installation of the Type S sealant.

3.4 INSTALLATION

A. Perform work in accordance with ASTM C1193, unless specified otherwise or recommended otherwise by the sealant manufacturer.

B. Apply sealant within recommended temperature ranges.

C. Joint Profile:
   1. Sealant beads shall have a sectional width to depth ratio of 2 to 1, unless specified otherwise or recommended otherwise by the sealant manufacturer.
   2. Install Type PTNS sealant full depth in tile expansion joints with no backer rod.

D. Tooling:
   1. Tool joints concave, unless indicated or specified otherwise. Finish to uniform profile and depth, free of air pockets, embedded matter, ridges, and sags.
   2. Tool type PTNS sealant to match grout joint profile.

3.5 CLEANUP

A. Clean adjacent surfaces free of excess sealant as the work progresses. Use cleaning agents recommended by the sealant manufacturer.

B. Upon completion, remove and dispose of masking.

3.6 PROTECTION

A. Protect sealant in joints subject to dirt, moisture, and traffic during the sealant curing process. Protection shall be able to resist traffic while remaining securely in position.

3.7 SCHEDULE

A. Type S: Provide at all exterior joints, unless specified otherwise; colors as selected from manufacturer's complete line for each type of sealant.

B. Type P: Provide at all exterior joints in concrete or masonry, unless specified otherwise; standard colors as selected from manufacturer's complete line of pre-formulated colors.

C. Type PT: Provide at all exterior and interior horizontal joints subject to traffic and abrasion, unless specified otherwise; standard colors as selected from manufacturer's complete line of pre-formulated colors.

D. Type PTNS: Provide at all expansion joints in tile; custom colors to match grout samples submitted by the tile installer.

E. Type A: Provide at all interior joints, unless specified otherwise.

F. Type SM: Provide at joints around countertops in kitchen or coffee areas.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Interior Substrates:
      a. Concrete, horizontal surface as indicated in Drawings.

1.2 DEFINITIONS

A. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

B. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

C. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.
   1. Include printout of current “MPI Approved Product List” for each product category specified, with the proposed product highlighted.

B. Samples: For each type of coating system and in each color and gloss of topcoat indicated.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Basis of Design:
   1. Sherwin Williams Resuflor 3580
      a. Color: Charcoal

B. Characteristics:
   1. ASTM E84:
      a. Class: A
      b. Flane spread: 10.
      c. Smoke deleoped: 20.
   2. ASTM D2369: 39 g/l.

C. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, products listed in the Interior High-Performance Coating Schedule for the coating category indicated.

2.2 HIGH-PERFORMANCE COATINGS, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its “MPI Approved Products Lists.”

B. Material Compatibility:
   1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
   3. Products shall be of same manufacturer for each coat in a coating system.

C. Colors: As indicated in Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum noisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   1. Concrete: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected
   1. Application of coating indicates acceptance of surface and conditions.

3.2 PREPARATION

A. Comply with manufacturer’s written instructions and recommendations in “MPI Architectural Painting Specification Manual” applicable to substrates and coating systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved toreinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
   1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.

3.3 APPLICATION

A. Apply high-performance coating according to manufacturer's written instructions and recommendations in “MPI Architectural Painting Specification Manual.”

B. Apply coating to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks,

3.4 INTERIOR HIGH-PERFORMANCE COATING SCHEDULE

A. Concrete Substrates, Horizontal Surfaces:
   1. Epoxy System MPI INT 3.2C:
      a. Prime Coat: Epoxy, matching topcoat.
      b. Intermediate Coat: Epoxy, matching topcoat.
      c. Topcoat: Epoxy, gloss, MPI #77.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL

A. The general conditions, supplementary conditions and instructions to bidders shall apply to and be part of this specification.

B. Contractor shall comply with all applicable codes, rules and regulations.

C. Contractor shall obtain and pay for all permits, certificates of inspection and approvals required.

D. The base bid shall include furnishing all materials, labor, tools, equipment and installation of all work required to provide complete plumbing systems as outlined in Division-22.

E. Examine the drawings, specifications, and visit the site prior to submitting a bid.

1.2 APPLICABLE STANDARDS

A. The applicable provisions of the following standards shall govern, per current version of standards:

B. American Society for Test Materials (ASTM).

C. American Standards Association (ASA).

D. Underwriters Laboratories (UL).

E. National Fire Protection Association (NFPA).

F. Ohio Building Code.

G. Ohio Plumbing Code.

H. ASHRAE 90.1

I. Applicable Requirements of the Greater Columbus Convention Center.

J. The installation of all plumbing work shall conform to the applicable local plumbing codes and statutes.

1.3 PLANS

A. Plans are diagrammatic indicating required size, points of termination of piping and suggested routes. However, it is not intended that drawings indicate all necessary offsets. Install piping in such manner as to conform to the structure, avoid obstructions and preserve headroom. All piping shall be run as straight as possible and symmetrical with architectural items. Piping shall be concealed in pipe shafts, pipe spaces, and furring wherever possible. Piping fabricated before coordination with the other trades will be done at contractors' own risk.

B. In the event of inconsistencies or conflict within or between the Contract Documents, provide the better quality, more costly or greater quantity of work and comply with the more stringent requirements. Seek the direction of the Engineer of Record for clarification of conflicts as soon as a conflict is identified. (Prior to installation)

PART 2 - PRODUCTS

2.1 GENERAL

A. All materials to be new.

PART 3 - EXECUTION

3.1 CUTTING, PATCHING AND DEMOLITION

A. Contractor shall include all necessary cutting and patching required to perform their work.

B. Care shall be taken when working in existing spaces so as not to damage existing walls and ceilings where work is being performed.

C. Provide non-destructive concrete structural scanning or concrete x-ray prior to drilling, cutting or coring.

D. Seal around all wall, floor and ceiling pipe penetrations with NFPA approved sealant material to maintain the fire resistant and watertight integrity of the assembly.

E. Disconnect, demolish, and remove from site all plumbing systems, equipment, and components indicated to be removed and as necessary to perform the described scope of work. No unused plumbing systems, equipment, and components shall be abandoned.

F. No means of demolition shall be used that would result in damage to structures, materials, equipment or components indicated to remain or endanger the health, safety and welfare of the general public.

3.2 PIPE JOINTS AND CONNECTIONS

A. Any minor adjustment in location of alignment of new work or connection to existing utilities shall be performed as directed by the engineer without additional cost to the owner.

B. The contractor shall be responsible for damages to the grounds, walks, road, building, piping systems, electrical systems, and their equipment and contents, caused by leaks in the piping systems being installed or having been installed by him. The contractor shall repair at his expense all damaged so caused. All repair work shall be done as directed by and in such manner as satisfactory to the architect.

C. Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the contractor's guarantee bond nor relieving the contractor of his responsibilities during the bonding period.

3.3 PROJECT CONDITIONS

A. Where new plumbing systems are required to be connected to existing plumbing systems, it is the contractor’s responsibility to verify the location, size, invert elevation, pressure, condition, and they shall verify that the existing plumbing system is indeed the correct and appropriate plumbing system before any work is done. Provide all necessary camera scoping and dye testing as necessary. If there is any need for concern, if it is determined that the existing plumbing system is not a correct or appropriate plumbing system or not connected to a correct or appropriate plumbing system, if the condition of the existing plumbing system is not viable for re-use, or any other condition that would not allow the proper functioning of the new plumbing system, the contractor shall notify the Construction Manager in writing immediately via RFI and wait for direction before proceeding.

B. Interruption of Existing Plumbing Services: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated.

C. Notify, Architect, Construction Manager, and Owner no fewer than seven days in advance of proposed interruption of service.

D. Do not proceed with interruption of service without Construction Manager’s written permission.

3.4 WARRANTY

This contractor shall warrant that all work under this section shall be free of defective work, materials and parts for a period of one year after acceptance of the work and shall repair, revise, and replace, at no cost to the Owner, any such defects occurring within the warranty period.

END OF SECTION

PART 1 - GENERAL

1.1 REQUIREMENTS

A. Where submittals are required by the Contract Documents, they shall be prepared and supplied in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.

B. The contractor is not relieved of responsibility for providing specified or drawn scope of work should any errors or omissions in submittal information not be noted by the Design Professional during submittal reviews or site observations.

C. Some Divisions may include a division-specific “Submittal Requirements for ….” section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.

D. The submittal requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Reference Specification Section 013300.00 for a full list of submittal procedures and required formats.

3.2 USE OF ELECTRONIC DRAWINGS FROM THE OWNER’S DESIGN TEAM

A. Plan drawings for the Project were created with Revit or AutoCAD.

B. If expressly permitted by the Owner and the terms of the Contract, editable electronic versions of standard-scale, AutoCAD-based plan drawings may be made available for the creation of shop and as-built drawings.

C. Upon request, when available, electronic versions of standard-scale, AutoCAD (.dwg) files may be made available for coordination purposes.

D. Due to the proprietary nature of internal design systems, editable native-software versions of some drawings, including but not limited to system diagrams and details, will not be made available in an editable form. In these cases, electronic versions of the drawings may be made available only in PDF, JPG, or similar non-editable electronic form, at the sole discretion of the Design Professional.

END OF SECTION

SECTION 22 0523 - GENERAL DUTY VALVES

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data:
   1. For each type of product indicated.

PART 2 - PRODUCTS

2.1 GENERAL

A. Valves on domestic water piping shall be ball valves.

B. Ball valves - 2 inch and smaller: Lead-Free, 2-piece body, 600 psi (41 bar) CWP, 100 psi (689 kPa) at 300˚F (148˚C), cast bronze body, full port, Teflon seats, blowout-proof stem, adjustable packing gland, chrome plated bronze ball, and vinyl-covered steel handle. Provide solder ends; threaded ends may be substituted. Provide extended valve stems for valves used on insulated lines. Provide equal to Nibco series 585-80-LF.

C. Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following: American Valve, Inc., Conbraco Industries, Inc.; Apollo Valves, Crane Co.; Crane Valve Group; Crane Valves, Hammond Valve, Milwaukee Valve Company, NIBCO INC., Red-White Valve Corporation., Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2.2 CHECK VALVES

A. Spring check valves - class 125, cast bronze body and cap, horizontal swing, y-pattern, with a bronze disc, and having threaded or solder ends. Provide solder ends for domestic hot and cold water service. Provide equal to Nibco T-480-Y-LF.

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Provide stops or isolation valves on domestic water supplies to isolate hot and cold water to each fixture, including all equipment and equipment provided by others.

B. Fixtures, item or units furnished by the manufacturer with integral stops or stops specified with the fixture are considered to be properly valved at the fixtures.

C. Access shall be provided to all valves.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data: For each type of product indicated.

1.2 GENERAL

A. American Society for Testing and Materials International (ASTM)
   1. Insulation shall be listed and labeled per ASTM E 84 for plenum installations employing slip on techniques.
   2. ASTM B209M-04, Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate.
   3. ASTM C335-04, Standard Test Method for Steady State Heat Transfer Properties of Horizontal Pipe Insulation.
   4. ASTM C411-04, Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
   5. ASTM C449/C449M-00, Standard Specification for Mineral Fiber-Hydraulic-Setting Thermal Insulating and Finishing Cement.
   6. ASTM C533-2004, Calcium Silicate Block and Pipe Thermal Insulation.
   7. ASTM C547-2003, Mineral Fiber Pipe Insulation.
   8. ASTM C795-03, Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.
   9. ASTM C921-03a, Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.

PART 2 - PRODUCTS

2.1 PIPING SYSTEMS REQUIRING INSULATION

A. Insulate domestic cold water piping, associated fittings and valves with flexible elastomeric 1/2" wall thickness insulation.

B. Insulate domestic hot water piping, associated fittings and valves with 1" thick flexible elastomeric, 1-1/2" thick fiberglass insulation or per local energy code, whichever greater.

C. Insulate domestic hot water return piping, associated fittings and valves with 1" wall thickness insulation or per local energy code, whichever greater.

D. Insulate exposed sanitary drains, domestic water, domestic hot water, and stops for plumbing fixtures for people with disabilities.

2.2 FLEXIBLE ELASTOMERIC INSULATION

A. Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.

B. Adhesives, Sealers, and Protective Finishes: As recommended by insulation manufacturer for applications indicated.

C. Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following: Aeroflex USA, Inc.; Aerocel., Armacell LLC; AP Armaflex., K-Flex USA; Insul-Lock, Insul-Tube, and K-FLEX LS.

2.3 FIBERGLASS INSULATION

A. Fiberglass piping insulation: ASTM C 547, Class 1

B. Encase pipe fittings insulation with one-piece pre-molded PVC fitting covers.

C. Vapor Barrier Material: Paper-backed aluminum foil, except as otherwise indicated, strength and permeability rating equivalent to adjoining pipe insulation jacketing.

D. Staples, Bands, Wires, and Cement: As recommended by insulation manufacturer for applications indicated.

E. Adhesives, Sealers, and Protective Finishes: As recommended by insulation manufacturer for applications indicated.

F. Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following: Armstrong World Industries, Inc., Owens-Corning Fiberglass Corp., Keene Corp., CertainTeed., Johns Manville.

2.4 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

B. Insulation for handicap accessible fixtures

C. All accessible lavatory p-trap and angle stop assemblies shall be insulated with trap wrap protective kit manufactured by Proflo model PF202WH or equal. Abrasion resistant, anti-microbial vinyl exterior cover shall be smooth. For traps, the insulation shall have a cleanout nut cap to allow service to the trap without disassembly. For stops, the insulation shall have a lock lid that prevents tampering but allows access without removal of the insulation. Fasteners shall remain substantially out of sight.

D. Manufacturers: subject to compliance with requirements: Proflo, Truebro, Plumberex

2.5 FIRE AND SMOKE RATING

A. In accordance with ASTM E84: Maximum flame spread rating: 25, Maximum smoke developed rating: 50.

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Provide insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.

B. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

A. Domestic Water Piping Above Ground:
   1. Hard copper tube, ASTM B 88 (ASTM B88M), Type L; wrought-copper, solder-joint fittings; and soldered joints.
   2. Solder Filler Metals: ASTM B 32, lead-free alloys.
   3. Alloy Solder Joint Pressure Fittings: ANSI/ASME B16.18-01
   4. Wrought Copper and Copper Allow Solder Joint Pressure Fittings: ANSI/ASME B16.22.-01.
   5. Flux: ASTM B 813, water flushable.

B. Cathodic Protection
   1. Provide dielectric insulation at points where copper or brass pipe comes in contact with ferrous piping, reinforcing steel or other dissimilar metal in structure.

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Install piping concealed from view unless noted otherwise, free of sags and bends. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction. Clean and disinfect potable domestic water piping using approved procedures by authorities having jurisdiction.

B. Install at right angles; diagonal runs are prohibited unless otherwise shown. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal. Coordinate all piping with all other trades.

C. Provide water pressure regulators where necessary to limit the incoming water pressure to 80 psi inside the building.

3.2 PRESSURE TESTS

A. Test pressure: Greater of (1) times the maximum system operating pressure of 125psi.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 DUAL CHECK VALVE BACKFLOW PREVENTER

A. Provide a dual check valve backflow preventer that complies with ASSE 1022 at connection of domestic water supply to any permanently connected potable water dispensing equipment [such as ice makers, coffee machines, and beverage dispensers or where indicated in the contract documents and allowed by jurisdiction].

B. Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following: Ames Fire & Waterworks; a division of Watts Water Technologies, Inc., Conbraco Industries, Inc.; FEBCO; a division of Watts Water Technologies, Inc., Flomatic Corporation., Watts; a division of Watts Water Technologies, Inc.; Watts Regulator Company., Zurn Industries, LLC; Plumbing Products Group; Wilkins Water Control Products.]

2.2 STRAINERS

A. Provide lead-free wye-pattern strainer equal to Watts model LFS777S rated for 125 psig (861kPa) minimum, bronze body, threaded connections, stainless steel screen with round perforations of 0.020 inch (0.5mm) and pipe plug drain. Provide strainers on supply side of each pressure reducing valve, solenoid valve and pump.

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and limited to, the following:, MIFAB, Inc., Prier Products, Inc., Watts; a division of Watts Water Technologies, Inc.; Watts Regulator Company., Zurn Industries, LLC; Plumbing Products Group; Light Commercial Products., Zurn Industries, LLC; Plumbing Products Group; Wilkins Water Control Products]

2.3 [WATER HAMMER ARRESTERS

A. Provide water-hammer arresters in water piping according to PDI-WH 201 (ANSI/ASSE 1010).

B. Standard: ANSI/ASSE 1010 or PDI-WH 201.

C. Type: Metal bellows or copper tube with piston.

D. Size: ANSI/ASSE 1010, sizes AA and A through F, or PDI-WH 201, sizes a through F.

E. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and are limited to, the following: Amtrol, Inc., Josam Company., Precision Plumbing Products, Inc., Sioux Chief Manufacturing Company, Inc., Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc., Watts Drainage]

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Installation: Install per manufacturer’s published installation and operation manual.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data:
   1. For each type of product indicated.

1.2 GENERAL

A. Provide a complete soil, waste and vent system in the building and on the site as indicated on the drawings and as specified herein.

B. Above ground soil, waste and vent piping within buildings including soil stacks, vent stacks, horizontal branches, traps, and connections to fixtures and drains.

PART 2 - PRODUCTS

2.1 INTERIOR PIPING

A. No-Hub cast iron soil, waste, and vent piping and fittings 1-1/2” and larger shall conform to ASTM A-888.

B. Hub and Spigot cast iron soil, waste, and vent piping and fittings 2” and larger shall conform to ASTM A-74 with ASTM C-564 gasketed joints.

C. Soil, waste and vent piping smaller than 1-1/2" shall be Type "M" copper and conform to ASTM B-306.

D. No-hub cast iron pipe and fittings may be used aboveground for soil, waste, and vent piping.

E. Piping alignment shall be as indicated on the drawings using approved wye branches or eight bands for direction changes and shall be surely supported or secured to maintain such alignment.

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Piping alignment shall be as indicated on the drawings using approved wye branches or eighth bends for direction changes and shall be surely supported or secured to maintain such alignment.

B. Pitch of sanitary piping shall be uniform at a minimum of 1/8" per foot for building drains, drainage piping greater than 2” and as indicated on the drawings. Pitch of sanitary piping shall be uniform at a minimum of 1/4" per foot for drainage piping 2” and smaller and as indicated on the drawings.

C. Protection shall be given all footings, other structural elements during underground work adjacent to such items. Refer to architectural and/or structural drawings for locations.

D. Vent all fixtures, connect branch vents to main vent risers at least 6” above flood rim of fixtures. Pitch vent lines back to soil or waste pipe, free of drops and sags.

E. Cleanouts shall be full size of pipe up to 4" , and 4" for larger sizes. For underground and concealed lines, provide cleanouts in accessible positions at each right angle turn and at intervals not to exceed 50ft. In floors, install flush with finish floor with extension pipe from cleanout wye.

END OF SECTION

SECTION 221317 - SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data:
   1. For each type of product indicated.

PART 2 - PRODUCTS

2.1 CLEANOUTS

A. Floor cleanout equal to Zurn Z-1400 adjustable floor cleanout.

B. Wall cleanout equal to Zurn Z-1443 with smooth nickel bronze square wall access panel and frame.

C. Grade cleanout equal to Zurn Z-1400 adjustable cleanout.

D. Provide a sanitary tee and threaded cap cleanout plug in suspended waste piping.

E. Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following: Josam, Jay R Smith, Watts Regulator Co.; a division of Watts Water Technologies, Inc, Mifab, Zurn

2.2 FLOOR SINKS

A. Install floor sinks in compliance with ASME A112.6.7. All floor sinks shall have a cast iron body unless noted otherwise. All floor sinks located in a commercial kitchen to have a half grate cover unless noted otherwise.

B. Refer to plumbing drain schedule for project specific floor drain manufacturers and models.

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Installation Instructions:
   1. Install per manufacturer’s published installation and operation manual.

END OF SECTION

SECTION 22 3001 - POINT OF USE THERMOSTATIC MIXING VALVES

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data:
   1. For each type of product indicated.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Thermostatic mixing valves shall be provided for all public hand washing sinks and lavatories and shall be ASSE 1070 listed, lead free, sweat connections, 125 psi operating pressure.

B. Point-of use thermostatic mixing valves shall be equal to Powers LFG480.

C. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and are limited to, the following: Symmons, Lawler, Leonard, Powers, Bradley

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Mount under sink or lavatory. Set outlet temperature of thermostatic mixing valve to 105˚F or as required by AHJ. Route tempered water to hot water side of sink and lavatories.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL

A. General Provisions of the Contract including General and Supplementary Conditions and General Requirements apply to work of this section.

1.2 APPLICABLE CODES AND STANDARDS

A. Ohio Mechanical Code (OMC)

B. Applicable Local Building Code

C. Applicable Requirements of the Greater Columbus Convention Center

D. SMACNA HVAC Duct Construction Standards

E. SMACNA Fire, Smoke and Radiation Damper Installation Guide

F. Ohio Energy Code 2021

1.3 SCOPE

A. The base bid includes furnishing all materials, labor, tools, and equipment and the performance of all work required to modify, clean, and refurbish the existing heating and air conditioning system as outlined herein and shown on the mechanical design documents.

1.4 GUARANTEE

A. The contractor shall provide a guarantee in written form stating that all work under this section shall be free of defective work, materials, or parts for a period of one year from the date of owner's final acceptance and shall repair, revise or replace at no cost to the owner any such defects occurring within the guarantee period. Contractor shall also state in written form that any items or occurrences arising during the guarantee period will be attended to in a timely manner and will in no case exceed four (4) working days from date of notification by owner.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 WORK IN EXISTING SPACES

A. General:
   1. Care shall be taken when working in existing spaces so as not to damage existing walls and ceilings where work is being performed.
   2. Contractor shall provide scaffolding, rigging, hoisting and other services necessary for the erection and delivery into the premises of any equipment and apparatus removed or furnished. Removal of these services upon completion is required prior to occupancy.

B. Ceilings:
   1. Where work is being performed above ceilings, and the architectural drawings do not indicate ceiling modifications by the general contractor, it shall be the responsibility of this contractor to remove and replace existing ceilings where work is being performed. In those instances, all repair and installation of new grid, ceiling panels, etc. shall be the responsibility of this contractor. Match existing finishes.

C. Walls & Floors:
   1. It shall be the responsibility of this contractor to patch existing walls and floors and match existing finishes where work is being removed or installed and patching is being performed, unless noted otherwise on the architectural drawings

3.2 TESTS AND ADJUSTMENTS

A. No ducts, piping, fixtures or equipment shall be concealed or covered until they have been inspected and approved by the Construction Manager and the inspector who shall be notified by the contractor when the work is ready for inspection.

B. Work shall be completely installed, tested and leak tight before inspection is required. All tests shall be repeated to the satisfaction of those making the inspection.

C. Final Air balancing shall not take place until the system has been completed and in full working order. Test, adjust and balance air conditioning systems as per Section 23 05 93.

3.3 ARCHITECTURAL COORDINATION ITEMS

A. Cutting and Patching:
   1. Cut and drill all openings in walls and floors required for the installation. Secure approval of Engineer before cutting and drilling. Neatly patch all openings cut.

B. Fire Caulking:
   1. Patching through fire rated walls and enclosures shall not diminish the rating of that wall or enclosure. Patch shall be equal to rockwool, firestop, caulk or approved "rated" patch.

C. Access Panels and Pathways:
   1. Furnish all access panels required for proper servicing of equipment. Provide access panels for all concealed valves, vents, controls, cleanout doors, and sprinkler devices required by NFPA. Provide access panels for all fire and/or fire & smoke dampers. Provide frame as required for finish. Furnish panels to General Contractor. Exact locations to be approved by the Architect. Minimum size to be 12" x 12" (300mmx300mm), units to be 16 gauge steel, locking device shall be screwdriver cam locks.

3.4 PROJECT CONDITIONS

A. Interruption of Existing HVAC Services:
   1. Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:
   2. Notify, Architect, Construction Manager, and Owner no fewer than seven days in advance of proposed interruption of service.
   3. Do not proceed with interruption of service without Architect's written permission.

END OF SECTION

PART 1 - GENERAL

1.1 REQUIREMENTS

A. Where submittals are required by the Contract Documents, they shall be prepared and supplied in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.

B. The contractor is not relieved of responsibility for providing specified or drawn scope of work should any errors or omissions in submittal information not be noted by the Design Professional during submittal reviews or site observations.

C. Some Divisions may include a division-specific “Submittal Requirements for ….” section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.

D. The submittal requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Reference Specification Section 01 33 00 for a full list of submittal procedures and required formats.

3.2 USE OF ELECTRONIC DRAWINGS FROM THE OWNER’S DESIGN TEAM

A. Plan drawings for the Project were created with Revit or AutoCAD.

B. If expressly permitted by the Owner and the terms of the Contract, editable electronic versions of standard-scale, AutoCAD-based plan drawings may be made available for the creation of shop and as-built drawings.

C. Upon request, when available, electronic versions of standard-scale, Navisworks (.dwf) and (.nwc) or AutoCAD 360 (.dwg) files may be made available for coordination purposes.

D. Due to the proprietary nature of internal design systems, editable native-software versions of some drawings, including but not limited to system diagrams and details, will not be made available in an editable form. In these cases, electronic versions of the drawings may be made available only in PDF, JPG, or similar non-editable electronic form, at the sole discretion of the Design Professional.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Scope of Work
   1. This section is for the testing, adjusting and balancing of HVAC systems.

B. Shop Drawings:
   1. Certified Reports: Submit testing, adjusting, and balancing reports bearing the seal and signature of the Test and Balance Engineer. The reports shall be certified proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Pre-construction Report and Final Report: Upon verification and approval prepare final reports, utilize Starbucks TAB Report Cover template. Submit one (1) complete set of final report to the Construction Manager and Owner and post to the project's TAB folder in Box.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

1. Test, adjust, and balance the following mechanical systems:
2. Existing AHU-1
3. Existing AHU-2
4. Existing AHU-3
5. Existing Exhaust Fan.
6. Verify temperature control system operation.
7. Test systems for proper sound and vibration levels.

3.2 QUALITY ASSURANCE

A. Codes and Standards:
   1. AABC: "National Standards for Total System Balance".
   2. ASHRAE: ASHRAE Handbook, 2011 Applications, Chapter 38, Testing, Adjusting, and Balancing.

3.3 QUALIFICATIONS

A. The contractor shall procure the services of an independent Balance and Testing Agency, approved by the Construction Manager, and a member of Associated Air Balance Council (AABC) or NEBB, which specializes in the balancing and testing of heating, ventilating and air conditioning systems, to balance, adjust and test all air and water systems and equipment as herein specified. The Air Balance and Testing Agency shall provide proof of having successfully completed at least five projects of similar size and scope. All work by this agency shall be done under direct supervision of a qualified heating and ventilating engineer employed by this agency. All instruments used by this agency shall be accurately calibrated and maintained in good working order.

3.4 SEQUENCING AND SCHEDULING

A. General:
   1. Test, adjust and balance air conditioning systems during summer season and heating systems during winter season, as seasonably appropriate.

2. Check all filters for cleanliness, provide new as required. Check dampers (volume and fire) for correct and locked position, and temperature control for completeness of installation before starting fans. Place outlet dampers in full open position. Lubricate all motors and bearings. Check fan belt tension. Check fan rotation.
3. Air balance and testing shall not begin until the project has been completed and is in full working order. The Contractor shall put all heating, ventilating and air conditioning systems and equipment into full operation and shall continue the operation of same during each working day of testing and balancing. The contractor shall submit within 30 days after receipt of contract, 8 copies of submittal data for the testing and balancing of the air conditioning, heating, and ventilating systems.
4. The air balancing contractor shall include the additional cost to change every fan factory installed sheave, pulley and/or belt of in order to obtain the design/pre-project air flows.

B. Renovations:
1. In areas where existing HVAC equipment is being utilized, balancing contractor shall include the cost to pre-check each equipment air flows, serving the area of work, prior to demolition, and re-check and adjust each air handler after new construction. Air flows of existing air handlers serving existing spaces shall be similar after project is complete.

3.5 Performing testing, adjusting and balancing

A. Perform testing and balancing procedures on each system identified, in accordance with the detailed procedures outlined in the referenced standards.

B. Cut insulation, ductwork, and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures.

C. Patch insulation, ductwork, and housings, using materials identical to those removed.

D. Seal ducts and piping, and test for and repair leaks.

E. Seal insulation to re-establish integrity of the vapor barrier.

F. Mark equipment settings, including damper control positions; valve indicators, fan speed control levers, and similar controls and devices, to show final settings. Mark with paint or other suitable, permanent identification materials.

G. Retest, adjust, and balance systems subsequent to significant system modifications, and resubmit test results.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Closeout
   1. Operation and Maintenance Manual: For equipment and systems to include in operation and maintenance manuals.

B. Shop Drawings
   1. As-Built Drawings: For recording installed conditions that deviate from design documents.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to all sections.

B. Obtain the latest Design and Construction Standards document(s) from the Owner. Comply with all Owner-specific requirements in addition to requirements set forth in these specifications and accompanying drawings. Should there be a conflict, the Owner's standards shall take precedence, unless prevailing codes and regulations mandate otherwise.

1.3 GENERAL DIRECTION

A. Submittal of a bid indicates that the contractor has examined the drawings, specifications, and had an opportunity to visit the site to be able to provide a comprehensive complete bid.

B. The intent of these specifications and the accompanying drawings is to provide complete and workable systems as shown, specified and required by applicable codes. Interpret these specifications in conjunction with the drawings and provide all work described. If work is shown on drawings and not mentioned in the specifications, or vice versa, it is to be included in the work the same as though clearly set forth by both. Should there be a conflict between the specifications and drawings, provide the greater quantity or better quality. Immediately notify owner's representative and design professional of such conflicts.

C. Provide all labor and material, tools and equipment necessary to render all systems complete and operational, and ready for turnover to Owner. Work defined within this section applies for all Division 26 work, including work of Division 26 that is provided in support of work of other divisions. Unless specifically indicated otherwise in documents of other construction divisions, products to be installed shall also be furnished under Division 26.

D. During mobilization or construction, if an abnormal condition is uncovered either with existing conditions, equipment loads, submittal data, etc. bring these to the attention of the Design Professional for review.

E. Phasing - Where the scope of work dictates that the project shall be constructed in phases, all costs shall be incurred by this contractor for any temporary work required so that previous phases can be operational while construction is being done to adjacent spaces.

1.4 GENERAL STANDARDS

A. Provide work in compliance with applicable provisions of the following standards. Provide listing and labeling for all electrical materials, marked for respective intended uses, from UL or other Nationally Recognized Testing Laboratory (NRTL) that is acceptable to applicable Authorities Having Jurisdiction (AHJs).

B. Provide materials, installation methods, workmanship, testing, etc., in strict accordance with the latest adopted edition of applicable national standards and local adopted codes.

1.5 PERMITS AND REGULATIONS

A. Obtain and pay for permits, fees, certificates of inspection and approval, etc. required for this branch of the work. Furnish Owner with certificates of final inspection and approval prior to final acceptance of this branch of the work.

B. Laws and regulations which bear upon or affect the various branches of this work shall be complied with by this contractor and are hereby made a part of this contract.

1.6 DEFINITIONS

A. Furnish - Procure, supply and deliver to project site, ready for installation, install and warrant (unless indicated otherwise on documents). Include warranty expenses.

B. Install - Assemble, wire and connect loose-shipped components on site. Place in position for service or use, including material, labor, accessories, services, and testing. Wire, connect, and render fully operational for intended use.

C. Provide - Furnish and Install. Similar Terms: "include", “shall“, “equip with”, “consisting of”

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Should deviation from basis of design equipment impact other contractors scope of work it shall be the responsibility of this contractor to coordinate with and cover these costs in addition to their own.

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Unless specifically indicated, provide all specified and drawn work as required to render all equipment and systems fully operational, including all ancillary, accessory, and support work.

3.2 INTERRUPTION OF SERVICES

A. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others without notification to Owner’s Representative and written permission. Arrange for and provide temporary electric service meeting requirements of owner. Notify Owner’s Representative no fewer than fourteen days in advance of proposed interruption of electric service.

3.3 TEMPORARY SERVICE

A. Where required, provide temporary electrical service. Make necessary arrangements with local utility companies for temporary electrical service and pay associated fees for inspections, connections, initiation, etc.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL

A. Mounting Heights: Outlet mounting heights as indicated on the plans are approximate. Determine the exact mounting heights (and locations) of outlets in the field with relation to architectural detail and equipment being served. Coordinate outlet location with equipment, with furniture plans and with architectural elevation plans. Where mounting heights are not detailed or dimensioned, contact the Owner's Representative for direction. Prior to rough-in, coordinate final mounting heights of system outlet boxes in field with Owner's Representative. Install boxes at heights as follows, to center of box, unless directed otherwise in field or otherwise noted on E-series drawings or architectural plans. In cases where using center of box for measurement would result in a switch-height device having an operable component higher than 48 inches above finished floor, install boxes lower as needed so that uppermost part of operable component is no higher than 48 inches. Height of boxes dimensioned from ceiling apply to rooms having ceilings 9' or less; in rooms having higher ceilings, locate these as directed in the field.

Switches – Counters:	44” (field verify & match recept. heights)
Switches – Elsewhere:	46”
Occupancy Sensors, Wallbox:	46”
Occupancy Sensors, Elsewhere:	As recommended by manufacturer
Receptacles – Counters:	44” (field-verify)
Receptacles – Elsewhere:	18”
Starters:	46”
Disconnects:	46”
Circuit Breaker Panelboards:	72” to top unless code dictates otherwise
Wall Mounted Luminaires:	As noted on plans or directed by Design Prof.
Control Stations:	46”
Communication Outlets:	18”
Fire Alarm Manual Pull Stations:	46” to top of operating handle
Fire Alarm A/V Annunciators:	80” to bottom of outlet box
Fire Alarm Door Holders:	84”
Other Outlets/Fixtures/Equipment:	As directed by Design Professional

B. Lock-Out Tag-Out Devices: Provide permanently installed lock-out tag-out devices compliant with NFPA 70 and OSHA, with padlocking provisions, at source overcurrent devices for the following applications.
   1. Where the normal NFPA 70 code-compliant location of the disconnecting means is impracticable or introduces additional or increased hazards to persons or property.
   2. Where required by NFPA 70.
   3. Where required by OSHA.
   4. Where required by any other authority having jurisdiction.

C. Electrical Installations:
   1. Install conduit, wiring, outlet box and junction box type work in finished areas concealed. Such work installed in unfinished areas may be exposed only at the discretion of the Owner's Representative.
   2. All new electrically related work shall be supported directly from building structural members. New electrically related work shall not be supported from ductwork, ductwork hangers, ceiling supports, existing conduit supports, etc. All conduits (and cable assemblies, where applicable) shall be routed parallel to building structural members. Noncompliant work installed by the electrical contractor shall be removed and reinstalled to the satisfaction of the Owner’s Representative and the Design Professionals, at the expense of the electrical contractor.

3. Provide systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and architectural/structural components. Provide factory-furnished filler plates in unused spaces of manufactured equipment.
4. Install electrical equipment to facilitate servicing, maintenance, and repair and replacement of equipment components. Install equipment for ease of disconnecting, with minimum of interference with other installations. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope. Protect the structure, furnishings, finishes, and adjacent materials.
5. Verify dimensions by field measurements. Take measurements and be responsible for exact size and locations of openings required for the installation of work. Where detailed method of installation is not indicated or where variations exist between described work and approved practice, follow direction of the Owner's Representative.
6. Do not install device wall outlets directly back to back, where located on opposite sides of common walls. Offset outlets by at least two feet for applications in fire rated walls and smoke rated walls and applications in acoustically treated walls. Offset outlets by at least one foot for other applications.
7. Provide wires continuous from outlet to outlet and properly splice joints. Provide insulation value for joints 100% greater than that of the wire. Mechanical wire splicers may be used. Where friction and rubber tape is used, provide tape conforming to Federal Specifications HH-T-11 and HH-T-111. Where plastic electrical tape is used, provide Scotch #33, or approved equal. Provide minimum 8” tail for conductors terminating at each wired outlet at their outlet fittings to facilitate installment of devices, luminaires, etc.
8. Use of synthetic or plastic “tie-wraps”, “zip ties”, “wire ties” and similar products are not permitted as a permanent means of anchoring, securing, supporting or otherwise installing any cables, conductors, conduits, raceways, devices, equipment or other electrical work.
9. If during construction it becomes apparent that some specific minor changes in layout will result in a neater job or better arrangement, make such alterations without additional compensation and without having to offer credit. Obtain Design Professional’s review before making such changes. Provide workmanship throughout that conforms to the standards of best practice. Marks, dents and finish scratches are prohibited on exposed materials, luminaires, fittings, etc. Clean inside of panels and equipment boxes.

D. Connectors and Connections:
1. Provide complete assembly of materials for each type of required electrical connection, including but not limited to, pressure connectors, terminals (lugs), electrical insulating tape, heat-shrinkable insulating tubing, solderless wire-nuts, and other items and accessories as needed to complete splices and terminations of types indicated.
2. Unless otherwise indicated, provide wires/cables (conductors) for electrical connections that match, including sizes and ratings, of wires/cables that are supplying electrical power. Provide electrical connectors and terminals that mate and match, including sizes and ratings, with equipment terminals, and that are recommended by equipment manufacturer for intended applications. Provide connectors that are specifically UL_listed and labeled for the exact splicing/termination application, including for instances where solid conductors are spliced/connected to stranded conductors. Provide electrical insulating tape, heat-shrinkable insulating tubing and boots, wirenuts, cable ties, etc. as recommended for use by accessories manufacturers for intended applications.
3. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams. Mate and match conductors of electrical connections for proper interface between electrical power supplies and installed equipment. Cover splices with electrical insulating material to achieve insulation at least 100 percent in excess of electrical insulation rating of those conductors

being spliced. Prepare cables and wires, by cutting and stripping covering armor, jacket, and insulation properly to ensure uniform and neat appearance where cables and wires are terminated. Exercise care to avoid cutting through tapes which will remain on conductors. Do not "ring" copper conductors while skinning wire.

4. Ground metal frames of portable and stationary direct-wired electrically operated equipment by connecting frames to the circuit equipment grounding conductor and to grounded metal raceway. Provide necessary electrical connections between the specified equipment and junction boxes, disconnect switches, and starters near equipment with flexible metallic conduit and matched connectors. Do not expose flexible conduit in finished areas.
5. Wire and connect electrical equipment furnished under this branch of work, other branches of work and by the Owner. Review documents of other trades to identify electrically operated/controlled equipment that is furnished or installed by the Owner, or by other trades. Provide power connections and local disconnects for same. Provide control wiring (including relays, starters, etc.), as required to render equipment fully operable unless indicated otherwise on drawings or in project manual. Determine exact requirements in field from respective equipment installer.

END OF SECTION

SECTION 260503 - SUBMITTALS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 GENERAL

A. Where submittals are required by the Contract Documents, they shall be prepared and supplied in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.

B. The contractor is not relieved of responsibility for providing specified or drawn scope of work should any errors or omissions in submittal information not be noted by the Design Professional during submittal reviews or site observations.

C. Some Divisions may include a division-specific “Submittal Requirements for ….” section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.

D. The submittal requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL DIRECTION

A. Reference Specification Section 01 33 00.00 for a full list of submittal procedures and required formats.

3.2 USE OF ELECTRONIC DRAWINGS FROM THE OWNER’S DESIGN TEAM

A. Plan drawings for the Project were created with Revit.

B. If expressly permitted by the Owner and the terms of the Contract, editable electronic versions of standard-scale, AutoCAD-based plan drawings may be made available for the creation of shop and as-built drawings.

C. Upon request, when available, electronic versions of standard-scale files may be made available for coordination purposes.

D. Due to the proprietary nature of internal design systems, editable native-software versions of some drawings, including but not limited to system diagrams and details, will not be made available in an editable form. In these cases, electronic versions of the drawings may be made available only in PDF, JPG, or similar non-editable electronic form, at the sole discretion of the Design Professional.

END OF SECTION

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Provide Electrical Components, Devices, and Accessories listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application. Comply with UL 467 for grounding and bonding materials and equipment. Comply with ANSI/TIA/EIA-607, “Commercial Building Grounding and Bonding Requirements for Telecommunications. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Except as otherwise indicated, provide copper electrical grounding and bonding systems and materials with assembly of materials including but not limited to cables/wires, connectors, solderless lug terminals, grounding electrodes and plate electrodes, bonding jumper braid, and additional accessories needed for a complete installation. Where materials or components are not indicated, provide products that comply with NEC, UL, and IEEE requirements, and with established industry standards for those applications indicated. Utilize compatible metallic materials throughout system to eliminate galvanic action.

B. Acceptable Manufacturers: Subject to being equivalent and subject to compliance with requirements, provide conductors and connectors as specified in Section 260519. Subject to being equivalent and subject to compliance with requirements, provide other grounding related materials by Erico (as a standard of quality), or other equivalent available manufacturers where not otherwise specified in Division 26.

2.2 CONDUCTORS AND CONNECTORS AND ELECTRODES

A. For insulated conductors, provide copper or tinned-copper wire or cable insulated (green-colored) conductors, insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction. For bare copper conductors, provide: Solid Conductors, ASTM B 3; Stranded Conductors, ASTM B 8; Tinned Conductors, ASTM B 33.

B. Provide connectors listed and labeled by a testing laboratory acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected. Provide copper or copper alloy bolted connectors for conductors and pipes, pressure type with at least two bolts. Provide clamp type pipe connectors, sized for pipe. Use exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

C. Provide copper-clad steel (copper molecularly bonded to nickel-sealed high-strength steel core ground rods, 3/4” in diameter by 10’ in length (sectional rods may be used when rods are longer than 10 feet. Provide sheet copper plate electrodes that are 20-gauge by 36" by 36", made from high-conductivity sheet, with cable attachments (minimum quantity of 2), sized for cables as necessary to fulfill project grounding requirements, where ground rods cannot or should not be used.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Provide green-colored insulation, unless indicated otherwise. Provide solid conductors for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated. Provide bare copper conductors below grade, No. 2/0 AWG minimum. Provide tinned

conductors in corrosive areas. Where to be installed underground, bury at least 36” below grade.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors as required by NFPA 70 and as otherwise required. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70: all feeders; all branch circuits; expansion couplings; flexible raceway runs.

B. Water Heaters: Install a separate insulated equipment grounding conductor to each water heater. Bond conductor to heater units, piping, connected equipment, and components.

C. Heat-Tracing Cables: Install a separate insulated equipment grounding conductor for bonding to each heat-tracing cable.

D. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location. Terminate grounding conductors on grounding busses or cabinet grounding terminals as applicable.

E. Lighting Poles and Standards Supporting Outdoor Lighting Fixtures: Provide grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit. Bond straps directly to basic structure, taking care not to penetrate any adjacent parts. Install bonding so vibration is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

C. Conductor Terminations and Connections:
   1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
   2. Underground Connections: Welded connectors except if otherwise indicated.
   3. Connections to Structural Steel: Welded connectors.

D. Grounding and Bonding for Piping:
   1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.

E. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.

F. Telecommunications Grounding Requirements

1. At minimum, bond together telecommunications racks, cabinets, tray, ladder rack, and risers at telecommunications equipment to the ground busbar in the nearest electric panel. Bond additional points where indicated in the drawings and where required by NFPA 70.
2. Bond the Main telecommunication service entrances to the electrical service equipment ground using the most direct route possible to minimize conductor length.
3. Provide copper grounding conductor from main building grounding electrode system at service entrance to ground bus at the Telecommunications Entrance Facility.
4. Provide copper bus bars on plywood backboard.
5. Provide isolation for grounding busbars from the structure support with a 2 inch (50mm) minimum separation using manufacturer's recommended insulating stand-offs and hardware.

END OF SECTION

PART 1 - PRODUCTS

1.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4 factory-fabricated components for field assembly. Construct with 9/16" dia. holes, nominal 2" o.c. on top surface, with standard factory finish, and with the all necessary fittings which mate and match with U-channel. Select channel dimensions for applicable load criteria. Metallic Coatings shall be hot-dip galvanized after fabrication and threading, and applied according to MFMA-4. Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Allied Tube & Conduit
2. Caddy
3. Cooper B-Line, Inc.; a division of Cooper Industries
4. ERICO International Corporation
5. GS Metals Corporation
6. Hilti
7. Powers
8. Thomas & Betts Corporation
9. Unistrut; Tyco International, Ltd.
10. Wesanco, Inc.
11. Perma-Cote

B. Raceway and Cable Supports: As described in NECA 1, NECA 101.

C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
1. Riser clamps for supporting rigid metal conduit; galvanized steel; with 2 bolts and nuts, and 4" ears.
2. Clevis hangers: For supporting rigid metal conduit; galvanized steel; with 1/2" dia. hole for round steel rod.
3. Galvanized steel clamps; 1/2" rod size.
4. Galvanized steel clamps, 1-1/4" x 3/16" stock; 3/8" cross bolt; flange width 2".
5. One-hole conduit straps for supporting 3/4" rigid metal conduit; galvanized steel.
6. Two-hole conduit straps for supporting 3/4" rigid metal conduit, galvanized steel; 3/4" strap width; and 2-1/8" between center of screw holes.
7. Offset conduit clamps for supporting rigid metal conduit; galvanized steel.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following.
1. Products: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
a. Cooper B-Line, Inc.; a division of Cooper Industries.
b. Empire Tool and Manufacturing Co., Inc.
c. Hilti, Inc.
d. ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
e. MKT Fastening, LLC.
f. Simpson Strong-Tie Co., Inc.

2. Capacities: Provide materials and installed systems with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used, plus 100% safety factor.
3. Adverse and/or Corrosive Environment Areas: Provide stainless steel anchors. Provide hot-dipped galvanized (after fabrication) product and material versions of what is specified in this section for steel hangers, supports, systems, etc. (supported from stainless steel anchors), unless stainless steel is specified or otherwise indicated. Such applications and areas include, but are not limited to:
   a. Outdoors.
   b. Unconditioned Areas.
   c. Coolers/Freezers.
   d. Miscellaneous high-humidity or otherwise corrosive environments.
4. Mechanical-Expansion Anchors in Dry Conditioned Areas: Insert-wedge-type, zinc-coated steel, for use in hardened Portland cement Provide stainless steel anchors where located in areas subject to moisture or corrosion.
5. Drop-In Anchors: AISI Type 303 stainless steel, drop-in, shell or flush type, equivalent to Hilti HDI series.
6. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to ANSI/MSS Type 18; complying with MFMA-4 or ANSI/MSS SP-58.
7. Clamps for Attachment to Steel Structural Elements: ANSI/MSS SP-58, type suitable for attached structural element.
8. Through Bolts: Steel structural type, hex head, and high strength. Comply with ASTM A 325.
9. Toggle Bolts: All-steel galvanized springhead type, minimum 3/16” x 4”.
10. Hanger Rods: Threaded steel, Galvanized steel rods; 1/2" minimum diameter.
11. Clevis hangers: For supporting rigid metal conduit; galvanized steel; with 1/2" minimum diameter hole for round steel rod.
12. Galvanized steel rod reducing couplings: 1/2" x 5/8” minimum.
13. Galvanized steel clamps: 1/2" minimum rod size; Galvanized steel clamps: Minimum 1-1/4" x 3/16" stock; minimum 3/8" cross bolt; minimum flange width 2".
14. Hexagon nuts: Galvanized steel.
15. Expansion anchors: Minimum 1/2".

PART 2 - EXECUTION

2.1 APPLICATIONS AND INSTALLATION

A. Provide supports, anchors, sleeves and seals furnished as part of factory-fabricated equipment as required.

B. Coordinate layout and installation of equipment and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

C. Provide supports for multiple raceways capable of supporting combined weight of supported systems and its contents, plus minimum 100% factor of safety. Provide equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components. Provide rated strengths adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this project, with a minimum structural safety factor of five times the applied force.

D. Contractor is responsible for repairing all damage to structural elements resulting from the scope of this work. Anchor hole dimensions shall be per manufacturer recommendations. Select and apply anchor products based on collective weight being supported, plus 100% factor of safety.

E. Comply with NECA 1 and NECA 101 for application and installation requirements of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter. Field Welding: Comply with AWS D1.1/D1.1M.

F. Install equipment and enclosures on walls with tops at uniform height unless otherwise indicated, and by bolting units to structural wall or mounting on structural-steel channels bolted to wall. For equipment and enclosures not at walls, provide freestanding structural-steel channel racks that are anchored to floor structure and overhead structure.

G. Use of synthetic or plastic “tie-wraps”, “zip ties”, “wire ties” and similar products are not permitted as a permanent means of anchoring, securing, supporting or otherwise installing any cables, conductors, conduits, raceways, devices, equipment or other electrical work. Provide metal clamps, clips, etc. that are manufactured for use for respective applications where they are used. Use of perforated straps is not permitted.

H. Route all conduits, raceways and cables (where applicable) parallel and perpendicular to building structural members. Any and all noncompliant work installed by the electrical contractor shall be removed and reinstalled by the electrical contractor to the satisfaction of the Owner's Representative and the Design Professionals, at the expense of the electrical contractor.

I. Fasteners shall be zinc-coated, type, grade, and class as required for a neat finished installation.

J. Coordinate with installation of roof curbs, equipment supports, and roof penetrations as applicable. Install work so that no raceway or cable is within 6” below roof deck(s). Suspend and support overhead electrical work from roof trusses and joists/joist girders only at panel points, at top chord only, unless otherwise indicated.

K. Do not suspend overhead hangers, or support any other overhead electrical work, from non-poured-concrete roof decks.

L. Support overhead hangers supported from poured-concrete decks using stainless steel threaded inserts.

M. Field-verify lengths of stems, pendants, cables, suspensions, etc. for all suspended luminaires with Owner's Representative.

N. Strength of Support Assemblies: Minimum static design load used for strength determination shall be weight of supported components plus 200 lb. or 100 percent factor of safety, whichever is greater.

O. Mounting and Anchorage of Surface-Mounted Equipment and Components: Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded. Install anchor bolts to elevations required for proper attachment to supported equipment. Provide female expansion anchors, and install studs and nuts after equipment is positioned. Torque bolts and nuts on studs to values recommended by equipment manufacturer. Provide anchor bolt bushing assemblies for wall-mounted equipment to allow for resilient media where equipment and equipment-mounting channels are attached to wall.
   1. To Wood: Fasten with lag screws or through-bolts. Number 3 Common or Standard Grade boards complying with PLIB or AWPA rules, or Number 3 boards complying with SPIB rules. Lumber shall be preservative treated in accordance with AWPB LP-2, and kiln dried to a moisture content of not more than 19 percent. Provide marine grade products where subject to moisture conditions. Provide Simpson Strong Tie (or equal) expansion screw

anchors. Make tight connections between members. Install fasteners without splitting wood members. Attach to substrates as required to support applied loads.

2. To Wood Structural Members: Provide bolts installed through members.
3. To New Concrete: Provide channel-type concrete inserts and bolt to inserts, or provide expansion anchors for applications where inserts are not practical.
4. To Existing Concrete: Expansion anchor fasteners.
5. Holes for Expansion Anchors in Concrete: Drill at locations and to depths that avoid reinforcing bars and other structural elements. Review proposed means, methods, locations, etc. in advance with Owner and Design Professionals.
6. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
7. To Steel: Welded threaded steel studs complying with AWS D1.1/D1.1M, with lock washers and nuts, or beam clamps (ANSI/MSS Type 19, 21, 23, 25, or 27) complying with ANSI/MSS SP-69, clamped to flanges of beams or on upper truss chords of bar joists.
8. To Light Steel: Sheet metal screws.
9. Items Mounted on Hollow Walls and Nonstructural Building Surfaces in finished areas: Provide blocking between studs behind finished wall surface. Mount equipment, devices and boxes with backs of enclosures flush to front of finished wall surface.
10. Items Mounted on Hollow Walls and Nonstructural Building Surfaces in unfinished areas: Mount equipment on slotted-channel racks attached to substrate.
11. Do not use powder/gas-actuated driven methods.

P. Coordinate all work with all other trades prior to commencement of the work.

2.2 PLYWOOD EQUIPMENT BOARDS

A. Plywood Equipment Boards: Lumber shall be preservative treated in accordance with AWPB LP-2, and kiln dried to a moisture content of not more than 19 percent. Provide plywood panels; APA C-D PLUGGED INT, with exterior glue; thickness as indicated, or if not indicated, not less than 3/4 inches deep. Provide marine grade plywood where subject to moisture conditions. Provide Simpson Strong Tie (or equal) expansion screw anchors.

B. Unless otherwise noted, boards shall be painted with two coats of good grade weatherproof flat gray non-conductive fire-retardant paint on all sides and edges (prior to mounting) and plumbed in a true vertical position. Provide nominal 1/2" rustproof spacers between back of plywood and wall. Maintain at least 4” from bottom of plywood equipment boards and the finished floor surface.

C. Unless directed otherwise in field, plywood equipment boards shall be 8” high by 3/4” deep by length shown on drawings (as dimensioned or as scaled) or length as required to accommodate equipment if not indicated on drawings. Unless directed otherwise in field, provide plywood equipment boards for all indoor surface mounted panelboards and systems "head-end" equipment for all applications where located in mechanical or electrical rooms/areas and only where specifically shown on drawings for all other applications

END OF SECTION

PART 1 - PRODUCTS

1.1 MANUFACTURERS

A. Products: Metal conduits, tubing, boxes and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.2 METAL CONDUITS, TUBING, AND FITTINGS

A. EMT: Comply with FS WW-C-563, UL 797 and ANSI C80.3.

B. GRC/RMC: Comply with UL 6 and ANSI C80.1. Provide steel conduit, galvanized/fused to inside and outside walls of conduit and fittings after fabrication and after threading.

C. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
   1. Provide liquid-tight flexible metal conduit formed from continuous length of spirally wound, interlocked, double-wrapped hot-dipped zinc-galvanized (inside & outside) steel core. Provide liquid-tight jacket of flexible polyvinyl chloride (PVC) that is fully weatherproof, flame-retardant, heat resistant, oil resistant, sunlight resistant and that resists heat, oil and chemical breakdown.
   2. Provide smooth-wall type jackets (not a corrugated look) for furniture whip (and similar) applications in indoor finished areas.
   3. Provide Liquid-Tight Flexible Metal Conduit Fittings compliant with FS W-F-406, Type 1, Class 3, Style G. Provide cadmium plated, malleable iron fittings with compression type steel ferrule and neoprene gasket sealing rings, with insulated throat.
   4. Provide full parity size green insulated ground wire for all applications, regardless of length.
   5. Provide installed LFMC systems using materials and installation methods that result in IP67 compliance.

D. Fittings for Metal Conduit: Comply with UL 514B and NEMA FB 1.
   1. EMT: Provide steel, galvanized or zinc-coated water/concrete-tight fittings; do not use die-cast fittings. Provide Compression type for outdoor applications, and applications in other wet locations. Provide Compression or set screw type for indoor applications.
   2. GRC/RMC: Zinc-Galvanized Steel (after fabrication/factory-threading), threaded (fused-galvanized after threading.)
   3. Expansion Fittings: Material to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
   4. Provide locknuts for securing conduit to metal enclosure with sharp edge for digging into metal, and ridged outside circumference for proper fastening. Provide screw type grounding terminal for metal bushings of standard or insulated type.

E. Joint Compound for Threaded Conduit: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

1.3 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be UL listed and labeled for use in wet locations, including cover plates and doors. Boxes, enclosures, and cabinets installed in damp and areas subject to moisture shall be UL listed and labeled for use in damp locations, including cover plates and doors. All other applications shall be UL listed and labeled for the location in which they are installed. Provide galvanized (after fabrication and after threading) boxes with galvanized or stainless-steel accessories, hardware and cover plates.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A. Provide galvanized-coated flat rolled code-gage non-gangable sheet-steel outlet/junction/pull boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct outlet boxes with mounting holes and with cable and conduit-size knockout openings in bottom and sides where applicable. Provide boxes with threaded screw holes, with corrosion-resistant cover and grounding screws for fastening surface and device type box covers, and for equipment type grounding. Provide outlet box accessories as required for each installation, including box supports, mounting ears and brackets, wallboard hangers, box extension rings, fixture studs, cable clamps, and metal straps for supporting outlet boxes, which are compatible with outlet boxes being used to fulfill installation requirements for individual wiring situations. Provide with stainless steel nuts, bolts, screws and washers.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover. Only use for special applications with prior case-by-case approval from Design Professionals.

D. Luminaire Outlet Boxes: Comply with outlet box specifications above; nonadjustable, designed for attachment of luminaire weight (50 lb, minimum) plus 100 percent factor of safety. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight, including 100 percent factor of safety.

E. Bushings, knockout closures and locknuts: Provide corrosion-resistant box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes, to suit respective installation requirements and applications.

F. Device Box Dimensions: 4” square by 1-1/2“ deep or 4” square by 2-1/8” deep, depending on device depths and wiring fill, with single-gang plaster/”mud” rings where only one device is being installed. Provide wider boxes for applications where more than two devices will be installed. Provide internal metal dividers where required under NFPA 70(US) or CEC(Canada) for varying voltages, multiple circuits, etc. Gangable boxes (using multiple single-gang boxes to assemble multi-gang boxes) are prohibited.

PART 2 - EXECUTION

2.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
   1. Exposed: GRC/RMC.
   2. Concealed Conduit, Aboveground in Dry and Noncorrosive Locations Not Subject to Physical Damage: EMT.
   3. Concealed Conduit, Aboveground in Damp Locations, Wet Locations, Corrosive Locations: GRC/RMC.
   4. Underground Conduit For Services, Feeders, branch circuits, and Similar Scale Work : RNC, Type EPC-40-PVC. See details and/or notes on drawings for applications where concrete or other encasement is required.
   5. Connection to Vibrating Equipment or equipment that is subject to any degree of motion in its normal operation (Including But Not Limited To Transformers, Electric Solenoids, and Motor-Driven Equipment): LFMC. Leave sufficient slack in flexible conduit to permit movement from vibration without adversely affecting conduits and connections.

B. Indoors: Apply raceway products as specified below unless otherwise indicated:
   1. Exposed: EMT.
   2. Exposed and Subject to Physical Damage: GRC/RMC.
   3. Concealed in Cavities of Ceilings and Interior Walls and Partitions: EMT.
   4. Above-Grade Damp or Wet Locations: GRC/RMC.

5. Below-Grade (and for special conditions if so noted on drawings or other Division Sections): RNC.
6. Vertical Risers from Below-Grade: GRC/RMC.
7. Cells of Precast Concrete Panels and/or within Movable Partitions: LFMC (Leave sufficient slack in flexible conduit to permit movement from expansion and contraction.)
8. Connections From Outlet Boxes/Raceways to Systems Furniture: LFMC.
9. Embedded in Concrete or Masonry: GRC/RMC.
10. Final 72“ from accessible outlet/junction boxes to recessed luminaires that are located in accessible ceiling systems: Type MC cable.
11. Final 24”-72” at Connections to Vibrating Equipment or equipment that is subject to any degree of motion in its normal operation (Including But Not Limited To Transformers, Electric Solenoids, and Motor-Driven Equipment): LFMC. Leave sufficient slack in flexible conduit to permit movement from vibration without adversely affecting conduits and connections.

C. Raceway Fittings: Compatible with (Listed accordingly) raceways and suitable for use and location.
1. EMT: Comply with NEMA FB 2.10 and with requirements of these specifications.
2. GRC/RMC and IMC: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

2.2 INSTALLATION

A. General Installation.
1. Minimum Raceway Size: 3/4” trade size.
2. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for Conduits and raceways required by NFPA 70 as a minimum.
3. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
4. Do not install aluminum products in contact with, or near proximity to, concrete or earth.
5. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.
6. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter.
7. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
8. Locate all structural elements within concrete prior to pre-drilling anchors. Contractor is responsible for repairing all damage to structural elements resulting from the scope of this work.
9. Provide fittings as needed for a complete installation.
10. Provide flexible connections or expansion fittings where all conduits cross building expansion joints. Coordinate exact quantity & location with Architectural plans prior to installation of work.
11. Do not install boxes back-to-back in walls. Provide not less than 6" separation in general, not less than 16” separation for acoustically rated walls and not less than 24" separation for the following applications: fire walls, fire barriers, smoke barrier walls, and fire partitions. Where outlet boxes are shown back-to-back on common walls, offset accordingly when installed.
12. Install firestopping at penetrations of fire-rated floor and wall assemblies.
13. Neatly cut openings for boxes so that standard size (not "midway" or "jumbo") cover plates will cover all parts of the opening. Position recessed outlet boxes accurately to allow for surface finish thickness. Do not use round boxes.

14. Fasten electrical boxes firmly and rigidly to substrates and structural surfaces to which attached, or solidly embed electrical boxes in concrete or masonry as applicable. Provide box supports that are independent of conduit. Protect boxes from construction debris and damage subsequent to installation of boxes.
15. Use of synthetic or plastic “tie-wraps”, “zip ties”, “wire ties” and similar products are not permitted as a permanent means of anchoring, securing, supporting or otherwise installing any cables, conductors, conduits, raceways, devices, equipment or other electrical work. Do not use perforated straps.
16. Consider the outlet, junction, and pull box locations indicated on drawings approximate unless there are prevailing codes that require specific spacings or locations. Study the general construction with relation to spaces and equipment surrounding each outlet, and neatly install outlets accordingly.
17. Install wiring for different power voltages in raceway systems separate from each other. Install wiring for the various electrical systems in raceway systems that are separate from each other.
18. Provide steel conduit and steel fittings for indoor above-slab applications, as specified in this section.
19. Provide maximum of 40 percent fill for raceways, or a threshold of less if required by NFPA 70 or project conditions.
20. Keep raceways at least 12” away from parallel runs of flues, hot-water pipes, and other sources of heat. Install horizontal raceway runs above liquid and steam piping. Where the lines are not insulated, the clearances shall be increased until the temperature of the conduit, with no live conductors enclosed, does not rise above the ambient temperature of the installation area.
21. Level and square raceway runs, and install at proper elevations and heights.
22. Arrange stub-ups so curved portions of bends are not visible above finished grade or slab.
23. Install no more than the equivalent of three 90-degree bends in any conduit run. Support within 12” of changes in direction.
24. Support conduit within 12” of enclosures to which attached. Properly support and anchor raceways for their entire length using structural materials. Do not span any space unsupported.
25. Conceal conduit and tubing within finished walls, ceilings, and floor cavities unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
26. Install exposed conduits, and extensions from concealed conduit systems, neatly parallel and perpendicular to walls, and plumb on walls. Secure to walls at intervals not exceeding 72”, supported by approved straps and fasteners. Secure to overhead structure at intervals not exceeding six feet. Support conduit by approved straps, fasteners and hangers. Provide hangers suspended from rods. Space wall brackets supporting conduits not more than 54” on center. Install exposed conduit work so there is no interference with ceiling inserts, lights, or ventilation ducts or outlets.
27. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12” of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use, using properly selected and attached manufactured cap (tape of any sort is not permissible). Provide finished wall/cover plate on unused outlet boxes.
28. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
29. Mount boxes at heights indicated on Drawings and elsewhere in Division 26 specifications. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise

indicated. In cases where using center of box for measurement would result in a switch-height device having an operable component higher than 48” above finished floor, install boxes lower as needed so that uppermost part of operable component is no higher than 48”.

30. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block (do not over-cut), and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
31. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel. Coordinate all such separations with Design Professional in advance to ensure boxes are located properly for each application.
32. Locate boxes so that cover or plate will not span different building finishes.
33. Support boxes from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
34. Fasten junction and pull boxes to, or support from, building structure. Do not support boxes by conduits.
35. Do not use dissimilar metals throughout the systems to eliminate possibility of electrolysis. Where dissimilar metals will be unavoidably in contact, coat surfaces with corrosion inhibiting compound before assembling.
36. Do not use electrical "handy/handee" boxes.
37. Where moisture conditions within conduits are encountered above grade, drill a hole at the lowest point in the conduit run so that drainage will not interfere with conditions below.
38. Where conduit is capped at wall for future additions, do not extend more than threads-length past wall (maximum of 3/4” past wall for EMT).
39. Where conduits for outlets on waterproof walls must be installed exposed, set anchors for supporting conduit on waterproof wall in waterproof cement.
40. Requirements for exposed conduits also apply to conduits installed in space above hung ceilings, and in crawl spaces.
41. Provide a 4” reinforced casing of concrete (3000-PSI minimum) around conduits that are installed in cinders or cinder concrete, to protect them.
42. Support raceway components directly from structural building systems, not from ceiling suspensions systems. Provide supplemental supports for junction or pull boxes.
43. Conduit Routing: If specific routing information appears on the Drawings, route and maintain conduits as shown. Should interference or a conflict arise, consult the Design Professional before proceeding with the Work. If specific routing information does not appear on the Drawings, or if routing shown on Drawings is schematic in nature, determine the best route for the conduit in accordance with code and other project guidelines.
44. Conduit bends: Bends shall be made so that the conduit will not be flattened or kinked and so that the internal diameter of the conduit is not reduced. The radius of the curve of the inner edge of any bend shall not be less than indicated by the National Electrical Code and TIA/EIA-569 Commercial Building Standard for Telecommunications Pathways and Spaces. Constructing an outside entrance to a building from buried conduit to penetrate above the ceiling line will allow an exception for a 4” LB fitting at one end to allow placement of the conduit flat to the building outside wall; apply this only if conduit could not be concealed.
45. Install above-ceiling conduits as high as possible, with a minimum of 8” above ceiling tiles so as to permit ceiling tile removal.
46. Install each branch of power in separate raceways from each other.

B. Stub-ups To Above Accessible Ceilings (TAAC):

1. Use EMT, or GRC/RMC for raceways as applicable for respective locations.
2. Provide sweep bends and drag line for each application.
3. Use a conduit bushing or insulated-throat fitting to terminate stub-ups.
4. Extend conduits to joist space above an accessible ceiling system.
5. Permanently identify the purpose of the conduit stub at the end of the conduit above the ceiling.

C. Pull Boxes and Junction Boxes:
1. Provide each pull box indicated on the Drawings.
2. Provide additional pull boxes: Every 180 degrees of raceway bend; Every 100 feet of raceway; As additionally required by Code.
3. Provide pull and junction boxes in areas that will be accessible after installation. Accessible areas include spaces above removable tile ceilings and behind access doors that are installed expressly for this purpose. Do not install pull-boxes in locations that will not be accessible after construction is complete and is not accessible after permanently installed work is complete.
4. Size boxes in accordance with the NFPA 70. Use larger boxes where so specified.
5. Support boxes rigidly. Land conduits on the boxes so that conduits enter and exit across from each other on opposite sides of the box so as to facilitate straight line pulling of cable through the box. Do not use pull boxes in lieu of conduit bends, except as necessary by design or to meet constructability constraints.
6. When directional transition of the cables is necessary through a box, land conduits on the box so that they permit the largest possible bending radius for those cables that will pass through the box.
7. Coordinate all work with all other trades prior to commencement of the work. Do not use access doors unless special prior written permission is granted from the Owner’s Representative. Install pull boxes, junction boxes, etc. in areas that are accessible after construction. Do not install pull boxes or junction boxes above gypsum board, plaster or similar ceiling systems, nor above ductwork or equipment that renders them inaccessible.
8. Record junction and pull boxes on record drawings. Permanently mark and label (using methods approved by Owner's Representative) junction/pullboxes as to which types of electrical services are within.

D. Repair and Patching: Holes and other penetrations into building surfaces or structure that are created to facilitate pathway installation but that are not ultimately used shall be filled, repaired, and restored to their original strength, appearance and integrity. Damage to building or property that occurs during the course of pathway installation shall be repaired and restored to its original condition prior to damage. Obtain review and approval of penetration sizes, means and methods from Design Professional and Owner’s Representative for all proposed penetrations of structural elements prior to commencing with any related work.

E. Seals for Common Conduit and Raceways in Dissimilar Environments: Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points: Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces; Where an underground service raceway enters a building or structure; Where otherwise required by NFPA 70.

F. Insulation for Common Conduit and Raceways in Dissimilar Environments: Provide insulation on the exterior of conduit on the warm side of penetrations between dissimilar environments to prevent condensation from forming. Insulate with 1.5” polyisocyanurate closed cell pipe insulation with an overall PVC jacket for a minimum distance of 48” from the penetration. Applications include, but are not limited to, the following: Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces; Where otherwise required by NFPA 70.

G. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72” of flexible conduit for recessed and semi-recessed luminaires, for equipment subject to vibration, noise transmission, or movement, and for transformers and motors. Use LFMC in damp or wet locations.

2.3 INSTALLATION OF EXPOSED CONDUIT/RACEWAY SYSTEMS

A. General:
1. Review proposed installation materials, methods, routing, etc. case-by-case and area-by-area for each application with the Design Professional and Owner prior to installation. Accordingly, prepare installation drawings and submit to Design Professionals for review and comment. Revise and resubmit as required based on comments from Design Professionals. Coordinate with all trades while preparing the installation drawings. Show elevations and routes relative to adjacent work of all trades.
2. Group conduits together in tight banks when routed in the same direction in a given space. Coordinate with mechanical trades and route the conduit banks along common paths wherever possible, and at common elevations unless the conduit banks can be installed directly above or below the mechanical work. Review proposed routes and elevations with Design Professionals prior to installation.
3. Install conduits that peel off from banks in a manner that results in the conduits being progressively taken off from the sides of the banks, one at a time without crossing over or under other conduits in the bank. Rise and drop conduits at the same elevation in areas with common visibility.
4. Provide clean, tight and uniform bends and offsets for all conduits and conduit banks.
5. Route overhead work perpendicular and parallel to architectural and structural building lines in the respective surrounding space. Do not install work below skylight assemblies or in front of clerestory window assemblies.
6. Provide surface conduit and raceway for wall-mounted applications only where it is impossible to fish or cut/patch, or only where specifically indicated on drawings, or only where specifically directed by Design Professional. Improper sequencing of work at walls shall not be used as a reason to surface-mount conduit, boxes or raceways; install all such work concealed as the walls are constructed. Provide conduit in areas that are exclusively utilitarian, such as dedicated mechanical or electrical rooms. Provide finished surface raceway systems for applications in all other areas. Consult with Design Professionals in advance of any installation for final direction on where to use conduit versus surface raceway systems.
7. Install conduits and raceways in a manner that minimizes detrimental effects on room aesthetics. For instance, as applicable, rise from below for wall switches, general receptacle outlets and communications wall outlets; drop from above for wall mounted lights, and other system outlets that are installed high on wall; make drops near corners, window casings, door casings, etc.).
8. Install conduits and raceways as out-of-site as reasonably possible. For instance if an receptacle outlet needs to be installed at the center of a wall and there is no possibility of feeding from below the floor, route the drop in a corner of the room then transition and run horizontally to the outlet location.
9. Install conduit and raceway with a minimum 2” radius control at bend points.
10. Secure conduit and raceway with screws or other anchor-type devices at intervals not exceeding 48” and with no less than two supports per straight section. Support according to manufacturer's written instructions.
11. Utilize supports for wall-mounted applications that cleanly conform to the shape of the conduit or raceway and do not in any way protrude out past the outer contours of the conduit or raceway. As an example, install wall-mounted conduit using two-hole straps instead of conduit hangers. Tape, glue, tie-wraps, clips, wedges, etc. are not acceptable support methods.

12. Review all proposed mounting means and methods with Design Professionals for luminaires, devices, outlets, equipment, etc. that will be suspended overhead.
13. Do not use “trapeze” mounting methods for suspensions unless case-by-case permission is granted by Design Professionals.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL

A. Conduit/Raceway/Pathway: “Conduit”, “raceway”, “pathway” and similar terms shall be taken to mean “conduit” unless specifically indicated otherwise in project manual documents, or unless specifically directed otherwise in field by Owner or Design Professionals. All such terms shall be considered synonymous for the general purposes of installation means and methods.

