Wayne County Community College District

July 17, 2026

Attention: WCCCD Curtis L. Ivery Health & Wellness Education Center Sauna Rooms

Wayne County Community College District is soliciting bids for Curtis L. Ivery Health & Wellness Education Center Sauna Rooms project. A Mandatory Pre-Bid Walk-Through Meeting will be held on Wednesday, August 5, 2026 at 10:00 a.m. The District is inviting your company to attend this Mandatory Pre-Bid Walk-Through Meeting. The meeting will be held at the following location:

Curtis L. Ivery Health & Wellness Center
ROOM 106
971 W. Fort Street
Detroit, MI 48226

Bidders will submit three (3) hard copies of your Bid Proposal via U.S. mail, FEDEX, UPS, or hand delivered on or before Tuesday, August 18, 2026 at 2:00 p.m.

If you need further assistance please call 313-496-2780.

We look forward to seeing a representative from your company at this Mandatory Pre-Bid meeting.

Sincerely,

Dr. Lori Tucker
Procurement Analyst, Purchasing Department

REQUEST FOR PROPOSAL
BID NUMBER
001833

Wayne County Community College District is seeking proposals from qualified contractors for **"CURTIS L. IVERY HEALTH & WELLNESS EDUCATION CENTER SAUNA ROOMS"**

A Mandatory Pre-Bid Meeting will be held on **Wednesday, August 5, 2026, at 10:00 a.m.** at the following location:

Curtis L. Ivery Health & Wellness Center
ROOM 106
971 W. Fort Street
Detroit, MI 48226

IMPORTANT: Your Company is responsible for knowing of any changes or modifications discussed at the Mandatory Pre-Bid Meeting. **Bids that do not meet the specifications will be rejected.**

FAXED OR EMAILED BIDS WILL NOT BE ACCEPTED

Following the Pre-Bid Meeting, bids will be received by:

Wayne County Community College District
ATTN: Mr. Akmam Jaigirdar, District Procurement Officer
Curtis L. Ivery District OFFICE
Purchasing Department – 4th Floor
801 W. Fort Street Detroit, MI 48226
Voice: (313) 496-2780 / fax: (313) 961-7693

FAXED OR EMAILED BIDS WILL NOT BE ACCEPTED

The deadline for receipt of all questions will be Tuesday, August 11, 2026, at 12:00 p.m.. Email all Questions to Purchasing Department at Procurement@wcccd.edu.

The deadline for receipt of proposals is Tuesday**, August 18, 2026, at 2:00 p.m.** Indicate on the outside of your (SEALED) envelope **your company name, the Bid Number, project name and the deadline**.

Information required from Bidders: ***(NOTE: Items 1 through 7 are required and mandatory for all bids.)***

Please return the following with your submission:

1. Proposal page(s), complete with authorized signature
2. Proof of three (3) years in business
3. Proof of business insurance
4. References (a minimum of three)
5. Addendum to Independent Contractor Agreement (supplied by the College)
6. Financial Statement (required only if your bid is $50,000.00 or more.)
7. Bid Guarantee (required only if your bid is $50,000.00 or more.)

REQUIREMENTS IN DETAIL

1) PROPOSAL PAGE

Your bid proposal **must** be submitted on 8.5" x 11" paper; you may submit supporting documentation, etc. but the College reserves the right to dispose of said support (covers, oversize envelopes, etc.) at the completion of the bid.

2) PROOF OF THREE YEARS IN BUSINESS

Any company submitting a bid must show proof of being in business for at least three (3) years. The proof of three years in business must be supplied by the company submitting the bid and cannot be submitted by an umbrella company or a company previously operated by the principle agents. Proof of 3 years in business can be a copy of a three year old document bearing the company name. These documents may include; Articles of Incorporation, bank statement, licenses, telephone bill, etc.

3) PROOF OF BUSINESS INSURANCE

Your company must be insured and possess the proper amounts of liability, workers' compensation, auto, etc., required by law. Please include a copy of your certificate with your bid. The contractor must be licensed to do business in the State of Michigan. The contractor's insurer must be one which is acceptable to the College. Insurance must be kept in force for the term of the contract; the retro-date must stay the same.

4) REFERENCES

References shall consist of a minimum list of clients (three) presently serviced by your company, for whom you perform the same or similar service(s), and a contact person with current phone number at each establishment.

5) ***ADDENDUM TO INDEPENDENT CONTRACTOR AGREEMENT***

This document, supplied by the College, is required with most bids. This states that the contractor and employees including subcontractors **are not** employees of the College.

6) ***FINANCIAL STATEMENT – Must be submitted with BIDS OF $50,000.00 OR MORE.*** A financial statement covering the latest complete business cycle is required.

7) BID GUARANTEE

A certified check, bank cashier's check or bid bond equal to **five percent (5%)** of your total base bid is required for each bid; the items should be made payable to ***Wayne County Community College District.*** A bid bond shall be issued by a bonding company licensed to transact business in the locality.

The successful bidder's bid guarantee will be retained until he has entered into a contract with the College. The College reserves the right to hold the bid guarantee of the next two bidders until the successful bidder has entered into a contract with the College, or for a period of sixty (60) days, whichever time elapses first. Bid guarantees of all other bidders will be returned to them as soon as possible after the bid opening.

Should a bidder fail to enter into a contract with the College within ten (10) days, after his bid is accepted, his bid guarantee will be **forfeited** to the College as liquidated damages but not as a penalty.

A performance Bond and Labor and Material Bond for (100%) of the contract may be required for construction projects.

OTHER INFORMATION

ADDENDA

Addenda will be mailed, faxed or delivered to all who are known by WCCCD to have a complete set of bid documents. No addenda will be issued later than ten (10) hours prior to the bid opening date except for addenda withdrawing the bid or postponing the bid opening date.

EXPLANATION OF BID DOCUMENTS

Any bidders requesting clarifications or corrections to bid documents must put their requests in writing via email to WCCCD Purchasing Department, Purchasing Email: Procurement@wcccd.edu **All questions must be received by Tuesday, August 11, 2026 at 12:00 p.m.**

BIDS EXCEEDING $50,000.00

If the combined total of your bid on this package is $50,000.00 or above, it is **MANDATORY** that all information requested in the previous section titled "Information Required from Bidders" be included in your bid package at the time of the bid opening to ensure that your bid be considered.

WITHDRAWAL OF BIDS

Any bidder may withdraw his bid, either personally or by written request, at any time prior to the hour set for the bid opening. No bid may be withdrawn or modified later than the time set for opening unless and until the award of contract is delayed for a period exceeding sixty (60) days.

SUBMISSION OF FORMS

Proposals must be submitted on forms furnished by the College (if provided); forms may be requested in duplicate. Attachment(s) may be made to clarify or supplement the College form(s). Please note that outsized attachments and other supplemental submissions may be disposed of at the completion of the bid process.

TERMS

The College's payment terms are net 30.

ACCEPTANCE OF BID PROPOSAL(S)

The College reserves the right to reject any or all bids; the College may waive any informalities or irregularities in bid proposals submitted during the bidding process. The College also reserves the right to award the contract to other than the low bidder.

Sealed bids may be submitted prior to the closing date in an envelope clearly marked with the **company name, bid number, title of the project and the date and time it is due**. The College accepts no responsibility for bids, which do not meet the deadline because they were improperly labeled.

"LOWEST RESPONSIBLE BIDDER"

The lowest responsible bidder shall be based upon the following criteria: (1) purchase price; (2) the reputation of the vendor and of the vendor's goods or services; (3) the quality of the vendor's goods or services; (4) adequate financial resources for performance; (5) the extent to which the goods or services meet the College's needs; (6) the vendor's past relationship with the College; (7) adequate experience, organization and technical qualifications, skills and facilities; (8) ability to comply with the required timeline for delivery of services or goods; (9) a satisfactory record of integrity, judgment and performance; (10) submission of complete bid requirement.

WAYNE COUNTY COMMUNITY COLLEGE DISTRICT
WCCCD CURTIS L. IVERY HEALTH & WELLNESS CENTER
SAUNA ROOMS

REQUEST FOR PROPOSAL
001833

TIMETABLE FOR THE SELECTION PROCESS

The following is the anticipated schedule for the selection process. Wayne County Community College District reserves the right to modify any part of this schedule:

▪ Request for Proposal Issued	**Friday, July 17, 2026**
▪ Mandatory Pre-Bid Walk-Through Meeting	**Wednesday, August 5, 2026 @ 10:00 a.m.**
▪ Deadline for Questions	**Tuesday, August 11, 2026 @ 12:00 p.m.**
▪ Bid Proposal Due Date	**Tuesday, August 18, 2026 @ 2:00 p.m.**

REQUEST FOR PROPOSAL
Bid # 001833

MANDATORY FORM – AFFIDAVIT OF BIDDER REGARDING FAMILIAL RELATIONSHIPS

All bids must be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the bidder and any employee of the Wayne County Community College District ("WCCCD"). WCCCD shall not accept a bid that does not include this sworn and notarized statement.

The undersigned, the owner or authorized agent of _____ (the "Bidder), pursuant to the familial disclosure requirement provided in the WCCCD Request for Proposals # _____, hereby represent and warrant, except as provided below, that no familial relationships exist between the bidder and any WCCCD employee or Board of Trustees member.

List any familial relationships:

_____

_____

Bidder: _____

_____

STATE OF MICHIGAN)
) ss.
COUNTY OF _____)

By: _____

It's: _____

This instrument was acknowledged before me on the __ day of _____, 202__, by _____.

_____
_____, Notary Public
_____ County, Michigan
My Commission Expires: _____
Acting in the County of _____

ADDENDUM TO INDEPENDENT CONTRACTOR AGREEMENT

This will confirm that I have informed Wayne County Community College District that I meet the four basic tests used by the Internal Revenue Service to determine whether a true separate business entity exists which permits the College to engage me as an independent contractor.

Those four basic tests are:

1. **I have a principal place of business other than furnished by the College. I understand that a home does not qualify as a separate place of business unless it qualifies as a deduction of certain expenses in connection with business use of the home.**

2. **I maintain a separate set of books and records that reflect all items of income and expenses at my business.**

3. **I have the risk of suffering a loss as well as the opportunity of making a profit, and;**

4. **I hold myself out in my own name / Company name as self-employed and make my services generally available to the public.**

   In addition to meeting the above basic tests, I have read and understand the twenty-factor test set forth by the Internal Revenue Service at Rev Rul 87-41, 1987 which is used to determine whether an individual is an independent contractor, I generally meet the requirements, and hereby certify to Wayne County Community College District (WCCCD) that I am an independent contractor in accordance with the Internal Revenue Service twenty-factor test included therein.

_____

Name of Independent Contractor

_____

Name of Firm (if applicable)

_____

Employer Identification Number

_____

Date

GENERAL REQUIREMENTS

The following general requirements shall apply in performing the contract work unless otherwise stated in the contract documents.

- All work shall be performed by skilled tradespersons in a workmanlike manner and in accordance with industry standards and the best practices of the trade.

- Unless otherwise specified, all equipment/materials used shall be new and of quality and type suitable for the intended use as specified. WCCCD and its Program Manager shall be the sole judge of the quality of the work performed and the equipment/materials used in performing the required work.

- The contractor must include all miscellaneous materials, parts and equipment necessary to complete the job in a manner which meets acceptable trade practices and applicable codes. All work (labor and materials) shall be warrantied and/or guaranteed for a minimum of one year (12 months) after completion of the work.

- **All labor, travel, equipment, disposal, etc. must be included in the price. No extra compensation will be given.**

- All proposed work hours and construction activities must be coordinated and scheduled with WCCCD.

- The contractor shall exercise caution and be held responsible for working around the areas where foot traffic occurs and ensure that proper life/safety precautions are adhered to per the industry standard.

- All questions shall be directed to the Purchasing Department via email at Procurement@wcccd.edu on or before Tuesday, August 11, 2026 at 12:00 p.m..

- **WCCCD reserves the right to accept and/or reject any and all bids as it deems in its best interest.**

Wayne County Community College District
Request for Proposal #001833
WCCCD Curtis L. Ivery Health & Wellness Education Center Sauna Rooms

SPECIFICATIONS

PLEASE SEE ATTACHMENTS

Wayne County Community College District
Request for Proposal #001833
WCCCD Curtis L. Ivery Health & Wellness Education Center Sauna Rooms

PROPOSAL PAGE

Insert Company Name _____

Company Address _____

City_____ State_____ Zip Code_____

Authorized Company Signature _____

Print Name _____

Title_____

Email Address:_____

Phone number _____

Fax Number _____

GRAND TOTAL $ _____
(Grand Total for Entire Project Area)

Wayne County Community College District
Request for Proposal #001833
WCCCD Curtis L. Ivery Health & Wellness Education Center Sauna Rooms

ARTICLE II INSURANCE

1) **Workers' Compensation Insurance -** The CONTRACTOR must maintain, during the life of its employees. The CONTRACTOR shall also take out and maintain during the life of the contract, insurance in an amount that adequately protects itself from damage claims (over and above those covered by its regular compensation insurance) resulting from injuries to any of its employees.

2) **Public Liability and Property Damage Insurance** – The CONTRACTOR shall maintain, during the life of the contract, public liability and property damage insurance (including damage claims arising from operations under the contract) whether such operations be by himself or by any subcontractor or by anyone directly employed by either of them. All liability insurance required herein shall be under comprehensive general and automobile bodily injury and property damage from policy.

CONTRACTOR'S LIABILITY INSURANCE

Bodily Injury
Personal Injury
Property Damage

WORKERS' COMPENSATION

Each Person
Employer Each Occurrence

AUTOMOBILE INSURANCE

Each Person
Each Occurrence

PROPERTY DAMAGE

Each Occurrence

SECTION 000101
PROJECT TITLE PAGE

PROJECT MANUAL

FOR:
469-26-01 - WCCCD CLI HWEC SAUNA
ARCHITECT'S PROJECT NUMBER: 469-26-01 DESIGN PROFESSIONAL'S PROJECT NUMBER

CURTIS L IVERY HEALTH AND WELLNESS EDUCATION CENTER SAUNA
971 W FORT ST
DETROIT, MICHIGAN 48226

DATE: JUNE, 05 2026

PREPARED BY:
LOTT3 METZ CRUTCHER ARCHITECTS
500 W GRISWOLD
DETROIT, MICHIGAN 48226

END OF SECTION

SECTION 000110
TABLE OF CONTENTS

PROCUREMENT AND CONTRACTING REQUIREMENTS

1.01 DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

A. 000101 - Project Title Page
B. 001113 - Advertisement for Bids
C. 002113 - Instructions to Bidders
D. 004100 - Bid Form
E. 004323 - Alternates Form
F. 004336 - Proposed Subcontractors Form
G. 004373 - Proposed Schedule of Values Form
H. 005200 - Agreement Form
I. 007200 - General Conditions
J. 007300 - Supplementary Conditions

SPECIFICATIONS

2.01 DIVISION 01 -- GENERAL REQUIREMENTS

A. 011000 - Summary
B. 012000 - Price and Payment Procedures
C. 012100 - Allowances
D. 012200 - Unit Prices
E. 013000 - Administrative Requirements
F. 013329.12 - Sustainable Design Reporting - LEED v4.1

2.02 DIVISION 02 -- EXISTING CONDITIONS

020342 - Removal and Salvage of Period Construction Materials
A. 024100 - Demolition

2.03 DIVISION 03 -- CONCRETE

A. 033000 - Cast-in-Place Concrete
B. 033511 - Concrete Floor Finishes

2.04 DIVISION 04 -- MASONRY

A. 042000 - Unit Masonry

2.05 DIVISION 05 -- METALS

A. 054000 - Cold-Formed Metal Framing
B. 055000 - Metal Fabrications

2.06 DIVISION 06 -- WOOD, PLASTICS, AND COMPOSITES

A. 061000 - Rough Carpentry
B. 062000 - Finish Carpentry

2.07 DIVISION 07 -- THERMAL AND MOISTURE PROTECTION

A. 071900 - Water Repellents
B. 072500 - Weather Barriers - Pecora Corporation
C. 072600 - Vapor Retarders

2.08 DIVISION 08 -- OPENINGS

2.09 DIVISION 09 -- FINISHES

A. 095100 - Acoustical Ceilings

2.10 DIVISION 10 -- SPECIALTIES

2.11 DIVISION 11 -- EQUIPMENT

2.12 DIVISION 12 -- FURNISHINGS

2.13 DIVISION 13 -- SPECIAL CONSTRUCTION

A. 132416 - Saunas

2.14 DIVISION 14 -- CONVEYING EQUIPMENT

2.15 DIVISION 21 -- FIRE SUPPRESSION

2.16 DIVISION 22 -- PLUMBING

2.17 DIVISION 23 -- HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

2.18 DIVISION 25 -- INTEGRATED AUTOMATION

2.19 DIVISION 26 -- ELECTRICAL

2.20 DIVISION 27 -- COMMUNICATIONS

2.21 DIVISION 28 -- ELECTRONIC SAFETY AND SECURITY

2.22 DIVISION 31 -- EARTHWORK

2.23 DIVISION 32 -- EXTERIOR IMPROVEMENTS

2.24 DIVISION 33 -- UTILITIES

2.25 DIVISION 34 -- TRANSPORTATION

2.26 DIVISION 40 -- PROCESS INTEGRATION

2.27 DIVISION 46 -- WATER AND WASTEWATER EQUIPMENT

SECTION 001113
ADVERTISEMENT FOR BIDS

FROM:

1.01 THE OWNER (HEREINAFTER REFERRED TO AS OWNER):

A. Wayne County Community College District Curtis Ivery Wellness Center

B. Address:
1042 W Fort Street
Detroit, Michigan48226

1.02 AND THE ARCHITECT (HEREINAFTER REFERRED TO AS ARCHITECT):

A. Address:
500 Griswold
Suite 1650
Detroit, MI 48226

1.03 DATE: JUNE 5, 2026

1.04 TO: POTENTIAL BIDDERS

A. Your firm is invited to submit an offer under seal to Owner for an interior renovation of a facility located at the above address before _____ am local standard time on the _____ day of _____, ___, for:

B. Project: 469-26-01 - WCCCD CLI HWEC SAUNA

C. Architect's Project Number: 469-26-01.

D. All bidders are required to prequalify no later than 15 days prior to submission of bids.
1. Utilize AIA A305.

E. Bid Documents for a Stipulated Sum contract may be obtained from the office of the Owner free of charge upon receipt of a refundable deposit, by certified check, in the amount of $_____ for one set.

F. Documents may be obtained only by general contract Bidders. Others may view the Bid Documents at the office of the Owner.

G. Refer to other bidding requirements described in Document 002113 - Instructions to Bidders and Document 003100 - Available Project Information.

H. Submit your offer on the Bid Form provided. Bidders may supplement this form as appropriate.

I. Your offer will be required to be submitted under a condition of irrevocability for a period of 30 days after submission.

J. The Owner reserves the right to accept or reject any or all offers.

1.05 SIGNATURE

A. For: Wayne County Community College District Curtis L. Ivery Health and Wellness Center

B. By: _____
1. Signed: _____
2. (Authorized signing officer)

END OF SECTION

SECTION 002113
INSTRUCTIONS TO BIDDERS

SUMMARY

1.01 SEE AIA A701, INSTRUCTIONS TO BIDDERS AVAILABLE AT _____.

1.02 DOCUMENT INCLUDES

A. Invitation
   1. Bid Submission
   2. Intent
   3. Work Identified in Contract Documents
   4. Contract Time

B. Bid Documents and Contract Documents
   1. Definitions
   2. Contract Documents Identification
   3. Availability
   4. Examination
   5. Inquiries/Addenda
   6. Product/Assembly/System Substitutions

C. Site Assessment
   1. Site Examination
   2. Prebid Conference

D. Bid Submission
   1. Bid Depository
   2. Submission Procedure
   3. Bid Ineligibility

E. Bid Enclosures/Requirements
   1. Security Deposit
   2. Performance Assurance
   3. Bid Form Requirements
   4. Fees for Changes in the Work
   5. Bid Form Signature
   6. Additional Bid Information

F. Offer Acceptance/Rejection
   1. Duration of Offer
   2. Acceptance of Offer

1.03 RELATED DOCUMENTS

A. Document 007300 - Supplementary Conditions:
   1. Contract Time identification.

INVITATION

2.01 BID SUBMISSION

A. Bids signed and under seal, executed, and dated will be received at the office of the Architect at _____ before _____ a.m. local standard time on MM-dd-yyyy.

B. Offers submitted after the above time will be returned to the bidder unopened.

C. Submit required Supplements To Bid Forms within 24 hours after closing time for receiving bids.

D. Offers will be opened publicly immediately after the time for receipt of bids.

E. Amendments to the submitted offer will be permitted if received in writing prior to bid closing and if endorsed by the same party or parties who signed and sealed the offer.

2.02 INTENT

A. The intent of this Bid request is to obtain an offer to perform work to complete project named 469-26-01 - WCCCD CLI HWEC SAUNA for a Stipulated Sum contract, in accordance with Contract Documents.

B. The intent of this Bid request is to obtain an offer to perform work to complete a sauna construction and locker room renovation located at 1042 W Fort Street for a Stipulated Sum contract, in accordance with Contract Documents.

2.03 WORK IDENTIFIED IN THE CONTRACT DOCUMENTS

A. Work of this proposed Contract comprises building construction, remodeling, renovation, and demolition, including general construction Work.

B. Project Location:
1042 W. Fort St.
Detroit, Michigan 48226.

2.04 CONTRACT TIME

A. Owner requires that under the work of this contract be completed as quickly as possible and consideration will be given to time of completion when reviewing the submitted bids.

BID DOCUMENTS AND CONTRACT DOCUMENTS

3.01 DEFINITIONS

A. Bid Documents: Contract Documents supplemented with Invitation To Bid, Instructions to Bidders, Information Available to Bidders, Bid Form Bid securities identified.

B. Contract Documents: Defined in _____ including issued Addenda.

C. Bid, Offer, or Bidding: Act of submitting an offer under seal.

D. Bid Amount: Monetary sum identified by the Bidder in the Bid Form.

3.02 CONTRACT DOCUMENTS IDENTIFICATION

A. Contract Documents are identified as Owner's _____ Number 71385, as prepared by Architect, and with contents as identified in the Project Manual.

3.03 AVAILABILITY

A. Bid Documents may be obtained at the office of Owner which is located at _____.

B. One sets of Bid Documents can be obtained by general contract bidders free of charge upon receipt of a refundable deposit, by certified check, in the amount of _____ for one set.

C. Deposit will be refunded if Bid Documents are returned complete, undamaged, unmarked and reusable, within 7 days of bid submission. Failure to comply will result in forfeiture of deposit.

D. Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not grant a license for other purposes.

3.04 EXAMINATION

A. Bid Documents may be viewed at the office of Owner.

B. Upon receipt of Bid Documents verify that documents are complete. Notify Architect should the documents be incomplete.

C. Immediately notify Architect upon finding discrepancies or omissions in the Bid Documents.

3.05 INQUIRIES/ADDENDA

A. Direct questions to Kendal Bowman, email; kendal@l3mc.co.

B. Addenda may be issued during the bidding period. All Addenda become part of Contract Documents. Include resultant costs in the Bid Amount.

C. Verbal answers are not binding on any party.

D. Clarifications requested by bidders must be in writing not less than 7 days before date set for receipt of bids. The reply will be in the form of an Addendum, a copy of which will be forwarded to known recipients.

3.06 PRODUCT/ASSEMBLY/SYSTEM SUBSTITUTIONS

A. General Requirements for Substitution Requests:
   1. Project Manual establishes standards for products, assemblies, and systems.
   2. Provide sufficient information to determine acceptability of proposed substitutions.
   3. Provide complete information on required revisions to other work to accommodate each proposed substitution.

B. Substitution Request Time Restrictions:
   1. Where the Bid Documents stipulate a particular product, substitutions will be considered up to 10 days before receipt of bids.

C. Substitution Request Form:

D. Review and Acceptance of Request:

SITE ASSESSMENT

4.01 SITE EXAMINATION

A. Examine the project site before submitting a bid.

B. The bidder is required to contact Owner at the following address and phone number in order to arrange a date and time to visit the project site: _____.

C. A visit to the project site has been arranged for bidders as follows: _____

D. The currently occupied premises at the project site are open for examination by bidders only during the following hours:
   1. Monday through Friday: _____ to _____.
   2. Weekends: _____ to _____.

4.02 PREBID CONFERENCE

A. A bidders conference has been scheduled for _____ a.m. on the _____ day of _____ at the location of _____.

B. All general contract bidders and suppliers are invited.

C. Representatives of Architect will be in attendance.

QUALIFICATIONS

5.01 EVIDENCE OF QUALIFICATIONS

A. To demonstrate qualification for performing the Work of this Contract, bidders may be requested to submit AIA A305.

5.02 SUBCONTRACTORS/SUPPLIERS/OTHERS

A. Owner reserves the right to reject a proposed subcontractor for reasonable cause.

BID SUBMISSION

6.01 BID DEPOSITORY

A. The _____ Bid Depository system of bid collection shall be used for all trades.

6.02 SUBMISSION PROCEDURE

A. Bidders shall be solely responsible for the delivery of their bids in the manner and time prescribed.

B. Submit one copy of the executed offer on the Bid Forms provided, signed and sealed with the required security in a closed opaque envelope, clearly identified with bidder's name, project name and Owner's name on the outside.

C. Improperly completed information, irregularities in security deposit, may be cause not to open the Bid Form envelope and declare the bid invalid or informal.

6.03 BID INELIGIBILITY

A. Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may at the discretion of the Owner, be declared unacceptable.

BID ENCLOSURES/REQUIREMENTS

7.01 SECURITY DEPOSIT

A. Bids shall be accompanied by a security deposit as follows:
   1. Bid Bond in the amount of $ _____ on AIA A310 Bid Bond Form.

B. Endorse the Bid Bond in the name of the Owner as obligee, signed and sealed by the principal (Contractor) and surety.

C. The security deposit will be returned after delivery to the Owner of the required Performance and Payment Bond(s) by the accepted bidder.

D. Include the cost of bid security in the Bid Amount.

E. If no contract is awarded, all security deposits will be returned.

7.02 PERFORMANCE ASSURANCE

A. Accepted Bidder: Provide a Performance bond as described in 007300 - Supplementary Conditions.

B. Include the cost of performance assurance bonds in the Bid Amount.

7.03 INSURANCE

A. Provide an executed "Undertaking of Insurance" on the form provided stating their intention to provide insurance to the bidder in accordance with the insurance requirements of Contract Documents.

7.04 BID FORM REQUIREMENTS

A. Complete all requested information in the Bid Form and Appendices.

7.05 FEES FOR CHANGES IN THE WORK

A. Include in the Bid Form, the overhead and profit fees on own Work and Work by subcontractors, applicable for Changes in the Work, whether additions to or deductions from the Work on which the Bid Amount is based.

B. Include in the Bid Form, the fees proposed for subcontract work for changes (both additions and deductions) in the Work. Contractor shall apply fees as noted, to the subcontractor's gross (net plus fee) costs on additional work.

7.06 BID FORM SIGNATURE

A. The Bid Form shall be signed by the bidder, as follows:
   1. Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature. Affix seal to each signature.
   2. Corporation: Signature of a duly authorized signing officer(s) in their normal signatures. Insert the officer's capacity in which the signing officer acts, under each signature. Affix the corporate seal. If the bid is signed by officials other than the president and secretary of the company, or the president/secretary/treasurer of the company, a copy of the by-law resolution of their board of directors authorizing them to do so, must also be submitted with the Bid Form in the bid envelope.

7.07 SELECTION AND AWARD OF ALTERNATES

A. Indicate variation of bid price for Alternates listed on the Bid Form. Unless otherwise indicated, indicate Alternates as a difference in bid price by adding to or deducting from the base bid price.

OFFER ACCEPTANCE/REJECTION

8.01 DURATION OF OFFER

A. Bids shall remain open to acceptance and shall be irrevocable for a period of sixty (60) days after the bid closing date.

8.02 ACCEPTANCE OF OFFER

A. Owner reserves the right to accept or reject any or all offers.

B. After acceptance by Owner, Architect on behalf of Owner, will issue to the successful bidder, a written Bid Acceptance.

END OF SECTION

SECTION 004100
BID FORM

THE PROJECT AND THE PARTIES

1.01 TO:

A. Owner
1042 W Fort Street
Detroit, Michigan48226

1.02 FOR:

A. Project: 469-26-01 - WCCCD CLI HWEC SAUNA

1.03 DATE: _____ (BIDDER TO ENTER DATE)

1.04 SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)

A. Bidder's Full Name _____
1. City, State, Zip_____

1.05 OFFER

A. Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Bid Documents prepared by _____ for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

B. _____
_____ dollars
($_____), in lawful money of the United States of America.

C. We have included the required security deposit as required by the Instruction to Bidders.

D. We have included the required performance assurance bonds in the Bid Amount as required by the Instructions to Bidders.

1.06 ACCEPTANCE

A. This offer shall be open to acceptance and is irrevocable for thirty days from the bid closing date.

B. If this bid is accepted by Owner within the time period stated above, we will:
1. Execute the Agreement within seven days of receipt of Notice of Award.
2. Furnish the required bonds within seven days of receipt of Notice of Award.
3. Commence work within seven days after written Notice to Proceed of this bid.

C. If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

1.07 CONTRACT TIME

A. If this Bid is accepted, we will:

B. Complete the Work by the _____ day of _____, _____. (Bidder to enter day, month, and year.)

1.08 UNIT PRICES

A. The following are Unit Prices for specific portions of the Work as listed. The following is the list of Unit Prices:

1.09 CHANGES TO THE WORK

A. When Architect establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with General Conditions, our percentage fee will be:

B. On work deleted from the Contract, our credit to Owner shall be Architect-approved net cost plus _____ of the overhead and profit percentage noted above.

1.10 BID FORM SIGNATURE(S)

A. The Corporate Seal of

B. _____

C. (Bidder - print the full name of your firm)

D. was hereunto affixed in the presence of:

E. _____

F. (Authorized signing officer, Title)

G. _____

H. (Authorized signing officer, Title)

END OF SECTION

SECTION 007300
SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.01 SUMMARY

A. These Supplementary Conditions amend and supplement the General Conditions defined in Document 007200 - General Conditions and other provisions of Contract Documents as indicated below. Provisions that are not so amended or supplemented remain in full force and effect.

B. The terms used in these Supplementary Conditions that are defined in the General Conditions have the meanings assigned to them in the General Conditions.

1.02 RELATED SECTIONS

A. Section 005000 - Contracting Forms and Supplements.

B. Section 014216 - Definitions.

1.03 MODIFICATIONS TO GENERAL CONDITIONS

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 011000
SUMMARY

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Project information.
   2. Work covered by Contract Documents.
   3. Phased construction.
   4. Work under Owner's separate contracts.
   5. Owner-furnished/Contractor-installed (OFCI) products.
   6. Contractor's use of site and premises.
   7. Coordination with occupants.
   8. Work restrictions.
   9. Specification and Drawing conventions.

B. Related Requirements:
   1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.02 PROJECT INFORMATION

A. Project Identification: 469-26-01 - WCCCD CLI HWEC SAUNA
   1. Project Location: 1042 W Fort Street, Detroit, Michigan

B. Owner: .Wayne State Community College District
   1. Owner's Representative: Ekklesia Building Corporation

C. Architect: Ted Lott, AIA; Lott3Metz Architecture, LLC; 645 Cherry SE; Grand Rapids, MI 49503.

D. Contractor: To Be Determined, TBD has been engaged as General Contractor for this Project.
   1. Contractor Representative: TBD

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:
   1. Building renovation of men and women's existing auxiliary with a dry sauna

B. Type of Contract:
   1. Project will be constructed under a single prime contract.

C. Before commencing Work of each phase, submit an updated copy of Contractor's construction schedule showing the sequence, commencement and completion dates, and move-out and -in dates of Owner's personnel for all phases of the Work.

1.04 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1.05 OWNER-FURNISHED/CONTRACTOR-INSTALLED (OFCI) PRODUCTS

A. Owner's Responsibilities: Owner will furnish products indicated and perform the following, as applicable:
   1. Provide to Contractor Owner-reviewed Product Data, Shop Drawings, and Samples.
   2. Provide for delivery of Owner-furnished products to Project site.
   3. Upon delivery, inspect, with Contractor present, delivered items.
      a. If Owner-furnished products are damaged, defective, or missing, arrange for replacement.
   4. Obtain manufacturer's inspections, service, and warranties.
   5. Inform Contractor of earliest available delivery date for Owner-furnished products.