B. Provide J-Hook pathway systems only for the following limited applications: Class 2 (“low-voltage”) control wiring, except for fire alarm system wiring.

PART 2 - PRODUCTS

2.1 J-HOOK PATHWAYS

A. Acceptable Manufacturers: Subject to being equivalent and subject to compliance with requirements, provide product by one of the manufacturers listed below, or equivalent NRTL listed and labeled equivalent.
1. Cooper B-Line (basis of design, model numbers as specified further below)
2. Mono-Systems, Inc.
3. Eaton B-line

B. Materials Description:
1. Provide J-Hook system components that are plenum-rated (regardless of whether air plenum ceilings exist on the project). Provide J-Hooks, not Cable Fasteners, and not Bridle Rings. Provide open-top hooks, so cables can be laid into the J-Hooks rather than threaded through. Provide tool-less cable retainer clips (do not use cable ties). Provide hooks sized for maximum 40% fill (in cross section) based on outside diameter of cables. Accordingly, provide multiple sets of J-Hooks along any given pathway as applicable.
2. Provide necessary factory hooks, cable retainers, fasteners, attachment kits, etc. as required for complete installations, including and equal to the following:

Part	Cooper B-Line, Inc.#
1-5/16” Hooks	BCH21 (30 4-pair UTP)
2” Hooks	BCH32. (70 4-pair UTP)
4” Hooks	BCH64 (280 4-pair UTP)
1-5/16” Cable Retainers	BCHR21
2” Cable Retainers	BCHR32
4” Cable Retainers	BCHR64
J-Hook to Beam Fasteners (spring-clip)	BCH__-U (select hook size, flange thickness)
J-Hook to Beam Fasteners (spring-clip)	BCH_-E (select hook size, flange thickness)
J-Hook to Beam Fasteners (set-screw)	BCH__-C (select hook size, flange thickness)
J-Hook to Flange Fasteners (spring-clip)	BCH__-F (select hook size, flange thickness)
J-Hook to Strut Fasteners	BCH__-SM series
J-Hook to ATR (all-thread rod) Fasteners	BCH__-AB series
J-Hook Angle Bracket Fasteners	BCH__-RB series
J-Hook to Floor Support Fasteners	BCH__-L1410 series (select for hook size)
Multi-Tier Attachment Kits	BCHK series
Double-Sided Multi-Tier Fasteners	BCH__-1D or BCH__-2D series as required
Single-Sided Multi-Tier Fasteners	BCH__-2S3S/4S/5S/6S series as required

2.2 MATERIALS AND FINISHES

A. Provide steel units with rolled hook edges to prevent damage to cable jackets and insulation

B. Cable hooks for non-corrosive areas shall be pre-galvanized steel, ASTM A653. Where additional strength is required, cable hooks shall be spring steel with a zinc-plated finish, ASTM B633, SC3.

C. Cable hooks for corrosive areas shall be stainless steel, AISI Type 304.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide J-Hook support along “free-air” cable pathway routes. Provide J-Hooks at 48” intervals and at offsets. Route J-Hooks above ceilings through corridors and similar open areas wherever possible to minimize above-ceiling wall penetrations.

B. Layout and install all electrical work in strict compliance with Chapter 1, Part B, Section 110.26 of the latest adopted edition of NFPA 70.

C. Keep pathways at least 24” away from parallel runs of flues and steam or hot-water pipes. Install horizontal runs above liquid and steam piping. Level and square runs, and install at proper elevations and heights. Do not begin installation of cables until J-Hook pathway installations are complete and until installation locations (end to end) are in a weatherproof environment. Install pathways so that they are accessible for cable installation after construction is complete. Install pathways with enough workspace to permit access for installing cables. Strictly adhere to factory load capacities and fill capacity. Provide factory cable retainers, fasteners, attachment kits, and other accessories as required for a complete installation.

D. Securely anchor (mechanical, not adhesive) J-Hooks directly to structural components of the building. Do not anchor J-Hooks to ductwork, conduit, piping, fixtures, equipment, ceiling supports (rods, wires, t-bars), etc. Comply with requirements in Section 260529 and related sections for hangers and supports. Support using factory-approved methods. Fasten cables on horizontal runs with factory cable clamps, retainers, fasteners, attachment kits or flexible Velcro-secured wraps compliant with NEMA VE 2. Tighten clamps/wraps only enough to secure the cable, without indenting the cable jacket. Use of synthetic or plastic “tie-wraps”, “zip ties”, “wire ties” and similar products are not permitted as a permanent means of anchoring, securing, supporting or otherwise installing any cables, conductors, conduits, raceways, devices, equipment or other electrical work. Do not use perforated strap.

E. Coordinate work prior to rough-in with respective equipment and cable installers, and with Owner's Representative. Carefully coordinate proposed routing, including elevations, with affected installers and entities prior to rough-in. Neatly route paths parallel and perpendicular to building architectural lines, plumb on walls, and at a consistent elevation wherever possible. Install paths in a uniform plane/elevation wherever possible. Keep horizontal and vertical offsets to an absolute minimum. Route paths so that a minimum of 24” exists between cables and potential EMI sources such as lighting ballasts, motors, power wiring, dimmer circuits, etc.

F. Provide a minimum of two (2) 4” bushed conduit sleeves where pathway is routed above inaccessible ceilings, and at penetrations of floors, masonry walls, fire rated walls, smoke-tight partitions, smoke-rated partitions, and similar elements. Provide smoke and fire stopping at such penetrations as applicable in (see Section 260502). Provide EMT conduit for “drops” from paths to outlets and equipment, with sweep bends, insulated throat fittings and 200-lb pull string.

END OF SECTION

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Comply with ANSI A13.1(and IEEE C2 as or if applicable). Comply with NFPA 70. Comply with 29 CFR 1910.144 and 29 CFR 1910.145. Comply with ANSI Z535.4 for safety signs and labels. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

B. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

PART 2 - PRODUCTS

2.1 RACEWAY AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

A. Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label. Provide black letters on an orange field, and indicate voltage and system or service type.

2.2 CABLE IDENTIFICATION MATERIALS

A. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-resistant, self-laminating, protective shield over the legend. Labels sized to fit the cable diameter such that the clear shield overlaps the entire printed legend.

2.3 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1’-2’ wide (where permitted by NEC for large feeder and sub-feeder conductors).

B. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-resistant, self-laminating, protective shield over the legend. Labels sized to fit the conductor diameter such that the clear shield overlaps the entire printed legend.

C. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed using indelible process.

2.4 SELF-ADHESIVE LABELS

A. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated, installed level and plumb.

2.5 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16” thick for signs up to 20 sq. inches and 1/8” thick for larger sizes, installed level and plumb.
   1. Engraved legend with black letters on white face.
   2. Punched or drilled for mechanical fasteners.
   3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.6 EQUIPMENT AND FIELD NAMEPLATE IDENTIFICATION LABELS

A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting, black letters on a white background for normal applications, minimum letter height shall be 3/8”,

installed level and plumb. Provide 1/16" thickness for units up to 20 sq. in. or 8" length; provide 1/8" thickness for larger units.

B. Provide white letters on a black background for normal power distribution system equipment.

2.7 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Arc-Flash Hazard Warning Labels: Provide pre-printed “as-built” labels on power distribution and like equipment to warn of potential electric arc flash hazard. Provide in compliance with Article 110.16 of NFPA 70.

C. Warning labels and signs shall also include, but are not limited to, the following legends:
1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning for 0-150 volts to ground equipment: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."
3. Workspace Clearance Warning for 151-600 volts to ground equipment: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 48 INCHES."

2.8 FIELD IDENTIFICATION LABELS

A. Circuit Directory/Identification: Provide pre-printed “as-built” identification at circuit sources, using directory cards intended for the purpose, for all circuits. Provide in compliance with Article 408.4 (A) of NFPA 70.

B. In addition to other labelling required herein or by NFPA 70, provide pre-printed “as-built” identification of the following at all service entrance equipment.
1. Potential Electric Arc Flash Hazards compliant with Article 110.16(A) of NFPA 70.
2. Nominal System Voltage.
3. Single-Phase, Three-Phase/Three-Wire or Three-Phase/Four-Wire as applicable.
4. Available fault Current at Overcurrent Protective Devices.
5. The Clearing Time of Service Overcurrent Protective Devices based on the available fault current at the service equipment.
6. The Date that the label was applied.

2.9 CABLE TIES

A. UV-Stabilized Cable Ties
1. Fungus inert, designed for continuous exposure to exterior sunlight, self extinguishing, one piece, self locking, Type 6/6 nylon.
2. Minimum Width: 3/16 inch.
3. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
4. Temperature Range: Minus 40 to plus 185 deg F.
5. Color: Black.

B. Plenum-Rated Cable Ties
1. Self -extinguishing, UV stabilized, one piece, self locking.
2. Minimum Width: 3/16 inch.
3. Tensile Strength at 73 deg F, According to ASTM D 638: 7000 psi.
4. UL 94 Flame Rating.
5. Temperature Range: Minus 50 to plus 284 deg F.
6. Color: Black.

2.10 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All equipment & system identification nomenclature shown on drawings and listed herein may be shown for general design and installation reference only. Field-verify the actual nomenclature prior to fabrication. Prepare record documents accordingly.

B. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145(US) and national and local building codes. Use consistent designations throughout Project.

C. System Identification Color-Coding Bands for Raceways and Cables: Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

D. Cable Ties: For attaching tags. Cut off excess lengths after installing ties. Use general-purpose type, except the following: Outdoors, UV-stabilized nylon; Indoors: Plenum rated.

E. In accessible ceiling spaces and where exposed in unfinished areas, label conduit with panel and circuit numbers of conductors routed through the conduit. Label conduit at all wall penetrations and connections to all panels, junction boxes, and equipment served.

3.2 IDENTIFICATION DEFINITION

A. Accessible Raceways and Metal-Clad Cables, 600 V or Less: Identify with self-adhesive vinyl label. Locate at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas. Do not install in finished occupied areas.

B. Accessible Raceways and Cables within Buildings: Identify raceways, cables. junction and pull boxes of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows: Power.

C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in pull and junction boxes, and handholes, use color-coding to identify the phase. Color shall be factory applied to conductor insulation or field applied for sizes No. 4 AWG and larger, if authorities having jurisdiction permit. These colors apply for factory-assembled cables as well as for individual insulated conductors. Use colors listed below for conductors.
   1. Colors for 208/120-V Circuits:
      a. Phase A: Black
      b. Phase B: Red
      c. Phase C: Blue
      d. Neutral: White
   2. Color for Equipment Grounding: Green

D. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-

installed connections. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

E. Locations of Underground Lines: Identify with underground-line warning tape. Install underground-line warning tape for both direct-buried cables and cables in raceway. Install detectable tape at trenches containing empty conduits and conduits containing optical fiber cable.

F. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels. Comply with 29 CFR 1910.145. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access. For equipment with multiple power or control sources, apply to door or cover of equipment including.

G. Operating and Warning Instruction Signs: Provide pre-manufactured operating and warning signage if indicated on drawings and where required by NEC or local authority having jurisdiction. Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

H. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual.

END OF SECTION

PART 1 - PRODUCTS

1.1 ELECTRICAL SPECIALTIES

A. Commercial/Institutional Kitchen Equipment

1. Provide a complete wiring system to kitchen equipment. Refer to food service series drawings and specifications for further definition of work required. Determine exact location, mounting height and termination requirements from the kitchen equipment contract drawings and from manufacturer's equipment submittals. Provide either direct connections or cord & plug connections (including cords, plugs and receptacles) as determined in field; verify case by case prior to rough-in. Verify electrical ratings in field prior to rough-in. Make final connections to equipment.
2. Provide disconnect switches for direct-wired equipment and receptacles for cord & plug equipment.
3. Provide wiring and connections to equipment, controls, defrosters, condensers, compressors, lights, fans, heaters, heating elements, etc., which may not be detailed on plans, as applicable.
4. Refer to kitchen equipment drawings for additional details and provide related electrical work as required to render equipment fully operational.
5. Provide GFCI protection receptacles throughout the kitchen in compliance with NFPA 70. Utilize GFCI receptacles for all accessible receptacles and GFCI branch circuit breakers for all inaccessible receptacles.

END OF SECTION

SECTION 260800 – COMMISSIONING OF ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. The purpose of this section is to specify the Contractor's responsibilities relative to Division 26 and participation in the commissioning process. See Division 1, Section 019100, "Commissioning," for Contractor-related commissioning requirements.

B. Organization of the commissioning program is primarily the responsibility of the Commissioning Authority. Execution of the program is primarily the responsibility of the Contractor with support from the Division 26 for:
   1. Testing and start-up of the electrical equipment.
   2. Completion and endorsement of prefunctional test checklists provided by the Commissioning Authority to assure that Division 26 equipment and systems are fully operational and ready for functional testing.
   3. Providing qualified personnel to assist the Commissioning Authority with functional testing to verify equipment/system performance.
   4. Providing equipment, materials, and labor necessary to correct deficiencies found during the commissioning process which fulfill contract and warranty requirements.
   5. Providing training for the systems specified in Division 26 with coordination of Owner by the Commissioning Authority.

C. Division 26 shall cooperate with the Commissioning Authority in the following manner:
   1. Allow sufficient time before final completion dates so that electrical testing, lighting control checkout, and functional testing can be accomplished.
   2. Provide labor and material to make corrections when required without undue delay.
   3. Put all electrical systems and equipment into full operation and continue the operation of the same during each working day of commissioning.

D. Related Sections
   1. Section 019100 - Commissioning
   2. Division 22 - Plumbing
   3. Division 23 – Heating, Ventilating, and Air Conditioning (HVAC)

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. Standard certified test equipment for commissioning will be provided by the Commissioning Authority.

B. Proprietary test equipment required by the manufacturer shall be provided by the manufacturer of the equipment. Manufacturers shall provide the test equipment, demonstrate its use, and assist the Commissioning Authority in the commissioning process.

2.2 SYSTEMS AND EQUIPMENT TO BE COMMISSIONED

A. The following systems, components, and equipment are the focus of **the** commissioning process for the Project:
   1. Electrical Lighting Controls.

PART 3 - EXECUTION

3.1 WORK PRIOR TO COMMISSIONING

A. Specific pre-commissioning responsibilities of Division 26 are as follows:
   1. Normal start-up services required to bring each system into a fully operational state.
   2. Execute prefunctional tests and complete prefunctional test checklists for the following equipment and systems:
      a. Lighting control systems

3. Factory start-up services for key equipment and systems specified in Division 26. The Division 26 Contractor shall coordinate this work with the manufacturer and the Commissioning Authority.

B. Execute prefunctional tests and complete prefunctional test checklists for the following equipment and systems:
   1. Lighting control and occupancy sensors.

C. Where occupant sensor controls are provided, the following procedures shall be performed:
   1. Certify that the occupant sensor has been located and aimed in accordance with manufacturer recommendations.

D. For occupant sensor controls to be tested, verify the following:
   1. Where occupant sensor controls include status indicators, verify correct operation.
   2. The controlled lights turn off or down to the permitted level within the requested time.
   3. For auto-on occupant sensor controls, the lights turn on to the permitted level when an occupant enters the space.
   4. For manual-on occupant sensor controls, the lights turn on only when manually activated.
   5. The lights are not incorrectly turned on by movement in adjacent areas or by HVAC operation.

3.2 PARTICIPATION IN COMMISSIONING

A. Provide skilled technicians to start up and debug all systems within Division 26 work (particularly with lighting equipment). These same technicians shall be made available to assist the Commissioning Authority in completing the commissioning program as it relates to each system and their technical specialty. Work schedules, time required for testing, etc., will be requested by the Commissioning Authority and coordinated by the Contractor. Contractor will ensure the qualified technician(s) are available and present during the agreed upon schedules, and of sufficient duration to complete the necessary tests, adjustments, and/or problem resolutions.
   1. The Commissioning Authority reserves the right to judge the appropriateness and qualifications of the technicians relative to each item of equipment, system, and/or sub-system. Qualifications of technicians include expert knowledge relative to the specific equipment involved, adequate documentation and tools to service/commission the equipment, and an attitude/willingness to work with the Commissioning Authority to get the job done. A liaison or intermediary between the Commissioning Authority and qualified factory representatives does not constitute the availability of a qualified technician for purposes of this work.

3.3 WORK TO RESOLVE DEFICIENCIES

A. Maladjustments, misapplied equipment, and/or deficient performance under varying loads will result in a system that does not meet Acceptable Performance. Correction of work will be completed under the direction of Starbucks, with input from the Architect/Engineer-of-Record, Contractor, Equipment Supplier, and Commissioning Authority. Whereas all members will have input and the opportunity to discuss, debate, and work out problems, the Architect/Engineer-of-Record will have final jurisdiction on the necessary work to be done to achieve performance and/or design intent.

3.4 ELECTRICAL SYSTEM TESTING

A. Electrical system testing as required in other sections of this specification shall be coordinated with the Commissioning Authority. The Commissioning Authority may witness testing performed by the Division 26 Contractor.

B. All testing documentation related to Division 26 equipment and systems, as specified in other sections of this specification, will be provided to the Commissioning Authority for use and review.

3.5 TRAINING

1. The Division 26 Contractor will be required to participate in the training of the Owner's engineering and maintenance staff for each functionally tested electrical system and the related components.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data
   1. For each provide bus configuration, current ratings, voltage ratings, SCCR Ratings, overcurrent protective device(s), surge suppression device(s), accessory, and components indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Eaton Electrical Inc.; Cutler-Hammer Business Unit
   2. General Electric Company; GE Consumer & Industrial - Electrical Distribution
   3. Siemens Industry, Inc.
   4. Square D; a brand of Schneider Electric

B. Enclosures: Refer to electrical drawings and coordinate with field conditions for cabinet mounting types (i.e. flush, surface, flush and surface).
   1. Rate for environmental conditions at installed location.
   2. Hinged Front Cover: Entire front trim hinged to box, and with standard door within hinged trim cover. Provide concealed hinges, secured with flush latch with tumbler lock and keyed alike.
   3. Panel, Back Box and Trim Finish: Galvanized steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
   4. Directory Card: Provide neatly typewritten circuit directory card for each panelboard upon completion of installation work. Include the actual room names/numbers that are selected for interior signage/designation.

C. Incoming Mains Location: Provide incoming main locations (top or bottom, or top and bottom) based on means and methods and conduit/raceway layouts that are planned for installation.

D. Phase, Neutral, and Ground Buses: Refer to electrical drawings, single line diagram and schedules for additional information on requirements for buses, as applicable.
   1. Material: Tin-plated copper or aluminum.
   2. Grounded (“Neutral”) Bus: Provide 100% rated bus with sufficient lugs to accommodate grounded conductors for all circuits and pole spaces.
   3. Equipment Grounding Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box; minimum 50 percent rated. Bond to grounded (“neutral”) bus for service entrance applications only.

E. Conductor Connectors: Suitable for use with conductor material and sizes.
   1. Material: Tin-plated aluminum
   2. Main, Neutral, and Ground Lugs and Bus-Configured Terminators: Mechanical type.
   3. Feed-Through Lugs and Sub-feed (Double) Lugs: Mechanical type, suitable for use with conductor material

F. Service Equipment Label: NRTL/ULSE labeled for use as service equipment for units with one or more main service disconnecting and overcurrent protective devices.

G. Fault Current Ratings
   1. Provide electrical distribution related equipment with appropriately braced bussing and properly rated breakers, fuses, etc. for the available fault currents.
   2. In existing buildings where fault current values are not indicated on drawings, coordinate with existing “upstream” distribution equipment, and provide equipment AIC ratings that meet or exceed same.

H. Provide panelboard branches as scheduled on the drawings. Provide circuit breaker panelboard bus assemblies with distributed (sequence) type bussing throughout, so that any two adjacent single-pole breakers, or spaces, are replaceable by a two-pole internal common trip breaker, and so that any three adjacent single-pole breakers, or spaces, are replaceable by a three-pole internal common trip breaker. This applies for branch breakers sized 15-amp through 70-amp inclusive, without disturbing any other breaker.

I. Provide dead-front safety type panelboards as indicated. Provide with lug connectors approved for use with copper or aluminum conductors. Provide lugs, lug kits and related accessory work as required to accommodate the conductor sizes and quantities needed for each application. Coordinate with single-line diagram, schedules, field conditions, etc.

2.2 PANELBOARDS

A. Provide Distribution Panel construction for panelboard applications where indicated on drawings or where otherwise required based on power distribution requirements. Provide Panelboard construction for branch panelboards.

B. Provide circuit breaker panelboards unless indicated otherwise on drawings.
   1. Circuit Breaker Branch Overcurrent Protective Devices: Bolt-on type, replaceable without disturbing adjacent units.

2.3 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breakers (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
   1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
   2. GFCI Circuit Breakers: Class A ground-fault protection (6-mA trip).
   3. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
   4. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
      a. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
      b. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
      c. Shunt Trip: Trip coil voltage as required to achieve intended control scheme with coil clearing contacts (or equivalent configuration), energized from separate circuit
      d. Multipole units enclosed in a single housing or factory assembled to operate as a single unit.
      e. Handle Padlocking “Lock-Out/Tag-Out” Device: Fixed attachment, for locking circuit-breaker handle in off position.
      f. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.
      g. Mounting: Designed to be mounted and operated in any physical position, and to be operated in a minimum ambient temperature of 40 degrees C.; with mechanical screw type removable connector lugs, AL/CU rated.
      h. Size: Full size, no "tandem" or "split" breakers.

i. Common Trip: Common trip for multi-pole breakers so overload on one pole will trip all poles simultaneously. Provide multi-pole breakers with common trip (or with handle-ties, only if needed because breakers are existing) for applications where it is determined that a common disconnecting means is required for multi-wire branch circuits serving, or within, the same enclosure, outlet box, equipment, or device.
j. SWD Type: Provide for 15 and 20 ampere branch circuit breakers (UL Listed(US) and ULC/CSA Listed(Canada)).
k. HACR Type: Provide for HVAC, motor, and Refrigeration loads
l. Spares: Place all spare circuit breakers in the 'OFF' position, provide with breaker locks, and schedule them as "Spare" on directory card.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mount top of trim 90" above finished floor unless top-most breaker handle would end up being above 78" in which case the top of trim shall be mounted so that the top-most breaker handle will be below 78". Install overcurrent protective devices and controllers not already factory installed. Set field-adjustable, circuit-breaker trip ranges and other applicable settings. Arrange conductors in gutters into groups. Install filler plates in unused spaces.

B. Provide neatly computer-typed/printed circuit directory card for each panel upon completion of installation work. Include the actual room names/numbers that are selected for interior signage and/or designation. Scheduling shown on drawings is shown to indicate feeder and branch circuiting requirements. Determine exact numbering sequence of circuits in field after performing final balancing.

C. Stub four 1" empty conduits from recessed branch panelboards into accessible ceiling space or overhead structural space in areas with no finished ceilings.

END OF SECTION

PART 1 - PRODUCTS

1.1 GENERAL

A. Acceptable Manufacturers: Subject to being equivalent and subject to compliance with requirements, provide product by one of the manufacturers listed below.
   1. Cooper Wiring Devices; Division of Cooper Industries, Inc. (Cooper)
   2. FSR Inc. (FSR)
   3. Hubbell Incorporated (Hubbell)
   4. Hubbell Incorporated; Wiring Device-Kellems (Hubbell)
   5. Hubbell Incorporated; Wiring Device-Bryant (Hubbell)
   6. Legrand
   7. Leviton Mfg. Company Inc. (Leviton)
   8. Lutron Electronics, Inc. (Lutron)
   9. Pass & Seymour/Legrand (Pass & Seymour)
   10. Wiremold/Legrand (Wiremold)

B. For receptacle circuits protected with 15A breakers, provide NEMA 5-15R equivalents for the devices specified in this section.

C. Provide equivalent quality devices by manufacturers listed in subparagraphs hereafter for cases where voltage, amperage and/or NEMA configurations that are indicated on drawings or, are otherwise required based on project conditions, differ from those specified herein.

D. Provide Weather-Resistant Receptacles with UL “WR” marking, compliant with NEC 406.8, for all applications in wet or damp locations.

E. Where GFI protected receptacles are shown on drawings, provide a dedicated GFI receptacle for each one shown. Do not feed downstream receptacles from load-side (GFI-protected) terminals of upstream receptacles.

F. Provide corrosion-resistant versions of receptacles specified below for industrial applications and applications in corrosive or potentially-corrosive environments.

G. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions: Connectors shall comply with UL 2459 and shall be made with stranding building wire; connectors are NRTL listed for intended use; connectors comply with the requirements in this Section; connectors are permitted by Authorities Having Jurisdiction.

1.2 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R (20A) or 5-15R (15A), UL 498, and FS W-C-596. Provide duplex and single specification grade receptacles, 2-pole, 3-wire grounding, self-grounding, green grounding screw, ground terminals and poles internally connected to mounting yoke, color coded base, 20-amperes, 125-volts, with metal plaster ears, back & side wiring, NEMA configuration 5-20R. Subject to compliance with requirements, provide one of the following (catalog numbers in subparagraphs below are for 20-A, heavy-duty, specification-grade, nylon-face devices; revise catalog numbers to require other configurations and ratings):
   1. Cooper; 5351 (single), CR5362 (duplex)
   2. Hubbell; HBL5351 (single), HBL5352 (duplex)
   3. Bryant; 5351 (single), 5352A (duplex)
   4. Leviton; 5351 (single), 5362 (duplex)
   5. Pass & Seymour; 5351 (single), 5362 (duplex)

B. Tamper-Resistant Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498 Supplement sd, and FS W-C-596. Subject to compliance with requirements, provide one of the following:
   1. Cooper; TR8300
   2. Hubbell; HBL8300
   3. Bryant; 8300IL
   4. Leviton; 5262
   5. Pass & Seymour; TR63

C. GFCI Receptacles, 125V, 20A: Straight blade, feed-through or non-feed-through type depending on application. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596. Subject to compliance with requirements, provide one of the following:
   1. Cooper; VGF20
   2. Hubbell; GF20#LA
   3. Bryant; GF20#LA
   4. Pass & Seymour; 2097
   5. Leviton; 6490

D. [Tamper-Resistant GFCI Convenience Receptacles, 125 V, 20 A: Catalog numbers in list below are for feed-through types, arranged to protect receptacles downstream on the same circuit; revise catalog numbers if non-feed-through types are required. Subject to compliance with requirements, provide one of the following:
   1. Hubbell; GFTR20
   2. Bryant; GFTR20
   3. Leviton; T7899
   4. Pass & Seymour; 2097TR]

1.3 CORD AND PLUG SETS

A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected; Rubber-insulated cord with stranded-copper conductors, Type SOW-A jacket, green-insulated grounding conductor and ampacity of at least 130 percent of the equipment rating; Nylon body plug with integral cable-clamping jaws (match cord and receptacle type for connection).

1.4 TOGGLE SWITCHES

A. General: Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120 V, 20 A: Subject to compliance with requirements, provide one of the following:
   1. Single Pole:
      a. Cooper; AH1221.
      b. Hubbell; HBL1221.
      c. Bryant; 1121.
      d. Leviton; 1221-2.
      e. Pass & Seymour; CSB20AC1.

C. Install dimmers within terms of their listing. Verify that dimmers used for fan speed control are listed for that application. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions. Provide low-voltage control wiring, where applicable, as required to render all dimming functionality fully operational.

D. LED Dimmer Switches: Specification grade; modular; thin profile; compatible with dimming drivers; dimmer-driver combination capable of consistent full-range dimming. Provide low-voltage control wiring, in addition to branch circuit wiring, as required to render dimming fully operational.

1.5 COMMUNICATION, INFORMATION TECHNOLOGY AND SIMILAR OUTLETS

A. Provide the following for communication, information technology and similar outlets that are shown on electrical drawings.
   1. Provide 4” square by minimum 2-1/8” deep outlet box with single-gang ring.
   2. Provide single-gang blank wall plate of material and color to match wiring devices in the respective room/area.
   3. Provide at least one 3/4" empty conduit from outlet box to accessible ceiling cavity, or to overhead joist/structure space in areas with no finished ceilings. Provide sweep bends and insulated throat fittings (or plastic bushings) at each end of the conduit
   4. Provide 200-pound pull string within conduits, easily accessible at both ends.
   5. Provide neat permanent marking at the end of the overhead stub that clearly states the purpose of the conduit and the room where the respective outlet is located.
   6. Coordinate all locations, heights and other specifics with the respective device/system installers and provide all work accordingly.

1.6 WALL PLATES

A. Single and combination types shall match corresponding wiring devices. Provide metal plate-securing screws with head color to match plate finish. Provide factory markings on faces of receptacles that are controlled for energy management or building automation that are compliant with Article 406.3(E), including symbol and the word “Controlled”. Provide engraved wall plates where required by prevailing codes, indicated on drawings or indicated in Division 26 specifications.
   1. Material for Finished Spaces: Smooth, high-impact thermoplastic
   2. Material for Unfinished Spaces with surface-mounted outlet boxes: Galvanized steel
   3. Material for Indoor Kitchens, Bar Areas, Damp Locations: Gasketed satin finish stainless steel, equal to Leviton Type 430 series, with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant. Refer to Section 26 05 33.00.

1.7 PREFABRICATED MULTIOUTLET ASSEMBLIES (“PLUGSTRIPS”)

A. Provide two-piece surface metal raceway, with factory-wired multioutlet harness. Components shall be products from single manufacturer designed for use as a NRTL listed complete, matching assembly of raceways and receptacles. Provide metal construction, with manufacturer's standard finish. Subject to compliance with requirements, provide products by one of the following:
   1. Hubbell Incorporated; Wiring Device-Kellems
   2. Wiremold/Legrand

B. Multioutlet Harness:
   1. Receptacles: 15-A, 125-V, NEMA WD 6 Configuration 5-15R receptacles complying with NEMA WD 1, UL 498, and FS W-C-596.
   2. Receptacle Spacing: 6”

1.8 FINISHES AND INDICATORS

A. Device Color (unless otherwise indicated or required by NFPA 70 or device listing):
   1. General Wiring Devices Connected to Normal-Utility Branch of Power System: Verify with Architect and Owner.

B. Wall Plate Color: For plastic covers, match device color.

C. Illuminated Indication: Provide illuminated face or indicator light versions of wiring devices specified herein where indicated as such on drawings and/or where required by prevailing code(s), to indicate that there is power to the device.

PART 2 - EXECUTION

2.1 INSTALLATION

A. Coordination with Other Trades: Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall. Install wiring devices after all wall preparation, including painting, is complete.

B. Conductors: Provide grounded ("neutral") conductor in all lighting control device (switch, dimmer, occupancy sensor, etc.) wall outlet boxes, even if not immediately used. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails. Pig-tailing existing conductors is permitted, provided the outlet box is large enough.

C. Device Installation:
1. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
2. Connect devices to branch circuits using pigtails that are not less than 6" in length.
3. Use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
4. Use a torque screwdriver when a torque is recommended or required by manufacturer.
5. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
6. Tighten unused terminal screws on the device.
7. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.
8. Consider locations indicated on the drawings to be approximate (unless specifically dimensioned on drawings, or unless spacings must comply with prevailing codes). Study the general construction with relation to spaces and equipment surrounding each outlet.
9. Fasten electrical boxes firmly and rigidly to substrates, or structural surfaces to which attached, or solidly embed electrical boxes in concrete or masonry. Support boxes independent of conduit.
10. Provide feed-through-type GFCI receptacles where downstream receptacles are fed from the line side of the GFCI receptacle.
11. Adjust locations of outlets, devices, etc. to suit arrangement of partitions and furnishings.
12. Arrangement of Devices: Group adjacent switches under single, multigang wall plates. Unless otherwise indicated, mount flush, with long dimension vertical. Install receptacles so that the ground pin is oriented in a consistent manner throughout the facility, so that the orientation is compliant with all prevailing codes and regulations, and so that the orientation is acceptable to the electrical inspector. Where there is no existing building standard or other project requirement, install receptacles with ground pin up. Where receptacles are installed horizontally, install so that neutral connection faces up.
13. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

END OF SECTION

1.1 GENERAL

A. Provide all labor, materials, equipment, equipment, programming, services, etc. as required for complete and fully operational lighting and lighting control systems.

B. Definitions:
1. BF: Ballast factor.
2. CCT: Correlated color temperature.
3. CRI: Color-rendering index.
4. LER: Luminaire efficacy rating.
5. Lumen: Measured output of lighting source, luminaire, or both.
6. Luminaire: Complete lighting unit consisting of lighting source or sources, and some or all of the following components: optical control devices, contacts, mechanical components to support or attach the luminaire, and electrical and electronic components to start, operate, dim or control and maintain the operation of lighting source, and driving and transformation components.
7. Lighting Source: LED boards or equivalent LED assembly or, lamp (‘bulb”) for insertion into compatible socket, etc.
8. THD: Total harmonic distortion

1.2 QUALITY ASSURANCE

A. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.
1. Warranty Period for all Emergency Lighting Batteries: five years from date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for the remaining years.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR LUMINAIRES AND COMPONENTS

A. Products: Subject to compliance with requirements, provide products indicated on Drawings. Provide products of one of the manufacturers listed in this section for products that are not defined on the Luminaire Schedule. Provide specification grade luminaires that comply with minimum requirements as stated therein. If a particular “type” does not include basis of design manufacturer or model number, provide "pre-approved equivalent” manufacturer’s and model numbers compliant with, and equivalent to: quality, performance, dimensions, and aesthetics as the respective basis of design for Design Professional review no less than five business days prior to bid due date.

B. Luminaires designated by letters are defined as indicated on the Luminaire Schedule.

C. Provide luminaires, of sizes, types and ratings indicated; complete with, but not limited to, housings, energy-efficient light sources, contacts, reflectors, wiring, etc. Ship luminaires factory-assembled, with components required for a complete operating installation.

D. Recessed Luminaires:
1. Comply with NEMA LE 4 for ceiling compatibility for recessed luminaires.
2. Provide recessed luminaires with necessary gypsum board, plaster frames, and surface trim.
3. Provide recessed luminaires that are constructed without rolled edges and that are post-painted.
4. Provide door frames on troffer style luminaires with spring latches on door frames.

5. Provide static air function for luminaires unless otherwise noted.
6. Provide luminaires that are non-IC constructed unless otherwise noted.
7. Provide junction boxes and serviceable components (driving and transformation component types, thermal protection devices, fuses, etc.) for recessed luminaires that are accessible for service and replacement from below the ceiling, without removing ceiling components.
8. Where plaster frames are inferred for luminaires (either by narrative, or by catalog number, or by application) interpret the actual function to mean for mounting within gypsum board, wet plaster or similar type inaccessible ceiling system. Field verify related requirements and provide required accessories, such as frames, accordingly.
9. Provide UL approved (listed and labeled) thermal protection per latest edition of NFPA/NEC for recess mounted luminaires.

E. Review drawings and specifications of other trades to verify ceiling types, modules, and suspension systems appropriate to installation.

F. Luminaires: Comply with ANSI/UL 1598. Where LER is specified, test according to NEMA LE 5, 5A, 5B, etc. as applicable.

G. Metal Parts: Free of burrs and sharp corners and edges.

H. Sheet Metal Components: Steel unless otherwise indicated. Form and support to prevent warping and sagging.

I. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit replacing lighting source(s) without use of tools. Design to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during servicing and when secured in operating position. Fabricate luminaires with concealed hinges and catches, with metal parts grounded as common unit, and so constructed as to dampen generated noise.

J. Diffusers and Globes: Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation, UV stabilized. Provide at least 0.125” minimum lens thickness unless otherwise indicated. Glass: Annealed crystal glass unless otherwise indicated.

K. Factory-Applied Labels: Comply with ANSI/UL 1598. Include recommended lighting sources, and driving and transformation components. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lighting sources are in place.
1. Label shall include the following characteristics:
a. "USE ONLY" and include specific lamp type.

2.2 EXIT SIGNS

A. General Requirements for Exit Signs: Comply with ANSI/UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.

B. Internally Lighted Signs:
1. Lamps for AC Operation: LEDs, 50,000 hours minimum rated lamp life.
2. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
a. Battery: Sealed, maintenance-free, nickel-cadmium type.
b. Charger: Fully automatic, solid-state type with sealed transfer relay.
c. Operation: Relay automatically energizes lamp from battery when circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.

d. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
e. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.

2.3 EMERGENCY LIGHTING UNITS

A. General Requirements for Emergency Lighting Units:
1. Self-contained units complying with ANSI/UL 924.
2. Battery: Sealed, maintenance-free, lead-acid type.
3. Charger: Fully automatic, solid-state type with sealed transfer relay.
4. Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
5. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
6. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.

2.4 LIGHT EMITTING DIODE (LED) SYSTEMS

A. Light Emitting Diode (LED) Systems
1. LED Sources: Provide factory installed LED modules that are specifically designed for, and matched and mated to, the respective luminaire in which they are used. Provide LED modules that can easily be replaced in the field and are readily accessible for replacement. Provide color temperature as indicated in Luminaire Schedule.
2. LED Drivers; Provide factory installed driver(s) for the LED source utilized that are specifically coordinated to the LED source and luminaire in which they are used. Provide driver(s) having specific operating characteristics defined in the Luminaire Schedule. Provide driver(s) that can easily be replaced in the field and are readily accessible for replacement. Provide specification sheet for the specific driver as part of the Luminaire Submittal.
3. Total Harmonic Distortion (THD) Rating: Less than 20 percent. Provide factory-installed integral filtering system to ensure THD does not exceed 20 percent regardless of quantities and/or mixes with other manufactured LED systems.

2.5 LUMINAIRE SUPPORT COMPONENTS

A. Support fixtures in compliance with NEC. Comply with Section 260529 "Hangers and Supports for Electrical Systems" for channel- and angle-iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2” steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire. Twin-Stem Hangers: Two, 1/2” steel tubes with single canopy designed to mount a single luminaire. Finish same as luminaire.

C. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gauge. Wires for Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gauge.

D. Rod Hangers: 3/16” minimum diameter, cadmium-plated, threaded steel rod. Hook Hangers: Integrated assembly matched to luminaire and line voltage and equipped with threaded attachment, cord, and locking-type plug.

E. For open ceiling spaces where fixtures are suspended and subject to damage or impact, provide an additional air craft cable support securely fastened to luminaire and structure to act

as a safety chain providing a redundant support. Select cable based on manufacturer's recommendations, accounting for weight of luminaire assembly, external forces that could be applied, minimum 200% factor of safety, etc. Decorative pendants in finished spaces are exempt from this requirement.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Luminaires: Set level, plumb, and square with ceilings and walls unless otherwise indicated. Install lighting sources in each luminaire.

B. Temporary Lighting: If it is deemed necessary, and permitted by Owner's Representative and Design Professionals, to use permanent luminaires for temporary lighting, install and energize the minimum number of luminaires necessary. When construction is substantially complete, remove the temporary luminaires, disassemble, clean thoroughly, install new lamps, and reinstall.

C. Remote Mounting of Driving and Transformation Components: Distance between the driving and transformation components and luminaire shall not exceed that recommended by the luminaire and driving and transformation components manufacturer. Verify, with manufacturers, maximum distance between driving and transformation components and luminaire.

D. Lay-in Ceiling Luminaires Supports: Unless required otherwise under other sections or unless project requirements and conditions require otherwise, grid may be used as a support element, subject to coordinating installations with ceiling system installer to ensure the ceiling system installer accounts for the weights of each luminaire and of all luminaires collectively, and installs specially marked and designated ceiling support components.
   1. Install ceiling support system rods or wires, independent of the ceiling suspension devices, for each luminaire. Locate not more than 6" from luminaire corners.
   2. Support Clips: Fasten to luminaires and to ceiling grid members at or near each luminaire corner with clips that are UL listed for the application.
   3. Luminaires of Sizes Less Than Ceiling Grid: Install as indicated on reflected ceiling plans or center in acoustical panel, and support luminaires independently with at least two 3/4" metal channels spanning and secured to ceiling tees.

E. Suspended Luminaire Support:
   1. Pendants and Rods: Where longer than 48" brace to limit swinging.
   2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers.
   3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of luminaire chassis, including one at each end.
   4. Do not use grid as support for pendant luminaires. Connect support wires or rods to building structure.

F. Install surface and recessed ceiling luminaires on grid and tile ceilings to agree with module of ceiling either displacing a tile, or unit on center of tile, or centered on grid lines. Install flush mounted luminaires properly to eliminate light leakage between luminaire frame and finished surface.

G. Do not locate splice or tap within an arm, stem, or chain. Provide wiring continuous from splice in outlet box of the building wiring system to driving and transformation component terminals in luminaires.

H. Provide Type MC/Armoured Cable or wiring in minimum 1/2" diameter flexible metal conduit (with full parity sized green insulated equipment ground wire) for "drops" from building wiring system junction boxes to suspended ceiling mounted luminaires. Limit the length of these

"drops" to 72". Install "drops" to luminaires in gypsum board, and similar inaccessible ceiling systems, from identified accessible junction boxes.

I. Connect luminaires utilized for emergency egress lighting and exit signage ahead of switching and other controls. The only exceptions to this are photocell-only controls for outdoor emergency egress luminaires.

J. Provide luminaires and luminaire outlet boxes with hangers to properly support luminaire weight. Submit design of hangers, method of fastening, other than indicated or specified herein, for review by Owner's Representative and review by ceiling installer. Anchor luminaires installed in, or on, suspended ceiling systems in strict compliance with NEC, including advance coordination with the ceiling installer. Support surface mounted luminaires greater than 2 feet in length at a point in addition to the outlet box luminaire stud. Fasten electrical luminaires and brackets securely to structural supports. Install luminaires level and plumb.

K. Where special mounting conditions are encountered, such as mounting to rounded columns or similar special circumstances, provide special custom factory-fabricated mounting means (i.e., brackets designed to conform with curvature of rounded columns, or to conform with similar special surfaces).

L. Provide stems and chains for luminaires as designated by the Owner's Representative where deemed necessary by the Owner's Representative to achieve a functional and neat installation. Contact Owner's Representative to determine pendant, stem, and chain lengths if mounting height is not indicated.

M. Provide plaster frames, or gypsum board frames, or similar kits for recessed luminaires installed in other than suspended grid type acoustical ceiling systems. Brace frames temporarily to prevent distortion during handling.

N. Wear clean white cotton gloves when handling the luminaires reflective and diffusing surfaces. Clean surfaces including dust, finger prints, paint, etc. with a clean dry cheesecloth after interior work has been completed. Remove plastic shipping bags from luminaires only after work in the respective area is complete.

O. Where applicable, verify that measured illuminance values comply with respective isolux (or equivalent) plot diagram values.

P. Provide full assembly for luminaires that are shipped with any loose components, regardless of who furnishes the luminaires.

Q. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to emergency source and retransfer to normal.

R. Burn-in all light sources that require specific aging period to operate properly, prior to occupancy by Owner.

S. Make adjustments and perform settings/programming to lighting controls and control systems so that all luminaires are fully operational compliant with design requirements and to the satisfaction of the Owner and Design Professionals.

T. Train Owner's maintenance personnel to adjust, operate, clean, re-lamp and maintain equipment, devices, controls, instrumentation, and accessories, and to use and reprogram lighting control systems as applicable.

END OF SECTION

STARBUCKS RENOVATION - GREATER COLUMBUS CONVENTION CENTER

BID DOCUMENTS
SEPTEMBER 10, 2025

ABBREVIATIONS

3PL	THIRD PARTY LOGISTICS
A/C	AIR CONDITIONING
ACT	ACOUSTICAL CEILING TILE
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AMP	AMPERE
AOR	ARCHITECT OF RECORD
BLDG	BUILDING
BOH	BACK OF HOUSE
CAB	CABINET
CBS	COLD BEVERAGE STATION
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR OR CLEARANCE
COL	COLUMN
COMP	COMPARTMENT
CONST	CONSTRUCTION
CONT	CONTINUOUS
CTR	CENTER
CW	COLD WATER
CX	COMMISSIONING
CXA	COMMISSIONING AGENT
DEG	DEGREE
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DISP	DISPENSER
DM	STARBUCKS DESIGN MANAGER
DN	DOWN
DT	DRIVE THRU
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
EM	EMERGENCY
EQ	EQUAL
EQUIP	EQUIPMENT
ESP	ESPRESSO
EXIST	EXISTING
EXT	EXTERIOR
FC	STARBUCKS FIXTURE CONTRACTER
FF&E	FURNITURE, FIXTURE, AND EQUIPMENT
F&I	FURNISH AND INSTALL
FLR	FLOOR
FOH	FRONT OF HOUSE
FRP	FIBERGLAS REINFORCED PANEL
FT	FOOT/FEET
FW	FILTERED WATER
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GWB	GYPSUM WALLBOARD
HC	HOLLOW CORE
HDW	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HOUR
HS	HAND SINK
HT	HEIGHT
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HW	HOT WATER
ID	INSIDE DIAMETER
LC	LICENSEE
LEED	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN
LV	LOW VOLTAGE
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MFR	MANUFACTURER
MIN	MINIMUM
MOP	MOBIL ORDER & PAY
MS	MOP SINK
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
PC	PLUMBING CONTRACTOR
PDM	STARBUCKS PROJECT DEVELOPMENT MANAGER
PLAM	PLASTIC LAMINATE
PLC	PLACE
POS	POINT OF SALE
R	RADIUS
REF	REFERENCE
REQD	REQUIRED
REV	REVISION
RND	ROUND
SB	STARBUCKS
SC	SOLID CORE
SF	SQUARE FEET
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	SOLID SURFACE
SST	STAINLESS STEEL
SUSP	SUSPENDED
TEL	TELEPHONE
TEMP	TEMPORARY
TW	TEMPERED WATER
TYP	TYPICAL
UC	UNDER COUNTER
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL CEILING TILE
VD	VENDOR DIRECT
VERT	VERTICAL
VIF	VERIFY IN FIELD
WH	WATER HEATER
WP	WEATHER PROOF

ARCHITECTURAL SYMBOL LEGEND

NORTH ARROW

GRAPHIC SCALE (Scale: X =X)

DATUM POINT

EXTERIOR ELEVATION CALL-OUT

INTERIOR ELEVATION CALL-OUT

SECTION CALL-OUT

DETAIL CALL-OUT

SHEET NOTE CALLOUT

XXXX AFF — ABOVE FINISH FLOOR HEIGHT TAG

X' XX" — FINISH FACE TO FINISH FACE DIMENSION

REVISION CLOUD

REVISION TAG

PXXX-ES — PAINT TAG

XXXXX — DESIGN ID TAG

DXXXXX — DOOR TAG

WXXXXX — WINDOW TAG

CUSTOM DESIGN ID KEY

SIGNAGE	"S"	x0000 - x0999
GRAPHICS AND ARTWORK	"G"	x1000 - x1099
SITE	"Y"	x1100 - x1199
DOORS	"D"	x2000 - x2999
DATA DEVICE	"A"	x3000 - x3999
SPECIALITY EQUIPMENT	"E"	x4000 - x4999
CASEWORK	"C"	x5000 - x5999
FURNITURE	"F"	x6000 - x6999
LIGHTING FIXTURE	"L"	x7000 - x7999
PLUMBING / MECHANICAL	"P" / "M"	x8000 - x8999
FINISHES - PAINT		x9000 - x9199
FINISHES - FLOOR TREATMENT	"T"	x9200 - x9399
FINISHES - WALL TREATMENT	"Q" / "R"	x9400 - x9799
FINISHES - CEILING TREATMENT	"U"	x9800 - x9999

SCHEDULE PREFIX

A - DATA DEVICE SCHEDULE
B - WALL BASE SCHEDULE
C - CASEWORK SCHEDULE
D - DOOR SCHEDULE
E - SPECIALTY EQUIPMENT SCHEDULE
F - FURNITURE SCHEDULE
G - GRAPHICS AND ARTWORK SCHEDULE
L - LIGHTING FIXTURE SCHEDULE
M - MECHANICAL EQUIPMENT SCHEDULE
P - PLUMBING FIXTURE SCHEDULE
Q - WALL TREATMENT (AREA) SCHEDULE
R - WALL TREATMENT (LENGTH) SCHEDULE
S - SIGNAGE SCHEDULE
T - FLOOR TREATMENT SCHEDULE
U - CEILING TREATMENT SCHEDULE
W - WINDOW SCHEDULE
Y - SITE SCHEDULE
Z - WINDOW FILM SCHEDULE

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

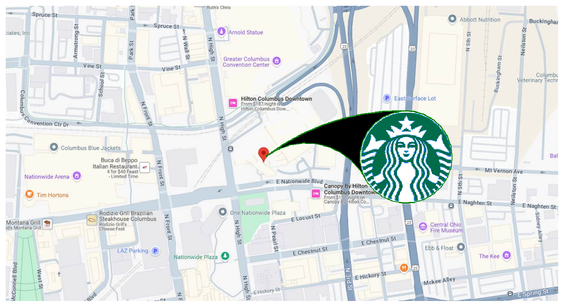
LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

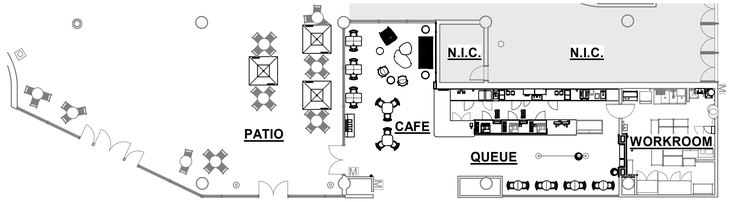
PERSPECTIVE VIEW



VICINITY PLAN



KEY PLAN



FLAME SPREAD REQUIREMENTS

CASEWORK	CLASS C
SUBSTRATE	CLASS C
SEALANTS	CLASS C
MURALS	CLASS C
FURNITURE	CLASS C
FABRIC	CLASS C
OTHER	CLASS C

GC TO MAINTAIN EXISTING FLAME-SPREAD FINISHES AS REQUIRED

PROJECT CONTACTS

MAILING ADDRESS: STARBUCKS COFFEE COMPANY
2401 UTAH AVENUE SOUTH
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SEATTLE, WASHINGTON 98134
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CONSTRUCTION PROJECT MANAGER: MATT LOSE
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HEAPY
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GENERAL NOTES

1. THESE DRAWINGS AND THE PROJECT MANUAL TOGETHER CONSTITUTE THE STARBUCKS CONSTRUCTION DOCUMENT SET. ALL GENERAL REQUIREMENTS ARE TO BE MET AND ALL MATERIALS, FINISHES, AND SYSTEMS ARE TO BE INSTALLED PER SPECIFICATIONS UNLESS NOTED OTHERWISE.
2. GENERAL CONTRACTOR SHALL VISIT THE SITE, REVIEW THE BUILDING SHELL DRAWINGS AS SUBMITTED BY THE LICENSEE'S ARCHITECT OF RECORD AND BECOME THOROUGHLY FAMILIAR WITH THE SITE CONDITIONS PRIOR TO CONSTRUCTION.
3. GENERAL CONTRACTOR SHALL CONSULT WITH LICENSEE'S ARCHITECT OF RECORD AND STARBUCKS PROJECT DEVELOPMENT MANAGER TO RESOLVE ANY CHANGES, OMISSIONS OR PLAN DISCREPANCIES PRIOR TO CONSTRUCTION.
4. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH LOCAL, COUNTY, STATE AND FEDERAL CODES AND ORDINANCES.
5. GENERAL CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES.
6. GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS, INCLUDING CLEARANCES REQUIRED BY OTHER TRADES AND NOTIFY LICENSEE'S ARCHITECT OF RECORD AND STARBUCKS PROJECT DEVELOPMENT MANAGER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH WORK. ALL DIMENSIONS ARE TO THE FACE OF THE FINISHED SURFACE UNLESS NOTED OTHERWISE. ALL DIMENSIONS TO BE TAKEN FROM DESIGNATED DATUM POINT. DO NOT SCALE DRAWINGS.
7. GENERAL CONTRACTOR SHALL PATCH AND REPAIR ALL EXISTING WALLS, FLOORS, CEILINGS, OR OTHER SURFACES IDENTIFIED TO REMAIN THAT MAY BECOME DAMAGED DURING THE COURSE OF WORK.
8. GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMITS FOR FIRE PROTECTION, PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS PRIOR TO INSTALLATION OF SUCH SYSTEMS.
9. GENERAL CONTRACTOR SHALL RETAIN ONE SET OF PERMIT PLANS ON-SITE TO DOCUMENT ALL CHANGES MADE DURING CONSTRUCTION. THE RECORD DRAWINGS SHALL BE ISSUED TO THE LICENSEE AND THE STARBUCKS PROJECT DEVELOPMENT MANAGER AT PROJECT CLOSE-OUT AS DESCRIBED IN THE GENERAL REQUIREMENTS OF THE PROJECT MANUAL.
10. GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING DELIVERY OF MATERIALS FROM STARBUCKS CONTRACTED THIRD PARTY LOGISTICS DISTRIBUTION SERVICES AND VENDOR DIRECT SHIPMENTS. SEE PROJECT MANUAL FOR ADDITIONAL INFORMATION.
11. RESPONSIBILITY FOR SUPPLY AND DELIVERY OF MATERIALS AND EQUIPMENT IS IDENTIFIED IN THE DRAWING SCHEDULE SHEETS UNDER THE COLUMN LABELED "RESPONSIBILITY".
12. FOR THE PURPOSE OF THE DOCUMENTS, TO "INSTALL", SHALL MEAN TO PROVIDE ALL FASTENERS, MISCELLANEOUS HARDWARE, BLOCKING, ELECTRICAL CONNECTIONS, PLUMBING CONNECTIONS AND OTHER ITEMS REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION, UNLESS OTHERWISE NOTED.
13. ALL ITEM SUBSTITUTIONS MUST BE APPROVED BY THE STARBUCKS DESIGN MANAGER AND/OR PROJECT DEVELOPMENT MANAGER.

INDEX OF SHEETS

LEGEND: X - SHEET ISSUED
R - SHEET ISSUED FOR REFERENCE AND COORDINATION ONLY
SEE TITLEBLOCK FOR REVISION ISSUE DATE(S)

SHEET	SHEET TITLE	REVISION 1	REVISION 2	REVISION 3	REVISION 4	REVISION 5
GENERAL						
G001	GENERAL INFORMATION					
G002	ADA COMPLIANCE INFORMATION					
G004	PROJECT CODE INFO. & CODE COMLIANCE PLAN					
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D101	DEMOLITION FLOOR PLAN					
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I101.1	FF & E PLAN					
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I105	INTERIOR FLOOR FINISH PLAN					
I106	INTERIOR WALL FINISH PLAN					
I106.1	INTERIOR WALL FINISH DETAILS					
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I201	INTERIOR FINISH ELEVATIONS					
I202	INTERIOR FINISH ELEVATIONS					
I203	INTERIOR FINISH ELEVATIONS					
I501	INTERIOR DETAILS					
I502	INTERIOR DETAILS					
I503	INTERIOR DETAILS					
I504	INTERIOR DETAILS					
I505	INTERIOR DETAILS					
I506	INTERIOR DETAILS					
I507	INTERIOR DETAILS					
I508	INTERIOR DETAILS					
I509	INTERIOR DETAILS					
ELECTRICAL						
E001	ELECTRICAL NOTES					
E002	PANELBOARD SCHEDULES					
E101	ELECTRICAL DESIGN PLAN					
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P101	PLUMBING DESIGN PLAN					
P102	PLUMBING PIPING PLAN					
P401	SCHEDULES AND DIAGRAMS					
P501	DETAILS					
P502	DETAILS					

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STATE OF OHIO
REGISTERED ARCHITECT

BHAKTI BANIA, LICENSE #0814783
EXPIRATION DATE 12/31/2023

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HEAPY

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STORE #: 28128
PROJECT #: 67357-004
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DESIGN MANAGER: JEFFREY JAMES
PRODUCTION DESIGNER: MAV
CHECKED BY: JAKE ROWE

Revision Schedule

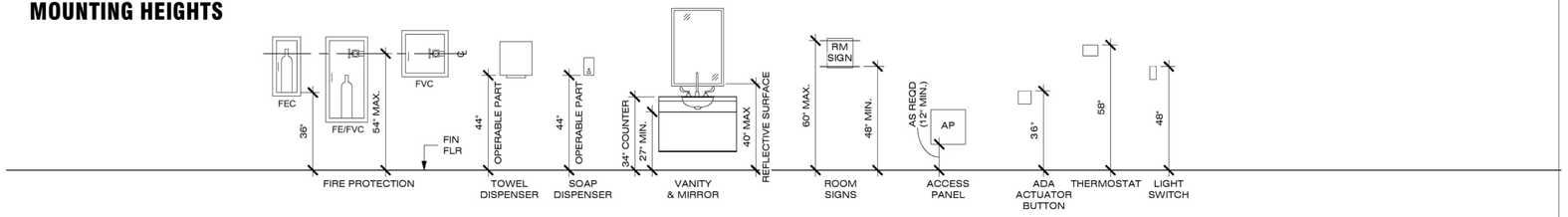
Rev	Date	By	Description

SHEET TITLE: GENERAL INFORMATION

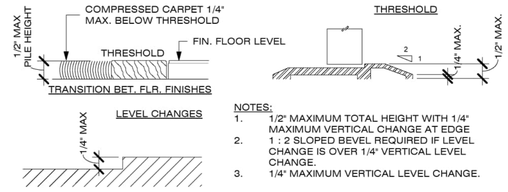
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SHEET NUMBER: G001

MOUNTING HEIGHTS

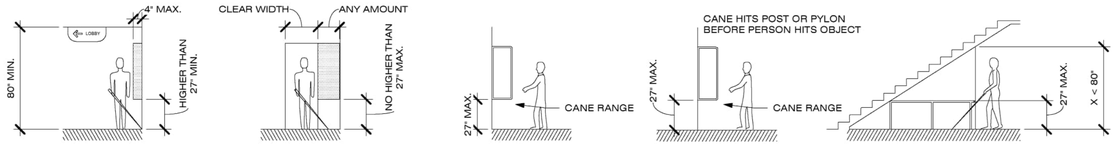


LEVEL CHANGES

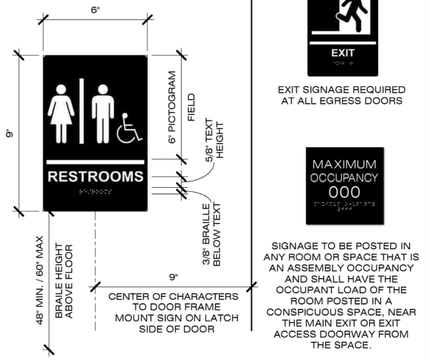


NOTES:
1. 1/2" MAXIMUM TOTAL HEIGHT WITH 1/4" MAXIMUM VERTICAL CHANGE AT EDGE
2. 1 : 2 SLOPED BEVEL REQUIRED IF LEVEL CHANGE IS OVER 1/4" VERTICAL LEVEL CHANGE.
3. 1/4" MAXIMUM VERTICAL LEVEL CHANGE.

PROTRUDING OBJECTS



TACTILE SIGNAGE

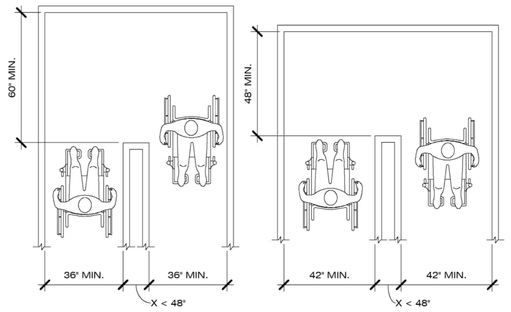




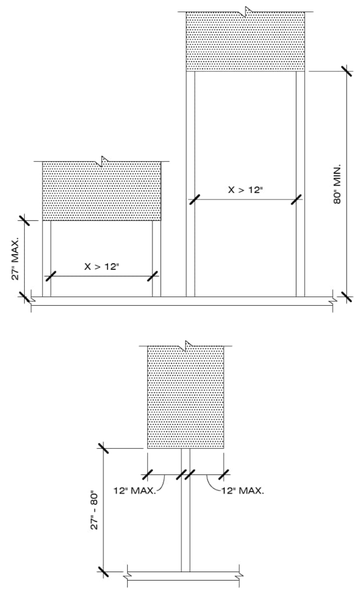
EXIT SIGNAGE REQUIRED AT ALL EGRESS DOORS

SIGNAGE TO BE POSTED IN ANY ROOM OR SPACE THAT IS AN ASSEMBLY OCCUPANCY AND SHALL HAVE THE OCCUPANT LOAD OF THE ROOM POSTED IN A CONSPICUOUS SPACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE.

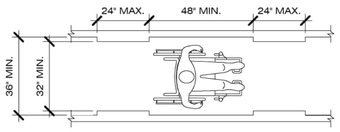
ACCESSIBLE ROUTE: 180 DEGREE TURN



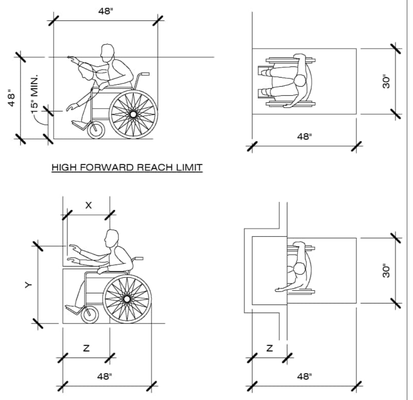
POST MOUNTED PROTRUDING OBJECTS



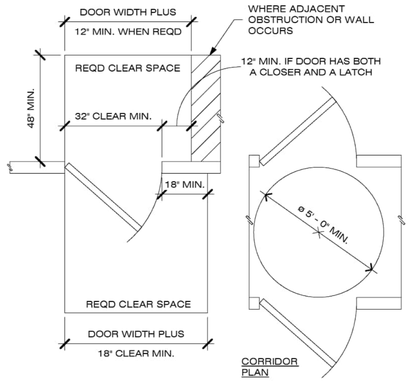
ACCESSIBLE ROUTE

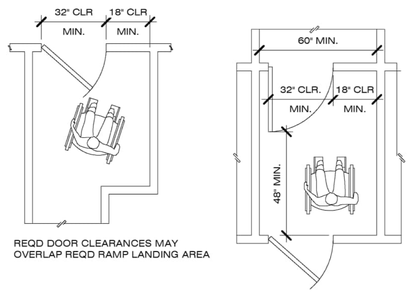


REACH REQUIREMENTS



DOOR CLEAR SPACE





NOTES:
1. CLEAR SPACES MUST BE LEVEL TO PREVENT WHEELCHAIRS FROM ROLLING WHEN THE OCCUPANT RELEASES THE WHEEL GRIPS TO REACH FOR THE DOOR. 1/4" PER FOOT IS ALLOWED FOR DRAINAGE.
2. WHERE DOORS OPEN ONTO, BUT NOT INTO A CORRIDOR, THE REQUIRED LEVEL AREA BEYOND THE DOORS MAY BE A MINIMUM OF 48".

NOTES:

1. OBC 1103: "SCOPING REQUIREMENTS"1103.1 WHERE REQUIRED. SITES, BUILDINGS, STRUCTURES, FACILITIES, ELEMENTS AND SPACES, TEMPORARY OR PERMANENT, SHALL BE ACCESSIBLE TO INDIVIDUALS WITH DISABILITIES.
1103.2 GENERAL EXCEPTIONS. SITES, BUILDINGS, STRUCTURES, FACILITIES, ELEMENTS AND SPACES SHALL BE EXEMPT FROM CHAPTER 11 TO THE EXTENT SPECIFIED IN SECTION 1103.

2. OBC 1104: "ACCESSIBLE ROUTE"
1104.1 SITE ARRIVAL POINTS. AT LEAST ONE ROUTE WITHIN THE SITE SHALL BE PROVIDED FROM ACCESSIBLE FACILITIES; PUBLIC TRANSPORTATION STOPS; ACCESSIBLE PARKING; ACCESSIBLE PASSENGER LOADING ZONES; AND PUBLIC STREETS OR SIDEWALKS TO THE ACCESSIBLE BUILDING SERVED.
1104.2 WITHIN A SITE. AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, ACCESSIBLE FACILITIES, ACCESSIBLE ELEMENTS AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.
1104.3 CONNECTED SPACES. WHEN A BUILDING OR PORTION OF A BUILDING IS REQUIRED TO BE ACCESSIBLE, AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED TO EACH PORTION OF THE BUILDING. TO ACCESSIBLE BUILDING ENTRANCES CONNECTING ACCESSIBLE PEDESTRIAN WALKWAYS AND THE PUBLIC WAY.

3. ANSI A117.1-2009 SECTION 403.3: "SLOPE"
THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:20. THE CROSS SLOPE OF A WALKING SURFACE SHALL NOT BE STEEPER THAN 1:48

4. ANSI A117.1-2009 SECTION 303: "CHANGES IN LEVEL"
303.2 VERTICAL. CHANGES IN LEVEL OF 1/4 INCH MAXIMUM IN HEIGHT SHALL BE PERMITTED TO BE VERTICAL.
303.3 BEVELED. CHANGES IN LEVEL GREATER THAN 1/4 INCH IN HEIGHT AND NOT MORE THAN 1/2 INCH MAXIMUM IN HEIGHT SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.
303.4 RAMPS. CHANGES IN LEVEL GREATER THAN 1/2 INCH IN HEIGHT SHALL BE RAMPED. PER SECTION 405.2, RAMP RUNS SHALL HAVE A RUNNING SLOPE GREATER THAN 1:20 AND NOT STEEPER THAN 1:12.

5. ANSI A117.1-2009 SECTION 302.2: "CARPET"
CARPET OR CARPET TILE SHALL BE SECURELY ATTACHED AND SHALL HAVE A FIRM CUSHION, PAD, OR BACKING, OR NO CUSHION OR PAD. CARPET OR CARPET TILE SHALL HAVE A LEVEL LOOP, TEXTURED LOOP, LEVEL CUT PILE, OR LEVEL CUT/UNCUT PILE TEXTURE. THE PILE SHALL BE 1/2 INCH MAXIMUM IN HEIGHT. EXPOSED EDGES OF CARPET SHALL BE FASTENED TO THE FLOOR AND HAVE TRIM ALONG THE ENTIRE LENGTH OF THE EXPOSED EDGE. CARPET EDGE TRIM SHALL COMPLY WITH SECTION 303.

6. ANSI A117.1-2009 SECTION 502: "PARKING SPACES"
502.2 VEHICLE SPACE SIZE. CAR PARKING SPACES SHALL BE 96 INCHES MINIMUM IN WIDTH. VAN PARKING SPACES SHALL BE 132 MINIMUM IN WIDTH.
502.4 ACCESS AISLE. CAR AND VAN PARKING SPACES SHALL HAVE AN ADJACENT ACCESS AISLE COMPLYING WITH SECTION 502.4
502.4.1 LOCATION. ACCESS AISLES SHALL ADJOIN AN ACCESSIBLE ROUTE. TWO PARKING SPACES SHALL BE PERMITTED TO SHARE A COMMON ACCESS AISLE. ACCESS AISLES SHALL NOT OVERLAP WITH THE VEHICULAR WAY. PARKING SPACES SHALL BE PERMITTED TO HAVE ACCESS AISLES PLACED ON EITHER SIDE OF THE CAR OR VAN SPACE. VAN PARKING SPACES THAT ARE ANGLED SHALL HAVE ACCESS AISLES LOCATED ON THE PASSENGER SIDE OF THE PARKING SPACE.
502.5 FLOOR SURFACES. PARKING SPACES AND ACCESS AISLES SHALL HAVE SURFACE SLOPES NOT STEEPER THAN 1:48. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE PARKING SPACES THEY SERVE.

7. OBC 1111: "SIGNAGE"
1111.1.1 SIGNS TO DESIGNATE ACCESSIBLE PARKING SPACES AND PASSENGER LOADING ZONES. ACCESSIBLE PARKING SPACES, VAN-ACCESSIBLE SPACES AND RESERVED PASSENGER LOADING ZONES, SHALL BE PROVIDED WITH A SIGN MOUNTED ON A FIXED OR MOVABLE POST OR OTHERWISE AFFIXED IN A VERTICAL POSITION SO THAT THE SIGN IS CLEARLY VISIBLE TO THE DRIVER OF A VEHICLE WHEN PARKED IN SUCH A LOCATION. SIGNAGE SHALL COMPLY WITH IDENTIFICATION REQUIREMENTS LISTED IN ANSI A117.1-2009 SECTION 502.7. A NOTICE SHALL BE AFFIXED TO THIS SIGN OR POSTED ADJACENT TO IT THAT STATES THE AMONG OF THE FINE ESTABLISHED BY SECTION 4511.99 OF THE REVISED CODE FOR THE OFFENSE OF PARKING A VEHICLE IN THIS LOCATION IF IT IS NOT LEGALLY ENTITLED TO DO SO. NOTE: THE FINE ESTABLISHED BY SECTION 4115.99 OF THE OHIO REVISED CODE SHALL BE NOT LESS THAN $250.00 NOR MORE THAN $500.00.

8. ANSI A117.1-2009 SECTION 406: "CURB RAMPS"
CURB RAMPS ON ACCESSIBLE ROUTES SHALL COMPLY WITH SECTIONS 406, 405.2, 405.3 AND 405.10. CURB RAMPS AND ADJACENT SURFACES SHALL COMPLY WITH FIGURES 406.2 AND 406.3 COUNTER SLOPE.

9. ANSI A117.1-2009 SECTION 404.2.3: "MANEUVERING CLEARANCES AT DOORS."
MINIMUM MANEUVERING CLEARANCES AT DOORS SHALL INCLUDE THE FULL CLEAR OPENING WIDTH OF THE DOORWAY AND BE AS SHOWN IN FIG. 404.2.3.2. PER SECTION 404.2.3.1, THE FLOOR SURFACE WITHIN THE MANEUVERING CLEARANCES SHALL HAVE A SLOPE NOT STEEPER THAN 1:48.

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HEAPY

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PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
ADA COMPLIANCE INFORMATION
SCALE: AS SHOWN

SHEET NUMBER:
G002

OHIO BUILDING CODE 2024

WORK SHALL CONFORM TO APPLICABLE GOVERNING CODES INCLUDING BUT NOT LIMITED TO THE LATEST EDITIONS OF THE FOLLOWING:

OHIO BUILDING & EXISTING BUILDING CODE 2024	INTL. ENERGY CONSERVATION CONST. CODE 2021
OHIO MECHANICAL CODE 2024	NFPA 70 (NEC) - 2023
OHIO PLUMBING CODE 2024	OHIO FIRE CODE - 2021
INTERNATIONAL FUEL GAS CODE 2021	NFPA 72 - 2022
ASHRAE 2019	NFPA 13 - 2022
ICC/ANSI A117.1 - 2017	A.D.A.A.G.

ADDRESS	400 N HIGH STREET, COLUMBUS, OH 43215
DESCRIPTION OF PROJECT	THIS PROJECT INVOLVES THE INTERIOR RENOVATION OF THE EXISTING STARBUCKS WITHIN THE GREATER COLUMBUS CONVENTION CENTER.

TYPE OF WORK	A. NEW STRUCTURE ☐	C. ALTERATION	X
	B. ADDITION ☐	D. CHANGE OF USE	☐

CHAPTER 3: OCCUPANCY DESCRIPTION

USE GROUP	**A-2**	ASSEMBLY (unchanged)

CHAPTERS 6: TYPES OF CONSTRUCTION

CONSTRUCTION TYPE	**IB** (assumed)	CONSTRUCTION IN WHICH THE BUILDING ELEMENTS ARE OF NONCOMBUSTIBLE MATERIALS, EXCEPT AS PERMITTED BY THIS CODE.
AREA OF WORK	1,878 SF (unchanged)	

CHAPTER 8: INTERIOR FINISHES

INTERIOR WALL AND CEILING FINISH REQUIREMENTS	A	B	C	NONE
EXIT ENCLOSURES & EXIT PASSAGEWAYS		X		
CORRIDORS		X		
ROOMS AND ENCLOSED SPACES			X	

CHAPTER 9: FIRE PROTECTION SYSTEMS

AUTOMATIC SPRINKLER SYSTEM (903) - NFPA 13	X	YES		NO
STANDPIPE SYSTEM (905)	X	YES		NO
PORTABLE FIRE EXTINGUISHERS (906)	X	YES		NO
FIRE ALARM SYSTEM (907)	X	YES		NO

CHAPTER 10: MEANS OF EGRESS

OCCUPANT LOAD	UNCHANGED

CHAPTER 29: PLUMBING REQUIREMENTS

RESTROOM FACILITIES ARE PROVIDED BY THE CONVENTION CENTER AND ARE NOT LOCATED WITHIN THE AREA OF WORK.

OHIO EXISTING BUILDING CODE 2024 - CHAPTER 5: PRESCRIPTIVE COMPLIANCE METHOD

503.1 ALTERATIONS
Except as provided in chapter 3 of this code or this section, alterations to any building, structure, or system (egress, fire protection, smoke control, mechanical, plumbing, etc.) are to comply with the requirements of the code for new construction only to the extent of the proposed alteration. Portions of the structure or system not altered and not affected by the alteration are not required to comply with the code requirements for a new structure. Alterations are to be such that the existing building, structure, or system is no less complying with the provisions of this code than the existing building or structure was prior to the alteration.

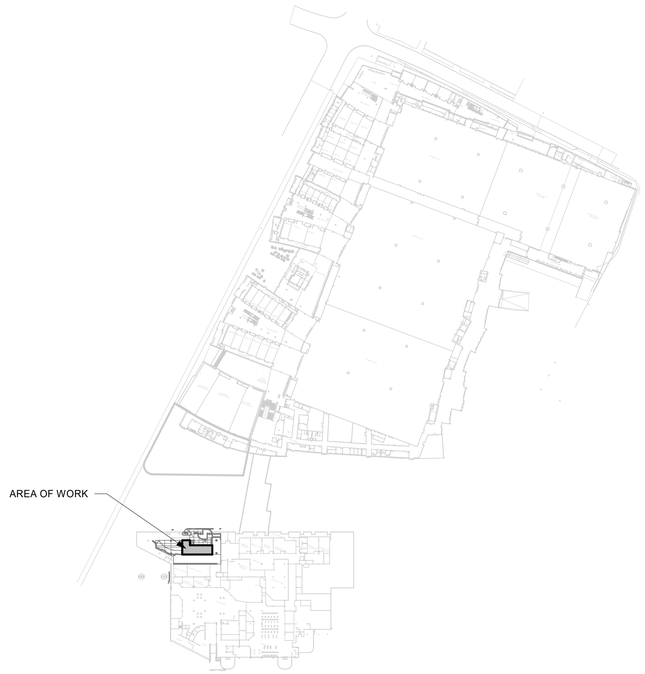
CODE COMPLIANCE LEGEND

➡	INDICATES EXIT
OCC	OCCUPANCY
FEC	FIRE EXTINGUISHER CABINET
FE	FIRE EXTINGUISHER

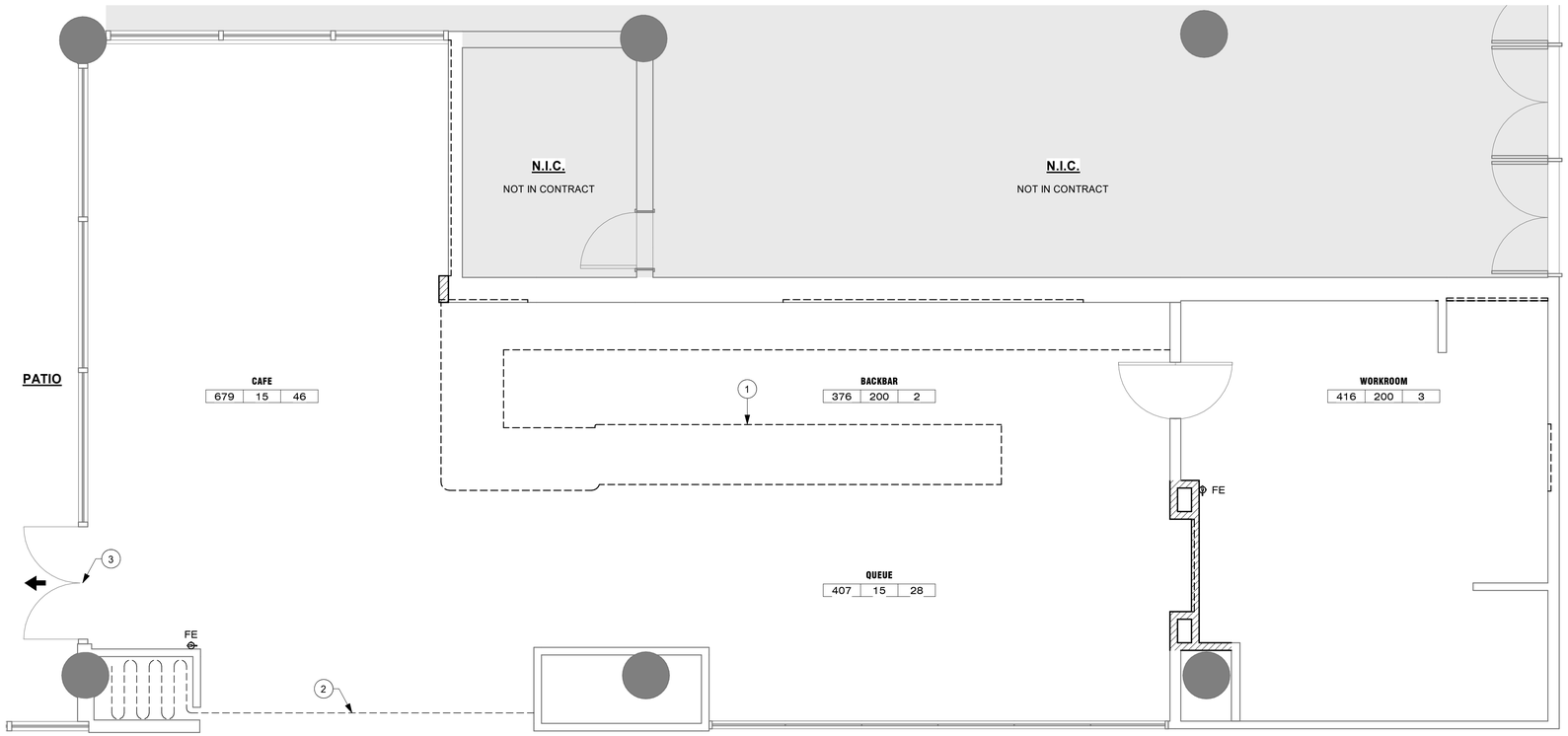
NOTE: ALL INDICATED EXITS MUST RECEIVE ACCESSIBLE COMPLIANT SIGNAGE

NOTES

1. REFER G-SERIES FOR ACCESSIBILITY COMPLIANCE INFORMATION
2. REFER ELECTRICAL DRAWINGS FOR EGRESS LIGHTING REQUIREMENTS



3 AREA OF WORK PLAN
Scale: 1" = 200'-0"



1 BUILDING FLOOR PLAN - CODE
Scale: 1/4" = 1'-0"

KEYED NOTES

1. OUTLINE OF BAR PER CASEWORK MANUFACTURER.
2. EXISTING SECURITY GRILLE TO REMAIN.
3. EXISTING EGRESS WIDTH MAINTAINED.

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SHEET TITLE:
PROJECT CODE INFO. &
CODE COMLIANCE PLAN
SCALE: AS SHOWN

SHEET NUMBER:
G004











RENDERING IMAGES SHOWN ON THIS SHEET ARE FOR DESIGN INTENT ONLY AND ARE NOT INTENDED FOR CONSTRUCTION

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DESIGN INTENT
RENDERINGS
SCALE: AS SHOWN

SHEET NUMBER:
G005

ITEMS TO DEMOLISH

A. ENGINE CASEWORK AND EQUIPMENT, UNO.

B. CAFE FURNITURE - SALVAGE AND DELIVER TO LC

C. MERCH BASKETS (5)

D. MERCH CUBES (2)

E. WALL OF CHILL

F. MERCH ENCLOSURE

G. CONDIMENT CART - SALVAGE AND DELIVER TO LC

H. STANCHION (4) - SALVAGE AND DELIVER TO LC

J. BANNER STAND

K. STOOL - SALVAGE AND DELIVER TO LC

L. WATER FILTRATION SYSTEM, UNO

M. TRASH CANS (2) - SALVAGE AND DELIVER TO LC

ITEMS TO PRESERVE

AA. STANCHION (2)

BB. FOOD CASE

CC. MASTRENA (2) (INCLUDE PUMPS & MOUNTS)

DD. 2 DOOR U/C/ FRIDGE

EE. GRINDER

FF. 1 DR U/C FRIDGE

GG. ICE MACHINE

HH. PAPER TOWEL DISPENSER

JJ. STORAGE SHELVES (10)

KK. SECURITY CAGE

KEYED NOTES

1. EXISTING WALLS AND DOORS TO REMAIN, UNO. GC TO PATCH, REPAIR, AND PREP AS REQUIRED TO PROVIDE A SMOOTH, PAINT READY SURFACE.
2. REMOVE EXISTING WALLS AS INDICATED.
3. EXISTING FLOORING TO REMAIN. GC TO PATCH AND REPAIR AS REQUIRED.
4. REMOVE EXISTING WALL FINISHES AS INDICATED. PATCH, REPAIR, AND PREP SUBSTRATE TO RECEIVE NEW FINISH.
5. REMOVE EXISTING CASEWORK, HANGING DEVICES, AND FASTENERS AS INDICATED. REMOVE ASSOCIATED ELECTRICAL AND DATA LINES NOT BEING RE-USED.
6. REMOVE EXISTING PLUMBING FIXTURES AS INDICATED. CAP LINES AS NECESSARY FOR THOSE NOT BEING RE-USED.
7. REMOVE EXISTING FIXTURES, FURNITURE, AND EQUIPMENT AS INDICATED . REFERENCE SCHEDULES ON THIS SHEET FOR ITEMS TO BE PRESERVED.
8. EXISTING WORKROOM EQUIPMENT TO REMAIN, UNO.
9. EXISTING WORKROOM WALL FINISH TO REMAIN. GC TO PATCH AND REPAIR AS REQUIRED, MATCH EXISTING.
10. EXISTING FLOOR FINISH IN AREA OF HATCH TO BE REMOVED. COORDINATE EXTENT WITH NEW WORK PLAN. GC TO PATCH AND REPAIR AS REQUIRED TO ACCEPT NEW EPOXY FLOOR FINISH.
11. CONCRETE TOPPING OF COMPOSITE FLOOR SLAB IN AREA OF CROSSHATCH TO BE CUT AND REMOVED TO ACCOMMODATE REMOVAL OF FLOOR SINKS AND INSTALLATION OF NEW PLUMBING WORK. COORDINATE EXTENT WITH NEW WORK PLANS.
12. EXISTING SODA MACHINE LINES TO BE REMOVED AND CAPPED.

GENERAL NOTES

A. IF DURING DEMOLITION CONDITIONS ARE REVEALED THAT MAY JEOPARDIZE INTEGRITY OF STRUCTURE OR PRECLUDE FOLLOWING DESIGN INTENT, GENERAL CONTRACTOR TO IMMEDIATELY NOTIFY ARCHITECT OF RECORD AND STARBUCKS PROJECT DEVELOPMENT MANAGER.

B. GENERAL CONTRACTOR IS RESPONSIBLE FOR SITE INVESTIGATION PRIOR TO DEMOLITION TO REVEAL FULL SCOPE OF WORK. NOTIFY ARCHITECT OF RECORD IF EXISTING CONDITIONS DEVIATE FROM CONSTRUCTION DOCUMENTS.

C. REMOVE WALL COVERINGS ON EXISTING WALLS TO REMAIN THAT FACE AREAS OF DEMOLITION. REMOVAL SHALL INCLUDE ANY RESIDUAL MATERIAL AFTER DEMOLITION, I.E. PIECES OF WALL COVERING OR BACKING. REMOVAL OF ALL COVERINGS IS TO BE DONE W/O DAMAGING THE EXISTING WALL SURFACE TO REMAIN. ALSO REMOVE WALL DEVICES AND ITEMS MOUNTED TO WALLS.

D. REMOVE ALL FLOOR MATERIALS INCLUSIVE OF SETTING BEDS, SUBFLOOR MATERIAL ETC. REMOVE MASTIC TO PROVIDE A CLEAN FLOOR THAT IS ACCEPTABLE TO THE SUBCONTRACTOR INSTALLING NEW FINISH MATERIAL.

E. DEMOLITION PLANS REPRESENT APPROXIMATE LOCATION OF EXISTING WALLS TO BE DEMOLISHED. FIELD VERIFY TYPE OF CONSTRUCTION AND HEIGHT OF WALLS. PLANS DO NOT NECESSARILY INDICATE ALL DEMO WALLS, COUNTERS, HANDRAILS, WALL PROTECTION, CLOSETS, SINKS, ETC. PRIOR TO DEMOLITION, FIELD VERIFY THAT WALLS TO BE REMOVED DO NOT PROVIDE SUPPORT FOR EXISTING BUILDING ELEMENTS AND EXISTING CONSTRUCTION TO REMAIN. NOTIFY ARCHITECT OF RECORD IF DEMOLITION WALLS SUPPORT EXISTING BUILDING ELEMENTS.

F. DEMOLISH AND REMOVE DOORS, VINYL BASE, CONDUIT, WIRING, DUPLEXES, DATA OUTLETS, CABLES, SHELVING, METAL STUD AND GYPSUM BOARD WALLS, CLOSETS, CABINETS, FILES, COUNTERS, WOOD MOLDING, SHELVES AND ENCLOSURES WHERE APPLICABLE.

G. VERIFY ACCESS TO THE DEMOLITION AREA, INGRESS AND EGRESS ROUTES FOR MATERIAL AND EQUIPMENT WITH LICENSEE.

H. PROTECT EXISTING FLOORS, WALLS AND CORNERS TO REMAIN ALONG WORK ACCESS ROUTES.

I. CONTAIN DUST AND DEBRIS WITHIN THE DEMOLITION AREA.

J. GENERAL CONTRACTOR SHALL PERFORM WORK IN A MANNER THAT DOES NOT DAMAGE THE EXISTING STRUCTURE. DEMOLITION SHALL NOT COMPROMISE THE STRUCTURAL INTEGRITY OF ANY WALLS, FLOORS, CEILINGS, SUPPORTS, STRUCTURE, ETC. TO REMAIN.

K. ALL DEMOLITION MATERIALS AND DEBRIS SHALL BE DISPOSED OF ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS.

L. AT LOCATIONS WHERE EXISTING WALLS ARE TO BE REMOVED NEAR EXISTING WALLS TO REMAIN, PERFORM DEMOLITION WITHOUT DISTURBING EXISTING ELEMENTS TO REMAIN. WALLS TO REMAIN SHALL BE INTACT AND HAVE A NEAT SURFACE.

M. REFER TO "ITEMS TO BE PRESERVED" LIST FOR ITEMS THAT SHALL BE SALVAGED FOR RELOCATION. VERIFY WITH LICENSEE FOR ON SITE STORAGE LOCATION OF SALVAGED ITEMS.

N. DAMAGED FIREPROOFING SHALL BE REPAIRED/ REPLACED TO MATCH EXISTING OR AS PER CODE.

O. THE GENERAL CONTRACTOR SHALL DEMOLISH ANY EXISTING ABANDONED VOICE/DATA CABLING AND DEAD OR NON-USE ELECTRICAL LINES BACK TO PANEL. ALL RECEPTACLES NOT RE-USED ARE TO BE REMOVED, PATCHED, AND PAINTED.

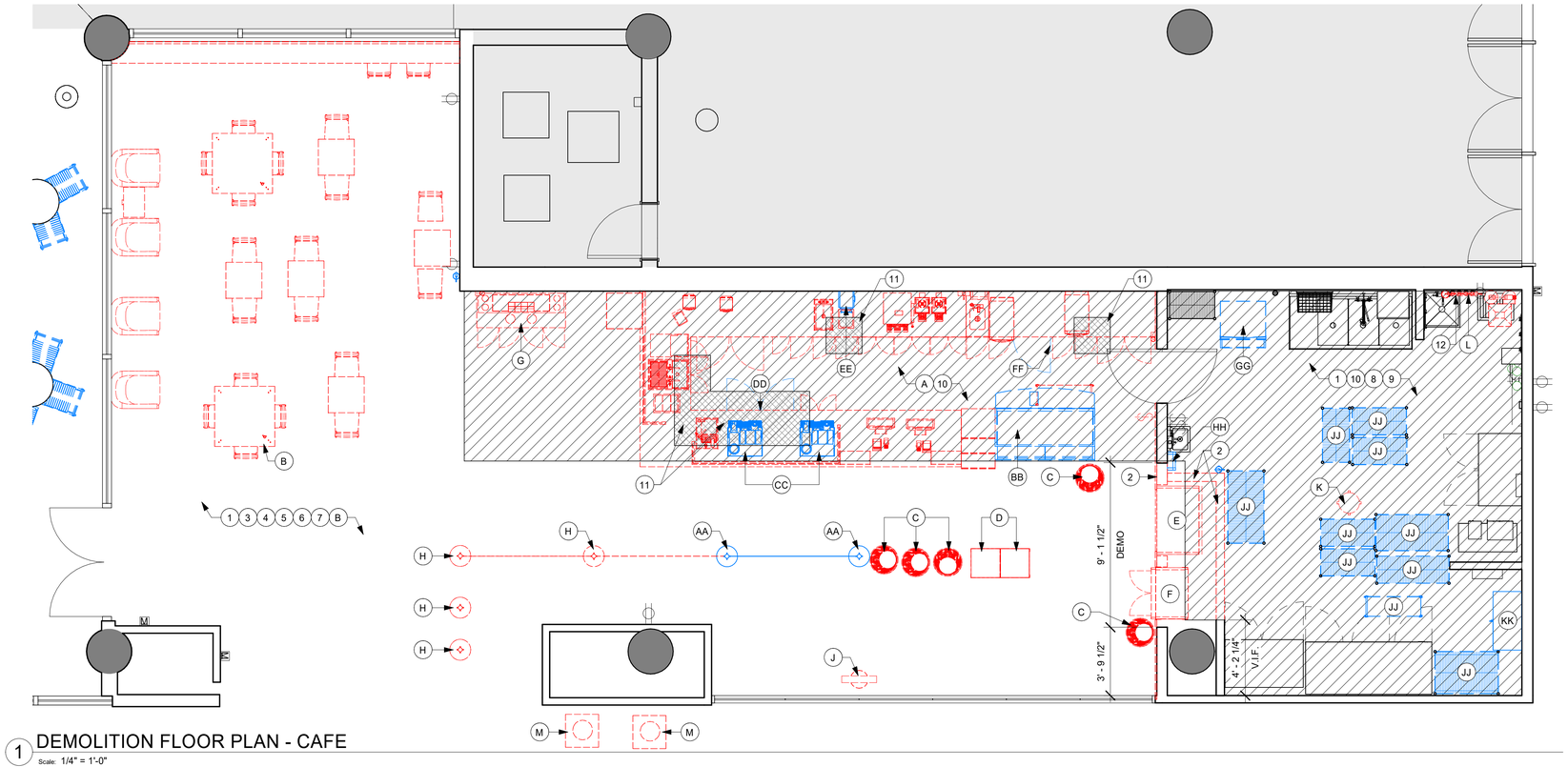
P. REMOVAL OF LOW VOLTAGE EQUIPMENT PERTAINING TO DATA/COMMUNICATIONS AND TELEPHONE SHALL BE VERIFIED BY THE LICENSEE AND/OR ARCHITECT OF RECORD PRIOR TO REMOVAL.

Q. LABEL ALL EXISTING ITEMS THAT ARE TO BE PRESERVED AND PROPERLY STORED FOR RE-INSTALLATION.

R. COORDINATE SALVAGE OF DEMOLISHED ITEMS WITH OWNER PRIOR TO REMOVAL.

LEGEND

- MATERIAL TO BE DEMOLISHED
- MATERIAL TO BE PRESERVED FOR FUTURE RE-USE
- EXISTING WALL TO REMAIN
- EXISTING COLUMN TO REMAIN
- AREA OF FLOOR FINISH TO BE REPLACED
- AREA OF FLOOR SLAB TO BE REMOVED



1 DEMOLITION FLOOR PLAN - CAFE
Scale: 1/4" = 1'-0"

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HEAPY

PROJECT NAME:
STARBUCKS RENOVATION
- GREATER COLUMBUS
- CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

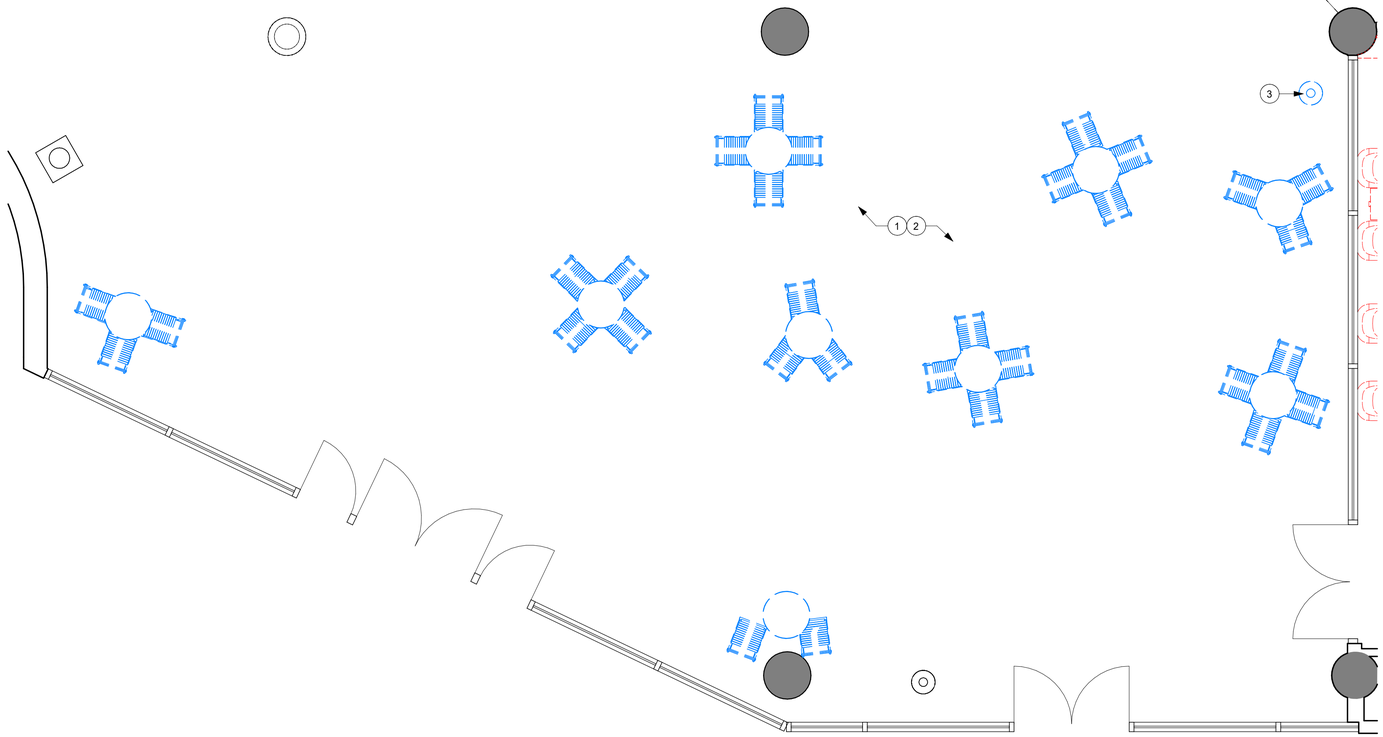
STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
DEMOLITION FLOOR PLAN
SCALE: AS SHOWN

SHEET NUMBER:
D101



1 DEMOLITION FLOOR PLAN - PATIO

Scale: 1/4" = 1'-0"

KEYED NOTES

1. EXISTING PATIO FINISHES TO REMAIN.
2. EXISTING FURNITURE TO BE REUSED AND RELOCATED.
3. EXISTING TRASH CAN TO BE RELOCATED.

GENERAL NOTES

A. IF DURING DEMOLITION CONDITIONS ARE REVEALED THAT MAY JEOPARDIZE INTEGRITY OF STRUCTURE OR PRECLUDE FOLLOWING DESIGN INTENT, GENERAL CONTRACTOR TO IMMEDIATELY NOTIFY ARCHITECT OF RECORD AND STARBUCKS PROJECT DEVELOPMENT MANAGER.

B. GENERAL CONTRACTOR IS RESPONSIBLE FOR SITE INVESTIGATION PRIOR TO DEMOLITION TO REVEAL FULL SCOPE OF WORK. NOTIFY ARCHITECT OF RECORD IF EXISTING CONDITIONS DEVIATE FROM CONSTRUCTION DOCUMENTS.

C. REMOVE WALL COVERINGS ON EXISTING WALLS TO REMAIN THAT FACE AREAS OF DEMOLITION. REMOVAL SHALL INCLUDE ANY RESIDUAL MATERIAL AFTER DEMOLITION, I.E. PIECES OF WALL COVERING OR BACKING. REMOVAL OF ALL COVERINGS IS TO BE DONE W/O DAMAGING THE EXISTING WALL SURFACE TO REMAIN. ALSO REMOVE WALL DEVICES AND ITEMS MOUNTED TO WALLS.

D. REMOVE ALL FLOOR MATERIALS INCLUSIVE OF SETTING BEDS, SUBFLOOR MATERIAL ETC. REMOVE MASTIC TO PROVIDE A CLEAN FLOOR THAT IS ACCEPTABLE TO THE SUBCONTRACTOR INSTALLING NEW FINISH MATERIAL.

E. DEMOLITION PLANS REPRESENT APPROXIMATE LOCATION OF EXISTING WALLS TO BE DEMOLISHED. FIELD VERIFY TYPE OF CONSTRUCTION AND HEIGHT OF WALLS. PLANS DO NOT NECESSARILY INDICATE ALL DEMO WALLS, COUNTERS, HANDRAILS, WALL PROTECTION, CLOSETS, SINKS, ETC. PRIOR TO DEMOLITION, FIELD VERIFY THAT WALLS TO BE REMOVED DO NOT PROVIDE SUPPORT FOR EXISTING BUILDING ELEMENTS AND EXISTING CONSTRUCTION TO REMAIN. NOTIFY ARCHITECT OF RECORD IF DEMOLITION WALLS SUPPORT EXISTING BUILDING ELEMENTS.

F. DEMOLISH AND REMOVE DOORS, VINYL BASE, CONDUIT, WIRING, DUPLEXES, DATA OUTLETS, CABLES, SHELVING, METAL STUD AND GYPSUM BOARD WALLS, CLOSETS, CABINETS, FILES, COUNTERS, WOOD MOLDING, SHELVES AND ENCLOSURES WHERE APPLICABLE.

G. VERIFY ACCESS TO THE DEMOLITION AREA, INGRESS AND EGRESS ROUTES FOR MATERIAL AND EQUIPMENT WITH LICENSEE.

H. PROTECT EXISTING FLOORS, WALLS AND CORNERS TO REMAIN ALONG WORK ACCESS ROUTES.

I. CONTAIN DUST AND DEBRIS WITHIN THE DEMOLITION AREA.

J. GENERAL CONTRACTOR SHALL PERFORM WORK IN A MANNER THAT DOES NOT DAMAGE THE EXISTING STRUCTURE. DEMOLITION SHALL NOT COMPROMISE THE STRUCTURAL INTEGRITY OF ANY WALLS, FLOORS, CEILINGS, SUPPORTS, STRUCTURE, ETC. TO REMAIN.

K. ALL DEMOLITION MATERIALS AND DEBRIS SHALL BE DISPOSED OF ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS.

L. AT LOCATIONS WHERE EXISTING WALLS ARE TO BE REMOVED NEAR EXISTING WALLS TO REMAIN, PERFORM DEMOLITION WITHOUT DISTURBING EXISTING ELEMENTS TO REMAIN. WALLS TO REMAIN SHALL BE INTACT AND HAVE A NEAT SURFACE.

M. REFER TO "ITEMS TO BE PRESERVED" LIST FOR ITEMS THAT SHALL BE SALVAGED FOR RELOCATION. VERIFY WITH LICENSEE FOR ON SITE STORAGE LOCATION OF SALVAGED ITEMS.

N. DAMAGED FIREPROOFING SHALL BE REPAIRED/ REPLACED TO MATCH EXISTING OR AS PER CODE.

O. THE GENERAL CONTRACTOR SHALL DEMOLISH ANY EXISTING ABANDONED VOICE/DATA CABLING AND DEAD OR NON-USE ELECTRICAL LINES BACK TO PANEL. ALL RECEPTACLES NOT RE-USED ARE TO BE REMOVED, PATCHED, AND PAINTED.

P. REMOVAL OF LOW VOLTAGE EQUIPMENT PERTAINING TO DATA/COMMUNICATIONS AND TELEPHONE SHALL BE VERIFIED BY THE LICENSEE AND/OR ARCHITECT OF RECORD PRIOR TO REMOVAL.

Q. LABEL ALL EXISTING ITEMS THAT ARE TO BE PRESERVED AND PROPERLY STORED FOR RE-INSTALLATION.

LEGEND

- MATERIAL TO BE DEMOLISHED
- MATERIAL TO BE PRESERVED FOR FUTURE RE-USE
- EXISTING WALL TO REMAIN
- EXISTING COLUMN TO REMAIN
- AREA OF FLOOR FINISH TO BE REPLACED
- AREA OF FLOOR SLAB TO BE REMOVED

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STORE #:	28128
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ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
DEMOLITION FLOOR PLAN
SCALE: AS SHOWN

SHEET NUMBER:
D101.1

KEYED NOTES

1. EXISTING CEILINGS AND SOFFITS TO REMAIN. GENERAL CONTRACTOR TO REPAIR AS REQUIRED.
2. REMOVE EXISTING LIGHT FIXTURES, ELECTRICAL WIRING, CONTROLS, AND ASSOCIATED FASTENERS AS INDICATED.
3. EXISTING SPEAKERS, SECURITY CAMERAS, LV CABLING AND ASSOCIATED CONDUITS TO REMAIN.
4. REMOVE EXISTING EXTRANEOUS EQUIPMENT AND FIXTURES AS NECESSARY.
7. REMOVE EXISTING CUBBIES AND MENU BOARDS AS INDICATED.
8. EXISTING LIGHTING TO REMAIN THROUGHOUT, UNO.
9. LIGHT FIXTURES TO BE RELOCATED. SEE RCP ON SHEET I103 FOR NEW LOCATION.

GENERAL NOTES

A. IF DURING DEMOLITION CONDITIONS ARE REVEALED THAT MAY JEOPARDIZE INTEGRITY OF STRUCTURE OR PRECLUDE FOLLOWING DESIGN INTENT, GENERAL CONTRACTOR TO IMMEDIATELY NOTIFY ARCHITECT OF RECORD AND STARBUCKS PROJECT DEVELOPMENT MANAGER.

B. GENERAL CONTRACTOR IS RESPONSIBLE FOR SITE INVESTIGATION PRIOR TO DEMOLITION TO REVEAL FULL SCOPE OF WORK. NOTIFY ARCHITECT OF RECORD IF EXISTING CONDITIONS DEVIATE FROM CONSTRUCTION DOCUMENTS.

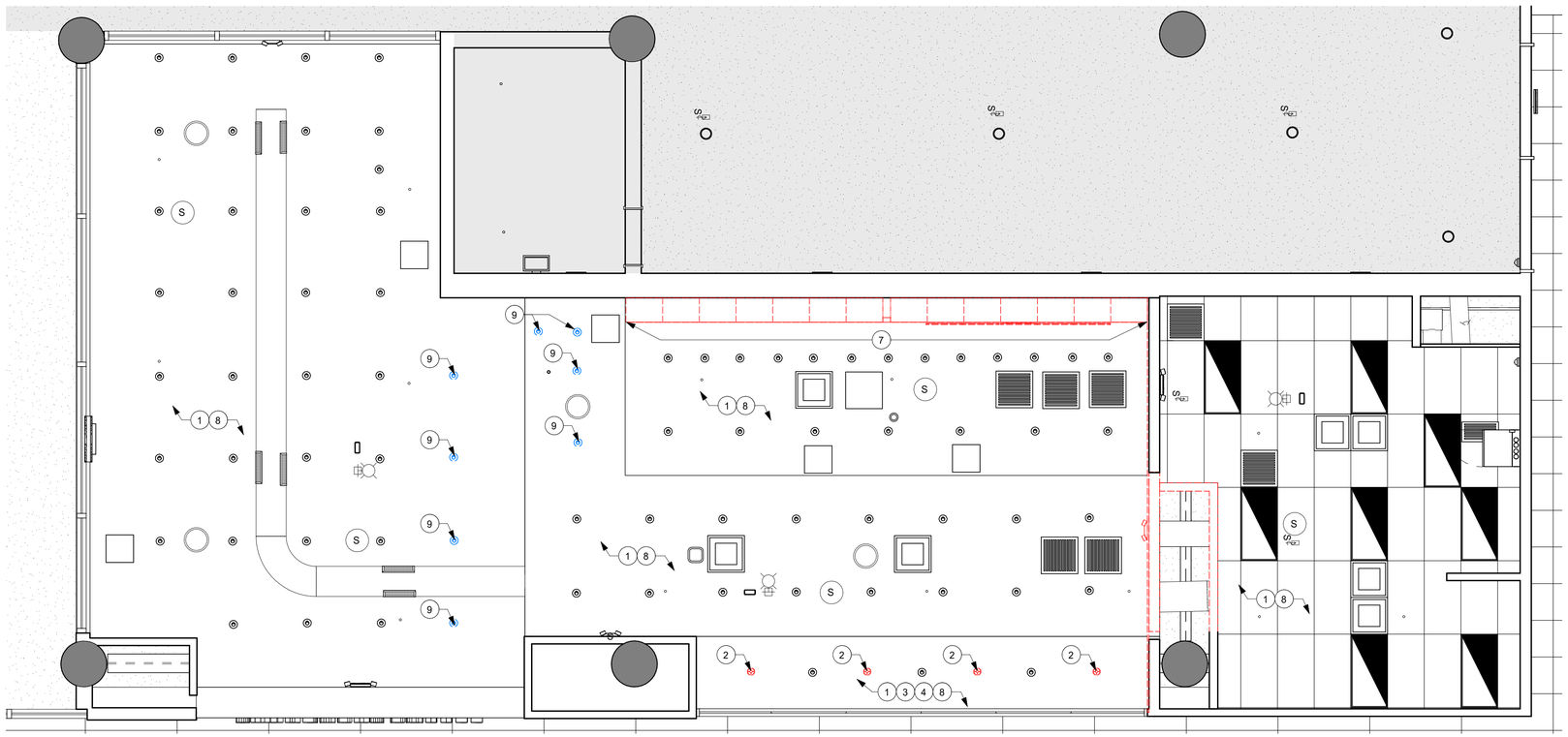
C. LABEL ALL EXISTING ITEMS THAT ARE TO BE PRESERVED AND PROPERLY STORED FOR RE-INSTALLATION.

D. EXISTING SPRINKLERS TO REMAIN OPERATIONAL DURING CONSTRUCTION.

E. DEMOLISH AND REMOVE EXISTING SUSPENDED ACOUSTIC LAY-IN, SPLINE OR GYPSUM/PLASTER CEILING INCLUSIVE OF HANGERS AND CARRYING CHANNELS, WIRES, CABLES, CONDUIT, ELECTRICAL BOXES, SMOKE DETECTORS, LIGHT FIXTURES AND WIRING, DUCTWORK, PIPING, AND SUPPORT HANGERS. CUT HANGERS FLUSH. SPACES RECEIVING WALL DEMOLITION WILL ALSO HAVE CEILING DEMOLITION, UNLESS NOTED OTHERWISE.

LEGEND

- MATERIAL TO BE DEMOLISHED
- MATERIAL TO BE PRESERVED FOR FUTURE RE-USE
- EXISTING WALL TO REMAIN
- EXISTING COLUMN TO REMAIN
- AREA OF FLOOR FINISH TO BE REPLACED
- AREA OF FLOOR SLAB TO BE REMOVED



1 REFLECTED CEILING DEMOLITION PLAN
Scale: 1/4" = 1'-0"

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DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
REFLECTED CEILING DEMOLITION PLAN
SCALE: AS SHOWN

SHEET NUMBER:
D102

WALL TYPE LEGEND

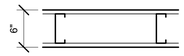
1 **EXISTING WALL / GLAZING**

2 **NEW PARTITION WALL TO 6" (152MM) ABOVE CEILING**



20 GA 3-5/8" (96 MM) METAL STUDS 16" (406 MM) O.C. WITH 5/8" (16 MM) TYPE "X" GWB ON ONE OR BOTH SIDES TO MINIMUM OF 6" (152 MM) ABOVE CEILING GRID. DRYWALL SCREWS @ 12" (305 MM) O.C., 45 DEGREE METAL STUD REINFORCEMENT @ 48" (1210 MM) O.C. ABOVE CEILING LINE TO STRUCTURE ABOVE.

3 **NEW PARTITION WALL TO 6" (152MM) ABOVE CEILING**



20 GA 3-5/8" (96 MM) METAL STUDS 16" (406 MM) O.C. WITH 5/8" (16 MM) TYPE "X" GWB ON ONE OR BOTH SIDES TO MINIMUM OF 6" (152 MM) ABOVE CEILING GRID. DRYWALL SCREWS @ 12" (305 MM) O.C., 45 DEGREE METAL STUD REINFORCEMENT @ 48" (1210 MM) O.C. ABOVE CEILING LINE TO STRUCTURE ABOVE.

WALL BLOCKING LEGEND

SYMBOL	ITEM	HEIGHT AFF	APPROX. WIDTH	NOTES
AA	CLADDING / WOOD TRIM	SEE BLOCKING ELEVATION	SEE BLOCKING ELEVATION	
BB	ARTWORK	3' - 3 1/2" TO 7' - 6 1/2"	7' - 9 1/4"	
CC	CBE SHELVES	3' - 11" TO 5' - 6"	5' - 6"	300 LBS
DD	MENUS	5' - 9 1/2" TO 8' - 6"	14' - 8"	
EE	MERCHANDISE	0' - 6" TO 6' - 8"	SEE BLOCKING ELEVATION	
FF	ORDER STATUS BOARD	3' - 5 1/2" TO 7' - 10 1/2"	2' - 10"	
GG	WATER FILTRATION	0' - 6" TO 8' - 10"	5' - 5"	
HH	MOP SIGN	4' - 8 1/2" TO 7' - 10 1/2"	0' - 11"	
JJ	SPC	3' - 6" TO 6' - 4"	2' - 7"	

PROVIDE FIRE TREATED 2X6 OR 2X8 WOOD STUD BLOCKING AS REQUIRED TO SUPPORT ANY WALL ATTACHMENTS.

REFER TO SHEETS A401 FOR LOCATIONS OF BLOCKING, MOUNTING HEIGHTS, AND EXTENT OF BLOCKING SURFACES.

KEYED NOTES

1. INSTALL NEW WALLS AND DOORS AS INDICATED.
2. OUTLINE OF BAR PER CASEWORK MANUFACTURER.
3. ELECTRICAL PANEL LOCATION. MAINTAIN MINIMUM CLEARANCE AS REQUIRED BY CODE.
4. EXISTING SECURITY GRILLE TO REMAIN.

GENERAL NOTES

A. GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT OF RECORD AND STARBUCKS DEVELOPMENT MANAGER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. ALL DIMENSIONS TO BE TAKEN FROM DESIGNATED DATUM POINT.

B. GENERAL CONTRACTOR TO PROVIDE FIRE TREATED WOOD STUD BLOCKING, OR EQUIVALENT, TO SUPPORT ANY WALL ATTACHMENT AND/OR SIGNAGE.

C. IF EXISTING EXTERIOR ENTRANCE THRESHOLD EXCEEDS MINIMUM BARRIER FREE PROVISIONS OF THE CODE, REMOVE AND REPLACE WITH ACCESSIBLE THRESHOLD. RAISED THRESHOLDS AND FLOOR LEVEL CHANGES AT ACCESSIBLE DOORWAYS TO BE BEVELED WITH A SLOPE NO GREATER THAN 1:12.

D. ALL DIMENSIONS ARE TO FINISHED FACE UNLESS SHOWN OR NOTED OTHERWISE.

E. INSTALL MOISTURE RESISTANT BACKBAR WALL BOARD PER PROJECT MANUAL.

F. ALL DOORS SHALL BE 32" (815MM) MINIMUM CLEAR OPENING WHEN OPENED TO 90 DEGREE POSITION UNLESS NOTED OTHERWISE.

G. GENERAL CONTRACTOR TO FURNISH AND INSTALL ALL DOOR HARDWARE COMPONENTS.

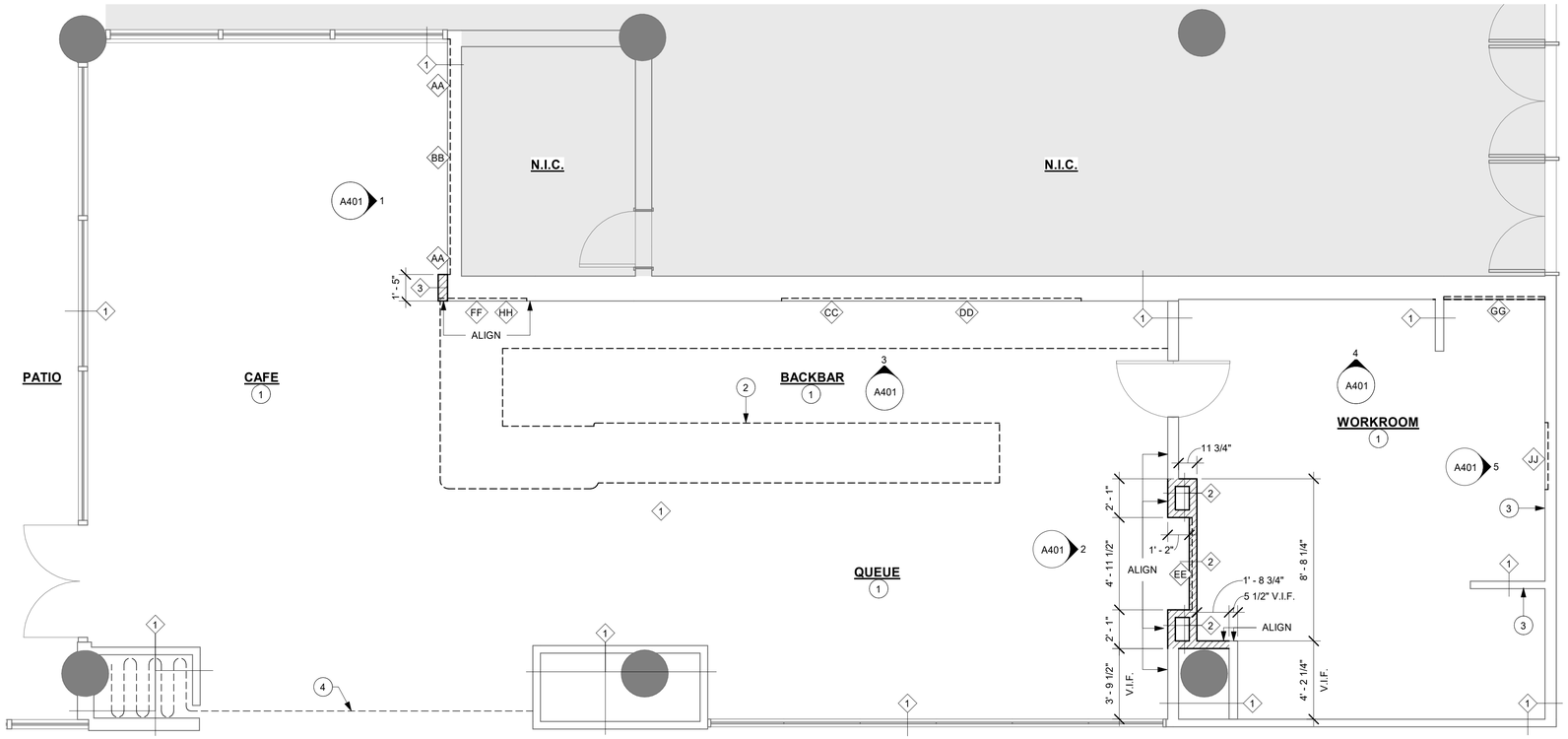
H. GENERAL CONTRACTOR TO FURNISH AND INSTALL FIRE EXTINGUISHER(S) AS REQUIRED PER CODE.

I. GENERAL CONTRACTOR TO FURNISH AND INSTALL NEW STUD FURRING AND GWB AS REQUIRED.

J. EGRESS SHALL NOT PASS THROUGH KITCHENS, STORAGE ROOMS, CLOSETS, OR SIMILAR SPACES.

K. REFER TO SHEET I105 FOR FLOOR FINISHES

GENERAL CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND COORDINATE AS NECESSARY WITH ARCHITECT OF RECORD



1 BUILDING FLOOR PLAN
Scale: 1/4" = 1'-0"

LEGEND

- NEW FULL HEIGHT WALL
- EXISTING WALL
- EXISTING COLUMN
- XX WALL BLOCKING CALL OUT

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

N

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CONVENTION CENTER

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STORE #:	28128
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DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
BUILDING FLOOR PLAN & DOOR SCHEDULE
SCALE: AS SHOWN

SHEET NUMBER:
A101

KEYED NOTES

1. ELECTRICAL STUB-UP LOCATION. REFER TO ELECTRICAL PLAN AND DETAILS FOR MORE INFORMATION.
2. PLUMBING STUB-UP LOCATION. REFER TO PLUMBING PLAN AND DETAILS FOR MORE INFORMATION.
3. FLOOR SINK LOCATION. REFER TO PLUMBING PLAN AND DETAILS FOR MORE INFORMATION.
4. EXISTING MOP SINK DRAIN LOCATION.
5. EXISTING FLOOR SINKS TO BE REMOVED.
6. DATUM INDICATES DIMENSION START POINT.

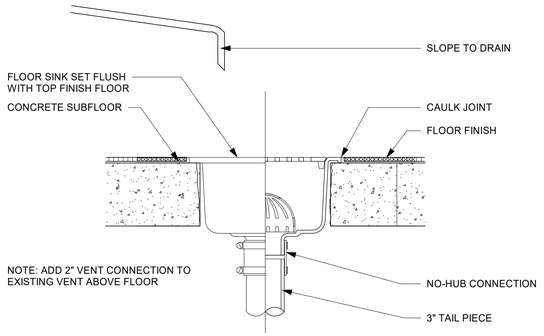
GENERAL NOTES

A. GENERAL CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT OF RECORD AND STARBUCKS PROJECT DEVELOPMENT MANAGER OF ANY KNOWN DISCREPANCIES PRIOR TO CONSTRUCTION.

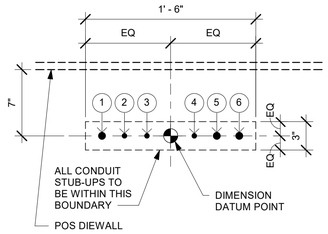
B. ALL STUB-UP DIMENSIONS ARE RELATIVE TO FINISHED WALL LOCATIONS (SHOWN AS OUTLINES ON THIS PLAN). REFER TO BUILDING FLOOR PLAN FOR WALL PLACEMENT.

C GENERAL CONTRACTOR TO COORDINATE WITH SPECIFIC TRADES AND SITE CONDITIONS TO DETERMINE ACTUAL TRENCHING LAYOUT AS REQUIRED.

D. REFER TO SHEET I105 FOR FLOOR FINISHES.



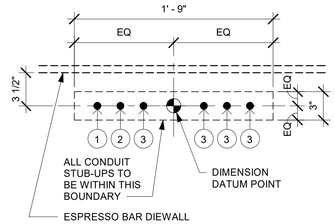
2 FLOOR SINK DETAIL
Scale: 3" = 1'-0"



POS ELECTRICAL STUB-UP KEY (MIN. DIA.)	
1	3/4" POWER CONDUIT TO ELECTRICAL PANEL
2	1" PHONE TO MANAGER'S DESK
3	1" DATA CONDUIT TO MANAGER'S DESK
4	1" SECURITY TO MANAGER'S DESK
5	1" LAN CONDUIT TO POS/SAFE
6	3/4" POWER CONDUIT FOR PASTRY CASE

NOTE: SEE SHEET A102 - BUILDING FLOOR PENETRATION PLAN FOR FINAL DIMENSIONED LOCATION.

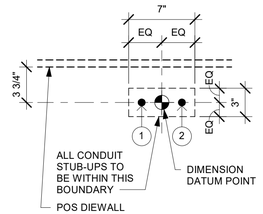
3 ELECTRICAL STUB-UPS AT POS
Scale: 1 1/2" = 1'-0"



ESPRESSO BAR ELECTRICAL STUB-UP KEY (MIN. DIA.)	
1	1" LAN CONDUIT TO MANAGER'S WORKSTATION
2	1" LAN CONDUIT TO MANAGER'S WORKSTATION
3	3/4" ISOLATED GROUND POWER CONDUIT

NOTE: SEE SHEET A102 - BUILDING FLOOR PENETRATION PLAN FOR FINAL DIMENSIONED LOCATION.

4 ELECTRICAL STUB-UPS AT ESPRESSO BAR
Scale: 1 1/2" = 1'-0"



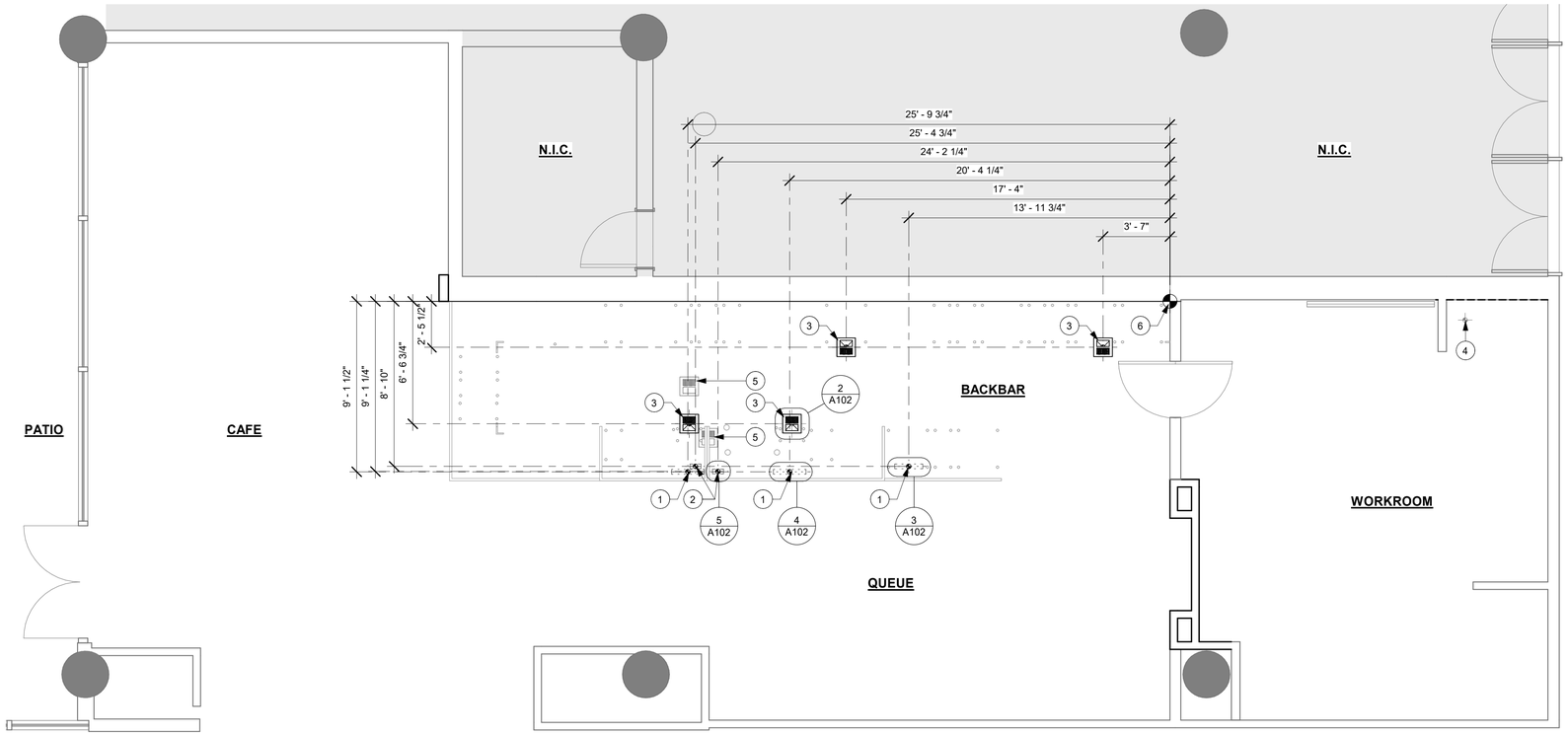
ESPRESSO BAR PLUMBING STUB-UP KEY	
1	CWF STUB-UP
2	CW STUB-UP

NOTE: SEE SHEET A102 - BUILDING FLOOR PENETRATION PLAN FOR FINAL DIMENSIONED LOCATION.

5 PLUMBING STUB-UPS AT ESPRESSO BAR
Scale: 1 1/2" = 1'-0"

PENETRATION SYMBOL LEGEND

- FLOOR SINK
- FLOOR PENETRATION
- PLUMBING PENETRATION AREA
- ELECTRICAL PENETRATION AREA
- DATUM POINT



GENERAL CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND COORDINATE AS NECESSARY WITH ARCHITECT OF RECORD.

0 2' 4' 8'
Scale: 1/4" = 1'-0"

N

1 BUILDING FLOOR PENETRATION PLAN
Scale: 1/4" = 1'-0"

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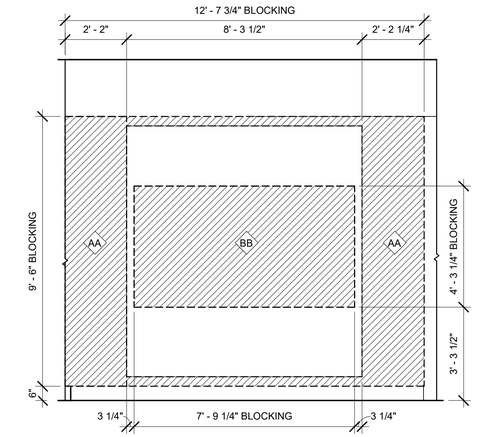
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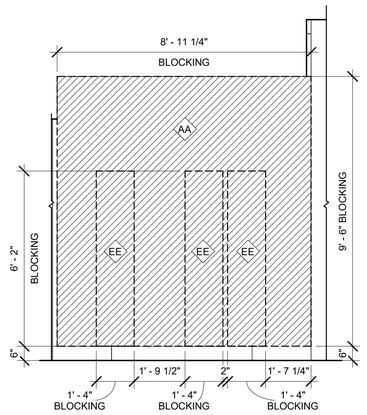
SHEET TITLE:
BUILDING FLOOR PENETRATION PLAN
SCALE: AS SHOWN

SHEET NUMBER:
A102



1 CAFE EAST ELEVATION (BLOCKING)

Scale: 3/8" = 1'-0"



2 QUEUE EAST ELEVATION (BLOCKING)

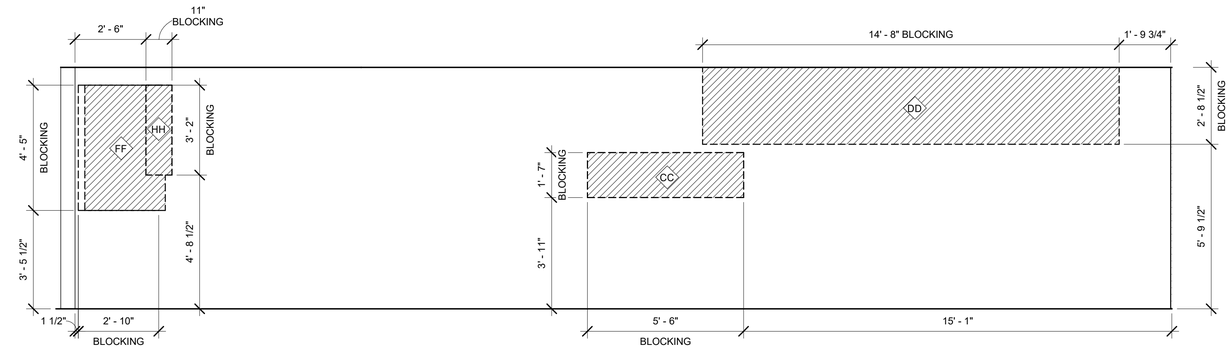
Scale: 3/8" = 1'-0"

WALL BLOCKING LEGEND

SYMBOL	ITEM	HEIGHT AFF	APPROX. WIDTH	NOTES
AA	CLADDING / WOOD TRIM	SEE BLOCKING ELEVATION	SEE BLOCKING ELEVATION	
BB	ARTWORK	3' - 3 1/2" TO 7' - 6 1/2"	7' - 9 1/4"	
CC	CBE SHELVES	3' - 11" TO 5' - 6"	5' - 6"	300 LBS
DD	MENUS	5' - 9 1/2" TO 8' - 6"	14' - 8"	
EE	MERCHANDISE	0' - 6" TO 6' - 8"	SEE BLOCKING ELEVATION	
FF	ORDER STATUS BOARD	3' - 5 1/2" TO 7' - 10 1/2"	2' - 10"	
GG	WATER FILTRATION	0' - 6" TO 8' - 10"	5' - 5"	
HH	MOP SIGN	4' - 8 1/2" TO 7' - 10 1/2"	0' - 11"	
JJ	SPC	3' - 6" TO 6' - 4"	2' - 7"	

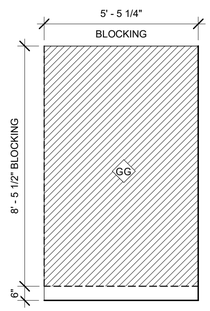
PROVIDE FIRE TREATED 2X6 OR 2X8 WOOD STUD BLOCKING AS REQUIRED TO SUPPORT ANY WALL ATTACHMENTS.

REFER TO SHEETS A401 FOR LOCATIONS OF BLOCKING, MOUNTING HEIGHTS, AND EXTENT OF BLOCKING SURFACES.



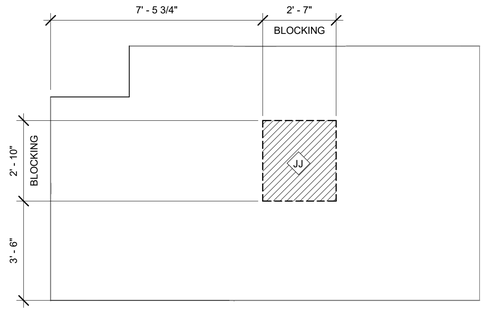
3 BACKBAR ELEVATION (BLOCKING)

Scale: 3/8" = 1'-0"



4 WORKROOM NORTH ELEVATION (BLOCKING)

Scale: 3/8" = 1'-0"



5 WORKROOM EAST ELEVATION (BLOCKING)

Scale: 3/8" = 1'-0"

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HEAPY

PROJECT NAME:
STARBUCKS RENOVATION
- GREATER COLUMBUS
CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
BLOCKING ELEVATIONS

SCALE: AS SHOWN

SHEET NUMBER:
A401

KEYED NOTES

1. INSTALL ALL FURNITURE THROUGHOUT AS SHOWN.
2. PLACE MERCHANDISE FIXTURES AND RETAIL FLOOR BASKETS PER PLAN. STORE OPERATORS TO ORDER RETAIL FLOOR BASKETS.
3. HAND SINK WITH INTEGRAL SPLASH GUARD.
4. INSTALL WALL CORNER GUARDS AS INDICATED. SEE INTERIOR FINISH ELEVATIONS.
5. GENERAL CONTRACTOR TO REVERSE HINGE ON U / C REFRIGERATOR TO LEFT HAND SWING AS SHOWN.
6. DO NOT BLOCK FOOD CASE INTAKE / EXHAUST.

GENERAL NOTES

A. THE SITE IS SERVED BY THE MUNICIPAL WATER AND SEWER SYSTEM UNLESS OTHERWISE NOTED.

B. ALL FLOOR AND WALL JUNCTIONS IN STORAGE AND PREP AREAS SHALL HAVE A COVED BASE.

C. ALL FOOD STORAGE SHALL BE AT LEAST 6" (150MM) AFF.

D. ALL WOOD SURFACES (DOORS, TRIM, SHELVES, CABINETS) SHALL BE SEALED.

E. FLOORS, WALLS AND CEILING FINISHES IN FOOD PREP AREAS SHALL BE SMOOTH, NON-TOXIC, NON- ABSORBENT, DURABLE AND EASILY CLEANABLE. PAINT SHALL BE WASHABLE AND SEMI-GLOSS OR HIGH-GLOSS FINISH.

F. ALL EQUIPMENT AND INSTALLATION WILL MEET NATIONAL SANITATION FOUNDATION STANDARDS OR EQUIVALENT.

G. ALL EQUIPMENT AND CABINETRY WILL BE FLUSH MOUNTED TO COUNTERS, WALLS OR FLOORS, OR BE RAISED TO ALLOW FOR CLEANING.

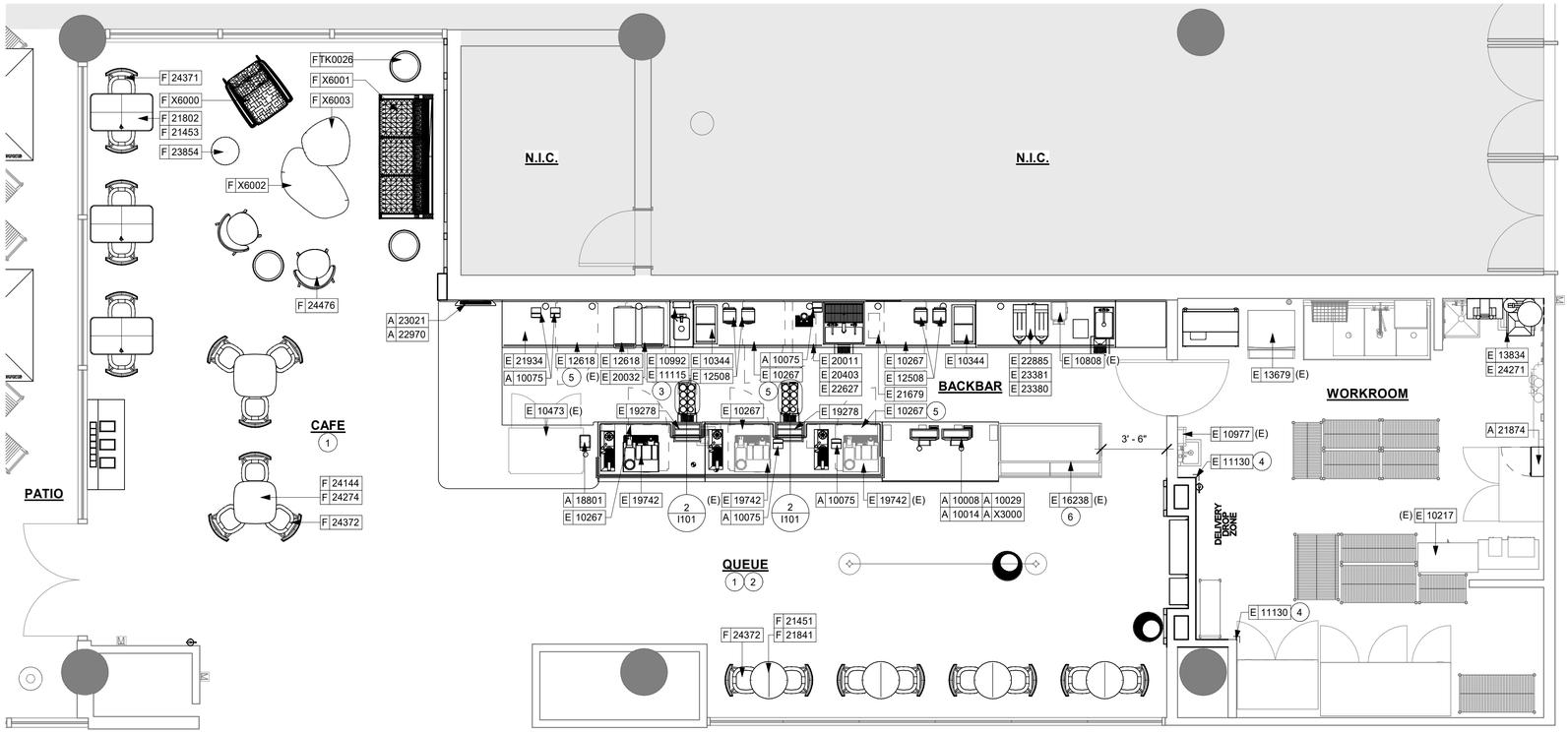
H. CONFIRM ALL NECESSARY EQUIPMENT CLEARANCES PER PRODUCT CUT SHEET (E.G. ICE MACHINE).

I. FOR LOCATION OF COUNTERTOP EQUIPMENT, REFER TO CASEWORK ELECTRICAL DETAILS.

J. EQUIPMENT UNITS SHALL CONTAIN NO EXPOSED THREADS, EMBELLISHMENTS OR OVERHANGING EDGES THAT SERVE AS PLACES FOR ACCUMULATION OF DUST, DIRT AND DEBRIS.

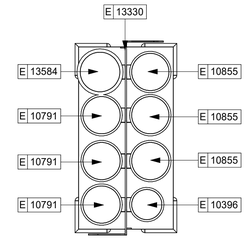
K. EACH HAND WASHING SINK WILL HAVE A SINGLE SERVICE TOWEL AND SOAP DISPENSER, AND ALL HAND SINKS TO HAVE A COMBINATION FAUCET OR PREMIXING FAUCET.

L. FOR PLUMBING FIXTURES, REFER TO THE PLUMBING DESIGN PLAN.



1 FURNITURE, FIXTURES, AND EQUIPMENT PLAN

Scale: 1/4" = 1'-0"



2 CUP CADDY DETAIL

Scale: 1 1/2" = 1'-0"

N

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PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
FF & E PLAN

SCALE: AS SHOWN

SHEET NUMBER:
I101

SPECIALTY EQUIPMENT SCHEDULE - "E"

DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
COOLING					
10267	5	FRIDGE UNDERCOUNTER 1 DOOR - 27IN 685MM	SB	GC	
12618	1	FRIDGE UNDERCOUNTER 1 DOOR WITH SHELF - 27IN 685MM	SB	GC	
20011	1	FRIDGE NITRO 2 TAP JT NITCOM RH	SB	GC	KIT INCLUDES UNDERCOUNTER FRIDGE, FONT, TRAY, AND TUBING
EQUIPMENT					
12508	4	BLENDER QUIET MODEL ON COUNTER	SB	GC	
19742	1	ESPRESSO MACHINE MASTRENA II	SB	GC	
20032	2	OVEN EIKON E2S - BLACK	SB	GC	
21679	1	NITROGEN GENERATOR ELEMENT COMPACT	SB	GC	
22885	1	BREWER CLOVER VERTICA DOUBLE	SB	GC	
23380	1	BREWER CLOVER VERTICA DOUBLE INSTALL KIT	SB	GC	
23381	1	BREWER CLOVER VERTICA DOUBLE POWER CORD	SB	GC	
ICE					
10344	2	ICE - BIN DROP IN 90LB 40KG	SB	GC	
19278	2	ICE - BIN DROP IN 45LB 20KG HORIZONTAL	SB	GC	
OTHER					
10396	2	CUP DISPENSER SHORT HOT VERTICAL	SB	GC	
10501	2	FIRE EXTINGUISHER			
10791	6	CUP DISPENSER GRANDE VENTI COLD VERTICAL	SB	GC	
10855	6	CUP DISPENSER GRANDE VENTI HOT VERTICAL	SB	GC	
10992	1	PAPER TOWEL DISPENSER HALF SIZE - TRANSLUCENT GRAY	LC	GC	
11115	1	SOAP DISPENSER SINK MOUNTED	SB	GC	
11130	2	CORNER GUARD - 0.375IN 10MM - ANODIZED ALUMINUM	GC	GC	
13330	2	MOBILE CUP DISPENSER CADDY	SB	GC	
13584	2	CUP DISPENSER TRENTA COLD VERTICAL	SB	GC	
20403	6	KEG - 3GAL	SB	GC	
22627	1	NITRO 2 TAP HANDLE WITH BADGE AND MOUNT KIT	SB	GC	JOE TAP, FOR USE AT BACKBAR NITRO FONT
STORAGE					
13834	1	BASE - 24X18IN 610X455MM	SB	SB	ITEM PROVIDED BY PENTAIR FOR USE WITH WATER FILTRATON SYSTEM
21934	1	PASTRY TRAY RACK UNDERCOUNTER - 30IN 760MM	SB	GC	
24271	1	FILTER - 20 GALLON RO SYSTEM STORAGE TANK SHELF	SB	SB	ITEM PROVIDED BY PENTAIR FOR USE WITH WATER FILTRATON SYSTEM

DATA DEVICE SCHEDULE - "A"

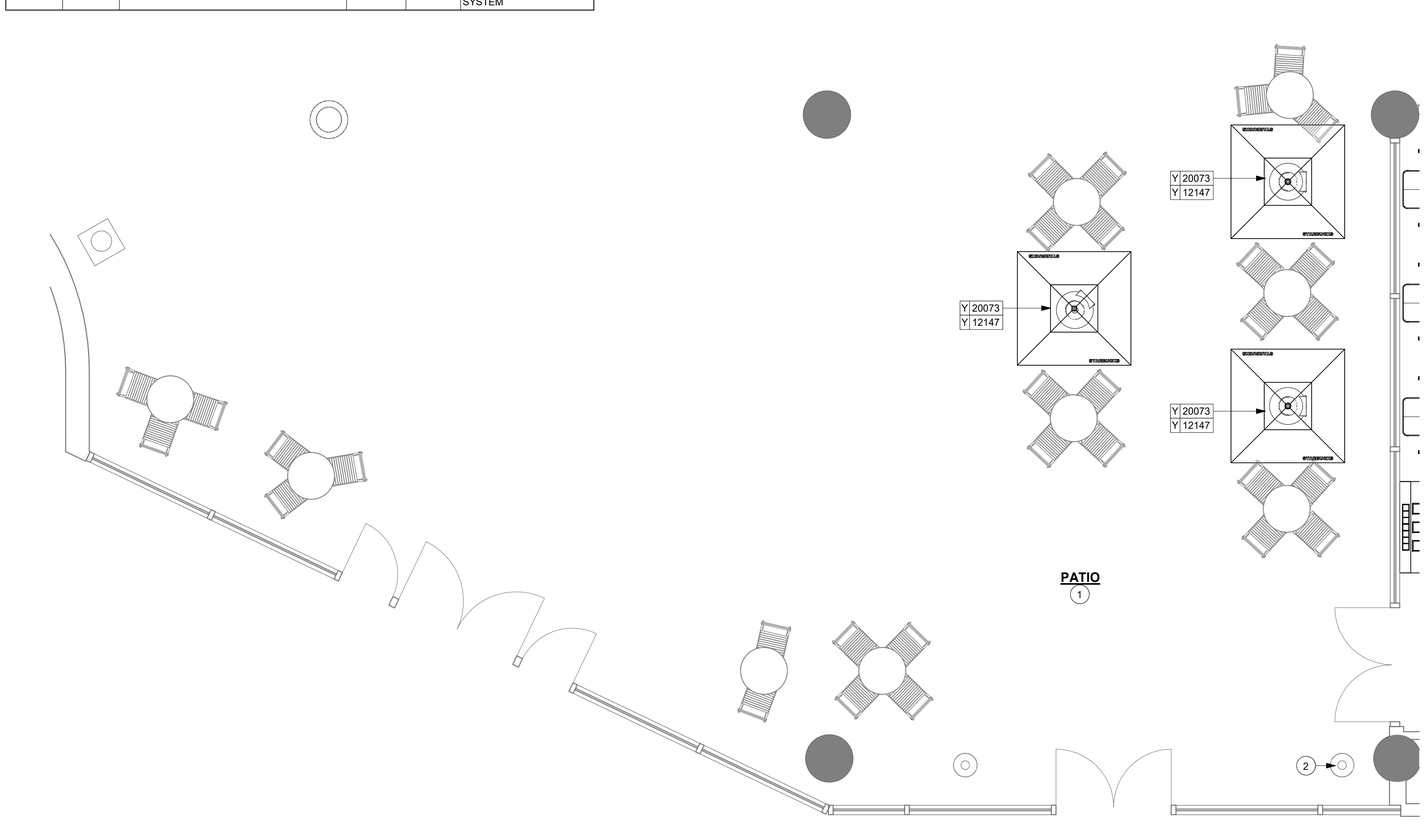
DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
AUDIO VISUAL					
18801	1	DIGITAL PRODUCTION MANAGER	SB	GC	COORDINATED BY STARBUCKS CONNECT TEAM. INCLUDES ASSOCIATED CABLES AND UPS POWER SUPPLY.
DATA					
21874	1	PRODUCTION CONTROLLER	SB	SB	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR. INCLUDES DELL WYSE 7040, SLIM LINE RETAIL CABINET RXL-4061 (AS REQUIRED FOR BOH INSTALLATION), ASSOCIATED CABLES AND UPS POWER SUPPLY.
GRAPHICS - INTERIOR MENU					
22970	1	MENU BOARD - DIGITAL DISPLAY - 44X25.25IN 1121X644MM - BLACK	SB	GC	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR.
23021	1	MENU BOARD - ORDER STATUS BOARD MOUNTING BRACKET - BLACK	SB	GC	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR.
POINT OF SALE					
10008	2	POS - REGISTER WITH COMPACT CASH DRAWER	SB	SB	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR. INCLUDES NCR POS, SCANNER, (2) NCR CASH DRAWERS FOR EACH REGISTER, CABLES, LOCK AND CYBERPOWER UPS.
10014	2	POS PRINTER	SB	SB	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR. INCLUDES RECEIPT PRINTER AND CABLES.
10029	4	POS BANK	SB	SB	
10075	5	CUP LABELER	SB	SB	COORDINATED BY STARBUCKS CONNECT TEAM. INCLUDES ASSOCIATED CABLES AND UPS POWER SUPPLY.
X3000	2	PAYMENT ENTRY DEVICE (PED)	LC	SB	PAYMENT ENTRY DEVICES ARE PROVIDED BY LC THROUGH ELAVON OR FREEDOMPAY. ALL OTHER EQUIPMENT AND PERIPHERAL DEVICES ARE PROVIDED BY STARBUCKS CONNECT VIA NCR

SIGNAGE SCHEDULE - "S"

DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	BULB	COMMENTS
SIGNAGE - OTHER						
23569	1	SIGN - MOBILE ORDER PICK UP SINGLE SIDED ILLUM INT FIXED FLUSH	SB	GC		

SITE SCHEDULE - "Y"

DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
UMBRELLA					
12147	3	UMBRELLA - BASE 95LB 43KG - FLAT BLACK MT0028	SB	GC	
20073	3	UMBRELLA - WITHOUT VALANCE - 6FT 183CM - GREEN CANVAS WITH WORDMARK F0056	SB	GC	



1 FURNITURE, FIXTURES, AND EQUIPMENT PLAN

Scale: 1/4" = 1'-0"

KEYED NOTES

1. RELOCATE EXISTING FURNITURE AS SHOWN.
2. RELOCATE EXISTING TRASH CAN AS SHOWN.

GENERAL NOTES

A. THE SITE IS SERVED BY THE MUNICIPAL WATER AND SEWER SYSTEM UNLESS OTHERWISE NOTED.

B. ALL FLOOR AND WALL JUNCTIONS IN STORAGE AND PREP AREAS SHALL HAVE A COVED BASE.

C. ALL FOOD STORAGE SHALL BE AT LEAST 6" (150MM) AFF.

D. ALL WOOD SURFACES (DOORS, TRIM, SHELVES, CABINETS) SHALL BE SEALED.

E. FLOORS, WALLS AND CEILING FINISHES IN FOOD PREP AREAS SHALL BE SMOOTH, NON-TOXIC, NON- ABSORBENT, DURABLE AND EASILY CLEANABLE. PAINT SHALL BE WASHABLE AND SEMI-GLOSS OR HIGH-GLOSS FINISH.