B. Contractor's Responsibilities: The Work includes the following, as applicable:
   1. Designate delivery dates of Owner-furnished products in Contractor's construction schedule, utilizing Owner-furnished earliest available delivery dates.
   2. Review Owner-reviewed Product Data, Shop Drawings, and Samples, noting discrepancies and other issues in providing for Owner-furnished products in the Work.
   3. Receive, unload, handle, store, protect, and install Owner-furnished products.
   4. Make building services connections for Owner-furnished products.
   5. Protect Owner-furnished products from damage during storage, handling, and installation and prior to Substantial Completion.
   6. Repair or replace Owner-furnished products damaged following receipt.

1.06 CONTRACTOR'S USE OF SITE AND PREMISES

A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

C. Limits on Use of Site: Limit use of Project site to areas defined for work unless otherwise directed by Pioneer Construction. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Limits on Use of Site: Confine construction operations to areas defined by Pioneer Construction
   2. Driveways, Walkways, and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.07 COORDINATION WITH OCCUPANTS

A. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1.08 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
   2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
   3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
   4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 011200
MULTIPLE CONTRACT SUMMARY

PART 1 GENERAL

1.01 SUMMARY

A. Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.

B. Related Requirements:
   1. Section 011000 "Summary" for the Work covered by the Contract Documents, restrictions on use of Project site, coordination with occupants, and work restrictions.

1.02 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, the condition at which roofing is insulated and weathertight; exterior walls are insulated and weathertight; and openings are closed with permanent construction or substantial temporary closures equivalent in weather protection to permanent construction.

1.03 PROJECT COORDINATOR

A. Project coordinator shall be responsible for coordination between the General Construction Contract, Plumbing Contract, HVAC Contract, Electrical Contract and any other contract required for successful delivery of the project.

B. Project coordinator shall perform Project coordination activities for the multiple contracts, including, but not limited to, the following:
   1. Provide typical overall coordination of the Work.
   2. Coordinate shared access to workspaces.
   3. Coordinate product selections for compatibility.
   4. Provide overall coordination of temporary facilities and controls.
   5. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
   6. Coordinate construction and operations of the Work with work performed by each Contract.
   7. Prepare coordination drawings in collaboration with each contractor to coordinate work by more than one contract.
   8. Coordinate sequencing and scheduling of the Work.
   9. Provide photographic documentation.
   10. Provide quality-assurance and quality-control services specified in Section 014000 "Quality Requirements."
   11. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
   12. Provide information necessary to adjust, move, or relocate existing utility structures affected by construction.
   13. Locate existing permanent benchmarks, control points, and similar reference points, and establish permanent benchmarks on Project site.
   14. Provide field surveys of in-progress construction and site work.
   15. Provide progress cleaning of common areas and coordinate progress cleaning of areas or pieces of equipment where more than one contractor has worked.
   16. Coordinate cutting and patching.
   17. Coordinate protection of the Work.
   18. Coordinate firestopping.
   19. Coordinate completion of interrelated punch list items.
   20. Coordinate preparation of Project Record Documents if information from more than one contractor is to be integrated with information from other contractors to form one combined record.

21. Print and submit Record Documents if installations by more than one contractor are indicated on the same Contract Drawing or Shop Drawing.
22. Collect record Specification Sections from contractors, collate Sections into numeric order, and submit complete set.
23. Coordinate preparation of operation and maintenance manuals if information from more than one contractor is to be integrated with information from other contractors to form one combined record.

C. Responsibilities of Project coordinator for temporary facilities and controls include, but are not limited to, the following:
   1. Provide common-use field office for use by all personnel engaged in construction activities.
   2. Provide telephone service for common-use facilities.

1.04 GENERAL REQUIREMENTS OF CONTRACTS

A. Extent of Contract: Unless the Agreement contains a more specific description of the Work of each Contract, requirements defined by the General Contractor shall govern the extents of the contracts.
   1. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.

B. Substitutions: Each contractor shall cooperate with other contractors involved to coordinate approved substitutions with remainder of the work.
   1. Project coordinator shall coordinate substitutions.

C. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 015000 "Temporary Facilities and Controls," each contractor is responsible for the following:
   1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
   2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
   3. Its own field office, complete with necessary furniture, utilities, and telephone service.
   4. Its own storage and fabrication sheds.
   5. Temporary enclosures for its own construction activities.
   6. Staging and scaffolding for its own construction activities.
   7. General hoisting facilities for its own construction activities, up to 2 tons (2000 kg).
   8. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
   9. Progress cleaning of work areas affected by its operations on a daily basis.
   10. Secure lockup of its own tools, materials, and equipment.
   11. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 012000
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

1.02 SCHEDULE OF VALUES

A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.

B. Forms filled out by hand will not be accepted.

1.03 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Execute certification by signature of authorized officer.

E. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

F. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.

G. Submit one electronic and three hard-copies of each Application for Payment.

1.04 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.

B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change.

C. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within ____ days.

D. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

E. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

F. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

G. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

H. Promptly enter changes in Project Record Documents.

1.05 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 017000.

END OF SECTION

SECTION 012100
ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cash allowances.

B. Contingency allowance.

C. Payment and modification procedures relating to allowances.

1.02 RELATED REQUIREMENTS

A. Section 012000 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CASH ALLOWANCES

A. Costs Included in Cash Allowances: Cost of product to Contractor or subcontractor, less applicable trade discounts, less cost of delivery to site , less applicable taxes .

B. Architect Responsibilities:

C. Contractor Responsibilities:
   1. Obtain proposals from suppliers and installers and offer recommendations.
   2. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
   3. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

D. Differences in costs will be adjusted by Change Order.

1.04 CONTINGENCY ALLOWANCE

A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

B. Funds will be drawn from the Contingency Allowance only by Change Order.

1.05 INSPECTING AND TESTING ALLOWANCES

A. Costs Included in Inspecting and Testing Allowances: Cost of engaging an inspecting or testing agency; execution of inspecting and tests; and reporting results.

B. Costs Not Included in the Inspecting and Testing Allowances:

C. Payment Procedures:
   1. Submit one copy of the inspecting or testing firm's invoice with next application for payment.
   2. Pay invoice on approval by Architect.

D. Differences in cost will be adjusted by Change Order.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 012200
UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. List of unit prices, for use in preparing Bids.

B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

C. Defect assessment and non-payment for rejected work.

1.02 RELATED REQUIREMENTS

A. Document 002113 - Instructions to Bidders: Instructions for preparation of pricing for Unit Prices.

B. Section 012000 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.04 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.05 MEASUREMENT OF QUANTITIES

A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.

B. Take all measurements and compute quantities. Measurements and quantities will be verified by Architect.

C. Assist by providing necessary equipment, workers, and survey personnel as required.

D. Measurement Devices:
   1. Weigh Scales: Inspected, tested and certified by the applicable state Weights and Measures department within the past year.

E. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.

F. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

G. Measurement by Area: Measured by square dimension using mean length and width or radius.

H. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

1.06 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.

B. Payment will not be made for any of the following:
   1. Products wasted or disposed of in a manner that is not acceptable.
   2. Products determined as unacceptable before or after placement.
   3. Products not completely unloaded from the transporting vehicle.
   4. Products placed beyond the lines and levels of the required Work.

5. Products remaining on hand after completion of the Work.
6. Loading, hauling, and disposing of rejected Products.

1.07 DEFECT ASSESSMENT

A. Replace Work, or portions of the Work, not complying with specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct one of the following remedies:

C. If, in the opinion of Owner, it is not practical to remove and replace the Work, Owner will direct one of the following remedies:
   1. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of Owner.

D. The individual specification sections may modify these options or may identify a specific formula or percentage price reduction.

E. The authority of Architect to assess the defect and identify payment adjustment is final.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 012500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:
   1. Document 002600 "Procurement Substitution Procedures" for requirements for substitution requests prior to award of Contract.
   2. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.02 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
   1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
   2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.03 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Substitution Request Form: Use form acceptable to Architect.
   2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
      a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
      b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
      c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
      d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
      e. Samples, where applicable or requested.
      f. Certificates and qualification data, where applicable or requested.
      g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
      h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
      i. Research reports evidencing compliance with building code in effect for Project.
      j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's

letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.

b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.04 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.05 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.06 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.

b. Substitution request is fully documented and properly submitted.

c. Requested substitution will not adversely affect Contractor's construction schedule.

d. Requested substitution has received necessary approvals of authorities having jurisdiction.

e. Requested substitution is compatible with other portions of the Work.

f. Requested substitution has been coordinated with other portions of the Work.

g. Requested substitution provides specified warranty.

h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed unless otherwise indicated.

C. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 012600
CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.02 MINOR CHANGES IN THE WORK

A. Architect will issue through Construction Manager supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.
   1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.

1.03 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
   1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
   2. Within 7 days, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
      a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      c. Include costs of labor and supervision directly attributable to the change.
      d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.
   1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
   2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   4. Include costs of labor and supervision directly attributable to the change.
   5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
   6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.04 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Construction Manager will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.05 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Construction Manager may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.06 WORK CHANGE DIRECTIVE

A. Work Change Directive: Construction Manager may issue a Work Change Directive on EJCDC Document C-940. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 013000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Web-based project software service.

C. Electronic document submittal service.

D. Preconstruction meeting.

E. Site mobilization meeting.

F. Progress meetings.

G. Construction progress schedule.

H. Progress photographs.

I. Coordination drawings.

J. Number of copies of submittals.

K. Requests for Interpretation (RFI) procedures.

L. Submittal procedures.

1.02 RELATED REQUIREMENTS

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 017000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Make the following types of submittals to Architect:
   1. Requests for Interpretation (RFI).
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.
   8. Progress schedules.
   9. Coordination drawings.
   10. Correction Punch List and Final Correction Punch List for Substantial Completion.
   11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 WEB-BASED PROJECT SOFTWARE SERVICE

A. Web-Based Project Software Service: Provide, administer, and use web-based project software to host and manage project communication and documentation.
   1. Include, at minimum, the following features:
      a. Project directory, including Owner, Contractor, subcontractors, Architect, Architect's consultants, and other entities involved in the project. Include names of contact persons and contact information for each entity.
      b. Access control for each entity and for each workflow process to determine each entity's digital rights to create, modify, view, and print documents.
      c. Workflow planning, allowing customization of workflow for each project entity.
      d. Creation, logging, tracking, and notification for project communications.

e. Tracking of project communication statuses in real time, including timestamped response log.
f. Procedures for viewing PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
g. Processing and tracking of payment applications.
h. Processing and tracking of contract modifications.
i. Creation and distribution of meeting minutes.
j. Document management for drawings, specifications, and coordination drawings, including revision control.
k. Management of construction progress photographs.
l. Mobile device compatibility.
m. Creation of data analytics reports.
n. Creation and export of editable logs for software functions. Provide Owner, Architect, and Architect's consultants with rights and ability to download logs when requested.

2. Provide up to 20 user licenses for use by Owner, Architect, Architect's consultants, and other entities involved in the project.
3. Comply with the software service's current published licensing agreements.
4. Training: Provide one-hour, web-based training session for users of software service. Further training is the responsibility of the user.
   a. Representatives of Owner are scheduled and included in this training.
5. Project Closeout: Architect determines when to terminate the software service for the project and is responsible for obtaining archive copies of files for Owner.
6. Web-Based Project Software Services: The selected service is:

3.02 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
   1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
   2. Contractor and Architect are required to use this service.
   3. It is Contractor's responsibility to submit documents in allowable format.
   4. Subcontractors, suppliers, and Architect's consultants will be permitted to use the service at no extra charge.
   5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
   6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
   7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Submittal Service: The selected service is:

C. Training: One, one-hour, web-based training session will be arranged for all participants, with representatives of Architect and Contractor participating; further training is the responsibility of the user of the service.

D. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.03 PRECONSTRUCTION MEETING

A. Schedule meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
   5. Designation of personnel representing the parties to Contract and Architect.
   6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   7. Scheduling.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 SITE MOBILIZATION MEETING

A. Schedule meeting at the Project site prior to Contractor occupancy.

B. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.
   5. Major subcontractors.

C. Agenda:
   1. Use of premises by Owner and Contractor.
   2. Owner's requirements.
   3. Construction facilities and controls provided by Owner.
   4. Temporary utilities provided by Owner.
   5. Survey and building layout.
   6. Security and housekeeping procedures.
   7. Schedules.
   8. Application for payment procedures.
   9. Procedures for testing.
   10. Procedures for maintaining record documents.
   11. Requirements for start-up of equipment.
   12. Inspection and acceptance of equipment put into service during construction period.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.05 PROGRESS MEETINGS

A. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.
   5. Major subcontractors.

B. Agenda:

1. Review minutes of previous meetings.
2. Review of work progress.
3. Field observations, problems, and decisions.
4. Identification of problems that impede, or will impede, planned progress.
5. Review of submittals schedule and status of submittals.
6. Maintenance of progress schedule.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Maintenance of quality and work standards.
10. Effect of proposed changes on progress schedule and coordination.
11. Other business relating to work.

C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.06 CONSTRUCTION PROGRESS SCHEDULE

A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

3.07 PROGRESS PHOTOGRAPHS

A. Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.

B. Photography Type: Digital; electronic files.

C. Provide photographs of site and construction throughout progress of work produced by an experienced photographer, acceptable to Architect.

D. In addition to periodic, recurring views, take photographs of each of the following events:

E. Views:
   1. Provide non-aerial photographs from four cardinal views at each specified time, until date of Substantial Completion.
   2. Consult with Architect for instructions on views required.
   3. Provide factual presentation.
   4. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

F. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
   1. Delivery Medium: Via email.
   2. File Naming: Include project identification, date and time of view, and view identification.
   3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.
   4. Hard Copy: Printed hardcopy (grayscale) of PDF file and point of view sketch.

3.08 COORDINATION DRAWINGS

A. Provide information required by Project Coordinator for preparation of coordination drawings.

B. Review drawings prior to submission to Architect.

3.09 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:
   1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
   2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare a separate RFI for each specific item.
   2. Prepare using software provided by the Electronic Document Submittal Service.
   3. Combine RFI and its attachments into a single electronic file. PDF format is preferred.

D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.

E. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
   1. Indicate current status of every RFI. Update log promptly and on a regular basis.
   2. Note dates of when each request is made, and when a response is received.
   3. Highlight items requiring priority or expedited response.
   4. Highlight items for which a timely response has not been received to date.
   5. Identify and include improper or frivolous RFIs.

F. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
   1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.

G. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
   1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
   2. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
   3. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.10 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
   1. Coordinate with Contractor's construction schedule and schedule of values.
   2. Format schedule to allow tracking of status of submittals throughout duration of construction.
   3. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.

3.11 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 017800 - Closeout Submittals.

3.12 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.13 SUBMITTAL PROCEDURES

A. General Requirements:
   1. Use a single transmittal for related items.
   2. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
   3. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
   4. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
      a. Deliver submittals to Architect at business address.
   5. Schedule submittals to expedite the Project, and coordinate submission of related items.
      a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
      b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
   6. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
   7. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.

B. Product Data Procedures:
   1. Submit only information required by individual specification sections.
   2. Collect required information into a single submittal.
   3. Do not submit (Material) Safety Data Sheets for materials or products.

C. Shop Drawing Procedures:
   1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
   2. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

3.14 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.

D. Architect's and consultants' actions on items submitted for review:
   1. Authorizing purchasing, fabrication, delivery, and installation:
      a. "Approved", or language with same legal meaning.
      b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
         1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
      c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
   2. Not Authorizing fabrication, delivery, and installation:

E. Architect's and consultants' actions on items submitted for information:
   1. Items for which no action was taken:
      a. "Received" - to notify the Contractor that the submittal has been received for record only.
   2. Items for which action was taken:
      a. "Reviewed" - no further action is required from Contractor.

END OF SECTION

SECTION 013100
PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General coordination procedures.
   2. Coordination drawings.
   3. RFIs.
   4. Digital project management procedures.
   5. Project meetings.

B. Related Requirements:
   1. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
   2. Section 019113 "General Commissioning Requirements" for coordinating the Work with Owner's Commissioning Authority.

1.02 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
   1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
   2. Number and title of related Specification Section(s) covered by subcontract.
   3. Drawing number and detail references, as appropriate, covered by subcontract.

1.03 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of Contractor's construction schedule.
   2. Preparation of the schedule of values.
   3. Installation and removal of temporary facilities and controls.
   4. Delivery and processing of submittals.
   5. Progress meetings.
   6. Preinstallation conferences.
   7. Project closeout activities.
   8. Startup and adjustment of systems.

1.04 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is

required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    b. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:
1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Review: Architect will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.

C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Preparation Format:
    a. Same digital data software program, version, and operating system as original Drawings.
    b. DWG, Version 2010 operating in Microsoft Windows operating system.
2. File Submittal Format: Submit or post coordination drawing files using PDF format.
3. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
    a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
    b. Digital Data Software Program: Drawings are available in AutoCad 2010
    c. Contractor shall execute a data licensing agreement in the form of AIA Document C106.

1.05 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Owner name.
2. Owner's Project number.
3. Name of Architect and Construction Manager.
4. Architect's Project number.
5. Date.
6. Name of Contractor.
7. RFI number, numbered sequentially.
8. RFI subject.
9. Specification Section number and title and related paragraphs, as appropriate.
10. Drawing number and detail references, as appropriate.
11. Field dimensions and conditions, as appropriate.
12. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
13. Contractor's signature.
14. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: AIA Document G716.

D. Architect's and Construction Manager's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven days for Architect's response for each RFI. RFIs received by Construction Manager after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for approval of Contractor's means and methods.
   d. Requests for coordination information already indicated in the Contract Documents.
   e. Requests for adjustments in the Contract Time or the Contract Sum.
   f. Requests for interpretation of Architect's actions on submittals.
   g. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect or Construction Manager of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
   a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within five days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log Monthly. Include the following:
1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect and Construction Manager.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.

6. Date the RFI was submitted.
7. Date Architect's and Construction Manager's response was received.

F. On receipt of Architect's and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within three days if Contractor disagrees with response.

1.06 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Use of Architect's Digital Data Files: Digital data files of Architect's CAD drawings will be provided by Architect for Contractor's use during construction.
   1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.
   2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
   3. Digital Drawing Software Program: Contract Drawings are available in AutoCad 2010.
   4. Contractor shall execute a data licensing agreement in the form of AIA Document C106 Digital Data Licensing Agreement.
      a. Subcontractors, and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of AIA Document C106.

B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
   1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
   2. Name file with submittal number or other unique identifier, including revision identifier.
   3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.07 PROJECT MEETINGS

A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.

B. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect.
   1. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
   2. Agenda: Discuss items of significance that could affect progress, including the following:
      a. Responsibilities and personnel assignments.
      b. Tentative construction schedule.
      c. Phasing.
      d. Critical work sequencing and long lead items.
      e. Designation of key personnel and their duties.
      f. Lines of communications.
      g. Use of web-based Project software.
      h. Procedures for processing field decisions and Change Orders.
      i. Procedures for RFIs.
      j. Procedures for testing and inspecting.
      k. Procedures for processing Applications for Payment.
      l. Distribution of the Contract Documents.
      m. Submittal procedures.
      n. Sustainable design requirements.
      o. Preparation of Record Documents.

p. Use of the premises and existing building.
q. Work restrictions.
r. Working hours.
s. Owner's occupancy requirements.
t. Responsibility for temporary facilities and controls.
u. Procedures for moisture and mold control.
v. Procedures for disruptions and shutdowns.
w. Construction waste management and recycling.
x. Parking availability.
y. Office, work, and storage areas.
z. Equipment deliveries and priorities.
aa. First aid.
bb. Security.
cc. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect andConstruction Manager of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
   a. Contract Documents.
   b. Options.
   c. Related RFIs.
   d. Related Change Orders.
   e. Purchases.
   f. Deliveries.
   g. Submittals.
   h. Sustainable design requirements.
   i. Review of mockups.
   j. Possible conflicts.
   k. Compatibility requirements.
   l. Time schedules.
   m. Weather limitations.
   n. Manufacturer's written instructions.
   o. Warranty requirements.
   p. Compatibility of materials.
   q. Acceptability of substrates.
   r. Temporary facilities and controls.
   s. Space and access limitations.
   t. Regulations of authorities having jurisdiction.
   u. Testing and inspecting requirements.
   v. Installation procedures.
   w. Coordination with other work.
   x. Required performance results.
   y. Protection of adjacent work.
   z. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Construction Manager will conduct progress meetings at monthly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
   a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      1) Review schedule for next period.
   b. Review present and future needs of each entity present, including the following:
      1) Interface requirements.
      2) Sequence of operations.
      3) Resolution of BIM component conflicts.
      4) Status of submittals.
      5) Status of sustainable design documentation.
      6) Deliveries.
      7) Off-site fabrication.
      8) Access.
      9) Site use.
      10) Temporary facilities and controls.
      11) Progress cleaning.
      12) Quality and work standards.
      13) Status of correction of deficient items.
      14) Field observations.
      15) Status of RFIs.
      16) Status of Proposal Requests.
      17) Pending changes.
      18) Status of Change Orders.
      19) Pending claims and disputes.
      20) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 013233
PHOTOGRAPHIC DOCUMENTATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Preconstruction photographs.
   2. Concealed Work photographs.
   3. Periodic construction photographs.
   4. Final completion construction photographs.

B. Related Requirements:
   1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
   2. Section 024116 "Structure Demolition" for photographic documentation before building demolition operations commence.
   3. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.
   4. Section 311000 "Site Clearing" for photographic documentation before site clearing operations commence.

1.02 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.
   1. Submit photos on CD-ROM or thumb-drive or by uploading to web-based Project management software site. Include copy of key plan indicating each photograph's location and direction.
   2. Identification: Provide the following information with each image description in file metadata tag and/or in web-based Project management software site:
      a. Name of Project.
      b. Name and contact information for photographer.
      c. Name of Architect and Construction Manager.
      d. Name of Contractor.
      e. Date photograph was taken.
      f. Description of location, vantage point, and direction.
      g. Unique sequential identifier keyed to accompanying key plan.

C. Printed Photographs: Submit two sets of prints of each photographic view within seven days of taking photographs.
   1. Format: 8-by-10-inch (203-by-254-mm) smooth-surface matte prints on single-weight, paper; enclosed back to back in clear plastic sleeves punched for three-ring binder. Include copy of key plan indicating each photograph's location and direction. Provide one binder for each set of prints.
   2. Identification: On back of each print, label with the following information:
      a. Name of Project.
      b. Name and contact information for photographer.
      c. Name of Architect and Construction Manager.
      d. Name of Contractor.
      e. Date photograph was taken if not date stamped by camera.
      f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
      g. Unique sequential identifier keyed to accompanying key plan.

1.03 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

1.04 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.

B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

C. Metadata: Record accurate date and time from camera.

D. File Names: Name media files with date, Project area, and sequential numbering suffix.

1.05 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs with maximum depth of field and in focus.
   1. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect and/or Construction Manager.
   1. Flag construction limits before taking construction photographs.
   2. Take photographs to show existing conditions adjacent to property before starting the Work.
   3. Take photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
   4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

D. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:
   1. Underground utilities.
   2. Underslab services.
   3. Piping.
   4. Electrical conduit.
   5. Waterproofing and weather-resistant barriers.

E. Periodic Construction Photographs: Take photographs weekly. Select vantage points to show status of construction and progress since last photographs were taken.

F. Final Completion Construction Photographs: Take photographs after date of Substantial Completion for submission as Project Record Documents. Architect and/or Construction Manager will inform photographer of desired vantage points.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 013300
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Submittal schedule requirements.
   2. Administrative and procedural requirements for submittals.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's and Construction Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.03 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and Construction Manager and additional time for handling and reviewing submittals required by those corrections.

1.04 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:
   1. Project name.
   2. Date.
   3. Name of Architect.
   4. Name of Construction Manager.
   5. Name of Contractor.
   6. Name of firm or entity that prepared submittal.
   7. Names of subcontractor, manufacturer, and supplier.
   8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
   9. Category and type of submittal.
   10. Submittal purpose and description.
   11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
   12. Drawing number and detail references, as appropriate.
   13. Indication of full or partial submittal.
   14. Location(s) where product is to be installed, as appropriate.
   15. Other necessary identification.
   16. Remarks.
   17. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect and Construction Manager on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

E. Submittals for Utilizing Web-Based Project Management Software: Prepare submittals as PDF files, or other format indicated by Project management software.

1.05 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
   1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
   2. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
   3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Construction Manager's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

E. Distribution: Furnish digital copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's and Construction Manager's action stamp.

1.06 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's catalog cuts.
      b. Manufacturer's product specifications.
      c. Standard color charts.
      d. Statement of compliance with specified referenced standards.
      e. Testing by recognized testing agency.
      f. Application of testing agency labels and seals.
      g. Notation of coordination requirements.
      h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:
    a. Wiring diagrams that show factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
    a. Project name and submittal number.
    b. Generic description of Sample.
    c. Product name and name of manufacturer.
    d. Sample source.
    e. Number and title of applicable Specification Section.
    f. Specification paragraph number and generic name of each item.
3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
4. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
6. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Construction Manager will return submittal with options selected.
7. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the

following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit three sets of Samples. Architect and Construction Manager will retain one each Sample sets; remainder will be returned.
    1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
    2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.
    g. Limitations of use.

1.07 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
    1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
    1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.08 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Construction Manager.

B. In "Contractor's Approval" Paragraph below, retain first option for paper submittals and second option for digital submittals.

C. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
    1. Architect and Construction Manager will not review submittals received from Contractor that do not have Contractor's review and approval.

1.09 ARCHITECT'S AND CONSTRUCTION MANAGER'S REVIEW

A. Action Submittals: Architect and Construction Manager will review each submittal or design intent, indicate corrections or revisions required, and return it.
    1. PDF Submittals: Architect and Construction Manager will indicate, via markup on each submittal, the appropriate action.
    2. Submittals by Web-Based Project Management Software: Architect and Construction Manager will indicate, on Project management software website, the appropriate action.

B. Informational Submittals: Architect and Construction Manager will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect and Construction Manager will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect and Construction Manager.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect and Construction Manager will discard submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 014000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. 29 CFR 1910 - Occupational Safety and Health Standards; Current Edition.

B. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2025b.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
   1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
   2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.

1.03 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
   1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
   1. Laboratory Mockups: Full-size physical assemblies constructed and tested at testing facility to verify performance characteristics.
   2. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements consisting of multiple products, assemblies, and subassemblies, with cutaways enabling inspection of concealed portions of the Work.
      a. Include each system, assembly, component, and part of the exterior wall and roof to be constructed for the Project. Colors of components shall be those selected by the Architect for use in the Project.
   3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes; doors; windows; millwork; casework; specialties; furnishings and equipment; and lighting.

4. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.
5. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall have the same meaning as testing agency.

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect or Construction Manager.

1.04 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Statement: Submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.05 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.06 ACTION SUBMITTALS

A. Mockup Shop Drawings: For integrated exterior mockups.

1. Include plans, sections, elevations, and details, indicating materials and size of mockup construction.
2. Indicate manufacturer and model number of individual components.
3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.07 INFORMATIONAL SUBMITTALS

A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
   1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
   2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

C. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.08 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
   1. Date of issue.
   2. Project title and number.
   3. Name, address, telephone number, and email address of testing agency.
   4. Dates and locations of samples and tests or inspections.
   5. Names of individuals making tests and inspections.
   6. Description of the Work and test and inspection method.
   7. Identification of product and Specification Section.
   8. Complete test or inspection data.
   9. Test and inspection results and an interpretation of test results.
   10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
   11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
   12. Name and signature of laboratory inspector.
   13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
   1. Statement on condition of substrates and their acceptability for installation of product.
   2. Statement that products at Project site comply with requirements.
   3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
   4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
   5. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
   1. Statement that equipment complies with requirements.

2. Results of operational and other tests and a statement of whether observed performance complies with requirements.
3. Other required items indicated in individual Specification Sections.

1.09 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
   1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E329 with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
   1. Contractor responsibilities include the following:
      a. Provide test specimens representative of proposed products and construction.
      b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
      c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
      d. When testing is complete, remove test specimens and test assemblies, and mockups, and laboratory mockups; do not reuse products on Project.
   2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect through Construction Manager, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
   1. Build mockups of size indicated.
   2. Build mockups in location indicated or, if not indicated, as directed by Construction Manager.
   3. Notify Architect and Construction Manager seven days in advance of dates and times when mockups will be constructed.
   4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
   5. Demonstrate the proposed range of aesthetic effects and workmanship.
   6. Obtain Architect's and Construction Manager's approval of mockups before starting corresponding work, fabrication, or construction.
      a. Allow seven days for initial review and each re-review of each mockup.
   7. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.
   8. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
   9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
   10. Demolish and remove mockups when directed unless otherwise indicated.

K. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings and as indicated on Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph.
   1. Coordinate construction of the mockup to allow observation of air barrier installation, flashings, air barrier integration with fenestration systems, and other portions of the building air/moisture barrier and drainage assemblies, prior to installation of veneer, cladding elements, and other components that will obscure the work.

L. Room Mockups: Construct room mockups according to approved Shop Drawings and as indicated on Drawings, incorporating required materials and assemblies, finished according to requirements. Provide required lighting and additional lighting where required to enable Architect to evaluate quality of the Work. Comply with requirements in "Mockups" Paragraph.

1.10 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
   1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
   2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor.
   3. Usually retain "Contractor Responsibilities" Paragraph below to address testing and inspection and other quality-control activities not explicitly assigned to Owner. See the Evaluations.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
   1. Engage a qualified testing agency to perform quality-control services.
      a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
   2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.

3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect, Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect, Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected Work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.11 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner and as follows:
   1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
   2. Notifying Architect, Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
   3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect through Construction Manager, with copy to Contractor and to authorities having jurisdiction.
   4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
   5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
   6. Retesting and reinspecting corrected Work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
   1. Date test or inspection was conducted.
   2. Description of the Work tested or inspected.
   3. Date test or inspection results were transmitted to Architect.
   4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's, and Construction Manager's and authorities' having jurisdiction reference during normal working hours.
   1. Submit log at Project closeout as part of Project Record Documents.

3.02 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
   1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 014200
REFERENCES

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. MBMA - Metal Roofing Systems Design Manual; 2012.

1.02 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.03 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
   1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.04 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Abbreviations and acronyms not included in this list shall mean the recognized name of the

entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States." The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Architects (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
34. ASSP - American Society of Safety Professionals (The); www.assp.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AVIXA - Audiovisual and Integrated Experience Association; (Formerly: Infocomm International); www.soundandcommunications.com.
38. AWEA - American Wind Energy Association; www.awea.org.
39. AWI - Architectural Woodwork Institute; www.awinet.org.
40. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
41. AWPA - American Wood Protection Association; www.awpa.com.
42. AWS - American Welding Society; www.aws.org.
43. AWWA - American Water Works Association; www.awwa.org.

44. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
45. BIA - Brick Industry Association (The); www.gobrick.com.
46. BICSI - BICSI, Inc.; www.bicsi.org.
47. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
48. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
49. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
50. CDA - Copper Development Association; www.copper.org.
51. CE - Conformite Europeenne; http://ec.europa.eu/growth/single-market/ce-marking/.
52. CEA - Canadian Electricity Association; www.electricity.ca.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.compositepanel.org.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csa-group.org.
65. CSI - Construction Specifications Institute (The); www.csiresources.org.
66. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
67. CTA - Consumer Technology Association; www.cta.tech.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.coolingtechnology.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHA - Decorative Hardwoods Association; (Formerly: Hardwood Plywood & Veneer Association); www.decorativehardwoods.org.
72. DHI - Door and Hardware Institute; www.dhi.org.
73. ECA - Electronic Components Association; (See ECIA).
74. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
75. ECIA - Electronic Components Industry Association; www.eciaonline.org.
76. EIA - Electronic Industries Alliance; (See TIA).
77. EIMA - EIFS Industry Members Association; www.eima.com.
78. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
79. EOS/ESD Association; (Electrostatic Discharge Association); www.esda.org.
80. ESTA - Entertainment Services and Technology Association; (See PLASA).
81. ETL - Intertek (See Intertek); www.intertek.com.
82. EVO - Efficiency Valuation Organization; www.evo-world.org.
83. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
84. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
85. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
86. FM Approvals - FM Approvals LLC; www.fmglobal.com.
87. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
88. FRSA - Florida Roofing, Sheet Metal Contractors Association, Inc.; www.floridaroof.com.
89. FSA - Fluid Sealing Association; www.fluidsealing.com.
90. FSC - Forest Stewardship Council U.S.; www.fscus.org.