F. ALL EQUIPMENT AND INSTALLATION WILL MEET NATIONAL SANITATION FOUNDATION STANDARDS OR EQUIVALENT.

G. ALL EQUIPMENT AND CABINETRY WILL BE FLUSH MOUNTED TO COUNTERS, WALLS OR FLOORS, OR BE RAISED TO ALLOW FOR CLEANING.

H. CONFIRM ALL NECESSARY EQUIPMENT CLEARANCES PER PRODUCT CUT SHEET (E.G. ICE MACHINE).

I. FOR LOCATION OF COUNTERTOP EQUIPMENT, REFER TO CASEWORK ELECTRICAL DETAILS.

J. EQUIPMENT UNITS SHALL CONTAIN NO EXPOSED THREADS, EMBELLISHMENTS OR OVERHANGING EDGES THAT SERVE AS PLACES FOR ACCUMULATION OF DUST, DIRT AND DEBRIS.

K. EACH HAND WASHING SINK WILL HAVE A SINGLE SERVICE TOWEL AND SOAP DISPENSER, AND ALL HAND SINKS TO HAVE A COMBINATION FAUCET OR PREMIXING FAUCET.

L. FOR PLUMBING FIXTURES, REFER TO THE PLUMBING DESIGN PLAN.

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

RELOCATED (EXISTING) SPECIALTY EQUIPMENT SCHEDULE - "E"

DESIGN ID	COUNT	DESCRIPTION	COMMENTS
COOLING			
10473	1	FRIDGE UNDERCOUNTER 2 DOOR - 48IN 1220MM	
12618	1	FRIDGE UNDERCOUNTER 1 DOOR WITH SHELF - 27IN 685MM	
EQUIPMENT			
10808	1	GRINDER DITTING KR1203	
19742	2	ESPRESSO MACHINE MASTRENA II	
FOOD CASE			
16238	1	FOOD CASE - ZEPHYR - 66IN 1675MM	
ICE			
13679	1	ICE - MACHINE WITH BIN ICE1006HW B55 WATER COOLED	
OTHER			
10977	1	PAPER TOWEL DISPENSER FULL SIZE	
STORAGE			
10217	1	SECURITY CAGE - 38IN 965MM	

FURNITURE SCHEDULE - "F"

DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
CHAIR					
24371	6	CHAIR - CAFE SADOVE UPHOLSTERED - WALNUT AND CHARCOAL	SB	GC	
24372	14	CHAIR - STOOL BAR HEIGHT SADOVE UPHOLSTERED - WALNUT AND CHARCOAL	SB	GC	
24476	2	CHAIR - LOUNGE ARMLESS MINI CLUB - WALNUT AND NATURAL BLACK WD0077 F0046	SB	GC	
X6000	1	WESTELM TOOLKIT - MIDCENTURY SHOW WOOD HIGH-BACK LEATHER CHAIR	SB	GC	ITEM NUMBER: 6269973
OTTOMAN					
23854	1	OTTOMAN - STOUT - BLACK AND TAN BROWN WD0035 F0245	SB	GC	
SOFA					
X6001	1	WESTELM TOOLKIT - HAMILTON SOFA - BURNT SIENNA	SB	GC	ITEM NUMBER: 5942664
TABLE					
21451	4	TABLE - BASE BAR HEIGHT BOTTLE - FLAT BLACK MT0028	SB	GC	
21453	3	TABLE - BASE ACCESSIBLE BOTTLE - FLAT BLACK MT0028	SB	GC	
21802	3	TABLE - TOP ACCESSIBLE ROUND EDGE RECTANGULAR - 40X24IN 1015X610MM - WALNUT WD0077	SB	GC	
21841	4	TABLE - TOP ROUND EDGE ROUND - 24IN 610MM - WALNUT WD0077	SB	GC	
24144	2	TABLE - TOP POV SPHERIC SQUARE - 27.5IN 700MM - NOUGAT	SB	GC	TOP AND BASE HAVE SEPARATE DIDS. ORDER 1 BASE PER TOP.
24274	2	TABLE - BASE BAR HEIGHT POV 463 - NOUGAT	SB	GC	TOP AND BASE HAVE SEPARATE DIDS. ORDER 1 BASE PER TOP.
TK0026	3	TABLE - OCCASIONAL COCKTAIL COCO	SB	GC	
X6002	1	WESTELM TOOLKIT - ORGANIC MODULAR TABLE - LARGE, DARK WALNUT	SB	GC	ITEM NUMBER: 2439505
X6003	1	WESTELM TOOLKIT - ORGANIC MODULAR TABLE - SMALL, DARK WALNUT	SB	GC	ITEM NUMBER: 8066175

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STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
FF & E PLAN

SCALE: AS SHOWN

SHEET NUMBER:
I101.1

KEYED NOTES

1. DO NOT CAULK TRASH RINGS TO COUNTERTOPS.
2. INSTALL CASEWORK, COUNTERTOPS, SHELVES, CUBBIES, FINISHES, TRIM AND TABLE TOPS THROUGHOUT.
3. ALL COUNTERTOPS SHALL BE INSTALLED AT 2'-10" (860 MM) MAXIMUM A.F.F. MAX.
4. WALL FINISH BEHIND EXPOSED CABINETRY AND BELOW UNDERSIDE OF COUNTERTOP SUBSTRATE TO BE FRP.
5. VARIABLE WIDTH FILLER CABINET / COUNTERTOP REQUIRED TO FILL GAP (FIELD VERIFY DIMENSION). FILLER PANEL AND COUNTERTOP SHALL BE SCRIBED AND FIELD CUT TO FIT.
6. FLOOR SINK BELOW. CASEWORK MANUFACTURER TO COORDINATE DESIGN TO ENSURE THIS AREA IS READILY ACCESSIBLE FOR CLEANING AND FREE OF CABINET / COUNTERTOP SUPPORT.

GENERAL NOTES

A. GENERAL CONTRACTOR TO NOTIFY STARBUCKS PROJECT DEVELOPMENT MANAGER IMMEDIATELY IF A DISCREPANCY EXISTS BETWEEN CASEWORK SHOP DRAWINGS, EXISTING SITE CONDITIONS, ARCHITECTURAL DRAWINGS OR BUILT CASEWORK FIXTURES. GENERAL CONTRACTOR MUST MAINTAIN ALL "HOLD" TO DIMENSIONS SHOWN ON PLANS AND SHOP DRAWINGS.

B. STARBUCKS PROJECT DEVELOPMENT MANAGER TO COORDINATE AND SCHEDULE CASEWORK DELIVERY DATE. STARBUCKS PROJECT DEVELOPMENT MANAGER TO CONFIRM CASEWORK DELIVERY DATE WITH CASEWORK MANUFACTURER AT FOUR (4) WEEKS PRIOR AND THEN ONE (1) WEEK PRIOR TO SCHEDULED DATE OF DELIVERY.

C. STARBUCKS CONTRACTS DIRECTLY WITH CASEWORK VENDOR TO SUPPLY CASEWORK LISTED IN THE CASEWORK SCHEDULE, UNLESS NOTED OTHERWISE.

D. ALL CASEWORK BOX BASES / TOE KICKS SHALL BE SET AND LEVELED USING 1/4" (6MM) NON-ABSORBENT PLASTIC SHIMS PROVIDED BY CASEWORK VENDOR.

E. CASEWORK MANUFACTURER TO ENGINEER PROPER COUNTERTOP SUPPORT AT ESPRESSO BAR AND OTHER WORK STATIONS PER STARBUCKS MINIMUM PERFORMANCE REQUIREMENTS.

E. SEE WALL FINISH PLAN FOR LOCATION, TAGGING, AND FINISH SCHEDULES OF APPLIED WALL TREATMENTS.

F. SEE REFLECTED CEILING PLAN FOR CASEWORK SOFFIT LOCATIONS.

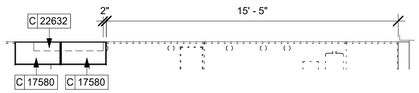
G. CASEWORK VENDOR TO PROVIDE ALL SHOP DRAWINGS TO STARBUCKS DESIGN MANAGER AND ARCHITECT OF RECORD FOR REVIEW PRIOR TO MANUFACTURE.

I. REFERENCE PLUMBING AND ELECTRICAL PLANS FOR PLACEMENT OF ELECTRICAL, DATA, AND PLUMBING ON FRONT AND BACKLINE OF BAR.

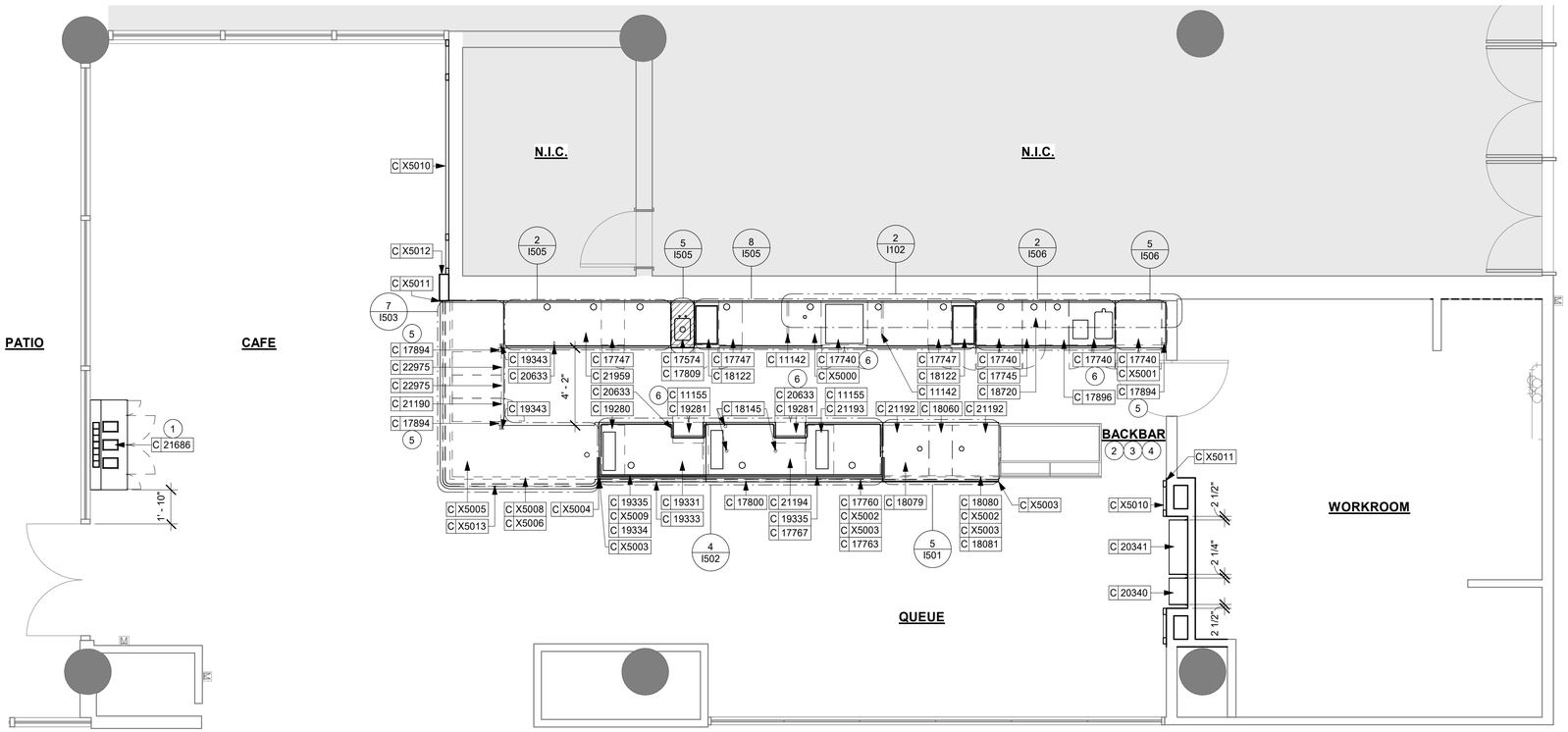
CASEWORK VENDOR TO PROVIDE ALL SHOP DRAWINGS TO STARBUCKS DM AND ARCHITECT OF RECORD FOR REVIEW PRIOR TO MANUFACTURE.

LEGEND

- INDICATES STAINLESS STEEL (SST) COUNTERTOP
- INDICATES SOLID SURFACE (SS) COUNTERTOP



2 UPPER CASEWORK PLAN
Scale: 1/4" = 1'-0"



1 CASEWORK PLAN
Scale: 1/4" = 1'-0"

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PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
CASEWORK PLAN

SCALE: AS SHOWN

SHEET NUMBER:
I102

CASEWORK SCHEDULE - "C"

DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
CABINET					
17574	1	CABINET - BACKBAR SINK OR ICE - 15IN 380MM	SB	FC	
17580	2	CABINET - CBE TEA SHELF - 29IN 735MM - FLAT BLACK MT0028	SB	GC	NOT PROVIDED BY CASEWORK VENDOR
17740	4	CABINET - BACKBAR - 30IN 760MM	SB	FC	
17745	1	CABINET - BACKBAR DRAWER - 15IN 380MM	SB	FC	
17747	3	CABINET - BACKBAR TRASH - 15IN 380MM	SB	FC	
17896	1	CABINET - BACKBAR CUBBY - 15IN 380MM	SB	FC	ADD CABINET DOOR.
18060	1	CABINET - FRONTBAR POS CUBBY - 15IN 380MM	SB	FC	
18122	2	CABINET - BACKBAR SINK OR ICE - 16IN 405MM	SB	FC	
19280	1	CABINET - ESPRESSO CUBBY WITH OPEN BACK - 15IN 380MM	SB	FC	
19281	2	CABINET - ESPRESSO ICE BIN STAINLESS - 20IN 510MM	SB	FC	
19343	2	CABINET - CORNER FIT KIT	SB	FC	
21190	1	CABINET - FRONTBAR TRASH - 15IN 380MM	SB	FC	
21192	2	CABINET - FRONTBAR POS - 30IN 760MM	SB	FC	
21193	1	CABINET - ESPRESSO CUBBY WITH OPEN BACK - 18IN 455MM	SB	FC	
22632	1	CABINET - CBE DRY INCLUSION SHELF - 44IN 1120MM - FLAT BLACK MT0028	SB	GC	NOT PROVIDED BY CASEWORK VENDOR
22975	2	CABINET - FRONTBAR DEL- 15IN 380MM	SB	FC	
CAFE					
20340	1	WALL BAY ON STANDARD 1 UNIT - 18IN 455MM - WALNUT WD0077	SB	GC	NOT PROVIDED BY CASEWORK VENDOR
20341	1	WALL BAY ON STANDARD 1 UNIT - 36IN 915MM - WALNUT WD0077	SB	GC	NOT PROVIDED BY CASEWORK VENDOR
21686	1	CONDIMENT WASTE AND RECYCLING CART THREE DROP - BLACK AND BLACK WD0035 CP0005	SB	GC	NOT PROVIDED BY CASEWORK VENDOR
COUNTERTOP					
17800	2	COUNTERTOP - FRONTBAR CAP - 114IN 2895MM	SB	FC	
17809	1	COUNTERTOP - HAND SINK WITH LOW SPLASH STAINLESS - 15IN 380MM	SB	FC	
18079	1	COUNTERTOP - POS - 75IN 1905MM	SB	FC	
18720	1	COUNTERTOP - BREW WITH TRASH DROP - LF - 90IN 2285MM	SB	FC	
19331	1	COUNTERTOP - ESPRESSO METRO - LF - 69IN 1755MM	SB	FC	
21194	1	COUNTERTOP - ESPRESSO METRO - 114IN 2895MM	SB	FC	
21959	1	COUNTERTOP - DT WARMING - LF - 108IN 2745MM	SB	FC	
X5000	1	COUNTERTOP - CBE RINSE SINK 90LB ICE BINS - CUSTOM	SB	FC	
X5001	1	COUNTERTOP - BACKBAR CORNER - CUSTOM	SB	FC	
X5005	1	COUNTERTOP - HOS - CUSTOM	SB	FC	
DIEWALL					
17760	1	DIEWALL - ESPRESSO - 114IN 2895MM	SB	FC	
18080	1	DIEWALL - POS - 75IN 1905MM	SB	FC	
19333	1	DIEWALL - ESPRESSO - 69IN 1755MM	SB	FC	
X5008	1	DIEWALL - HOS - CUSTOM	SB	FC	
FIT KIT					
17894	3	FIT KIT - CABINET FILLER PANEL	SB	FC	
OTHER					
11142	2	CORBEL SUPPORT - 24IN 610MM	SB	FC	
11155	3	ESPRESSO MACHINE PUMP MOUNT - 10X10IN 255X255MM	SB	FC	
17767	1	SNEEZE GUARD - 114IN 2895MM	SB	FC	
18145	3	COUNTERTOP SUPPORT LEG	SB	FC	
19335	2	SHROUD - 69IN 1755MM	SB	FC	
20633	3	COUNTERTOP SUPPORT LEG SLIM	SB	FC	
X5002	2	METAL T-CHANNEL TRIM AT BAR - CUSTOM	SB	FC	PROVIDED BY CASEWORK VENDOR. FINISH: MT0028
X5003	4	METAL L-CHANNEL TRIM AT BAR - CUSTOM	SB	FC	PROVIDED BY CASEWORK VENDOR. FINISH: MT0028
X5004	1	METAL FLAT BAR TRIM AT HOS - CUSTOM	SB	FC	PROVIDED BY CASEWORK VENDOR. FINISH: MT0028
X5009	1	SNEEZE GUARD - CUSTOM	SB	FC	
X5010	2	WOOD WALL TRIM	SB	FC	FINISH: WALNUT WD0077
X5011	2	SCHLUTER STRIP - JOLLY	GC	GC	FINISH: BLACK. OVERALL LENGTH: 8' - 0"
X5012	2	FRY REGLET WALL COVERING OUTSIDE CORNER TRIM	GC	GC	FINISH: BLACK. OVERALL LENGTH: 1' - 6". LONG LEAD TIME - EARLY SHIP ITEM.
X5013	2	METAL L-CHANNEL TRIM AT HOS - CUSTOM	SB	FC	PROVDED BY CASEWORK VENDOR. FINISH: MT0028
X5014	3	FRY REGLET WALL COVERING TERMINATION TRIM	GC	GC	SEE RCP FOR LOCATION. FINISH: BLACK. OVERALL LENGTHS: (2) AT 9' - 8 1/4", (1) AT 39' - 1 1/2". LONG LEAD TIME - EARLY SHIP ITEM.
PANEL					
17763	1	PANEL - ESP - 114IN 2895MM	SB	FC	
18081	1	PANEL - POS - 75IN 1905MM	SB	FC	
19334	1	PANEL - ESP - 69IN 1755MM	SB	FC	
X5006	1	PANEL - HANDOFF - CUSTOM	SB	FC	TILE FINISH PROVIDED AND INSTALLED BY GC

CASEWORK FINISH SCHEDULE

ENGINE ZONE	MATERIAL DESCRIPTION	FINISH CODE	COMMENTS
COMPOSITE - AURORA SAN REMO			
COUNTERTOPS - BACKBAR	COMPOSITE - AURORA SAN REMO	CP0113	
COUNTERTOPS - ESPRESSO	COMPOSITE - AURORA SAN REMO	CP0113	
COUNTERTOPS - FRONTBAR	COMPOSITE - AURORA SAN REMO	CP0113	
COUNTERTOPS - SHROUD	COMPOSITE - AURORA SAN REMO	CP0113	
METAL - FLAT BLACK POWDERCOAT			
CABINETS - DOOR PULL	METAL - FLAT BLACK POWDERCOAT	MT0028	
CABINETS - UNDERCOUNTER	METAL - FLAT BLACK POWDERCOAT	MT0028	
FINISH PANELS - FRONTBAR	METAL - FLAT BLACK POWDERCOAT	MT0028	
METAL L-CHANNEL	METAL - FLAT BLACK POWDERCOAT	MT0028	
METAL - STAINLESS STEEL - BRUSHED			
CABINETS - CABINET LEG	METAL - STAINLESS STEEL - BRUSHED	#4 BRUSHED 16GA	
CABINETS - UNDERCOUNTER ICE BIN	METAL - STAINLESS STEEL - BRUSHED	#4 BRUSHED 16GA	
COUNTERTOPS - HAND SINK	METAL - STAINLESS STEEL - BRUSHED	#4 BRUSHED 16GA	
PLAM - WARM BROWN GRAIN			
CABINETS - UNDERCOUNTER	PLAM - WARM BROWN GRAIN	PL0030	
WOOD - WALNUT - TAMBOUR A			
FINISH PANELS - FRONTBAR	WOOD - WALNUT - TAMBOUR A	WD0077 MAD600	

WALL TREATMENT (AREA - CASEWORK) SCHEDULE - "Q"

ENGINE ZONE	MATERIAL DESCRIPTION	FINISH CODE	AREA	COMMENTS
TILE - FIRECLAY - COLUMBIA PLATEAU - GLOSS - 12X13IN 300X330MM SHEET				
FINISH PANEL - HOS	TILE - FIRECLAY - COLUMBIA PLATEAU - GLOSS - 12X13IN 300X330MM SHEET	24373	40 SF	LONG LEAD TIME. GC/GC. GROUT: MAPEI 5226 NUTMEG. GROUT BY GC. NO SUBSTITUTIONS ALLOWED WITHOUT PRIOR SUBMITTAL APPROVAL BY STARBUCKS. SUPPLIER: FIRECLAY - starbucks@fireclaytile.com

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

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HEAPY

PROJECT NAME:
STARBUCKS RENOVATION - GREATER COLUMBUS CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
CASEWORK PLAN SCHEDULES
SCALE: AS SHOWN

SHEET NUMBER:
I102.1

LIGHTING FIXTURE SCHEDULE - "L"

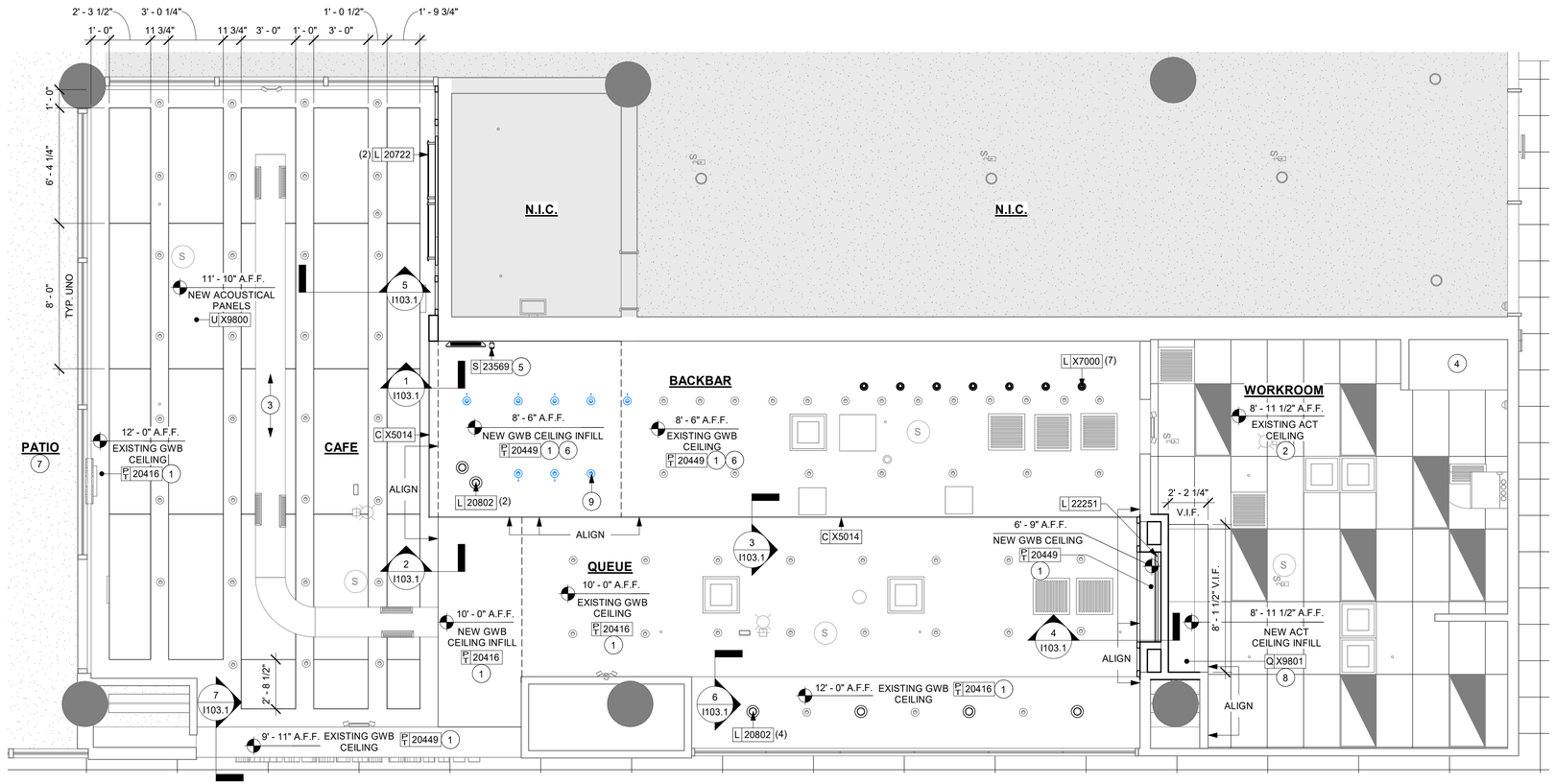
DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	BULB	COMMENTS
PENDANT						
20802	6	PENDANT - SCHOOLHOUSE ELECTRIC ISAAC - NATURAL BRASS	SB	GC	AS PACKAGED: 1X LED G25 6W E26 BASE	
RECESSED CAN						
X7000	7	CAN - LED ADJUSTABLE RECESSED - ACUITY AIMING ELBOW JUNO 449 WHITE	SB	GC		CATALOG NUMBER: 449 WH
SCONCE						
20722	2	SCONCE - JUNIPER THIN - 36IN 915MM - SATIN BRASS	SB	GC	INTEGRATED LED	
STRIP						
22251	1	STRIP - LED TAPE IN HOUSING - VARIABLE LENGTH - WHITE - 800LM PER FT	SB	GC	INTEGRATED LED	FIELD TRIMMABLE TO 1.97IN LENGTHS. LENGTH: 4'-11"

CEILING TREATMENT SCHEDULE - "U"

DESIGN ID	AREA	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
OTHER					
X9800	419 SF	ACOUSTICAL CEILING PANELS	SB	GC	FSORB PANEL. 1" THICKNESS, 0.70 NRC; COLOR: CHESTNUT FS-810. STICK PIN ATTACHMENT METHOD
X9801	18 SF	ACT - MATCH EXISTING	GC	GC	

PAINT SCHEDULE

DESIGN ID	DESCRIPTION	LRV	FURN. BY	INST. BY	COMMENTS
20416	SW6102 PORTABELLO	21	GC	GC	
20449	SW7048 URBANE BRONZE	8	GC	GC	



1 REFLECTED CEILING PLAN

Scale: 1/4" = 1'-0"

KEYED NOTES

1. GWB SOFFIT WITH SMOOTH FINISH (PAINT AS SCHEDULED).
2. WASHABLE CEILING TILE LOCATED IN BACK OF HOUSE.
3. PAINT EXISTING EXPOSED DUCT WORK DID: 20416/SW6102 PORTABELLO.
4. PLATFORM FOR EXISTING WATER HEATER AND WATER FILTRATION EQUIPMENT. LIFT CEILING IN THIS AREA ONLY TO ENSURE ADEQUATE CLEARANCES FOR SERVICING.
5. BUILDING SIGNAGE. SEE ELEVATIONS FOR ADDITIONAL INFORMATION.
6. ADJUST FOCUS OF ALL RECESSED DIRECTIONAL LIGHTING TO FULLY ILLUMINATE MENU BOARDS, MERCHANDISE BAYS, AND ARTWORK.
7. EXISTING PATIO CEILING FINISH AND LIGHTING TO REMAIN.
8. NEW ACT INFILL IN WORKROOM TO MATCH EXISTING. ALIGN WITH EXISTING LAYOUT.
9. RELOCATED RECESSED CANS.

GENERAL NOTES

A. IF REQUIRED BY LOCAL CODE, GENERAL CONTRACTOR TO PROVIDE SEMI-RECESSED SPRINKLER HEADS WITH POLISHED CHROME ESCUTCHEONS CENTERED IN ACOUSTICAL CEILING TILE. IF PENDANT HEADS ARE REQUIRED IN GWB SOFFIT OVER FRONTBAR, CONCEAL SUPPLY PIPING WITHIN SOFFIT.

B. GENERAL CONTRACTOR TO PROVIDE AND INSTALL SPRINKLERS PER APPROVED AOR LAYOUT AND LOCAL CODE. CONTACT ARCHITECT OF RECORD AND STARBUCKS PROJECT DEVELOPMENT MANAGER IF DESIGN INTENT IS AFFECTED.

C. LEAVE TEN (10) ADDITIONAL RETAIL CEILING TILES TO MATCH RETAIL CEILING PAINT COLOR ABOVE THE WORKROOM CEILING FOR FUTURE USE.

D. PROVIDE GROMMET AT ACOUSTIC CEILING TILE PENETRATIONS FOR FIXTURES OR SUPPORTS.

F. DIFFUSERS AND RETURNS IN ACOUSTICAL CEILING TO BE CENTERED IN TILE, UNLESS NOTED OTHERWISE.

G. PAINT ALL EXPOSED HVAC DUCTS, HVAC DIFFUSERS, RECESSED SPEAKERS, LIGHT TRIM RINGS, PIPING, CONDUIT AND JUNCTION BOXES THE SAME COLOR AS SPECIFIED ON SURROUNDING CEILING OR SOFFIT UNLESS NOTED OTHERWISE, TYPICAL THROUGHOUT RETAIL AREA OF STORE.

H. PAINT SUBSTITUTIONS ARE NOT ALLOWED. USE STARBUCKS NATIONAL SHERWIN WILLIAMS ACCOUNT "COLOR CODE" WHEN ORDERING PAINTS.

I. EMERGENCY LIGHTS AND EXIT SIGNS TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR.

J. BALLAST BOXES, TRANSFORMERS, JUNCTION BOXES, AND WIRING FOR ALL LIGHT FIXTURES TO BE INSTALLED SO AS TO BE HIDDEN FROM VIEW.

LEGEND

- ELEVATION DATUM
- PENDANT LIGHT
- ADJUSTABLE RECESSED CAN LIGHT
- TROFFER
- WALL SCONCE
- EXIT SECURITY LIGHT
- SUPPLY AIR
- RETURN AIR

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

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HEAPY

PROJECT NAME:
STARBUCKS RENOVATION
- GREATER COLUMBUS
CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

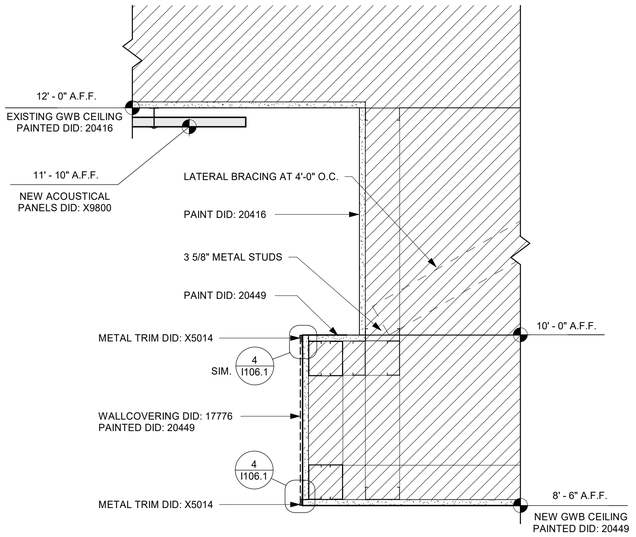
STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

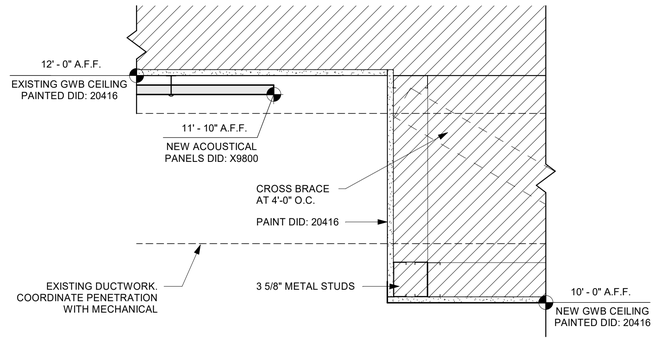
SHEET TITLE:
REFLECTED CEILING PLAN
SCALE: AS SHOWN

SHEET NUMBER:
I103



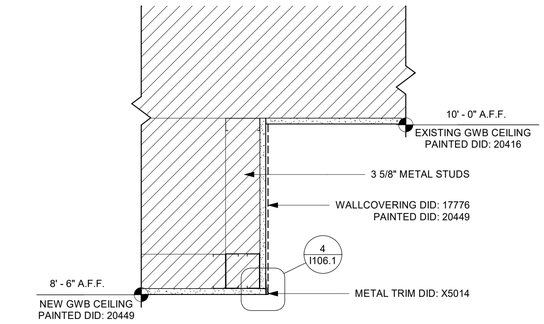
1 ENGINE/CAFE CEILING SECTION

Scale: 1 1/2" = 1'-0"



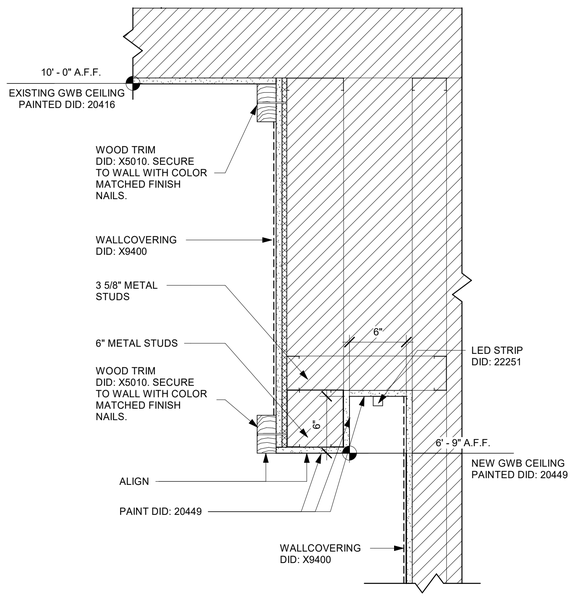
2 QUEUE CEILING SECTION A

Scale: 1 1/2" = 1'-0"



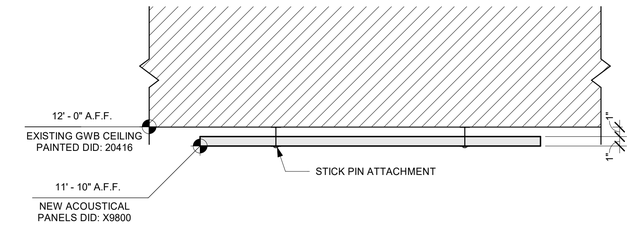
3 ENGINE/QUEUE CEILING SECTION

Scale: 1 1/2" = 1'-0"



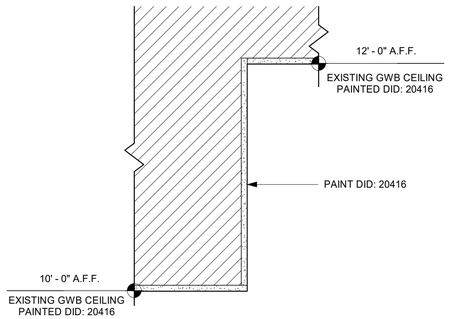
4 MERCH CEILING SECTION

Scale: 1 1/2" = 1'-0"



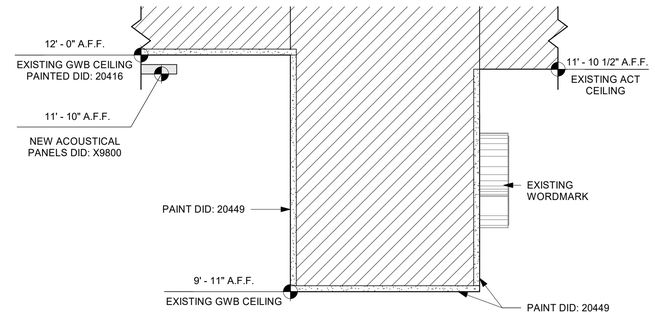
5 ACOUSTICAL PANEL SECTION

Scale: 1 1/2" = 1'-0"



6 QUEUE CEILING SECTION B

Scale: 1 1/2" = 1'-0"



7 STOREFRONT HEADER SECTION

Scale: 1 1/2" = 1'-0"

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HEAPY

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- GREATER COLUMBUS
CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

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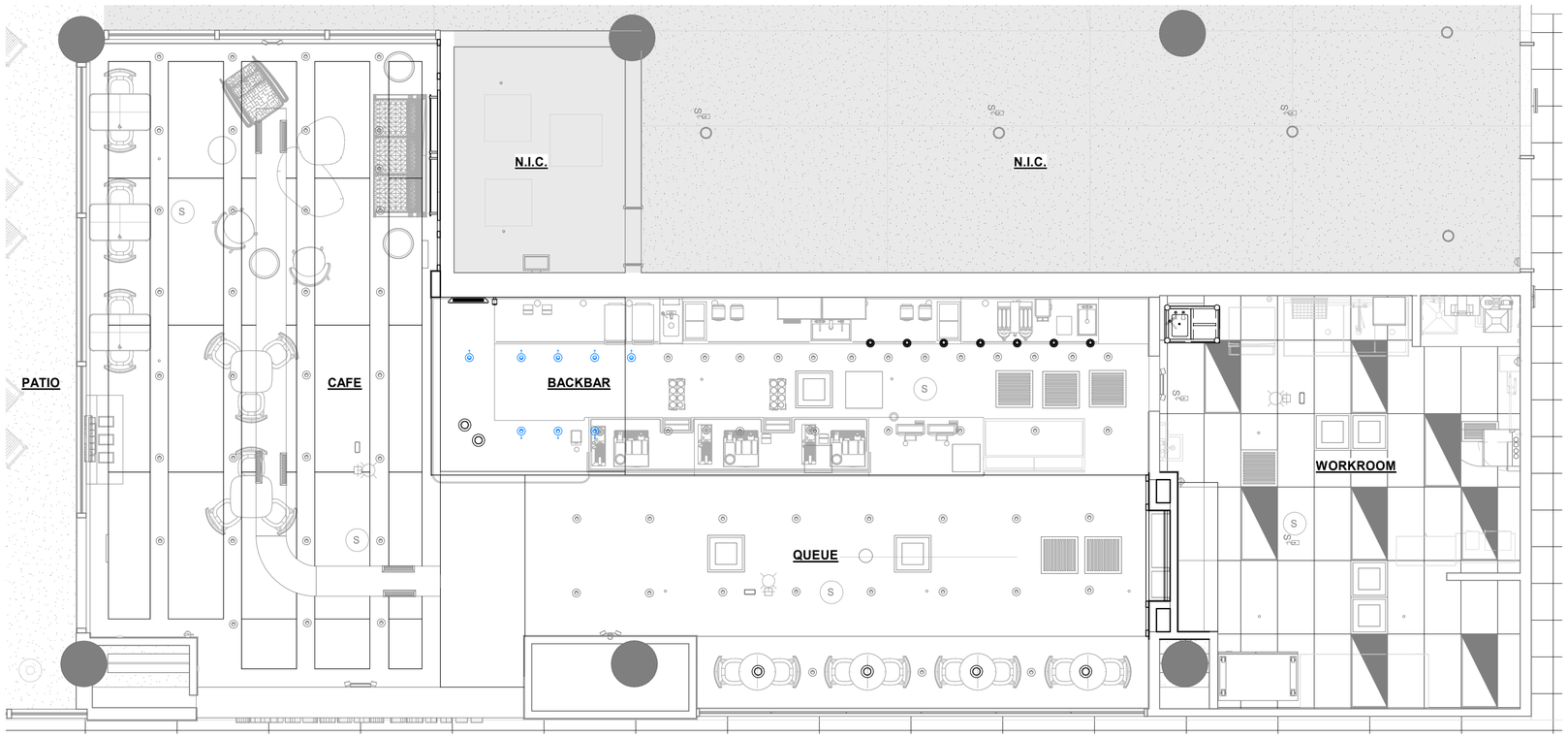
Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
RCP DETAILS

SCALE: AS SHOWN

SHEET NUMBER:
I103.1



1 LIGHTING PLACEMENT PLAN
Scale: 1/4" = 1'-0"

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HEAPY

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- GREATER COLUMBUS
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ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
LIGHTING PLACEMENT PLAN
SCALE: AS SHOWN

SHEET NUMBER:
I103.2

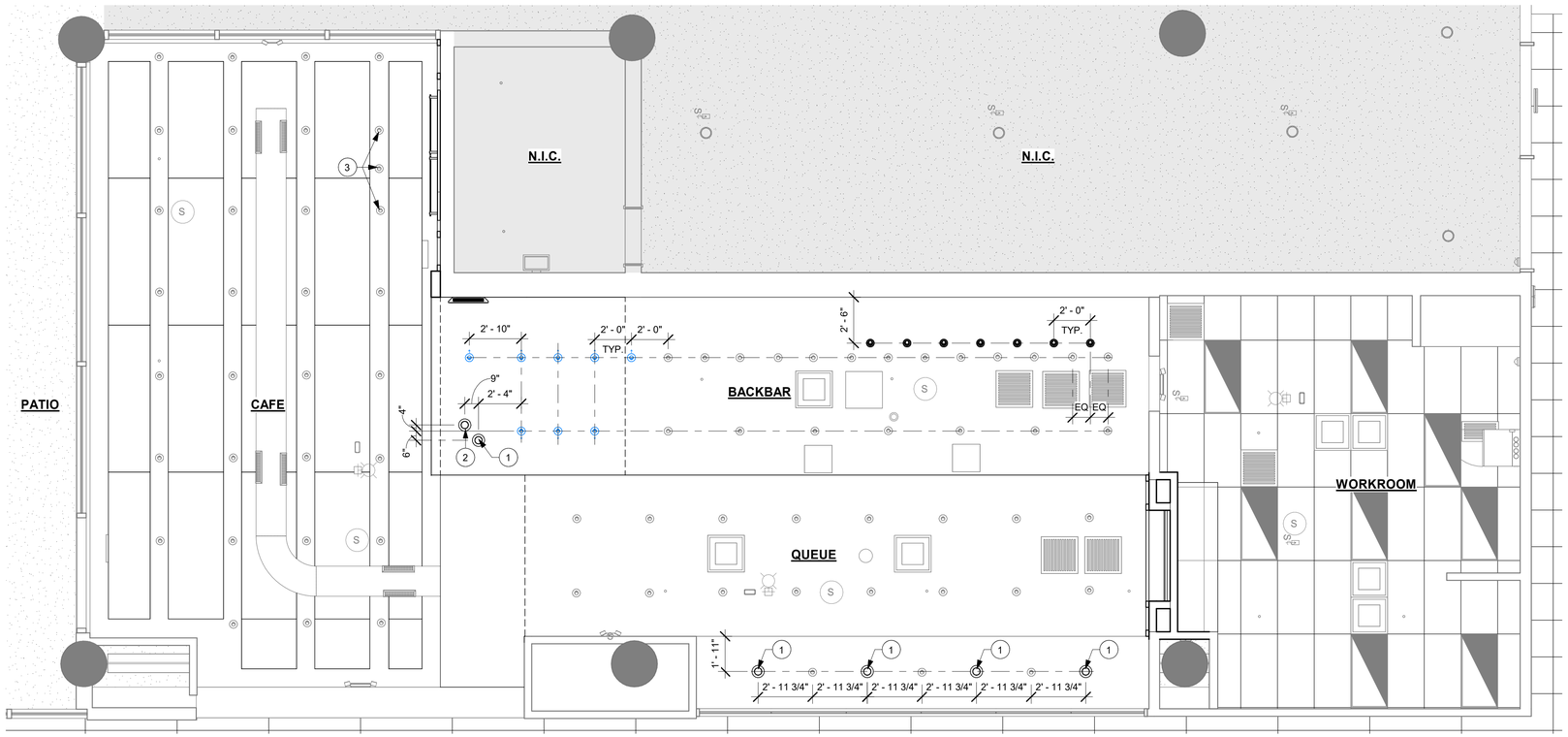
KEYED NOTES

1. SUSPEND BOTTOM OF PENDANT LIGHT FIXTURE AT 6' - 0" AFF, TYPICAL.
2. SUSPEND BOTTOM OF PENDANT LIGHT FIXTURE AT 6' - 6" AFF, TYPICAL.
3. LIGHT FIXTURES TO BE AIMED AT ARTWORK BY GC.

GENERAL NOTES

B. DIFFUSERS AND RETURNS IN ACOUSTICAL CEILING TO BE CENTERED IN TILE, UNLESS OTHERWISE NOTED.

C. EMERGENCY LIGHTS AND EXIT SIGNS TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR.



1 LIGHTING DIMENSION PLAN
Scale: 1/4" = 1'-0"

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HEAPY

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- GREATER COLUMBUS
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PRODUCTION DESIGNER:	MAV
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Revision Schedule

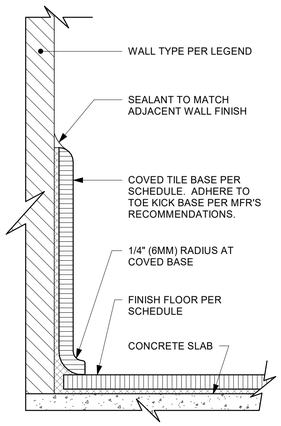
Rev	Date	By	Description

SHEET TITLE:
LIGHTING DIMENSION PLAN
SCALE: AS SHOWN

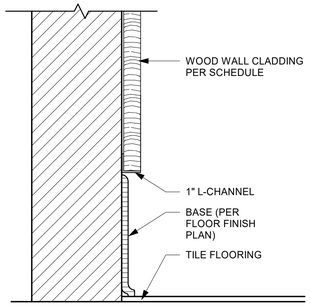
SHEET NUMBER:
I104

WALL BASE SCHEDULE - "B"

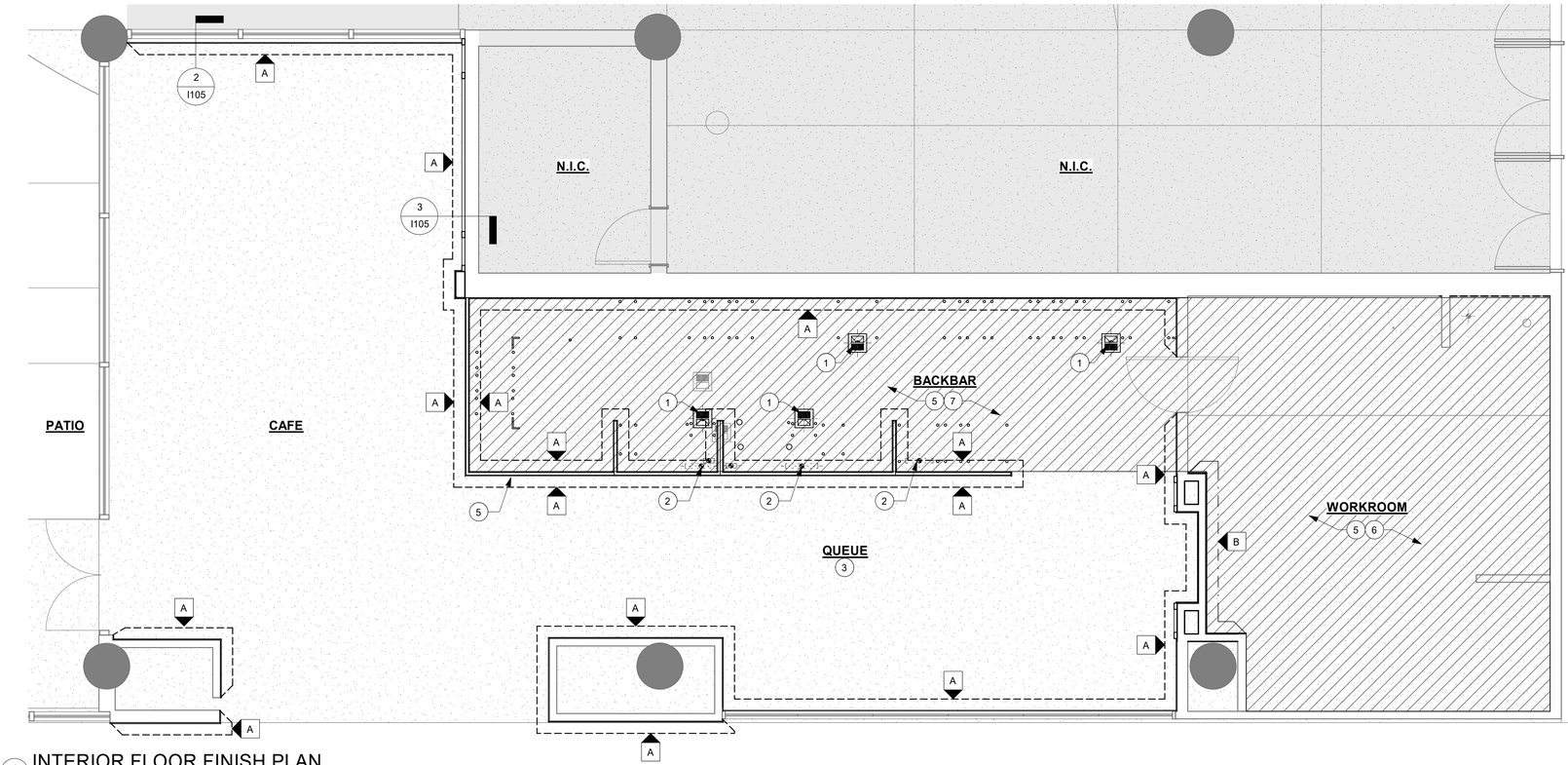
DESIGN ID	LENGTH	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
TILE BASE					
11434	11' - 10 1/4"	TILE BASE - WORKROOM	GC	GC	GROUT BY GC. LOCALLY SOURCED
18740	255' - 11 3/4"	TILE BASE - PLAZA NOVA - BLACK SHADOW - 6X12IN 150X300MM	GC	GC	GROUT: MAPEI - 10 BLACK. GROUT BY GC. NO SUBSTITUTIONS ALLOWED WITHOUT PRIOR SUBMITTAL APPROVAL BY STARBUCKS. SUPPLIER: DALTILE - CARL CHITWOOD - carl.chitwood@daltile.com



2 TOP SET TILE BASE AT WALL
Scale: 6" = 1'-0"



3 TOP SET TILE BASE AT WOOD CLADDING
Scale: 3" = 1'-0"



1 INTERIOR FLOOR FINISH PLAN
Scale: 1/4" = 1'-0"

KEYED NOTES

1. FLOOR SINK LOCATION. SEE BUILDING FLOOR PENETRATION PLAN ON SHEET A102 AND PLUMBING FOR ADDITIONAL INFORMATION.
2. RECESSED ELECTRICAL. SEE BUILDING FLOOR PENETRATION PLAN ON SHEET A102 AND ELECTRICAL FOR ADDITIONAL INFORMATION.
3. EXISTING FLOORING TO REMAIN. GC TO PATCH AND REPAIR AS REQUIRED, MATCH EXISTING.
5. NEW EPOXY FLOOR IN AREA OF HATCH. BASIS OF DESIGN: SHERWIN WILLIAMS RESUFLOR 3580, CHARCOAL 53.
6. AREA TO RECEIVE INTEGRAL COVE BASE. BASIS OF DESIGN: RESUFLOR COVE REZ BASE.
7. AREA TO RECEIVE TILE BASE.

GENERAL NOTES

A. GENERAL CONTRACTOR TO SUPPLY RETAIL AREA AND WORKROOM FLOOR TILE AND TILE BASE, UNLESS OTHERWISE NOTED. GENERAL CONTRACTOR TO INSTALL. GENERAL CONTRACTOR TO SUPPLY AND INSTALL MORTAR, ADHESIVE, AND GROUT. GENERAL CONTRACTOR TO INSPECT ALL TILES AND REJECT DAMAGED OR SUBSTANDARD TILES PRIOR TO INSTALLATION.

B. ALL FLOORING AND BASE MATERIAL TO BE INSTALLED ACCORDING TO SPECIFICATIONS AND MANUFACTURER'S INSTALLATION REQUIREMENTS.

C. ALIGN TILE TRANSITIONS ON WHOLE TILES WHERE POSSIBLE.

D. TILE BASE AND THRESHOLD GROUT JOINTS TO ALIGN WITH TILE FLOOR GROUT JOINTS.

E. PROVIDE GROUT JOINT OF 3/16" (5MM). MAXIMUM DEVIATION OF TILE AND GROUT LINE OF 1/4" (6MM) PER 48" (122OMM).

F. ALL FLOOR AND WALL JUNCTIONS IN STORAGE AND FOOD PREPARATION AREAS SHALL HAVE A 6" COVED BASE.

FLOOR FINISH LEGEND

- INDICATES TILE BASE DID: 18740 (A)
- INDICATES TILE BASE DID: 11434 (B)
- DATUM POINT
- AREA OF NEW EPOXY FLOOR FINISH

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

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CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
INTERIOR FLOOR FINISH PLAN
SCALE: AS SHOWN

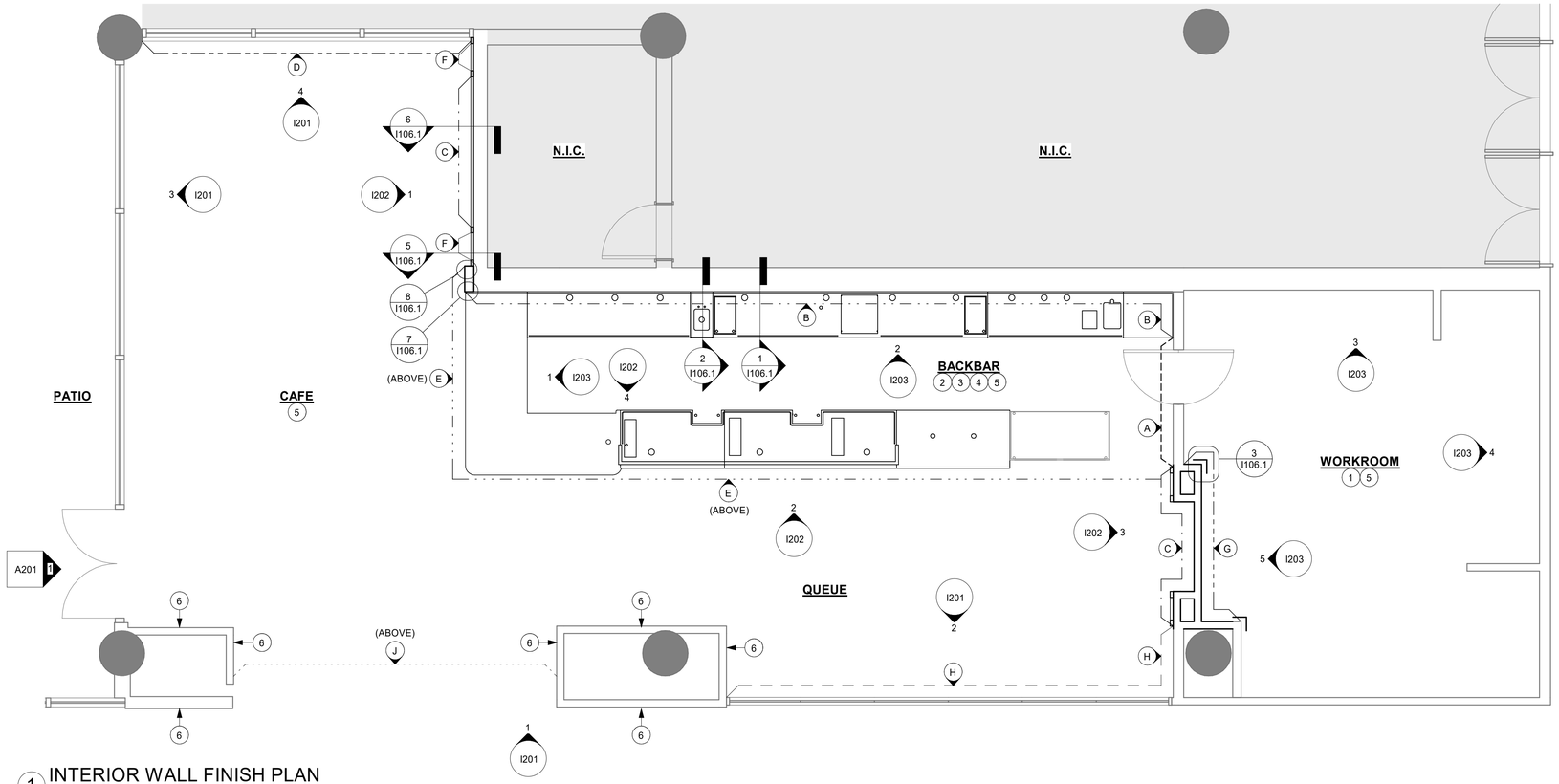
SHEET NUMBER:
I105

WALL TREATMENT (AREA) SCHEDULE - "Q"

DESIGN ID	AREA	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
PLASTIC					
11469	232 SF	FRP - WHITE	GC	GC	
TILE					
23778	268 SF	TILE - COLOR STUDIO - BROWN - BRICK MOSAIC - 12X12IN 300X300MM SHEET	GC	GC	GROUT: MAPEI - 5007 CHOCOLATE, GROUT BY GC. NO SUBSTITUTIONS ALLOWED WITHOUT PRIOR SUBMITTAL APPROVAL BY STARBUCKS. SUPPLIER: STONEPEAK CERAMICS - LAUREN BORRE - (312) 506-2115 - lborre@stonepeakceramics.com. POTENTIAL LONG LEAD ITEM.
WALL COVERING					
17776	323 SF	WALL TEXTURE - TEXTURGLAS - TG53 CRISS CROSS	SB	GC	PAINTED DID: 20416 / SW6102 PORTABELLO & DID: 20449 / SW7048 URBANE BRONZE. SEE WALL FINISH PLAN & INTERIOR ELEVATIONS FOR LOCATION.
X9400	233 SF	WALLCOVERING - MOMENTUM - WOODS - QUARTERED BLACK WALNUT	SB	GC	VERTCIAL GRAIN. MOMENTUM SWS-25. SUPPLIER: MOMENTUM TEXTILES -LANETTE ALLEN - lallen@momtex.com
WOOD					
X9401	27 SF	WOOD WALL CLADDING - WALNUT TAMBOUR A - WD0077 MAD600	SB	GC	PROVIDED BY CASEWORK VENDOR.

PAINT SCHEDULE

DESIGN ID	DESCRIPTION	LRV	FURN. BY	INST. BY	COMMENTS
20416	SW6102 PORTABELLO	21	GC	GC	
20449	SW7048 URBANE BRONZE	8	GC	GC	



1 INTERIOR WALL FINISH PLAN
Scale: 1/4" = 1'-0"

KEYED NOTES

1. INSTALL METAL CORNER GUARDS WHERE INDICATED IN WORKROOM. MOUNT AT 6" (1500MM) AFF. AFFIX WITH #6 STAINLESS STEEL OVAL HEAD SCREWS, 3" (75MM) FROM ENDS AND 12" (305MM) ON CENTER. OFFSET SCREWS ON EITHER SIDE BY 1/2" (10MM) VERTICALLY. SEE SPECIALTY EQUIPMENT SCHEDULE.
2. GENERAL CONTRACTOR TO PROVIDE AND INSTALL FRP WALL FINISH BEHIND CASEWORK CABINETRY IN AREAS BELOW COUNTERTOP HEIGHT.
3. SEE INTERIOR FINISH ELEVATIONS FOR FULL EXTENT OF BACK BAR WALL TILE.
4. BACK BAR WALL TILE TO BE INSTALLED IN "STACKED" PATTERN.
5. GENERAL CONTRACTOR TO PROVIDE FIRE TREATED WOOD STUD BLOCKING AS REQUIRED TO SUPPORT ANY WALL ATTACHMENTS. SEE BUILDING FLOOR PLAN SHEET A101 FOR MORE INFORMATION.
6. EXISTING WOOD CLADDING TO REMAIN AND RESTAINED TO MATCH WD0077.

GENERAL NOTES

A. GENERAL CONTRACTOR TO PATCH AND REPAIR ANY DAMAGE TO EXISTING WALLS TO A SMOOTH, PAINT READY SURFACE PRIOR TO PAINTING.

B. FLOORS, WALLS, AND CEILING FINISHES IN FOOD PREPARATION AREAS SHALL BE SMOOTH, NON-TOXIC, NON-ABSORBENT, DURABLE, AND EASILY CLEANABLE. PAINT IN THESE AREAS SHALL BE WASHABLE, SEMI-GLOSS OR HIGH-GLOSS FINISH.

C. CHANGE OF PAINT COLOR ONLY AT INSIDE CORNERS, UNLESS NOTED OTHERWISE.

D. PAINT SUBSTITUTIONS ARE NOT ALLOWED. USE STARBUCKS NATIONAL SHERWIN WILLIAMS ACCOUNT "COLOR CODE" WHEN ORDERING PAINTS.

E. PAINT FINISHES SHALL BE APPLIED AS FOLLOWS, UNLESS NOTED OTHERWISE:
   1) WOOD AND METAL SURFACES SHALL BE SEMI-GLOSS OR EQUAL.
   2) ACCENT AND TRIM PAINTS TO BE SEMI-GLOSS OR EQUAL.
   3) WALL AND CEILING PAINTS TO BE EGGSHELL OR EQUAL.
   4) PAINTS IN WORKROOM, RESTROOM(S), OR CAFE BAR SHALL BE SEMI-GLOSS EQUAL.

F. WORKROOM TO BE FINISHED PER LOCAL CODE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL WORKROOM WALL FINISHES.

G. ALL WOOD SURFACES (DOORS, TRIM, SHELVES, CABINETRY, ETC.) SHALL BE SEALED.

H. REFER TO INTERIOR FINISH ELEVATIONS FOR PAINT COLOR, ARTWORK, AND GRAPHICS LOCATIONS.

I. GENERAL CONTRACTOR TO INSTALL WALL BLOCKING AND HANGERS FOR WALL SHELVING BEFORE INSTALLING BACK BAR WALL TILE.

WALL TREATMENT LEGEND

- A — INDICATES FULL HEIGHT BACKBAR TILE DID: 23778*
- B — INDICATES BACKBAR WALL TILE DID: 23778 ABOVE COUNTERTOPS WITH FRP DID: 11469 BELOW* (SEQUENCE BACKBAR WALL TILE TO FOLLOW COUNTERTOP INSTALL. REFER TO DETAIL #1 ON SHEET I106.1)
- C — WALLCOVERING DID: X9400*
- D — INDICATES WALLCOVERING DID: 17776 PAINTED DID: 20416 / SW6102 PORTABELLO*
- E — INDICATES WALLCOVERING DID: 17776 PAINTED DID: 20449 / SW7048 URBANE BRONZE*
- F — INDICATES WOOD CLADDING DID: X9401*
- G — INDICATES FRP DID: 11469*
- H — INDICATES PAINT DID: 20416 / SW6102 PORTABELLO *
- J — INDICATES PAINT DID: 20449 / SW7048 URBANE BRONZE*
- INDICATES STAINLESS STEEL CORNER GUARD FOR BOH OR HOT ROLLED STEEL CORNER GUARD FOR CAFE SPACE. INSTALL 6" (150mm) TO 42" (1065mm) AFF UNLESS OTHERWISE NOTED.

* SEE INTERIOR FINISH ELEVATIONS FOR TAGGED LOCATION OF WALL FINISH MATERIAL.

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

N

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HEAPY

PROJECT NAME:
STARBUCKS RENOVATION
- GREATER COLUMBUS
CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

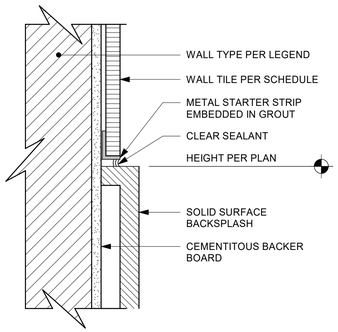
STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

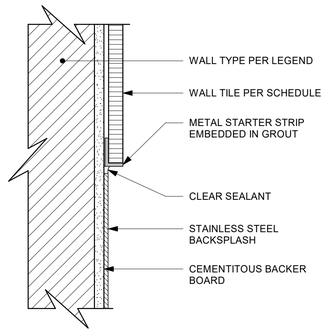
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SHEET TITLE:
INTERIOR WALL FINISH PLAN
SCALE: AS SHOWN

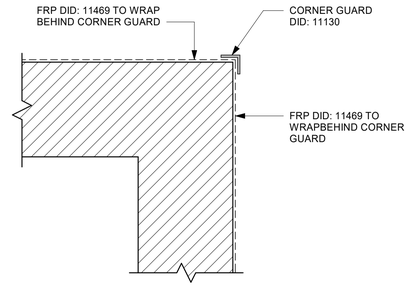
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I106



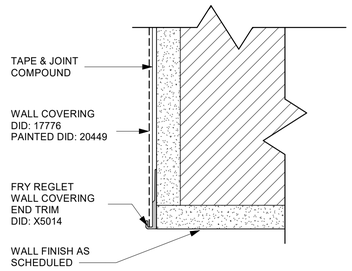
1 SS BACKSPLASH TO TILE TRANSITION
Scale: 6" = 1'-0"



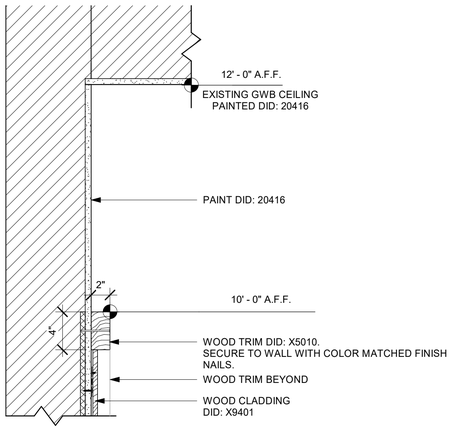
2 SST BACKSPLASH TO TILE TRANSITION
Scale: 6" = 1'-0"



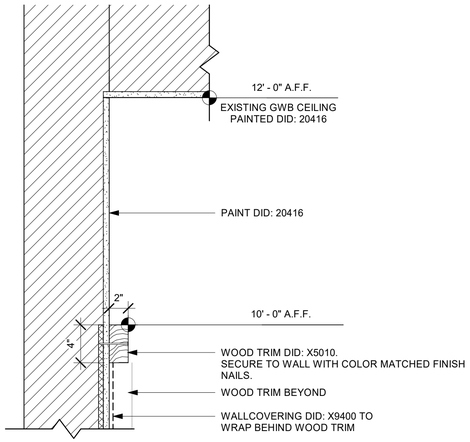
3 CORNER GUARD DETAIL - WORKROOM
Scale: 3" = 1'-0"



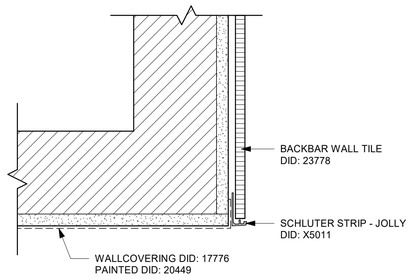
4 FRY REGLET END TRIM CORNER DETAIL
Scale: 6" = 1'-0"



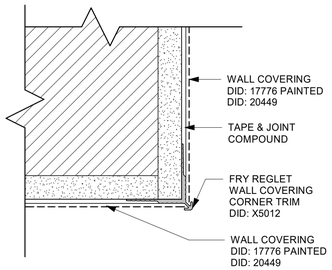
5 WOOD TRIM & CLADDING SECTION
Scale: 1 1/2" = 1'-0"



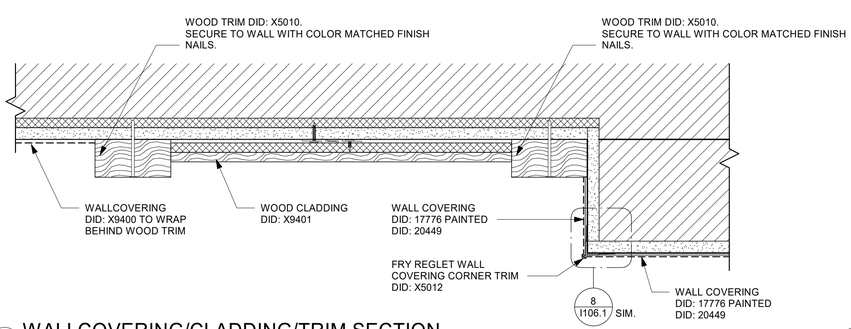
6 WOOD TRIM & WALLCOVERING SECTION
Scale: 1 1/2" = 1'-0"



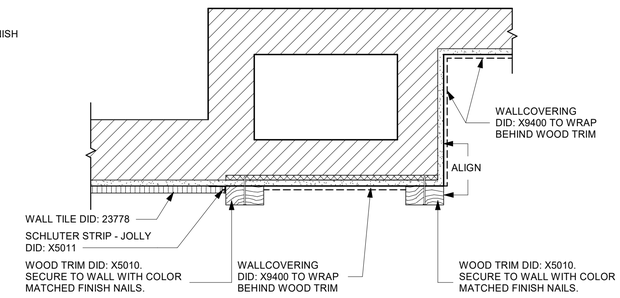
7 TILE / WALL COVERING TRANSITION
Scale: 3" = 1'-0"



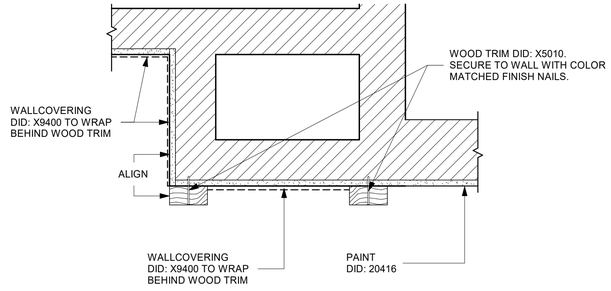
8 FRY REGLET CORNER DETAIL
Scale: 6" = 1'-0"



9 WALLCOVERING/CLADDING/TRIM SECTION
Scale: 3" = 1'-0"



10 TILE/TRIM/WALLCOVERING SECTION
Scale: 1 1/2" = 1'-0"



11 WOOD TRIM/WALLCOVERING SECTION
Scale: 1 1/2" = 1'-0"

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HEAPY

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STARBUCKS RENOVATION - GREATER COLUMBUS CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

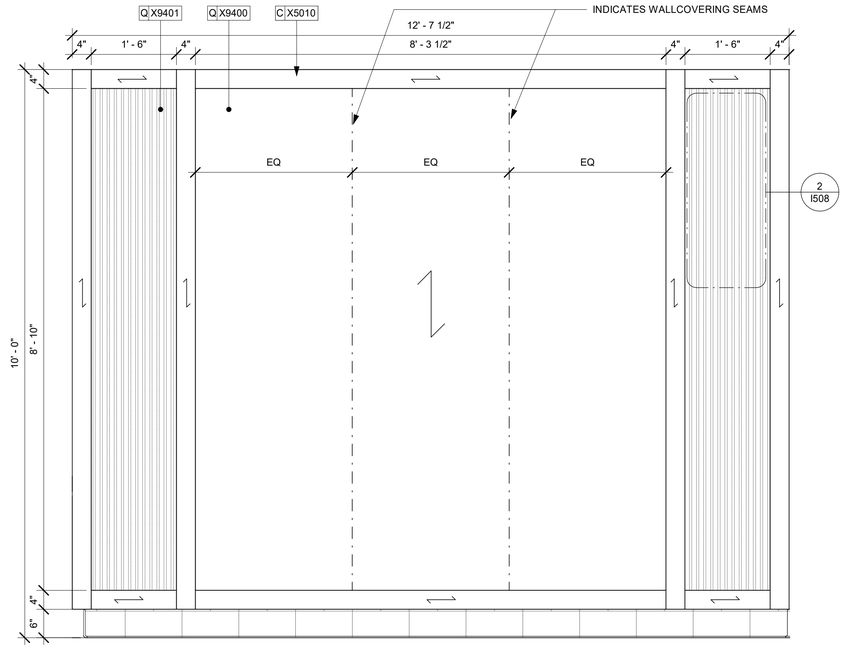
STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

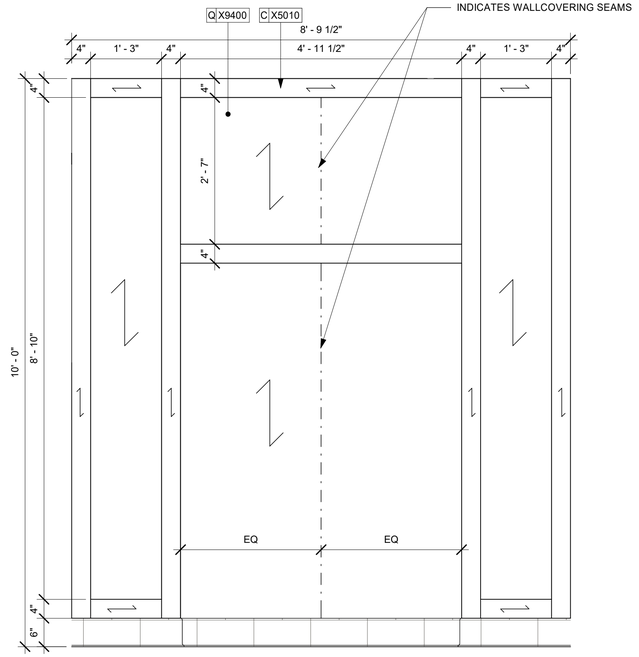
SHEET TITLE:
INTERIOR WALL FINISH DETAILS
SCALE: AS SHOWN

SHEET NUMBER:
I106.1



1 CAFE EAST ELEVATION - WOOD TRIM CALLOUT

Scale: 3/4" = 1'-0"



2 QUEUE EAST ELEVATION - WOOD TRIM CALLOUT

Scale: 3/4" = 1'-0"

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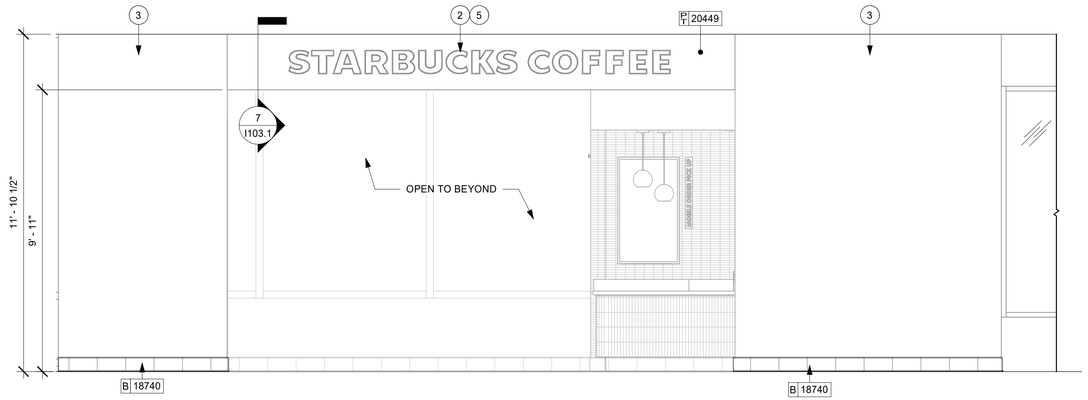
Revision Schedule

Rev	Date	By	Description

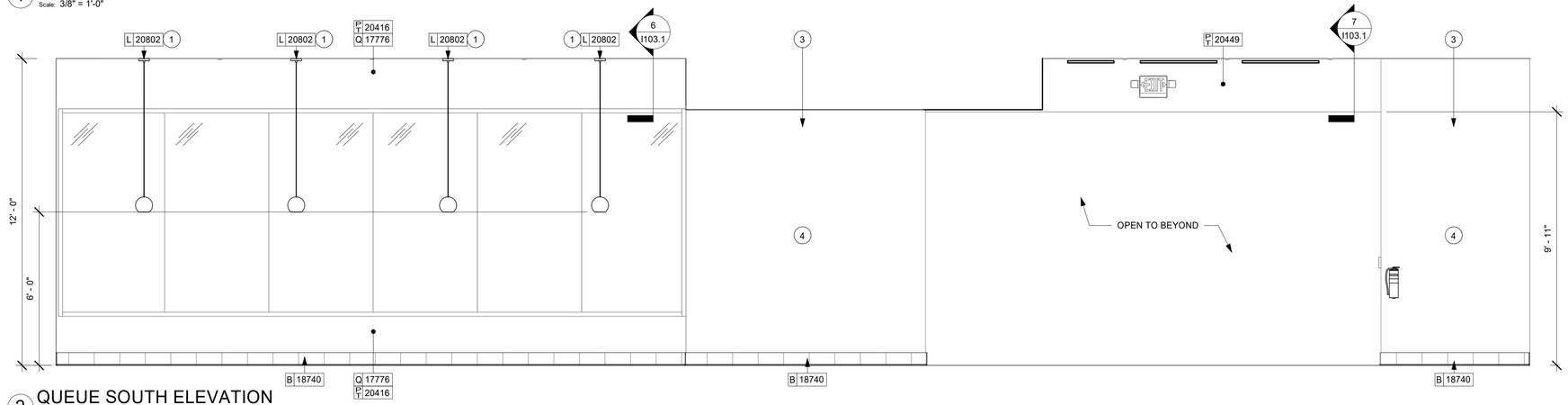
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INTERIOR WALL FINISH DETAILS
SCALE: AS SHOWN

SHEET NUMBER:
I106.2

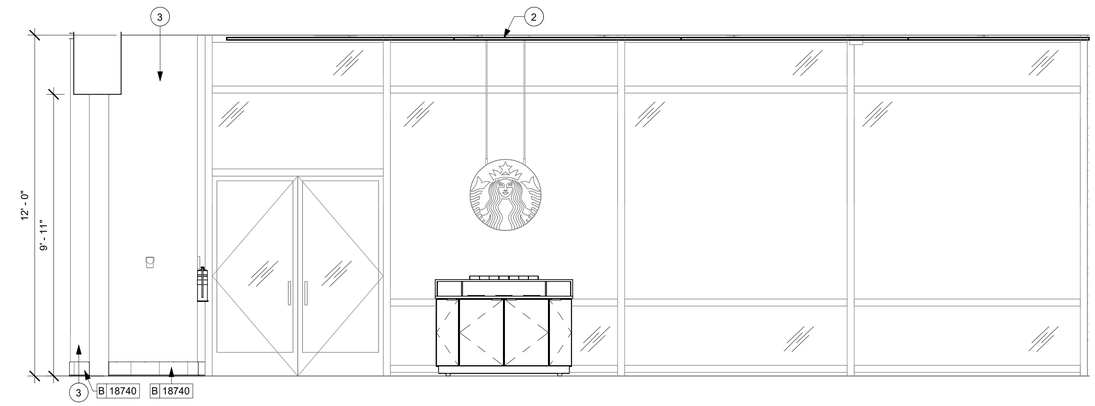
GRAPHICS AND ARTWORK SCHEDULE - "G"					
DESIGN ID	**COUNT**	**DESCRIPTION**	**FURN. BY**	**INST. BY**	**COMMENTS**
GRAPHICS - ARTWORK					
17100	1	ART - ROBERT HARDGRAVE - PIKE PLACE MARKET	SB	GC	FRAMED & MATTED - ART SIZE 78" W X 36" H - MAT BORDER 3" - OVERALL SIZE 85" W X 43" H - PAPER 1 - MAT 1 - FRAME 6C LARSON-JUHL/NEILSEN N11721 MATTE BLACK 7/16" - SPACER 1/4"
GRAPHICS - INTERIOR MENU					
18984	7	MENU BOARD - UNIVERSAL WALL MOUNT BRACKET	SB	GC	
19549	6	MENU BOARD - FRONT INSERT PANEL WITH SQUARE FRAME - WALNUT WD0077	SB	GC	
19550	1	MENU BOARD - DAILY OFFERING CHALKBOARD WITH SQUARE FRAME - WALNUT WD0077	SB	GC	



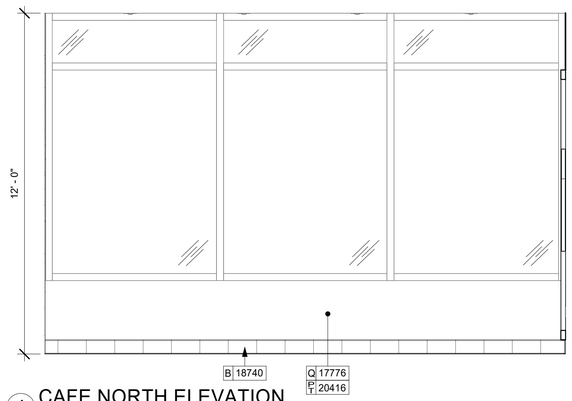
1 STORE ENTRY ELEVATION
Scale: 3/8" = 1'-0"



2 QUEUE SOUTH ELEVATION
Scale: 3/8" = 1'-0"



3 CAFE WEST ELEVATION
Scale: 3/8" = 1'-0"



4 CAFE NORTH ELEVATION
Scale: 3/8" = 1'-0"

KEYED NOTES

1. PENDANT LIGHT FIXTURE. SEE REFLECTED CEILING PLAN ON SHEET I103 AND LIGHTING PLAN ON SHEET E102 FOR ADDITIONAL INFORMATION.
2. EXISTING WORDMARK AND LOGO DISK TO REMAIN.
3. EXISTING WOOD CLADDING TO REMAIN AND RESTAINED TO MATCH WD0077.
4. LOCATION OF LICENSEE ARTWORK. COORDINATION WITH STARBUCKS DESIGN.
5. VERIFY COLOR TEMPERATURE OF WORDMARK IS 6500K. SIGNAGE VENDOR TO ADJUST THE TEMPERATURE TO 6500K IF IT ISN'T MEETING THE FINDINGS DISPLAY OTHERWISE.

GENERAL NOTES

A. FLOORS, WALL, AND CEILING FINISHES IN FOOD PREPARATION AREAS SHALL BE SMOOTH, NON-TOXIC, NON-ABSORBENT, DURABLE, AND EASILY CLEANABLE. PAINT IN THESE AREAS SHALL BE WASHABLE; SEMI-GLOSS OR HIGH GLOSS FINISH.

B. CHANGE OF PAINT COLOR ONLY AT INSIDE CORNERS, UNLESS NOTED OTHERWISE.

C. PAINT SUBSTITUTIONS ARE NOT ALLOWED. USE STARBUCKS NATIONAL SHERWIN WILLIAMS ACCOUNT "COLOR CODE" WHEN ORDERING PAINTS.

D. PAINT FINISHES SHALL BE APPLIED AS FOLLOWS, UNLESS NOTED OTHERWISE:
   1) WOODS AND METAL SURFACES SHALL BE SEMI-GLOSS OR EQUAL.
   2) ACCENT AND TRIM PAINTS SHALL BE SEMI-GLOSS OR EQUAL.
   3) WALL AND CEILING PAINTS SHALL BE EGGSHELL OR EQUAL.
   4) PAINTS IN WORKROOM RESTROOM(S) OR CAFE BAR SHALL BE SEMI-GLOSS OR EQUAL.

E. REFER TO INTERIOR WALL FINISH PLAN SHEET I106 FOR PAINT SCHEDULES AND WALL FINISH SCHEDULE.

F. WORKROOM TO BE FINISHED PER LOCAL CODE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL WORKROOM WALL FINISHES.

G. ALL WOOD SURFACES (DOORS, TRIM, SHELVES, CABINETRY) SHALL BE SEALED.

H. ALL FLOOR AND WALL JUNCTIONS IN STORAGE AND FOOD PREPARATION AREAS SHALL HAVE A 6" COVED BASE.

I. GENERAL CONTRACTOR TO INSTALL WALL BLOCKING AND HANGERS FOR WALL SHELVING BEFORE INSTALLING BACK BAR WALL TILE.

J. REFER TO MANUFACTURER'S INSTRUCTIONS INCLUDED WITH ARTWORK / GRAPHICS FOR PROPER INSTALLATION.

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

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HEAPY

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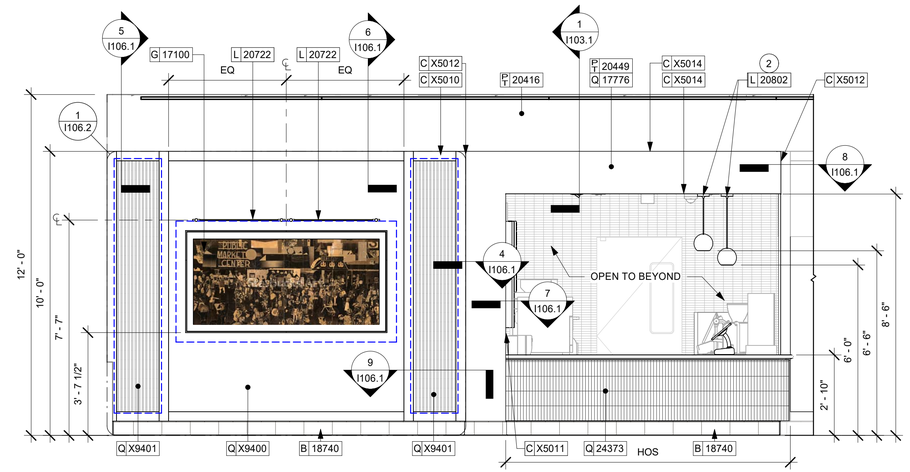
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Revision Schedule

Rev	Date	By	Description

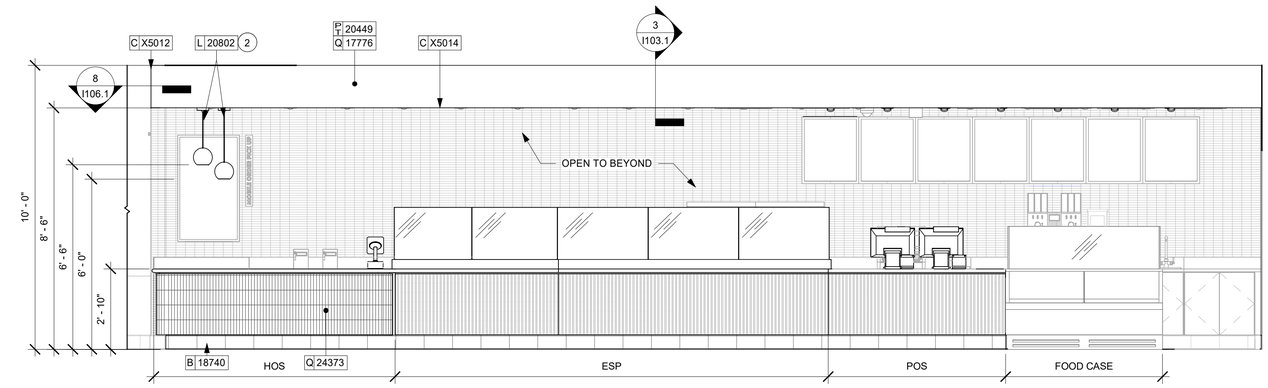
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INTERIOR FINISH ELEVATIONS
SCALE: AS SHOWN

SHEET NUMBER:
I201



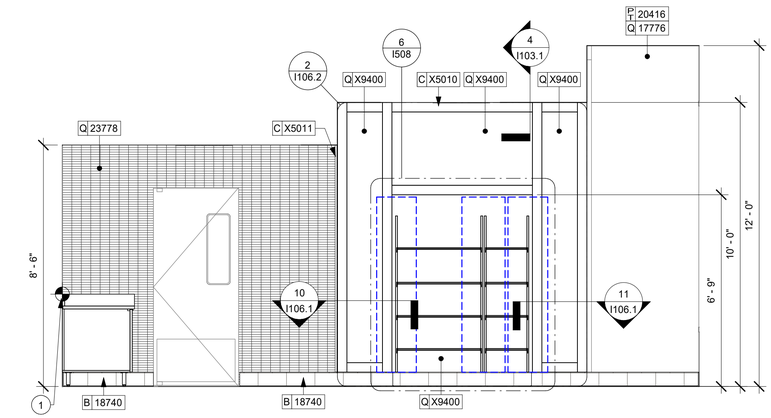
1 CAFE EAST ELEVATION

Scale: 3/8" = 1'-0"



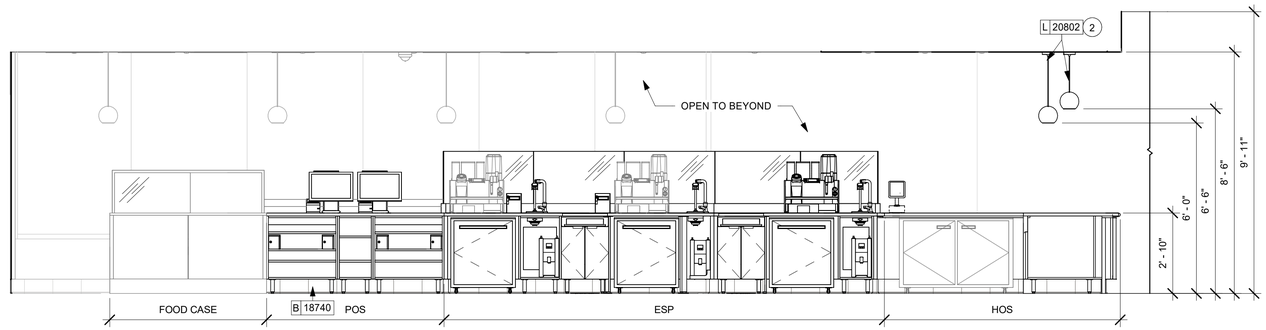
2 FRONTBAR ELEVATION

Scale: 3/8" = 1'-0"



3 QUEUE EAST ELEVATION

Scale: 3/8" = 1'-0"



4 FRONTBAR ELEVATION (PARTNER SIDE)

Scale: 3/8" = 1'-0"

KEYED NOTES

1. DATUM INDICATES TILE INSTALLATION START POINT.
2. PENDANT LIGHT FIXTURE. SEE REFLECTED CEILING PLAN ON SHEET I103 AND LIGHTING PLAN ON SHEET E102 FOR ADDITIONAL INFORMATION.

GENERAL NOTES

A. FLOORS, WALL, AND CEILING FINISHES IN FOOD PREPARATION AREAS SHALL BE SMOOTH, NON-TOXIC, NON-ABSORBENT, DURABLE, AND EASILY CLEANABLE. PAINT IN THESE AREAS SHALL BE WASHABLE; SEMI-GLOSS OR HIGH GLOSS FINISH.

B. CHANGE OF PAINT COLOR ONLY AT INSIDE CORNERS, UNLESS NOTED OTHERWISE.

C. PAINT SUBSTITUTIONS ARE NOT ALLOWED. USE STARBUCKS NATIONAL SHERWIN WILLIAMS ACCOUNT "COLOR CODE" WHEN ORDERING PAINTS.

D. PAINT FINISHES SHALL BE APPLIED AS FOLLOWS, UNLESS NOTED OTHERWISE:
   1) WOODS AND METAL SURFACES SHALL BE SEMI-GLOSS OR EQUAL.
   2) ACCENT AND TRIM PAINTS SHALL BE SEMI-GLOSS OR EQUAL.
   3) WALL AND CEILING PAINTS SHALL BE EGGSHELL OR EQUAL.
   4) PAINTS IN WORKROOM RESTROOM(S) OR CAFE BAR SHALL BE SEMI-GLOSS OR EQUAL.

E. REFER TO INTERIOR WALL FINISH PLAN SHEET I106 FOR PAINT SCHEDULE AND WALL FINISH SCHEDULE.

F. WORKROOM TO BE FINISHED PER LOCAL CODE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL WORKROOM WALL FINISHES.

G. ALL WOOD SURFACES (DOORS, TRIM, SHELVES, CABINETRY) SHALL BE SEALED.

H. ALL FLOOR AND WALL JUNCTIONS IN STORAGE AND FOOD PREPARATION AREAS SHALL HAVE A 6" COVED BASE.

I. GENERAL CONTRACTOR TO INSTALL WALL BLOCKING AND HANGERS FOR WALL SHELVING BEFORE INSTALLING BACK BAR WALL TILE.

J. REFER TO MANUFACTURER'S INSTRUCTIONS INCLUDED WITH ARTWORK / GRAPHICS FOR PROPER INSTALLATION.

LEGEND

INDICATES WALL BLOCKING. FIRE TREATED WALL BLOCKING TO BE PROVIDED AS REQUIRED TO SUPPORT WALL ATTACHMENTS. EXTEND BLOCKING 4" (100mm) BEYOND EDGE OF ATTACHMENTS.

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HEAPY

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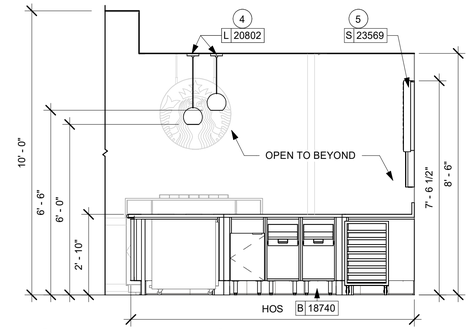
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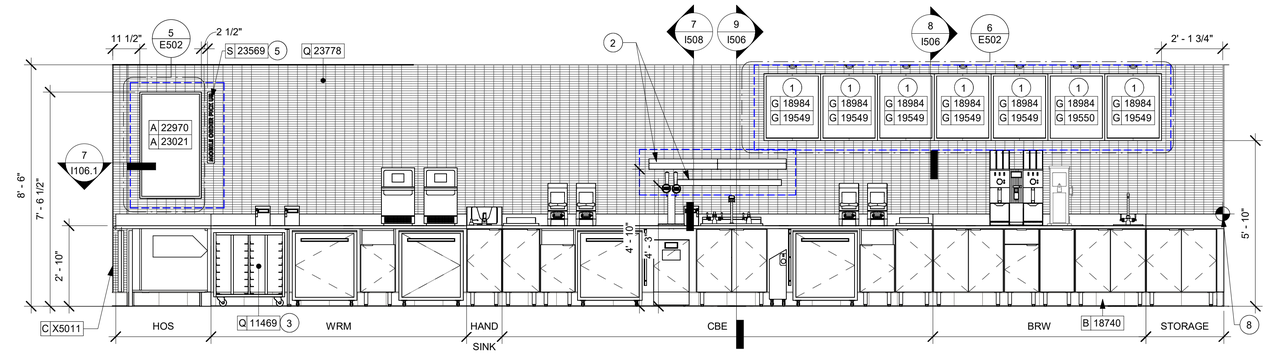
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INTERIOR FINISH ELEVATIONS
SCALE: AS SHOWN

SHEET NUMBER:
I202



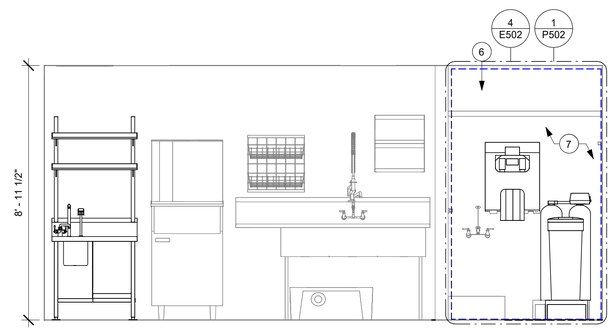
1 SIDEBAR ELEVATION

Scale: 3/8" = 1'-0"



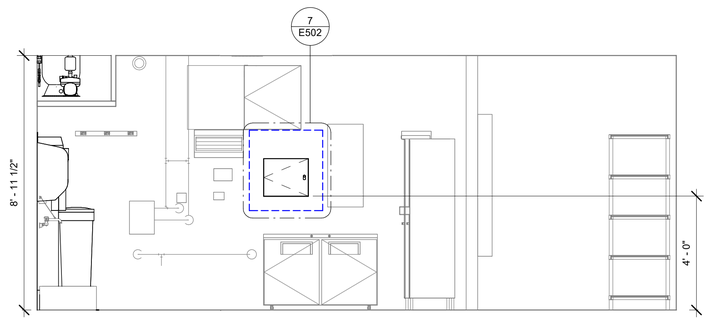
2 BACKBAR ELEVATION

Scale: 3/8" = 1'-0"



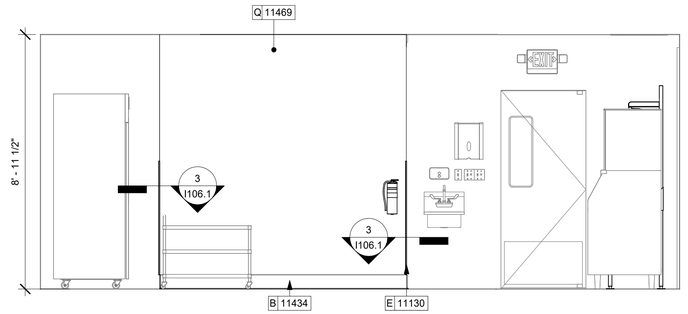
3 WORKROOM NORTH ELEVATION

Scale: 3/8" = 1'-0"



4 WORKROOM EAST ELEVATION

Scale: 3/8" = 1'-0"



5 WORKROOM WEST ELEVATION

Scale: 3/8" = 1'-0"

KEYED NOTES

1. ATTACH MENU BOARDS PER INSTALLATION DETAILS.
2. SHELVING FOR CBE STATION AS SHOWN. GENERAL CONTRACTOR TO PROVIDE WALL BLOCKING FOR FASTENERS.
3. GENERAL CONTRACTOR TO PROVIDE AND INSTALL FRP WALL FINISH BEHIND CASEWORK CABINETS IN AREAS BELOW COUNTERTOP HEIGHT.
4. PENDANT LIGHT FIXTURE. SEE REFLECTED CEILING PLAN ON SHEET I103 AND LIGHTING PLAN ON SHEET E102 FOR ADDITIONAL INFORMATION.
5. STARBUCKS MANAGER TO COORDINATE SIGNAGE PROPOSAL WITH VENDOR.
6. EXISTING WATER HEATER ABOVE. SEE PLUMBING DRAWINGS.
7. WATER FILTRATION EQUIPMENT NOT SHOWN IN ACTUAL LOCATIONS. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR PROPER CONFIGURATION AND PLUMBING REQUIREMENTS.
8. DATUM INDICATES TILE INSTALLATION START POINT.

GENERAL NOTES

A. FLOORS, WALL, AND CEILING FINISHES IN FOOD PREPARATION AREAS SHALL BE SMOOTH, NON-TOXIC, NON-ABSORBENT, DURABLE, AND EASILY CLEANABLE. PAINT IN THESE AREAS SHALL BE WASHABLE; SEMI-GLOSS OR HIGH GLOSS FINISH.

B. CHANGE OF PAINT COLOR ONLY AT INSIDE CORNERS, UNLESS NOTED OTHERWISE.

C. PAINT SUBSTITUTIONS ARE NOT ALLOWED. USE STARBUCKS NATIONAL SHERWIN WILLIAMS ACCOUNT "COLOR CODE" WHEN ORDERING PAINTS.

D. PAINT FINISHES SHALL BE APPLIED AS FOLLOWS, UNLESS NOTED OTHERWISE:
   1) WOODS AND METAL SURFACES SHALL BE SEMI-GLOSS OR EQUAL.
   2) ACCENT AND TRIM PAINTS SHALL BE SEMI-GLOSS OR EQUAL.
   3) WALL AND CEILING PAINTS SHALL BE EGGSHELL OR EQUAL.
   4) PAINTS IN WORKROOM RESTROOM(S) OR CAFE BAR SHALL BE SEMI-GLOSS OR EQUAL.

E. REFER TO INTERIOR WALL FINISH PLAN SHEET I106 FOR PAINT SCHEDULE AND WALL FINISH SCHEDULE.

F. WORKROOM TO BE FINISHED PER LOCAL CODE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL WORKROOM WALL FINISHES.

G. ALL WOOD SURFACES (DOORS, TRIM, SHELVES, CABINETRY) SHALL BE SEALED.

H. ALL FLOOR AND WALL JUNCTIONS IN STORAGE AND FOOD PREPARATION AREAS SHALL HAVE A 6" COVED BASE.

I. GENERAL CONTRACTOR TO INSTALL WALL BLOCKING AND HANGERS FOR WALL SHELVING BEFORE INSTALLING BACK BAR WALL TILE.

J. REFER TO MANUFACTURER'S INSTRUCTIONS INCLUDED WITH ARTWORK / GRAPHICS FOR PROPER INSTALLATION.

LEGEND

INDICATES WALL BLOCKING. FIRE TREATED WALL BLOCKING TO BE PROVIDED AS REQUIRED TO SUPPORT WALL ATTACHMENTS. EXTEND BLOCKING 4" (100mm) BEYOND EDGE OF ATTACHMENTS.

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STARBUCKS RENOVATION
- GREATER COLUMBUS
CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

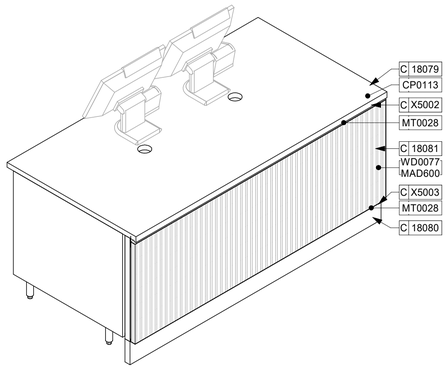
STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

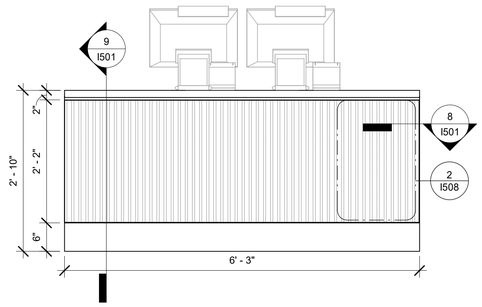
Rev	Date	By	Description

SHEET TITLE:
INTERIOR FINISH ELEVATIONS
SCALE: AS SHOWN

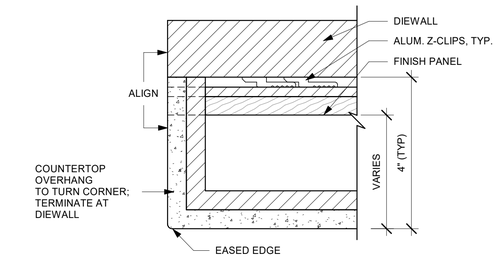
SHEET NUMBER:
I203



1 POS - FRONT 3D VIEW
Scale:

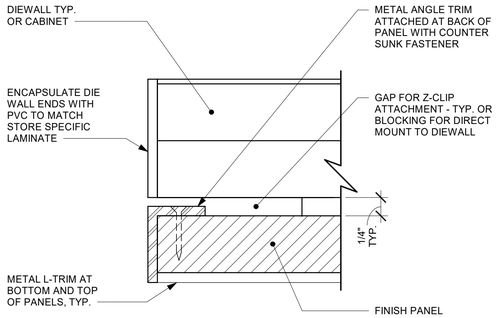


4 POS - FRONT ELEVATION
Scale: 3/4" = 1'-0"

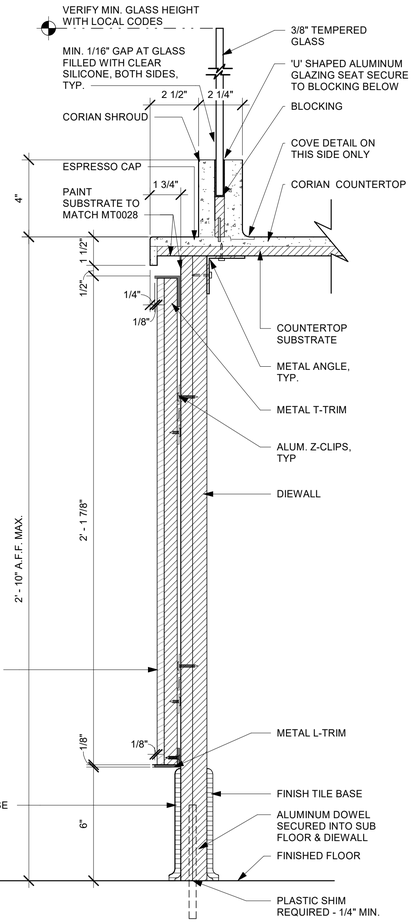


7 FINISH PANEL - BUILT-UP COUNTERTOP OVERHANG
Scale: 6" = 1'-0"

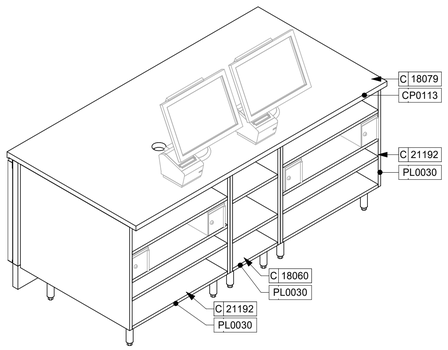
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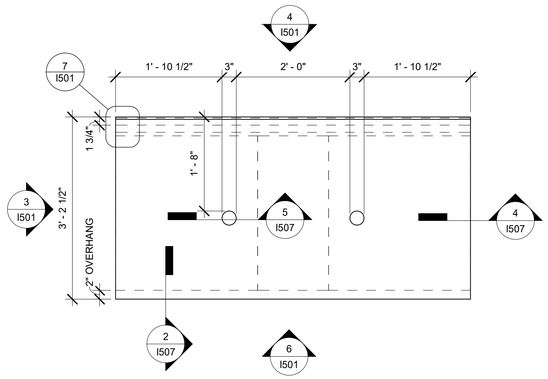
8 TYP. DETAIL AT FINISH PANEL END - VERTICAL METAL TRIM
Scale: 12" = 1'-0"



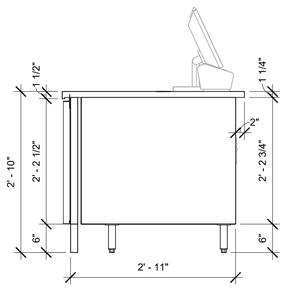
10 ESPRESSO SECTION
Scale: 3" = 1'-0"



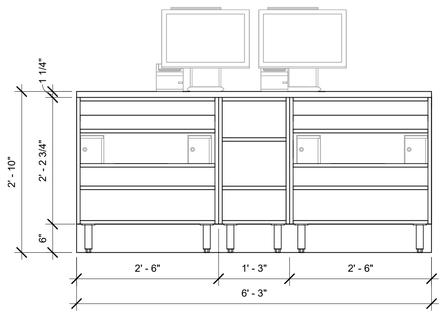
2 POS - BACK 3D VIEW
Scale:



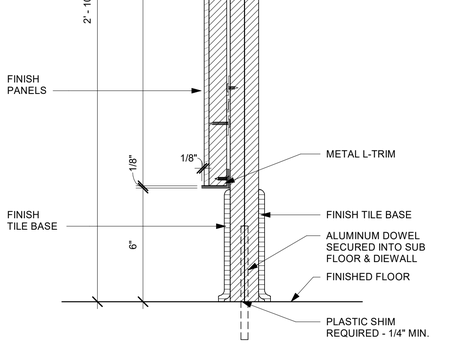
5 POS - PLAN
Scale: 3/4" = 1'-0"



3 POS - SIDE ELEVATION
Scale: 3/4" = 1'-0"



6 POS - BACK ELEVATION
Scale: 3/4" = 1'-0"



9 POS SECTION
Scale: 3" = 1'-0"

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HEAPY

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PROJECT ADDRESS:
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ISSUE DATE:	09/10/2025
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PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

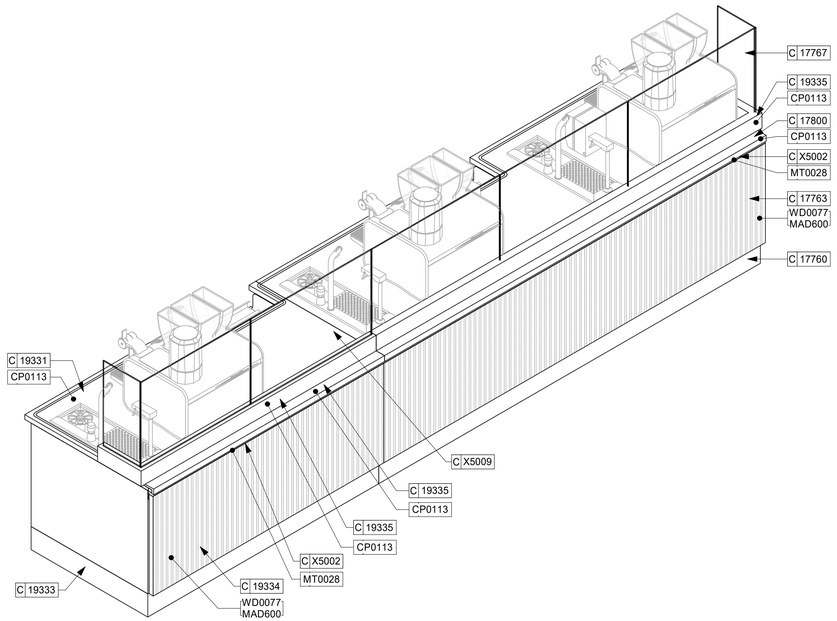
Rev	Date	By	Description

SHEET TITLE:
INTERIOR DETAILS

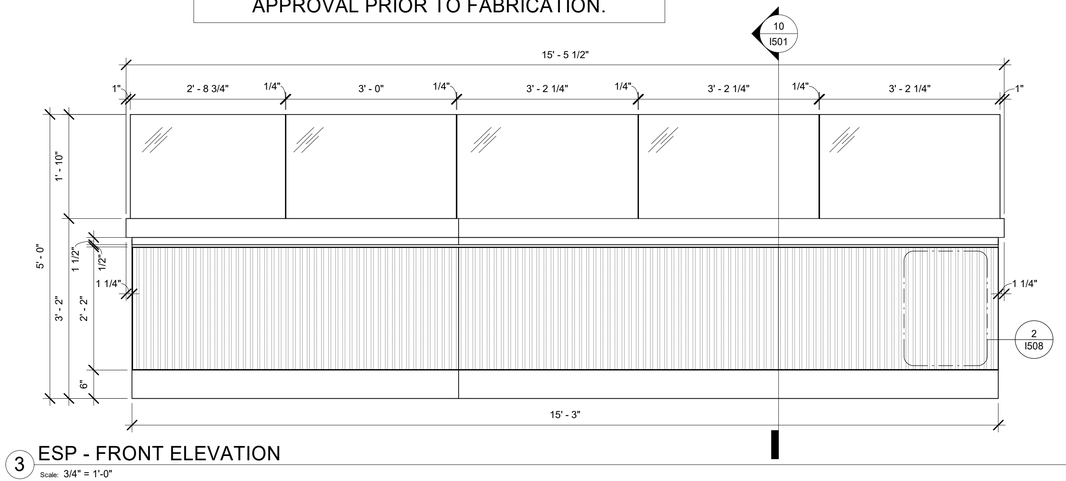
SCALE: AS SHOWN

SHEET NUMBER:
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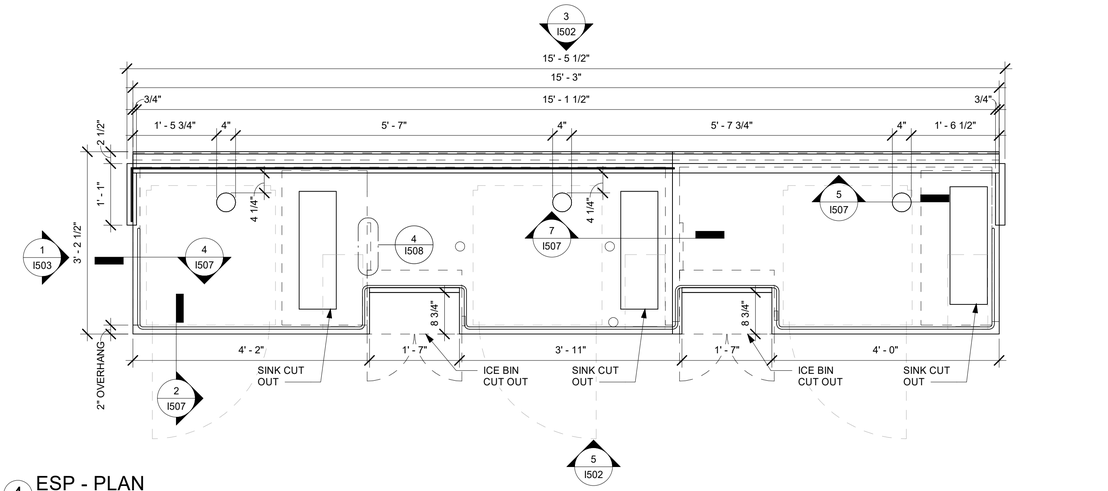
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VENDOR TO FURNISH SHOP DRAWINGS TO
STARBUCKS STORE DESIGNER FOR
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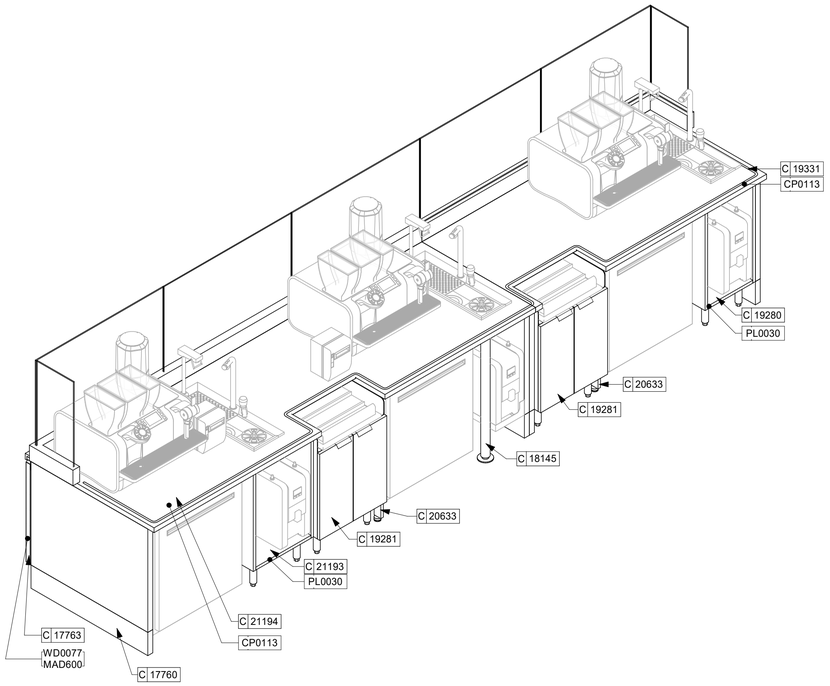
1 ESP - FRONT 3D VIEW
Scale:



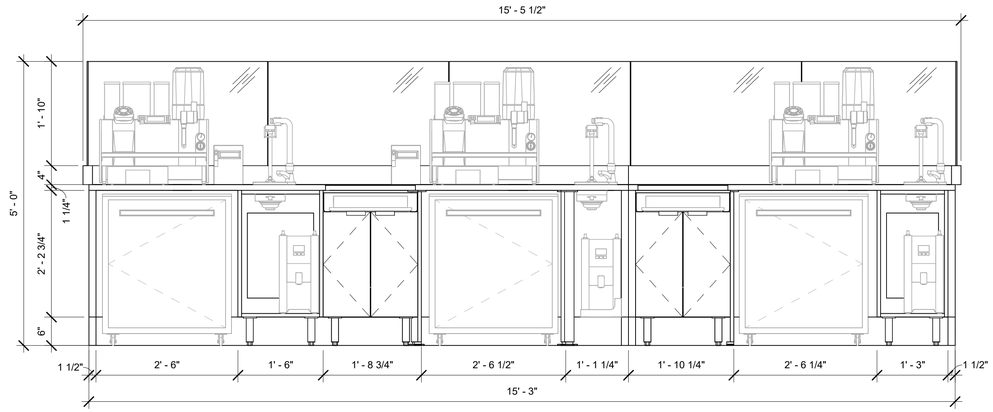
3 ESP - FRONT ELEVATION
Scale: 3/4" = 1'-0"



4 ESP - PLAN
Scale: 3/4" = 1'-0"



2 ESP - BACK 3D VIEW
Scale:



5 ESP - BACK ELEVATION
Scale: 3/4" = 1'-0"

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PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

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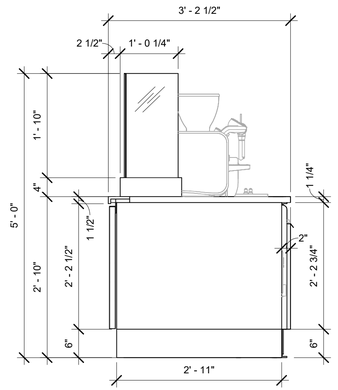
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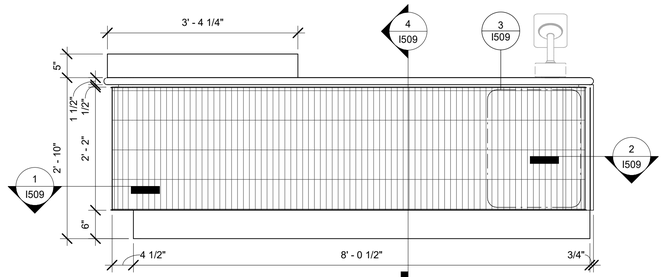
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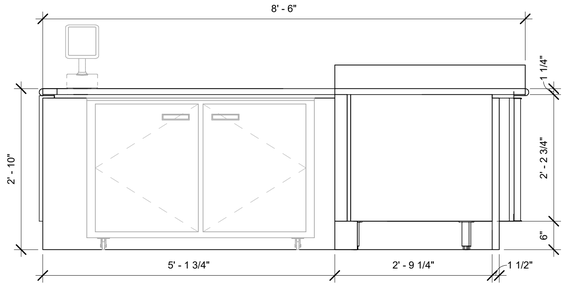
ALL DETAILS ARE FOR DESIGN INTENT ONLY. VENDOR TO FURNISH SHOP DRAWINGS TO STARBUCKS STORE DESIGNER FOR APPROVAL PRIOR TO FABRICATION.



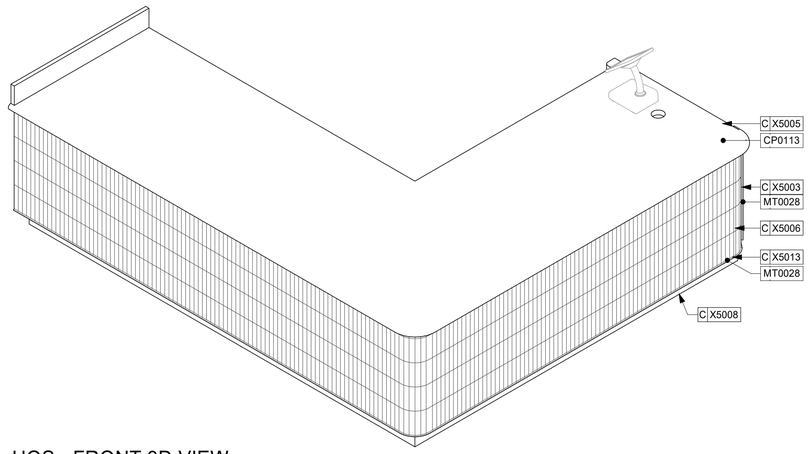
1 ESP - SIDE ELEVATION
Scale: 3/4" = 1'-0"



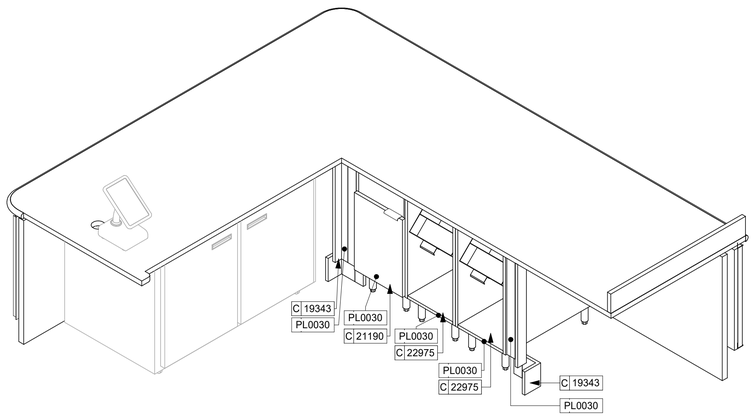
2 HOS - FRONT ELEVATION
Scale: 3/4" = 1'-0"



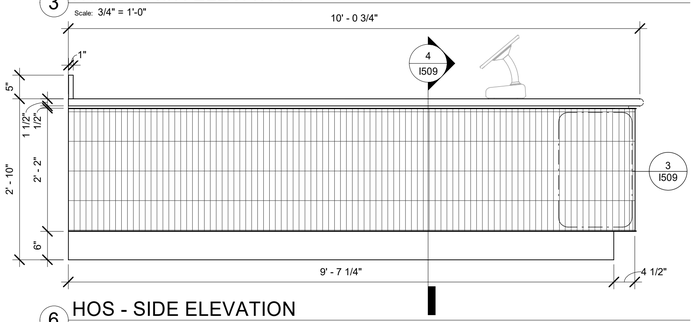
3 HOS - BACK ELEVATION
Scale: 3/4" = 1'-0"



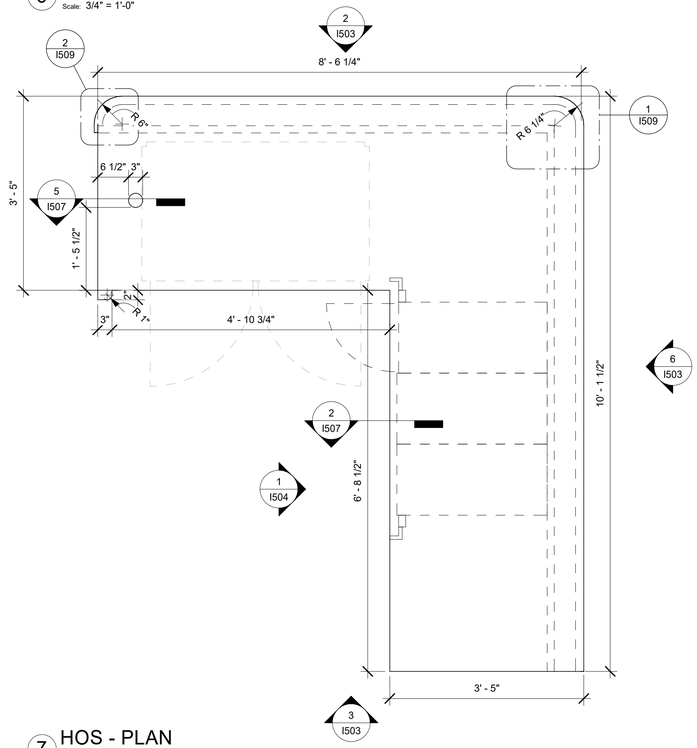
4 HOS - FRONT 3D VIEW
Scale:



5 HOS - BACK 3D VIEW
Scale:



6 HOS - SIDE ELEVATION
Scale: 3/4" = 1'-0"



7 HOS - PLAN
Scale: 3/4" = 1'-0"

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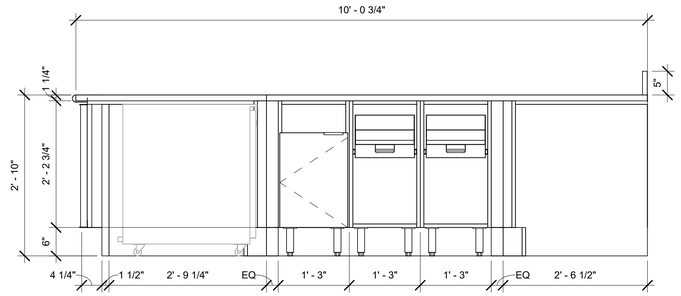
Rev	Date	By	Description

SHEET TITLE:
INTERIOR DETAILS

SCALE: AS SHOWN

SHEET NUMBER:
I503

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1 HOS - BACK SIDE ELEVATION

Scale: 3/4" = 1'-0"

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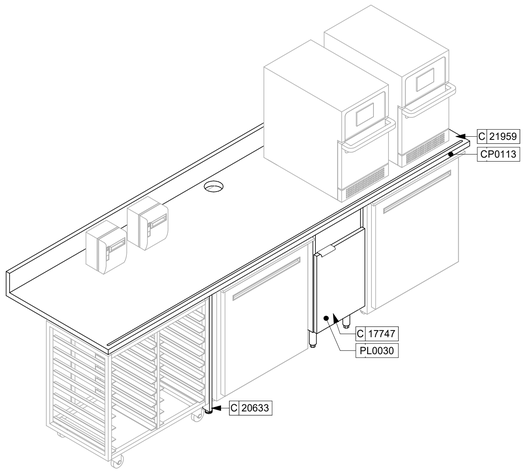
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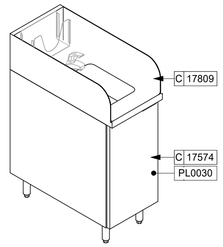
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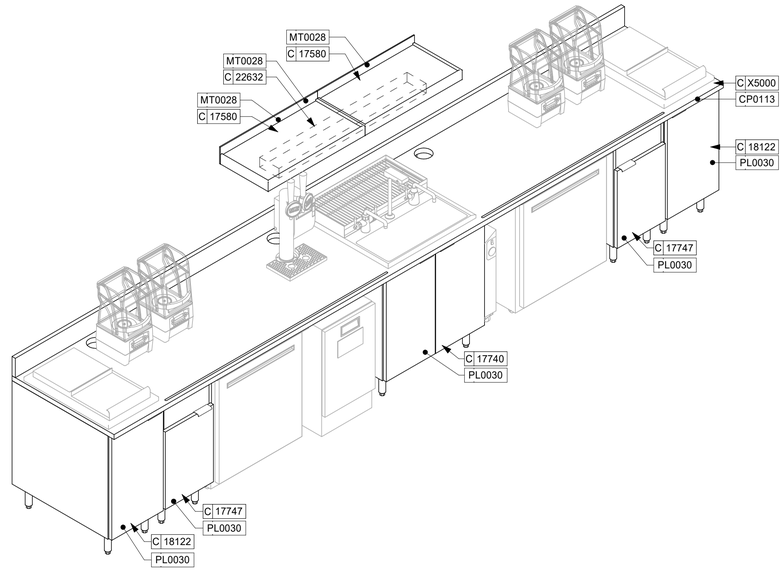
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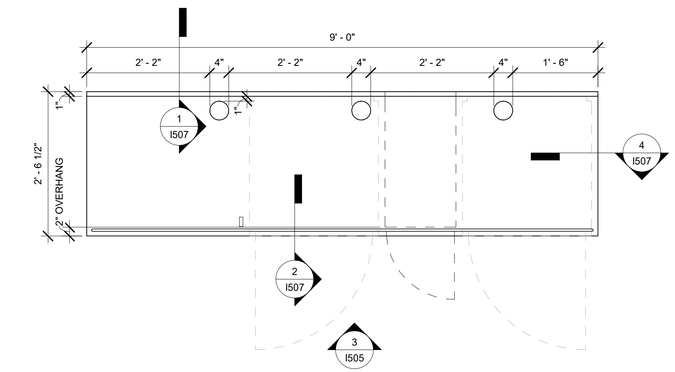






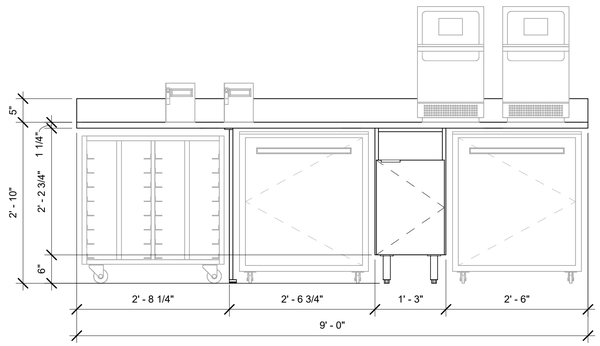
1 WRM - 3D VIEW

Scale:



2 WRM - PLAN

Scale: 3/4" = 1'-0"

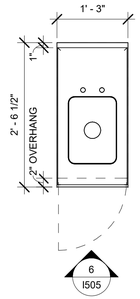


3 WRM - ELEVATION

Scale: 3/4" = 1'-0"

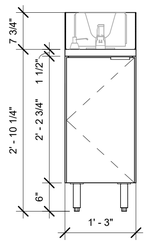
4 HAND SINK - 3D VIEW

Scale:



5 HAND SINK - PLAN

Scale: 3/4" = 1'-0"

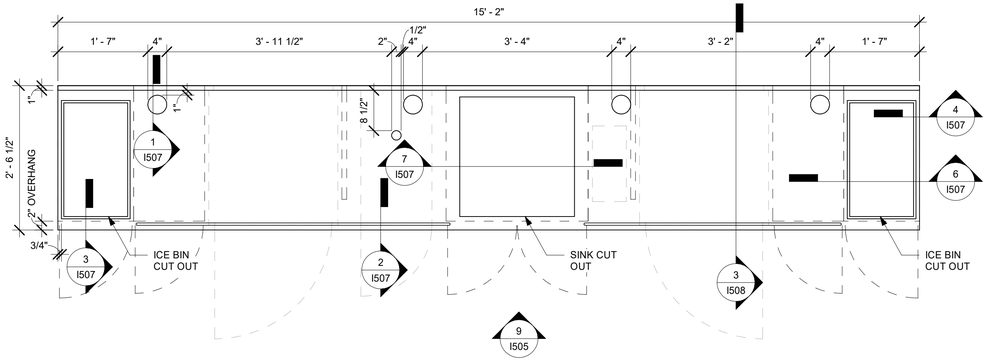


6 HAND SINK - ELEVATION

Scale: 3/4" = 1'-0"

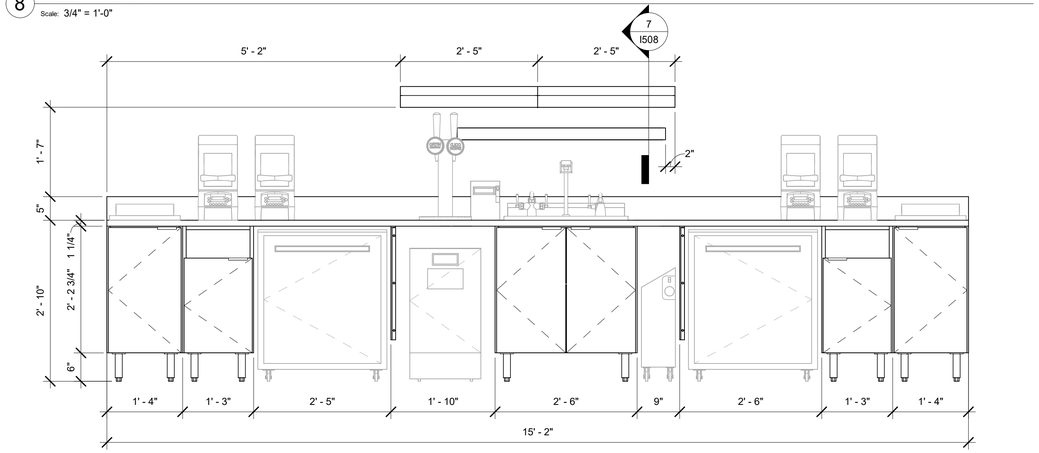
7 CBE - 3D VIEW

Scale:



8 CBE - PLAN

Scale: 3/4" = 1'-0"



9 CBE - ELEVATION

Scale: 3/4" = 1'-0"

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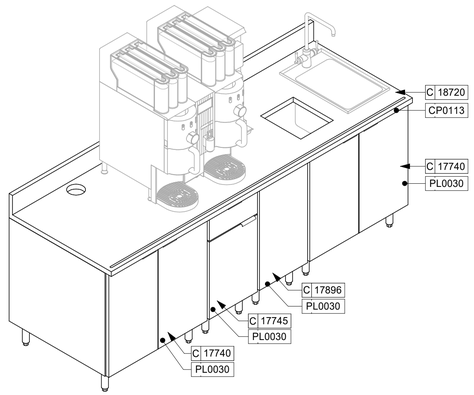
Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
INTERIOR DETAILS

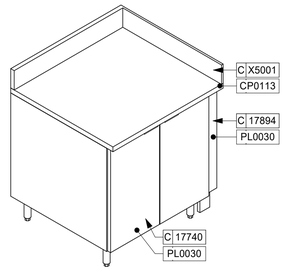
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SHEET NUMBER:
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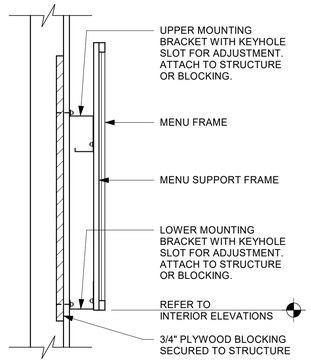
1 BRW - 3D VIEW

Scale:



4 BB FILLER - 3D VIEW

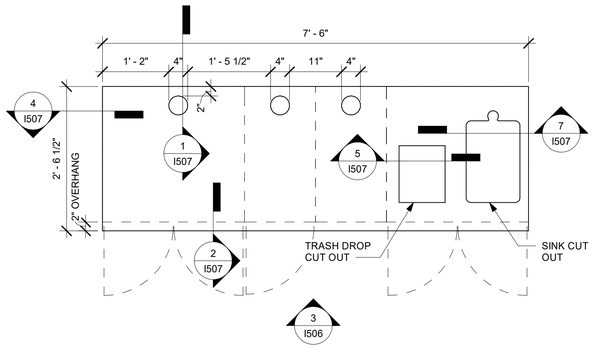
Scale:



8 MENU - WALL MOUNT

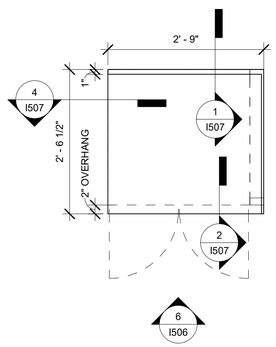
Scale: 1 1/2" = 1'-0"

ALL DETAILS ARE FOR DESIGN INTENT ONLY. VENDOR TO FURNISH SHOP DRAWINGS TO STARBUCKS STORE DESIGNER FOR APPROVAL PRIOR TO FABRICATION.



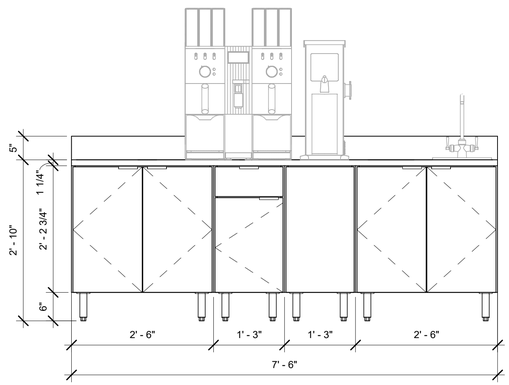
2 BRW - PLAN

Scale: 3/4" = 1'-0"



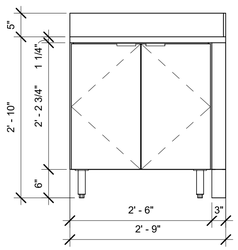
5 BB FILLER - PLAN

Scale: 3/4" = 1'-0"



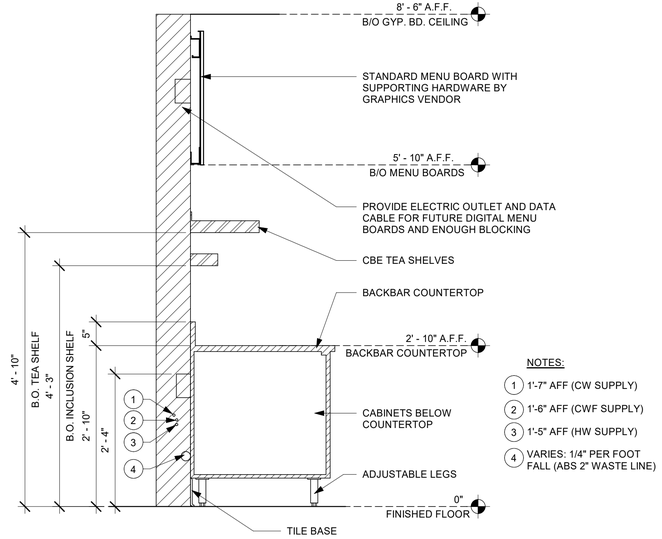
3 BRW - ELEVATION

Scale: 3/4" = 1'-0"



6 BB FILLER - ELEVATION

Scale: 3/4" = 1'-0"



9 SECTION AT BACKBAR CB

Scale: 3/4" = 1'-0"

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HEAPY

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COLUMBUS, OH 43215

STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

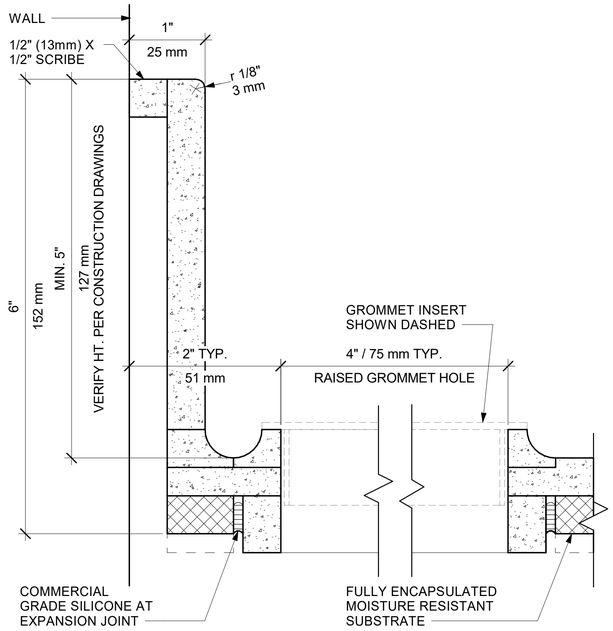
Rev	Date	By	Description

SHEET TITLE:
INTERIOR DETAILS

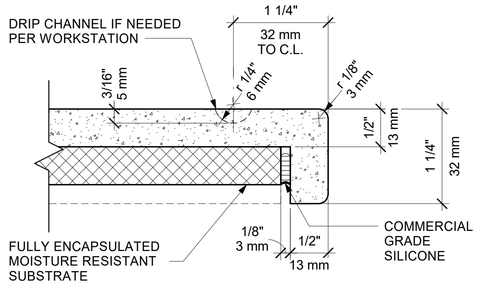
SCALE: AS SHOWN

SHEET NUMBER:
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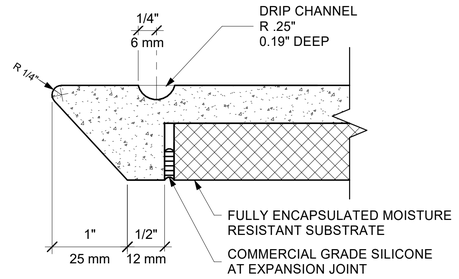
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VENDOR TO FURNISH SHOP DRAWINGS TO STARBUCKS STORE DESIGNER FOR APPROVAL PRIOR TO FABRICATION.