91. GA - Gypsum Association; www.gypsum.org.
92. GANA - Glass Association of North America; (See NGA).
93. GS - Green Seal; www.greenseal.org.
94. HI - Hydraulic Institute; www.pumps.org.
95. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
96. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
97. HPVA - Hardwood Plywood & Veneer Association; (See DHA).
98. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
99. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
100. IAS - International Accreditation Service; www.iasonline.org.
101. ICBO - International Conference of Building Officials; (See ICC).
102. ICC - International Code Council; www.iccsafe.org.
103. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
104. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
105. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
106. IEC - International Electrotechnical Commission; www.iec.ch.
107. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
108. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
109. IESNA - Illuminating Engineering Society of North America; (See IES).
110. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
111. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
112. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.org.
113. II - Infocomm International; (See AVIXA).
114. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
115. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
116. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
117. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
118. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
119. ISO - International Organization for Standardization; www.iso.org.
120. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
121. ITU - International Telecommunication Union; www.itu.int/home.
122. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
123. LMA - Laminating Materials Association; (See CPA).
124. LPI - Lightning Protection Institute; www.lightning.org.
125. MBMA - Metal Building Manufacturers Association; www.mbma.com.
126. MCA - Metal Construction Association; www.metalconstruction.org.
127. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
128. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
129. MHIA - Material Handling Industry of America; www.mhia.org.
130. MIA - Marble Institute of America; (See NSI).
131. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
132. MPI - Master Painters Institute; www.paintinfo.com.
133. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
134. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
135. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
136. NADCA - National Air Duct Cleaners Association; www.nadca.com.
137. NAIMA - North American Insulation Manufacturers Association; www.naima.org.

138. NALP - National Association of Landscape Professionals; www.landscapeprofessionals.org.
139. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
140. NBI - New Buildings Institute; www.newbuildings.org.
141. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
142. NCMA - National Concrete Masonry Association; www.ncma.org.
143. NEBB - National Environmental Balancing Bureau; www.nebb.org.
144. NECA - National Electrical Contractors Association; www.necanet.org.
145. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
146. NEMA - National Electrical Manufacturers Association; www.nema.org.
147. NETA - InterNational Electrical Testing Association; www.netaworld.org.
148. NFHS - National Federation of State High School Associations; www.nfhs.org.
149. NFPA - National Fire Protection Association; www.nfpa.org.
150. NFPA - NFPA International; (See NFPA).
151. NFRC - National Fenestration Rating Council; www.nfrc.org.
152. NGA - National Glass Association (The); (Formerly: Glass Association of North America); www.glass.org.
153. NHLA - National Hardwood Lumber Association; www.nhla.com.
154. NLGA - National Lumber Grades Authority; www.nlga.org.
155. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
156. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
157. NRCA - National Roofing Contractors Association; www.nrca.net.
158. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
159. NSF - NSF International; www.nsf.org.
160. NSI - National Stone Institute; (Formerly: Marble Institute of America); www.naturalstoneinstitute.org.
161. NSPE - National Society of Professional Engineers; www.nspe.org.
162. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
163. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
164. NWFA - National Wood Flooring Association; www.nwfa.org.
165. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
166. PDI - Plumbing & Drainage Institute; www.pdionline.org.
167. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
168. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
169. RFCI - Resilient Floor Covering Institute; www.rfci.com.
170. RIS - Redwood Inspection Service; www.redwoodinspection.com.
171. SAE - SAE International; www.sae.org.
172. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
173. SDI - Steel Deck Institute; www.sdi.org.
174. SDI - Steel Door Institute; www.steeldoor.org.
175. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
176. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
177. SIA - Security Industry Association; www.siaonline.org.
178. SJI - Steel Joist Institute; www.steeljoist.org.
179. SMA - Screen Manufacturers Association; www.smainfo.org.
180. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
181. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
182. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
183. SPIB - Southern Pine Inspection Bureau; www.spib.org.
184. SPRI - Single Ply Roofing Industry; www.spri.org.

185. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
186. SSINA - Specialty Steel Industry of North America; www.ssina.com.
187. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
188. STI - Steel Tank Institute; www.steeltank.com.
189. SWI - Steel Window Institute; www.steelwindows.com.
190. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
191. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
192. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
193. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
194. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
195. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
196. TMS - The Masonry Society; www.masonrysociety.org.
197. TPI - Truss Plate Institute; www.tpinst.org.
198. TPI - Turfgrass Producers International; www.turfgrasssod.org.
199. TRI - Tile Roofing Institute; www.tileroofing.org.
200. UL - Underwriters Laboratories Inc.; www.ul.com.
201. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
202. USAV - USA Volleyball; www.usavolleyball.org.
203. USGBC - U.S. Green Building Council; www.usgbc.org.
204. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
205. WA - Wallcoverings Association; www.wallcoverings.org.
206. WASTEC - Waste Equipment Technology Association; www.wastec.org.
207. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
208. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
209. WDMA - Window & Door Manufacturers Association; www.wdma.com.
210. WI - Woodwork Institute; www.wicnet.org.
211. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
212. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
   1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
   2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
   3. ICC - International Code Council; www.iccsafe.org.
   4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
   1. COE - Army Corps of Engineers; www.usace.army.mil.
   2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
   3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
   4. DOD - Department of Defense; www.quicksearch.dla.mil.
   5. DOE - Department of Energy; www.energy.gov.
   6. EPA - Environmental Protection Agency; www.epa.gov.
   7. FAA - Federal Aviation Administration; www.faa.gov.
   8. FG - Federal Government Publications; www.gpo.gov/fdsys.
   9. GSA - General Services Administration; www.gsa.gov.
   10. HUD - Department of Housing and Urban Development; www.hud.gov.

11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.govinfo.gov.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
   a. Available from Defense Standardization Program; www.dsp.dla.mil.
   b. Available from General Services Administration; www.gsa.gov.
   c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.
6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
3. CDHS; California Department of Health Services; (See CDPH).
4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservice.tamu.edu.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 015723
TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Temporary stormwater pollution controls.

1.02 STORMWATER POLLUTION PREVENTION PLAN

A. The Stormwater Pollution Prevention Plan (SWPPP) is part of the Contract Documents and is bound into this Project Manual.

1.03 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.04 INFORMATIONAL SUBMITTALS

A. Stormwater Pollution Prevention Plan (SWPP): Within 15 days of date established for commencement of the Work, submit completed SWPPP.

B. EPA authorization under the EPA's "2017 Construction General Permit (CGP)."

C. Stormwater Pollution Prevention (SWPP) Training Log: For each individual performing Work under the SWPPP.

D. Inspection reports.

1.05 QUALITY ASSURANCE

A. Stormwater Pollution Prevention Plan (SWPPP) Coordinator: Experienced individual or firm with a record of successful water pollution control management coordination of projects with similar requirements.
   1. SWPPP Coordinator shall complete and finalize the SWPPP form.
   2. SWPPP Coordinator shall be responsible for inspections and maintaining of all requirements of the SWPPP.

B. Installers: Trained as indicated in the SWPPP.

PART 2 PRODUCTS

2.01 TEMPORARY STORMWATER POLLUTION CONTROLS

A. Provide temporary stormwater pollution controls as required by the SWPPP.

PART 3 EXECUTION

3.01 INSTALLATION

A. Comply with all best management practices, general requirements, performance requirements, reporting requirements, and all other requirements included in the SWPPP.

B. Locate stormwater pollution controls in accordance with the SWPPP.

C. Conduct construction as required to comply with the SWPPP and that minimize possible contamination or pollution or other undesirable effects.
   1. Inspect, repair, and maintain SWPPP controls during construction.
      a. Inspect all SWPPP controls not less than every seven days, and after each occurrence of a storm event, as outlined in the SWPPP.

D. Remove SWPPP controls at completion of construction and restore and stabilize areas disturbed during construction.

END OF SECTION

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:
   1. Section 012500 "Substitution Procedures" for requests for substitutions.

1.02 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
   3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in Part 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.
   1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification. Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:
   1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
   2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.

E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."

F. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.03 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

1.05 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
   1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Owner or endorsed by manufacturer to Owner.
   2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
   1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
   2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
   3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 PRODUCTS

2.01 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
   2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
   3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
   4. Where products are accompanied by the term "as selected," Architect will make selection.
   5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:
   1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
      a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
    a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."
3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
    a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.
    a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
    b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
    a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."
6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.
    a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
    b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.
7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
    a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
    1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

E. Sustainable Product Selection: Where Specifications require product to meet sustainable product characteristics, select products complying with indicated requirements. Comply with

requirements in Division 01 sustainability requirements Section and individual Specification Sections.

1. Select products for which sustainable design documentation submittals are available from manufacturer.

2.02 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:
   1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
   2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
   3. Evidence that proposed product provides specified warranty.
   4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
   5. Samples, if requested.

B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation, as specified in Section 013300 "Submittal Procedures."
   1. Form of Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
   2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

C. Submittal Requirements, Two-Step Process: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

D. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by the Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 017300
EXECUTION

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2027.

1.02 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:
   1. Construction layout.
   2. Field engineering and surveying.
   3. Installation of the Work.
   4. Cutting and patching.
   5. Coordination of Owner's portion of the Work.
   6. Coordination of Owner-installed products.
   7. Progress cleaning.
   8. Starting and adjusting.
   9. Protection of installed construction.

B. Related Requirements:
   1. Section 011000 "Summary" for coordination of Owner-furnished products, Owner-performed work, Owner's separate contracts, and limits on use of Project site.
   2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
   3. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.03 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.04 INFORMATIONAL SUBMITTALS

A. Certified Surveys: Submit two copies signed by land surveyor.

B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

1.05 CLOSEOUT SUBMITTALS

A. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.06 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
   1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting

and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 PRODUCTS

2.01 MATERIALS

A. Comply with requirements specified in other Sections.
   1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
   1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 EXECUTION

3.01 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
   1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
   2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
   1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
   2. List of detrimental conditions, including substrates.
   3. List of unacceptable installation tolerances.
   4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect through Construction Manager in accordance with requirements in Section 013100 "Project Management and Coordination."

3.03 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Architect and Construction Manager promptly.

B. Engage a land surveyor experienced in laying out the Work, using the following accepted surveying practices:
   1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
   2. Establish limits on use of Project site.
   3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
   4. Inform installers of lines and levels to which they must comply.
   5. Check the location, level and plumb, of every major element as the Work progresses.
   6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
   7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

3.04 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
   1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
   2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
   1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
   2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
   3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

E. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
   1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

3.05 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb, and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
   4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces, unless otherwise indicated on Drawings.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.

J. Repair or remove and replace damaged, defective, or nonconforming Work.
   1. Comply with Section 017700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.06 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of Work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.07 COORDINATION OF OWNER'S PORTION OF THE WORK

A. Site Access: Provide access to Project site for Owner's construction personnel and Owner's separate contractors.
1. Provide temporary facilities required for Owner-furnished, Contractor-installed products.
2. Refer to Section 011000 "Summary" for other requirements for Owner-furnished, Contractor-installed products

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel and Owner's separate contractors.
1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

3.08 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
   a. Use containers intended for holding waste materials of type to be stored.
4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls" And Section 017419 "Construction Waste Management and Disposal."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.09 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.10 PROTECTION AND REPAIR OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

D. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

SECTION 017419
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. 40 CFR 273 - Standards for Universal Waste Management; Current Edition.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Salvaging nonhazardous demolition and construction waste.
   2. Recycling nonhazardous demolition and construction waste.
   3. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:
   1. Section 011200 "Multiple Contract Summary" for coordination of responsibilities for waste management.
   2. Section 042000 "Unit Masonry" for disposal requirements for masonry waste.
   3. Section 044313.13 "Anchored Stone Masonry Veneer" for disposal requirements for excess stone and stone waste.
   4. Section 044313.16 "Adhered Stone Masonry Veneer" for disposal requirements for excess stone and stone waste.
   5. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.03 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner’s property.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.04 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 30 days of date established for commencement of the Work.

1.05 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:
   1. Material category.
   2. Generation point of waste.
   3. Total quantity of waste in tons (tonnes).
   4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
   5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
   6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
   7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.06 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, or individual employed and assigned by General Contractor, with a record of successful waste management coordination of projects with similar requirements.

B. Waste Management Conference(s): Conduct conference(s) at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.07 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling of 75 percent by weight of total nonhazardous solid waste generated by the Work. Facilitate recycling and salvage of materials.

PART 3 EXECUTION

3.01 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
   1. Distribute waste management plan to everyone concerned within three days of submittal return.
   2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
   1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
   2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

E. Waste Management in Historic Zones or Areas: Transportation equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by 12 inches or more.

3.02 SALVAGING DEMOLITION WASTE

A. Comply with requirements in Section 024116 "Structure Demolition", Section 024119 "Selective Demolition", Section 024296 "Historic Removal and Dismantling for salvaging demolition waste.

B. Salvaged Items for Reuse in the Work:
   1. Clean salvaged items.
   2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
   3. Store items in a secure area until installation.
   4. Protect items from damage during transport and storage.
   5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

C. Salvaged Items for Sale and Donation: Not permitted on Project.

D. Salvaged Items for Owner's Use:
   1. Clean salvaged items.
   2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
   3. Store items in a secure area until delivery to Owner.
   4. Transport items to Owner's storage area designated by Construction Manager.
   5. Protect items from damage during transport and storage.

3.03 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
   1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
      a. Inspect containers and bins for contamination and remove contaminated materials if found.
   2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
   4. Store components off the ground and protect from the weather.
   5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.04 RECYCLING DEMOLITION WASTE

A. Asphalt Paving: Grind asphalt to maximum 1-1/2-inch (38-mm) size.

B. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.

C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
   1. Pulverize concrete to maximum 1-1/2-inch (38-mm) size.

D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
   1. Pulverize masonry to maximum 1-inch (25-mm) size.
   2. Clean and stack undamaged, whole masonry units on wood pallets.

E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

F. Metals: Separate metals by type.
   1. Structural Steel: Stack members according to size, type of member, and length.
   2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

G. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.

H. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

I. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

J. Metal Suspension System: Separate metal members, including trim and other metals from acoustical panels and tile, and sort with other metals.

K. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
   1. Store clean, dry carpet and pad in a closed container or trailer provided by carpet reclamation agency or carpet recycler.

L. Carpet Tile: Remove debris, trash, and adhesive.
   1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by carpet reclamation agency or carpet recycler.

M. Piping: Reduce piping to straight lengths and store by material and size. Separate supports, hangers, valves, sprinklers, and other components by material and size.

N. Conduit: Reduce conduit to straight lengths and store by material and size.

O. Lamps: Separate lamps by type and store according to requirements in 40 CFR 273.

3.05 RECYCLING CONSTRUCTION WASTE

A. Packaging:
   1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
   2. Polystyrene Packaging: Separate and bag materials.
   3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
   4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:
   1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
   2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.
   1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

D. Paint: Seal containers and store by type.

3.06 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
   1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner’s property.

C. Burning: Do not burn waste materials.

D. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

3.07 ATTACHMENTS

END OF SECTION

SECTION 017700
CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. NADCA ACR - The NADCA Standard for Assessment, Cleaning, and Restoration of HVAC Systems; 2025.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
   1. Substantial Completion procedures.
   2. Final completion procedures.
   3. Warranties.
   4. Final cleaning.

B. Related Requirements:
   1. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
   2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   3. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.04 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest-control inspection.

1.05 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
   3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number.

5. Submit testing, adjusting, and balancing records.
6. Submit sustainable design submittals not previously submitted.
7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in utility services.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1.06 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1.07 LIST OF INCOMPLETE ITEMS

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, listed by room or space number.
2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
    a. Project name.
    b. Date.
    c. Name of Architect and Construction Manager.
    d. Name of Contractor.
    e. Page number.
4. Submit list of incomplete items in the following format:
    a. MS Excel Electronic File: Architect, through Construction Manager, will return annotated file.
    b. PDF Electronic File: Architect, through Construction Manager, will return annotated file.
    c. Web-Based Project Software Upload: Utilize software feature for creating and updating list of incomplete items (punch list).

1.08 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
    1. Submit on digital media acceptable to Architect and/or by uploading to web-based project software site.

D. Warranties in Paper Form:
    1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.

E. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
    1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 EXECUTION

3.01 FINAL CLEANING

A. Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
    1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
        a. Clean Project site of rubbish, waste material, litter, and other foreign substances.

b. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
c. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
d. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations.
e. Vacuum and mop concrete.
f. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
g. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
h. Remove labels that are not permanent.
i. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
j. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
k. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
l. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
   1) Clean HVAC system in compliance with NADCA ACR.
m. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
n. Clean strainers.
o. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.

D. Construction Waste Disposal: Comply with waste-disposal requirements in Section 015000 "Temporary Facilities and Controls." Section 017419 "Construction Waste Management and Disposal."

3.02 REPAIR OF THE WORK

A. Complete repair and restoration operations required by Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION

SECTION 017823
OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. ASHRAE Guideline 4 - Preparation of Operations and Maintenance Documentation for HVAC&R Systems; 2019.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory manuals.
   2. Emergency manuals.
   3. Systems and equipment operation manuals.
   4. Systems and equipment maintenance manuals.
   5. Product maintenance manuals.

1.03 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
   1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
   2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:
   1. Submit on digital media acceptable to Architect or by uploading to web-based project software site. Enable reviewer comments on draft submittals.

C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
   1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

D. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.04 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
   1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
   2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

1.05 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:
1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.06 EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Content: Organize manual into a separate section for each of the following:
1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures: Include the following, as applicable:
1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.

4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

1.07 SYSTEMS AND EQUIPMENT OPERATION MANUALS

A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.

B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
   1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
   2. Performance and design criteria if Contractor has delegated design responsibility.
   3. Operating standards.
   4. Operating procedures.
   5. Operating logs.
   6. Wiring diagrams.
   7. Control diagrams.
   8. Piped system diagrams.
   9. Precautions against improper use.
   10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:
   1. Product name and model number. Use designations for products indicated on Contract Documents.
   2. Manufacturer's name.
   3. Equipment identification with serial number of each component.
   4. Equipment function.
   5. Operating characteristics.
   6. Limiting conditions.
   7. Performance curves.
   8. Engineering data and tests.
   9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:
   1. Startup procedures.
   2. Equipment or system break-in procedures.
   3. Routine and normal operating instructions.
   4. Regulation and control procedures.
   5. Instructions on stopping.
   6. Normal shutdown instructions.
   7. Seasonal and weekend operating instructions.
   8. Required sequences for electric or electronic systems.
   9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.08 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds, as described below.

C. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
   1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
      a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
   2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
   3. Identification and nomenclature of parts and components.
   4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
   1. Test and inspection instructions.
   2. Troubleshooting guide.
   3. Precautions against improper maintenance.
   4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   5. Aligning, adjusting, and checking instructions.
   6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

H. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1.09 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Product Information: Include the following, as applicable:
   1. Product name and model number.
   2. Manufacturer's name.
   3. Color, pattern, and texture.
   4. Material and chemical composition.
   5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
   1. Inspection procedures.
   2. Types of cleaning agents to be used and methods of cleaning.
   3. List of cleaning agents and methods of cleaning detrimental to product.
   4. Schedule for routine cleaning and maintenance.
   5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 017839
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
   1. Record Drawings.
   2. Record specifications.
   3. Record Product Data.

B. Related Requirements:
   1. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.02 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Number of Copies: Submit one set(s) of marked-up record prints.
   2. Number of Copies: Submit copies of Record Drawings as follows:
      a. Initial Submittal:
         1) Submit PDF electronic files of scanned record prints and one set(s) of file prints.
         2) Submit Record Digital Data Files and one set(s) of plots.
         3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
      b. Final Submittal:
         1) Submit PDF electronic files of scanned Record Prints and three set(s) of file prints.
         2) Print each drawing, whether or not changes and additional information were recorded.
      c. Final Submittal:
         1) Submit Record Digital Data Files and three set(s) of Record Digital Data File plots.
         2) Plot each drawing file, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
   1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.03 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
   1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Accurately record information in an acceptable drawing technique.
      c. Record data as soon as possible after obtaining it.
      d. Record and check the markup before enclosing concealed installations.
      e. Cross-reference record prints to corresponding photographic documentation.
   2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect and Construction Manager. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as for the original Contract Drawings.
2. Format: DWG, Version 2010 Microsoft Windows operating system.
3. Format: Annotated PDF electronic file with comment function enabled.
4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
5. Refer instances of uncertainty to Architect through Construction Manager for resolution.
6. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect and Construction Manager.
e. Name of Contractor.

1.04 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

B. Format: Submit record specifications as annotated PDF electronic file.

1.05 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

C. Format: Submit Record Product Data as annotated PDF electronic file.
1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.06 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's and Construction Manager's reference during normal working hours.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 017900
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
   1. Instruction in operation and maintenance of systems, subsystems, and equipment.
   2. Demonstration and training video recordings.

1.02 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
   1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

1.03 CLOSEOUT SUBMITTALS

A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
   1. At completion of training, submit complete training manual(s) for Owner's use prepared in same PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

1.04 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.05 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.06 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.
    h. Performance curves.
2. Documentation: Review the following items in detail:
    a. Emergency manuals.
    b. Systems and equipment operation manuals.
    c. Systems and equipment maintenance manuals.
    d. Product maintenance manuals.
    e. Project Record Documents.
    f. Identification systems.
    g. Warranties and bonds.
    h. Maintenance service agreements and similar continuing commitments.
3. Emergencies: Include the following, as applicable:
    a. Instructions on meaning of warnings, trouble indications, and error messages.
    b. Instructions on stopping.
    c. Shutdown instructions for each type of emergency.
    d. Operating instructions for conditions outside of normal operating limits.
    e. Sequences for electric or electronic systems.
    f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
    a. Startup procedures.
    b. Equipment or system break-in procedures.
    c. Routine and normal operating instructions.
    d. Regulation and control procedures.
    e. Control sequences.
    f. Safety procedures.
    g. Instructions on stopping.
    h. Normal shutdown instructions.
    i. Operating procedures for emergencies.
    j. Operating procedures for system, subsystem, or equipment failure.
    k. Seasonal and weekend operating instructions.
    l. Required sequences for electric or electronic systems.
    m. Special operating instructions and procedures.
5. Adjustments: Include the following:
    a. Alignments.
    b. Checking adjustments.
    c. Noise and vibration adjustments.
    d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
    a. Diagnostic instructions.
    b. Test and inspection procedures.
7. Maintenance: Include the following:
    a. Inspection procedures.
    b. Types of cleaning agents to be used and methods of cleaning.
    c. List of cleaning agents and methods of cleaning detrimental to product.
    d. Procedures for routine cleaning.
    e. Procedures for preventive maintenance.

f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:
   a. Diagnosis instructions.
   b. Repair instructions.
   c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   d. Instructions for identifying parts and components.
   e. Review of spare parts needed for operation and maintenance.

1.07 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

1.08 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
   1. Schedule training with Owner through Construction Manager, with at least seven days' advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

F. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.09 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
   1. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode with vibration reduction technology.
   1. Submit video recordings on CD-ROM or thumb drive or by uploading to web-based Project software site.

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.

D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.

E. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 PRODUCTS

PART 3 EXECUTION

END OF SECTION

SECTION 020342
REMOVAL AND SALVAGE OF PERIOD CONSTRUCTION MATERIALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work includes deconstruction and salvage of identified historic items and materials and removal of rubbish and debris.

1.02 RELATED REQUIREMENTS

A. Section 013591 - Period Treatment Procedures for general historic preservation project requirements.

1.03 DEFINITIONS

A. Debris: Nonhistoric building materials and contents destroyed during demolition.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

1.05 QUALITY ASSURANCE

A. Deconstruction Crew Qualifications: Workers trained and experienced in removal and salvage of historic materials.

1.06 FIELD CONDITIONS

A. Protection of Existing Historic Property: Before beginning removal, salvage, or demolition work, survey the site and examine the drawings and specifications to determine the extent of the work. Take necessary precautions to avoid damage to existing items to remain in place, be reused, or remain Owner's property. Repair or restore to original condition items damaged by Contractor, using approved means, methods, and techniques. Replace items that cannot be successfully repaired or restored to original condition.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PERIOD TREATMENT, GENERAL

A. See Section 013591 for special procedure requirements related to elements and features of historical significance and value.

3.02 GENERAL PROCEDURES

A. Drawings indicating existing construction, building services, and site utilities are based on casual field observation and existing record documents only.
   1. Report discrepancies to Architect before disturbing existing historic elements.
   2. Beginning of work constitutes acceptance of existing conditions that are apparent upon examination at that time.

B. Separate spaces in which removals and salvage operations are conducted from occupied spaces.
   1. Provide, erect, and maintain temporary dustproof partitions; see Section 015000.

3.03 ENVIRONMENTAL CONTROLS

A. Comply with federal, state, and local regulations pertaining to water, air, solid waste, recycling, chemical waste, sanitary waste, sediment, and noise pollution.

3.04 ITEMS TO BE SALVAGED

A. General: Salvage elements and components to the maximum extent possible. Maintain a chain of custody of salvaged materials, including the condition of such materials before and after salvage operations.

B. Electrical Equipment: Remove intact and salvage equipment and fixtures indicated on drawings.

3.05 MATERIALS TO BE REMOVED

A. Remove existing nonhistoric elements as indicated and as required to allow direct access to period construction elements indicated to be restored or salvaged for reuse.

B. Protect existing historic elements.
   1. Prevent movement of structure; provide temporary, removable shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly, minimizing overcutting.

3.06 MATERIALS TO BE RECYCLED

A. Recycle removed nonhistoric materials to the maximum extent possible. Remove recyclable materials by hand wherever possible.

B. Recycle items indicated on drawings.

3.07 CLEANING

A. Upon completion of work, clean dust, dirt, and debris caused by salvage and demolition operations from portions of existing structure to remain and adjacent areas. Remove and transport debris and rubbish in a manner that prevents spillage on streets or adjacent areas. Obey local regulations regarding hauling and disposal.

END OF SECTION

SECTION 024100
DEMOLITION

PART 2 PRODUCTS

1.01 MATERIALS

A. Fill Material: See Section 312323.

PART 3 EXECUTION

2.01 DEMOLITION

A. Remove other items indicated, for salvage, relocation, and recycling.

B. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 312200.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   3. Provide, erect, and maintain temporary barriers and security devices.
   4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   5. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
   6. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.
   7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Protect existing structures and other elements to remain in place and not removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

D. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

E. Hazardous Materials:
   1. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCBs, and mercury.

F. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Dismantle existing construction and separate materials.
   2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

2.03 EXISTING UTILITIES

A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

2.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floors and slabs on grade.

B. Joint devices associated with concrete work.

C. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 031000 - Concrete Forming and Accessories: Forms and accessories for formwork.

B. Section 032000 - Concrete Reinforcing.

C. Section 079200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

A. ACI CODE-318 - Building Code for Structural Concrete—Code Requirements and Commentary; 2025.

B. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.

C. ACI PRC-223 - Shrinkage-Compensating Concrete - Guide; 2021.

D. ACI PRC-302.1 - Guide to Concrete Floor and Slab Construction; 2015.

E. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

F. ACI PRC-308 - Curing of Concrete—Guide; 2026.

G. ACI SPEC-301 - Specifications for Concrete Construction; 2020.

H. ASTM A820/A820M - Standard Specification for Steel Fibers for Fiber-Reinforced Concrete; 2022 .

I. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2024.

J. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2024a.

K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2026.

L. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50 mm [2 in.] Cube Specimens); 2026.

M. ASTM C150/C150M - Standard Specification for Portland Cement; 2024.

N. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete; 2023.

O. ASTM C579 - Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes; 2023.

P. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2025a.

Q. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2025a.

R. ASTM C827/C827M - Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures; 2023.

S. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2020a.

T. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2024.

U. ASTM C989/C989M - Standard Specification for Slag Cement for Use in Concrete and Mortars; 2025.

V. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2024.

W. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2020.

X. ASTM C1116/C1116M - Standard Specification for Fiber-Reinforced Concrete; 2023.

Y. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.

Z. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2022.

AA. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2024.

BB. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017 (Reapproved 2023).

CC. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

C. Mix Design: Submit proposed concrete mix design.
   1. Indicate proposed mix design complies with requirements of ACI SPEC-301, Section 4 - Concrete Mixtures.
   2. Indicate proposed mix design complies with requirements of ACI CODE-318, Chapter 5 - Concrete Quality, Mixing and Placing.
   3. Indicate proposed mix design complies with fiber reinforcing manufacturer's written recommendations.

D. Samples: Submit samples of underslab vapor retarder to be used.

E. Test Reports: Submit report for each test or series of tests specified.

F. Test Reports: Submit termite-resistant sheet manufacturer's summary of independent laboratory and field testing for effectiveness in subterranean termite exclusion.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI SPEC-301 and ACI CODE-318.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 FORMWORK

A. Comply with requirements of Section 031000.

2.02 REINFORCEMENT MATERIALS

A. Comply with requirements of Section 032000.

B. Steel Welded Wire Reinforcement (WWR): Galvanized, plain type, ASTM A1064/A1064M.
   1. Form: Coiled Rolls.
   2. WWR Style: 4 x 8-W6 x W10.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
   1. Acquire cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C33/C33M.
   1. Acquire aggregates for entire project from same source.

C. Lightweight Aggregate: ASTM C330/C330M.

D. Fly Ash: ASTM C618, Class C or F.

E. Calcined Pozzolan: ASTM C618, Class N.

F. Ground Granulated Blast Furnace Slag: ASTM C989/C989M.

G. Silica Fume: ASTM C1240, proportioned in accordance with ACI PRC-211.1.

H. Color Additives: Pure, concentrated mineral pigments specifically intended for mixing into concrete and complying with ASTM C979/C979M.
   1. Concentration: Base dosage rates on weight of Portland cement, fly ash, silica fume, and other cementitious materials but not aggregate or sand.
   2. Packaging: If pigments are to be added to mix at site, furnish pigments in premeasured disintegrating bags to minimize job site waste.
   3. Color(s): As indicated on drawings.
   4. Products:
      a. BRICKFORM; BRICKFORM Liquid Integral Color: www.brickform.com/#sle.
      b. Butterfield Color; _____: www.butterfieldcolor.com/#sle.
      c. Davis Colors; ____: www.daviscolors.com/#sle.
      d. Euclid Chemical Company; COLOR-CRETE: www.euclidchemical.com/#sle.
      e. Green Umbrella Architectural Concrete Systems: www.greenumbrellasystems.com/#sle.
      f. Lambert Corporation; _____: www.lambertusa.com/#sle.
      g. L.M. Scofield Company; CHROMIX® Admixtures for Color-Conditioned® Concrete: www.scofield.com/#sle.
      h. L.M. Scofield Company; SOLACHROME® Integral Coloring Treatment for High-SR Concrete: www.scofield.com/#sle.
      i. Master Builders Solutions; MasterColor: www.master-builders-solutions.com/en-us/#sle.
      j. Solomon Colors; Solomon ColorFlo Liquid Colors: www.solomoncolors.com/#sle.
      k. Substitutions: See Section 016000 - Product Requirements.

I. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

J. Structural Fiber Reinforcement: ASTM C1116/C1116M.
   1. Fiber Type: Alkali-resistant synthetic.
      a. Products:
         1) Euclid Chemical Company; TUF-STRAND ____: www.euclidchemical.com/#sle.
         2) Fibermesh; Enduro Mirage: www.fibermesh.com/#sle.
         3) Fibermesh; Enduro Prime: www.fibermesh.com/#sle.
         4) Fibermesh; Fibermesh 650: www.fibermesh.com/#sle.
         5) Forta Corporation; FORTA-FERRO (2-1/4"): www.fortacorp.com/#sle.
         6) GCP Applied Technologies; STRUX 75/32: www.gcpat.com/#sle.
         7) GCP Applied Technologies; STRUX 90/40: www.gcpat.com/#sle.
         8) GCP Applied Technologies; STRUX BT50: www.gcpat.com/#sle.
         9) Master Builders Solutions; MasterFiber MAC Series: www.master-builders-solutions.com/en-us/#sle.
         10) Substitutions: See Section 016000 - Product Requirements.
   2. Fiber Type: Alkali-resistant steel in accordance with ASTM A820/A820M, Type 1.
      a. Products:

1) Bekaert Corporation; _____: www.bekaert.com/#sle.
2) Forta Corporation; Helix 8-52: www.fortacorp.com/#sle.
3) Master Builders Solutions; MasterFiber 500 Series: www.master-builders-solutions.com/en-us/#sle.
4) Substitutions: See Section 016000 - Product Requirements.