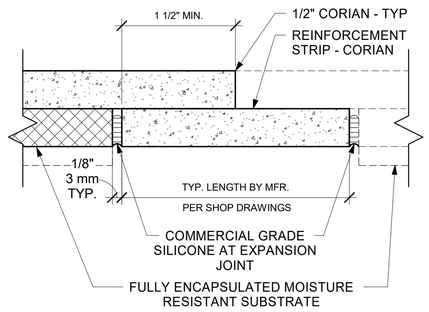
1 CORIAN COUNTERTOP BACKSPLASH AND COVED GROMMET
Scale: 12" = 1'-0"



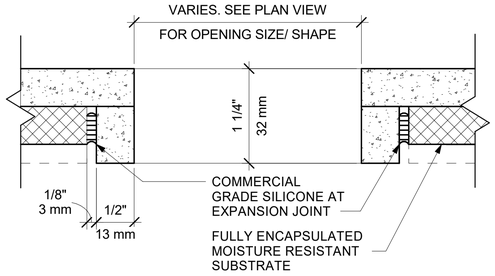
2 CORIAN COUNTERTOP FRONT EDGE
Scale: 12" = 1'-0"



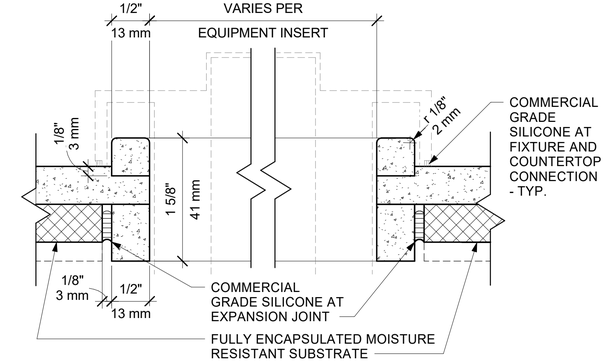
3 CORIAN COUNTERTOP FRONT EDGE AT ICE BIN
Scale: 12" = 1'-0"



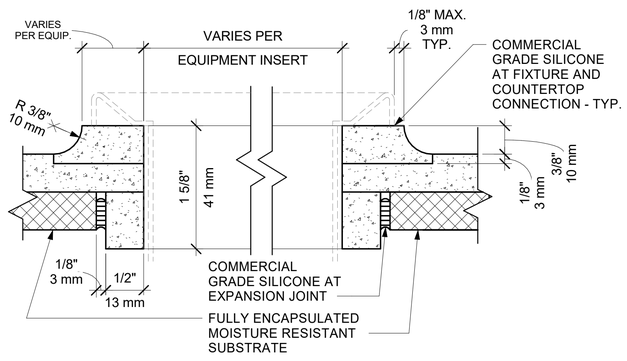
4 CORIAN COUNTERTOP REINFORCEMENT STRIP AT HARD SEAM
Scale: 12" = 1'-0"



5 CORIAN COUNTERTOP TYP. CUTOUT AT TRASH AND GROMMET
Scale: 12" = 1'-0"



6 CORIAN COUNTERTOP TYP. ICE BIN CUTOUT WITH W/ SQUARED EDGE
Scale: 12" = 1'-0"



7 CORIAN COUNTERTOP TYP. SINK CUTOUT W/ COVED EDGE
Scale: 12" = 1'-0"

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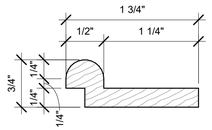
Rev	Date	By	Description

SHEET TITLE:
INTERIOR DETAILS

SCALE: AS SHOWN

SHEET NUMBER:
I507

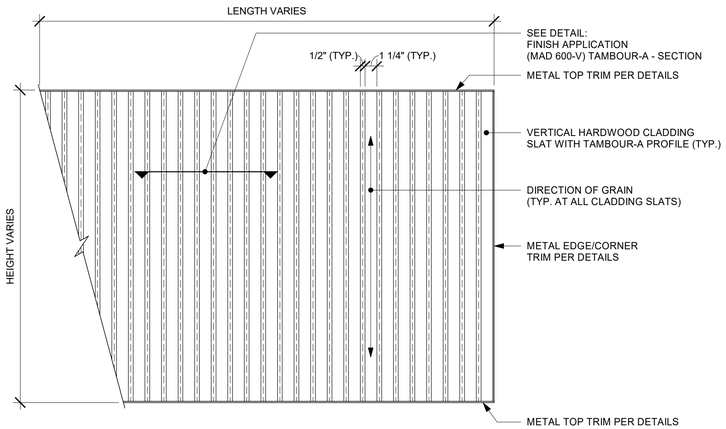
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TAMBOUR-A HARDWOOD SLAT

1 FINISH APPLICATION (MAD 600) PROFILE

Scale: 12" = 1'-0"

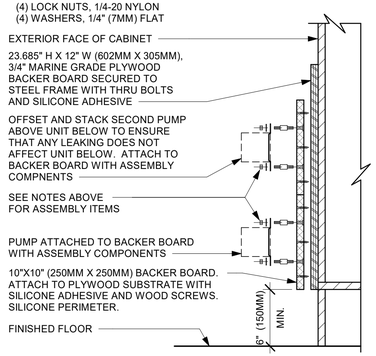


2 FINISH APPLICATION (MAD 600) TAMBOUR-A - ELEVATION

Scale: 1 1/2" = 1'-0"

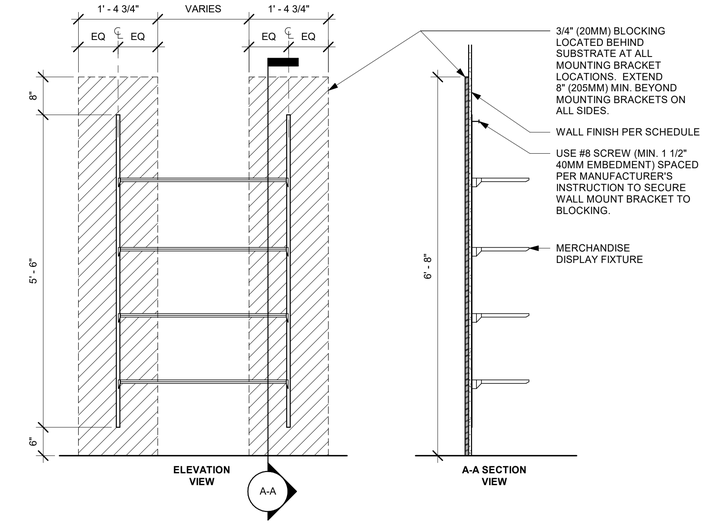
NOTES:

1. LOCATE PUMP WITHIN CORD LENGTH LIMIT. ORIENT WITH PUMP HEAD LEFT, RIGHT AND AT BOTTOM. LOOSEN PUMP HEAD CLAMP, ROTATE AND RE-TIGHTEN AS REQUIRED PER ORIENTATION TO PROVIDE FRONT ACCESS TO FLOW. ADJUSTMENT WITHIN CORD LENGTH LIMIT.
2. USE LOCKTITE ON ISOLATOR THREADS. DO NOT OVER TIGHTEN.
3. LOOSEN PUMP HEAD CLAMP, ROTATE AND RE-TIGHTEN AS REQUIRED FOR PUMP ORIENTATION.
4. EACH BACKER BOARD'S ASSEMBLY COMPONENTS INCLUDE:
   (1) BACKER BOARDS
   (4) TENETS, 1/4-20 VENDOR MOUNTED
   (8) WOOD SCREWS #8 1-1/4" (32MM)
   (4) NEOPRENE ISOLATORS, KARMAN RUBBER, K84-60 NEOPRENE
   (4) LOCK NUTS, 1/4-20 NYLON
   (4) WASHERS, 1/4" (7MM) FLAT



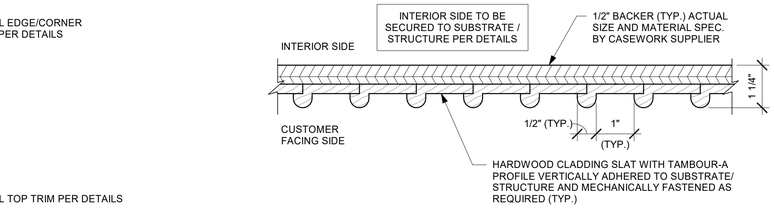
4 ESPRESSO PUMP MOUNTED AT CABINET

Scale: 1 1/2" = 1'-0"



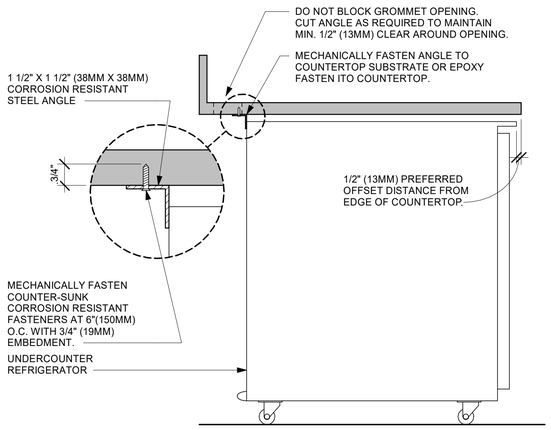
6 MERCHANDISE IN-WALL BAY DISPLAY FIXTURE WALL ATTACHMENT

Scale: 3/4" = 1'-0"

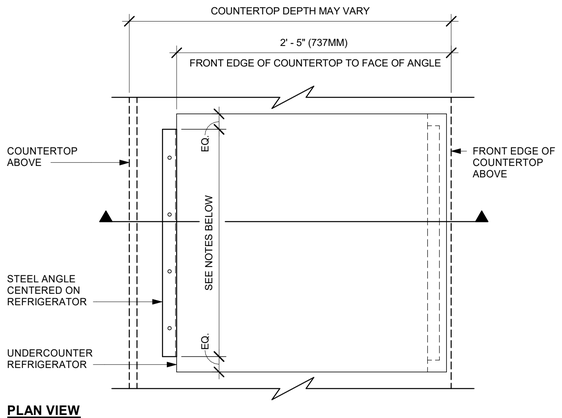


5 FINISH APPLICATION (MAD 600) TAMBOUR-A - SECTION

Scale: 6" = 1'-0"



SECTION VIEW



PLAN VIEW

NOTES

1. 24" (610MM) 1 1/2" X 1 1/2" (38MM X 38MM) STEEL ANGLE TO BE USED WITH SINGLE DOOR REFRIGERATORS.
2. 48" (1220MM) 1 1/2" X 1 1/2" (38MM X 38MM) STEEL ANGLE TO BE USED WITH DOUBLE DOOR REFRIGERATORS.

3 UNDERCOUNTER REFRIGERATOR STOP INSTALLATION

Scale: 1 1/2" = 1'-0"

7 METAL TEA AND DRY INCLUSION SHELF WOOD WALL ATTACHMENT

Scale: 6" = 1'-0"

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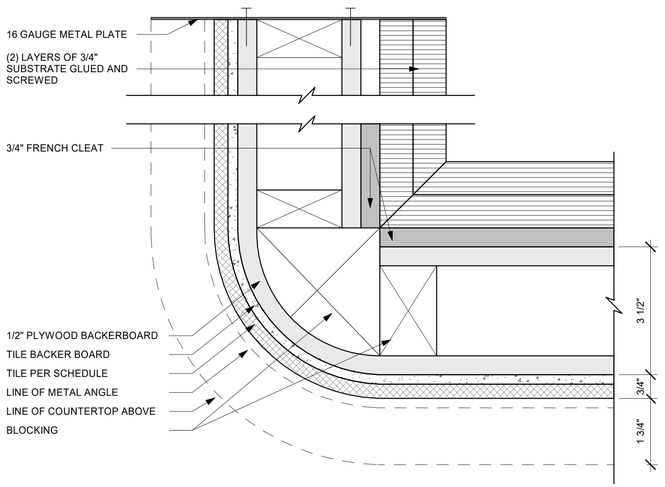
Revision Schedule

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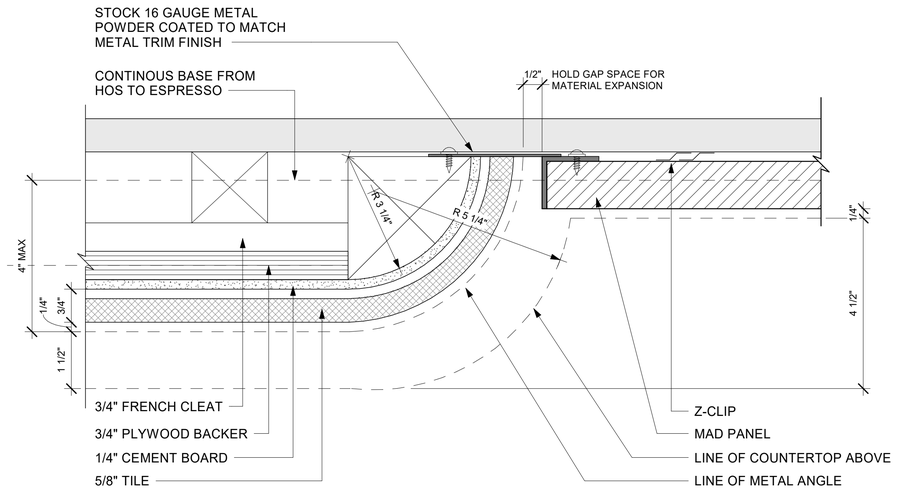
SCALE: AS SHOWN

SHEET NUMBER:
I508



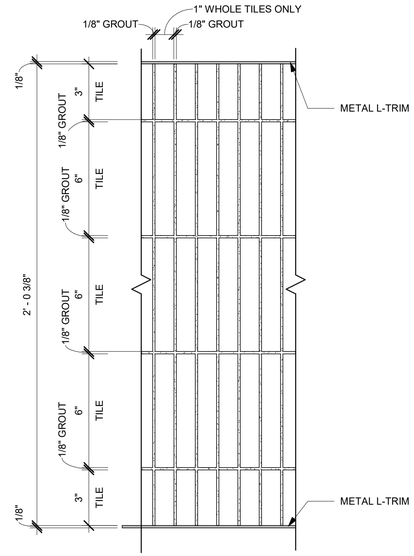
1 HOS PLAN DETAIL - CORNER AND TERMINATION

Scale: 6" = 1'-0"



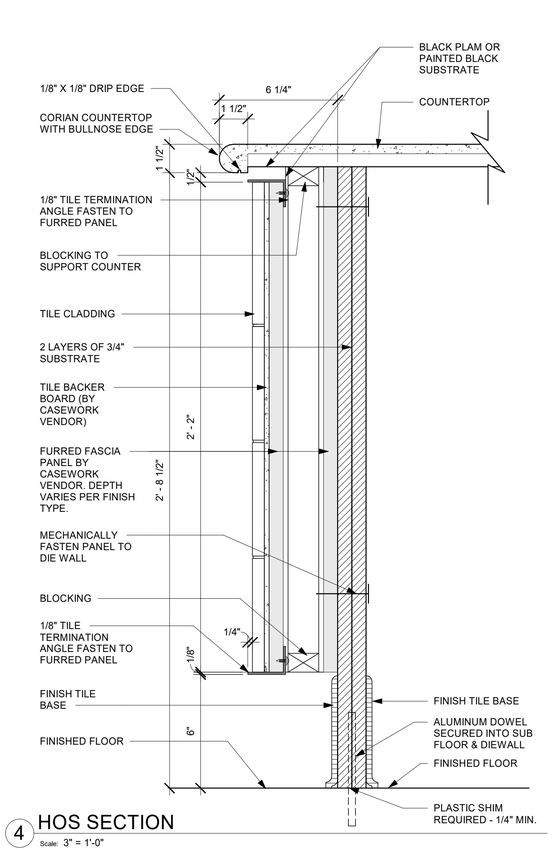
2 HOS PLAN DETAIL

Scale: 6" = 1'-0"



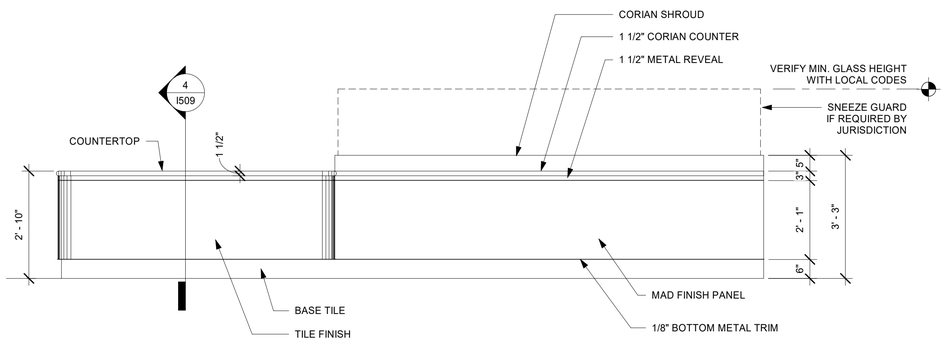
3 CSWK - HOS FINISH PANEL - ELEVATION

Scale: 3" = 1'-0"



4 HOS SECTION

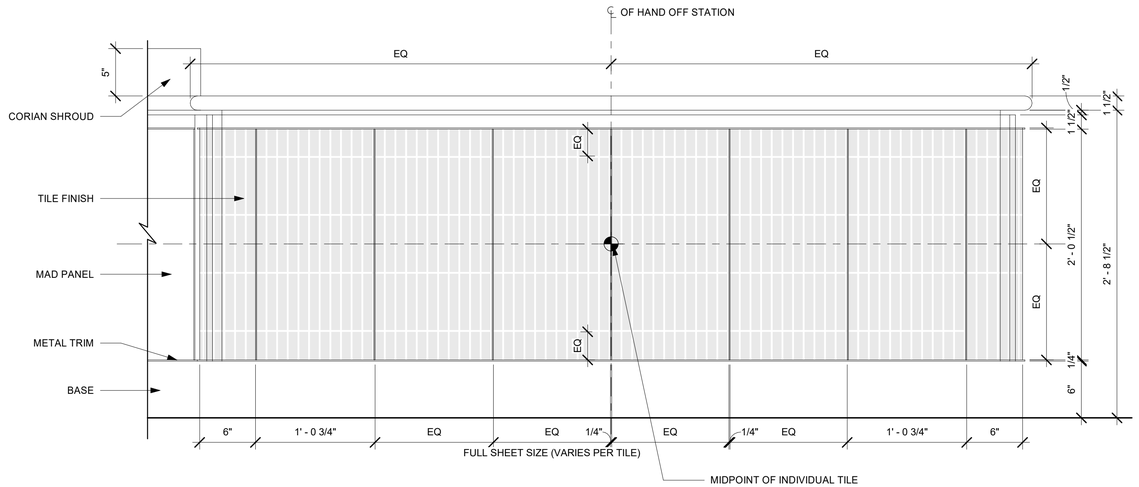
Scale: 3" = 1'-0"



5 HOS / ESPRESSO CUSTOMER SIDE ELEVATION

Scale: 1/2" = 1'-0"

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6 HOS / ESPRESSO CUSTOMER SIDE ELEVATION

Scale: 1 1/2" = 1'-0"

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ELECTRICAL SYMBOL LEGEND

J	JUNCTON BOX		RECEPTACLE: DUPLEX
$	SWITCH		RECEPTACLE: DUPLEX - INDIVIDUAL BRANCH CIRCUIT
$3	THREE-WAY SWITCH		RECEPTACLE: QUAD
$M	MOTION (OCCUPANCY) SENSOR SWITCH		RECEPTACLE: QUAD - INDIVIDUAL BRANCH CIRCUIT
S	SWITCHBACK		RECEPTACLE: HIGH VOLTAGE
	TELEPHONE		RECEPTACLE: FLOOR DUPLEX
T	THERMOSTAT		GROUNDING ELECTRODE CONNECTION
S	THERMOSTAT SENSOR	NL	NIGHTLIGHTING 24HR/DAY
	DIMMER SWITCH	PE	PHOTOELECTRIC CELL
	RECEPTACLE: DATA		SPEAKER
	RACEWAY CONCEALED IN CEILING OR WALL. HASH MARKS INDICATE NUMBER OF WIRES. #12 AWG WIRE UNLESS OTHERWISE NOTED. TWO WIRES PLUS GROUND IF NO HASH MARKS SHOWN. LONG HASH MARK DENOTES NEUTRAL. GROUND WIRE NOT SHOWN.		WIFI ACCESS POINT
			360 CAMERA
		CO	CARBON MONOXIDE SENSOR
		CO2	CARBON DIOXIDE SENSOR

GENERAL NOTES

SCOPE
THE INTENT OF THE DRAWINGS AND PROJECT MANUAL IS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETE THE ELECTRICAL WORK.

SITE EXAMINATION
THE ELECTRICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, CONDUIT, AND WIRING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE ELECTRICAL WORK.

STANDARDS
EQUIPMENT AND MATERIALS SHALL CONFORM WITH APPROPRIATE PROVISIONS OF CSA, ULC, NEC, ASTM, UL, ETL, NEMA, ANSI, AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY.

CODES
ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE PROVINCIAL AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS AND THE CODES, THE HIGHEST STANDARD SHALL APPLY. ELECTRICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO STARBUCKS OR THE LICENSEE.

PERMITS AND FEES
THE ELECTRICAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY TO COMPLETE THE ELECTRICAL WORK.

WARRANTY
THE ELECTRICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY STARBUCKS AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

CONTROLS AND OPERATION

THE GENERAL CONTRACTOR SHALL CONTACT HEAPY COMMISSIONING PRIOR TO THE LAST WEEK OF CONSTRUCTION FOR COMMISSIONING AND COORDINATE REQUIREMENTS WITH STARBUCKS.

FURNISH AND INSTALL RACEWAYS WITH PULL STRINGS AND JUNCTION BOXES FOR THERMOSTAT(S) AND SENSOR(S).

SET RESTROOM OCCUPANCY SENSOR TO 5 MINUTE 'ON' DURATION IN SINGLE OCCUPANT RESTROOM AND TO 5 MINUTE 'ON' DURATION IN MULTI-OCCUPANT RESTROOM UNLESS JURISDICTION REQUIREMENTS STATE OTHERWISE.

COORDINATE WITH DRAWINGS AND LCP VENDOR FOR DEVICE LOCATIONS. VENDOR SHALL COMMISSION CONTROLS.

THE GENERAL CONTRACTOR IS TO COMPLETE FINAL CONNECTION AFTER DATA RACK AND NETWORK INSTALLATION. THE GENERAL CONTRACTOR IS TO CONTACT LCP VENDOR TO VERIFY SYSTEM OPERATION AND TROUBLESHOOT IF REQUIRED.

COMMUNICATION SYSTEM NOTES

CONFIRM PRIOR TO BEGINNING CONSTRUCTION THAT THE LICENSEE HAS FURNISHED AND INSTALLED ONE (1) ADDITIONAL 2" (51MM) (ENTRANCE) CONDUIT INCLUDING PULL STRING (FOR A TOTAL OF TWO (2)) FROM THE STREET FEED TO THE BUILDING AS IDENTIFIED BY THE INTERNET SERVICE PROVIDER.

CARBON MONOXIDE (CO) DETECTOR NOTES

CARBON MONOXIDE (CO) DETECTOR DEVICE(S) AND LOW VOLTAGE WIRING PROVIDED BY LICENSEE. VERIFY SYSTEM REQUIREMENTS WITH LICENSEE PRIOR TO START OF CONSTRUCTION.

MUSIC SYSTEM NOTES

LICENSEE TO PROVIDE AND INSTALL A COMPLETE WIRING SYSTEM FOR ALL MUSIC SPEAKERS. CONNECT SPEAKERS TO THE STARBUCKS PROVIDED MUSIC SYSTEM AND AMPLIFIER. MOUNT SPEAKERS WHERE SHOWN ON INTERIOR REFLECTED CEILING PLAN AND IN COORDINATION WITH ALL PLANS, DETAILS, AND MANUFACTURER'S INSTALLATION REQUIREMENTS. SET WATTAGE TAP ON EACH SPEAKER'S ROTARY SWITCH PER TAP SETTINGS NOTED ON PLANS.

SECURITY SYSTEM NOTES

SECURITY WIRING AND SYSTEM PROVIDED BY LICENSEE. VERIFY SYSTEM REQUIREMENTS WITH LICENSEE PRIOR TO START OF CONSTRUCTION.

GENERAL ELECTRICAL NOTES

1. ELECTRICAL CONTRACTOR SHALL COORDINATE ELECTRICAL WORK WITH OTHER TRADES. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS; USE ACTUAL BUILDING DIMENSIONS. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REVIEWING ENTIRE DRAWING SET AND COORDINATING WITH ALL DETAILS AND DESIGN SHOWN ON THOSE DRAWINGS. OVERALL CASEWORK COMPONENT DIMENSIONING ON ELECTRICAL DETAILS ARE SHOWN FOR REFERENCE AND COORDINATION ONLY. SEE PROJECT MANUAL.
2. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL INTENT OR ARRANGEMENT OF SYSTEM(S). FURNISH AND INSTALL ALL REQUIRED COMPONENTS, WHETHER INDICATED OR NOT, TO PROVIDE A COMPLETE AND OPERATING SYSTEM.
2. ALL ELECTRICAL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. BALANCE ALL BRANCH CIRCUIT LOADS BETWEEN THE PHASES OF THE SYSTEM WITHIN 10% OF THE HIGHEST PHASE LOAD IN EACH PANEL BOARD.
3. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DE-ENERGIZING CIRCUITS IN DEMOLITION AREAS TO ENSURE A SAFE CONDITION. ELECTRICAL DEVICES AND ASSOCIATED WIRING LOCATED WITHIN THE DEMOLITION AREA THAT WILL NO LONGER BE USED SHALL BE REMOVED AND PROPERLY DISPOSED OF AT CONTRACTORS EXPENSE UNLESS OTHERWISE NOTED.
4. ELECTRICAL CONTRACTOR SHALL SCHEDULE ALL ELECTRICAL SYSTEM OUTAGES WITH THE GENERAL CONTRACTOR AND LICENSEE AT LEAST 24 HOURS IN ADVANCE. UNLESS APPROVED OTHERWISE, ALL OUTAGES SHALL OCCUR BETWEEN 11:00PM AND 5:00AM.
5. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY CONDUIT AND J-BOXES TO SUPPORT A COMPLETE SECURITY, PHONE, POS AND DATA SYSTEMS. SEE MANAGER WORKSTATION AND BAR POINT OF SALE (POS) POWER/TELECOM/SECURITY DIAGRAM. COORDINATE ALL DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH SECURITY VENDOR PRIOR TO ROUGH-IN. PROVIDE END-TO-END PULL STRINGS IN ALL CONDUITS. LABEL EACH END OF THE PULL STRING WITH CONDUIT SYSTEM ("SECURITY") AND DESTINATION ("CAFE", "FRONT BAR", ETC.). PROVIDE INSULATED BUSHINGS ON ALL STUBBED-UP AND EXPOSED CONDUIT ENDS.
6. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO PATCH AND REPAIR ALL EXISTING WALLS, FLOORS, CEILINGS OR OTHER SURFACES IDENTIFIED TO REMAIN THAT MAY BECOME DAMAGED DURING THE COURSE OF WORK.
7. EXPOSED/SURFACE MOUNTED CONDUITS SHALL ONLY BE ALLOWED WHERE NECESSARY IN EXPOSED CEILING AREAS. IF CONDUITS NEED TO BE SURFACE MOUNTED TO WALLS, COORDINATE WITH STARBUCKS PROJECT DEVELOPMENT MANAGER FOR APPROVAL.
8. VERIFY LOCATION OF ALL OUTLETS AND SWITCHES WITH ARCHITECTURAL DRAWINGS, INTERIOR DETAILS, FINISH SCHEDULES, GENERAL CONTRACTOR, EQUIPMENT VENDORS, STARBUCKS AND EXISTING SITE CONDITIONS. VERIFY FINAL DOOR HINGE LOCATION PRIOR TO SWITCH INSTALLATION AND ADJUST SWITCH LOCATION IF NEEDED. DO NOT MOUNT RECEPTACLES/SWITCHES IN LOCATIONS THAT WOULD CONFLICT WITH MIRRORS, SEAMS OF WALLS, WAINSCOTS, TILE TRANSITIONS, ETC.

WIRELESS NETWORK NOTES

CABLING FOR INTERNET SERVICE SHALL BE FURNISHED AND INSTALLED BY THE VENDOR FOR FIBER OR BROADBAND CONNECTIONS. T1 AND ETHERNET EXTENSION CABLING IS TO BE PROVIDED BY THE LICENSEE'S (TELEPHONE/ NETWORK) CABLING VENDOR. COORDINATE WITH THE LICENSEE.

FIRE ALARM SYSTEM NOTES

FIRE ALARM WIRING AND SYSTEM PROVIDED BY LICENSEE. VERIFY SYSTEM REQUIREMENTS WITH LICENSEE PRIOR TO START OF CONSTRUCTION.

POS \ DATA LINE NOTES

POINT OF SALE WIRING AND SYSTEM PROVIDED BY LICENSEE. VERIFY SYSTEM REQUIREMENTS WITH LICENSEE PRIOR TO START OF CONSTRUCTION.

TELEPHONE SYSTEM NOTES

TELEPHONE WIRING AND SYSTEM PROVIDED BY LICENSEE. VERIFY SYSTEM REQUIREMENTS WITH LICENSEE PRIOR TO START OF CONSTRUCTION.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITIES HAVING JURISDICTION
APPROX	APPROXIMATE
BLDG	BUILDING
CKT	CIRCUIT
CLG	CEILING
CONST	CONSTRUCTION
CW	COLD WATER
CXA	COMMISSIONING AGENT
DEG	DEGREES
DL	LIGHTS WITHIN DAYLIGHT ZONE
DM	STARBUCKS DESIGN MANAGER
DN	DOWN
DTL	DETAIL
DWG(S)	DRAWING(S)
EA	EACH
EC	ELECTRICAL CONTRACTOR
ECP	EQUIPMENT CONTROL PAC
EG	EXHAUST GRILLE
ELEC	ELECTRICAL
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EXIST	EXISTING
EXT	EXTERIOR
FC	STARBUCKS FIXTURE CONTRACTOR
F&I	FURNISH & INSTALL
FLR	FLOOR
FT	FOOT/FEET
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HR	HOUR
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HW	HOT WATER
LCP	LIGHTING CONTROL PANEL
LC	LICENSEE
LS	LIGHT SENSOR PHOTOCELL
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, AND PLUMBING
MFG	MANUFACTURER
MIN	MINIMUM
NL	NIGHTLIGHT
NTS	NOT TO SCALE
OCP	OVERCURRENT PROTECTION
PDM	STARBUCKS PROJECT DEVELOPMENT MANAGER
REF	REFERENCE
REQ('D)	REQUIRE(D)
REV	REVISION
SB	STARBUCKS
SF	SQUARE FEET
SHT	SHEET
SPECS	SPECIFICATION(S)
SST	STAINLESS STEEL
TEL	TELEPHONE
TEMP	TEMPORARY
TYP	TYPICAL
UC	UNDER COUNTER
UNO	UNLESS NOTED OTHERWISE
WH	WATER HEATER
WP	WEATHER PROOF

PROJECT DESCRIPTION:

RENOVATING AN EXISTING STARBUCKS STORE. DESIGN INCLUDES RELOCATION AND ADDITION OF LIGHTING, ADDITION OF EQUIPMENT.

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PROJECT NO. 2025-07131

PROJECT NAME:
STARBUCKS RENOVATION - GREATER COLUMBUS CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
ELECTRICAL NOTES

SCALE: AS SHOWN

SHEET NUMBER:
E001

ELECTRICAL SINGLE-LINE LEGEND

———	CONDUIT & WIRE
- - - - - - - - - -	CONDUIT & WIRE TO BE REMOVED
———	EXISTING CONDUIT & WIRE TO REMAIN
— — — —	INTEGRATED EQUIPMENT ENCLOSURE
— — — —	SWITCHBOARD ENCLOSURE
═══	BUSSING
#	FAULT CURRENT REFERENCE POINT
- W- PH-	FEEDER WIRE SIZE SYMBOL SPECIAL CONFIGURATION: 2P=TWO POLE NO NEUTRAL, S=SECONDARY, SE=SERVICE ENTRANCE, V=VOLTAGE DROP # OF PHASES # OF CONDUCTORS FEEDER AMPERAGE MATERIAL, A=ALUMINUM, C=COPPER
△	DELTA SYMBOL
	DISCONNECT
	DRAWOUT CONNECTION
M	ELECTRIC METER
A	EQUIPMENT AMMETER
	EQUIPMENT CAPACITOR
	EQUIPMENT CONTACTOR
	EQUIPMENT CURRENT TRANSFORMER
	EQUIPMENT GROUND
	EQUIPMENT WYE SIDE OF TRANSFORMER WITH GROUND
	FUSED CUTOUT
	FUSED SWITCH - PRIMARY
	FUSED SWITCH - SECONDARY
G	GENERATOR
GFP	GROUND FAULT PROTECTOR
K	KEYED INTERLOCK
	MOTOR
	MOTOR STARTER
	MOTOR STARTER AND DISCONNECT
	PANELBOARD - MAIN LUG ONLY
	PANELBOARD - DOUBLE SET OF LUGS
	PANELBOARD - MAIN BREAKER
	PANELBOARD BREAKER
	SHORT CIRCUIT FAULT LOCATION
	SINGLE POLE SWITCH
	SURGE PROTECTIVE DEVICE
	TAP SWITCH WITH GROUND POSITION
	TRANSFORMER
	UNINTERRUPTIBLE POWER SYSTEM
VFD	VARIABLE FREQUENCY DRIVE
▲	VOLTAGE TERMINATION - PRIMARY
● OR •	VOLTAGE TERMINATION - SECONDARY

Panel: K3

Construction Phase: EXISTING

Location: WORKROOM 16 | **Supply From:** K1 | **Voltage:** 208Y/120V-3PH-4W | **Mounting:** Surface | **Enclosure:** Type 1 | **A.I.C. Rating:** EXISTING | **Mains Type:** MLO | **Mains Rating:** 100 A

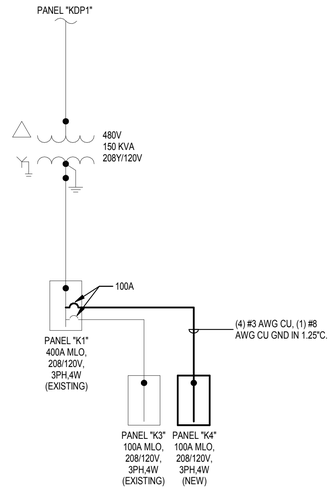
CKT	Circuit Description	SCB Type	Trip	Poles	A		B		C		Poles	Trip	SCB Type	Circuit Description	CKT
1	WATER HEATER	--	40 A	3	3.5	--					1	--	--	SPACE	2
3	--	--	--	--			3.5	--			1	--	--	SPACE	4
5	--	--	--	--					3.5	--	1	--	--	SPACE	6
7	WARE WASHER	--	20 A	2	1.5	--					1	--	--	SPACE	8
9	--	--	--	--			1.5	--			1	--	--	SPACE	10
11	WARMING		20 A	1					0.18	0.18	1	20 A		WARMING	12
13	WARMING		20 A	1	0.18	0.36					1	20 A		LABEL PRINTER	14
15	QUAD RECEPTACLE		20 A	1			1								16
17	Receptacle BACKBAR...		20 A	1					0.36	3.3	1	20 A		BLENDER	18
19	SPACE	--	--	1	--	4.2					1	20 A		BLENDER	20
21	WATER FILTRATION		20 A	1			0.5	0.5			1	20 A		FUTURE EQUIPMENT	22
23	UC FRIDGE		20 A	1					0.86	1.5	1	20 A	--	COFFEE WARMER	24
25	OPTIONAL EQUIPMENT	--	20 A	1	0.5	0.72					1	20 A	--	GENERAL RECEPTACLE	26
27	GRINDER		20 A	1			1	0.5			1	20 A	--	AC ROOM LIGHTS/POWER	28
29	REACH-IN FRIDGE	--	20 A	1					0.86	0.18	1	20 A	--	BAR TOP SEATING RECEPTACLE	30
				Total Load:	10.96 kVA		8.50 kVA		10.92 kVA						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Other	10,500 VA	100.00%	10,500 VA		
Receptacle	12,620 VA	89.62%	11,310 VA	**Total Conn. Load:**	30.38 kVA
Miscellaneous	7,260 VA	100.00%	7,260 VA	**Total Est. Demand:**	29.07 kVA
				Total Conn.:	84 A
				Total Est. Demand:	81 A

Special Circuit Breaker (SCB) Types: GF=GFCI Breaker, ST=Shunt Trip Breaker, AF=AFCI Breaker, GP=GFPE Breaker

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
30.38 kVA		29.07 kVA (81 A)



1 **PARTIAL SERVICE ONELINE DIAGRAM (EXISTING)**
SCALE: NONE

Panel: K1

Construction Phase: EXISTING

Location: WORKROOM 16 | **Supply From:** | **Voltage:** 208Y/120V-3PH-4W | **Mounting:** Surface | **Enclosure:** Type 1 | **A.I.C. Rating:** EXISTING | **Mains Type:** MLO | **Mains Rating:** 400 A

CKT	Circuit Description	SCB Type	Trip	Poles	A		B		C		Poles	Trip	SCB Type	Circuit Description	CKT
1	AHU-2	--	60 A	2	5	10.96					3	100 A		PANEL K3	2
3	--	--	--	--			5	8.5			--	--	--	--	4
5	HEAT PUMP	--	40 A	2					3.3	10.92	--	--	--	--	6
7	--	--	--	--	3.3	1					1	20 A	--	PHONE BOARD	8
9	HEAT PUMP	--	40 A	2			3.3	1.5			1	20 A		INSTANT HOT WATER...	10
11	--	--	--	--					3.3	0.86	1	20 A		UC FRIDGE	12
13	AHU	--	60 A	2	5	0.18					1	20 A		MANAGER'S DESK	14
15	--	--	--	--			5	0.18			1	20 A		POS RECEPTACLE	16
17	ESPRESSO MACHINE		50 A	2					2.9	0.18	1	20 A		POS	18
19	--	--	--	--	2.9	3					2	40 A	--	CONDENSOR	20
21	ESPRESSO MACHINE		50 A	2			2.9	3			--	--	--	--	22
23	--	--	--	--					2.9	0	1	20 A	--	SPARE	24
25	WARMING OVEN	--	30 A	2	3	0.5					1	20 A	--	TIME CLOCK	26
27	--	--	--	--			3	1.2			2	30 A	--	REACH IN FRIDGE	28
29	WARMING OVEN	--	30 A	2					3	1.2	--	--	--	--	30
31	--	--	--	--	3	0.2					1	20 A	--	EXIT/EM LIGHTING	32
33	BREWER		50 A	2			4.16	1			1	20 A	--	AUDIO CABINET	34
35	--	--	--	--					4.16	0	1	20 A	--	AMP/STEREO	36
37	FOOD CASE	--	20 A	2	1.2	7.72					3	100 A		PANEL K4	38
39	--	--	--	--			1.2	7.14			--	--	--	--	40
41	DATA CABINET	--	20 A	1					1	6.17	--	--	--	--	42
				Total Load:	46.96 kVA		47.08 kVA		39.89 kVA						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	1,603 VA	125.00%	2,004 VA		
Motor	2,800 VA	125.00%	3,500 VA	**Total Conn. Load:**	133.92 kVA
Other	20,320 VA	100.00%	20,320 VA	**Total Est. Demand:**	120.92 kVA
Receptacle	38,200 VA	63.09%	24,100 VA	**Total Conn.:**	372 A
Miscellaneous	71,000 VA	100.00%	71,000 VA	**Total Est. Demand:**	336 A

Special Circuit Breaker (SCB) Types: GF=GFCI Breaker, ST=Shunt Trip Breaker, AF=AFCI Breaker, GP=GFPE Breaker

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
133.92 kVA		120.92 kVA (336 A)

Panel: K4

Construction Phase: NEW

Location: WORKROOM 16 | **Supply From:** K1 | **Voltage:** 208Y/120V-3PH-4W | **Mounting:** Surface | **Enclosure:** Type 1 | **A.I.C. Rating:** | **Mains Type:** MLO | **Mains Rating:** 100 A

CKT	Circuit Description	SCB Type	Trip	Poles	A		B		C		Poles	Trip	SCB Type	Circuit Description	CKT
1	L-CAFE		20 A	1	0.42	1.2					1	20 A	--	BOOSTER PUMP	2
3	L-CAFE		20 A	1			0.3	1			2	20 A	--	AIR HANDLER	4
5	L-MENU BOARD		20 A	1					0.05	1	--	--	--	--	6
7	UC FRIDGE, PRINTER		20 A	1	1.86	1.4					2	20 A		FOOD CASE	8
9	WATER FILLING...		20 A	1			0.18	1.4			--	--	--	--	10
11	INSTANT HOT		20 A	1					0.18	1.5	2	20 A		ICE MACHINE	12
13	UC FRIDGE, HOS05-01		20 A	1	0.36	1.5					--	--	--	--	14
15	Receptacle BACKBAR...		20 A	2			2.9	0.86			1	20 A	--	REACH-IN FRIDGE	16
17	--	--	--	--					2.9	0.18	1	20 A	--	RECEPT @ SINK	18
19	SPARE	--	20 A	1	0	0.5					1	20 A	--	IN-LINE SIGN	20
21	SPARE	--	20 A	1			0	0.5			1	20 A	--	DISK DOOR SIGN	22
23	SPARE	--	20 A	1					0	0.36	1	20 A		L-BACK BAR	24
25	SPARE	--	20 A	1	0	0.48					1	20 A		L-WORK ROOM	26
27	SPARE	--	20 A	1			0	0			1	20 A	--	SPARE	28
29	SPARE	--	20 A	1					0	0	1	20 A	--	SPARE	30
31	SPARE	--	20 A	1	0	0					1	20 A	--	SPARE	32
33	SPARE	--	20 A	1			0	0			1	20 A	--	SPARE	34
35	SPARE	--	20 A	1					0	0	1	20 A	--	SPARE	36
37	SPARE	--	20 A	1	0	0					1	20 A	--	SPARE	38
39	SPARE	--	20 A	1			0	0			1	20 A	--	SPARE	40
41	SPARE	--	20 A	1					0	0	1	20 A	--	SPARE	42
				Total Load:	7.72 kVA		7.14 kVA		6.17 kVA						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	1,603 VA	125.00%	2,004 VA		
Motor	2,800 VA	125.00%	3,500 VA	**Total Conn. Load:**	21.02 kVA
Receptacle	12,580 VA	89.75%	11,290 VA	**Total Est. Demand:**	20.83 kVA
Miscellaneous	4,040 VA	100.00%	4,040 VA	**Total Conn.:**	58 A
				Total Est. Demand:	58 A

Special Circuit Breaker (SCB) Types: GF=GFCI Breaker, ST=Shunt Trip Breaker, AF=AFCI Breaker, GP=GFPE Breaker

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
21.02 kVA		20.83 kVA (58 A)

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PROJECT NO. 2025-07131

PROJECT NAME: STARBUCKS RENOVATION - GREATER COLUMBUS CONVENTION CENTER

PROJECT ADDRESS: 400 NORTH HIGH STREET COLUMBUS, OH 43215

STORE #: 28128
PROJECT #: 67357-004
ISSUE DATE: 09/10/2025
DESIGN MANAGER: JEFFREY JAMES
PRODUCTION DESIGNER: MAV
CHECKED BY: JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE: PANELBOARD SCHEDULES
SCALE: AS SHOWN

SHEET NUMBER: E002

SPECIALTY EQUIPMENT SCHEDULE - "E"

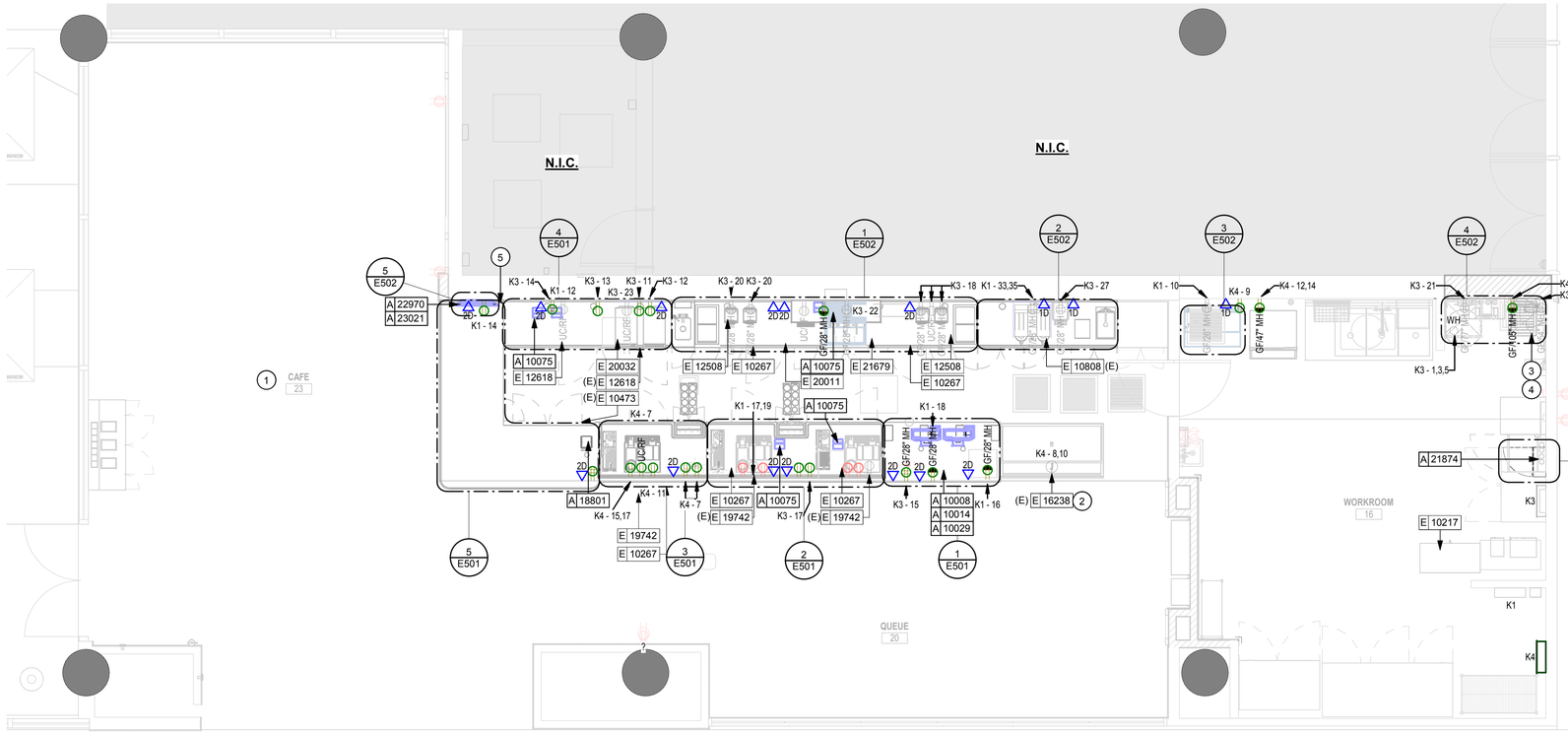
DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
COOLING					
10267	5	FRIDGE UNDERCOUNTER 1 DOOR - 27IN 685MM	SB	GC	
12618	1	FRIDGE UNDERCOUNTER 1 DOOR WITH SHELF - 27IN 685MM	SB	GC	
20011	1	FRIDGE NITRO 2 TAP JT NITCOM RH	SB	GC	KIT INCLUDES UNDERCOUNTER FRIDGE, FONT, TRAY, AND TUBING
EQUIPMENT					
12508	4	BLENDER QUIET MODEL ON COUNTER	SB	GC	
19742	1	ESPRESSO MACHINE MASTRENA II	SB	GC	
20032	2	OVEN EIKON E2S - BLACK	SB	GC	
21679	1	NITROGEN GENERATOR ELEMENT COMPACT	SB	GC	
22885	1	BREWER CLOVER VERTICA DOUBLE	SB	GC	
23380	1	BREWER CLOVER VERTICA DOUBLE INSTALL KIT	SB	GC	
23381	1	BREWER CLOVER VERTICA DOUBLE POWER CORD	SB	GC	
ICE					
10344	2	ICE - BIN DROP IN 90LB 40KG	SB	GC	
19278	2	ICE - BIN DROP IN 45LB 20KG HORIZONTAL	SB	GC	
OTHER					
10396	2	CUP DISPENSER SHORT HOT VERTICAL	SB	GC	
10791	6	CUP DISPENSER GRANDE VENTI COLD VERTICAL	SB	GC	
10855	6	CUP DISPENSER GRANDE VENTI HOT VERTICAL	SB	GC	
10992	1	PAPER TOWEL DISPENSER HALF SIZE - TRANSLUCENT GRAY	LC	GC	
11115	1	SOAP DISPENSER SINK MOUNTED	SB	GC	
11130	2	CORNER GUARD - 0.375IN 10MM - ANODIZED ALUMINUM	GC	GC	
13330	2	MOBILE CUP DISPENSER CADDY	SB	GC	
13584	2	CUP DISPENSER TRENTA COLD VERTICAL	SB	GC	
20403	6	KEG - 3GAL	SB	GC	
22627	1	NITRO 2 TAP HANDLE WITH BADGE AND MOUNT KIT	SB	GC	JOE TAP, FOR USE AT BACKBAR NITRO FONT
STORAGE					
13834	1	BASE - 24X18IN 610X455MM	SB	SB	ITEM PROVIDED BY PENTAIR FOR USE WITH WATER FILTRATON SYSTEM
21934	1	PASTRY TRAY RACK UNDERCOUNTER - 30IN 760MM	SB	GC	
24271	1	FILTER - 20 GALLON RO SYSTEM STORAGE TANK SHELF	SB	SB	ITEM PROVIDED BY PENTAIR FOR USE WITH WATER FILTRATON SYSTEM

DATA DEVICE SCHEDULE - "A"

DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
AUDIO VISUAL					
18801	2	DIGITAL PRODUCTION MANAGER	SB	GC	COORDINATED BY STARBUCKS CONNECT TEAM. INCLUDES ASSOCIATED CABLES AND UPS POWER SUPPLY.
DATA					
21874	1	PRODUCTION CONTROLLER	SB	SB	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR. INCLUDES DELL WYSE 7040, SLIM LINE RETAIL CABINET RXL-4061 (AS REQUIRED FOR BOH INSTALLATION), ASSOCIATED CABLES AND UPS POWER SUPPLY.
GRAPHICS - INTERIOR MENU					
22970	1	MENU BOARD - DIGITAL DISPLAY - 44X25.25IN 1121X644MM - BLACK	SB	GC	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR.
23021	1	MENU BOARD - ORDER STATUS BOARD MOUNTING BRACKET - BLACK	SB	GC	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR.
POINT OF SALE					
10008	2	POS - REGISTER WITH COMPACT CASH DRAWER	SB	SB	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR. INCLUDES NCR POS, SCANNER, (2) NCR CASH DRAWERS FOR EACH REGISTER, CABLES, LOCK AND CYBERPOWER UPS.
10014	2	POS PRINTER	SB	SB	COORDINATED BY STARBUCKS CONNECT TEAM AND NCR. INCLUDES RECEIPT PRINTER AND CABLES.
10029	4	POS BANK	SB	SB	
10075	5	CUP LABELER	SB	SB	COORDINATED BY STARBUCKS CONNECT TEAM. INCLUDES ASSOCIATED CABLES AND UPS POWER SUPPLY.
X3000	2	PAYMENT ENTRY DEVICE (PED)	LC	SB	PAYMENT ENTRY DEVICES ARE PROVIDED BY LC THROUGH ELAVON OR FREEDOMPAY. ALL OTHER EQUIPMENT AND PERIPHERAL DEVICES ARE PROVIDED BY STARBUCKS CONNECT VIA NCR

RELOCATED (EXISTING) SPECIALTY EQUIPMENT SCHEDULE - "E"

DESIGN ID	COUNT	DESCRIPTION	COMMENTS
COOLING			
10473	1	FRIDGE UNDERCOUNTER 2 DOOR - 48IN 1220MM	
12618	1	FRIDGE UNDERCOUNTER 1 DOOR WITH SHELF - 27IN 685MM	
EQUIPMENT			
10808	1	GRINDER DITTING KR1203	
19742	2	ESPRESSO MACHINE MASTRENA II	
FOOD CASE			
16238	1	FOOD CASE - ZEPHYR - 66IN 1675MM	
ICE			
13679	1	ICE - MACHINE WITH BIN ICE1006HW B55 WATER COOLED	
OTHER			
10977	1	PAPER TOWEL DISPENSER FULL SIZE	
STORAGE			
10217	1	SECURITY CAGE - 38IN 965MM	



1 **ELECTRICAL DESIGN PLAN**
SCALE: 1/4" = 1'-0"

KEY PLAN NOTES

1. CONVENIENCE OUTLETS LOCATED IN RETAIL AREA AT 18" AFF.
2. RUN ELECTRICAL FROM STUB-UPS IN POS CABINET TO J-BOX FOR FOOD CASE.
3. PROVIDE ELECTRICAL CONNECTION FOR WATER HEATER AS REQUIRED.
4. PROVIDE QUADPLEX OUTLET AT 52" AFF FOR WATER SOFTENER.
5. PROVIDE ELECTRICAL CONNECTIONS AS REQUIRED FOR INTERNAL AND EXTERNAL ILLUMINATED SIGNAGE.

GENERAL NOTES

A. REFER TO ELECTRICAL DETAIL SHEETS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL DEVICES.

B. LICENSEE'S ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ALL VOLTAGE REQUIREMENTS ON ALL EQUIPMENT AND PROVIDING BUCK-BOOST TRANSFORMERS AS MAY BE NEEDED FOR CODE. ALL ARE NOT NECESSARILY INDICATED.

C. LICENSEE'S ELECTRICAL CONTRACTOR SHALL COORDINATE WITH PLUMBING AND HEATING, VENTILATING,AND AIR CONDITIONING (HVAC) CONTRACTORS FOR ANY ADDITIONAL EQUIPMENT NEEDING POWER.

D. ANY EQUIPMENT NOTED AS 'FUTURE' SHALL BE PROVIDED WITH APPROPRIATE RECEPTACLES AND WIRING TO ENABLE FUTURE OPERATION.

E. GROUND FAULT CIRCUIT INTERRUPTER (GFCI) BREAKERS (NOT RECEPTACLES) SHALL BE UTILIZED WHERE REQUIRED BY CODE AND AT ANY FLOOR BOXES. PROVIDE DEDICATED NEUTRAL WIRE FOR ALL THESE CIRCUITS.

F. EQUIPMENT REQUIRES CONNECTION TO THE BUILDING ELECTRICAL SYSTEM. FURNISH AND INSTALL ALL NECESSARY CONDUIT, WIRE, CONNECTIONS, RECEPTACLES AND OVERCURRENT PROTECTION NECESSARY TO ENSURE THE EQUIPMENT FUNCTIONS PROPERLY AND COMPLIES WITH ALL APPLICABLE LOCAL AND NATIONAL CODES. COORDINATE EQUIPMENT REQUIREMENTS WITH MANUFACTURER CUT SHEET PRIOR TO ROUGH-IN.

G. ALL FRONT BAR J-BOXES AND OUTLETS SHALL BE SURFACE MOUNTED. PROVIDE CONDUITS AS NEEDED AND ONE (1) ADDITIONAL SPARE CONDUIT BETWEEN ALL J-BOXES FOR FUTURE ELECTRICAL REQUIREMENTS. ALL J-BOXES SHALL BE POSITIONED TO AVOID OBSTRUCTION OF ANY EQUIPMENT SUCH AS REFRIGERATORS AND DISHWASHERS.

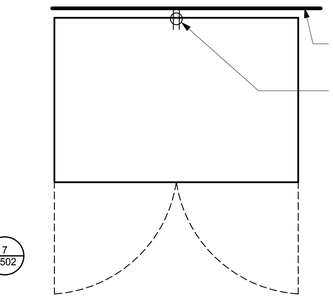
LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR



2 **REFRIGERATOR/FREEZER - ELECTRICAL**
SCALE: 3/4" = 1'-0"

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Revision Schedule

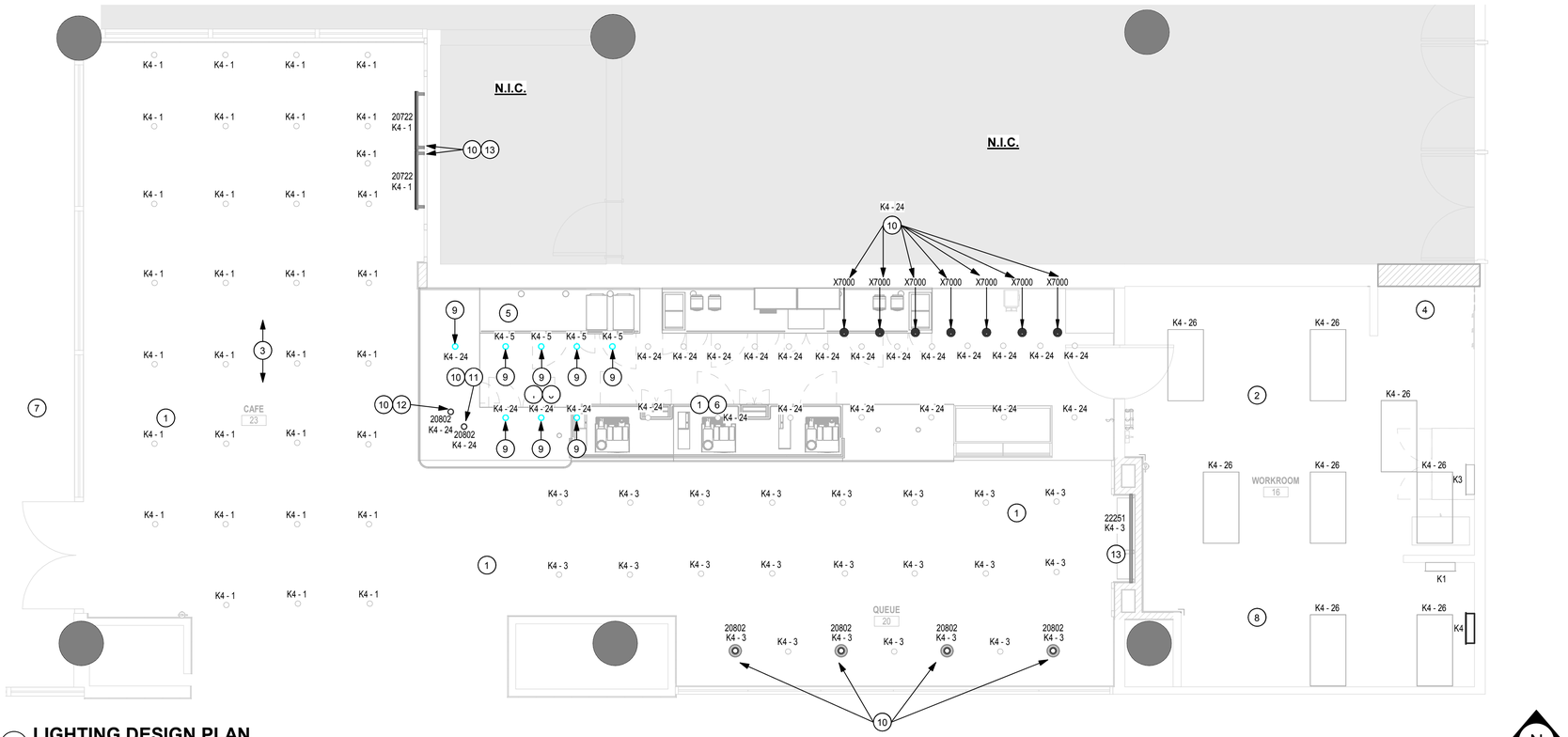
Rev	Date	By	Description

SHEET TITLE: ELECTRICAL DESIGN PLAN
SCALE: AS SHOWN

SHEET NUMBER: E101

LIGHTING FIXTURE SCHEDULE - "L"

DESIGN ID	Mounting	COUNT	DESCRIPTION	Voltage	FURN. BY	INST. BY	BULB	COMMENTS	Classification
PENDANT									
20802	STEM MOUNT	4	PENDANT - SCHOOLHOUSE ELECTRIC ISAAC - NATURAL BRASS	120 V	SB	GC	AS PACKAGED: 1X LED G25 6W E26 BASE	10W	PENDANT
RECESSED CAN									
X7000	RECESSED	7	CAN - LED ADJUSTABLE RECESSED - ACUITY AIMING ELBOW JUNO 449 WHITE	120 V	SB	GC	INTEGRATED LED	50W, CATALOG NUMBER: 449 WH	RECESSED CAN
SCONCE									
20722	WALL MOUNT	2	SCONCE - JUNIPER THIN - 36IN 915MM - SATIN BRASS	120 V	SB	GC	INTEGRATED LED	13W	SCONCE
STRIP									
22251	CEILING SURFACE	1	STRIP - LED TAPE IN HOUSING - VARIABLE LENGTH - WHITE - 800LM PER FT	120 V	SB	GC	INTEGRATED LED	LLX18X2-WET-T-30K-SL-NC-W/ 1414C-84-F-WH HOUSING 48W	STRIP



1 **LIGHTING DESIGN PLAN**
SCALE: 1/4" = 1'-0"

KEY PLAN NOTES

1. GWB SOFFIT WITH SMOOTH FINISH (PAINT AS SCHEDULED).
2. WASHABLE CEILING TILE LOCATED IN BACK OF HOUSE.
3. PAINT EXISTING EXPOSED DUCT WORK DID: 20416/SW6102 PORTABELLO.
4. PLATFORM FOR WATER HEATER AND WATER FILTRATION EQUIPMENT. LIFT CEILING IN THIS AREA ONLY TO ENSURE ADEQUATE CLEARANCES FOR SERVICING.
5. BUILDING SIGNAGE. SEE ELEVATIONS FOR ADDITIONAI INFORMATION.
6. ADJUST FOCUS OF ALL RECESSED DIRECTIONAL LIGHTING TO FULLY ILLUMINATE MENU BOARDS, MERCHANDISE BAYS, AND ARTWORK.
7. EXISTING PATIO CEILING FINISH AND LIGHTING TO REMAIN.
8. NEW ACT INFILL IN WORKROOM TO MATCH EXISTING. ALIGN WITH EXISTING LAYOUT.
9. LIGHT FIXTURES TO BE RELOCATED. SEE RCP ON SHEET E101 FOR NEW LOCATION. EC SHALL CLEAN AND RELAMP (IF NEEDED). IF LIGHT FIXTURE IS NOT OPERABLE, THE EC SHALL PROVIDE AN EQUAL FOR THE PROPOSED WORK.
10. CONTRACTOR SHALL TIE IN NEW FIXTURES TO EXISTING LIGHTING BRANCH CIRCUIT SERVING THIS AREA. LOAD SHALL NOT EXCEED 1.92 KVA ON A 120V, 20A CIRCUIT.
11. SUSPEND BOTTOM OF PENDANT LIGHT FIXTURE AT 6' - 0" AFF.
12. SUSPEND BOTTOM OF PENDANT LIGHT FIXTURE AT 6' - 6" AFF.
13. CONTRACTOR SHALL PROVIDE POWER SUPPLY AND INSTALL IN A CONCEALED LOCATION. REFER TO OWNER FOR ADDITIONAL CONTROL INFORMATION.

GENERAL NOTES

A. ALL FIXTURES IN WORK ROOM, BACK AND FRONT LINE, ABOVE CONDIMENT CART, AND ANY OTHER AREAS WHERE EXPOSED FOOD, CLEAN EQUIPMENT OR UTENSILS, OR UNWRAPPED SINGLE SERVICE ITEMS WILL BE EXPOSED, SHALL HAVE SHATTERPROOF LAMPS IF THE FIXTURE IS NOT LENSED. ARCHITECT OF RECORD TO INCLUDE APPROPRIATE LAMPS / FIXTURES ON DRAWINGS AND SCHEDULES, AND COMPLY WITH ANY ADDITIONAL JURISDICTIONAL LIGHTING REQUIREMENT.

B. PROVIDE GROMMET AT ALL CEILING PENETRATIONS FOR FIXTURES/SUPPORTS.

C. ARCHITECT OF RECORD TO SPECIFY AND LOCATE EMERGENCY LIGHTS AND EXITS SIGNS AS REQUIRED BY CODE. FIXTURES TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR.

D. ADJUST FOCUS OF ALL TRACK AND RECESSED DIRECTIONAL LIGHTING TO FULLY ILLUMINATE ALL ARTWORK, MENU BOARDS, AND MERCHANDISE BAYS. COORDINATE AIMING WITH OWNER.

E. IF PENDANT CYLINDERS CAN SUSPENDED LENGTH EXCEEDS 48" (1220MM) FROM CEILING, REPLACE WITH SURFACE MOUNTED CYLINDER CANS AND SUSPEND WITH GENERAL CONTRACTOR SUPPLIED CONDUIT AND J-BOX TO DIMENSIONED HEIGHT.