2.04 ACCESSORY MATERIALS

A. Underslab Vapor Retarder:
1. Sheet Material: ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single-ply polyethylene is prohibited.
2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
3. Products:
a. FullForce by ABC Polymers Industries, LLC; VaporForce - 10 Mil: www.fullforcesolutions.us/#sle.
b. Henry, a Carlisle Company; Moistop Ultra 10: www.henry.com/#sle.
c. Henry, a Carlisle Company; Moistop Ultra 15: www.henry.com/#sle.
d. Inteplast Group; Barrier-Bac VB-250: www.barrierbac.com/#sle.
e. Inteplast Group; Barrier-Bac VB-350: www.barrierbac.com/#sle.
f. ISI Building Products; Viper II Platinum 8-mil (Class A): www.viper2.com/#sle.
g. ISI Building Products; Viper VaporCheck II 15-mil (Class A): www.isibp.com/#sle.
h. ISI Building Products; Viper VaporCheck II 10-mil (Class A): www.isibp.com/#sle.
i. ISI Building Products; Viper VaporCheck II 10-mil (Class C): www.isibp.com/#sle.
j. Poly-America; Husky Yellow Guard Class A 20-mil Vapor Barrier: www.yellowguard.com/#sle.
k. Tex-Trude; Xtreme Vapor Barrier (10-mil): www.tex-trude.com/#sle.
l. Tex-Trude; Xtreme Vapor Barrier (10-mil) Residential Class A: www.tex-trude.com/#sle.
m. W. R. Meadows, Inc; PERMINATOR Class A - 15 mils (0.38 mm): www.wrmeadows.com/#sle.
n. Substitutions: See Section 016000 - Product Requirements.

B. Non-Shrink Cementitious Grout: Premixed compound consisting of nonmetallic aggregate, cement, water reducing and plasticizing agents.
1. Grout: Comply with ASTM C1107/C1107M.
2. Height Change, Plastic State; when tested in accordance with ASTM C827/C827M:
a. Maximum: Plus 4 percent.
b. Minimum: Plus 1 percent.
3. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 7,000 pounds per square inch.
4. Products containing aluminum powder are not permitted.

C. Non-Shrink Epoxy Grout: Moisture-insensitive, two-part; consisting of epoxy resin, nonmetallic aggregate, and activator.
1. Composition: High solids content material exhibiting positive expansion when tested in accordance with ASTM C827/C827M.
a. Maximum Height Change: Plus 4 percent.
b. Minimum Height Change: Plus 1 percent.
2. Minimum Compressive Strength at 7 days, ASTM C579: 12,000 pounds per square inch.

2.05 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

B. Epoxy Bonding System:

C. Slab Isolation Joint Filler: 1/2-inch thick, height equal to slab thickness, with removable top section forming 1/2-inch deep sealant pocket after removal.

D. Self-Leveling Narrow Concrete Joint and Crack Filler: Rapid setting, two-component, 100 percent solids; rigid enough to support concrete edges under traffic; for rapid joint repair and crack filling.

E. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches on center; ribbed steel stakes for setting.

2.06 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI PRC-211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI SPEC-301.
   1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions.

D. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
   2. Water-Cement Ratio: Maximum 40 percent by weight.
   3. Maximum Aggregate Size: 5/8 inch.

2.07 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
   1. Colored Concrete: Add pigments in strict accordance with manufacturer's instructions to achieve consistent color from batch to batch.
   2. Fiber Reinforcement: Batch and mix as recommended by manufacturer for specific project conditions.

B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Verify that forms are clean and free of rust before applying release agent.

B. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

C. Prepare existing concrete surfaces to be repaired according to ICRI 310.2R, _____.

D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
   1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
   2. Use latex bonding agent only for non-load-bearing applications.

E. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as indicated on drawings. Do not use sand.

3.03 PLACING CONCRETE

A. Place concrete in accordance with ACI PRC-304.

B. Place concrete for floor slabs in accordance with ACI PRC-302.1.

C. Place concrete with shrinkage-compensating expansive component in accordance with ACI PRC-223.

D. Notify Architect not less than 24 hours prior to commencement of placement operations.

E. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

F. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

G. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

H. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.04 SLAB JOINTING

A. Locate joints as indicated on drawings.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
   1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.

D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

E. Construction Joints: Where not otherwise indicated, use metal combination screed and key form, with removable top section for joint sealant.

3.05 SEPARATE FLOOR TOPPINGS

A. Prior to placing floor topping, roughen substrate concrete surface and remove deleterious material. Broom and vacuum clean.

B. Place required dividers, edge strips, reinforcing, and other items to be cast in.

C. Apply bonding agent to substrate in accordance with manufacturer's instructions.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. An independent testing agency, as specified in Section 014000, will inspect finished slabs for compliance with specified tolerances.

B. Maximum Variation of Surface Flatness:
   1. Exposed Concrete Floors: 1/4 inch in 10 feet.
   2. Under Seamless Resilient Flooring: 1/4 inch in 10 feet.
   3. Under Carpeting: 1/4 inch in 10 feet.

C. Correct the slab surface if tolerances are less than specified.

D. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Concrete Slabs: Finish to requirements of ACI PRC-302.1 and as follows:
   1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI PRC-302.1; thick floor coverings include quarry tile, ceramic tile, and Portland cement terrazzo with full bed setting system.
   2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI PRC-302.1; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
   3. Other Surfaces to Be Left Exposed: Trowel as described in ACI PRC-302.1, minimizing burnish marks and other appearance defects.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI PRC-308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

3.10 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.11 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

3.12 SCHEDULE - CONCRETE TYPES AND FINISHES

A. Underside of Supported Floors and Structure Exposed to View: 4,000 pounds per square inch 28 day concrete, form finish with honeycomb filled surface.

END OF SECTION

PART 2 PRODUCTS

1.01 APPLICATIONS

A. Unless otherwise indicated on drawings, finish concrete floors using troweling aid, densifier, and curing agent.

1.02 SURFACE TREATMENTS

A. Troweling Aid, Densifier and Curing Agent: Liquid reactive colloidal silica-based topical treatment, spray-applied to wet concrete and floated or troweled into the surface.
   1. Product:
      a. Forta Corporation; ____: www.forta-ferro.com/#sle.
      b. Penetron; Peneseal FH-PS: www.penetron.com/#sle.
      c. Solomon Colors; Solomon Colors Lythic Day1: www.solomoncolors.com/#sle.
      d. Substitutions: See Section 016000 - Product Requirements.

1.03 COATINGS

A. Concrete Floor Topping with Aggregate: Self-leveling and self curing concrete topping, dyed or stained, with epoxy or polyurethane topcoat; calcium-aluminate-cement based.
   1. Products:
      a. Duraamen Engineered Products; Param 5500 Self-Leveling Polished Concrete Topping System: www.duraamen.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

2.01 EXAMINATION

A. Verify that floor surfaces are acceptable to receive the work of this section.

B. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

2.02 GENERAL

A. Apply materials in accordance with manufacturer's instructions.

2.03 COATING APPLICATION

A. Verify that surface is free of previous coatings, sealers, curing compounds, water repellents, laitance, efflorescence, fats, oils, grease, wax, soluble salts, residues from cleaning agents, and other impediments to adhesion.

B. Protect adjacent non-coated areas from drips, overflow, and overspray; immediately remove excess material.

C. Apply coatings in accordance with manufacturer's instructions, matching approved mock-ups for color, special effects, sealing and workmanship.

2.04 CONCRETE POLISHING

A. Execute using materials, equipment, and procedures specified by manufacturer, using manufacturer approved installer.
   1. Final Polished Sheen: Satin finish; other sheens are included as comparison to illustrate required sheen; final sheen is before addition of any sealer or coating, regardless of whether that is also specified or not.
   2. Satin Finish: Reflecting images from side lighting.

2.05 PROTECTION

A. Protect installed coatings from subsequent construction operations.

B. Do not permit traffic over unprotected floor surface.

END OF SECTION

SECTION 042000
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete block.

B. Mortar and grout.

C. Reinforcement and anchorage.

D. Lintels.

E. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 040511 - Masonry Mortaring and Grouting.

1.03 REFERENCE STANDARDS

A. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2026.

B. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019 (Reapproved 2025).

C. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement; 2026.

D. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2024.

E. ASTM C90 - Standard Specification for Dry-Cast Loadbearing Concrete Masonry Units; 2024a.

F. ASTM C129 - Standard Specification for Dry-Cast Nonloadbearing Concrete Masonry Units; 2025.

G. ASTM C140/C140M - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units; 2026.

H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2025b.

I. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

J. ASTM C744 - Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units; 2021.

K. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2022, with Errata (2024).

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Pre-Faced Units: 50 of each type, size, and color combination.

1.05 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.
   1. Maintain one copy of each document on project site.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

B. Handle and store ceramic glazed masonry units in protective cartons or trays. Do not remove from protective packaging until ready for installation.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depth of 8 inches.
   2. Nonloadbearing Units: ASTM C129.
      a. Hollow block, as indicated.
      b. Normal weight.
   3. Standard Units with Factory-Installed Insulation Inserts: ASTM C90, normal weight.
      a. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depth of 8 inches.
      b. Insulation Type: Manufacturer's standard expanded polystyrene (XPS).

2.02 MORTAR AND GROUT MATERIALS

A. Mortar and Grout: As specified in Section 040511.

2.03 REINFORCEMENT AND ANCHORAGE

A. Manufacturers:
   1. 3GEN Masonry Products; _____: www.3genmp.com.
   2. Blok-Lok Limited; _____: www.blok-lok.com/#sle.
   3. FERO Corporation; FERO FAST Soffit Concealer: www.ferocorp.com/#sle.
   4. WIRE-BOND: www.wirebond.com/#sle.
   5. Substitutions: See Section 016000 - Product Requirements.

B. Reinforcing Steel: ASTM A615/A615M, Grade 40 (40,000 psi), deformed billet bars; galvanized.

C. Single Wythe Joint Reinforcement: ASTM A951/A951M.
   1. Type: Truss or ladder.
   2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
   3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.

2.04 ACCESSORIES

A. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; in maximum lengths available.
   1. Manufacturers:
      a. Hohmann & Barnard, Inc; _____: www.h-b.com/#sle.
      b. WIRE-BOND; _____: www.wirebond.com/#sle.
      c. Substitutions: See Section 016000 - Product Requirements.

B. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.
   1. Full-Height Airspace Maintenance and Drainage Material: Mesh panels fitted between masonry ties.
      a. Manufacturers:
         1) Advanced Building Products, Inc; Mortairvent-CW: www.advancedbuildingproducts.com/#sle.

2) CavClear, a Division of Archovations Inc; CavClear Masonry Mat: www.cavclear.com/#sle.
3) Substitutions: See Section 016000 - Product Requirements.

C. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.05 LINTELS

A. Precast Concrete Lintels: _____ type, ____by____ inch size, ____ psi strength at 28 days.

B. Prefabricated Steel Lintels:
1. Manufacturers:
a. FERO Corporation; FERO FAST Thermal Bracket Offset Shelf Angle - FAST-FLEX: www.ferocorp.com/#sle.
b. Hohmann & Barnard, Inc; Engineered Concealed Lintel Systems: www.h-b.com/#sle.
c. Substitutions: See Section 016000 - Product Requirements.

2.06 MORTAR AND GROUT MIXING

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
1. Masonry below grade and in contact with earth: Type S.
2. Interior, loadbearing masonry: Type N.
3. Interior, non-loadbearing masonry: Type O.

B. Colored Mortar: Proportion selected pigments and other ingredients to match Architect's sample, without exceeding manufacturer's recommended pigment-to-cement ratio.

C. New Mortar for Old Brick: Proportion by volume only; no more than 20 percent of the total volume of Portland cement and lime combined to be Portland cement.
1. Repointing Mortar: Use proportions from 1 part lime to 2 parts sand with no Portland cement, up to 2 parts Portland cement to 3 parts lime to 6 parts sand.
2. White Portland Cement: Use for repointing mortar where Portland cement is permitted.
3. Use mortar within 30 minutes after final mixing; do not add more water after the initial mix is prepared.

D. Grout: ASTM C476; consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

PART 3 EXECUTION

3.01 INSTALLERS

A. Installer List:
1. Substitution Limitations: Same as specified for products; see Section 016000 - Product Requirements.

3.02 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

3.03 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.04 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
1. Bond: Running.

2. Coursing: One unit and one mortar joint to equal 8 inches.
3. Mortar Joints: Concave.

3.05 PLACING AND BONDING

A. Lay hollow masonry units with face shell bedding on head and bed joints.

B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

C. Remove excess mortar and mortar smears as work progresses.

D. Remove excess mortar with water repellent admixture promptly. Do not use acids, sandblasting or high pressure cleaning methods.

E. Interlock intersections and external corners, except for units laid in stack bond.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

H. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

I. Isolate masonry partitions from vertical structural framing members with a control joint.

J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.06 CAVITY MORTAR CONTROL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

B. Install cavity mortar diverter at base of cavity and at other flashing locations as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.

3.07 LINTELS

A. Install loose steel lintels over openings.

B. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled.
   1. Openings to 42 inches: Place two, No. 3 reinforcing bars 1 inch from bottom web.
   2. Do not splice reinforcing bars.
   3. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
   4. Place and consolidate grout fill without displacing reinforcing.
   5. Allow masonry lintels to attain specified strength before removing temporary supports.

C. Maintain minimum ____ inch bearing on each side of opening.

3.08 GROUTED COMPONENTS

A. Lap splices minimum 24 bar diameters.

B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

C. Place and consolidate grout fill without displacing reinforcing.

3.09 BUILT-IN WORK

A. As work progresses, install built-in metal door frames and glazed frames and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

3.10 TOLERANCES

A. Install masonry within the site tolerances found in TMS 402/602.

B. Maximum Variation from Alignment of Columns: 1/4 inch.

C. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

D. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

E. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

F. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

G. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch.

3.11 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.

B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140/C140M for compliance with requirements of this specification.

3.12 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.13 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

3.14 SCHEDULES

A. Interior Partitions: Single wythe concrete block units.

END OF SECTION

SECTION 054000
COLD-FORMED METAL FRAMING

PART 2 PRODUCTS

1.01 PERFORMANCE REQUIREMENTS

A. Design Requirements: Design cold-formed framing systems, components and connectors to withstand specified design loads in compliance with ICC (IBC), ASCE 7, AISI S100, and AISI S240.

B. Design Criteria: In accordance with applicable codes.
   1. Live load deflection meeting the following, unless otherwise indicated:
   2. Able to tolerate movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
   3. Able to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

1.02 MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S240.

1.03 STRUCTURAL FRAMING COMPONENTS

A. Wall Studs and Track Sections: AISI S240; c-shaped studs and u-shaped track sections in stud-matching nominal width and compatible height.

1.04 CONNECTIONS

END OF SECTION

SECTION 061000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonstructural dimension lumber framing.

B. Rough opening framing for doors, windows, and roof openings.

C. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

A. Section 072600 - Vapor Retarders: Vapor retarder over sheathing.

B. Section 076200 - Sheet Metal Flashing and Trim: Sill flashings.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

B. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2024, with Errata.

C. NELMA (SGR) - Standard Grading Rules for Northeastern Lumber; 2024.

D. PS 20 - American Softwood Lumber Standard; 2025.

1.04 QUALITY ASSURANCE

A. Air Barrier Association of America (ABAA) Quality Assurance Program (QAP); www.airbarrier.org/#sle:

1. Installer Qualification: Use accredited contractor, certified installers, evaluated materials, and third-party field quality control audit.
2. Manufacturer Qualification: Use evaluated materials from a single manufacturer regularly engaged in air barrier material manufacture. Use secondary materials approved in writing by primary material manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 2-year manufacturer warranty for materials and workmanship commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.

1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Northeastern Lumber Manufacturers Association; NELMA (SGR).

B. Sizes: Nominal sizes as indicated on drawings, Rough (unsurfaced).

C. Moisture Content: S-dry or MC19.

D. Stud Framing (2 by 2 through 2 by 6):
   1. Species: Allowed under referenced grading rules.
   2. Grade: No. 2.
   3. Products:
      a. Roseburg Forest Products; Stud Length Lumber: www.roseburg.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
   1. Machine stress-rated (MSR) as follows:
      a. Fb-single; minimum extreme fiber stress in bending: 1350 psi.
      b. E; minimum modulus of elasticity: 1,300,000 psi.
   2. Species: Allowed under grading rules.

2.03 EXPOSED BOARDS

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Moisture Content: Kiln-dry (15 percent maximum).

C. Surfacing: S4S.

D. Species: As indicated on drawings.

E. Grade: Select.

2.04 ACCESSORIES

A. Metal and Finish of Fasteners:
   1. Untreated Wood: Hot-dip galvanized steel complying with ASTM A153/A153M Class D.

B. Sill Flashing: See Section 076200.

C. Vapor Retarder: See Section 072600.

PART 3 EXECUTION

3.01 PREPARATION

A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.

B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes, AWC (WFCM) Wood Frame Construction Manual, and _____.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to authorities having jurisdiction may be used in lieu of solid wood blocking.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

E. Provide nonstructural framing and blocking to support the following:
   1. Cabinets and shelf supports.
   2. Wall brackets.
   3. Handrails.
   4. Grab bars.
   5. Towel and bath accessories.
   6. Wall-mounted door stops.
   7. Chalkboards and marker boards.
   8. Wall paneling and trim.
   9. Joints of rigid wall coverings that occur between studs.
   10. Other wall- or ceiling-mounted items indicated on drawings.
   11. Removable sauna seat..

3.05 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

C. Variation from Plane, Other than Floors: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.06 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

B. Coordination of ABAA Tests and Inspections:
   1. Provide testing and inspection required by ABAA QAP.
   2. Notify in ABAA writing of schedule for air barrier work. Allow adequate time for testing and inspection.
   3. Cooperate with ABAA testing agency.
   4. Allow access to air barrier work areas and staging.
   5. Do not cover air barrier work until tested, inspected, and accepted.

3.07 CLEANING

A. Waste Disposal: See Section 017419 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.

4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

3.08 SCHEDULES

END OF SECTION

SECTION 062000
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Hardware.

C. Shop finishing.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Interior Woodwork Items:
   1. Suspended Wood Ceiling System: Fire-retardant treated Category UCFA; suitable for finish indicated in contract documents.
   2. Tongue and groove wall panel.

2.02 SUSTAINABILITY CHARACTERISTICS

A. Provide sustainably harvested wood, certified or labeled; see Section 016000.

B. Provide wood harvested within specified radius of project site; see Section 016000.

C. Provide composite wood products complying with composite wood indoor emission requirements in Section 016116.

2.03 FASTENINGS

A. Fasteners: Of size and type to suit application; Hot dipped galvanized finish in concealed locations and Hot dipped galvanized finish in exposed locations.

2.04 ACCESSORIES

A. Lumber for Shimming, Blocking, and _____: Softwood lumber of _____ species.

B. Aluminum Edge Trim: Extruded convex shape; smooth surface finish; self locking serrated tongue; of width to match component thickness; natural mill finish.

C. Primer: Alkyd primer sealer.

D. Wood Filler: Solvent base, tinted to match surface finish color.

2.05 HARDWARE

A. Hardware: Comply with BHMA A156.9.

2.06 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.07 SITE-FINISHING MATERIALS

A. See Sections 099113, 099123, and 099300.

2.08 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 INSTALLATION

A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

B. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.04 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch.

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 071900
WATER REPELLENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water repellents applied to exterior and interior, masonry, stone, and concrete surfaces.

1.02 REFERENCE STANDARDS

A. ASTM C140/C140M - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units; 2026.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Manufacturer's Field Reports: Report whether manufacturer's "best practices" are being followed; if not, state corrective recommendations. Email report to Architect the same day as inspection occurs; mail report on manufacturer's letterhead to Architect within 2 days after inspection.

C. Manufacturer's Qualification Statement.

D. Installer's Qualification Statement.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience

C. Owner reserves the right to provide continuous independent inspection of surface preparation and application of water repellent.

1.05 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silane, Siloxane, Silane-Siloxane Blend, and Siliconate Water Repellents:
   1. BASF Construction Chemicals; ____: www.buildingsystems.basf.com/#sle.
   2. Dayton Superior Corporation; ____: www.daytonsuperior.com/#sle.
   3. Evonik Corporation; Protectosil CHEM-TRETE BSM 400: www.evonik.com/#sle.
   4. Nox-Crete Inc; Natraseal: www.nox-crete.com/#sle.
   5. Pecora Corporation; _____: www.pecora.com/#sle.
   6. Pittsburgh Paints: www.pittsburghpaints.com/#sle.
   7. QUIKRETE Companies; _____: www.quikrete.com/#sle.
   8. Sherwin-Williams Company; ____: www.sherwin-williams.com/#sle.
   9. Tex-Cote LLC; TEX-COTE RAINSTOPPER 120: www.texcote.com/#sle.
   10. Tnemec Company, Inc; ____: www.tnemec.com/#sle.
   11. United Gilsonite Laboratories; _____: www.ugl.com/#sle.
   12. W. R. Meadows, Inc; ____: www.wrmeadows.com/#sle.
   13. Substitutions: See Section 016000 - Product Requirements.

2.02 MATERIALS

A. Water Repellent: Non-glossy, colorless, penetrating, water-vapor-permeable, non-yellowing sealer, that dries invisibly leaving appearance of substrate unchanged.
   1. Applications: Interior, horizontal surfaces.

2. Number of Coats: Two.
3. Moisture Absorption When Applied to Masonry: Five percent, maximum, when tested in accordance with ASTM C140/C140M using masonry sample completely coated with water repellent.
4. Maintains dry appearance when wetted.
5. Solvent-based, silane, siloxane, silane-siloxane blend, or siliconate that reacts chemically with concrete, masonry, and acts as graffiti repellent.
   a. Manufacturers:
      1) Advanced Chemical Technologies, Inc; SIL-ACT ATS-100, with VOC of 350 g/L or less: www.advchemtech.com/#sle.
      2) Concrete Sealers USA; PS109: www.concretesealersusa.com/#sle.
      3) BASF Construction Chemicals; _____: www.buildingsystems.basf.com/#sle.
      4) Dayton Superior Corporation; _____: www.daytonsuperior.com/#sle.
      5) Mapei Corporation; Planiseal WR 100: www.mapei.com/#sle.
      6) Nox-Crete Inc; Acryl Pen Series: www.nox-crete.com/#sle.
      7) Pecora Corporation; ____: www.pecora.com/#sle.
      8) RainguardPro; Micro-Seal Silane/Siloxane with MICRO-LOK: www.rainguardpro.com/#sle.
      9) Sherwin-Williams Company; Loxon 40 percent Low VOC Silane Water Repellant, with VOC of 343 g/L or less: www.sherwin-williams.com/#sle.
      10) W. R. Meadows, Inc; PENTREAT 244-40: www.wrmeadows.com/#sle.
      11) Substitutions: See Section 016000 - Product Requirements.
6. Water-based, fluorinated, siloxane, silane, or blend that reacts chemically with concrete and masonry.
7. Water-based acrylic that reacts chemically with concrete and masonry.
   a. Products:
      1) Pittsburgh Paints; Perma-Crete Plex-Seal WB Interior/Exterior Clear Sealer, 4-6200XI, Satin. (MPI #99): www.pittsburghpaints.com/#sle.
      2) Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify joint sealants are installed and cured.

3.02 PREPARATION

A. Protection of Adjacent Work:
   1. Protect adjacent landscaping, property, and vehicles from drips and overspray.
   2. Protect adjacent surfaces not intended to receive water repellent.

B. Prepare surfaces to be coated as recommended by water repellent manufacturer for best results.

C. Remove loose particles and foreign matter.

D. Remove oil and foreign substances with a chemical solvent that will not affect water repellent.

E. Scrub and rinse surfaces with water and let dry.

F. Allow surfaces to dry completely to degree recommended by water repellent manufacturer before starting coating work.

3.03 APPLICATION

A. Apply water repellent in accordance with manufacturer's instructions, using procedures and application methods recommended as producing the best results.

B. Apply at rate recommended by manufacturer, continuously over entire surface.

C. Apply two coats, minimum.

D. Remove water repellent from unintended surfaces immediately by a method instructed by water repellent manufacturer.

E. Provide manufacturer's field service representative to inspect preparation and application work continuously during entire application period to ensure that manufacturer's "best practices" for preparation and application are being followed.

END OF SECTION

SECTION 072600
VAPOR RETARDERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Vapor retarders.

1.02 RELATED REQUIREMENTS

A. Section 033000 - Cast-in-Place Concrete: Vapor retarder under concrete slabs on grade.

B. Section 061000 - Rough Carpentry: Vapor retarders on exterior wall sheathing.

C. Section 072100 - Thermal Insulation: Vapor retarder installed in conjunction with batt insulation.

1.03 DEFINITIONS

A. Vapor Retarder: Airtight barrier made of material that is relatively water vapor impermeable, to degree specified, with seams and joints sealed to adjacent surfaces.

B. Vapor Retarder Class: A measure of a material or assembly's ability to limit the amount of moisture that passes through that material or assembly. Vapor retarder class is defined using Procedure A, Desiccant Method at 73 degrees F and 50 percent Relative Humidity (RH), in accordance with ASTM E96/E96M and ICC (IBC)-2018, as follows:

1. Class I: 0.1 perm or less.
2. Class II: Greater than 0.1 perm to 1.0 perm.
3. Class III: Greater than 1.0 perm to 10 perms.

1.04 REFERENCE STANDARDS

A. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.

B. ICC (IBC)-2018 - International Building Code; 2018.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

1.06 QUALITY ASSURANCE

A. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

1.07 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by materials manufacturers before, during, and after installation.

PART 2 PRODUCTS

2.01 VAPOR RETARDERS

A. Vapor Retarder Sheet: Foil, Silver color.

1. Thickness: .55 mil, ___ inch.
2. Water Vapor Permeance: 0.1 perm, maximum, when tested in accordance with ASTM E96/E96M.
3. Seam Lap and Perimeter Adhesive: Elastomeric, same composition as sheet or other compatible material.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions comply with requirements of this section.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer's installation instructions.

B. Vapor Retarders: Install continuous airtight barrier over surfaces indicated, with sealed seams and sealed joints to adjacent surfaces.

C. Apply sealants and adhesives within recommended temperature range in accordance with manufacturer's installation instructions.

D. Mechanically Fastened Sheets - Vapor Retarder On Interior:
   1. When insulation is installed within assembly, install vapor retarder over insulation.
   2. Seal seams, laps, perimeter edges, penetrations, tears, and cuts with self-adhesive tape, providing an airtight seal.
   3. Locate laps at framing members; at laps fasten one sheet to framing member then tape overlapping sheet to first sheet in shingle fashion to shed water.
   4. Seal entire perimeter to structure, window and door frames, and other penetrations.
   5. Where conduits, pipes, wires, ducts, outlet boxes, and other items are installed within insulation cavity, pass vapor retarder sheet behind these items and over insulation to maintain airtight seal.

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

B. Owner’s Inspection and Testing: Cooperate with Owner’s testing agency.
   1. Allow access to work areas and staging.
   2. Notify Owner’s testing agency in writing of schedule for work of this section to allow sufficient time for testing and inspection.
   3. Do not cover work of this section until testing and inspection is accepted.

3.05 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 095100
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

B. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

C. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

D. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Manufacturer's qualification statement.

C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.

1.05 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Suspension Systems:
   1. Same as for acoustical units.
   2. Armstrong World Industries, Inc; ____: www.armstrongceilings.com/#sle.
   3. Rockfon; ____: www.rockfon.com/#sle.
   4. USG Corporation; ____: www.usg.com/#sle.
   5. Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

2.03 ACOUSTICAL UNITS

2.04 SUSPENSION SYSTEMS

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold-down clips, stabilizer bars, clips, and splices as required.
   1. Materials:
      a. Steel Grid: ASTM A653/A653M, G30 coating, unless otherwise indicated.
      b. Aluminum Grid: Aluminum sheet, ASTM B209/B209M.
      c. Stainless Steel Grid: ASTM A666/A666M, Type 304.

B. Exposed Suspension System, Type _____: Hot-dip galvanized steel grid with steel cap.
   1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
   2. Profile: Tee; 15/16 inch face width.
   3. Finish: Baked enamel.
   4. Color: White.
   5. Products:
      a. Armstrong World Industries, Inc; Prelude XL: www.armstrongceilings.com/#sle.
      b. Armstrong World Industries, Inc; Prelude Plus XL Stainless Steel: www.armstrongceilings.com/#sle.
      c. Cipriani USA Inc; Cipriani MX24: www.cipriani-usa.com/#sle.
      d. USG Corporation; Donn Brand ZXLA 15/16 inch Acoustical Suspension System: www.usg.com/#sle.
      e. Substitutions: See Section 016000 - Product Requirements.

2.05 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.

C. Perimeter Moldings: Same metal and finish as grid.
   1. Size: As required for installation conditions and specified Seismic Design Category.

D. Metal Edge Trim for Suspension Systems: Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
   1. Trim Height: 6 inches.
   2. Finish: Baked enamel.
   3. Color: White.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

A. Install after major above-ceiling work is complete.

B. Coordinate the location of hangers with other work.

3.03 INSTALLATION - SUSPENSION SYSTEM

A. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

B. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.

C. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

D. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

E. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

F. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

G. Do not eccentrically load system or induce rotation of runners.

3.04 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:
   1. Make field cut edges of same profile as factory edges.

3.05 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.06 CLEANING

A. See Section 017000 - Execution and Closeout Requirements for additional requirements.

B. Clean surfaces.

C. Replace damaged or abraded components.

END OF SECTION

SECTION 132416
SAUNAS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Prefabricated sauna room enclosure and benches.

B. Heater equipment and thermostat.

C. Light fixture and switch.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing between sauna enclosure and adjacent construction.

B. Section 265100 - Interior Lighting: Light fixtures.

1.03 REFERENCE STANDARDS

A. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2024.

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

D. GANA (GM) - GANA Glazing Manual; 2022.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on equipment, accessories, utility characteristics, connection requirements .

C. Shop Drawings: Indicate room layout, equipment locations, dimensions, door and frame assembly, details of assembly, anchors, utility rough-in locations .
   1. Show field measurements of space that sauna will be installed.

D. Manufacturer's Installation Instructions: Indicate installation procedures; characteristics, location and coordination with required utilities.

E. Operation Data: Describe recommended operation of heater unit.

F. Maintenance Data: Describe cleaning procedures for finishes and heater surfaces.

G. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Saunas:
   1. Basis of Design: Symmetry Sauna: https://www.symmetrysauna.com/
   2. Finlandia Sauna Products, Inc; ____: www.finlandiasauna.com/#sle.
   3. Helo Sauna; ____: www.helosaunas.com/#sle.
   4. Helo Commercial; ____: www.helocommercial.com/#sle.
   5. Thermory USA; Sauna: www.thermoryusa.com/#sle.

6. _____.
7. Substitutions: See Section 016000 - Product Requirements.

2.02 REGULATORY REQUIREMENTS

A. Comply with applicable codes for enclosure construction and operating equipment.

B. Heater Equipment: Comply with applicable codes with UL (DIR) listed product approvals.

2.03 COMPONENTS

A. Sauna: Prefabricated, prepackaged unit, complete with fittings and equipment.
   1. Width: 127 1/2 inches.
   2. Depth: 63 1/8 inches.
   3. Height: 84 inches.

B. Wall Panels: 1x4 inch nominal thickness, total R-value of 13.

C. Wall Construction:
   1. Interior Construction: 3/4 inch by 3-1/2 inch actual size, tongue and groove wood boards.
   2. Vapor Barrier: 10 mil, 0.010 inch minimum thickness. Type C single-sided foil faced
   3. Studs: 1-1/2 inch by 3-1/2 inch actual size.
   4. Insulation: R-value of 13, minimum.

D. Ceiling Construction:
   1. Interior Construction: 3/4 inch by 3-1/2 inch actual size, tongue and groove wood boards.
   2. Vapor Barrier: 10 mil, 0.010 inch minimum thickness. Type C single-sided foil faced
   3. Joists: 1-1/2 inch by 5-1/2 inch actual size wood studs.
   4. Insulation: R-value of 20, minimum.

E. Floor Construction:

F. Interior Base Trim: Wood.

G. Door and Frame Unit: 3-5/8 inch nominal thickness, Wood Jamb and Glass door construction with R-value of ____, 36 inch by 81 inch sized glazing, and Stainless steel exterior / wood interior push/pull hardware.

H. Benches: Same wood species as interior wall finish, 3/4 inch by 2-1/2 inch actual board size, set 1/2 inch apart, and secured to framing with galvanized screws.

I. Heater Guard Rail: Same wood species as interior wall construction, 3/4 inch by 1-1/2 inch actual board size, and set 1/2 inch apart.

2.04 MATERIALS

A. Lumber for Sauna Interior: Thermo Aspen species, Clear grade, S4S, tongue and groove, maximum moisture content of 12 percent.

B. Blanket Insulation: ASTM C665, preformed mineral-fiber, friction fit type; thickness 3-1/2 inch.

C. Vapor Barrier: Type C single sided foil faced including seaming tape with permanent adhesive.

D. Glazing: One pane of ASTM C1048 compliant fully tempered clear float glass, each pane 1/4 inch thick.

E. Fasteners: Electro galvanized steel, size and type to suit condition.

F. Concealed Reinforcement and Accessories: Steel, non-corrosive.

G. Sealant Used Within Sauna Enclosure Construction: Comply with ASTM C920, elastomeric sealant applicable for high temperature and damp environment.

H. Light Fixture: Incandescent, 13.8 watt lamp, sealed vapor tight.

2.05 EQUIPMENT

A. Heater: Electric unit, floor mounted; 10.5 kilowatt rating, 240 volt, 43.75 ampere, single phase, shock resistant elements, with controller.

B. Thermostat: Surface mounted, low voltage type, reading in Fahrenheit degrees, with solid state temperature sensor.

C. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated; enclose terminal lugs in terminal box sized to comply with NFPA 70.

D. Disconnect Switch: Factory mount disconnect switch in control panel.

2.06 ACCESSORIES

A. Water Bucket: Unbreakable plastic type.

B. Dipper: Wood, 1 cup size.

C. Rocks: 2"-4" Rounder Olivine Sauna Stone or similar rock to cover elements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive this work.

3.02 INSTALLATION - SHOP PREFABRICATED - SITE ERECTED

A. Install prefabricated panels to final assembly in accordance with manufacturer's instructions; lock panels into position.

B. Secure panels level and plumb, and fit and secure benches.

C. Install glazing in accordance with GANA (GM) requirements.

D. Install thermostats, wall switches, and temperature sensor.

E. Coordinate installation of mechanical and electrical components; connect to utilities.

END OF SECTION

Project Name:

WCCCD CLI HWEC SAUNA

Client Name:

WCCCD - CLI HWEC SAUNA

Project Address:

1042 W FORT ST.
DETROIT, MI 48226

Project number:

469-26-01

Drawing Index

SHT#	Description	Issued for	Date
General			
A000	Cover Sheet	Issue for Bid	19JUNE26
A002	Barrier Free Requirements	Issue for Bid	19JUNE26
A010	Code Review	Issue for Bid	19JUNE26
A011	Code Review	Issue for Bid	19JUNE26
A012	Life Safety Plan	Issue for Bid	19JUNE26
Architectural			
AD-01	Demolition	Issue for Bid	19JUNE26
Architectural			
A201	Floor Plan	Issue for Bid	19JUNE26
A202	Enlarged Floor Plans	Issue for Bid	19JUNE26
A700	Details	Issue for Bid	19JUNE26
Mechanical			
M100	Composite Floor Plan Mechanical	Issue for Bid	19JUNE26
M200	Floor Plan	Issue for Bid	19JUNE26
M501	Roof Plan, Exhaust Fan & Diagram	Issue for Bid	19JUNE26
M502	Mechanical Specifications	Issue for Bid	19JUNE26
Electrical			
E100	Composite Floor Plan	Issue for Bid	19JUNE26
E202	Floor Plan	Issue for Bid	19JUNE26
E500	Electrical Specifications	Issue for Bid	19JUNE26

Issue Date:

05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER
ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name

WCCCD CLI HWEC SAUNA

Project number

469-26-01

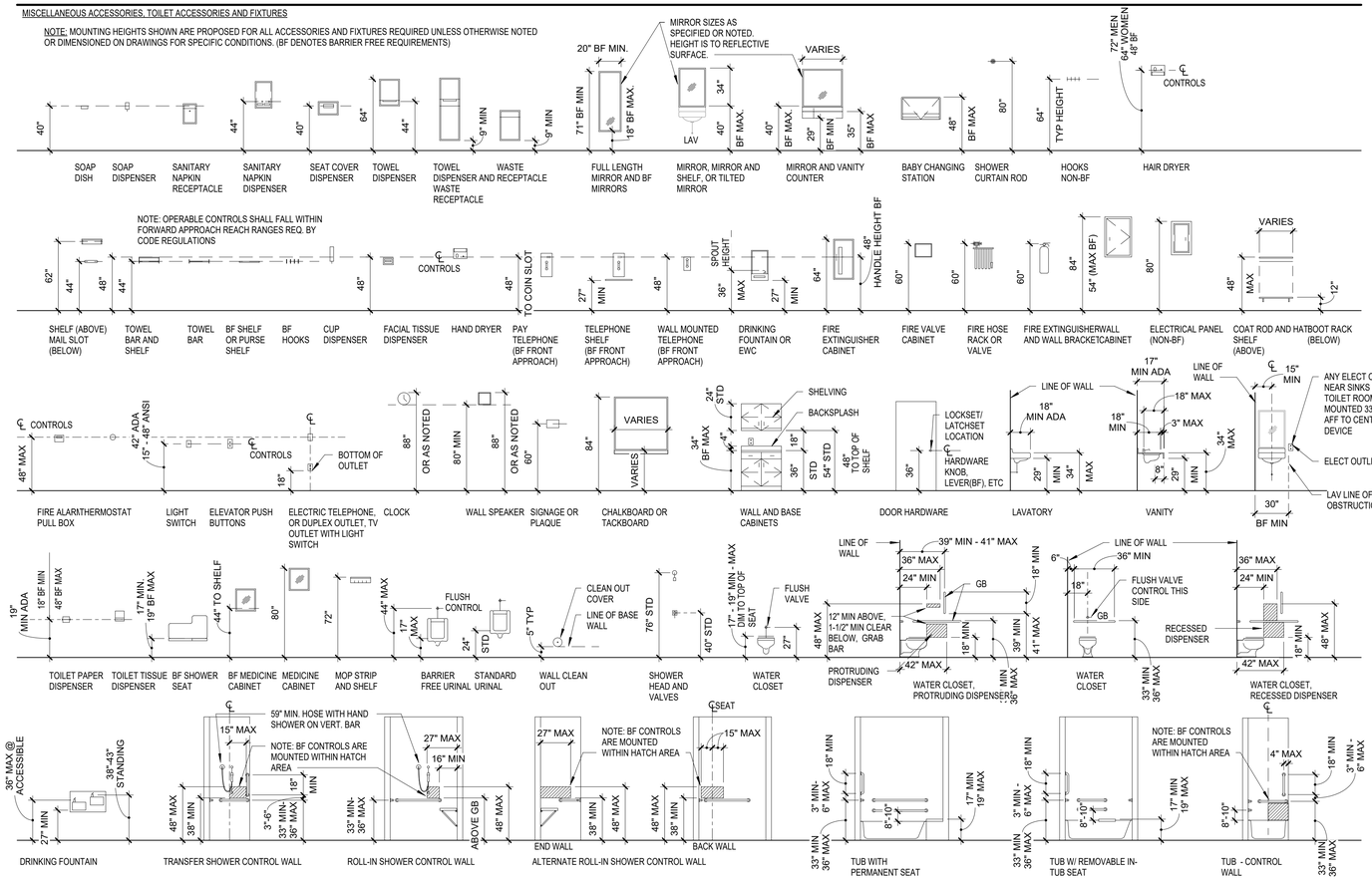
Cover Sheet

A000

©2022 L3MC Architects LLC

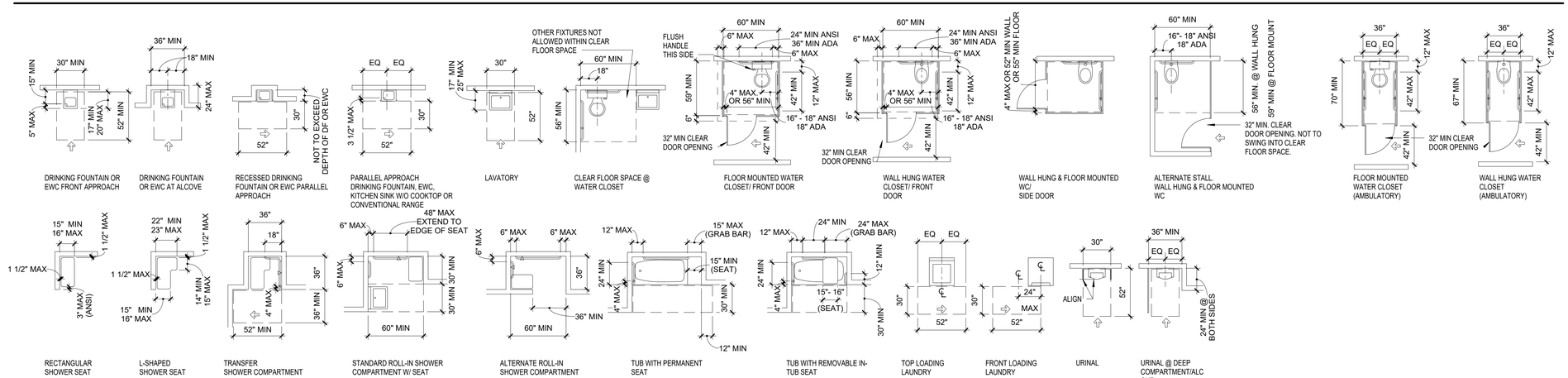
Printed: 6/21/2026 11:24:08 PM

TYPICAL MOUNTING HEIGHTS (ADA & ANSI A117.1-2017)

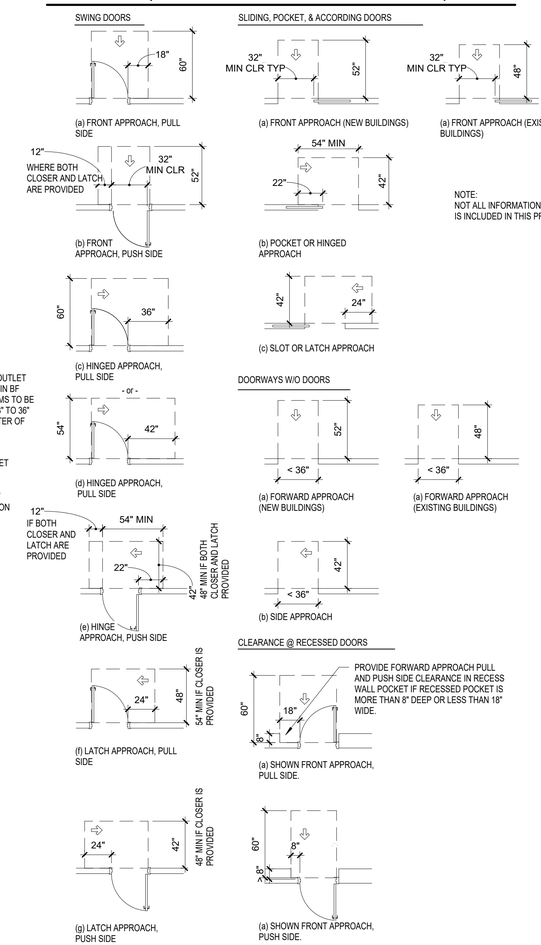


NOTE:
IN ALL ANSI TYPE B UNITS, PROVIDE WALL REINFORCEMENT AT ALL FUTURE GRAB BAR & SHOWER SEAT LOCATIONS AT TOILETS AND TUBS. LOCATIONS OF GRAB BARS SHALL BE PER ANSI 2009 WHEN ALL CONSTRUCTION ALLOWS.

TYPICAL CLEAR FLOOR SPACE REQUIREMENTS (ADA & ANSI A117.1-2017)



MINIMUM CLEARANCES FOR MANUAL DOORS (ADA & ANSI A117.1-2017)



NOTE:
ALL PLAN DIMENSIONS ARE TO FACE OF WALL FINISH MATERIAL OR WALL BASE -WHICHEVER PROJECTS FARTHEST FROM WALL SUBSTRATE - MIN CODE DIMENSIONS ON THE SHEET SUPERSEDES ANY OTHER DIMENSIONS IN THE SET THAT MIGHT BE DIFFERENT.

NOTE:
NOT ALL INFORMATION SHOWN ON THIS SHEET MAY BE IS INCLUDED IN THIS PROJECT.

Issue Date:
05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name
WCCCD CLI HWEC SAUNA

Project number
469-26-01

Barrier Free Requirements

A002

©2022 L3MC Architects LLC

Printed: 6/21/2026 11:20 PM

PROJECT INFORMATION

Project name	WCCCD - Curtis L. Ivery Wellness Center Sauna
Export date	05/28/2026
Description	Renovation of an existing building to incorporate (1) dry sauna in each main locker room of the first floor. Rerouting of some mechanical systems, electrical work and minor plumbing included.

APPLICABLE CODES

Michigan Building Code 2021, Michigan Rehabilitation Code for Existing Buildings 2021, Michigan Mechanical Code 2021, Michigan Plumbing Code 2021, Michigan Commercial Energy Code 2021, Michigan Electrical Code 2023, ASHRAE 90.1-2019 compliance path where applicable, ICC/ANSI 117.1-2017

BUILDING DATA

Story	Name	Occupancy Group	Function of Space	Designed Area (gross sq. ft.)	Area Per Story
1	128 OFFICE 01	B	Business areas	212	38,122
	129 OFFICE 02	B	Business areas	109	
	130 OFFICE 03	B	Business areas	109	
	131 OFFICE 04	B	Business areas	109	
	132 OFFICE 05	B	Business areas	109	
	134 OFFICE 06	B	Business areas	109	
	136 OFFICE 07	B	Business areas	109	
	133 BREAK RM	B	Business areas	109	
	127 WAITING/CORRIDOR	B	Business areas	735	
	TOILET/SHOWER RMS	B	Business areas	3,919	
	106 CLASSROOM 01	B	Classroom area	713	
	107 CLASSROOM 02	B	Classroom area	807	
	108 CLASSROOM 03	B	Classroom area	616	
	142 MEN'S PUBLIC LOCKER	B	Exercise rooms	588	
	138 WOMEN'S PUBLIC LOCKER	B	Exercise rooms	588	
	144 AUX. LOCKER ROOM 01	B	Locker rooms	257	
	140 AUX. LOCKER 02	B	Locker rooms	257	
	115 ATHLETE LOCKER 01	B	Locker rooms	440	
	111 ATHLETE LOCKER 02	B	Locker rooms	440	
	145 LOUNGE	B	Locker rooms	200	
	149 ELEVATOR CONTROL	S-1	Accessory storage areas, mechanical equipment room	30	
	135 OFFICE STORAGE	S-1	Accessory storage areas, mechanical equipment room	104	
	148 LAUNDRY	S-1	Accessory storage areas, mechanical equipment room	214	
	110 FIRE PUMP ROOM	S-1	Accessory storage areas, mechanical equipment room	230	
	109 MECHANICAL ROOM	S-1	Accessory storage areas, mechanical equipment room	603	
	157 STORAGE 01	S-1	Accessory storage areas, mechanical equipment room	913	
	158 STORAGE 02	S-1	Accessory storage areas, mechanical equipment room	856	
	161 STORAGE 03	S-1	Accessory storage areas, mechanical equipment room	756	
	159 ELECTRICAL ROOM	S-1	Accessory storage areas, mechanical equipment room	245	
	105 CAFE SERVICE	M	Accessory storage areas, mechanical equipment room	332	
	104 LOUGE AREA 01	A-3	Unconcentrated space (tables and chairs)	728	
	100 LOBBY/101 VESTIBULE/ 102 VESTIBULE	A-3	Unconcentrated space (tables and chairs)	6,380	
	160 GYMNASIUM	A-4	Concentrated (chairs only — not fixed)	10,204	
	BLEACHERS	A-4	Other	4,138	
	120 CORRIDOR 01	B	Business areas	873	
	121 CORRIDOR 02	B	Business areas	721	
	122 CORRIDOR 03	B	Business areas	260	
2	207 FITNESS 01	A-3	Exercise rooms	1,135	22,258
	209 FITNESS 02	A-3	Exercise rooms	1,883	
	211 FITNESS 03	A-3	Exercise rooms	972	
	203 OFFICE	A-3	Business areas	100	
	204 ASSESSMENT	A-3	Business areas	100	
	206 MEN'S TOILET	A-3	Business areas	225	
	205 WOMEN'S TOILET	A-3	Business areas	225	
	217 LOCKER 01	A-3	Exercise rooms	62	
	218 LOCKER 02	A-3	Exercise rooms	62	
	208 STORAGE 01	A-3	Accessory storage areas, mechanical equipment room	215	
	210 STORGE 02	A-3	Accessory storage areas, mechanical equipment room	149	
	212 STORAGE 03	A-3	Accessory storage areas, mechanical equipment room	80	
	213 DATA ROOM	A-3	Accessory storage areas, mechanical equipment room	120	
	219 JANITORS CLOSET	A-3	Accessory storage areas, mechanical equipment room	54	
	215 ELECTRICAL RM	A-3	Accessory storage areas, mechanical equipment room	60	
	200 CARDIO/WEIGHT SPACE	A-3	Exercise rooms	8,699	
	222 TRACK	A-4	Exercise rooms	5,000	
	220 TERRACE	B	Business areas	2,280	
	STAIR 01	B	Business areas	285	
	STAIR 02	B	Business areas	272	
	STAIR 03	A-4	Exercise rooms	280	
			Total Gross Area:		60,380

Sprinkler type	Type of Construction	Occupancy Separation	High-Rise
NFPA 13	IIA	Separated Occupancies	No

HEIGHTS AND AREAS

Building Area 503

Separated Mixed Occupancy

Story	Occupancy Group	Designed Area (sq. ft.)	Allowed Area (Aa) (sq. ft.)
1	B	12,389	129,454
	S-1	3,951	89,755
	M	332	74,220
	A-3	7,108	53,507
	A-4	14,342	53,507
2	A-3	14,141	53,507
	A-4	5,280	53,507
	B	2,837	129,454

Refer to Table 508.4 for separation requirements in order for buildings / portions of buildings to be considered as separate occupancies.
Unlimited Area Building exemptions of Section 507 have not been checked.

Building Height in Stories 504.4

Separated Mixed Occupancy

Occupancy Group	Highest Story Above Grade Plane Occupancy Appears On	Highest Allowable Story Above Grade Plane
B	2	6
S-1	1	5
M	1	5
A-3	2	4
A-4	2	4

Building Height in Feet 504.3

Separated Mixed Occupancy

Occupancy Group	Highest Elevation Above Grade Plane Occupancy Appears On
B	44.0 ft.
S-1	15.0 ft.
M	15.0 ft.
A-3	44.0 ft.
A-4	44.0 ft.

Average Roof Surface Height Above Grade Plane	Highest Allowable Elevation Above Grade Plane
45.0 ft.	85 ft.

Elevations shown are to top of story height for that occupancy group.

EGRESS INFORMATION

Occupant Loads

Story	Name	Occupancy Group	Function of Space	Designed Area (gross sq. ft.)	Designed Area (net sq. ft.)	OLF	Occupant Load	Total OL (Story)
1	128 OFFICE 01	B	Business areas	212	-	100	3	
	129 OFFICE 02	B	Business areas	109	-	100	2	
	130 OFFICE 03	B	Business areas	109	-	100	2	
	131 OFFICE 04	B	Business areas	109	-	100	2	
	132 OFFICE 05	B	Business areas	109	-	100	2	
	134 OFFICE 06	B	Business areas	109	-	100	2	
	136 OFFICE 07	B	Business areas	109	-	100	2	
	133 BREAK RM	B	Business areas	109	-	100	2	
	127 WAITING/CORRIDOR	B	Business areas	735	-	100	8	
	TOILET/SHOWER RMS	B	Business areas	3,919	-	100	40	
	106 CLASSROOM 01	B	Classroom area	713	713	20	36	
	107 CLASSROOM 02	B	Classroom area	807	807	20	41	
	108 CLASSROOM 03	B	Classroom area	616	616	20	31	
	142 MEN'S PUBLIC LOCKER	B	Exercise rooms	588	-	50	12	
	138 WOMEN'S PUBLIC LOCKER	B	Exercise rooms	588	-	50	12	
	144 AUX. LOCKER ROOM 01	B	Locker rooms	200	-	50	6	
	144a SAUNA	B	Locker rooms	57		50	1	
	140 AUX. LOCKER 02	B	Locker rooms	200	-	50	6	
	140a SAUNA	B	Locker rooms	57		50	1	
	115 ATHLETE LOCKER 01	B	Locker rooms	440	-	50	9	
	111 ATHLETE LOCKER 02	B	Locker rooms	440	-	50	9	
	145 LOUNGE	B	Locker rooms	200	-	50	4	
	149 ELEVATOR CONTROL	S-1	Accessory storage areas, mechanical equipment room	30	-	300	1	
	135 OFFICE STORAGE	S-1	Accessory storage areas, mechanical equipment room	104	-	300	1	
	148 LAUNDRY	S-1	Accessory storage areas, mechanical equipment room	214	-	300	1	
	110 FIRE PUMP ROOM	S-1	Accessory storage areas, mechanical equipment room	230	-	300	1	
	109 MECHANICAL ROOM	S-1	Accessory storage areas, mechanical equipment room	603	-	300	3	
	157 STORAGE 01	S-1	Accessory storage areas, mechanical equipment room	913	-	300	4	
	158 STORAGE 02	S-1	Accessory storage areas, mechanical equipment room	856	-	300	3	
	161 STORAGE 03	S-1	Accessory storage areas, mechanical equipment room	756	-	300	3	
	159 ELECTRICAL ROOM	S-1	Accessory storage areas, mechanical equipment room	245	-	300	1	
	105 CAFE SERVICE	M	Accessory storage areas, mechanical equipment room	332	-	300	2	
	104 LOUGE AREA 01	A-3	Unconcentrated space (tables and chairs)	728	728	15	49	
	100 LOBBY/101 VESTIBULE/ 102 VESTIBULE	A-3	Unconcentrated space (tables and chairs)	6,380	6,380	15	426	
	160 GYMNASIUM	A-4	Concentrated (chairs only — not fixed)	10,204	10,204	7	1,458	
	BLEACHERS	A-4	Other	4,138	4,138	Custom	1,000*	
	120 CORRIDOR 01	B	Business areas	873	-	100	9	
	121 CORRIDOR 02	B	Business areas	721	-	100	8	
	122 CORRIDOR 03	B	Business areas	260	-	100	3	3,204
2	207 FITNESS 01	A-3	Exercise rooms	1,135	-	50	23	
	209 FITNESS 02	A-3	Exercise rooms	1,883	-	50	38	
	211 FITNESS 03	A-3	Exercise rooms	972	-	50	20	
	203 OFFICE	A-3	Business areas	100	-	100	1	
	204 ASSESSMENT	A-3	Business areas	100	-	100	1	
	206 MEN'S TOILET	A-3	Business areas	225	-	100	3	
	205 WOMEN'S TOILET	A-3	Business areas	225	-	100	3	
	217 LOCKER 01	A-3	Exercise rooms	62	-	50	2	
	218 LOCKER 02	A-3	Exercise rooms	62	-	50	2	
	208 STORAGE 01	A-3	Accessory storage areas, mechanical equipment room	215	-	300	1	
	210 STORGE 02	A-3	Accessory storage areas, mechanical equipment room	149	-	300	1	
	212 STORAGE 03	A-3	Accessory storage areas, mechanical equipment room	80	-	300	1	
	213 DATA ROOM	A-3	Accessory storage areas, mechanical equipment room	120	-	300	1	
	219 JANITORS CLOSET	A-3	Accessory storage areas, mechanical equipment room	54	-	300	1	
	215 ELECTRICAL RM	A-3	Accessory storage areas, mechanical equipment room	60	-	300	1	
	200 CARDIO/WEIGHT SPACE	A-3	Exercise rooms	8,699	-	50	174	
	222 TRACK	A-4	Exercise rooms	5,000	-	50	100	
	220 TERRACE	B	Business areas	2,280	-	100	23	
	STAIR 01	B	Business areas	285	-	100	3	
	STAIR 02	B	Business areas	272	-	100	3	
	STAIR 03	A-4	Exercise rooms	280	-	50	6	408
								Building OL: 3,612

Min. Exits or Exit Access Doorways per Space 1006.2.1 1006.3.1

More than one exit or exit access doorway must be provided if the space occupant load or maximum common path of egress travel distance are exceeded. More may be required under high occupant load or other special conditions (see notes below).

Story	Space Name	Occupancy Group	Function of Space	Cum. Occupant Load of Space	Max Single Exit Cumulative Load of Space	Min. Number of Exits per Space	Max. Common Path of Egress Allowed for Single Exit
2	207 FITNESS 01	A-3	Exercise rooms	23	49	1	75 ft.
	209 FITNESS 02	A-3	Exercise rooms	38	49	1	75 ft.
	211 FITNESS 03	A-3	Exercise rooms	20	49	1	75 ft.
	203 OFFICE	A-3	Business areas	1	49	1	75 ft.
	204 ASSESSMENT	A-3	Business areas	1	49	1	75 ft.
	206 MEN'S TOILET	A-3	Business areas	3	49	1	75 ft.
	205 WOMEN'S TOILET	A-3	Business areas	3	49	1	75 ft.
	217 LOCKER 01	A-3	Exercise rooms	2	49	1	75 ft.
	218 LOCKER 02	A-3	Exercise rooms	2	49	1	75 ft.
	208 STORAGE 01	A-3	Accessory storage areas, mechanical equipment room	1	49	1	75 ft.
	210 STORGE 02	A-3	Accessory storage areas, mechanical equipment room	1	49	1	75 ft.
	212 STORAGE 03	A-3	Accessory storage areas, mechanical equipment room	1	49	1	75 ft.

Issue Date:
05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name
WCCCD CLI HWEC SAUNA

Project number
469-26-01

Code Review

A010

©2022 L3MC Architects LLC

Printed: 6/21/2026 11:24:22 PM

	213 DATA ROOM	A-3	Accessory storage areas, mechanical equipment room	1	49	1	75 ft.
	219 JANITORS CLOSET	A-3	Accessory storage areas, mechanical equipment room	1	49	1	75 ft.
	215 ELECTRICAL RM	A-3	Accessory storage areas, mechanical equipment room	1	49	1	75 ft.
	200 CARDIO/WEIGHT SPACE	A-3	Exercise rooms	174	49	2	75 ft.
	222 TRACK	A-4	Exercise rooms	100	49	2	75 ft.
	220 TERRACE	B	Business areas	23	49	1	100 ft.
1	128 OFFICE 01	B	Business areas	3	49	1	100 ft.
	129 OFFICE 02	B	Business areas	2	49	1	100 ft.
	130 OFFICE 03	B	Business areas	2	49	1	100 ft.
	131 OFFICE 04	B	Business areas	2	49	1	100 ft.
	132 OFFICE 05	B	Business areas	2	49	1	100 ft.
	134 OFFICE 06	B	Business areas	2	49	1	100 ft.
	136 OFFICE 07	B	Business areas	2	49	1	100 ft.
	133 BREAK RM	B	Business areas	2	49	1	100 ft.
	127 WAITING/CORRIDOR	B	Business areas	8	49	1	100 ft.
	TOILET/SHOWER RMS	B	Business areas	40	49	1	100 ft.
	106 CLASSROOM 01	B	Classroom area	36	49	1	100 ft.
	107 CLASSROOM 02	B	Classroom area	41	49	1	100 ft.
	108 CLASSROOM 03	B	Classroom area	31	49	1	100 ft.
	142 MEN'S PUBLIC LOCKER	B	Exercise rooms	12	49	1	100 ft.
	138 WOMEN'S PUBLIC LOCKER	B	Exercise rooms	12	49	1	100 ft.
	144 AUX. LOCKER ROOM 01	B	Locker rooms	6	49	1	100 ft.
	140 AUX. LOCKER 02	B	Locker rooms	6	49	1	100 ft.
	115 ATHLETE LOCKER 01	B	Locker rooms	9	49	1	100 ft.
	111 ATHLETE LOCKER 02	B	Locker rooms	9	49	1	100 ft.
	145 LOUNGE	B	Locker rooms	4	49	1	100 ft.
	149 ELEVATOR CONTROL	S-1	Accessory storage areas, mechanical equipment room	1	29	1	100 ft.
	135 OFFICE STORAGE	S-1	Accessory storage areas, mechanical equipment room	1	29	1	100 ft.
	148 LAUNDRY	S-1	Accessory storage areas, mechanical equipment room	1	29	1	100 ft.
	110 FIRE PUMP ROOM	S-1	Accessory storage areas, mechanical equipment room	1	29	1	100 ft.
	109 MECHANICAL ROOM	S-1	Accessory storage areas, mechanical equipment room	3	29	1	100 ft.
	157 STORAGE 01	S-1	Accessory storage areas, mechanical equipment room	4	29	1	100 ft.
	158 STORAGE 02	S-1	Accessory storage areas, mechanical equipment room	3	29	1	100 ft.
	161 STORAGE 03	S-1	Accessory storage areas, mechanical equipment room	3	29	1	100 ft.
	159 ELECTRICAL ROOM	S-1	Accessory storage areas, mechanical equipment room	1	29	1	100 ft.
	105 CAFE SERVICE	M	Accessory storage areas, mechanical equipment room	2	49	1	75 ft.
	104 LOUGE AREA 01	A-3	Unconcentrated space (tables and chairs)	49	49	1	75 ft.
	100 LOBBY/101 VESTIBULE/ 102 VESTIBULE	A-3	Unconcentrated space (tables and chairs)	426	49	2	75 ft.
	160 GYMNASIUM	A-4	Concentrated (chairs only — not fixed)	1,458	49	4 (See note a)	75 ft.
	BLEACHERS	A-4	Other	1,000	49	3 (See note b)	75 ft.

Min. Exits per Story 1006.3.1

Story	Total Occupancy Load by Story	Minimum Number of Exits or Exit Accesses	Max Common Path of Egress Allowed for Single Exit	Max Exit Travel Distance Allowed for Single Exit
2	408	2	-	-
1	3,204	4	-	-

Max. Exit Access Travel Distance 1017.2

Maximum exit access travel distance serving each space should be at a maximum the values below for each occupancy group.

Occupancy Group	Max Exit Access Travel Distance
A-3	250 ft.
A-4	250 ft.
B	300 ft.
M	250 ft.
S-1	250 ft.

See Section 1029.7 for increased distance in assembly seating.

Max. Dead-End Corridor Length 1020.4

Dead-end corridors within each occupancy group should be at a maximum the length given below.

Occupancy Group	Max Dead-end Corridor Distance
A-3 and A-4	20 ft.
B, M and S-1	50 ft.

Dead-end corridor length limits only apply where more than one exit or exit access doorway is required

Dead-end corridor length is not limited where the length of the dead-end corridor is less than 2.5 times of its least width

Min. Corridor Width 1005 1020.2

Story	Corridor	Occupancy Groups Served	Cum. Occupant Load	Capacity Factor	Min. Design Corridor Width
1	120 CORRIDOR 01	S-1, B	25	0.2	36" PRESCRIPTIVE
1	121 CORRIDOR 02	S-1, M, B	12	0.2	36" PRESCRIPTIVE
1	122 CORRIDOR 03	B	3	0.2	36" PRESCRIPTIVE

See Section 1029 for aisles and aisle accessways in rooms or spaces used for assembly purposes.

The minimum width of corridors shall be unobstructed except where allowed by Section 1005.7. Fully opened doors shall not reduce the required width by more than 7 inches, and in no position may reduce the required width by more than one-half.

Min. Stairway Width 1005.3.1 1011.2

Story	Stairway	Min. Calculated Value	Min. Value per Sec. 1011.2	Final Min. Stairway Width
1 (See note a)	-			-
2	STAIR 01	0.9	36"	36"
	STAIR 02	0.9	36"	36"
	STAIR 03	1.80(See note b)	36"	36"

FIRE RATINGS

Interior Building Element Ratings 704.1

Story	Interior Building Element Type	Min. Fire Resistance Ratings (hrs.)
All	Primary structural frame	1
	Interior Bearing Walls	1
	Interior Nonbearing walls and partitions	0
	Floor construction and associated secondary members	1
	Roof construction and associated secondary members	1 (See note a)

The primary structural frame shall include all of the following structural members: The columns. Structural members having direct connections to the columns, including girders, beams, trusses and spandrels. Members of the floor construction and roof construction having direct connections to the columns. Bracing members that are essential to the vertical stability of the primary structural frame under gravity loading shall be considered part of the primary structural frame whether or not the bracing member carries gravity loads.

Min. Fire Wall Ratings 706.4

Any fire walls present must meet the minimum fire resistance ratings below by occupancy group

Occupancy Group	Min. Fire Wall Resistance Rating (hrs.)
A-3	2
A-4	2
B	2
M	3
S-1	3

Fire walls for occupancy groups A, B, E, H-4, I, R-1, R-2, and U within Type II or V construction are permitted to have a reduced fire-resistance rating. These values are reflected above.