F. BALLAST BOXES, TRANSFORMERS, JUNCTION BOXES, AND WIRING FOR ALL LIGHT FIXTURES TO BE INSTALLED HIDDEN FROM VIEW.

G. COORDINATION WITH OWNER OF FIXTURE COLOR TEMPERATURE SHALL BE DONE PRIOR TO ORDERING.

H. CONTRACTOR SHALL PERFORM A CIRCUIT TRACE TO VERIFY EXISTING CIRCUITS AND LOADS. UPDATE PANEL SCHEDULES ACCORDINGLY.

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

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PROJECT NO. 2025-07131

PROJECT NAME:
STARBUCKS RENOVATION
- GREATER COLUMBUS
CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

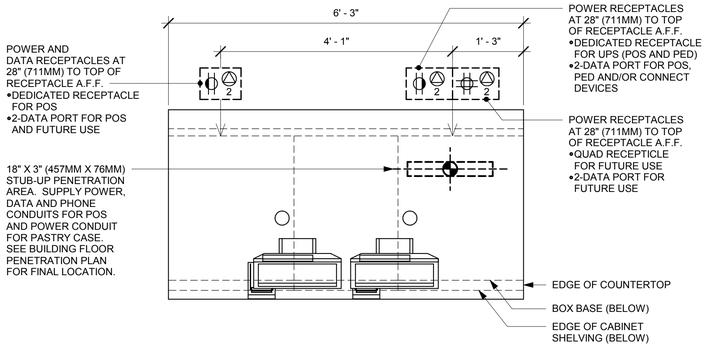
Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
LIGHTING DESIGN PLAN

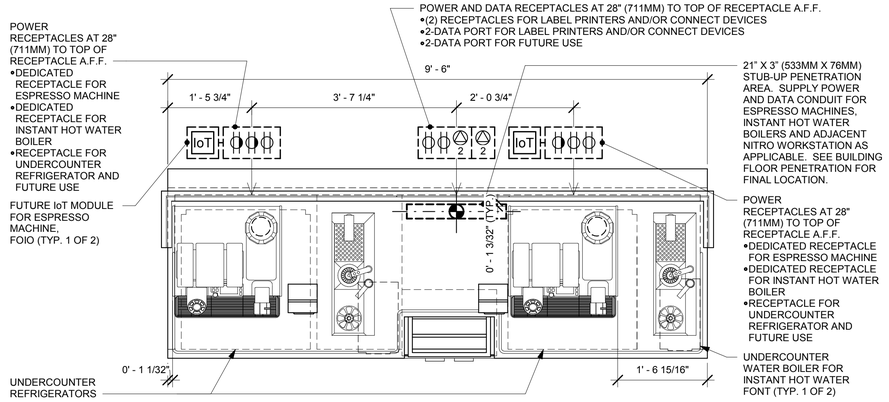
SCALE: AS SHOWN

SHEET NUMBER:
E102



1 POS 02-01 ELECTRICAL

Scale: 3/4" = 1'-0"

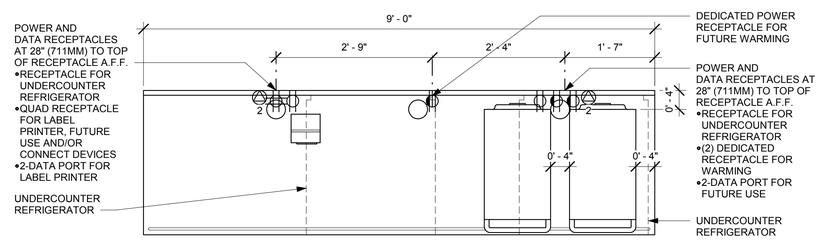


2 ESP 07-03 ELECTRICAL

Scale: 3/4" = 1'-0"

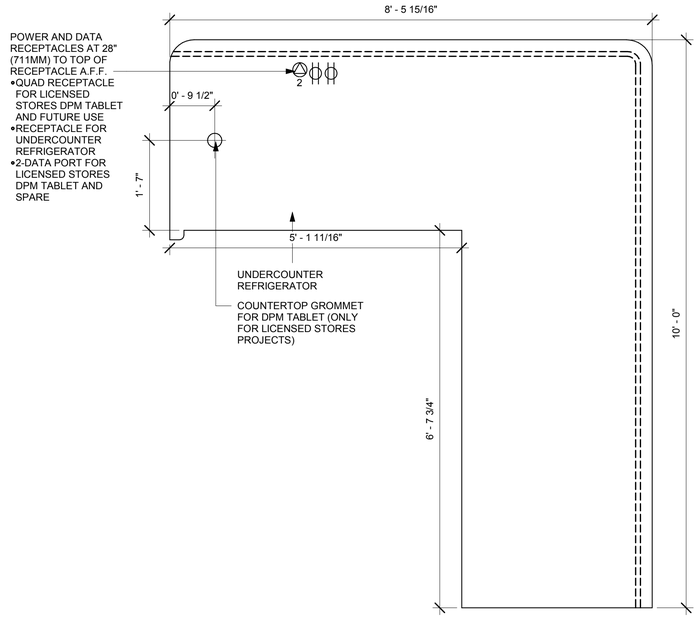
3 ESP 09-03 ELECTRICAL

Scale: 3/4" = 1'-0"



4 WRM 05-02 ELECTRICAL

Scale: 3/4" = 1'-0"



5 HOS 05-01 ELECTRICAL

Scale: 3/4" = 1'-0"

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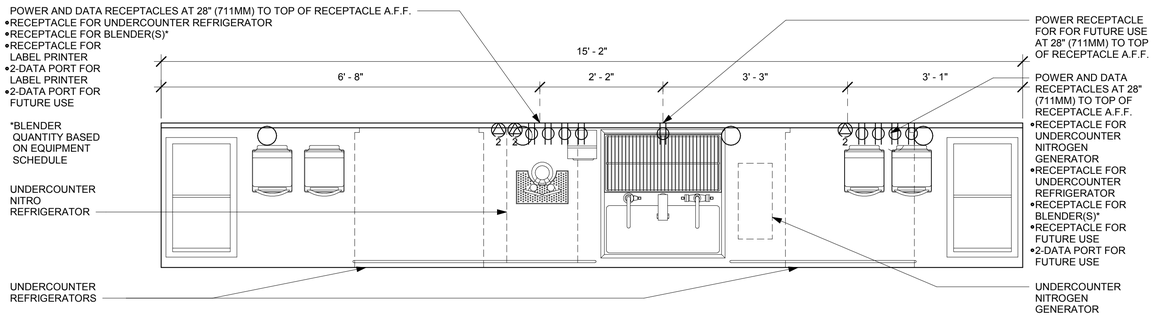
Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
ELECTRICAL DETAILS

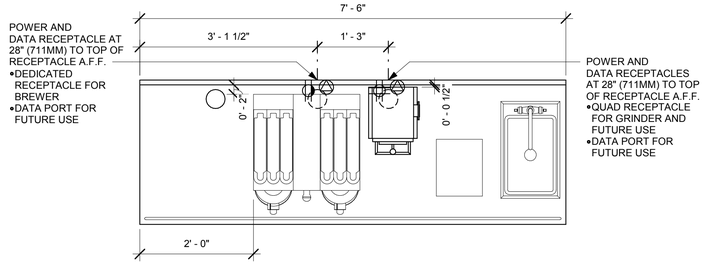
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SHEET NUMBER:
E501



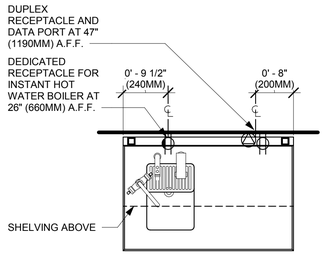
1 CBE ELECTRICAL

Scale: 3/4" = 1'-0"



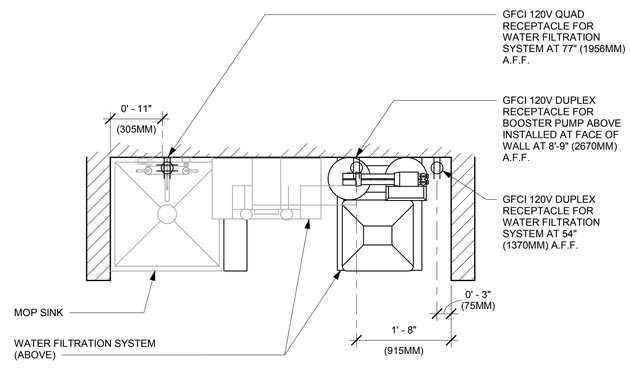
2 BRW 09-01 ELECTRICAL

Scale: 3/4" = 1'-0"



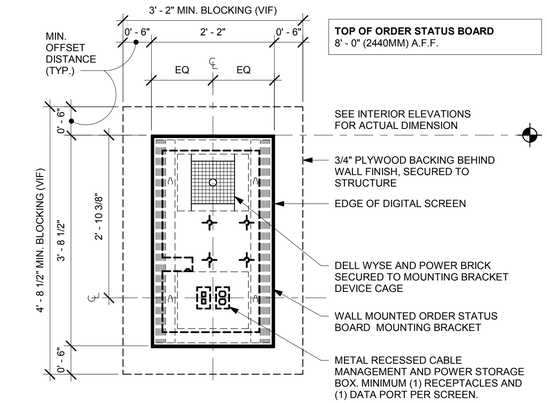
3 WATER FILLING STATION - ELECTRICAL

Scale: 3/4" = 1'-0"



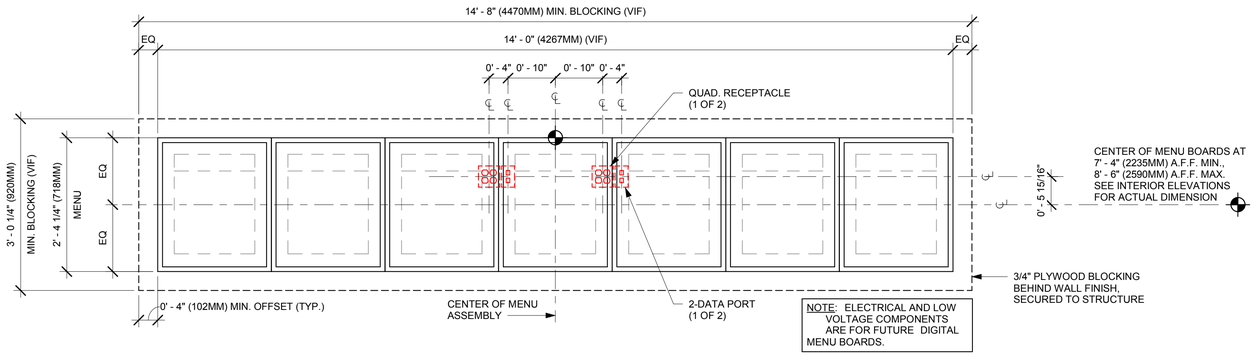
4 WATER FILTRATION - CONFIGURATION III

Scale: 3/4" = 1'-0"



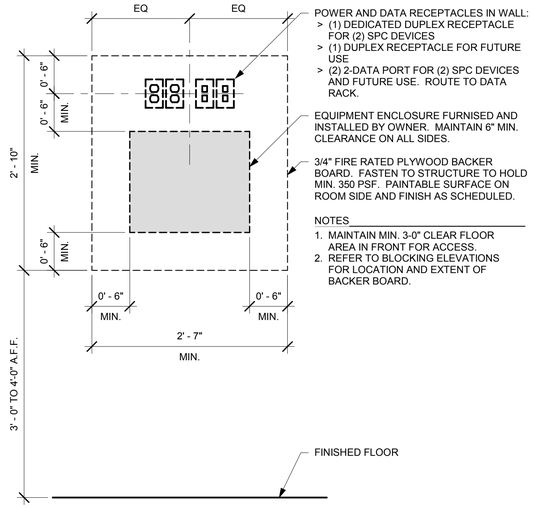
5 ORDER STATUS BOARD INFRASTRUCTURE

Scale: 3/4" = 1'-0"



6 INFRASTRUCTURE FOR FUTURE DIGITAL MENU BOARDS

Scale: 3/4" = 1'-0"



7 SPC ENCLOSURE AT WORKROOM

Scale: 1" = 1'-0"

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ELECTRICAL DETAILS

SCALE: AS SHOWN

SHEET NUMBER:
E502

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITIES HAVING JURISDICTION
APPROX	APPROXIMATE
BLDG	BUILDING
CO2	CARBON DIOXIDE
CD	CEILING DIFFUSER
CLG	CEILING
CONST	CONSTRUCTION
CXA	COMMISSIONING AGENT
DEG	DEGREES
DM	STARBUCKS DESIGN MANAGER
DN	DOWN
DTL	DETAIL
DWG(S)	DRAWING(S)
EA	EACH
EC	ELECTRICAL CONTRACTOR
ECP	EQUIPMENT CONTROL PAC
EG	EXHAUST GRILLE
ELEC	ELECTRICAL
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EXIST	EXISTING
EXT	EXTERIOR
F&I	FURNISH & INSTALL
FC	STARBUCKS FIXTURE CONTRACTOR
FLR	FLOOR
FT	FOOT/FEET
G	GAS PIPING
GC	GENERAL CONTRACTOR
HR	HOUR
HVAC	HEATING, VENTILATION, AIR CONDITIONING
I.D.	INSIDE DIAMETER
IAQ	INDOOR AIR QUALITY
LCP	LIGHTING CONTROL PANEL
LC	LICENSEE
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MFG	MANUFACTURER
MIN	MINIMUM
NTS	NOT TO SCALE
O.D.	OUTSIDE DIMENSION
OSA	OUTSIDE AIR
PDM	STARBUCKS PROJECT DEVELOPMENT MANAGER
REF	REFERENCE
REQ'D	REQUIRED
REV	REVISION
RT	ROOFTOP
SB	STARBUCKS
SF	SQUARE FEET
SHT	SHEET
SPECS	SPECIFICATION(S)
SST	STAINLESS STEEL
TEMP	TEMPORARY
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UC	UNDER COUNTER
WH	WATER HEATER
WSHP	WATER SOURCE HEAT PUMP

MECHANICAL SYMBOL LEGEND

TYPICAL SUPPLY DUCT UP/DN

TYPICAL RETURN OR EXHAUST DUCT UP/DN

TURNING VANES

EF-1 EQUIPMENT DESIGNATION

T THERMOSTAT

S THERMOSTAT SENSOR

SUPPLY AIR ARROW

RETURN AIR ARROW

DUCT HEATER

MANUAL VOLUME DAMPER

BDD BACK DRAFT DAMPER

SD SMOKE DETECTOR

S COMBINATION SMOKE AND FIRE DAMPER

SPIN-IN TAKE-OFF AND VOLUME DAMPER

U UNDERCUT DOOR

CONNECT TO EXISTING

12 X 8 — INDICATES UNLINED 12" X 8" O.D. SHEETMETAL
1ST FIGURE = SIDE SHOWN
2ND FIGURE = SIDE NOT SHOWN

12 X 8 — INDICATED 14" X 10" (355mm X 255mm) O.D. SHEETMETAL W/ 1" (25mm) SOUNDLINER (U.N.O), 12" X 8" (305mm X 205mm I.D. NET

FLEXIBLE DUCT CONNECTION

FLEXIBLE DUCT

12" Ø — NECK SIZE
CD-1 400 — DESIGN CFM (WHERE APPLICABLE)
DIFFUSER TYPE (REFER SCHEDULE)

CEILING DIFFUSER (FLOW ARROWS SHOWN ONLY IF AIR FLOW NOT SYMMETRICAL)

CEILING RETURN / EXHAUST GRILLE

CONTROLS AND OPERATION NOTES

THE GENERAL CONTRACTOR SHALL FURNISH AND INSTALL THE FOLLOWING COMPONENTS IF APPLICABLE FOR THIS PROJECT:

CONTROL WIRING
THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING IN CONDUIT NECESSARY FOR THE COMPLETE AND PROPER OPERATING TEMPERATURE CONTROL SYSTEM INCLUDING ALL MODES OF OPERATION AND INTERLOCK.

EXHAUST FANS
RESTROOM EXHAUST FAN(S) TO BE OPERATED IN CONJUNCTION WITH STORE HOURS UNLESS OTHERWISE NOTED OR APPROVED OR AS REQUIRED BY JURISDICTION (COORDINATE WITH ELECTRICAL).

THERMOSTAT
PERMANENT THERMOSTAT(S) AND REMOTE SENSOR(S) SHALL BE FURNISHED AND INSTALLED. ONE THERMOSTAT AND SENSOR IS PROVIDED FOR EACH UNIT. MOUNT THERMOSTAT(S) AND SENSOR(S) IN LOCATION & HEIGHT AS INDICATED ON DRAWINGS. MECHANICAL CONTRACTOR TO PROVIDE THERMOSTAT IDENTIFICATION LABELS PER SPECIFICATION REQUIREMENTS. REFER TO THERMOSTAT SETUP INSTRUCTIONS BELOW FOR ADDITIONAL REQUIREMENTS.

THERMOSTAT SETUP INSTRUCTIONS
PROVIDE THE FOLLOWING SETUP AND PROGRAMMING:

1. CONFIGURE AS FOLLOWS:
   - A. DEGREES "F" DISPLAY
   - B. 12 HOUR CLOCK
   - C. CONTINUOUS FAN OPERATION IN OCCUPIED MODE
   - D. DISABLE KEYBOARD PROGRAMMING
2. SET TIME AND DATE.
3. SET TO DISPLAY CURRENT TEMPERATURE.
4. SET OCCUPIED START TIME AT 30 MIN. BEFORE OPENING. SET UNOCCUPIED START TIME AT 30 MIN. AFTER CLOSING. VERIFY HOURS WITH STORE MANAGER OR CONSTRUCTION MANAGER.
5. SET POINTS SHALL BE AS FOLLOWS OR AS APPROPRIATE FOR CLIMATE:
   - A. OCCUPIED (5° F DEADBAND) (3° C DEADBAND)
     - I. HEATING: 70° F (21° C)
     - II. COOLING: 75° F (24° C)
   - B. UNOCCUPIED
     - I. HEATING: 60° F (15° C)
     - II. COOLING: 78° F (25° C)
6. SET TWO (2) HOUR OCCUPIED OVERRIDE FUNCTION TO PROVIDE THE FOLLOWING SET POINT OVERRIDES:
   - A. HEATING: +2° F (1° C)
   - B COOLING: -2° F (1° C)

DEMAND CONTROL VENTILATION (DCV)
THE C02 SENSOR SHALL MODULATE THE AIR HANDLING UNIT OUTSIDE AIR DAMPER TO MAINTAIN 1000 PPM C02 OR LESS
OCCUPIED MODE:

1. FAN SHALL RUN CONTINUOUSLY WHILE BRINGING IN MINIMUM DCV OUTSIDE AIR AS INDICATED IN SCHEDULE.
2. IF C02 SENSOR SET POINT IS BELOW THE SETPOINT, THE AIR DAMPER SHALL BE OPEN TO THE CALCULATED DCV MINIMUM OUTSIDE AIR.
3. IF C02 SENSOR SETPOINT IS EXCEEDED, OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN 1000 PPM NOT TO EXCEED THE CALCULATED DESIGN MINIMUM OUTSIDE AIR.
4. UPON C02 PPM FALLING BELOW THE SETPOINT OF 1000 PPM, THE AIR DAMPER SHALL RETURN TO DCV MINIMUM OUTSIDE AIR.
5. THE ECONOMIZER SHALL HAVE PRIORITY OVER THE DCV CONTROLS, OUTSIDE AIR MAY EXCEED DCV MINIMUM AND DESIGN MINIMUM WHEN AIR CONDITIONS ARE APPROPRIATE TO DO SO.

UNOCCUPIED MODE:

1. FAN SHALL CYCLE WITH HEATING AND OUTSIDE AIR DAMPER CLOSED. OUTSIDE DAMPER SHALL NOT BE CYCLED WITH C02 PPM SETPOINT.

DUCTWORK AND ACCESSORIES

SHEET METAL DUCTWORK
ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICE FOR ACHIEVING AIR TIGHT (5% LEAKAGE) AND NOISELESS (NO OBJECTIONABLE NOISE) SYSTEMS. NO VARIATION OF DUCT CONFIGURATION OR SIZES WILL BE PERMITTED EXCEPT BY PERMISSION FROM THE ENGINEER.

DAMPERS
PROVIDE CONVENIENTLY LOCATED ACCESS DOORS OF AMPLE SIZE AND QUANTITY FOR SERVICING THE DAMPERS. PROVIDE MOTORIZED DAMPERS AT ALL INTAKE & EXHAUST BUILDING OPENINGS. COORDINATE WITH OTHER TRADES FOR ACCESS PANELS, POWER AND FIRE ALARM INTERFACES. SEE PROJECT MANUAL.

ACOUSTICAL DUCT LINER
UNLESS OTHERWISE INDICATED ON THE PLANS, PROVIDE 1" (25MM) ACOUSTICAL DUCT LINER IN SUPPLY AND RETURN DUCTWORK WITHIN 10'-0" (305CM) OF THE DISCHARGE AND INTAKE OF AIR HANDLING UNITS. INCREASE DUCT SIZE INDICATED ON PLANS AS NEEDED TO ACCOMMODATE LINER. LINER TO BE PROVIDED AND FASTENED TO DUCT WITH MECHANICAL LINER FASTENERS IN ACCORDANCE WITH SMACNA AND PROJECT MANUAL.

FLEXIBLE DUCTWORK
FLEXIBLE DUCT WORK SHALL ONLY BE INSTALLED AS SHOWN IN PLAN AND NOT ABOVE HARD LID CEILINGS. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" (152CM) IN LENGTH AND TWO 45° ELBOWS. IT SHALL BE PULLED TAUT AND APPROPRIATELY FASTENED TO RIGID BRANCH DUCT & DIFFUSER. BENDS SHALL BE MINIMIZED AND WHERE NEEDED BE A FULL RADIUS BEND. SUPPORT BANDS SHALL BE INSTALLED SO AS TO NOT CRIMP FLEX DUCT. FLEXIBLE DUCTWORK SHALL MEET REQUIREMENTS.

HVAC EQUIPMENT AND MATERIALS

FILTERS
IF OPERATING HVAC DURING CONSTRUCTION, PROVIDE THREE (3) SETS OF 2" (51MM) MERV6 PLEATED DISPOSABLE FILTERS (OR HIGHER RATING IF REQUIRED BY LEED). USE ONE SET UNTIL COMPLETION OF CONSTRUCTION. INSTALL ONE SET AT COMPLETION OF CONSTRUCTION (PRIOR TO TAB) AND DELIVER ONE SET OF MERV13 FILTERS TO STARBUCKS LABELED TO DENOTE THEIR RESPECTIVE AIR HANDLING UNIT.

BRACING AND ANCHORING
ALL MECHANICAL EQUIPMENT, FIXED OR FLEXIBLY MOUNTED, SHALL BE BRACED OR ANCHORED TO COMPLY WITH LOCAL CODES.

TESTING, ADJUSTING, BALANCING

INDEPENDENT AIR BALANCE CONTRACTOR OR QUALIFIED MECHANICAL CONTRACTOR SHALL BE QUALIFIED BY NEBB OR AABC STANDARDS. BALANCER SHALL ACCURATELY BALANCE THE SUPPLY, RETURN AND OUTSIDE AIR, EXHAUST FAN(S), HYDRONIC (WHERE APPLICABLE) AND EXHAUST FAN(S) SYSTEMS TO PROVIDE AIR AND WATER QUANTITIES WITHIN 10% PLUS MINUS OF THE VALUES INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS UNLESS MANUFACTURER REQUIRES TIGHTER TOLERANCES. OPERATE AUTOMATIC CONTROLS SYSTEMS AND VERIFY SETPOINTS FOR THERMOSTATS, C02 SENSORS, DCV, EMS AND ECONOMIZER/OUTSIDE AIR DAMPER. SEE CONTROLS AND OPERATION NOTES AND HVAC SCHEDULES AND NOTES FOR DETAILS. IF DEFICIENCIES OR SITE CONDITIONS PREVENT COMPLETE AND PROPER BALANCING, DO NOT COMPLETE WORK AND SUBMIT A REQUEST FOR INFORMATION TO GET COMPLETE INFORMATION PRIOR TO COMPLETING WORK. SUBMIT THREE (3) COPIES OF THE BALANCE REPORT TO THE ENGINEER, CONSTRUCTION MANAGER AND COMMISSIONING AGENT FOR APPROVAL. THE BALANCE REPORT SHALL INCLUDE NEBB OR AABC CREDENTIALS, EQUIPMENT/INSTRUMENT LIST WITH THE MOST RECENT CALIBRATION DATE AND BALANCE REPORTS FOR ALL HVAC AND EXHAUST SYSTEMS. T&B REPORT SHOULD MATCH NEBB OR AABC STANDARD REPORTS INCLUDING UNIT TEST DATA WITH TEMPERATURES, PRESSURES AND STATIC PRESSURE PROFILES. INCLUDE A COPY OF THE BALANCE REPORT AS APPROVED BY THE ENGINEER WITH APPLICATION FOR FINAL CONTRACT PAYMENT.

THE SYSTEMS PART OF THIS PROJECT ARE EXISTING TO REMAIN. THE TAB CONTRACTOR SHALL PERFORM PRE-PROJECT / PRE-BALANCE TESTING TO RECORD THE EXISTING AIRFLOW SETTINGS. AT COMPLETION OF THE PROJECT, THE TAB CONTRACTOR SHALL PERFORM THE FINAL BALANCE TO RETURN THE SYSTEM TO PRE-PROJECT PERFORMANCE AND AIRFLOWS.

GENERAL MECHANICAL NOTES

1. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO PATCH AND REPAIR ALL EXISTING WALLS, FLOORS, CEILINGS OR OTHER SURFACES IDENTIFIED TO REMAIN THAT MAY BECOME DAMAGED DURING THE COURSE OF WORK.
2. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL INTENT OR ARRANGEMENT OF SYSTEM(S). FURNISH & INSTALL ALL COMPONENTS NEEDED WHETHER INDICATED OR NOT TO PROVIDE A COMPLETE AND OPERATING SYSTEM.
3. CONTRACTOR TO VERIFY ALL DIMENSIONS, INCLUDING CLEARANCES REQUIRED BY OTHER TRADES, AND NOTIFY THE ARCHITECT OF RECORD OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK. ALL DIMENSIONS ARE TO THE FACE OF THE FINISHED SURFACE UNLESS NOTED OTHERWISE. ALL DIMENSIONS TO BE TAKEN FROM ACTUAL BUILDING DIMENSIONS.
4. THE MECHANICAL CONTRACTOR SHALL COORDINATE HVAC WORK WITH OTHER TRADES. THE ARCHITECTURAL DRAWINGS AND PROJECT MANUAL SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. SEE ARCHITECTURAL DRAWINGS AND PROJECT MANUAL FOR DIMENSIONED DIFFUSER LOCATIONS AND MOUNTING HEIGHTS WHERE EXPOSED.
5. NEW DUCTWORK AND EQUIPMENT SHALL NOT BE INSTALLED WHERE IT OBSTRUCTS ANY EXISTING OR NEW AREAS THAT REQUIRE ACCESS.
6. EXISTING EQUIPMENT SHALL BE CLEANED AND REFURBISHED. CLEANING AND REFURBISHMENT SHALL INCLUDE BUT IS NOT LIMITED TO COIL CLEANING, CASING CLEANING, DUCT CLEANING, PAINTING, AND MAINTENANCE CHECKS AS RECOMMENDED BY THE EXISTING UNIT MANUFACTURER.

GENERAL NOTES

SCOPE
THE INTENT OF THE PROJECT MANUAL AND THE DRAWINGS IS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETE THE MECHANICAL WORK.

SITE EXAMINATION
THE MECHANICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK.

PENETRATIONS
WHERE PIPES AND DUCTS PENETRATE WALL, SEAL OPENINGS TO PREVENT AIR TRANSFER BETWEEN SPACES. USE FIRE RATED SEALANTS ON ALL FIRE SEPARATION PENETRATIONS, INCLUDING FLOORS. SEAL AROUND ALL PIPES AND DUCTS PENETRATING FIRE SEPARATIONS WITH NON-COMBUSTIBLE PACKING RETAINED BY METAL COLLARS. THE ASSEMBLY SHALL BE APPROVED BY STATE FIRE MARSHALL.

STANDARDS
EQUIPMENT AND MATERIALS SHALL CONFORM WITH THE APPROPRIATE PROVISIONS OF CSA, ULC, ARL, ASME, ASTM, UL, NEMA, ANSI, SMACNA, ASHRAE, NFPA, AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY.

CODES
ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND PROJECT MANUAL AND THE CODES AND ORDINANCES, USE WHICHEVER IS MORE STRINGENT. THE MECHANICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO STARBUCKS OR THE LICENSEE.

PERMITS AND FEES
THE MECHANICAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY TO COMPLETE THE MECHANICAL WORK.

WARRANTY
THE MECHANICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY STARBUCKS AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

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HEAPY
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PROJECT NO. 2025-07131

PROJECT NAME:
STARBUCKS RENOVATION
- GREATER COLUMBUS
CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

STORE #: 28128
PROJECT #: 67357-004
ISSUE DATE: 09/10/2025
DESIGN MANAGER: JEFFREY JAMES
PRODUCTION DESIGNER: MAV
CHECKED BY: JAKE ROWE

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
MECHANICAL LEGENDS, ABBREV, AND NOTES
SCALE: AS SHOWN

SHEET NUMBER:
M001

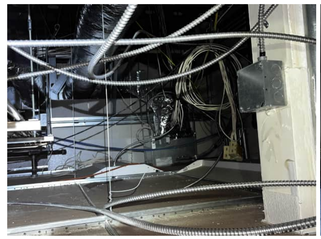




EXISTING HVAC DUCTWORK ABOVE "NEW GWB CEILING INFILL" SHOWS SPACE AVAILABLE FOR NEW LIGHTING INSTALLATION.

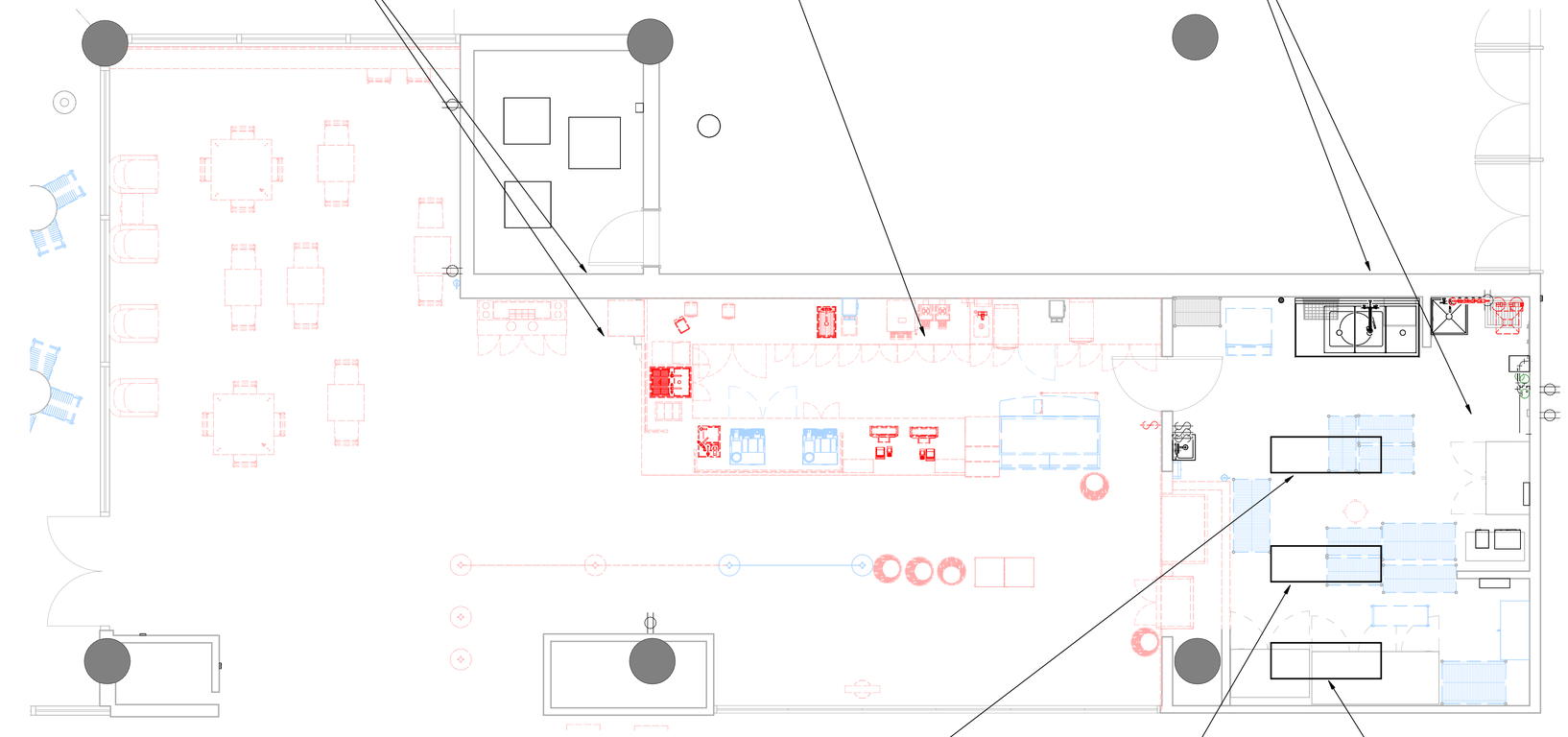


EXISTING HVAC DUCTWORK ABOVE THE "BACKBAR" CEILING SHOWS SPACE AVAILABLE FOR NEW LIGHTING INSTALLATION.





EXISTING EXHAUST FAN ABOVE CEILING ROUTED TO DISCHARGE AT LOUVER LOCATED IN THE EXTERIOR WALL

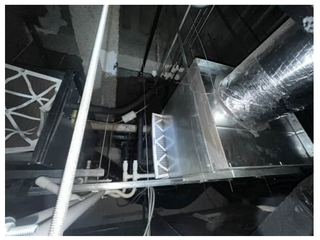


1 **HVAC 1ST FLOOR**
SCALE: 1/4" = 1'-0"

EXISTING AHU-2



EXISTING AHU-1



EXISTING AHU-3



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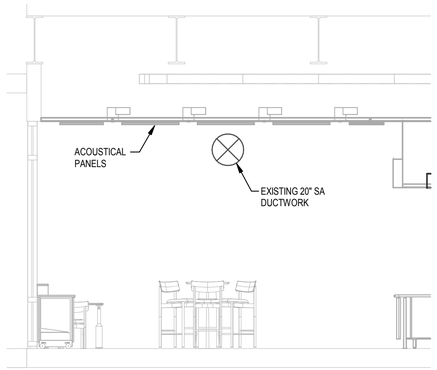
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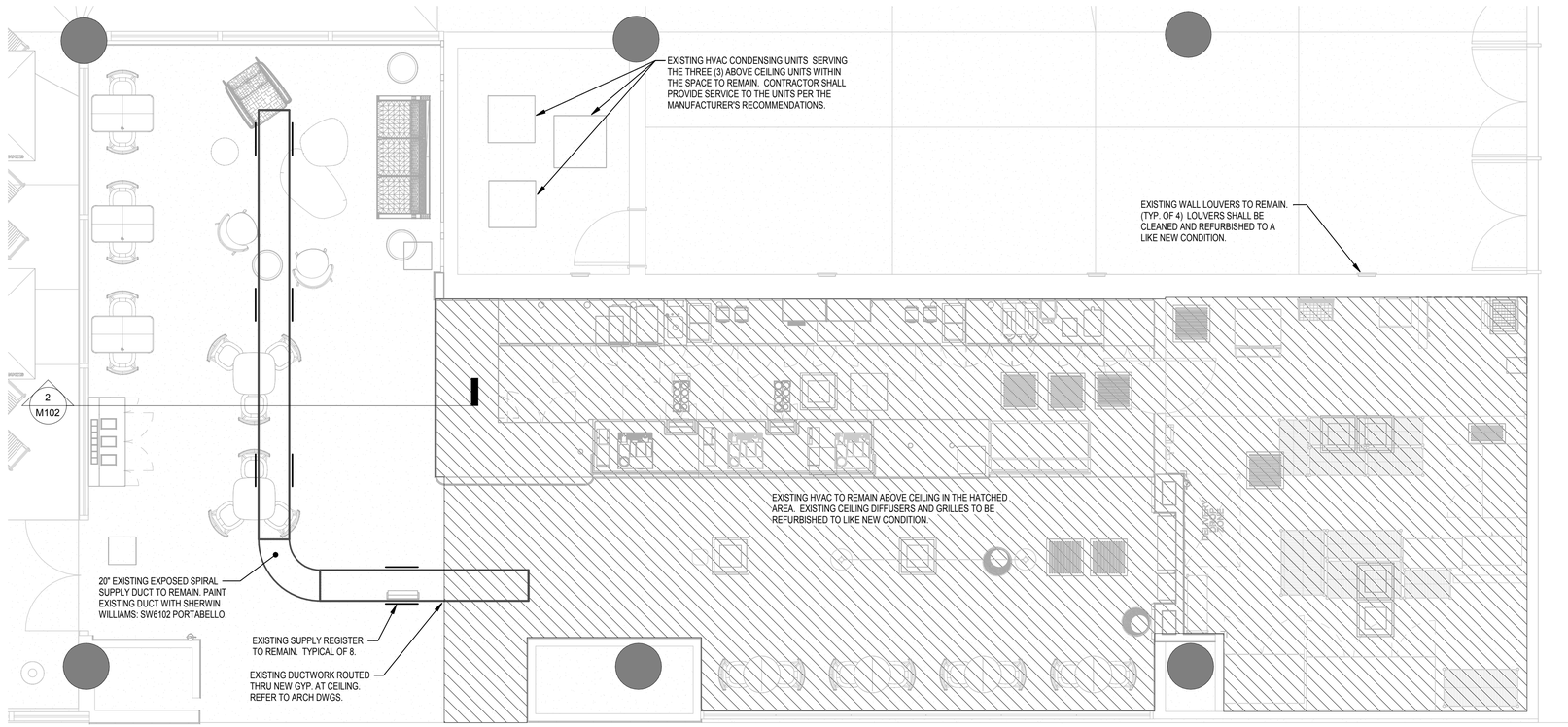
SHEET TITLE:
HVAC - EXISTING CONDITIONS
SCALE: AS SHOWN

SHEET NUMBER:
M101



2 CAFE SECTION

SCALE: 1/4" = 1'-0"



1 HVAC PLAN

SCALE: 1/4" = 1'-0"

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SHEET TITLE:
HVAC PLAN

SCALE: AS SHOWN

SHEET NUMBER:
M102

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITIES HAVING JURISDICTION
APPROX	APPROXIMATE
BLDG	BUILDING
CLG	CEILING
CONST	CONSTRUCTION
CW	DOMESTIC COLD WATER
CXA	COMMISSIONING AGENT
DEG	DEGREES
DM	STARBUCKS DESIGN MANAGER
DN	DOWN
DTL	DETAIL
DWG(S)	DRAWING(S)
EA	EACH
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
EMER	EMERGENCY
EXIST	EXISTING
EXT	EXTERIOR
FC	STARBUCKS FIXTURE CONTRACTOR
FD	FLOOR DRAIN
FS	FLOOR SINK
F&I	FURNISH & INSTALL
FLR	FLOOR
FT	FOOT/FEET
FCO	FLOOR CLEANOUT
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GW	GREASE WASTE
GWI	GREASE WASTE INTERCEPTOR
HR	HOUR
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HW	HOT WATER
HS	HANDSINK
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
LC	LICENSEE
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, AND PLUMBING
MFG	MANUFACTURER
MIN	MINIMUM
MS	MOP SINK
NL	NIGHTLIGHT
NTS	NOT TO SCALE
PC	PLUMBING CONTRACTOR
PDM	STARBUCKS PROJECT DEVELOPMENT MANAGER
PS	PREP SINK
POC	POINT OF CONNECTION
REF	REFERENCE
REQ'D	REQUIRED
REV	REVISION
SB	STARBUCKS
SHT	SHEET
SF	SQUARE FEET
SK	SINK
SPECS	SPECIFICATION(S)
SST	STAINLESS STEEL
TEL	TELEPHONE
TEMP	TEMPORARY
TMV	TEMPERATURE MIXING VALVE
TW	TEMPERED HOT WATER
TYP	TYPICAL
UC	UNDER COUNTER
UNO	UNLESS NOTED OTHERWISE
V	VENT
W	SANITARY WASTE
WCO	WALL CLEANOUT
WH	WATER HEATER
WP	WEATHER PROOF

PLUMBING SYMBOL LEGEND

———	S OR W	SANITARY OR WASTE PIPING ABOVE SLAB
– – – – – –	S OR W	SANITARY OR WASTE PIPING BELOW SLAB
– – –V– – –	V	VENT PIPING
——GW——	GW	GREASE WASTE
—— CD ——	CD	CONDENSATE DRAIN
— – — – —	CW	COLD WATER PIPING
— -- — -- —	HW	HOT WATER PIPING
——CWF——	CWF	COLD WATER FILTERED
——CWN——	CWN	COLD WATER NANO FILTERED
——CWS——	CWS	COLD WATER SOFTENED
—— TW ——	TW	TEMPERED WATER
—— RO ——	RO	REVERSE OSMOSIS WATER
—— G ——	G	GAS PIPING
—— RD ——	RD	REFRIGERANT DISCHARGE PIPING
—— RS ——	RS	REFRIGERANT SUCTION PIPING
	BV	BALL VALVE
	CH. V	CHECK VALVE
	RV	RELIEF VALVE
	HB	HOSE BIBB
[S]		SHOCK ABSORBER
		STRAINER
	WCO	WALL CLEANOUT
	FCO	FLOOR CLEANOUT
	FS	FLOOR SINK
M	WM	WATER METER
	POC	CONNECT TO EXISTING

INSULATION

WATER PIPING
PROVIDE THERMAL INSULATION PER THE SPECIFICATIONS.

SAFETY COVERS
FURNISH AND INSTALL SPECIFIED NO SCALD SAFETY COVERS WITH INSULATED FOAM LINER AND TAMPER PROOF STRAP AT ALL EXPOSED ADA SINK P-TRAPS AND WATER SUPPLIES AND AS REQUIRED BY JURISDICTION .

NITROGENATION

STARBUCKS NITROGENATION VENDOR WILL PROVIDE AND INSTALL EQUIPMENT AND FITTINGS IF APPLICABLE TO PROJECT SCOPE FOR NITRO STATION. GENERAL CONTRACTOR SHALL COORDINATE NITRO SYSTEM INSTALLATION WITH STARBUCKS VENDOR.

PLUMBING FIXTURES

WATER FILTRATION
STARBUCKS WATER FILTRATION VENDOR WILL PROVIDE FILTRATION SYSTEM. CONTRACTOR SHALL CONFIRM WITH STARBUCKS CONSTRUCTION MANAGER WHETHER VENDOR OR PLUMBING CONTRACTOR IS TO INSTALL FILTRATION SYSTEM. PROVIDE AND COORDINATE INSTALLATION COMPLETE WITH ALL PIPING, FITTINGS, AND EQUIPMENT AS INDICATED ON THE DRAWINGS.

CONNECTIONS
THE PLUMBING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO EQUIPMENT INCLUDING REQUIRED MATERIAL SUCH AS PIPING, VALVES, FILTERS, TRAPS, CHECKS VALVES, VACUUM BREAKERS, AND FLEXIBLE AND RIGID TUBING.

SCHEDULES
REFER TO SCHEDULES ON DRAWINGS FOR A DESCRIPTION OF LISTED ITEMS AND FURNISH ANY AND ALL PLUMBING FIXTURES LISTED AS "GC". ANY DISCREPANCIES ABOUT WHO IS TO PROVIDE PLUMBING FIXTURES IN THE SCHEDULE SHALL BE BROUGHT TO STARBUCKS ATTENTION FOR CLARIFICATION. INSTALL ALL FIXTURES LISTED REGARDLESS OF WHO SUPPLIES.

PIPING

CONDENSATE DRAINAGE PIPING
THE PLUMBING CONTRACTOR SHALL PROVIDE CONDENSATE DRAINS FOR AIR HANDLING UNITS AND STARBUCKS EQUIPMENT (REFER TO SCHEDULE). CONDENSATE DRAINAGE PIPING SHALL BE TYPE "M" COPPER TUBING WITH WROUGHT COPPER SWEAT FITTINGS JOINED WITH 50/50 SOLDER.

TESTING
ALL PIPES SHALL BE TESTED BY AN APPROVED METHOD BEFORE THEY ARE BACKFILLED OR CONCEALED. AFTER TESTING IS COMPLETE, THE PLUMBING CONTRACTOR SHALL DISINFECT THE POTABLE WATER SYSTEM AS REQUIRED BY LOCAL AUTHORITY. TEST WATER PURITY ACCORDING TO LOCAL REQUIREMENTS AND SUBMIT CERTIFIED TEST RESULTS TO ENGINEER FOR REVIEW AND APPROVAL.

VALVES

GENERAL
INSTALL VALVES FOR EACH FIXTURE AND ITEM OF EQUIPMENT. PROVIDE BRAIDED STAINLESS STEEL HOSE (UNLESS OTHERWISE NOTED) BETWEEN VALVE AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. LOCATE SHUT-OFF VALVES ADJACENT TO EQUIPMENT FOR EASY ACCESS SUCH THAT VALVES CAN BE REACHED WITHOUT MOVING EQUIPMENT. SHUT OFF VALVES TO BE BALL TYPE. VALVES SHALL BE LISTED/APPROVED FOR USE PER AUTHORITIES HAVING JURISDICTION (AHJ) AND CODE REQUIREMENTS. PROVIDE VALVE IDENTIFICATION PER THE PROJECT MANUAL FOR MAIN WATER SERVICE SHUT-OFF AND ANY OTHER VALVES WHICH ARE NOT CLEARLY EVIDENT WHAT THEY SERVE.

GENERAL PLUMBING NOTES

1. THE PLUMBING CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO PATCH AND REPAIR ALL EXISTING WALLS, FLOORS, CEILINGS OR OTHER SURFACES IDENTIFIED TO REMAIN THAT MAY BECOME DAMAGED DURING THE COURSE OF WORK.
2. EXPOSED / SURFACE MOUNTED PIPING IS ONLY ALLOWED IN THE BAR AREA UNDER COUNTERTOPS, WHERE IT DOES NOT OBSTRUCT CABINETS / DEVICES AND WHERE APPROVED BY STARBUCKS PROJECT DEVELOPMENT MANAGER. IF ROUTED THROUGH CABINETS, IT SHALL BE ROUTED TO MAXIMIZE STORAGE SPACE AND BE PROTECTED FROM DAMAGE.
3. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL INTENT OR ARRANGEMENT OF SYSTEM(S). FURNISH AND INSTALL ALL COMPONENTS NEEDED WHETHER INDICATED OR NOT TO PROVIDE A COMPLETE AND OPERATING SYSTEM. OVERALL CASEWORK COMPONENT DIMENSIONING ON PLUMBING DETAILS ARE SHOWN FOR REFERENCE AND COORDINATION ONLY.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS, INCLUDING CLEARANCES REQUIRED BY OTHER TRADES, AND NOTIFY THE LICENSEE'S ARCHITECT OF RECORD OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK. ALL DIMENSIONS ARE TO THE FACE OF THE FINISHED SURFACE UNLESS NOTED OTHERWISE. ALL DIMENSIONS TO BE TAKEN FROM ACTUAL BUILDING DIMENSIONS.
5. THE PLUMBING CONTRACTOR SHALL COORDINATE PLUMBING WORK WITH OTHER TRADES. THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR FIXTURES IN CASEWORK AND PLUMBING DETAILS. SEE PROJECT MANUAL FOR PLUMBING SPECIFICATION SECTIONS.
6. ALL PIPING AND / OR PLUMBING DEVICES SHALL BE SUPPORTED FROM STRUCTURE (NOT FROM HVAC DUCTS OR OTHER PIPES / CONDUITS).

GENERAL NOTES

SCOPE
THE INTENT OF THE PROJECT MANUAL AND THE DRAWINGS IS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL PLUMBING SYSTEM. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT RELATED TO THE INSTALLATION OF THE PLUMBING WORK.

SITE EXAMINATION
THE CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE FIXTURES, EQUIPMENT, AND PIPING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT PREVENTS THE PROPER INSTALLATION OF THE PLUMBING WORK.

STANDARDS
EQUIPMENT AND MATERIALS SHALL CONFORM WITH THE APPROPRIATE PROVISIONS OF LISTING STANDARD IN EFFECT AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY.

CODES
ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE PROVINCIAL AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO STARBUCKS OR THE LICENSEE.

PERMITS AND FEES
THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY TO COMPLETE THE PLUMBING WORK.

WARRANTY
THE CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY STARBUCKS AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

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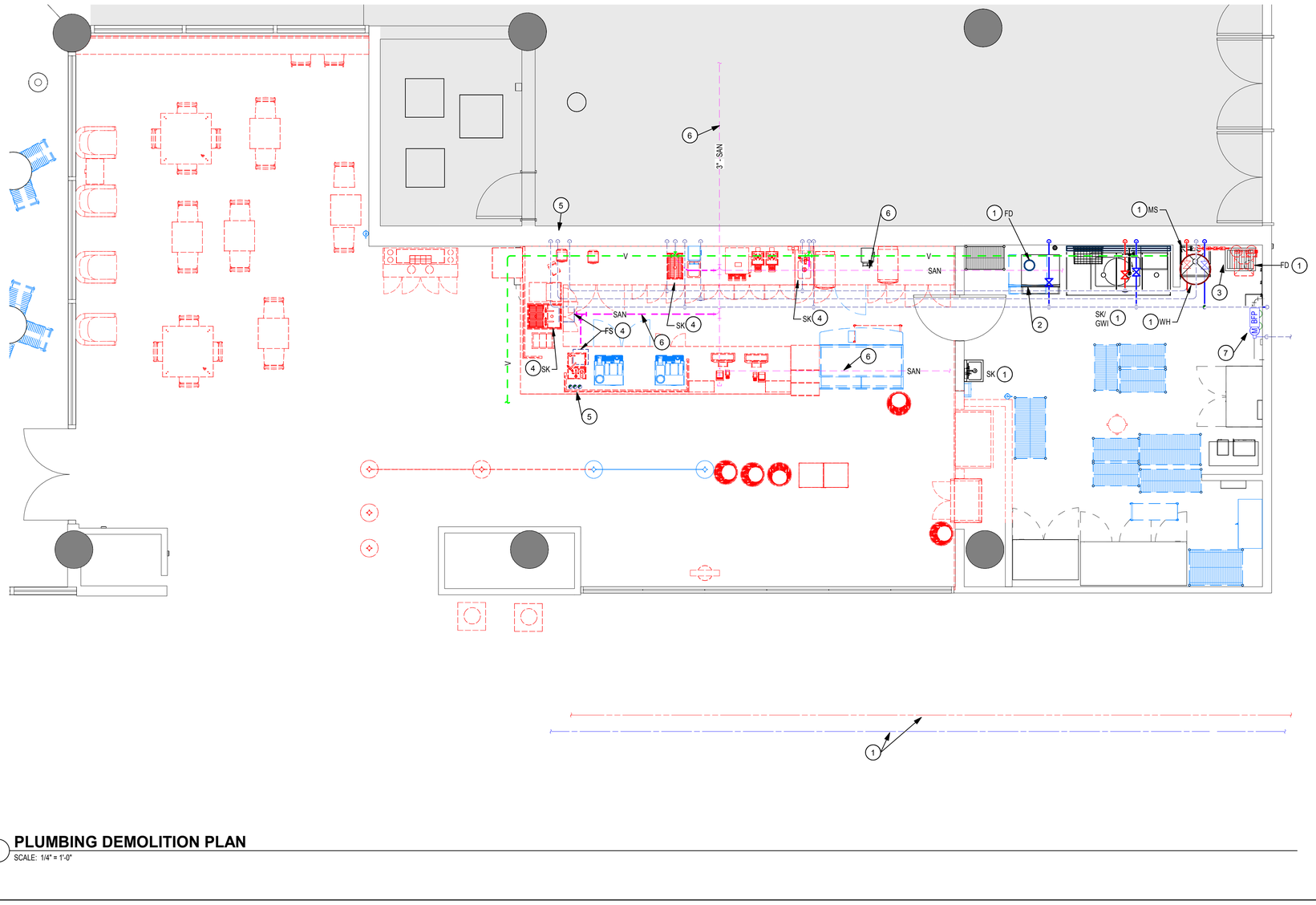
Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
LEGEND & INDEX

SCALE: AS SHOWN

SHEET NUMBER:
P001



KEYED NOTES

1. EXISTING FIXTURE, PIPING OR ITEM OF EQUIPMENT TO REMAIN
2. EXISTING ICE MACHINE TO BE SHIFTED SLIGHTLY, REFER TO NEW WORK PLANS. DISCONNECT/RECONNECT SUPPLY AND DRAIN PIPING AS NEEDED.
3. REMOVE EXISTING WATER SOFTENER AND FILTRATION UNIT. REMOVE PIPING BACK TO POINT-OF-CONNECTION WITH NEW WORK OR TO ACTIVE MAIN. NO DEAD LEGS SHALL REMAIN.
4. REMOVE EXISTING FIXTURE. REMOVE PIPING BACK TO POINT-OF-CONNECTION WITH NEW WORK OR TO ACTIVE MAIN. NO DEAD LEGS SHALL REMAIN.
5. EXISTING HW, CW, CWF PIPING DROPS BELOW FLOOR AND RISES BACK UP UNDER COUNTER. REMOVE PIPING COMPLETELY.
6. PIPING LOCATED IN CEILING SPACE OF FLOOR BELOW.
7. EXISTING WATER METER AND BACKFLOW PREVENTER TO REMAIN.

LEGEND

- MATERIAL TO BE DEMOLISHED
- MATERIAL TO BE PRESERVED FOR FUTURE RE-USE
- EXISTING WALL TO REMAIN
- EXISTING COLUMN TO REMAIN

1 PLUMBING DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

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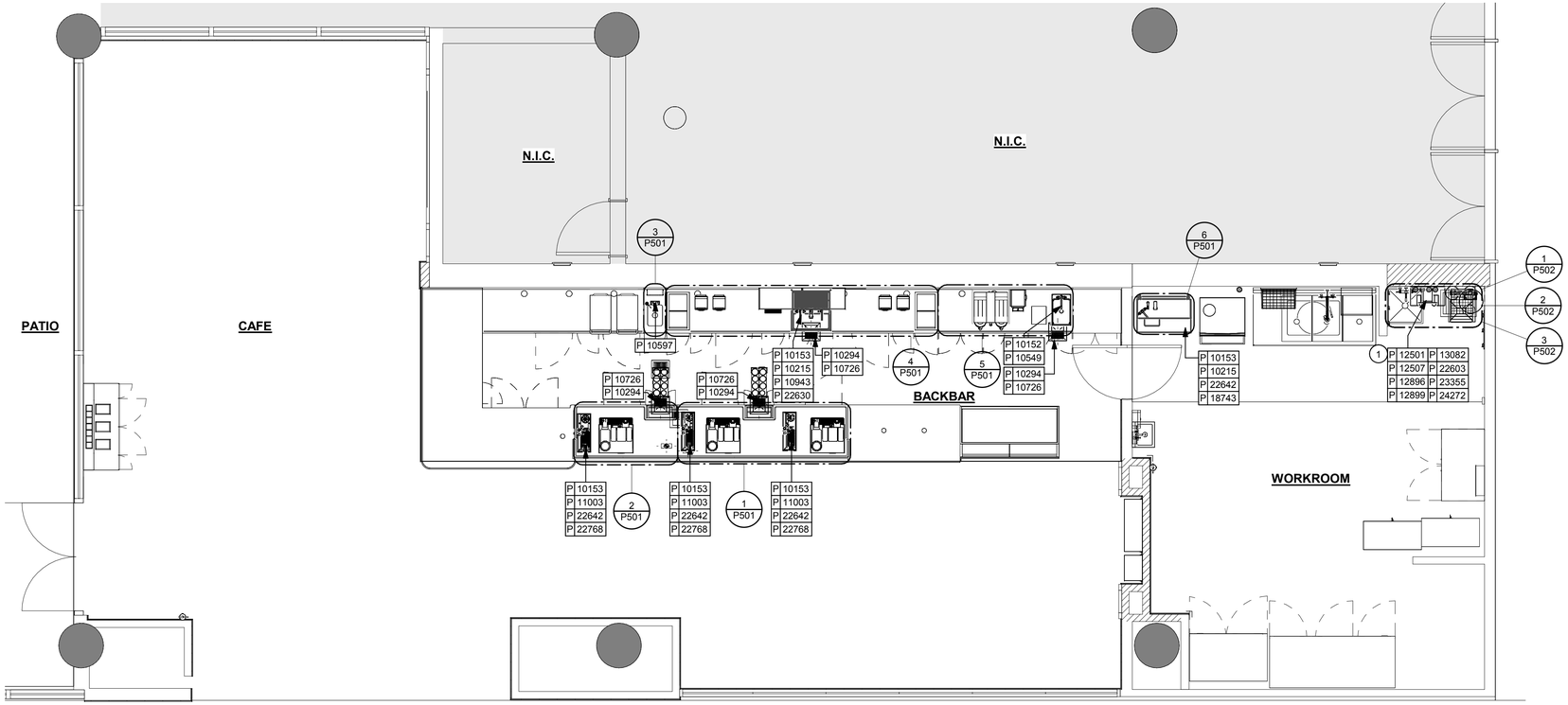
SHEET TITLE:
PLUMBING DEMOLITION PLAN
SCALE: AS SHOWN

SHEET NUMBER:
PD101

PLUMBING FIXTURE SCHEDULE - "P"

DESIGN ID	COUNT	DESCRIPTION	FURN. BY	INST. BY	COMMENTS
DRAIN					
10294	4	DRAIN - FLOOR SINK SQUARE - 12IN 305MM	GC	GC	(FS1) ZURN MODEL FD2375-NH3-H
10726	4	DRAIN - GRATE HALF SQUARE - 12IN 305MM	GC	GC	
FAUCET					
10152	2	FAUCET - DOUBLE LABORATORY WITH BENT RISER SPOUT	SB	GC	
10153	5	FAUCET - WATER TOWER - 12IN 305MM	SB	GC	
10215	2	FAUCET - DOUBLE LABORATORY WITH SWING SPOUT	SB	GC	
10597	1	FAUCET - SINGLE HANDLE	SB	GC	PROVIDE POINT-OF-USE MIXING VALVE BELOW SINK.
10943	1	FAUCET - SINGLE LABORATORY WITH SWING SPOUT	SB	GC	
11003	3	FAUCET - METERED	SB	GC	
22642	4	FAUCET - INSTANTHOT SYSTEM 2 BUTTON WITH BOILER AND BRACKET	SB	GC	KIT INCLUDES FONT, UNDERCOUNTER BOILER AND BOILER BRACKET FOR SIDE PANEL MOUNTING. BRACKET CAN BE FLOOR MOUNTED USING SET OF (4) STAINLESS STEEL LEGS, ORDERED SEPARATELY THROUGH VENDOR.
FILTER					
12501	1	FILTER - RO SYSTEM 600GPD	SB	SB	CONFIGURATION III. PROVIDED BY PENTAIR.
12507	1	FILTER - RO SYSTEM STORAGE TANK RO40	SB	SB	CONFIGURATION III. PROVIDED BY PENTAIR.
12896	1	FILTER - BRINE TANK	SB	SB	CONFIGURATION III. PROVIDED BY PENTAIR.
12899	2	FILTER - POLY GLASS VESSEL	SB	SB	CONFIGURATION III. PROVIDED BY PENTAIR.
13082	1	FILTER - WATER SOFTENER TWIN	SB	SB	CONFIGURATION III. PROVIDED BY PENTAIR.
22603	1	FILTER - RO SYSTEM STORAGE TANK RO20	SB	SB	CONFIGURATION III. PROVIDED BY PENTAIR.
23355	1	FILTER - FILTRATION BOOSTER PUMP	SB	GC	CONFIGURATION III.
24272	1	FILTER - RO SYSTEM INSTALL KIT	SB	SB	CONFIGURATION III. PROVIDED BY PENTAIR.
SINK					
10549	2	SINK - RINSE DROP IN SST - 12X20IN 305X510MM	SB	GC	
18743	1	SINK - WATER FILLING STATION - 36X24IN 915X610MM	SB	GC	
22630	1	SINK - RINSE DROP IN - 27X26IN 685X670MM	SB	GC	
22768	3	SINK - COUNTERTOP RINSER WITH WATER TOWER - 26X9IN 660X235MM	SB	GC	

PROVIDE FILTERED COLD WATER TO ESPRESSO MACHINE(S), BREWER(S), HOT WATER TAP(S), WATER TOWER(S), AND ICE MACHINE.



1 PLUMBING DESIGN PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES

1. WATER FILTRATION EQUIPMENT INSTALLER TO VERIFY REQUIRED CLEARANCES AND ADJACENCIES.

GENERAL NOTES

A. FURNISH AND INSTALL A COMPLETE AND OPERATING SYSTEM. ALL ITEMS ARE NOT NECESSARILY SHOWN.

B. LICENSEE'S PLUMBING CONTRACTOR RESPONSIBLE FOR SITE INVESTIGATION PRIOR TO START OF WORK TO REVEAL FULL SCOPE OF WORK.

C. ALL PLUMBING LINES TO BE ROUTED SUCH THAT THEY ARE NOT VISIBLE TO CUSTOMERS EXCEPT WHERE FIRST APPROVED BY STARBUCKS AT EXPOSED CEILING AREAS.

D. REFER TO MANUFACTURER SPECIFICATIONS FOR LOCATION OF CONNECTIONS UNLESS OTHERWISE NOTED.

E. COORDINATE WITH LICENSEE'S ELECTRICAL CONTRACTOR FOR POWER CONNECTION TO ALL PLUMBING EQUIPMENT.

F. DIMENSIONS ARE TO FINISH FACE UNLESS OTHERWISE NOTED.

G. REFER TO DETAIL SHEETS FOR PLUMBING FITTINGS LOCATED IN CASEWORK.

H. COLD WATER SUPPLY LINES INSIDE CASEWORK AND BAR AREA TO BE COVERED WITH 1/2" (10MM) THICK SELF SEALING, SECTIONAL CLOSED-CELL FOAM INSULATION. REFER TO PROJECT MANUAL FOR HOT WATER SUPPLY LINE INSULATION REQUIREMENTS.

I. INSULATE ALL PIPING INCLUDING PIPES AT BAR AND IN CASEWORK PER THE REQUIREMENTS LISTED IN THE PROJECT MANUAL.

J. INSULATE ICE BIN DRAINAGE PIPES PER REQUIREMENTS LISTED IN THE PROJECT MANUAL.

K. WHEN BUNDLING SEVERAL INDIRECT WASTE LINES TO DRAIN INTO FLOOR SINK, A UNISTRUT IS REQUIRED FOR SECURING AND BRACING ALL LINES ABOVE THE DRAIN.

L. FURNISH AND INSTALL WALL CLEANOUTS AT ALL SINKS AS REQUIRED AND PER CODE (NOT ALL SHOWN).

M. GENERAL CONTRACTOR SHALL CONTACT WATER FILTRATION EQUIPMENT SUPPLIER TO COORDINATE SOW AND SCHEDULE PRIOR TO INSTALLATION OF WATER FILTRATION SYSTEM.

N. EXISTING BUILDING HOT WATER SUPPLY MEETS STARBUCKS REQUIREMENTS.

O. PROVIDE FILTERED COLD WATER TO ESPRESSO MACHINE(S), BREWER(S), HOT WATER TAP(S), WATER TOWER(S), AND ICE MACHINE.

LICENSED STORES RESPONSIBILITY LEGEND

SB - STARBUCKS

FC - STARBUCKS FIXTURE CONTRACTOR

LC - LICENSEE

GC - LICENSEE'S GENERAL CONTRACTOR

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PLUMBING DESIGN PLAN
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SHEET NUMBER:
P101

FIRE SUPPRESSION DESIGN NOTES

A. ALL PIPING IS ABOVE THE CEILING (AT THE UNDERSIDE OF STRUCTURE IN EXPOSED STRUCTURAL AREAS) UNLESS OTHERWISE INDICATED.

B. REFER TO ARCHITECTURAL DRAWINGS FOR REFLECTED CEILING PLANS AND GENERAL TRADES CONSTRUCTION INFORMATION. COORDINATE SPRINKLER LOCATIONS WITH CEILING DEVICES (LIGHTING, GRILLES, ETC.) OBTAIN ARCHITECTS APPROVAL OF SPRINKLER LAYOUT PRIOR TO INSTALLATION. FINAL FINISHED APPEARANCE OF WORK MUST BE APPROVED BY THE ARCHITECT.

C. CONTRACTOR SHALL MAKE REQUIRED FLOW TESTS IN ACCORDANCE WITH NFPA 291, LAY OUT SYSTEMS, AND OBTAIN APPROVALS FROM THE AUTHORITY HAVING JURISDICTION AND THE OWNER'S INSURER PRIOR TO BEGINNING ANY FABRICATION OR INSTALLATION WORK.

D. FIRE SUPPRESSION SPRINKLER SYSTEMS. REFER TO DRAWINGS AND SPECIFICATIONS FOR COMPLETE SCOPE OF WORK.

1. RENOVATION AREA(S) TO BE TOTALLY SPRINKLERED. EXISTING SPRINKLER SYSTEMS TO BE MODIFIED TO CONFORM TO THE NEW LAYOUT. NEW SPRINKLERS ARE TO BE INTEGRATED INTO THE EXISTING SPRINKLER SYSTEM. ALL EXISTING SPRINKLERS, REMOVED OR DISTURBED IN RENOVATION AREAS, SHALL BE DISPOSED OF AND REPLACED WITH NEW SPRINKLERS AS INDICATED ON THE DRAWINGS.

E. BASIS FOR DESIGN OF FIRE SUPPRESSION SYSTEM(S) TO BE:

1. LIGHT HAZARD 1500 SQUARE FEET, 0.10 GPM/SQ. FT., 225 SQUARE FEET MAXIMUM PER SPRINKLER.

2. ORDINARY HAZARD, (GROUP 1) 1500 SQUARE FEET, 0.15 GPM/SQ. FT., 130 SQUARE FEET MAXIMUM PER SPRINKLER.

AREA OF OPERATION REDUCTIONS AND INCREASES SHALL BE CALCULATED PER NFPA STANDARDS. VERIFY DENSITIES WITH GOVERNING AUTHORITIES AND OWNER'S INSURER BEFORE PROCEEDING WITH DESIGN OF SYSTEM(S). IF GOVERNING AUTHORITIES OR OWNER'S INSURER REQUIREMENTS ARE MORE STRINGENT THOSE REQUIREMENTS SHALL PREVAIL. ALL AREAS ARE TO BE LIGHT HAZARD CLASSIFICATION, UNLESS OTHERWISE INDICATED ON THE PLANS OR REQUIRED BY THE GOVERNING AUTHORITY.

F. PROVIDE THE FOLLOWING SPRINKLER TYPES UNLESS OTHERWISE NOTED ON THE DRAWINGS. PENDENT TYPE SPRINKLERS SHALL BE LOCATED IN THE CENTER OF SQUARE PADS AND AT THE CENTER OR AT QUARTERPOINTS OF THE LONG AXIS OF RECTANGULAR PADS.

1. SPRINKLERS IN AREAS WITH CEILINGS SHALL BE FLAT-PLATE CONCEALED TWO PIECE ADJUSTABLE PENDENT, QUICK RESPONSE TYPE WITH FLAT COVER PLATE, FINISH SELECTION BY ARCHITECT.

2. SPRINKLERS IN EXPOSED AREAS SHALL BE QUICK RESPONSE BRASS UPRIGHT TYPE.

3. NEW SPRINKLERS IN RENOVATION AREAS SHALL BE SIMILAR IN APPEARANCE TO EXISTING SPRINKLERS IN ADJACENT SPRINKLERED AREAS. ALL NEW SPRINKLERS TO BE QUICK RESPONSE TYPE.

EXERCISE SPECIAL CARE TO COORDINATE PIPING AND EQUIPMENT LOCATIONS WITH ALL OTHER TRADES.

KEYED NOTES

1. EXISTING FIXTURE, PIPING OR ITEM OF EQUIPMENT TO REMAIN.

2. LIMITS OF RENOVATED AREA REQUIRING EXISTING SPRINKLER SYSTEM MODIFICATIONS. MODIFICATIONS INCLUDE REPLACING SPRINKLERS ALTERED FOR NEW LAYOUT, ALTERING MAIN / BRANCH PIPING TO CONFORM TO NEW ARCHITECTURAL LAYOUT WHERE NECESSARY. ADDITIONAL MODIFICATIONS MAY BE REQUIRED TO ACCOMMODATE TO NEW MECHANICAL, ELECTRICAL, PLUMBING, AND TECHNOLOGY SYSTEMS. NEW PIPING SHALL MATCH EXISTING IN MATERIAL AND FITTING TYPE.

3. PIPING TO WATER SOFTENER AND FILTRATION UNIT. REFER TO DETAILS FOR ADDITIONAL INFORMATION.

4. PIPING LOCATED IN CEILING SPACE OF FLOOR BELOW.

GENERAL NOTES

A. ALL PIPING IS ABOVE THE CEILING (AT THE UNDERSIDE OF STRUCTURE IN EXPOSED STRUCTURE AREAS), UNLESS OTHERWISE NOTED.

B. REFER TO SCHEDULES, DETAILS AND DIAGRAMS FOR PIPING, PIPE SIZES AND PIPELINE DEVICES NOT INDICATED ON THE FLOOR PLAN.

C. ABOVE CEILING UTILITY SPACE IS LIMITED. COORDINATION WITH ALL TRADES IS CRITICAL, PRIOR TO INSTALLATION OF ANY WORK.

D. LOCATIONS AND SIZES OF EXISTING PIPING HAVE BEEN DETERMINED FROM A REVIEW OF EXISTING DRAWINGS AND/ OR SITE INSPECTION, WHERE POSSIBLE. FIELD VERIFICATION OF EXACT LOCATIONS, ELEVATIONS, INVERTS, SIZES, DIRECTION OF FLOW, ETC. SHALL BE REQUIRED PRIOR TO BEGINNING NEW WORK.

E. ALL PIPING NOTED TO BE DEMOLISHED SHALL BE REMOVED BACK TO ACTIVE MAINS AND CAPPED, OR REMOVED BACK TO POINTS OF CONNECTION IN NEW WORK. INACCESSIBLE PIPING, WHERE SO NOTED, TO BE ABANDONED SHALL BE DISCONNECTED FROM ACTIVE SYSTEMS AND CAPPED OR PLUGGED IN CONCEALED LOCATIONS.

F. ALL ABANDONED PIPING SHALL BE CAPPED AT INLET AND OUTLET. DOMESTIC WATER PIPING SHALL BE CAPPED WITHIN TWO (2) PIPE DIAMETERS OF ACTIVE BRANCH/ MAIN. NO DEAD LEGS WILL BE PERMITTED.

G. NEW CONNECTIONS TO EXISTING PIPING SHALL BE WITH THE SAME SIZE AS THE EXISTING PIPING, UNLESS OTHERWISE NOTED.

H. ALL REMOVED MATERIAL AND EQUIPMENT, SO DESIGNATED BY THE OWNER, SHALL BE TURNED OVER AND PLACED WHERE DIRECTED. ALL MATERIAL AND EQUIPMENT, WHICH THE OWNER DOES NOT WISH TO RETAIN, SHALL BECOME THE PROPERTY OF THE CONTRACTOR RESPONSIBLE FOR THE REMOVAL.

I. REFER TO THE ARCHITECTURAL PLANS FOR PROJECT PHASING REQUIREMENTS.

J. ANNULAR SPACE OF PIPE, CONDUIT AND OTHER SIMILAR PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED. IN ADDITION, PENETRATIONS THRU RATED FLOORS SHALL ALSO BE FIRESTOPPED TO RETARD PASSAGE OF FIRE AND SMOKE. REFER TO ARCHITECTURAL DRAWING(S) FOR CONSTRUCTION, LAYOUT AND FIRE RATINGS OF FLOORS, WALLS, PARTITIONS AND OTHER BUILDING ELEMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR PENETRATION DETAILS.

K. FURNISH AND INSTALL A COMPLETE AND OPERATING SYSTEM. ALL ITEMS ARE NOT NECESSARILY SHOWN.

L. ALL PLUMBING LINES TO BE ROUTED SUCH THAT THEY ARE NOT VISIBLE TO CUSTOMERS EXCEPT WHERE FIRST APPROVED BY STARBUCKS AT EXPOSED CEILING AREAS.

M. REFER TO MANUFACTURER SPECIFICATIONS FOR LOCATION OF CONNECTIONS UNLESS OTHERWISE NOTED.

N. COORDINATE WITH EC FOR POWER CONNECTION TO ALL PLUMBING EQUIPMENT.

O. REFER TO DETAIL SHEETS FOR PLUMBING FITTINGS LOCATED IN CASEWORK.

P. COLD WATER SUPPLY LINES INSIDE CASEWORK AND BAR AREA TO BE COVERED WITH 1/2" (10MM) THICK SELF SEALING, SECTIONAL CLOSED-CELL FOAM INSULATION. REFER TO PROJECT MANUAL FOR HOT WATER SUPPLY LINE INSULATION REQUIREMENTS.

Q. INSULATE ALL PIPING INCLUDING PIPES AT BAR AND IN CASEWORK PER THE REQUIREMENTS LISTED IN THE PROJECT MANUAL.

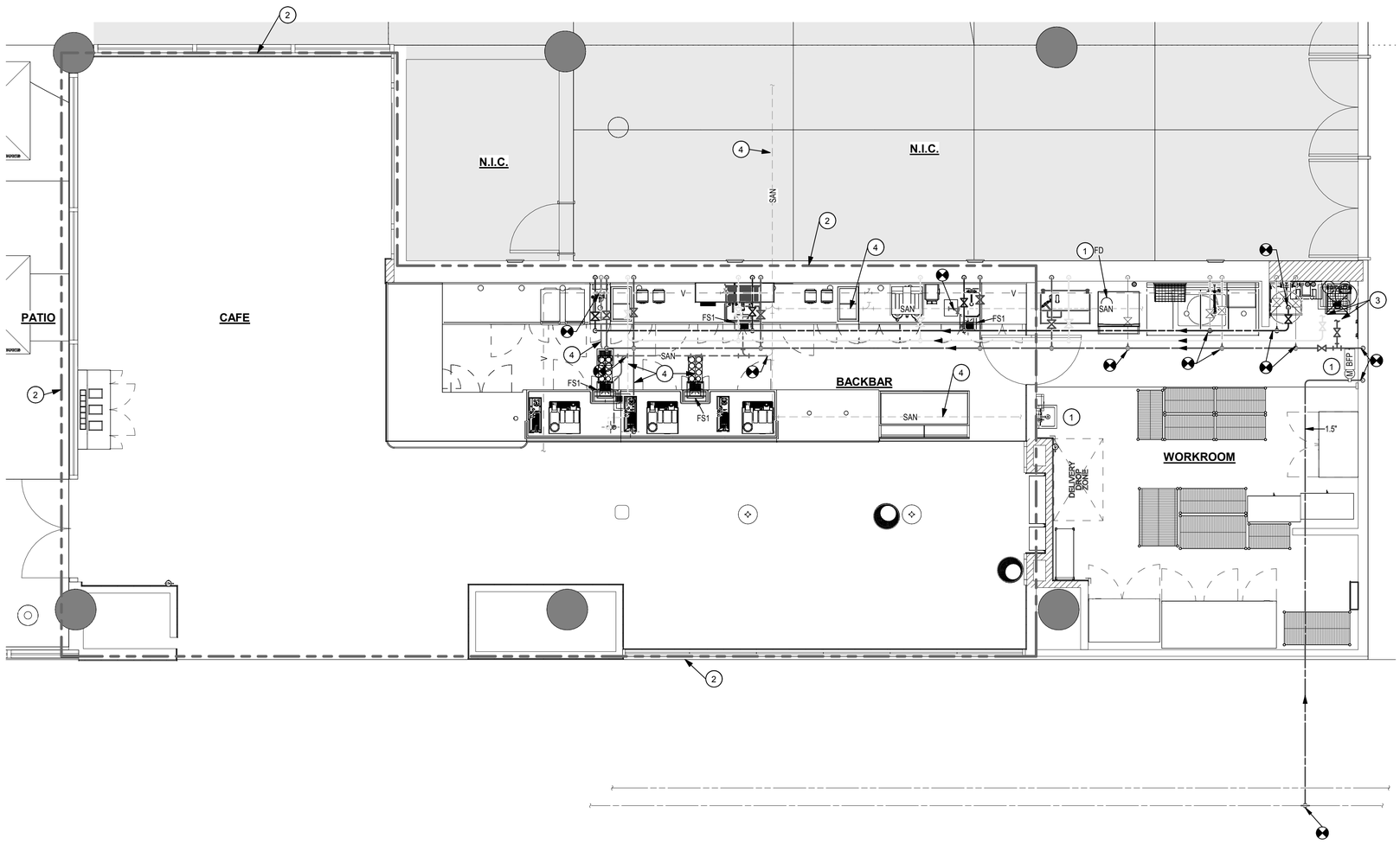
R. INSULATE ICE BIN DRAINAGE PIPES PER REQUIREMENTS LISTED IN THE PROJECT MANUAL.