Min. Fire Area Separation Ratings 707.3.10

Occupancy Group	Min. Fire Area Separation Rating (hrs.)
A-3	2
A-4	2
B	2
M	2
S-1	3

Where a building is divided into separate fire areas, so as to eliminate the need for an automatic fire sprinkler system, the fire walls, fire barriers, horizontal assemblies, or the combination thereof must be constructed in accordance with Table 707.3.10. In a mixed occupancy the higher rating must be used.

Min. Corridor Fire-Resistance Ratings 1020.1

Each corridor must meet the minimum fire resistance ratings below

Story	Corridor	Occupancies Served	Corridor Rating (hrs.)
1	120 CORRIDOR 01	S-1, B	0 (See note a)
	121 CORRIDOR 02	B, M, S-1	0 (See note a)
	122 CORRIDOR 03	B	0 (See note a)

Required Occupancy Separations 508.4

Required Separation of Occupancies (hours)

Occupancy	A	B	M	S-1
A	N	1	1	1
B	-	N	N	N
M	-	-	N	N
S-1	-	-	-	N

PLUMBING

Required Plumbing Fixtures 1210

Story	Space Description	Occupancy Group	OL	Water Closets	Lavatories	Drinking Fountains	Other
1	Conference rooms, auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	A-3	475	Male: 1.9 Female: 3.65	Male: 1.19 Female: 1.19	0.95	-
	Indoor sporting event facility	A-4	2,458	Male: 16.39 Female: 30.73	Male: 6.14 Female: 8.19	2.46	-
	Business, office, bank, tutoring center, or light industrial facility	B	231	Male: 3.31 Female: 3.31	Male: 2.44 Female: 2.44	2.31	-
	Retail store, service station, shop, market, or shopping center	M	2	Male: - Female: -	Male: - Female: -	-	-
	Storage structure or warehouse	S-1	18	Male: 0.09 Female: 0.09	Male: 0.09 Female: 0.09	0.02	-
2	Conference rooms, auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	A-3	273	Male: 1.09 Female: 2.1	Male: 0.68 Female: 0.68	0.55	-
	Indoor sporting event facility	A-4	100	Male: 0.67 Female: 1.25	Male: 0.25 Female: 0.33	0.1	-
	Business, office, bank, tutoring center, or light industrial facility	B	23	Male: 0.46 Female: 0.46	Male: 0.29 Female: 0.29	0.23	-

At least one service sink is required. Service sinks should be provided for each tenant and at least one per building.

Water dispensers are permitted to be substituted for not more than 50 percent of the required number of drinking fountains per Section 410.4.

Fixture Ratios

Space Description	Water Closets	Lavatories	Drinking Fountains	Other
Conference rooms, auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	Male: 1 per 125 Female: 1 per 65	Male: 1 per 200 Female: 1 per 200	1 per 500	1 service sink
Indoor sporting event facility	Male: 1 per 75 for the first 1500 and 1 per 120 for the remainder exceeding 1500 Female: 1 per 40 for the first 1520 and 1 per 60 for the remainder exceeding 1520	Male: 1 per 200 Female: 1 per 150	1 per 1000	1 service sink
Business, office, bank, tutoring center, or light industrial facility	Male: 1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50 Female: 1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	Male: 1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80 Female: 1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80	1 per 100	
Retail store, service station, shop, market, or shopping center	Male: 1 per 500 Female: 1 per 500	Male: 1 per 750 Female: 1 per 750	1 per 1000	-
Storage structure or warehouse	Male: 1 per 100 Female: 1 per 100	Male: 1 per 100 Female: 1 per 100	1 per 1000	1 service sink

Max. urinal substitution of the required water closets in each toilet room: Assemblies and Educational occupancies = 67%; All others = 50%

Issue Date:

05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name

WCCCD CLI HWEC SAUNA

Project number

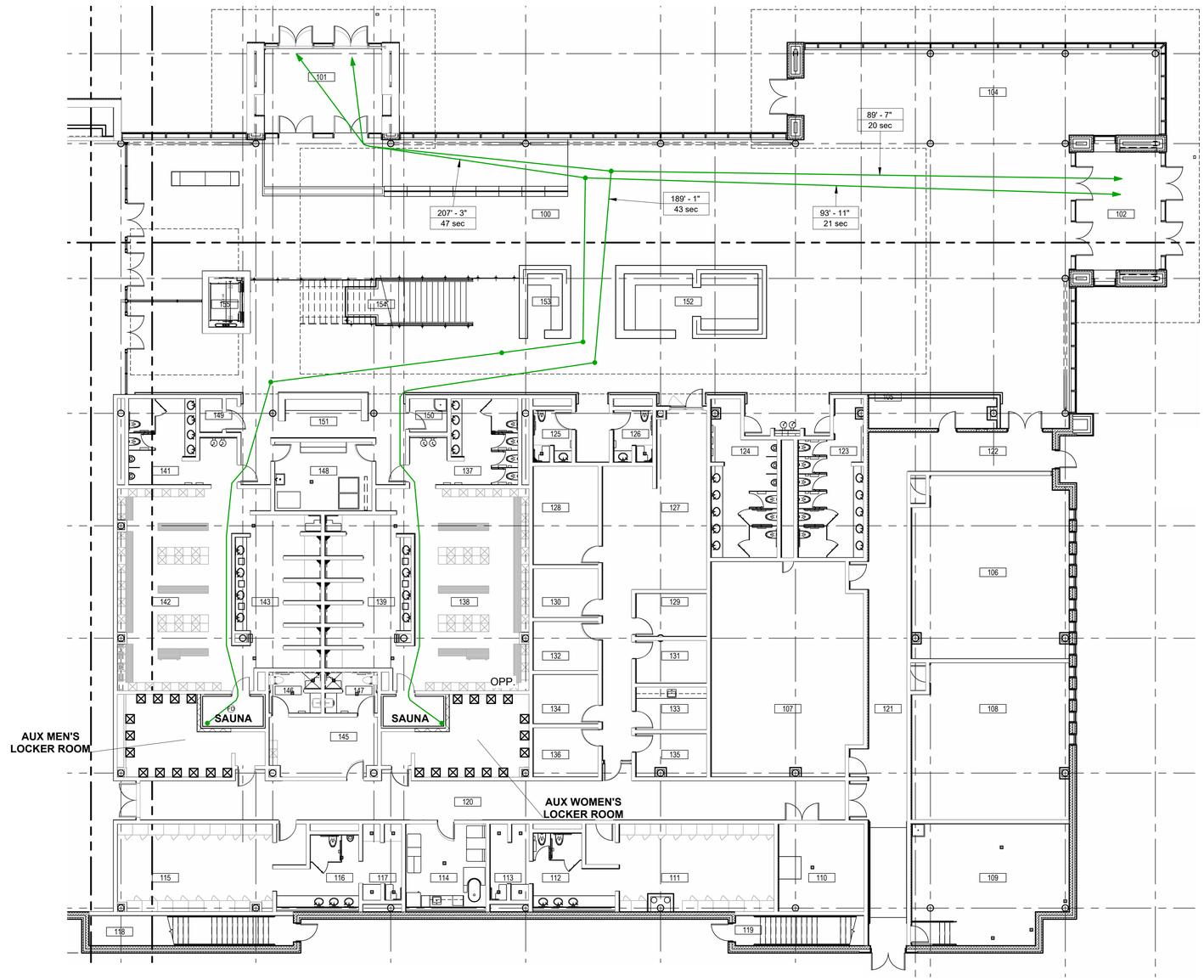
469-26-01

Code Review

A011

©2022 L3MC Architects LLC

Printed: 6/21/2026 11:24:32 PM



1 Egress Plan
3/32" = 1'-0"

Issue Date:
05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER
ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name
WCCCD CLI HWEC SAUNA

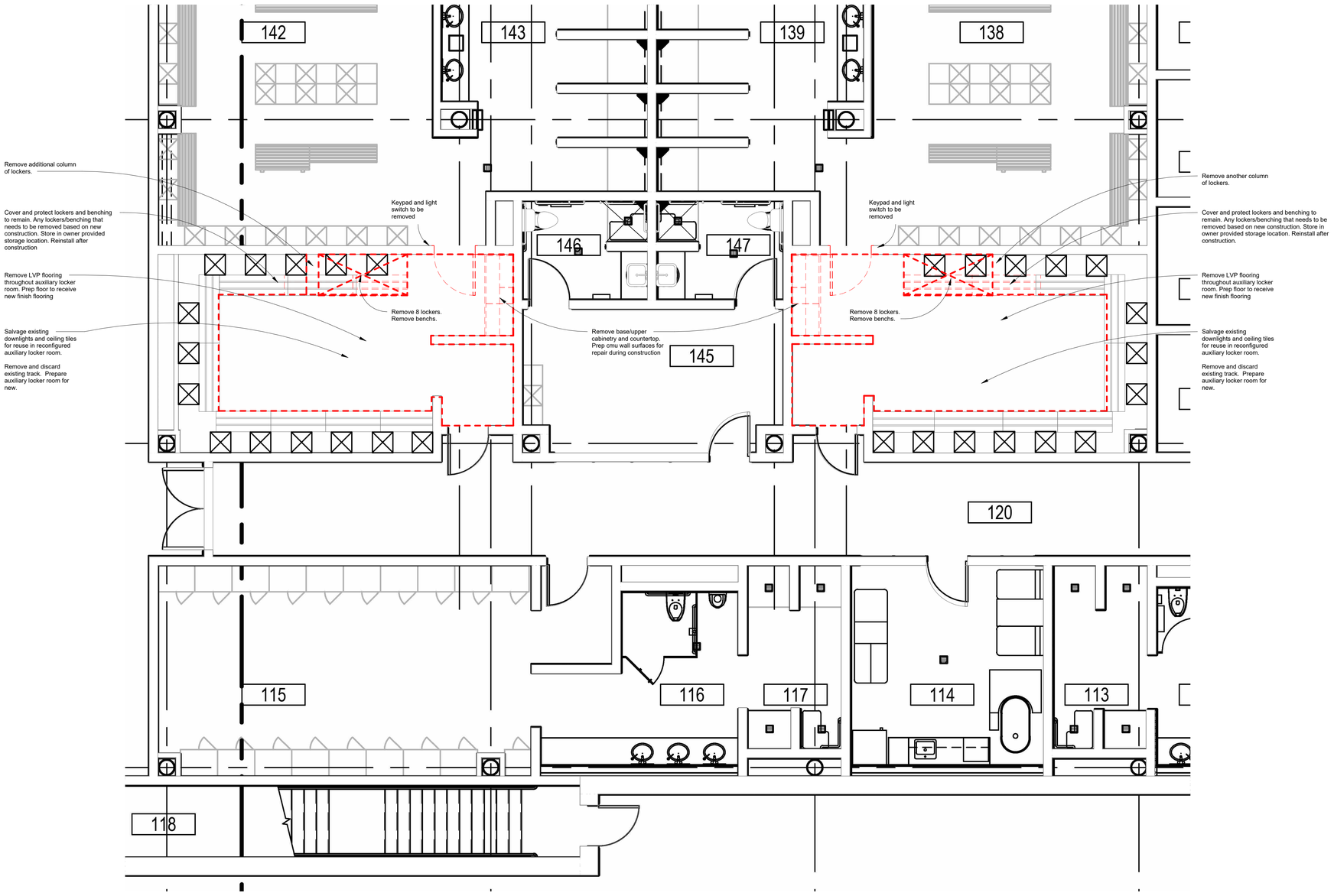
Project number
469-26-01

Life Safety Plan

A012

©2022 L3MC Architects LLC

Printed: 6/21/2026 11:24:59 PM



1 Demolition Plan
1/4" = 1'-0"

Demolition General Notes

1. Coordinate scope and extent of demolition work with new work plans and details.
2. All demolition work required is not necessarily limited to what is shown on the demolition plans. The intent is to remove all mechanical, electrical, and architectural items as required to facilitate new construction.
3. Protect areas not in the scope of work during demolition and construction. The contractor shall exercise all requisite care necessary to ensure that all equipment, materials, finishes, and assemblies which are not being removed are protected from damage during demolition and subsequent construction operations.
4. General precautions shall be taken as necessary to hold all disruption, dust, dirt, noise, and debris to a minimum.
5. The contractor shall coordinate demolition work with the owner to ensure that impacts on the balance of the building are held to a minimum.
6. Refer to mechanical and electrical demolition drawings and specifications for additional demolition information.
7. The contractor shall design, provide, install and maintain any and all temporary bracing as required to ensure the stability of the building assembly and/or any systems and/or sub-assemblies and/or systems appurtenant thereto until said assembly and/or sub-assemblies are complete, self-supporting and/or stable.
8. Protect interior areas open to the exterior during demolition and construction.
9. All walls, doors, frames, and related hardware assemblies designated as "to be removed" (shown as dashed lines) shall be completely removed and disposed of as designated by owner/tenant. All existing walls not designated for demolition shall be protected from damage and remain "as-is".
10. All equipment, doors, frames, related hardware, and designated items to be salvaged shall be removed, protected from damage, and stored for reuse.
11. Clean and repair all existing floor finishes as necessary.
12. All demolition work shall be performed in a neat and workmanlike manner. All surfaces adjacent to and abutting to those designated "to be removed" shall be left with a smooth and flush appearance.
13. Prepare all surfaces to receive the new work and finishes of the contract.
14. All existing wood stud and gypsum board partitions to remain unless noted otherwise, provide protection during work.
15. Existing partitions to remain unless noted otherwise, provide protection during work.
16. Remove Existing bathroom fixtures were noted. Cap water supply and waste lines.
17. Existing windows to remain unless noted otherwise.
18. Existing light fixtures to remain unless noted otherwise.
19. Return removed light fixtures to the owner.
20. Retain removed fixtures for the owner.

Issue Date:
05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name
WCCCD CLI HWEC SAUNA

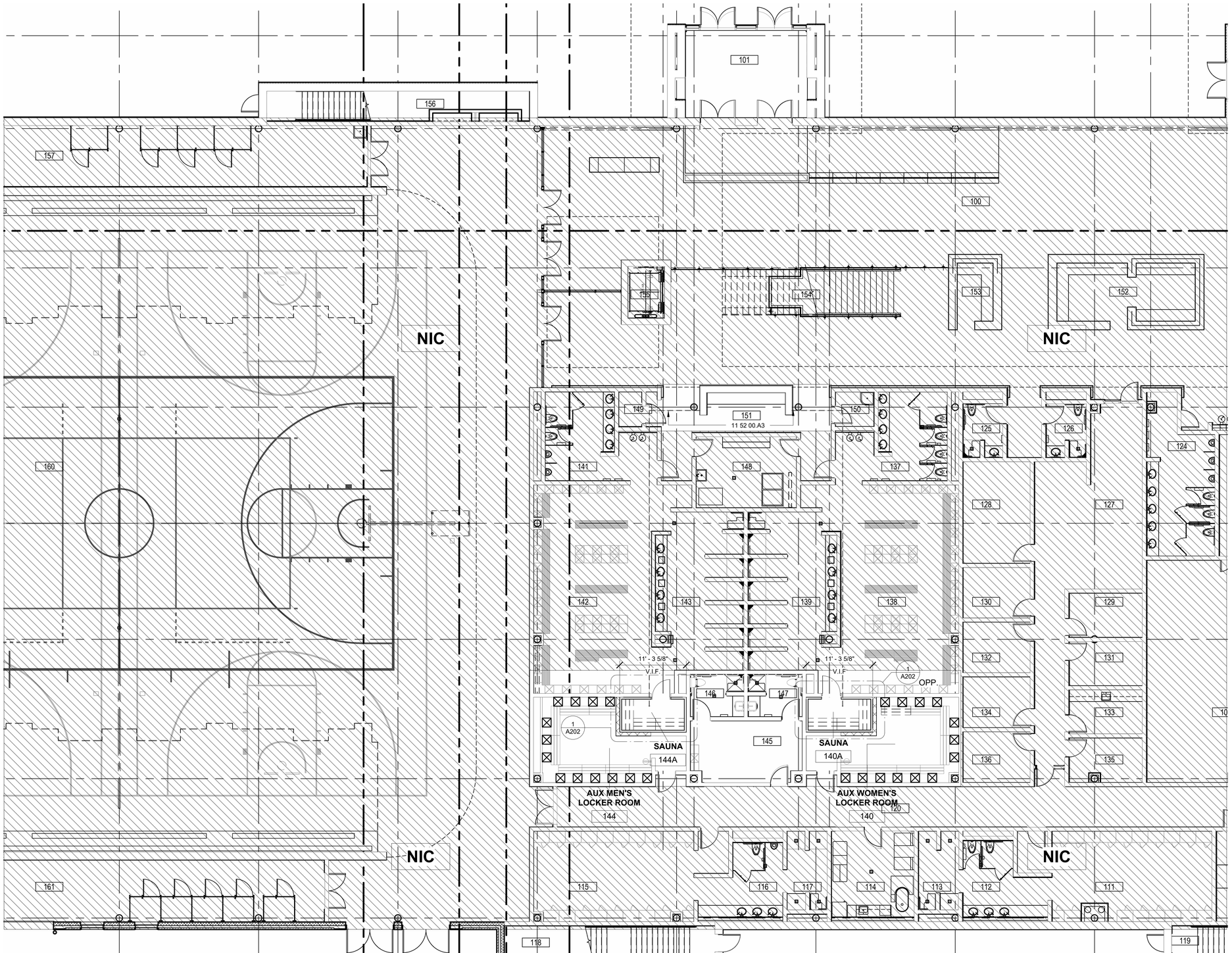
Project number
469-26-01

Demolition

AD-01

©2022 L3MC Architects LLC

Printed: 6/21/2026 11:25:23 PM



1 Floor Plan
1/8" = 1'-0"

General Notes

1. Do not scale drawings use figured dimensions
2. If required Owner is responsible for testing of existing materials for hazardous substances prior to demolition and construction activities on site.
3. Provide all work required for the proper and complete installation of the scope of work shown on this sheet, including all patching, painting, finishes and all other items that are customarily required for the installation of the materials and systems in the scope of work.
4. Return fixtures and equipment to owner unless noted otherwise.
5. Retain fixtures and equipment for reuse unless noted otherwise.
6. Smoke detectors and carbon monoxide alarms to be brought up to current code requirements in existing portion of house.
7. New Smoke detectors and carbon monoxide alarms to comply with current building code requirements.
8. This scope of work description is a general outline of the work to be performed, and is not intended to replace or reduce the requirements indicated in the drawings and the specifications.
9. Contractor shall be responsible to check existing conditions and all dimensions, and report discrepancies to owner and architect for resolution.
10. Drawings that do not bear the mark issued for construction shall not be used for construction purposes.
11. The contractor, by commencing the work, accepts the conditions of the site and the completeness of the construction documents. Any discrepancies between the drawings and actual conditions shall be brought to the attention of the architect prior to the start of work.
12. The contractor shall review all drawings and specifications. Contractor is responsible for complete review. The contractor shall promptly notify the architect of any ambiguity, inconsistency or error that they discover upon examination of the contract documents and site conditions.
13. Each contractor shall obtain and pay for the required permits and obtain all required inspections.
14. All surplus materials shall be removed from site by each contractor associated with the materials. Contractor shall dispose of same off site in a legal manner.
15. Each contractor shall remove all of their respective debris on a daily basis. Contractor shall keep the project site clean of debris at all times.
16. Equipment furnished by others but installed by contractor shall obtain shop drawings from the supplier who's equipment is to be installed in order to obtain rough-in dimensions, sizes, and locations of services.
17. Each contractor shall be required to rough-in for the equipment furnished and make final connection(s). Contractor to include the required valves, traps, tail pieces, supply risers, etc.
18. Mechanical contractor to provide one year labor and material warranty for all mechanical equipment. Provided under this contract from date of owner's acceptance.
19. Mechanical contractor to provide "as-built" drawings of all work performed by mechanical contractor, own trades and those contracted directly by same. As-built drawings shall be required prior to contractor receiving final payment.
20. Mechanical contractor to present final inspection certificate to general contractor / owner upon completion of work. Final inspection certification shall be required prior to mechanical contractor receiving final payment.

Keynotes	
11 52 00.A3	Provide allowance for visual occupancy indicator. Hardwire indicator from Reception 151 desktop to sauna

Issue Date:
05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name
WCCCD CLI HWEC SAUNA

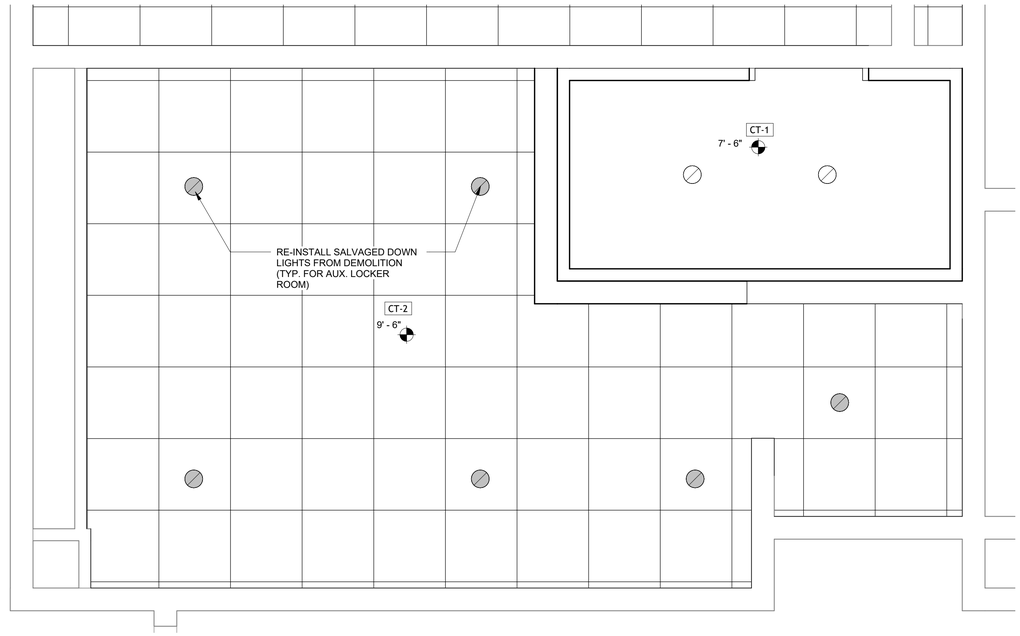
Project number
469-26-01

Floor Plan

A201

©2022 L3MC Architects LLC

Printed: 6/21/2026 11:25:45 PM

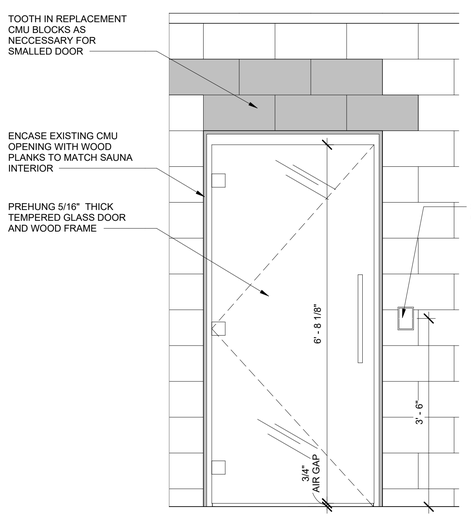


3 Ceiling Plan
1/2" = 1'-0"

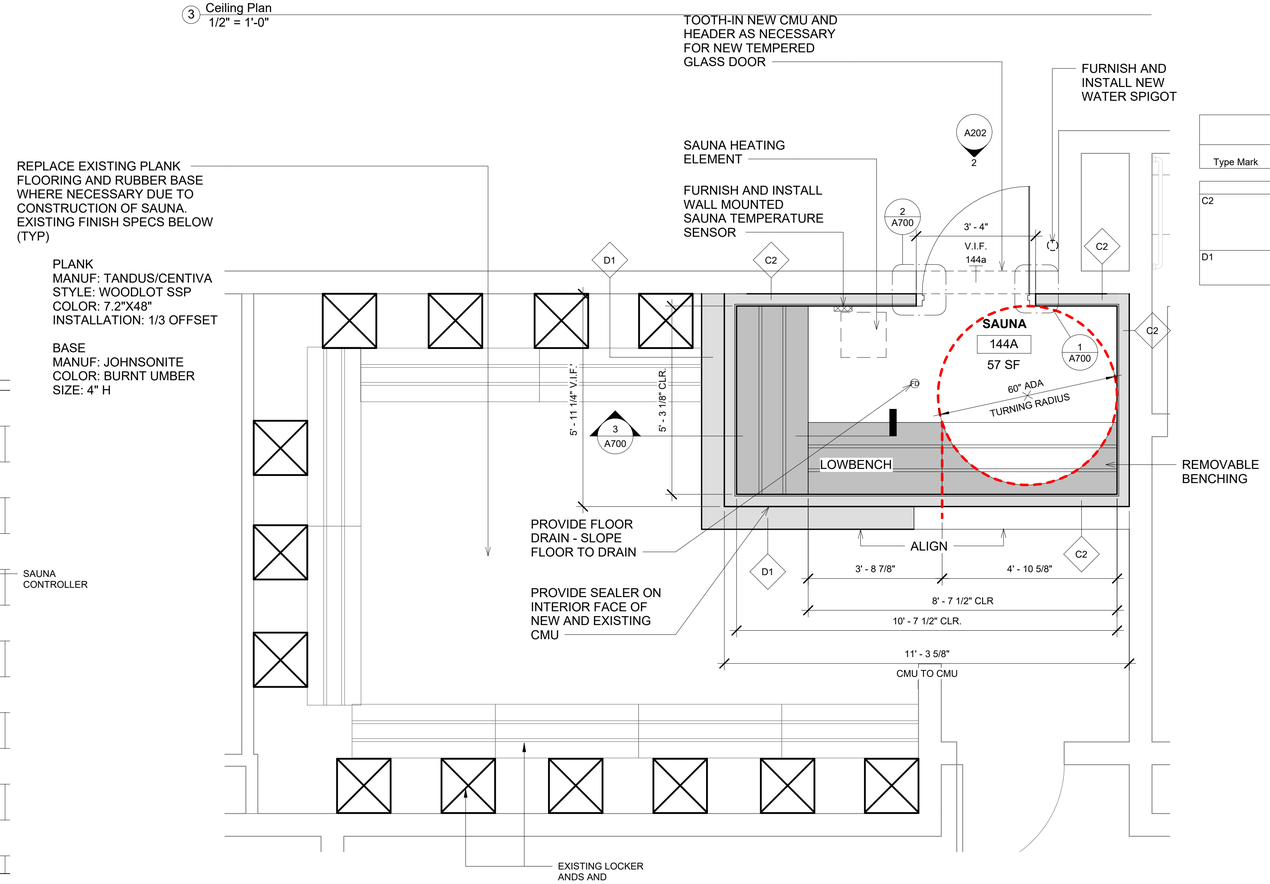
Ceiling Type Schedule	
Type Mark	Description
CT-1	Ceiling Type 1 • 2x6 wood joist @ 16" O.C. • Mineral wool cavity insulation friction fit into cavity • Type C foil faced vapor barrier • 1x4 Toungue and groove Thermo Aspen wood plank
CT-2	Ceiling Type 2 • Lay-in acoustical ceiling panels to match existing • "T" Grid Suspension System

Ceiling Plan Schedule

- 6" Round LED recessed down light - See electrical
- Existing Round LED recessed down light to remain
- New ceiling grid with salvaged tiles



2 Sauna Glass Door Elevation
3/4" = 1'-0"



1 Enlarged Floor Plan
1/2" = 1'-0"

Wall Type Schedule - L3MC				
Type Mark	Description	STC Rating	Fire Rating	Comments
C2	Furring • 2x4 wood studs @ 16" O.C. • Mineral wool cavity insulation friction fit into cavity • Type C foil faced vapor barrier • 1x4 Toungue and groove Thermo Aspen wood plank		-	
D1	CMU • 8" CMU Full Height • Sealer on CMU			

Issue Date:
05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name
WCCCD CLI HWEC SAUNA

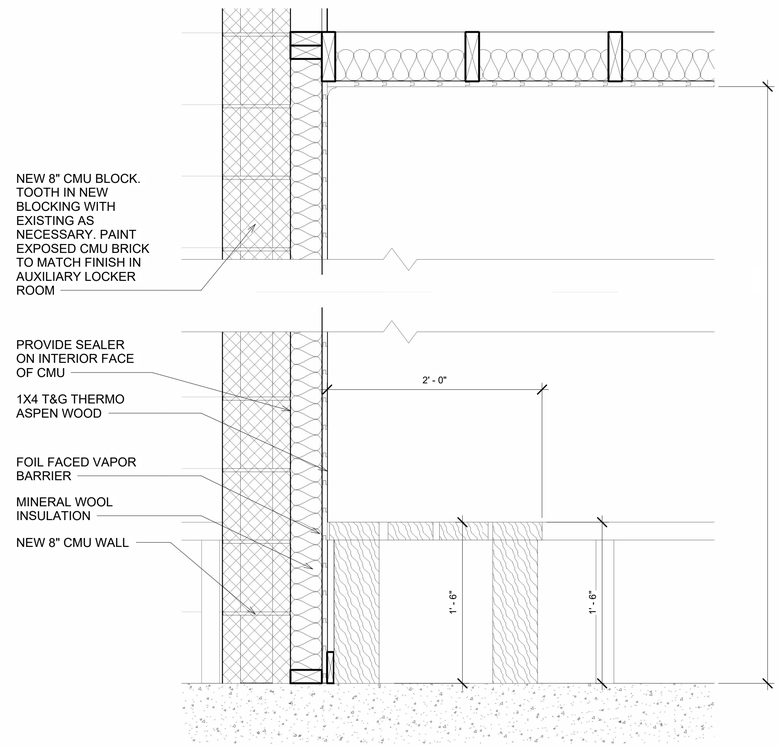
Project number
469-26-01

Enlarged Floor Plans

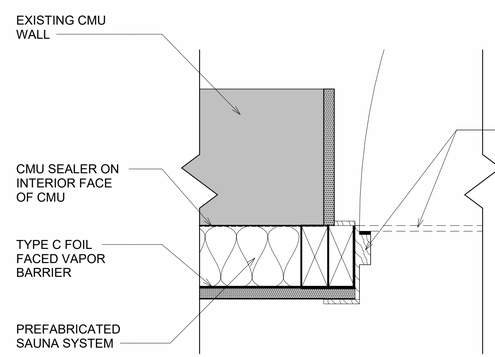
A202

©2022 L3MC Architects LLC

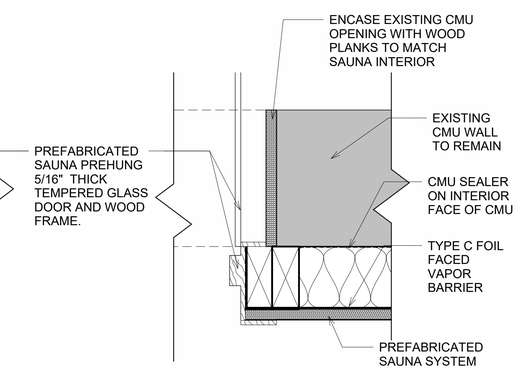
Printed: 6/21/2026 11:25:46 PM



3 Section 2
1 1/2" = 1'-0"



2 Plan Detail - Sauna Door Jamb at Pull
3" = 1'-0"



1 Plan Detail - Sauna Door Jamb at Hinge
3" = 1'-0"

Issue Date:
05 JUNE 2026

WCCCD - CLI HWEC SAUNA
1042 W FORT ST.
DETROIT, MI 48226

LOTT3METZ CRUTCHER ARCHITECTURE, LLC

200 Ottawa NW,
Suite 100
Grand Rapids, MI 49503

616/454-5175

500 GRISWORLD
SUITE 1650
DETROIT, MICHIGAN 48226

313/937-6008

No	Description	Date
1	Owner Review	05JUN26
2	Issue for Bid	19JUNE26

Project Name
WCCCD CLI HWEC SAUNA

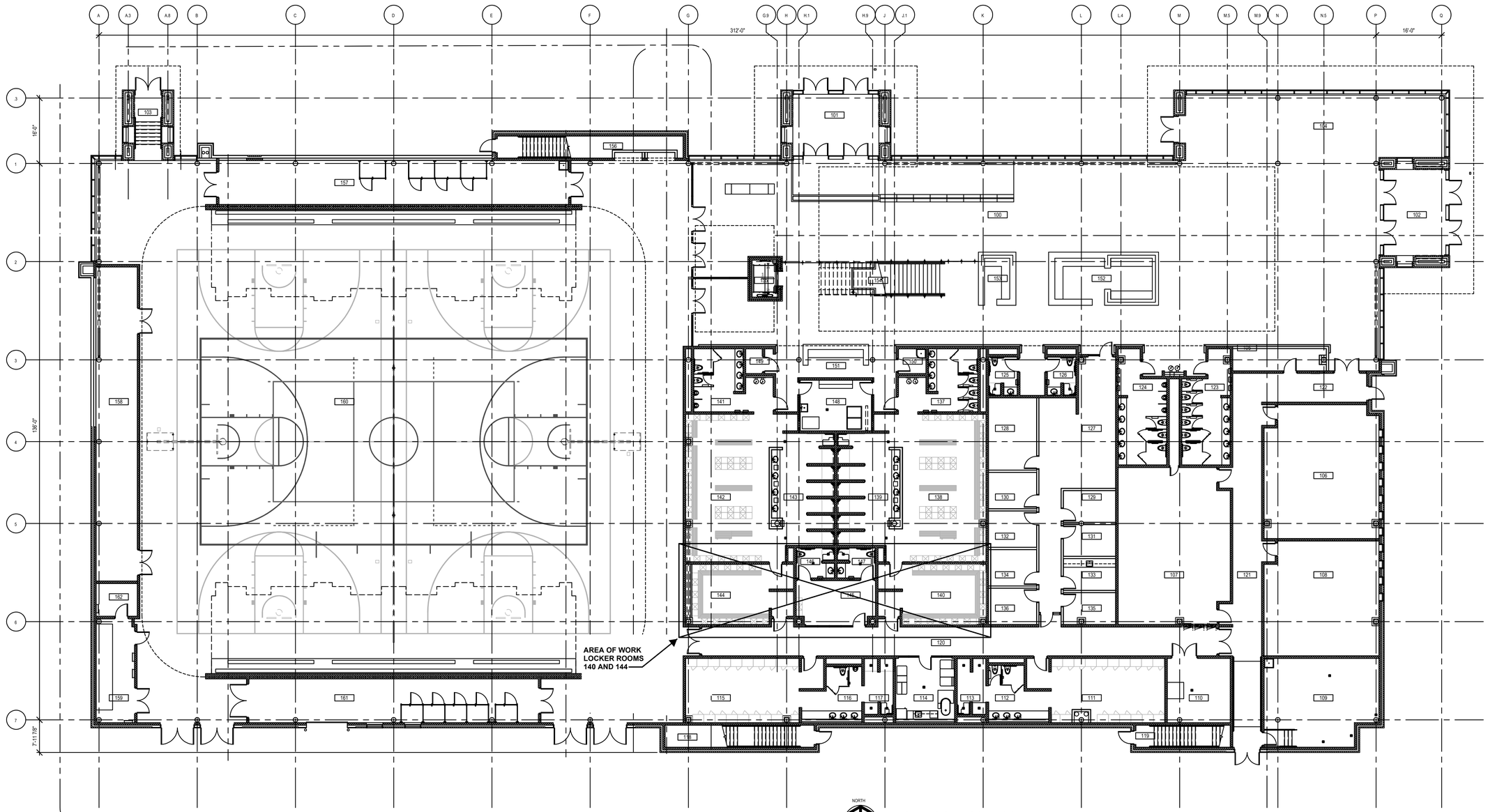
Project number
469-26-01

Details

A700

©2022 L3MC Architects LLC

Printed: 6/21/2026 11:25:52 PM



NORTH

FIRST FLOOR - COMPOSITE PLAN - MECHANICAL

SCALE: 3/32" = 1'-0"

GBW WORLD DESIGN, INC.
CONSULTING ENGINEERS
BLOOMFIELD HILLS, MI 48302
TEL: 248-622-4156
GBW JOB NUMBER: 000226

Issue Date:
Bids 19 JUNE 26

WCCCD

L3MC

LOTT3METZ ARCHITECTURE, LLC
200 Ottawa
Suite
Grand Rapids, MI
49503
616/454-5175

607 SHELBY
SUITE
DETROIT, MICHIGAN
48226
313/937-6008

STATE OF MICHIGAN
JUAN MARTEZ SNEAD
ENGINEER
No. 50485
LICENSED PROFESSIONAL ENGINEER

No	Description	Date

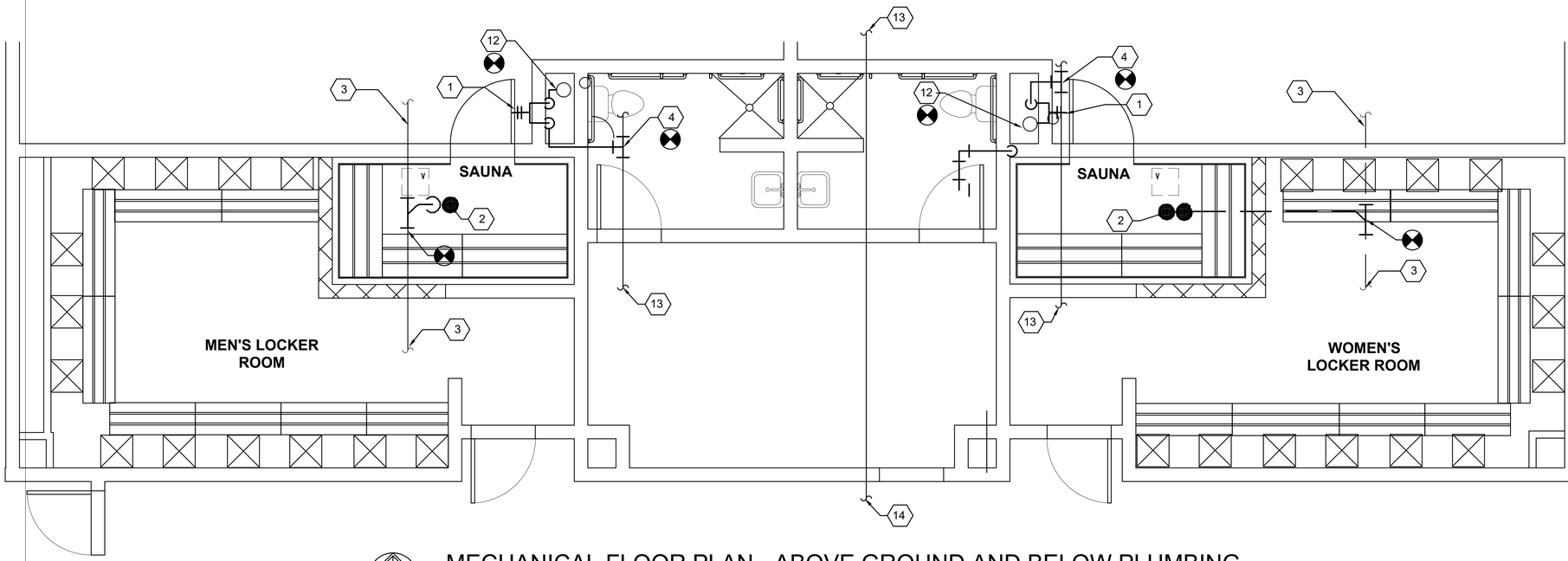
Project Name
WCCCD CLI THWEC SAUNA
Project number
469-26-01

COMPOSITE FLOOR PLAN-MECHANICAL

M100

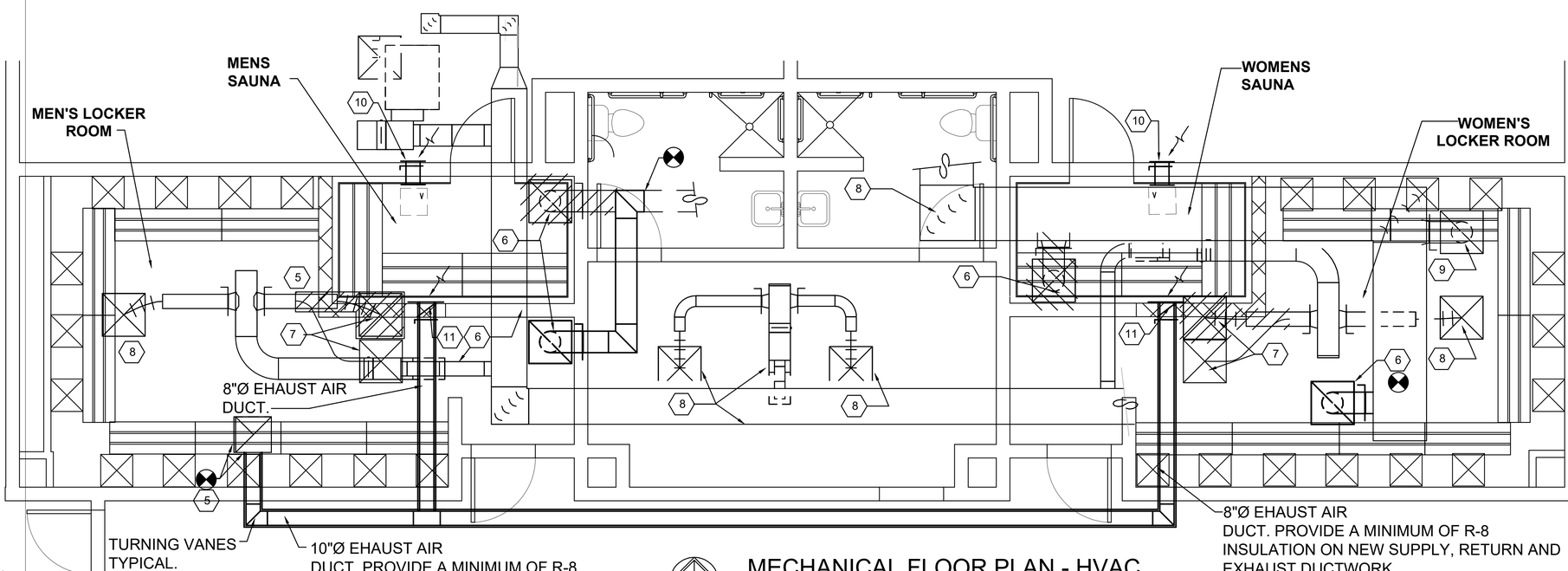
©2022 L3MC Architects LLC

Printed: 4/30/2026 11:57:49 AM



MECHANICAL FLOOR PLAN - ABOVE GROUND AND BELOW PLUMBING

1/8" = 1'-0"



MECHANICAL FLOOR PLAN - HVAC

1/8" = 1'-0"

NOTE:REBALANCE SUPPLY, RETURN AND EXHAUST ACCORDINGLY

1. PROVIDE AND INSTALL NEW 3/4" HOSE BIB WITH PAIL HOOK SIMILAR TO ADVANCE TABCO K-240 CHROME PLATED BRASS. CONNECT TO EXISTING DCW AND DHW. FIELD VERIFY EXACT SIZE AND LOCATION.
2. PROVIDE AND INSTALL NEW 3" FLOOR DRAIN WITH TRAP PRIMER SIMILAR TO "SURE TRAP". CONNECT TO EXISTING 4" OR LARGER SANITARY MAIN. FIELD VERIFY EXACT SIZE AND LOCATION. COORDINATE EXACT DRAIN LOCATION WITH ARCH.
3. EXISTING 4" SANITARY MAIN TO REMAIN IN PLACE. CONNECT NEW 3" FLOOR DRAIN. FIELD VERIFY EXACT LOCATION, DIRECTION OF FLOW AND ELEVATION. PRIOR TO CONSTRUCTION.
4. EXISTING DHW. CONNECT THE NEW 3/4" DHW TO THE EXISTING DHW AS INDICATED.
5. EXISTING 20"X20" EXHAUST AIR DUCT UP TO ROOFTOP EXHAUST FAN EF-1 0N ROOF ABOVE.
6. EXISTING SUPPLY AIR DIFFUSER AND DUCTWORK TO BE REMOVED AND RELOCATED. RE-CONNECT TO EXISTING.
7. EXISTING SUPPLY AIR DIFFUSER AND DUCTWORK TO BE REMOVED AND RELOCATED.RECONNECT TO EXISTING DUCTWORK AS REQUIRED.
8. EXISTING SUPPLY AIR DIFFUSER AND DUCTWORK TO REMAIN IN PLACE.
9. EXISTING RETURN AIR DIFFUSER AND DUCTWORK TO REMAIN IN PLACE.
10. NEW 10"X4" INTAKE GRILLES MOUNTED ON BOTH SIDES OF WALL AT 12" AFF. BALANCE TO 100 CFM WITH BALANCING DAMPERS. INSTALL PER MANUFACTURERS INSTRUCTIONS. GRILLES SIMILAR TO TITUS MODEL 272 RL (ALUMINUM).
11. NEW 10"X4" EXHAUST GRILLES MOUNTED ON BOTH SIDES OF WALL AT 36" AFF. BALANCE TO 100 CFM WITH BALANCING DAMPERS. DROP 10"X4" DUCT DN. IN WALL. GRILLES SIMILAR TO TITUS MODEL 272 RL (ALUMINUM).
12. EXISTING DCW. CONNECT THE NEW 3/4" DHW TO THE EXISTING DCW AS INDICATED.
13. EXISTING DHW TO REMAIN IN PLACE. MAKE NEW CONNECTIONS AS INDICATED.
14. EXISTING 4" SANITARY PIPING TO REMAIN IN PLACE.

GBW WORLD DESIGN, INC.
CONSULTING ENGINEERS
BLOOMFIELD HILLS, MI 48302
TEL. 248-622-4156
GBW JOB NUMBER: 000226

Issue Date:
Bids 19 JUNE 26

WCCCD

L3MC

LOTT3METZ ARCHITECTURE, LLC
200 Ottawa
Suite
Grand Rapids, MI
49503
616/454-5175

607 SHELBY
SUITE
DETROIT, MICHIGAN
48226
313/937-6008

STATE OF MICHIGAN
JUAN MARTEZ SHEAD
ENGINEER
No. 50485
LICENSED PROFESSIONAL ENGINEER

No	Description	Date

Project Name
WCCCD CLT HWEC SAUNA

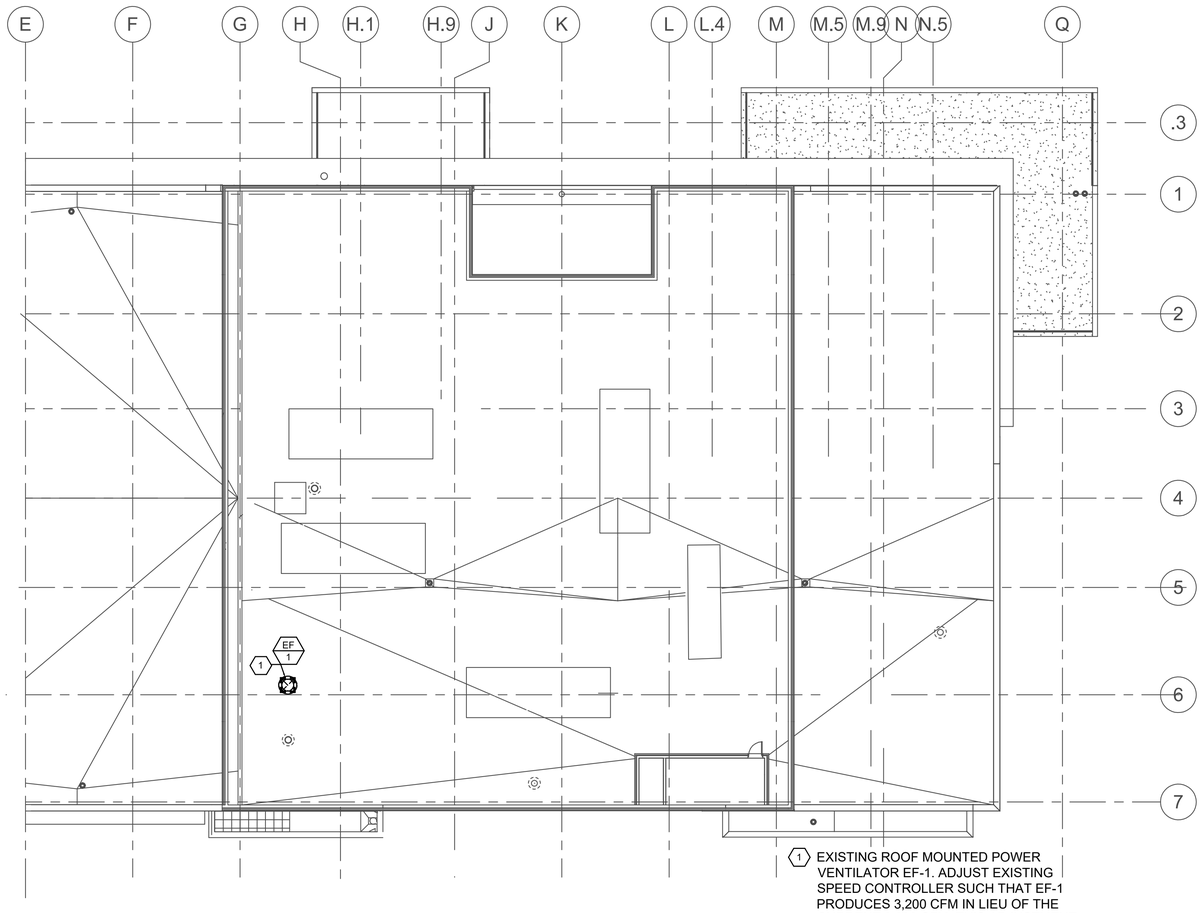
Project number
469-26-01

Floor Plan

M200

©2022 L3MC Architects LLC

Printed: 4/30/2026 11:57:49 AM



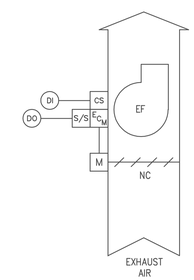
(EXISTING) ROOF MECHANICAL COMPOSITE PLAN

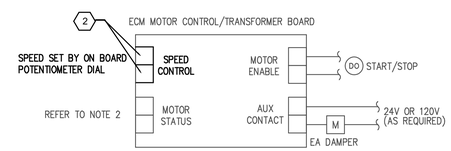
SCALE: 1/16" = 1'-0"

1. EXISTING ROOF MOUNTED POWER VENTILATOR EF-1. ADJUST EXISTING SPEED CONTROLLER SUCH THAT EF-1 PRODUCES 3,200 CFM IN LIEU OF THE CURRENT 3,000 CFM. THIS ADJUSTMENT WILL PROVIDE 150 CFM EXHAUST FOR THE WOMEN'S SAUNA AND 150 CFM FOR THE MEN'S SAUNA.
2. USE EF-1 SPEED CONTROLLER TO ADJUST THE FAN SPEED ACCORDINGLY WITH ONBOARD POTENTIOMETER DIAL.
3. PROGRAM EF-1 TO START AT OPENING HOURS AND RUN FOR MINIMUM OF 60 MINUTES AFTER CLOSING HOURS.(ADJUSTABLE)

PIPING LEGEND

- BALL VALVE
- BALL VALVE WITH MEMORY STOP (BALANCING VALVE)
- BALL VALVE WITH HOSE BIBB, CAP & CHAIN
- BUTTERFLY VALVE
- BUTTERFLY VALVE WITH MEMORY STOP (BALANCING VALVE)
- GLOBE VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE
- CHECK VALVE/NON RETURN VALVE
- STRAINER W/BALL VALVE, HOSE BIBB & CAP
- END CAP
- RISE (SINGLE LINE – PLAN VIEW)
- DROP (SINGLE LINE – PLAN VIEW)
- TOP TAKEOFF
- BOTTOM TAKEOFF
- PIPE BREAK (SINGLE LINE)
- UP — PITCH PIPE UP IN DIRECTION OF FLOW
- DN — PITCH PIPE DOWN IN DIRECTION OF FLOW
- D — DRAIN
- DCW — DOMESTIC COLD WATER
- DHW — DOMESTIC HOT WATER
- SAN — SANITARY OR WASTE BURIED
- V — VENT
- HHWR — HHWR (HEATING HOT WATER RETURN)
- HHWS — HHWS (HEATING HOT WATER SUPPLY)
- HORIZONTAL FIRE DAMPER
- VERTICAL FIRE DAMPER
- FIRE SMOKE DAMPER
- VD — MANUAL VOLUME DAMPER
- BD — BACKDRAFT DAMPER
- STANDARD 4–WAY BLOW SUPPLY DIFFUSER
- STANDARD RETURN/ EXHAUST REGISTER
- FM — FLOW METER
- AUTOMATIC FLOW CONTROL VALVE (PRESSURE INDEPENDENT)
- COMBINATION CALIBRATED BALANCE/ SHUTOFF VALVE WITH MEMORY STOP AND PLUGGED DRAIN PORT
- ON/OFF SOLENOID
- THREE WAY CONTROL VALVE/MIX VALVE
- PRESSURE RELIEF VALVE
- P — PRESSURE GAUGE
- PS — POSITION SWITCH
- TS — TEMPERATURE SENSOR
- THERMOMETER WITH WELL
- PIPING UNDER THE FLOOR / FUTURE
- NEW PIPING
- BFP — BACK FLOW PREVENTER
- AV — AIR VENT VALVE
- SEISMIC EXPANSION LOOP
- L — LOUVERED DOOR REFER TO ARCH. DWGS.
- OUTSIDE AIR, RETURN, OR EXHAUST AIR FLOW
- SUPPLY AIR FLOW
- T — TEMPERATURE SENSOR OR THERMOSTAT
- M — MOTORIZED DAMPER
- SD — DUCT SMOKE DETECTOR
- POINT OF CONNECTION





(EXISTING) EF-1 ECM WIRING AND SEQUENCE OF OPERATION

NOTES:

1. WIRING DETAIL IDENTIFIES INTENT AND DOES NOT INDICATE ACTUAL WIRING REQUIREMENTS. CONSULT WITH ECM SUPPLIER FOR THE ACTUAL WIRING REQUIREMENTS.
2. IF AVAILABLE, MOTOR STATUS CONTACT ASSOCIATED WITH ECM MAY BE USED IN–LIEU–OF CURRENT SWITCH MONITORING

SEQUENCE OF OPERATION:

1. EXHAUST FAN SHALL HAVE START/STOP CAPABILITY FROM THE DDC CONTROL SYSTEM AND SHALL OPERATE BASED ON TIME SCHEDULE OR SOFTWARE INTERLOCKED WITH RESPECTIVE AIR HANDLING SYSTEM. .
2. EXHAUST FAN STATUS SHALL BE MONITORED BY DDC CONTROLS THRU RESPECTIVE CURRENT SWITCH OR FROM MOTOR STATUS CONTACT ASSOCIATED WITH ECM, IF AVAILABLE. ABNORMAL STATUS CONDITION FOR EF SHALL ACTIVATE ALARM WITH INDICATION AT LOCAL CONTROL PANEL WITH COMMON ALARM TO BAS.
3. EXHAUST FAN SPEED SHALL BE MANUALLY SET VIA ON BOARD POTENTIOMETER DIAL DURING SYSTEM BALANCING.
4. DAMPER MOTOR IS INTERLOCKED TO OPEN WHEN EXHAUST FAN RUNS AND CLOSE WHEN EXHAUST FAN IS STOPPED.

EXISTING POWER VENTILATOR SCHEDULE

UNIT IDENTIFICATION	SYSTEM SERVED	TYPE	AIRFLOW CFM	T.S.P. IN. W.G.	TIP SPEED FPM	FAN RPM	MOTOR				CURB HEIGHT INCHES	MODULATION/ CONTROL TYPE	ELECTRICAL			MODEL NUMBER	MANUFACTURER
							BHP	HP	RPM	DRIVE TYPE			VOLTS	PHASE	OPTIONS/ ACCESSORIES		
EF-1	2ND FL RESTROOMS AND SAUNAS	CENTRIFUGAL	3200	0.80	5251	1080	.61	1.5	1725	DIRECT	18'	AUTO	460	3		180 ACE2 180C17D VF2	COOK

NOTE:
1. THE EXISTING EF-1 DOES NOT APPEAR TO BE OPERATING AS INTENDED. THE CONTRACTOR SHALL CHECK AND TEST THE UNIT FOR PROPER OPERATION NOTIFY THE ARCHITECT/ENGINEER REGAEDING THE TEST RESULTS.

GBW WORLD DESIGN, INC.
CONSULTING ENGINEERS
BLOOMFIELD HILLS, MI 48302
TEL: 248-622-4156
GBW JOB NUMBER: 000226

Issue Date:
Bids 19 JUNE 26

WCCCD

L3MC

LOTT3METZ ARCHITECTURE, LLC
200 Ottawa
Suite
Grand Rapids, MI 49503
616/454–5175

607 SHELBY
SUITE
DETROIT, MICHIGAN 48226
313/937–6008

STATE OF MICHIGAN
JUAN MARTEZ SNEAD
ENGINEER
No. 50485
LICENSED PROFESSIONAL ENGINEER

No	Description	Date

Project Name
WCCCD CLI HWEC SAUNA
Project number
469-26-01

ROOF PLAN , EXHAUST FAN AND DIAGRAM

M501

©2022 L3MC Architects LLC

Printed: 4/30/2026 11:57:49 AM

MECHANICAL SPECIFICATIONS

1. DESCRIPTION OF WORK
A. CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, AND LABOR TO PROVIDE A COMPLETE AND OPERATING INSTALLATION.
B. WORK INCLUDES LABOR AND MATERIALS NECESSARY FOR INSTALLATION OF NEW EQUIPMENT, PIPING, DUCTWORK, AND OTHER MECHANICAL ITEMS AS DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS.
C. PROVIDE MISCELLANEOUS STEEL AND HARDWARE AS REQUIRED TO SUPPORT, HANDLE AND SECURE EQUIPMENT FURNISHED AS PART OF THIS WORK.
D. PERFORM CUTTING AND CORE DRILLING AS REQUIRED.
E. PROVIDE SLEEVES FOR PIPES PASSING THROUGH SLABS, WALLS OR FLOOR. THE OWNER'S REPRESENTATIVE IS TO BE NOTIFIED OF ALL TESTING AND FLUSHING AND CLEANING.
F. THE INSTALLING CONTRACTOR SHALL PROVIDE A WALK THROUGH AND TRAINING FOR THE OWNER'S BUILDING MAINTENANCE CREW AT OR NEAR THE COMPLETION OF THE PROJECT.
G. OPERATION AND MAINTENANCE MANUALS ARE TO BE PROVIDED FOR ALL COMPONENTS AND/OR SYSTEMS REQUIRING A MANUAL.

2. CODES, PERMITS AND INSPECTIONS
A. WORK SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AND ORDINANCES. 2021 MICHIGAN MECHANICAL CODE, 2021 MICHIGAN PLUMBING CODE, CITY OF DETROIT, LOCAL OFFICIALS HAVING JURISDICTION, ETC.

B. SECURE AND PAY FOR ALL PERMITS AND INSPECTIONS.

3. STANDARDS
A. ALL EQUIPMENT SHALL BE NEW UNLESS NOTED OTHERWISE AND SHALL CONFORM IN ALL RESPECTS TO THE LATEST APPROVED STANDARDS OF ANSI, ASME, ASTM, FM, IRI, MIOSHA AND PDI.

4. PROJECT/SITE CONDITIONS
A. CONTRACTOR SHALL VISIT JOB SITE AND EXAMINE PREMISES FOR THE PROPOSED WORK, AND SHALL FULLY INFORM HIMSELF OF THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE.

5. PROTECTION
A. PROTECT ALL MECHANICAL EQUIPMENT, PLUMBING FIXTURES AND TRIM, FROM MORTAR, PAINT, ETC. DURING CONSTRUCTION. ALL PRODUCTS USED IN MECHANICAL SYSTEMS SHALL BE ASBESTOS-FREE.

6. CLEANING AND PAINTING
A. CLEAR AWAY ALL DEBRIS, SURPLUS MATERIALS RESULTING FROM MECHANICAL WORK OR OPERATIONS, LEAVING THE JOB AND EQUIPMENT IN A CLEAN, FIRST-CLASS CONDITION. WHERE NEW WORK OCCURS IN EXISTING AREAS, CLEAN AND RESTORE TO ORIGINAL CONDITION.

7. GUARANTEE
A. CONTRACTOR SHALL GUARANTEE INSTALLATION AGAINST DEFECTS IN MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF AT LEAST (12) MONTHS FROM THE DATE OF FINAL ACCEPTANCE. IF, DURING THE GUARANTEE PERIOD, ANY DEFECTS APPEAR, THE CONTRACTOR SHALL REMEDY THEM, INCLUDING ANY NECESSARY MATERIALS AND LABOR WITHOUT COST TO THE OWNER.

8. DAMAGE TO OTHER WORK
A. REPAIR, AND PAY FOR ALL DAMAGE DONE TO THE EXISTING AND NEW WORK.

9. COORDINATION OF THE WORK
A. COORDINATE WORK WITH THE OTHER TRADES TO AVOID INTERFERENCES AND TO PRESENT A NEAT APPEARANCE. INTERFERENCES WHICH RESULT DUE TO A LACK OF COORDINATION ARE THE CONTRACTOR'S RESPONSIBILITY TO CORRECT.
B. VERIFY LOCATIONS OF EXISTING PIPING FOR CONNECTIONS. CHECK LOCATIONS OF BUILDING STRUCTURE, BEAMS, AND OTHER EQUIPMENT TO AVOID POSSIBLE INTERFERENCE.
C. COORDINATE EXACT LOCATION OF CONSTRUCTION TO PRECLUDE ANY INTERFERENCE BETWEEN NEW AND EXISTING PIPING, WIRING, LIGHTING FIXTURES, CABLE TRAYS, DUCTWORK, BUILDING EQUIPMENT, WORK BY OTHER CONTRACTORS, BUILDING STRUCTURE AND OTHER CONSTRUCTION.
D. COORDINATE EXACT LOCATION OF EQUIPMENT REQUIRING SERVICE TO PRECLUDE ANY INTERFERENCE WITH EQUIPMENT ACCESS DOORS OR PANELS, OR WITH SERVICE TO EQUIPMENT. INSTALLATION SHALL BE MADE SO THE EQUIPMENT SERVICE CAN BE ACCOMPLISHED WITHOUT HAVING TO REMOVE EQUIPMENT.

10. SANITARY DRAIN AND PLUMBING VENT
A. NO-HUB CAST IRON SOIL PIPE AND CAST IRON FITTINGS PER ASTM A888. CONSTRUCT COUPLINGS OF 24 GAUGE TYPE 304 STAINLESS STEEL IN CONFORMANCE WITH FM 1680, AND INCORPORATING A NEOPRENE GASKET IN ACCORDANCE WITH ASTM C564. PROVIDE TWO TIGHTENING BANDS ON PIPE UP TO 4 INCH. INSTALL SYSTEM IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
B. SUPPORTS SHALL BE 5'-0" ON CENTER, MAXIMUM.

11. PIPE AND FITTINGS
A. ALL PIPING AND FITTINGS TO BE MANUFACTURED IN THE UNITED STATES OF AMERICA AND BEAR MARKINGS TO ASCERTAIN THE SAME.
B. DOMESTIC HOT AND COLD WATER PIPING SHALL BE TYPE L HARD DRAWN COPPER TUBING (ASTM B88) WITH SOLDER TYPE FITTINGS, TYPE L WROUGHT COPPER (ASTM B16.22). UNIONS SHALL BE SOLDER TYPE, BRASS (ASTM B62). SOLDER SHALL BE LEAD-FREE 95-5.

12. VALVES
A. ALL VALVES SHALL BE MANUFACTURED IN THE UNITED STATES AND BEAR MARKINGS TO ASCERTAIN THE SAME. PROVIDE AND INSTALL SHUT-OFF VALVES FOR ALL EQUIPMENT AND FIXTURES THROUGHOUT.
B. ALL VALVES SHALL BE SELECTED AND SUITABLE FOR USE WITH ETHYLENE GLYCOL, EVEN IF PROJECT DOES NOT CURRENTLY INCORPORATE THE USE OF ETHYLENE GLYCOL.
C. DOMESTIC HOT AND COLD WATER - ISOLATION AND THROTTLING VALVES, 2" AND SMALLER, UNLESS OTHERWISE SHOWN OR SPECIFIED SHALL BE CLASS 150 PSI S.W.P., TWO-PIECE, 80 PER CENT OF PORT, BRONZE BODY, PTFE (15% GLASS FILLED) SEAT AND SEAL, STAINLESS STEEL BALL AND STEM, OVAL HANDLE WITH LOCKING FEATURE, SUITABLE FOR THREADED OR SOLDERED ENDS.
D. PROVIDE STEM EXTENSION OF PROPER LENGTH ON INSULATED PIPES. APPROVED MANUFACTURER: APOLLO 77-240-01, NIBCO S-585-70-66 OR WATTS B-6081-22.
E. DOMESTIC HOT AND COLD WATER - CHECK VALVES, 2" AND SMALLER, SHALL BE CLASS 200 PSI S.W.P., 400 PSI W.O.G., BRONZE BODY, RESILIENT DISK, STAINLESS STEEL SPRING AND SEAT, REGRINDING SUITABLE FOR THREADED OR SOLDERED ENDS.
F. APPROVED MANUFACTURERS SHALL BE APOLLO 300, CENTERLINE CLC, NIBCO W-910-W, MILWAUKEE, OR WATTS.