S. WHEN BUNDLING SEVERAL INDIRECT WASTE LINES TO DRAIN INTO FLOOR SINK, A UNISTRUT IS REQUIRED FOR SECURING AND BRACING ALL LINES ABOVE THE DRAIN.

T. FURNISH AND INSTALL WALL CLEANOUTS AT ALL SINKS AS REQUIRED AND PER CODE (NOT ALL SHOWN).

U. GC SHALL CONTACT WATER FILTRATION EQUIPMENT SUPPLIER TO COORDINATE SOW AND SCHEDULE PRIOR TO INSTALLATION OF WATER FILTRATION SYSTEM.

V. PROVIDE FILTERED COLD WATER TO ESPRESSO MACHINE(S), BREWER(S), HOT WATER TAP(S), WATER TOWER(S), AND ICE MACHINE.



1 **PLUMBING PIPING PLAN**
SCALE: 1/4" = 1'-0"

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PROJECT NO. 2025-07131

PROJECT NAME:
STARBUCKS RENOVATION
- GREATER COLUMBUS
CONVENTION CENTER

PROJECT ADDRESS:
400 NORTH HIGH STREET
COLUMBUS, OH 43215

STORE #:	28128
PROJECT #:	67357-004
ISSUE DATE:	09/10/2025
DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

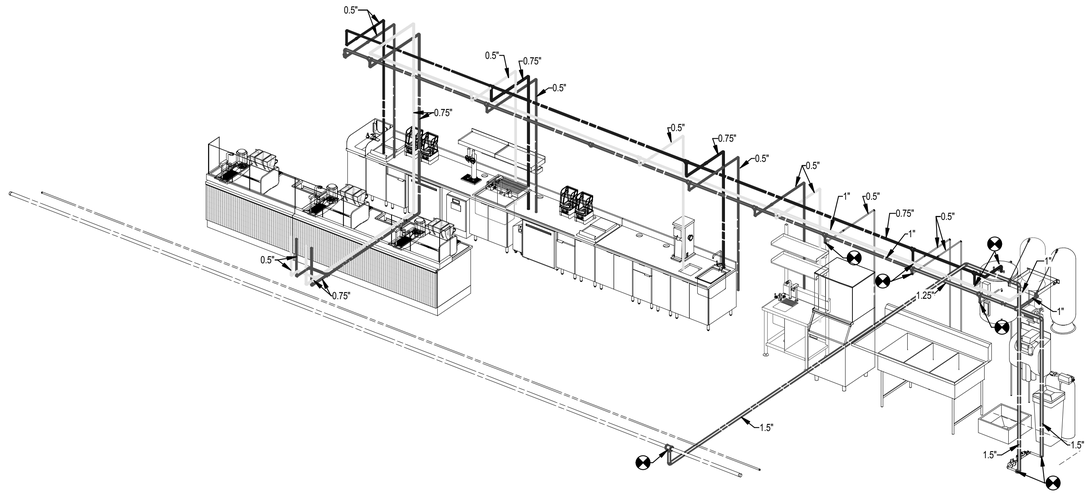
Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
PLUMBING PIPING PLAN

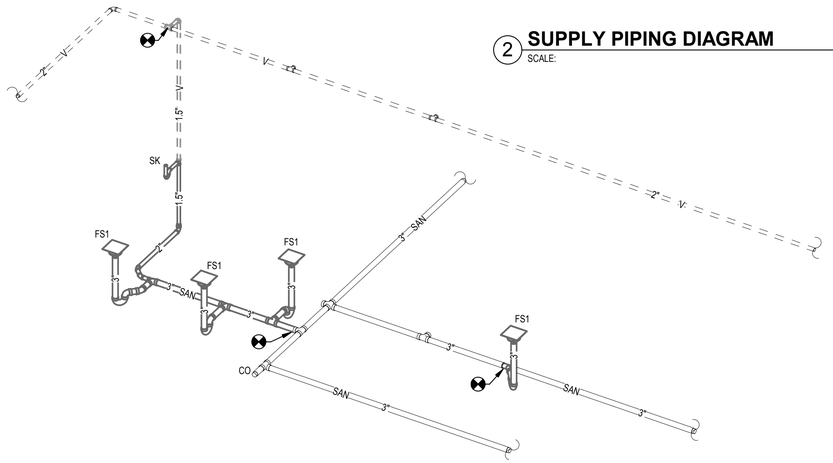
SCALE: AS SHOWN

SHEET NUMBER:
P102



2 SUPPLY PIPING DIAGRAM

SCALE:



1 SOIL WASTE & VENT DIAGRAM

SCALE:

328 SOUTH HIGH STREET
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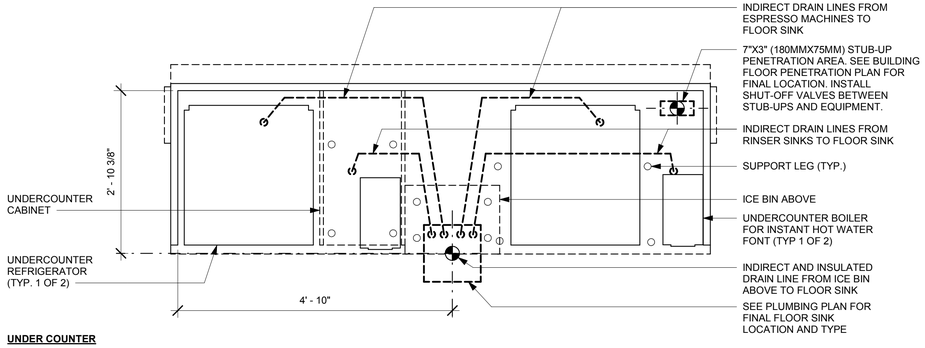
STORE #:	28128
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DESIGN MANAGER:	JEFFREY JAMES
PRODUCTION DESIGNER:	MAV
CHECKED BY:	JAKE ROWE

Revision Schedule

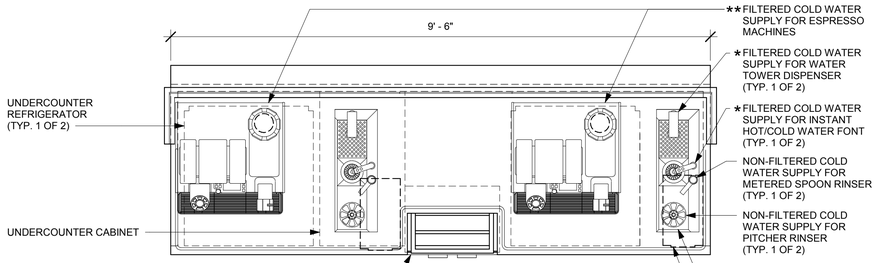
Rev	Date	By	Description

SHEET TITLE:
SCHEDULES & DIAGRAMS
SCALE: AS SHOWN

SHEET NUMBER:
P401



UNDER COUNTER



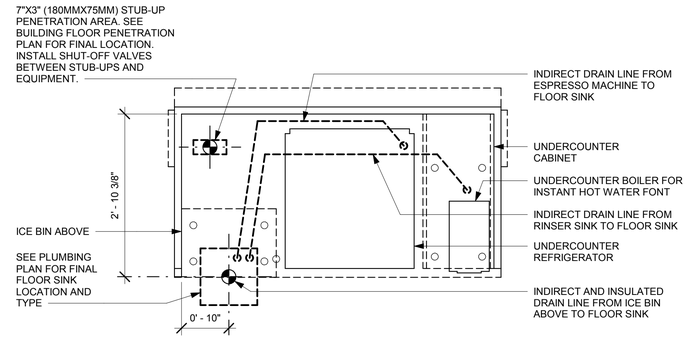
ABOVE COUNTER

★PROVIDE WATER HAMMER ARRESTOR PRIOR TO SHUT-OFF VALVE AND FLEX HOSE CONNECTION

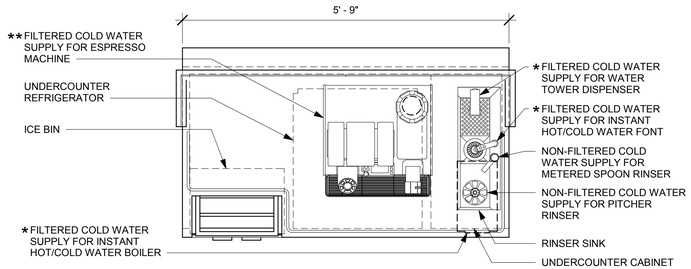
★★PROVIDE BACKFLOW PREVENTION DEVICE BEFORE PUMP AND WATER HAMMER ARRESTOR PRIOR TO SHUT-OFF VALVE AND FLEX HOSE

1 ESP 07-03 PLUMBING

Scale: 3/4" = 1'-0"



UNDER COUNTER



ABOVE COUNTER

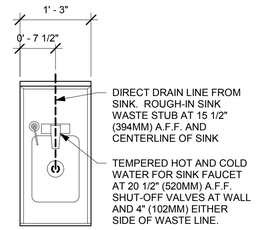
★PROVIDE WATER HAMMER ARRESTOR PRIOR TO SHUT-OFF VALVE AND FLEX HOSE CONNECTION

★★PROVIDE BACKFLOW PREVENTION DEVICE BEFORE PUMP AND WATER HAMMER ARRESTOR PRIOR TO SHUT-OFF VALVE AND FLEX HOSE

2 ESP 09-03 PLUMBING

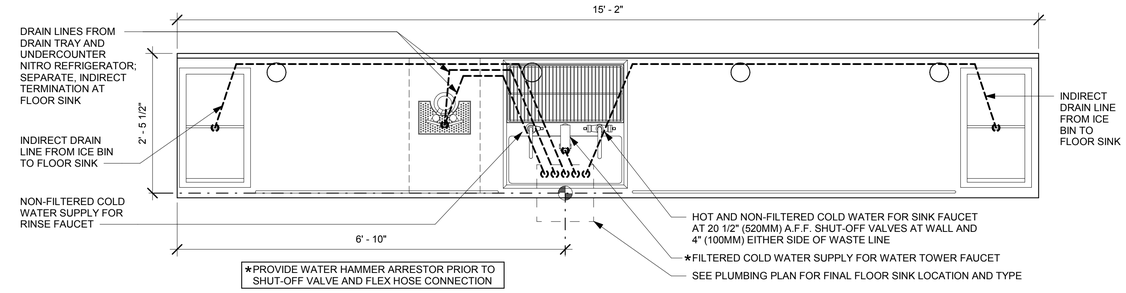
Scale: 3/4" = 1'-0"

PROVIDE FILTERED COLD WATER TO ESPRESSO MACHINE(S), BREWER(S), HOT WATER TAP(S), WATER TOWER(S), AND ICE MACHINE.



3 ADD 02-01 PLUMBING

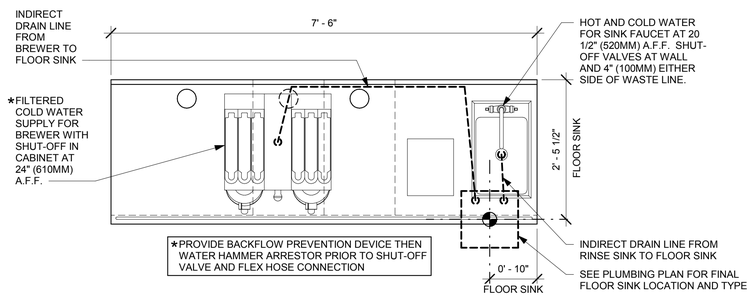
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★PROVIDE WATER HAMMER ARRESTOR PRIOR TO SHUT-OFF VALVE AND FLEX HOSE CONNECTION

4 CBE 13-02 PLUMBING

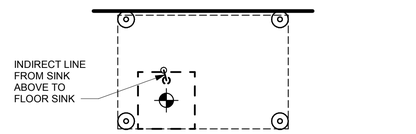
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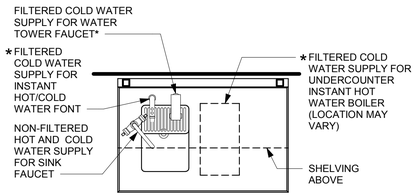
★PROVIDE BACKFLOW PREVENTION DEVICE THEN WATER HAMMER ARRESTOR PRIOR TO SHUT-OFF VALVE AND FLEX HOSE CONNECTION

5 BRW 09-01 PLUMBING

Scale: 3/4" = 1'-0"



AT FLOOR LEVEL



★PROVIDE WATER HAMMER ARRESTOR PRIOR TO SHUT-OFF VALVE AND FLEX HOSE CONNECTION

ABOVE COUNTERTOP

6 WATER FILLING STATION - PLUMBING

Scale: 3/4" = 1'-0"

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- GREATER COLUMBUS
CONVENTION CENTER

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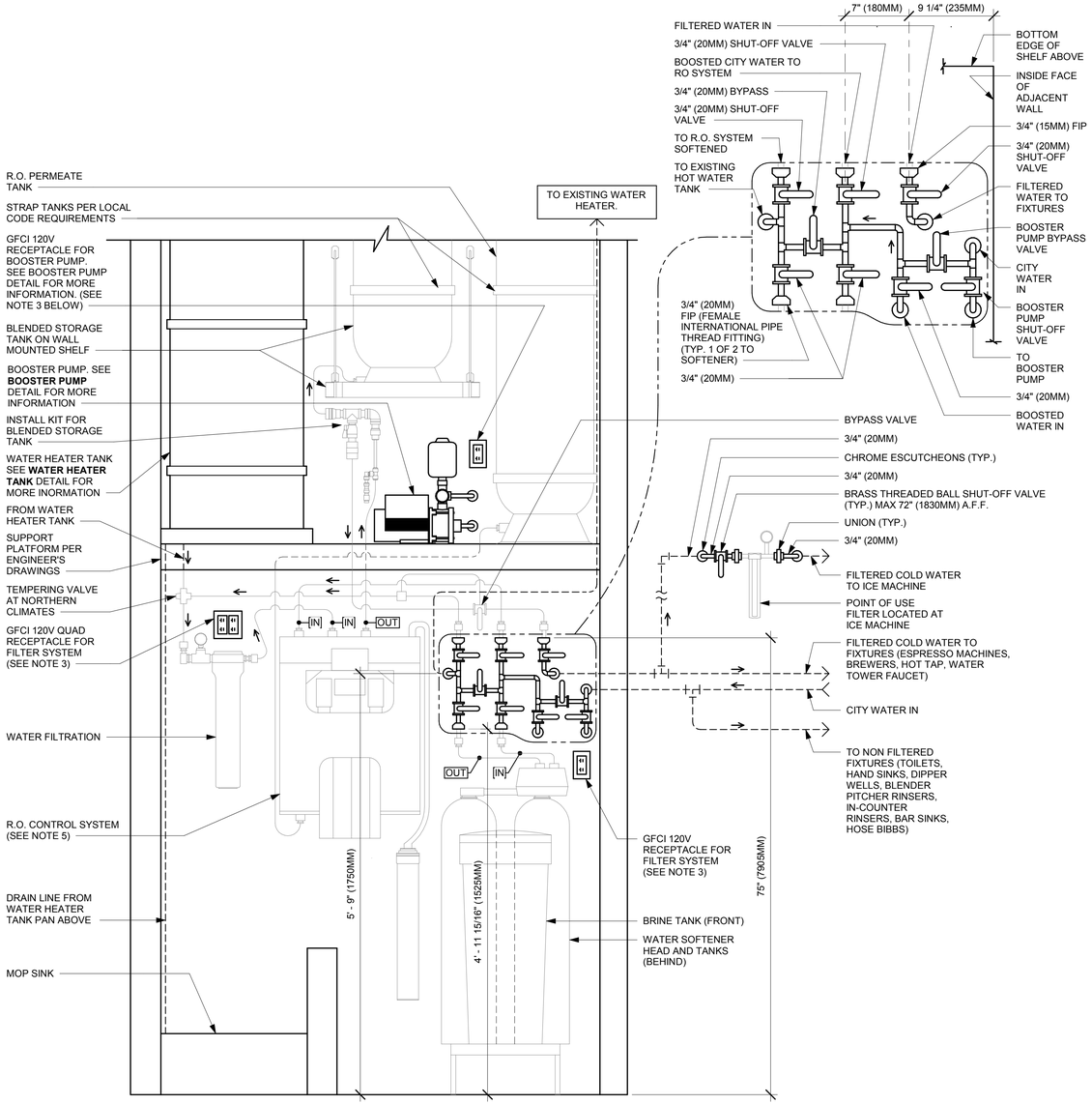
Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
DETAILS

SCALE: AS SHOWN

SHEET NUMBER:
P501

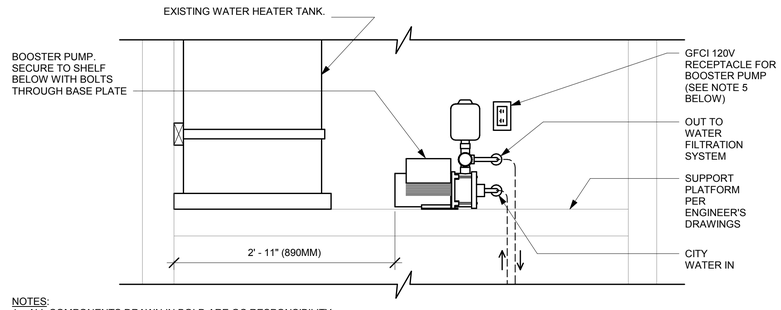


NOTES:
1. ALL COMPONENTS DRAWN IN BOLD ARE GC RESPONSIBILITY. GC TO COORDINATE INSTALLATION OF ALL OTHER COMPONENTS SHOWN WITH FILTER VENDOR.
2. ALL PIPING SHALL BE COPPER EXCEPT PEX TYPE PIPING WHICH IS ACCEPTABLE BETWEEN FILTER SYSTEM COMPONENTS WHERE ALLOWED BY CODE.
3. COORDINATE WITH ELECTRICAL CONTRACTOR FOR RECEPTACLES. SEE ELECTRICAL DETAILS FOR LOCATIONS.
4. PROVIDE WATER SOFTENER INDIRECT DRAIN TO SINK, INSTALLED PER CODE. (CONFIRM REQUIREMENTS WITH SOFTENER EQUIPMENT CUTSHEETS IN ITEM SPECIFICATIONS).
5. IN MUNICIPALITIES WITH BRINE RESTRICTIONS, REFER TO THE WATER SYSTEM CONFIGURATIONS APPENDIX UNDER ITEM SPECIFICATIONS FOR WATER SOFTENER EXCHANGE TANK SCHEMATIC.
6. COMPONENTS ARE TO BE POSITIONED TO MAXIMIZE ACCESS FOR REGULAR SERVICING. PRE-FILTER, BYPASS VALVES, AND SOFTENER TANKS MUST BE INSTALLED 72" (1828MM) AFF OR LOWER.

1 CONFIGURATION III, R.O. AND SOFTENER WATER FILTRATION

Scale: 1" = 1'-0"

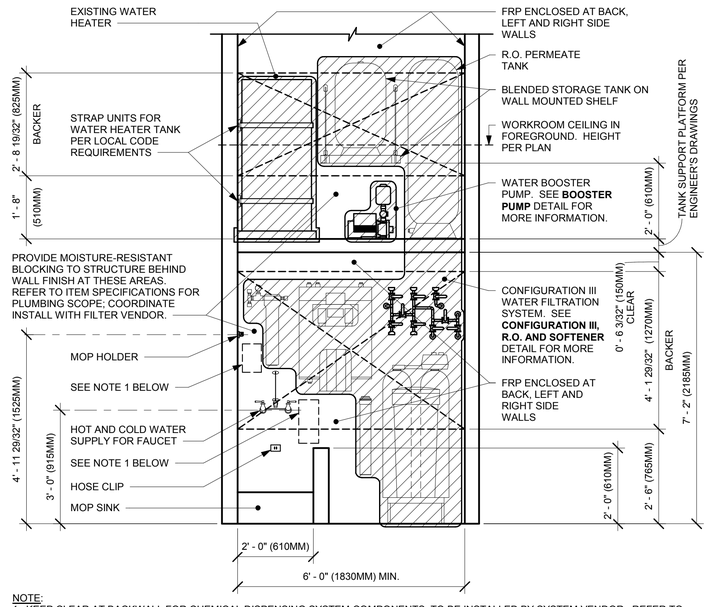
PROVIDE FILTERED COLD WATER TO ESPRESSO MACHINE(S), BREWER(S), HOT WATER TAP(S), WATER TOWER(S), AND ICE MACHINE.



NOTES:
1. ALL COMPONENTS DRAWN IN BOLD ARE GC RESPONSIBILITY.
2. ALL PIPING SHALL BE COPPER EXCEPT PEX TYPE PIPING WHICH IS ACCEPTABLE BETWEEN FILTER SYSTEM COMPONENTS WHERE ALLOWED BY CODE.
3. POSITION BOOSTER PUMP SO THAT PRESSURE GAUGE IS READABLE AND ACCESSIBLE FOR TROUBLESHOOTING AND MAINTENANCE.
4. BOOSTER PUMP STATIC AND DYNAMIC OUTLET PRESSURE SHALL BE BETWEEN 65 TO 70 PSI. VERIFY PER PUMPS INTEGRAL PRESSURE GAUGE.
5. COORDINATE WITH ELECTRICAL CONTRACTOR FOR RECEPTACLES. SEE ELECTRICAL DETAILS FOR LOCATIONS.
6. ENSURE ALL PENETRATIONS THROUGH SURROUNDING WALLS AND CEILING ARE COMPLETELY SEALED.
7. PROVIDE VIBRATION DAMPENING AT BOOSTER PUMP MOUNT TO PLATFORM.

2 BOOSTER PUMP - PLUMBING

Scale: 1" = 1'-0"



NOTE:
1. KEEP CLEAR AT BACKWALL FOR CHEMICAL DISPENSING SYSTEM COMPONENTS, TO BE INSTALLED BY SYSTEM VENDOR. REFER TO POSTED INSTALLATION GUIDELINES FOR MORE INFORMATION

3 CONFIGURATION III

Scale: 1/2" = 1'-0"

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Revision Schedule

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SHEET TITLE:
DETAILS

SCALE: AS SHOWN

SHEET NUMBER:
P502

Select Prevailing Wage Rates

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter Millwright Local 1090 Columbus

Type of Rate: Commercial

Change #:
LCN01-2025ib

Craft:
Carpenter

Effective Date:
5/13/2025

Effective Date:
5/13/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Millwright	$35.59		$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$63.49	$81.29
Apprentice	BHR	Percent										
1st 6 months	$24.91	$70.00	$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$52.81	$65.27
2nd 6 months	$24.91	$70.00	$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$52.81	$65.27
3rd 6 months	$28.47	$80.00	$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$56.37	$70.61
4th 6 months	$28.47	$80.00	$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$56.37	$70.61
5th 6 months	$32.03	$90.00	$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$59.93	$75.95
6th 6 months	$32.03	$90.00	$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$59.93	$75.95
7th 6 months	$33.81	$95.00	$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$61.71	$78.62
8th 6 months	$33.81	$95.00	$8.85	$10.99	$0.70	$0.00	$7.20	$0.16	$0.00	$0.00	$61.71	$78.62

(*)Special Calculation Note :

Other is for UBC National Fund.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Delaware, Fairfield, Franklin, Guernsey, Licking, Madison, Marion, Morgan, Muskingum, Noble, Perry, Pickaway, Union

Special Jurisdictional Note :

Details :

The term “Millwright and Machine Erectors”’ jurisdiction shall mean the unloading, hoisting, rigging, skidding, moving, dismantling, aligning, erecting, assembling, repairing, maintenance and adjusting of all structures, processing areas either under cover, underground or elsewhere, required to process material, handle, manufacture or service, be it powered or receiving power manually, by steam, gas, electricity, gasoline, diesel, nuclear, solar, water, air or chemically, and in industries such as and including, which are identified for the purpose of description, but not limited to, the following: woodworking plants; canning industries; steel mills; coffee roasting plants; paper and pulp; cellophane; stone crushing; gravel and sand washing and handling; refineries; grain storage and handling; asphalt plants; sewage disposal; water plants; laundries; bakeries; mixing plants; can, bottle and bag packing plants; textile mills; paint mills; breweries; milk processing plants; power plants; aluminum processing or manufacturing plants; and amusement and entertainment fields. The installation of mechanical equipment in atomic energy plants; installation of reactors in power plants; installation of control rods and equipment in reactors; and installation of mechanical equipment in rocket missile bases, launchers, launching gantry, floating bases, hydraulic escape doors and any and all component parts thereto, either assembled, semi-assembled or disassembled. The installation of, but not limited to, the following: setting-up of all engines, motors, generators, air compressors, fans, pumps, scales, hoppers, conveyors of all types, sizes and their supports; escalators; man lifts; moving sidewalks; hosts; dumb waiters; all types of feeding machinery; amusement devices; mechanical pin setters and spotters in bowling alleys; refrigeration equipment; and the installation of all types of equipment necessary and required to process material either in the manufacturing or servicing. The handling and installation of pulleys, gears, sheaves, fly wheels, air and vacuum drives, worm drives and gear drivers directly or indirectly coupled to motors, belts, chains, screws, legs, boots, guards, booth tanks, all bin valves, turn heads and indicators, shafting, bearings, cable sprockets cutting all key seats in new and old work, troughs, chippers, filters, calendars, rolls, winders, rewinders, slitters, cutters, wrapping machines, blowers, forging machines, rams, hydraulic or otherwise, planning, extruder, ball, dust collectors, equipment in meat packing plants, splicing or ropes and cables. The laying-out, fabrication and installation of protection equipment including machinery guards, making and setting of templates for machinery, fabrication of bolts, nuts, pans, dripping of holes for any equipment which the Millwrights install regardless of materials; all welding and burning regardless of type, fabrication of all lines, hose or tubing used in lubricating machinery installed by Millwrights; grinding, cleaning, servicing and any machine work necessary for any part of any equipment installed by the Millwrights; and the break-in and trail run of any equipment or machinery installed by the Millwrights. It is agreed the Millwrights shall use the layout tools and optic equipment necessary to perform their work.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 683 Inside

Type of Rate: Commercial

Change #: LCN02-2025ib

Craft: Electrical

Effective Date: 8/13/2025

Effective Date: 8/13/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrician	$43.00		$12.15	$8.81	$1.16	$0.00	$4.25	$0.00	$0.00	$0.00	$69.37	$90.87
Welding	$44.00		$12.15	$8.84	$1.16	$0.00	$4.25	$0.00	$0.00	$0.00	$70.40	$92.40
Medium Voltage Splicing	$44.00		$12.15	$8.84	$1.16	$0.00	$4.25	$0.00	$0.00	$0.00	$70.40	$92.40
Over 100 feet	$64.50		$12.15	$9.46	$1.16	$0.00	$4.25	$0.00	$0.00	$0.00	$91.52	$123.7
Level 1 CW 0 to 2000 hours	$15.29		$6.83	$0.46	$0.92	$0.00	$0.46	$0.10	$0.00	$0.00	$24.06	$31.71
Level 2 CW 2001 to 4000 hours	$16.25		$6.83	$0.49	$0.92	$0.00	$0.49	$0.10	$0.00	$0.00	$25.08	$33.21
Level 3 CW 4001 to 6000 hours	$17.20		$6.83	$0.52	$0.92	$0.00	$0.52	$0.10	$0.00	$0.00	$26.09	$34.69
Level 4 CW 6001 to 8000 hours	$19.12		$6.83	$0.57	$0.92	$0.00	$0.57	$0.10	$0.00	$0.00	$28.11	$37.67
Level 1 CE 8001 to 10000 hours	$21.03		$6.83	$0.63	$0.92	$0.00	$0.63	$0.10	$0.00	$0.00	$30.14	$40.66
Level 2 CE 10,001 to 12,000 hours	$22.94		$6.83	$0.69	$0.92	$0.00	$0.69	$0.10	$0.00	$0.00	$32.17	$43.64
Level 3 CE 12,001 to14,000 hours	$28.67		$6.83	$0.86	$0.92	$0.00	$0.86	$0.10	$0.00	$0.00	$38.24	$52.58
Apprentice	BHR	Percent										
0-1000 hrs 1st Period	$21.50	$50.00	$12.15	$4.41	$1.16	$0.00	$0.00	$0.00	$0.00	$0.00	$39.22	$49.97
1001-2000 hrs 2nd Period	$23.65	$55.00	$12.15	$4.85	$1.16	$0.00	$0.00	$0.00	$0.00	$0.00	$41.81	$53.63
2001-3500 hrs 3rd Period	$25.80	$60.00	$12.15	$5.28	$1.16	$0.00	$2.55	$0.00	$0.00	$0.00	$46.94	$59.84
3501-5000 hrs 4th Period	$27.95	$65.00	$12.15	$5.73	$1.16	$0.00	$2.76	$0.00	$0.00	$0.00	$49.75	$63.73
5001-6500 hrs 5th Period	$30.10	$70.00	$12.15	$6.16	$1.16	$0.00	$2.98	$0.00	$0.00	$0.00	$52.55	$67.60

6501-8000 hrs 6th Period	$34.40	$80.00	$12.15	$7.05	$1.16	$0.00	$3.40	$0.00	$0.00	$0.00	$58.16	$75.36

(*)Special Calculation Note :

Other for CW/CE: Education Fund

Ratio :

1 to 3 Journeymen to 2 Apprentices
4 to 6 Journeymen to 4 Apprentices

Construction Wireman and Construction Electrician Ratio:
1 Journeymen to 4 (CW/CE) Employees
An Inside Journeyman Wireman is required on the project at the 5th worker or when apprentices are used.

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Delaware, Fairfield, Franklin, Madison, Pickaway*, Union

Special Jurisdictional Note :

In Pickaway County the following townships: Circleville, Darby, Harrison, Jackson, Madison, Monroe, Muhlenberg, Scioto, Walnut, Washington.

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Labor Local 423

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2025ib	Laborer	6/1/2025	6/1/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Laborer Group 1	$32.98		$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$47.53	$64.02
Group 2	$33.29		$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$47.84	$64.49
Group 3	$33.60		$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$48.15	$64.95
Group 4	$33.91		$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$48.46	$65.42
Apprentice	BHR	Percent										
0-1000 hrs	$23.09	$70.00	$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$37.64	$49.18
1001-2000 hrs	$26.38	$80.00	$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$40.93	$54.13
2001-3000 hrs	$29.68	$90.00	$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$44.23	$59.07
3001-4000 hrs	$31.33	$95.00	$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$45.88	$61.55
More than 4000 hrs	$32.98	$100.00	$8.60	$4.45	$0.40	$0.00	$1.00	$0.00	$0.10	$0.00	$47.53	$64.02

(*)Special Calculation Note :

Ratio :

1 Journeymen to 1 Apprentice 4 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Fairfield, Fayette, Franklin, Hocking, Licking, Madison, Pickaway, Union

Special Jurisdictional Note :

Details :

Group 1: General Laborers, Carpenter Tender, Cathodic Protection, Cleaning Debris, Cleaning of all Material, General Clean-up including Vacuum Cleaning, Scraping and Cleaning of Walls and Floors, Landscape, Installation and Removal of Fencing, Sod Layers, All Portable Heaters, Flagman, Loading and Unloading of all Trucks, Handling and conveying all Materials, Washing of all Windows, Conveyer Belt, All Water Pumps up to and including three (3) inch intake, Watchman, Water Boy and Tool Room Attendant. Group 1- Swimming Pools, Pool Decks, Surrounding Sidewalk and Parking Garages. Group 2: Skid Steer, Concrete Specialists, Brick Tender, Stone Mason Tender, Plaster Tender, Mortar Mixer and Operator, Cement Mason Tender, Construction Specialist, All Scaffold Builders (Swinging Scaffolds), Lagging, Bush Hammering,Jack Hammer Operator, Air or Electric Pneumatic Tool Operator, Power Driven Tools, Power Buggy Operators, Pouring and Placement of all concrete, Fork Lift Operators, Power Wheelbarrow Operators, Asphalt and Blacktop Rakers, Wrecker/Demolition, Sand Blasting and Chipping, Welders on Demolition, Grade Checkers, a person on a bucket pouring concrete, Gunite Nozzle man, Wagon and Churn Drill Operator, Concrete Saw Operator, Brush Feeders on pulverizers, Pipe Layers, Bottom Man, Laser Gun, Burners, Sand Blasting of concrete, Vibrator Man, Steward, Signal Man, Caisson, Caisson Bottom Man, Piledrivers, Asbestos and Lead Abatement Laborers. Hazardous Waste (Level B): Any work requiring the following protective equipment must be paid at Group 2 rate, A protective suit and an Air Purifying Respirator (APR) with the appropriate filter canisters. The ensemble is used when contaminants are reliably known not to be hazardous to the skin and not IDLH (Immediately Dangerous To Life or Health) and correct filter protection is available. This ensemble offers adequate protection for many jobs. Heat stress may be a problem due to inherent restrictions to breathing in an APR. Also, normal job related injury risk will be nearly as high as for Level C Equipment. Group 3 Hazardous (Level C:) Any work requiring the following protective equipment must be paid at Group 3 rate, A chemically resistant splash suit and a (SCBA) or Airline Respirator. This ensemble is required when the situation is very hazardous, such as oxygen deficient atmospheres, IDLH atmospheres, or confined space entries, but the risk of skin exposure is not as great as in Level D situations. Then Level C ensemble gives the second highest level of protection, but also puts physical stress on the worker; primarily heat stress, reduced vision,dexterity and mobility directly attributable to wearing of the protective equipment. Therefore, in addition to the hazardous material, the hazard of the normal job related injuries is greatly increased. Group 4 Hazardous Waste (Level D) requiring the following protective equipment must be paid at Group 4 rate, Protective equipment is required when the area has been known to contain extremely toxic contaminants or contaminants unknown but may be expected to be extremely toxic and /or Immediately Dangerous to Life and Health (IDLH). This ensemble includes fully encapsulated chemical suit (moon suit), Self Contained Breathing Apparatus (SCBA), or Airline Fed Respirator, and various types and numbers of boots and gloves, cool vests and voice activated radios are optional equipment sometimes worn. Level D ensembles provide the highest level of protection from contaminants but places the greatest physical and mental stress on the worker. The claustrophobic environment of the moon suit causes anxiety in most people, which greatly increases the already inherent heat stress problems. Also, this ensemble reduces vision, mobility, dexterity, and communication capacity, all of which increases the risk of normal job related injuries, ie., slips ,falls, caught between, etc . Hazardous Pay of $0.25 per hour shall be paid in addition to classifications shown above Swing Scaffolds (suspended by rope or pulley), and swing scaffolds for grain storage tank or grain elevators, when the work is performed at a height of fifty (50) feet or more above the foundations or grade level, whichever is higher. Caisson work and tunnel work (depth being 15 feet or deeper) Hazardous Waste Removal & Lead Abatement Workers: Exclusive or "Hot" area with toxic or hazardous materials, when one of the following personal protective equipment ensembles will be required for necessary protection against toxic contaminants. All of the ensembles increase the risks of certain types of worker-related injuries. When Laborers complement another craft receiving premium rate of pay Laborers will also receive premium pay for this "HOT" type of work.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 1275

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2024ib	Painter	5/8/2024	5/8/2024

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Painter Brush Roll	$29.20		$6.50	$8.31	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$44.46	$59.06
Wall Washer	$29.20		$6.50	$8.31	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$44.46	$59.06
Spray	$29.70		$6.50	$8.31	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$44.96	$59.81
Structural Steel Swing Stage	$29.50		$6.50	$8.31	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$44.76	$59.51
Sandblast, Steam Clean, Water Blasting (3500 PSI and Over) and Hazardous	$29.90		$6.50	$8.31	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$45.16	$60.11
Vinyl Hanging	$29.70		$6.50	$8.31	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$44.96	$59.81
Apprentice	BHR	Percent										
0-1500 hrs	$23.36	$80.00	$6.50	$0.77	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$31.08	$42.76
1501-3000 hrs	$24.82	$85.00	$6.50	$0.77	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$32.54	$44.95
3001-4500 hrs	$26.28	$90.00	$6.50	$0.77	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$34.00	$47.14
4501-6000 hrs	$27.74	$95.00	$6.50	$0.77	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$35.46	$49.33

(*)Special Calculation Note :

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Delaware, Fairfield, Fayette, Franklin, Knox, Licking, Madison, Muskingum, Perry, Pickaway, Ross, Union

Special Jurisdictional Note :

Details :

Heavy Highway Class 1 are qualified painters,blasters,riggers. Class 2 Equipment Tenders /or containment Builders are hired to tend employers equipment also engage in the building & moving of containment systems. Class 3 support personnel will perform Quality control duties,clean abrasive blast materials, load and unload trucks, handle all materials, man safety boats, & handle traffic control. All Tanks 50,000 gallon capacity or more will be at the tank stated rate.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Plumber Pipefitter Local 189

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2024ib	Plumber Pipefitter	8/21/2024	8/21/2024

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Plumber Pipefitter	$49.00		$10.39	$7.49	$1.45	$0.00	$8.26	$0.00	$0.00	$0.00	$76.59	$101.0
Heating Piping Refrigeration, Temperature Control, Air Conditioning Welder	$49.00		$10.39	$7.49	$1.45	$0.00	$8.26	$0.00	$0.00	$0.00	$76.59	$101.09
Apprentice	BHR	Percent										
1st Year	$22.05	$45.00	$5.00	$0.00	$1.45	$0.00	$0.00	$0.10	$0.00	$0.00	$28.60	$39.63
2nd Year	$24.50	$50.00	$10.39	$5.60	$1.45	$0.00	$0.00	$0.10	$0.00	$0.00	$42.04	$54.29
3rd Year	$26.95	$55.00	$10.39	$5.60	$1.45	$0.00	$0.00	$0.10	$0.00	$0.00	$44.49	$57.97
4th Year	$31.85	$65.00	$10.39	$5.60	$1.45	$0.00	$6.26	$0.10	$0.00	$0.00	$55.65	$71.58
5th Year	$39.20	$80.00	$10.39	$5.60	$1.45	$0.00	$8.26	$0.10	$0.00	$0.00	$65.00	$84.60

(*)Special Calculation Note :

*Other is International Training

Ratio :

Employees-------Journeyman to Apprentice per Job 1) 1-0 2) 1-1 3) 2-1 4) 2-2 5) 3-2 6) 4-2 7) 4-3 8) 5-3 9) 6-3 10) 6-4 11) 7-4 12) 8-4 13) 8-5 14) 9-5 15) 10-5 16) 10-6 17) 11-6 18) 12-6 19) 12-7 20) 13-7 21) 14-7 22) 14-8 23) 15-8 24) 16-8 25) 16-9 Heating Piping refrigeration,Temperature Control,Air Conditioning Ratio (1) Additional Apprentice to (3) Journeymen thereafter Employees Journeyman to Apprentice per Job 1) Employee 1-0 2) Employees 1-1 3) Employees 2-1 4) Employees 2-2 5)Employees 3-2 6) Employees 4-2 7) Employees 5-2 8) Employees 5-3 9) Employees 6-3 10)Employees 7-3 11)Employees 8-3 12)Employees 8-4 13)Employees 9-4 14)Employees 10-4 15)Employees 11-4 16) Employees 11-5 17) Employees 12-5 18) Employees 13-5 19) Employees 14-5 20)Employees 14-6 21)Employees 15-6 22)Employees 17-5 23)Employees 18-5 24)Employees 18-6 25)Employees 19-6 26)Employees 20-6 28)Employees 22-6 29)Employees 22-7 30) Employees 23-7 31)Employees 23-7 32) Employees 25-7 33)Employees 26-7 34)Employees 26-8

Jurisdiction (* denotes special jurisdictional note) :

Delaware, Fairfield, Franklin, Hocking, Licking, Madison, Marion, Perry, Pickaway, Ross, Union

Special Jurisdictional Note :

Details :

Sample A105-2017 Agreement

AIA® Document A105® – 2017

Standard Short Form of Agreement Between Owner and Contractor

AGREEMENT made as of the day of October in the year 2025
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Franklin County Convention Facilities Authority
400 N. High Street, 4th Floor
Columbus, Ohio 43215
kpaul@fccfa.org

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

Greater Columbus Convention Center Starbucks Renovation
400 N. High Street
Columbus, Ohio 43215

The Architect:
(Name, legal status, address and other information)

BBCO Design, LLC
326 South High Street, Suite 500
Columbus, Ohio 43215
zac@bbcodesign.com

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

.1 this Agreement signed by the Owner and Contractor;

.2 the drawings and specifications prepared by the Architect, dated September 10, 2025, and enumerated as follows:

Drawings:

Number	Title	Date

Specifications:

Section	Title	Pages

.3 addenda prepared by the Architect as follows:

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Number	Date	Pages

.4 written orders for changes in the Work, pursuant to Article 10, issued after execution of this Agreement; and

.5 other documents, if any, identified as follows:

The Owner's Request for Bids issued on September 11, 2025

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The Contract Time is the number of calendar days available to the Contractor to substantially complete the Work.

§ 2.2 Date of Commencement:

Unless otherwise set forth below, the date of commencement shall be the date of this Agreement.
(Insert the date of commencement if other than the date of this Agreement.)

The Contractor shall not commence any Work until after receipt of the Notice to Proceed

§ 2.3 Substantial Completion:

Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion, as defined in Section 12.5, of the entire Work:
(Check the appropriate box and complete the necessary information.)

[ ] Not later than ( ) calendar days from the date of commencement.

[X] By the following date: December 31, 2025

ARTICLE 3 CONTRACT SUM

§ 3.1 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work. Subject to additions and deductions in accordance with Article 10, the Contract Sum is:

($)

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work:
(Itemize the Contract Sum among the major portions of the Work.)

Portion of the Work	Value

§ 3.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and hereby accepted by the Owner:
(Identify the accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.4 Allowances, if any, included in the Contract Sum are as follows:
(Identify each allowance.)

Item	Price

§ 3.5 Unit prices, if any, are as follows:

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(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

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ARTICLE 4 PAYMENTS

§ 4.1 Based on Contractor's Applications for Payment certified by the Architect, the Owner shall pay the Contractor, in accordance with Article 12, as follows:

(Insert below timing for payments and provisions for withholding retainage, if any.)

Provided that an Application for Payment is received by the Architect not later than the 1st day of a month, the Owner shall make payment of the approved amount to the Contractor not later than the 15th day of the following month. If an Application for Payment is received by the Owner after the date fixed above, payment shall be made by the Owner not later than forty-five days after the Owner receives the Application for Payment.

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Retainage shall be withheld from each payment in the amount of 8% of the Application for Payment until the Work is 50% complete, after which no further retainage will be withheld.

§ 4.2 Payments due and unpaid (except disputed amounts) under the Contract Documents shall bear interest from the date payment is due at the rate below, or in the absence thereof, at the legal rate prevailing at the place of the Project.

(Insert rate of interest agreed upon, if any.)

4 % per annum

ARTICLE 5 INSURANCE

§ 5.1 The Contractor shall maintain the following types and limits of insurance until the expiration of the period for correction of Work as set forth in Section 14.2, subject to the terms and conditions set forth in this Section 5.1:

§ 5.1.1 Commercial General Liability insurance for the Project, written on an occurrence form, with policy limits of not less than ($ 1,000,000) each occurrence, ($ 2,000,000) general aggregate, and ($ 1,000,000) aggregate for products-completed operations hazard.

§ 5.1.2 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than ($ 1,000,000) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

§ 5.1.3 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided that such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 5.1.1 and 5.1.2, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ 5.1.4 Workers' Compensation at statutory limits.

§ 5.1.5 Employers' Liability with policy limits not less than ($ 1,000,000) each accident, ($ 1,000,000) each employee, and ($ 1,000,000) policy limit.

~~**§ 5.1.6** The Contractor shall provide builder's risk insurance to cover the total value of the entire Project on a replacement cost basis.~~

§ 5.1.7 Other Insurance Provided by the Contractor

(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

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Coverage	Limits

§ 5.2 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance and shall provide property insurance to cover the value of the Owner's property. The Contractor may be~~is~~ entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.

§ 5.3 The Contractor shall obtain an endorsement to its Commercial General Liability insurance policy to provide coverage for the Contractor's obligations under Section 8.12.

§ 5.4 Prior to commencement of the Work, each party shall provide certificates of insurance showing their respective coverages.

§ 5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, suppliers, agents, and employees, each of the other; and (2) the Architect, Architect's consultants, and any of their agents and employees, for damages caused by fire or other causes of loss to the extent payment is received for such damage or loss from ~~those losses are covered by~~ property insurance or other insurance applicable to the Project, except such rights as they have to the proceeds of such insurance.

ARTICLE 6 GENERAL PROVISIONS

§ 6.1 The Contract

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

§ 6.2 The Work

The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment, and services provided, or to be provided, by the Contractor to fulfill the Contractor's obligations.

§ 6.3 Intent

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. If inconsistencies exist within or between parts of the Contract Documents, or between the Contract Documents and applicable standards, codes, or ordinances, the Contractor shall, in accordance with the Architect's interpretation, either (1) provide the better quality or greater quantity of Work, or (ii) comply with the more stringent requirement.

§ 6.4 Ownership and Use of Architect's Drawings, Specifications and Other Documents

Documents prepared by the Architect are instruments of the Architect's service for use solely with respect to this Project. The Architect shall retain all common law, statutory, and other reserved rights, including the copyright. The Contractor, subcontractors, sub-subcontractors, and suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may not be used for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Architect.

§ 6.5 Electronic Notice

Written notice under this Agreement may be given by one party to the other by email as set forth below.
(Insert requirements for delivering written notice by email such as name, title, and email address of the recipient, and whether and how the system will be required to generate a read receipt for the transmission.)

Notices shall be sent to the email addresses provided for each party in this Agreement.

ARTICLE 7 OWNER

§ 7.1 Information and Services Required of the Owner

§ 7.1.1 If requested in writing by the Contractor, the Owner shall furnish all necessary surveys and a legal description of the site.

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§ 7.1.2 Except for permits and fees under Section 8.7.1 that are the responsibility of the Contractor, the Owner shall obtain and pay for other necessary approvals, easements, assessments, and charges.

§ 7.1.3 ~~Prior to commencement of the Work, at the written request of the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence.~~The Owner shall prepare and provide to the Contractor a Notice of Commencement pursuant to Ohio Revised Code Section 1311.252.

§ 7.2 Owner's Right to Stop the Work

If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made. If the Owner's exercise of its rights pursuant to this Section 7.2 is determined by a court or arbiter to have been unjustified, such exercise shall be deemed to have been a suspension of the Work pursuant to Section 16.4.

§ 7.3 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, correct such deficiencies. In such case, the ~~Architect~~ Owner may withhold or nullify ~~a Certificate for Payment~~payment approval in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, ~~provided the actions of the Owner and amounts charged to the Contractor were approved by the Architect.~~as well as charges of engineers, attorneys, and other professionals.

§ 7.4 Owner's Right to Perform Construction and to Award Separate Contracts

§ 7.4.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

§ 7.4.2 The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

ARTICLE 8 CONTRACTOR

§ 8.1 Review of Contract Documents and Field Conditions by Contractor

§ 8.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents. Before executing the Agreement, the Contractor and each Subcontractor and Sub-subcontractor have evaluated and satisfied themselves as to the conditions and limitations under which the Work is to be performed, including, without limitation, (i) the location, condition, layout, and nature of the Project site and surrounding areas, (ii) generally prevailing climatic conditions, (iii) anticipated labor supply and costs, (iv) availability and cost of materials, tools, and equipment, and (v) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site.

§ 8.1.2 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Owner ~~Architect~~.

§ 8.2 Contractor's Construction Schedule

§ 8.2 .1 The Contractor, promptly after being awarded the Contract~~, shall prepare and submit~~ and throughout the Work, shall prepare, and keep current, and submit each time it is updated for the Owner's and Architect's information a Contractor's construction schedule for the Work.

§ 8.2.2 The Contractor shall coordinate its Work with the work of other contractors and consultants working on the Project. Contractor, Architect and other contractors shall keep schedules up to date and promptly notify each other and Owner in writing if such schedules are impacted. Contractor shall use its best efforts to accommodate the schedules of other contractors and consultants.

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§ 8.2.3 In developing the construction schedule for the Work, Contractor shall take into consideration the schedule of events and daily operations of the Greater Columbus Convention Center. Contractor shall schedule work at the site so as to minimize the impact of the Work on the daily operations of the Greater Columbus Convention Center.

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§ 8.3 Supervision and Construction Procedures

§ 8.3.1 The Contractor shall supervise and direct the Work, consistent with the standard of care exercised by other professional contractors in the Contractor's trade in the region where the Project is located, and using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work.

§ 8.3.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner, through the Architect, the names of subcontractors or suppliers for each portion of the Work. The Contractor shall not contract with any subcontractor or supplier to whom the Owner or Architect have made a timely and reasonable objection.

§ 8.4 Labor and Materials

§ 8.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

§ 8.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 8.4.3 Except in the case of minor changes in the Work authorized by the Owner or Architect, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order.

§ 8.4.4 This Project is a public improvement and, therefore, is subject to "prevailing wage" requirements. The Contractor shall pay the required prevailing wages applicable to the Project and shall comply with all restrictions, requirements, and agreements with respect to the laborers and mechanics employed by it for the performance of the Work. The Contractor shall require all of its Subcontractors to (1) pay prevailing wages, (2) comply with all restrictions, requirements, and agreements with respect to their laborers and mechanics employed for the performance of their work, and (3) include in any sub-subcontract the same requirements set forth in this Section 8.4.4.

§ 8.4.5 DISCRIMINATION AND INTIMIDATION

§ 8.4.5.1 In the hiring of employees for the performance of the Work, including without limitation Work to be performed by a Subcontractor, no Contractor or Subcontractor, and no person acting on behalf of a Contractor or Subcontractor, shall discriminate against or intimidate any person by reason of race, color, creed, religion, national origin, ancestry, sex, disability, sexual orientation, military status, or any other basis prohibited by law.

§ 8.4.5.2 Neither the Contractor nor any of its Subcontractors, nor any person acting on behalf of the Contractor or any of its Subcontractors, shall, in any manner, discriminate against or intimidate any employee hired for the performance of the Work on account of race, color, creed, religion, national origin, ancestry, sex, disability, sexual orientation, military status, or any other basis prohibited by law.

§ 8.4.5.3 The Contractor and its Subcontractors shall, throughout the Project, comply with Ohio Revised Code Sections 153.59 and 153.591, and with the Owner's Non-Discrimination Policy. For any violation of this Section 8.4.5 or Ohio law, the Contractor shall suffer such penalties as provided for in Ohio Revised Code Section 153.60 and the Owner's Non-Discrimination Policy. In addition to any remedies the Owner has under Ohio law for a violation of this Section 8.4.5, the Owner may also exercise any of the remedies set forth in the Contract Documents.

§ 8.4.5.4 The Contractor and its Subcontractors shall fully cooperate with any official or agency of the Owner, the city, state, or federal government seeking to eliminate unlawful employment discrimination, and with all other Owner, city, state, and federal efforts to assure equal employment practices under this Contract.

§ 8.4.5.5 The Contractor shall comply with the State of Ohio's Equal Employment Opportunity in the Construction Industry rules set forth in Ohio Administrative Code Chapters 123:2-3 through 123:2-9. The Contractor also shall provide monthly reporting of its workforce by the tenth Day of each month for the preceding month to the Equal Opportunity Division of the

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Department of Administrative Services, using Input Form 29 (available at http://das.ohio.gov/Divisions/EqualOpportunity/InputForm29.aspx).

§ 8.4.6 MINORITY, FEMALE, AND DISADVANTAGED BUSINESS PARTICIPATION

§ 8.4.6.1 The Owner intends to have minority, female, and disadvantaged businesses used throughout the Project. To this end, the Contractor is encouraged to include participation in the Project by certified minority, female, and disadvantaged business enterprise Subcontractors that have received appropriate certification from the federal or Ohio government.

§ 8.5 Warranty

The Contractor warrants to the Owner and Architect that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 12.5.

§ 8.6 Taxes

§ 8.6.1 The Contractor shall pay sales, consumer, use, and similar taxes that are legally required when the Contract is executed.

§ 8.6.2 Materials purchased for use or consumption in connection with the Work may be exempt from the State of Ohio Sales Tax as provided in Ohio Revised Code Section 5739.02, and from the State of Ohio Use Tax as provided in Ohio Revised Code Section 5741.01. Purchases by the Contractor of expendable items such as form lumber, tools, oils, greases, fuel, and equipment rentals are subject to the application of the Ohio Sales or Use Tax.

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§ 8.7 Permits, Fees and Notices

§ 8.7.1 The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work.

§ 8.7.2 The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Architect and Owner in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.

§ 8.8 Submittals

The Contractor shall promptly review, approve in writing, and submit to the Architect shop drawings, product data, samples, and similar submittals required by the Contract Documents. Shop drawings, product data, samples, and similar submittals are not Contract Documents, but the Work shall be in accordance with approved submittals.

§ 8.9 Use of Site

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner. The Contractor shall use best efforts to minimize any interference with the occupancy or beneficial use of (i) any areas and buildings adjacent to the site of the Work and (ii) the building on which the Work is being performed. Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project site, including, without limitation, lavatories, entrances, and parking areas other than those designated by the Owner.

§ 8.10 Cutting and Patching

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

§ 8.11 Cleaning Up

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery, and surplus material; and shall properly dispose of waste materials.

§ 8.12 Indemnification

§ 8.12.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect,

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Architect's consultants, officers, trustee, and agents and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent, intentional ,or other wrongful acts or omissions of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

§ 8.12.2 If the Project is located in close proximity of other buildings and property, then the Contractor must use all care and diligence to avoid damage to any such buildings and property. As a result and consistent with that obligation, in addition to the indemnification required by Section 8.12.1, the Contractor shall indemnify and hold harmless the Owner and Owner's agents and employees from and against claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Work that impacts, injures or destroys any building or property beyond the Project physical limits.

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ARTICLE 9 ARCHITECT

§ 9.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 9.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.

§ 9.3 The Architect will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

§ 9.4 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor.

§ 9.5 The Architect and Owner each havehas authority to reject Work that does not conform to the Contract Documents. If the Architect does not reject non-conforming Work that it has discovered, the Architect may demand in writing that the Contractor bring the non-conforming Work into compliance with the Contract Documents.

§ 9.6 The Architect will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review of such submittals is not for the purpose of determining the accuracy and completeness of other information such as dimensions, quantities, and installation or performance of equipment or systems, which are the Contractor's responsibility. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences, or procedures.

§ 9.7 On written request from either the Owner or Contractor, the Architect will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents. The Architect's response to such requests shall be made in writing and delivered to both the Owner and Contractor within any time limits agreed upon or otherwise with reasonable promptness.

§ 9.8 Interpretations andSuch interpretations decisions of the Architect shallwill be consistent with the requirements indicated inintent of, orand reasonably inferable from the Contract Documents, and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 9.9 The Architect's duties, responsibilities, and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

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ARTICLE 10 CHANGES IN THE WORK

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, and the Contract Sum or~~and~~ Contract Time, or both, shall be adjusted accordingly, in writing. If the Owner and Contractor cannot agree to a change in the Contract Sum, the Owner shall pay the Contractor its actual costs plus reasonable overhead and profit. The Contractor shall not be entitled to an increase in the Contract Sum or to an extension of the Contract Time, or both, on account of any change in the Work that is not the subject of a Change Order prior to the commencement of such Work.

§ 10.2 Subject to the approval of the Owner, the~~The~~ Architect may authorize or order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. Such authorization or order shall be in writing and shall be binding on the Owner and Contractor. The Contractor shall proceed with such minor changes promptly.

§ 10.3 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time ~~shall be subject to equitable adjustment~~may be equitably adjusted.

ARTICLE 11 TIME

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment. The Contractor, however, will not be entitled to an extension of the Contract Time to the extent that such delay occurs concurrently with a delay or delays attributable to the Contractor.

§ 11.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the responsible party.

ARTICLE 12 PAYMENTS AND COMPLETION

§ 12.1 Contract Sum

The Contract Sum stated in this Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 12.2 Applications for Payment

§ 12.2.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for Work completed in accordance with the values stated in this Agreement. The Application shall be supported by data substantiating the Contractor's right to payment as the Owner or Architect may reasonably require, such as evidence of payments made to, and waivers of liens from, subcontractors and suppliers. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 12.2.2 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or other encumbrances adverse to the Owner's interests.

§ 12.2.3 As a condition precedent to the Contractor's entitlement to payment on account of an Application for Payment, the Contractor shall submit with each Application for Payment:

.1 a partial conditional lien waiver from the Contractor for the total payment requested in the Application for Payment;

.2 a partial conditional lien waiver from all Subcontractors and Sub-subcontractors on whose account the Contractor is seeking payment in the Application for Payment for the total amount of such payment requested;

.3 a partial unconditional lien waiver from the Contractor for the sum of all previously paid progress payments (not applicable to the Contractor's first Application for Payment) and not applicable to retainage;

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.4 unless previously provided, a partial or final unconditional lien waiver from each Subcontractor and Sub-subcontractor on whose account the Contractor previously sought and received payment for the sum of all such previously paid payments;

.5 a notarized statement from the Contractor certifying that: (1) the Application for Payment is correct; (2) the Contractor is entitled to payment of the amounts requested; and (3) all due and payable bills with respect to the Work have been paid in full or will be paid in full from the proceeds of the Application for Payment;

.6 an application for payment on AIA Document G702/G703 to the Contractor from every Subcontractor on whose account the Contractor is seeking payment in the Application for Payment;

.7 any other information required by the Contract Documents to be submitted with an Application for Payment; and

.8 such other information substantiating the Contractor's right to payment as the Owner or Architect may reasonably require.

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§ 12.3 Certificates for Payment

The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in part; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole. If certification or notification is not made within such seven day period, the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time and the Contract Sum shall be equitably adjusted due to the delay.

§ 12.4 Progress Payments

§ 12.4.1 After the Architect has issued a Certificate for Payment, but subject to the Owner's decision to approve payment in whole or in part, or if the Owner approves payment in the absence of a Certificate for Payment, the Owner shall make payment in the manner ~~provided in the Contract Documents~~and within the time provided in the Contract Documents, and shall so notify the Architect. The Owner may decline to approve payment in whole or in part to such extent as may be necessary in the Owner's opinion to protect the Owner from loss for which the Contractor is or may be responsible, including loss resulting from acts and omissions of the Contractor's employees or Subcontractors or their respective agents, because of, among other things;

.1 defective Work not remedied;

.2 liens or third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a separate contractor;

.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;

.7 repeated failure to carry out the Work in accordance with the Contract Documents; or

.8 representations made by the Contractor that are not true.

§ 12.4.2 The Contractor shall promptly pay each subcontractor and supplier, upon receipt of payment from the Owner, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.

§ 12.4.3 Neither the Owner nor the Architect shall have responsibility for payments to a subcontractor or supplier.

§ 12.4.4 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

§ 12.4.5 Notwithstanding any other provision of the Contract Documents to the contrary, if any claim or lien for which the Contractor is responsible is filed or asserted or there is any reason to believe that such a claim or lien by be filed or asserted at any time during the performance of the Work or the duration of the Contract, the Owner may withhold from nay payment otherwise due to the Contractor a sum sufficient, in the Owner's reasonable opinion or as required by law, to pay all

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obligations and expenses necessary to satisfy such claim or lien until the Contractor furnishes such evidence satisfactory to the Owner that the indebtedness and the claim or lien in respect thereof, if any, has been satisfied, discharged, and released of record if and as provided by law pending the resolution of any such dispute between the Contractor and the entity asserting the claim or lien. The Owner may withhold final payment from the Contractor until the Work and the site are free and clear of any and all claims, liens, or rights thereto arising out of Work performed or materials furnished in furtherance of the Work. In the event that the unpaid balance of the Contract Sum is insufficient to cover such losses, costs, damages, and fees, or if the lien claim arises from the Contractor's failure to properly pass through any payment received from the Owner, the Contractor shall immediately pay the difference to the Owner. The Contractor shall have no responsibility under this Section for any lien or claim caused by Owner's failure to make payment to Contractor when due.

§ 12.5 Substantial Completion

§ 12.5.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents and when all government inspections have been successfully completed and all required permits and authorizations have been issued (unless inability to obtain any such permits is due to causes not the fault of the Contractor) so the Owner can occupy or utilize the Work for its intended use.

§ 12.5.2 When the Contractor believes that the Work or designated portion thereof is substantially complete, it will notify the Architect and the Architect will make an inspection to determine whether the Work is substantially complete. When the Architect determines that the Work is substantially complete, the Architect shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, establish the responsibilities of the Owner and Contractor, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 12.6 Final Completion and Final Payment

§ 12.6.1 Upon receipt of a final Application for Payment, the Architect and Owner will inspect the Work. When the Architect and Owner finds the Work acceptable and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment.

§ 12.6.2 Final payment shall not become due until the Contractor submits to the Architect and Owner releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests, or encumbrances arising out of the Contract.

§ 12.6.3 Acceptance of final payment by the Contractor, a subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

§ 12.6.4 Notwithstanding any other provision of the Contract Documents to the contrary, the date of final completion of the Work is the date determined by the Owner when all Work is complete, accessible, operable, and usable by the Owner and all parts and systems are 100% complete and cleaned for the Owner's full use and all drawings, certificates, bonds, guarantees, and documents required by the Contract Documents have been provided to the Owner by the Contractor.

§ 12.6.5 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect and Owner (1) an affidavit in form and substance reasonably acceptable to the Owner that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied and that all Work is complete in accordance with the requirements of the Contract Documents, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5),a final lien waiver from the Contractor and each Subcontractor; (6) all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, record documents, as-built copies of the Contract Documents, and other documents required by the Contract Documents; and (7) all of the documents and information required under Article 12 to be included with Applications for Payment. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor shall furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall immediately refund to the

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Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

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ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall take reasonable precautions to prevent damage, injury, or loss to employees on the Work and other persons who may be affected thereby, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

ARTICLE 14 CORRECTION OF WORK

§ 14.1 The Contractor shall promptly correct Work rejected by the Architect or Owner as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

§ 14.2 In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents. The Contractor will work together with the Architect and the Owner to see that the corrective work is completed.

§ 14.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

ARTICLE 15 MISCELLANEOUS PROVISIONS

§ 15.1 Assignment of Contract

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

§ 15.2 Tests and Inspections

§ 15.2.1 At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

§ 15.2.2 If the Architect or Owner requires additional testing, the Contractor shall perform those tests.

§ 15.2.3 The Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Contract is executed. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 15.3 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules.

ARTICLE 16 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 16.1 Termination by the Contractor

If the Work is stopped under Section 12.3 for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit~~, and costs incurred by reason of such termination.~~

§ 16.2 Termination by the Owner for Cause

§ 16.2.1 The Owner may terminate the Contract if the Contractor

- **.1** ~~repeatedly~~ refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- **.3** ~~repeatedly~~ disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a

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public authority; or

.4 ~~is otherwise guilty of substantial breach of~~otherwise fails to perform any of its duties or obligations under a provision of the Contract Documents.

§ 16.2.2 When any of the above reasons exist, the Owner, after consultation with the Architect, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

.1 take possession of the site and of all materials thereon owned by the Contractor, and

.2 finish the Work by whatever reasonable method the Owner may deem expedient.

§ 16.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 16.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

§ 16.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed. However, if the Owner terminates the Contract pursuant to this Section 16.3, but the Contractor is in default, the Contractor will be entitled to receive only such sums as it would be entitled to receive following the occurrence of an event of default as provided in Section 16.2.

§ 16.4 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 16.4.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine. The Contract Sum or Contract Time, or both, may be adjusted for increases in the cost and time caused by suspension, delay, or interruption, but no such adjustment will be made to the extent

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

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ARTICLE 17 OTHER TERMS AND CONDITIONS

(Insert any other terms or conditions below.)

§ 17.1 CLAIMS

§ 17.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 17.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the Architect with a copy to the other party. Claims by either party must be initiated within 10 days after occurrence of the event giving rise to such Claim or within 10 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. The Contractor's failure to initiate and substantiate a Claim shall constitute an irrevocable waiver of the Claim.

§ 17.1.2.1 Unless otherwise agreed in writing by the Owner, within 45 days after the initiation of a Claim, the Contractor shall submit in writing to the Owner and Architect all information that the Contractor believes substantiates the Claim and all information and statements required to substantiate a Claim as provided in this Section 17.1. The failure to comply with the requirements of this Section 17.1.2.1 shall constitute an irrevocable waiver of any related Claim.

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§ 17.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 17.1.4 CLAIMS FOR ADDITIONAL COST

§ 17.1.4.1 Except in the event of a Claim relating to an emergency endangering life or property, the Contractor shall obtain the Owner's specific written authorization prior to proceeding with any change in the Work that may entitle the Contractor to an increase in the Contract Sum. The Contractor's failure to obtain such prior written authorization shall constitute an irrevocable waiver of any related Claim. If the Contractor wishes to make a Claim for an increase in the Contract Sum for any reason other than a change in the Work ordered by the Owner, written notice as provided in this Article shall be given before proceeding to execute the affected Work.

§ 17.1.4.2 The Contractor shall substantiate each Claim for an increase in the Contract Sum with (1) written documentation of the actual additional direct costs to the Contractor due to the event giving rise to the Claim; and (2) a written statement from the Contractor that the increase requested is the entire increase in the Contract Sum associated with the Claim.

§ 17.1.5 CLAIMS FOR ADDITIONAL TIME

§ 17.1.5.1 Except in the event of a Claim relating to an emergency endangering life or property, the Contractor shall obtain the Owner's specific written authorization prior to proceeding with any change in the Work that may entitle the Contractor to an increase in the Contract Time. The Contractor's failure to obtain such prior written authorization shall constitute an irrevocable waiver of any related Claim. If the Contractor wishes to make a Claim for an increase in the Contract Time for any reason other than a change in the Work ordered by the Owner, written notice as provided in this Article shall be given before proceeding to execute the affected Work.

§ 17.1.5.2 The Contractor shall substantiate each Claim for an extension of the Contract Time with (1) a written description of the effect of the delay on the progress of the Work; (2) a detailed schedule which identities the critical portions of the Work impacted by the delaying event and the dates of such impact; (3) a detailed written proposal for an increase in the Contract Sum which would fully compensate the Contractor for all costs of acceleration of the Work needed to completely overcome the associated delay together with a statement consistent with Section 17.1.4.2; and (4) a written statement from the Contractor that the extension requested is the entire extension of the Contract Time associated with the Claim.

.1 In the case of a continuing delay occurring on consecutive days, only one Claim is necessary. However, within ten days after the cessation of the cause of the continuing delay, the Contractor shall notify the Owner and Architect in writing that the cause of the delay has ceased. The failure to give timely notice of the cessation of the cause of the continuing delay will constitute an irrevocable waiver of any Claim based on the continuing delay.

§ 17.1.5.3 In addition to the requirements of Section 17.1.5.1, if adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on a critical element of the scheduled construction. Notwithstanding any other provision of the Contract Documents to the contrary, the Contract Time will not be adjusted on account of the impact of any normal adverse weather on any of the Work or on account of the impact of any abnormal adverse weather on non-critical elements of the Work. The support for and evaluation of all adverse-weather Claims shall be based upon average weather conditions during the 10 years immediately preceding the dates at issue in the Claim as such weather conditions were recorded at the government-controlled weather-recording facility nearest to the site.

§ 17.1.5.4 Notwithstanding any other provision of the Contract Documents to the contrary, an extension of the Contract Time will be the Contractor's exclusive remedy in the event of any delay not the proximate result of the act or failure to act of the Owner or anyone for whom the Owner is directly responsible. The Contractor specifically waives any right it may otherwise have to an increase in the Contract Sum or to any type of damages because of such delay or disruption to all or any part of the Work, whether such delay was foreseen or unforeseen and whether caused by the active interference of any party for whom the Owner is not directly responsible.

.1 Notwithstanding the provisions of Section 17.1.5.3 to the contrary, the Contractor will not be entitled to an extension of the Contract Time to the extent that such delay occurs concurrently with a delay attributable to the Contractor.

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§ 17.1.5.5 Notwithstanding any other provision of the Contract Documents to the contrary, in no event shall the Contractor be entitled to an increase in the Contract Time on account of any delaying impact on a non-critical element of the Work.

§ 17.1.6 INITIAL DECISION

§ 17.1.6.1 Except for those waived as provided for in Sections 12.6., 17.1.2, 17.1.4, and 17.1.5, Claims shall be referred to the Architect for initial decision, which shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Architect with no decision having been rendered. Unless the Architect and all affected parties agree, the Architect will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 17.1.6.2 The Architect will review Claims and within ten days of the receipt of the Claim's substantiating documentation, if any, take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Architect is unable to resolve the Claim if the Architect lacks sufficient information to evaluate the merits of the Claim or if the Architect concludes that, in the Archititect's sole discretion, it would be inappropriate for the Architect to resolve the Claim.

§ 17.1.6.3 In evaluating Claims, the Architect may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Architect in rendering a decision. The Architect may request the Owner to authorize retention of such persons at the Owner's expense.

§ 17.1.6.4 If the Architect requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Architect when the response or supporting data will be furnished or (3) advise the Architect that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Architect will either reject or approve the Claim in whole or in part.

§ 17.1.6.5 The Architect will render an initial decision approving or rejecting the Claim, or indicating that the Architect is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 17.1.6.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 17.1.6.6.1.

§ 17.1.6.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 17.1.6.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 17.1.6.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 17.1.6.9 Notwithstanding any other provision of the Contract Documents to the contrary, either party, without first submitting a Claim to the Architect, may seek judicial relief in the state or federal court where the Project is located, but only if the sole relief sought is a temporary restraining order or a preliminary or permanent injunction.

§ 17.1.6.10 Upon receipt of a written request, the Contractor shall make available to the Owner and its representatives all books, records, and other documents in the Contractor's possession or under its control that relate to any Claim or dispute, and the Contractor shall require its Subcontractors and Sub-subcontractors to do likewise.

§ 17.1.7 MEDIATION

§ 17.1.7.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 12.6., 17.1.2, 17.1.4, and 17.1.5 shall be subject to mediation as a condition precedent to binding dispute resolution.

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§ 17.1.7.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 17.1.7, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 17.1.7.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 17.1.8 LITIGATION

§ 17.1.8.1 Any Claim arising out of or related to the Contract, except Claims relating to aesthetic effect and except those waived as provided for elsewhere in the Contract Documents, shall, after decision by the Architect or 75 days after initiation of the Claim, be subject to litigation. The filing of a lawsuit under this Section does not relieve the parties of their obligation to mediate their disputes pursuant to Section 17.1.7.

§ 17.1.8.2 All litigation arising or allegedly arising out of or resulting from the Project shall be held and brought only in the state or federal court where the Project is located. The parties consent to the exclusive jurisdiction of and venue in that court.

This Agreement entered into as of the day and year first written above.
(If required by law, insert cancellation period, disclosures or other warning statements above the signatures.)

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)* LICENSE NO.: JURISDICTION:

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