8. ESCUTCHEON PLATES
A. FINISHED AREAS: CHROME-PLATED

13. FIRESAFING
A. AT ALL CORED, IRREGULAR, ANGULAR, AND ANY OTHER OPENING FOR PIPE PENETRATIONS OF FIRE RATED WALLS, CEILING AND FLOORS, PROVIDE A PERMANENT FIRE STOP SYSTEM THAT CONSISTS OF A WATER BASED FIRE-STOP COMPOUND AS THE FILL, VOID OR CAVITY MATERIAL ALONG WITH APPROPRIATE DAMMING MATERIAL AS PER MANUFACTURER'S INSTRUCTION. PROVIDE A SYSTEM THAT IS UL CLASSIFIED FOR ALL PIPE SIZES.

14. PIPE HANGERS AND SUPPORTS
A. FURNISH AND INSTALL MISCELLANEOUS IRON SUPPORTS AND APPURTENANCES AS REQUIRED TO SECURELY AND PROPERLY HANG OR SUPPORT PIPING SYSTEMS. HANGERS AND SUPPORTS SHALL BE DESIGNED AND MANUFACTURED IN CONFORMANCE WITH MSS-SP-58 AND THE SELECTION AND APPLICATION SHALL BE IN CONFORMANCE WITH MSS-SP-69.
B. APPROVED MANUFACTURERS: ANVIL (GRINNELL), B-LINE SYSTEMS,INC., CARPENTER AND PATERSON, AND MICHIGAN HANGER.
C. DISSIMILAR METAL-TO-METAL CONTACT BETWEEN PIPE AND HANGER SHALL BE AVOIDED.
D. "C" TYPE BEAM CLAMP HANGERS ARE UNACCEPTABLE.
E. INSULATED PIPE SMALLER THAN 3" SHALL BE HUNG WITH CLEVIS HANGERS LARGER THAN O.D. OF INSULATION, AND STEEL SHIELDS TO AVOID CRUSHING INSULATION.
F. ON INSULATED PIPING, LOCATE HANGERS OR SUPPORTS OUTSIDE THE INSULATION AND PROVIDE INSULATED SUPPORTS AS MANUFACTURED BY PIPE SHIELDS, INC., VALUE ENGINEERING PRODUCTS, INC., OR B-LINE SYSTEMS, INC.

15. MECHANICAL IDENTIFICATION AND PAINTING
A. ALL PIPE AND DUCTS SHALL BE IDENTIFIED WITH FACTORY FABRICATED, PRE-CURLED LABELS SECURELY ATTACHED TO THE PIPE OR DUCT AT 10'-0" O.C., FILM MARKERS ARE NOT ACCEPTABLE. SECURE PRE-CURLED OR RECOILED LABELS TO PIPES WITH 1" WIDE COLOR TAPE, MATCHING PIPING COLOR AND WRAPPED COMPLETELY AROUND PIPE.
B. ALL PIPES SHALL BE COLOR-CODED INTERMITTENTLY AT 10'-0" INTERVALS TO IDENTIFY THE CHARACTERISTIC PROPERTIES OF THE CONTENTS.
C. COLOR CODING SHALL BE PROVIDED FOR ALL MECHANICAL SYSTEMS IN ACCORDANCE WITH THE OWNER'S EXISTING SYSTEM.
D. COLOR CODE LINES BY PAINTING A 1" WIDE BAND AROUND PIPE OR BY USING 1" WIDE COLOR-CODED TAPE WRAPPED COMPLETELY AROUND PIPE.
E. WHERE MORE THAN ONE BAND IS USED, A 1" SPACE SHALL BE ALLOWED BETWEEN BANDS.
F. CONTENT OF LEGEND
a. IDENTIFY CONTENTS OF THE PIPING SYSTEMS 10'-0" O.C. ABOVE CEILING BY BOTH FLUID CONTAINED AND UNIQUE TEMPERATURE AND/OR PRESSURE.
b. CLEARLY IDENTIFY DIRECTION OF FLOW IN PIPE WITH FLOW ARROWS 1" WIDEX6" LONG WITH ARROW HEAD, 2" WIDE AT BASE IN SHAFTS, ABOVE CEILING, PIPE SPACES, ETC.
G. LOCATION OF MARKERS
a. PIPE LABELS SHALL BE INSTALLED ADJACENT TO VALVES AND BRANCH CONNECTIONS, BOTH SIDES OF FLOORS, CEILING AND WALLS, ALL MAJOR CHANGES IN DIRECTION ON STRAIGHT LENGTHS OR PIPE EVERY 10 FEET, AND AT POINTS OF ENTRY TERMINATION.
b. SIMILARLY FOR DUCT LABELS FLOW ARROWS ON DUCTS 10'-0" O.C.
c. ARROWS AND MARKERS SHALL BE MOUNTED TO PROVIDE UNOBSTRUCTED VISIBILITY FROM FLOOR LEVEL.
d. PIPING IDENTIFICATION MATERIALS SHALL BE LARGER LEGIBLE LABELS 2-1/2" HIGH AS MANUFACTURED BY BRADY OR SETON ON PIPING SMALLER THAN 10" AND 3/4" LETTERING ON PIPING 3/4" AND SMALLER.
e. LOCATION FOR PIPE MARKERS ABOVE CEILING IN FINISHED AREAS SHALL BE ADJACENT TO EACH VALVE AND ON ALL HORIZONTAL PIPE RUNS-MARKED EVERY 10'-0" AND ON EACH SIDE OF WALL PENETRATION.
H. VALVE IDENTIFICATION
a. MECHANICAL CONTRACTOR SHALL TAG ALL VALVES WITH BRASS TAGS HAVING INCISED PAINTED BLACK NUMBERS AND ATTACHED SECURELY TO VALVE BY BRASS CHAIN. INCLUDE VALVE TAG CHARTS BOUND IN OPERATING MANUALS AND SUBMIT ONE SET TO CHARTS UNDER GLASS IN METAL FRAME FOR OWNER'S REPRESENTATIVE TO TURN OVER TO THE MAINTENANCE DEPARTMENT.
b. ALL MAIN AND BRANCH LINE VALVES ARE TO BE TAGGED IN ACCORDANCE WITH THE OWNER'S EXISTING SYSTEM.(WHERE APPLICABLE)

16. CLEANING OF THE PIPING SYSTEM
A. THE FOLLOWING SHALL BE PERFORMED ON THE NEW PIPING SYSTEM.
B. CHEMICALLY CLEAN PIPING SYSTEM OF ALL WELDING SLAG. OPERATE THE SYSTEM FOR ONE WEEK, THEN DRAIN AND FLUSH OUT. REPLACE ALL START-UP STRAINERS WITH PERMANENT STRAINERS AND LEAVE THE SYSTEM IN PROPER WORKING ORDER.

17. MECHANICAL INSULATION
A. GENERAL
a. CONTRACTOR SHALL PROVIDE THERMAL INSULATION ON ALL REFRIGERANT PIPING, CONDENSATE PIPING, DOMESTIC HOT, DOMESTIC HOT WATER RETURN, DOMESTIC COLD WATER PIPING, AND FRESH AIR INTAKE DUCTWORK. INSULATION SHALL NOT BE INSTALLED UNTIL SYSTEM HAVE BEEN TESTED AND INSPECTED.
b. ALL INSULATION ON PIPING AND DUCTWORK THAT HAS BEEN DAMAGED OR HAS BEEN DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO 'LIKE-NEW' CONDITION.
c. APPROVED MANUFACTURES FOR FIBERGLASS INSULATION: CERTAINTEED, OWENS-CORNING FIBERGLASS CORP., MANSVILLE PRODUCTS CORP., AND KNAUF FIBERGLASS.
d. ALL INSULATION, INCLUDING FACING, CEMENTS AND ADHESIVE WHEN TESTED PER ASTM E84 BY UL SHALL HAVE A FLAME SPREAD RATING OF LESS THAN 25, AND A SMOKE DEVELOPED RATING OF LESS THAN 50.
e. FOR ADHESIVES, MASTICS, COATINGS AND SEALANTS, APPROVED MANUFACTURERS ARE: FOSTER PRODUCTS DIV., HB FULLER CO., I-C ADHESIVES CO., CHICAGO MASTIC CO., CHILDERS PRODUCTS CO., AND ST CLAIR RUBBER CO.
B. PIPING INSULATION
a. FIBERGLASS PIPING INSULATION SHALL BE PRE-FORMED, RIGID, MOLDED INSULATION WITH VAPOR RETARDANT JACKET CONSISTING OF WHITE KRAFT PAPER REINFORCED WITH GLASS FIBER YAM AND BONDED TO ALUMINUM FOIL, WITH SELF-SEALING LONGITUDINAL LAPS AND BUTT STRIPS. PROVIDE INSULATION WITH A THERMAL CONDUCTIVITY "K" OF 0.23 BTU/HR/SQ.FT./DEGREE F/IN AT 75 DEGREE F MEAN TEMPERATURE.
b. PIPE INSULATION GLASS FIBER MINIMUM THICKNESS: FOR DOMESTIC DCW, DHW, DHWR; FOR PIPE SIZES 1/2" TO 4" PROVIDE 1" THICK INSULATION, NO VAPOR BARRIER FOR THE DHW, DHWR BUT YES FOR THE DCW AND NO JACKET REQUIRED. INSULATION, NO VAPOR BARRIER AND NO JACKET.
C. DUCTWORK INSULATION
A. CONCEALED DUCTWORK SHALL BE COVERED WITH 1-1/2" INCH GLASS FIBER, FLEXIBLE BLANKET INSULATION WITH A DENSITY OF 1.5 LB/CU.FT. BLANKET SHALL HAVE A VAPOR RETARDANT JACKET OF ALUMINUM FOIL REINFORCED WITH FIBERGLASS YARN AND LAMINATED TO A FIRE RESISTANT KRAFT PAPER, SECURED WITH UL LISTED PRESSURE SENSITIVE TAPE.

18. PLUMBING FIXTURES
A. WATER CLOSET: (WC-1), SEE PLUMBING FIXTURE SCHEDULE ON DRAWING
B. LAVATORY: (LAV-1), SEE PLUMBING FIXTURE SCHEDULE ON DRAWING
C. FLOOR DRAIN: (FD-1), SEE PLUMBING FIXTURE SCHEDULE ON DRAWING

19. PLUMBING EQUIPMENT AND SPECIALTIES
A. WATER HAMMER ARRESTOR: NON-FERROUS ELASTIC CHAMBER CONTAINED IN HEAVY STEEL CASING WITH APPROVED RECOIL DAMPENERS. LOCATE THE ARRESTOR WHERE REQUIRED TO ELIMINATE WATER HAMMER IN THE DOMESTIC WATER SYSTEM. SIZE THE ARRESTOR IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE STANDARD PDI-WH 201 AND SUBMIT SELECTION CRITERIA WITH SHOP DRAWINGS. INSTALL ARRESTOR PER MANUFACTURER'S INSTRUCTIONS. APPROVED MANUFACTURERS: AMTROL, JOSAM, WATTS, ZURN, J. R. SMITH AND WADE.
B. CLEANOUT: CAST IRON BODY WITH STRAIGHT THREADS AND GASKET SEAL OR TAPER THREADS FOR PLUG, FLASHING FLANGE AND CLAMPING RING, AND A BRASS CLOSURE PLUG (ASME A112.36.2M). CLEANOUTS FOR INSTALLATION IN FLOORS NOT HAVING MEMBRANE WATERPROOFING MAY BE FURNISHED WITHOUT CLAMPING RING (J. R. SMITH SERIES 4000 AS REQUIRED FOR VARIED INSTALLATION CONDITIONS AT FINISHED AND NON-FINISHED WALLS OR FLOORS). FLOOR CLEANOUTS: J. R. SMITH MODEL 4020 WITH POLISHED BRONZE CLEANOUT COVERS IN FINISHED AREAS AND NICKEL BRONZE CLEANOUT COVERS IN NON-FINISHED AREAS. PROVIDE ROUND STAINLESS STEEL ACCESS OVER AT WALL CLEANOUT IN FINISHED AREAS. APPROVED MANUFACTURERS: JOSAM (58740-3), J. R. SMITH (4434-NB), ZURN (ZANB-1462).

20. METAL DUCTWORK
A. DUCTWORK CONSTRUCTION: ALL DUCTWORK SHALL BE CONSTRUCTED AND SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST SMACNA HVAC METAL DUCTWORK STANDARDS. ALL JOINTS AND SEAMS OF ALL DUCTWORK SHALL BE SEALED. ALL DUCTWORK SHALL BE CONSTRUCTED AIR-TIGHT AND AFTER THE INSTALLATION, THE DUCTWORK SHALL BE TESTED. DUCTWORK SHALL BE KEPT FREE OF DIRT AND FOREIGN MATERIALS AND THEREFORE, AFTER AND DURING ASSEMBLY OF DUCTS, CLEAN ALL DIRT, GREASE, RUBBISH, ETC., FROM BOTH THE INTERIOR AND THE EXTERIOR OF THE DUCTWORK.
B. PRESSURE CLASS: DUCTWORK PRESSURE CLASSIFICATION SHALL BE NO LESS THAN +4 FOR ALL SUPPLY AIR DUCTWORK AND NO GREATER THAN-2.5" FOR ALL RETURN AIR DUCTWORK.
C. SEALING DUCTWORK: ALL DUCTWORK SHALL BE EFFECTIVELY SEALED PER SEAL CLASS A. ALL SEALANT SHALL BE UL RATED AND SHALL COMPLY WITH NFPA 90A. SEALING SHALL BE DEFINED AS CAULKING ALL JOINTS WITH DUCT SEALER. NOT ONLY CIRCUMFERENTIAL JOINTS SHALL BE SEALED, BUT ALL ALONG EACH AND EVERY PITTSBURGH SEAM SHALL BE SEALED, OR PROVIDE PREFABRICATED DUCT CONNECTORS (DUCTMATE OR NEXXUS). DUCT JOINT SEALERS SHALL BE TESTED IN ACCORDANCE WITH ASTM E-84-80 AND NOT EXCEED 25 FLAME SPREAD AND 50 SMOKE DEVELOPED RATINGS.
D. INSULATED FLEXIBLE DUCT: LOW PRESSURE AND HIGH PRESSURE INSULATED FLEXIBLE DUCT SHALL BE FLEXMASTER USA INC., TYPE 8M7, MECHANICALLY LOCKED WITHOUT ADHESIVES INTO A FORMED ALUMINUM HELIX ON THE DUCTS OUTSIDE SURFACE AND SHALL BE FACTORY WRAPPED IN A THICK BLANKET OF FIBERGLASS INSULATION WITH A C-FACTOR OF 0.23 OR LESS. THE INSULATION SHALL BE ENCASED IN A FIRE RETARDANT POLYETHYLENE PROTECTIVE VAPOR BARRIER WITH A PERM RATING OF NOT OVER 0.1 GRAINS/SQ.FT./HR/IN. THE FLEXIBLE DUCT SHALL BE UL LISTED 181 CLASS 1 AIR DUCT AND COMPLY WITH NFPA 90A AND 90B AND HAVE A FLAME SPREAD OF NOT OVER 25 AND A SMOKE DEVELOPED OF NOT OVER 50. THE FLEXIBLE DUCT SHALL HAVE A MINIMUM PRESSURE RATING OF 12" W.C. THROUGH A TEMPERATURE RANGE OF -20 DEG. F TO +250 DEG F. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE (6) SIX FEET TO EACH CONNECTION.
21. DUCTWORK ACCESSORIES
A. TURNING VANES: ALL MITERED DUCT ELBOWS GREATER THAN 45 DEG. SHALL HAVE SMACNA 24 GAUGE TURNING VANES. PROVIDE TURNING VANES CONSTRUCTED OF 1-1/2" WIDE CURVED BLADES SET AT 3/4" O.C., SUPPORTED WITH BARS PERPENDICULAR TO BLADES SET AT 2" O.C., AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. APPROVED MANUFACTURER: AERO DYNE CO.
B. VOLUME DAMPER: ALL SUPPLY AND RETURN AIR BRANCH DUCTS SHALL HAVE A MANUAL OPPOSED STEEL BLADE VOLUME DAMPER. A CEILING ACCESS PANEL OR DOOR IS REQUIRED TO EACH IN ACCESSIBLE DAMPER. APPROVED MANUFACTURERS: NAILOR, RUSKIN AND YOUNG REGULATOR.

22. CUTTING AND PATCHING
A. CUT WALLS AND FLOOR SLABS IF REQUIRED FOR NEW WORK. PATCH AND PAINT TO MATCH NEW WORK.

23. TEMPERATURE CONTROLS
A. PROVIDE ALL ELECTRONIC CONTROLS, CONTROL WIRING AND ACCESSORIES REQUIRED FOR THE RENOVATION. ALL COMPONENT MAKE AND MANUFACTURER SHALL MATCH THE OWNER'S STANDARD INSTALLED IN THE BUILDING.
B. PROVIDE A COMPLETE OPERATING TESTED AND COMMISSIONED SYSTEM.
C. INTERFACE THE NEW EQUIPMENT WITH THE OWNER'S EXISTING BUILDING AUTOMATION SYSTEM.(WHERE APPLICABLE).
D. APPROVED MANUFACTURERS: AS REQUIRED TO MATCH OWNER'S EXISTING SYSTEM. CONNECT NEW CO2 SENSOR TO EXISTING ROOFTOP UNIT CONTROLLER TO DRIVE OPEN THE FRESH AIR INTAKE DAMPER WHEN THE CO2 SENSOR DETECTS UNDESIRABLE LEVELS OF CO2 IN THE RETURN AIR DUCTWORK.(WHERE APPLICABLE).

24. CLEAN UP
A. CONTRACTOR SHALL KEEP THE SITE CLEAN AND FREE OF DEBRIS AT ALL TIMES. REMOVE UNUSED PIPING AND MATERIALS FROM PREMISES. THE OWNER SHALL BE GIVEN THE OPTION OF RETAINING ANY REMOVED ITEMS.

GBW WORLD DESIGN, INC.
CONSULTING ENGINEERS
BLOOMFIELD HILLS, MI 48302
TEL: 248-622-4156
GBW JOB NUMBER: 000226

Issue Date:
Bids 19 JUNE 26

WCCCD

L3MC

LOTT3METZ ARCHITECTURE, LLC
200 Ottawa
Suite
Grand Rapids, MI
49503
616/454-5175

607 SHELBY
SUITE
DETROIT, MICHIGAN
48226
313/937-6008

STATE OF MICHIGAN
JUAN MARTEZ SINCAD
ENGINEER
No. 50485
LICENSED PROFESSIONAL ENGINEER

No	Description	Date

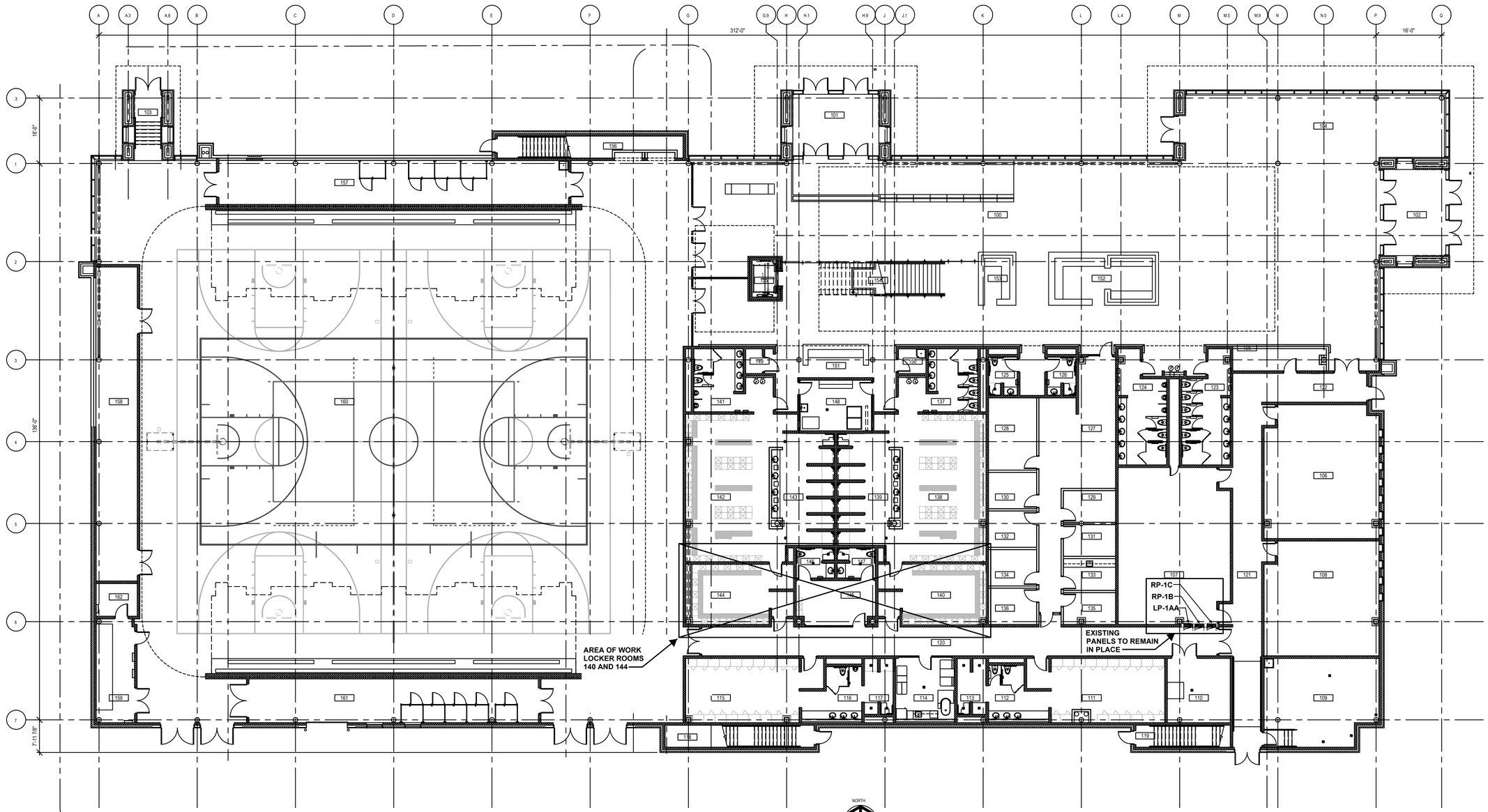
Project Name
WCCCD CLI HWEC SAUNA
Project number
469-26-01

MECHANICAL SPECIFICATIONS

M502

©2022 L3MC Architects LLC

Printed: 4/30/2026 11:57:49 AM



NORTH

FIRST FLOOR - COMPOSITE PLAN - ELECTRICAL

SCALE: 3/32" = 1'-0"

Issue Date:
Bids 19 JUNE 26

WCCCD

L3MC

LOTT3METZ
ARCHITECTURE,
LLC
200 Ottawa
Suite
Grand Rapids, MI
49503
616/454-5175

607 SHELBY
SUITE
DETROIT, MICHIGAN
48226
313/937-6008

STATE OF MICHIGAN
JUAN
MARTEZ
SNEAD
ENGINEER
No.
50485
PROFESSIONAL ENGINEER

No	Description	Date

Project Name
WCCCD CLTHWEC
SAUNA

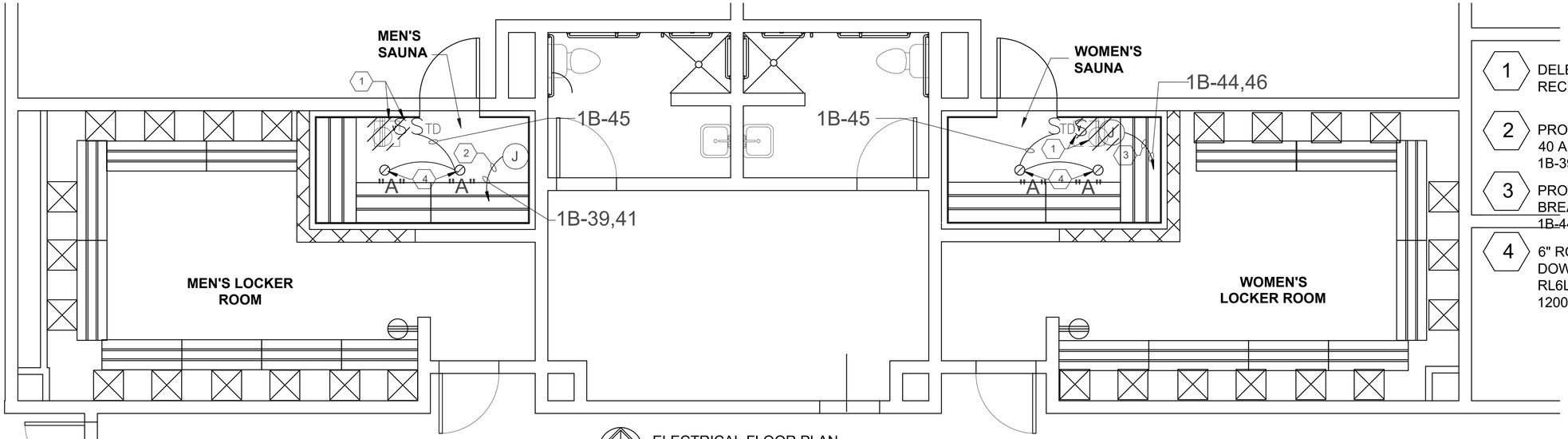
Project number
469-26-01

COMPOSITE
FLOOR PLAN -
ELECTRICAL

E100

©2022 L3MC Architects LLC

Printed: 4/30/2026 11:57:49 AM



1. DELETE SWITCH AND RECEPTACLE.
2. PROVIDE A 208V.-3Ø, 40 AMP BREAKER 1B-39,41
3. PROVIDE A 208V.-3Ø, 40 AMP BREAKER 1B-44,46
4. 6" ROUND LED RECESSED DOWN LIGHT. COOPER MODEL RL6LS9FSD2W1EWHDM-1200LM-3000K, 13.8 WATTS.

ELECTRICAL FLOOR PLAN
1/8" = 1'-0"

LEGEND

SYMBOL	DESCRIPTION
	2' X 2' LED LIGHT FIXTURE
	2' X 2' LED LIGHT FIXTURE – NIGHT LIGHT
	2' X 4' LED LIGHT FIXTURE
	2' X 4' LED LIGHT FIXTURE – NIGHT LIGHT
	RECESSED DOWNLIGHT
	EXIT LIGHT WITH BUILT-IN EMERGENCY BATTERY POWER
	EXIT LIGHT WITH BUILT-IN EMERGENCY BATTERY POWER – 2 HEADED
$; $3 ; $4	LIGHT SWITCHES: SINGLE POLE, THREE WAY, FOUR WAY
	DUPLEX RECEPTACLE
	240V. DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE MOUNTED 6" ABOVE COUNTERTOP
	QUADRUPLEX RECEPTACLE
	DUPLEX RECEPTALCE OUTLET TO BE DEDICATED ISOLATED GROUND. ORANGE IN COLOR.
	DUPLEX RECEPTACLE OUTLET TO BE TWIST LOCK
	TELEPHONE OUTLET WITH 1"C TO ACCESSIBLE CEILING SPACE
	TELE/DATA BOX WITH 1"C TO ACCESSIBLE CEILING SPACE
J	JUNCTION BOX
	SINGLE PHASE MOTOR
	THREE PHASE MOTOR
J	NON-FUSED DISCONNECT SWITCH
J	FUSED DISCONNECT SWITCH
	LIGHTING/RECEPTACLE PANELBOARD
T	TRANSFORMER
W	WELD PLUG
	DESIGNATES CIRCUIT TO PANEL
EXIT	EMERGENCY BATTERY EXIT LIGHTING UNIT – 2 HEADED
WP	WEATHER PROOF DEVICE
G	SUBSCRIPT "G" INDICATES GROUND FAULT INTERRUPTER RECEPTACLE
S	SPEAKER
SD	SMOKE DETECTOR
F	MANUAL PULL STATION
F	COMBINATION STROBE
F	COMBINATION HORN/STROBE
PA	PUBLIC ADDRESS
FACP	FIRE ALARM CONTROL PANEL

(EXISTING) PANELBOARD RP-1B

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	VA	ØA	ØB	ØC	VA	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	C	CO DETECTOR – LAUNDRY DESK 148		20	500	1000			500	20	GFI	EWC – LOBBY 100	C	2
3	R	RCPTS – EXTERIOR		20	1260		3180		1920	20	GFI	RCPT – WASHER, LAUNDRY DESK 148	R	4
5	R	RCPTS – LOBBY 100, VEST. 101		20	1080			3000	1920	20	GFI	RCPT – WASHER, LAUNDRY DESK 148	R	6
7	R	RCPTS – CAFE SEATING 100		20	1260	1760			500	20	GFI	EWC – MENS LOCKER 142	C	8
9	R	RCPTS – CAFE SEATING 100		20	1080		1580		500	20	GFI	EWC – WOMENS LOCKER 138	C	10
11	R	RCPTS – LOBBY 100, VEST 102		20	1080			3080	2000	20		RCPTS – AUTO FAUCETS/FLUSHERS 137, 139, 141, 143	C	12
13	R	RCPTS – CONTROL DESKS 152, 153		20	1260	1760			500	20		RCPT – TWO-WAY CALLING AUTO-DIALER	C	14
15	R	RCPTS – CONTROL DESKS 152, 153		20	1080		2580		1500	20	GFI	HAND DRYER – MENS SHOWER 143	NC	16
17	R	RCPTS – CONTROL DESKS 152, 153, TOWEL 151		20	1080			2580	1500	20	GFI	HAND DRYER – WOMENS SHOWER 139	NC	18
19	R	RCPTS – TOWEL 151, LAUNDRY 148, MENS TOILET 141		20	720	1847			1127	20		DBF-1 LAUNDRY DESK 148	M	20
21	R	RCPTS – TOWEL 151, LAUNDRY 148,WOMENS TOILET 137,J.C.150		20	900		1440		540	20		RCPTS – AUX LOCKERS 140, 144, LOUNGE 145	R	22
23	R	RCPTS – MENS TOILET 141, LOCKERS 142		20	1680			2220	540	20		RCPTS – AUX LOCKERS 140, 144, LOUNGE 145	R	24
25	R	RCPTS – MENS TOILET 141, LOCKERS 142		20	1680	3180			1500	20		RCPT – TOILET 146, 125	R	26
27	R	RCPTS – WOMENS TOILET 137, LOCKERS 138		20	1680		3180		1500	20		RCPT – TOILET 147, 126	R	28
29	R	RCPTS – WOMENS TOILET 137, LOCKERS 138		20	1680			2760	1080	20		RCPTS – LOBBY 100	R	30
31	R	RCPTS – MENS LOCKERS 142		20	1680	2580			900	20		RCPTS – TOILETS 123, 124, AUTO FAUCETS/FLUSHERS	R	32
33	R	RCPTS – MENS LOCKERS 142		20	1680		2580		900	20		RCPTS – TOILETS 123, 124, AUTO FAUCETS/FLUSHERS	R	34
35	R	RCPTS – WOMENS LOCKERS 138		20	1680			1680		20		SPARE		36
37	R	RCPTS – WOMENS LOCKERS 138		20	1680	2320			640	20		STACK DRYER – LAUNDRY DESK 148	NC	38
39	C	MENS SAUNA ROOM - AUX. LOCKER ROOM #1	50		3950		4590		640				NC	40
41	C				3950			4590	640				NC	42
43	L	LTG. MENS&WOMENS SAUNA RM- AUX.LK RM #1&#2		20	80	4030			3950	50		WOMENS SAUNA ROOM - AUX. LOCKER ROOM #2	C	44
45		SPARE		20			3950		3950				C	46
47		SPARE		20										48
49		SPARE		20						20		SPARE		50
51		SPARE		20						20		SPARE		52
53		SPARE		20						20		SPARE		54
55		SPARE		20						20		SPARE		56
57		SPARE		20						20		SPARE		58
59		SPARE		20						20		SPARE		60
						18447	23720	20550						
						ØA	ØB	ØC						

PANELBOARD INFORMATION

VOLTAGE:	208Y/120
BUS AMPACITY:	225A
MAIN TYPE:	MLO
MINIMUM A.I.C.:	
MOUNTING:	

PANELBOARD LOCATION

CORRIDOR 120

BRANCH CIRCUIT CONNECTED LOAD:		FEEDER DEMAND LOAD:		OVERCURRENT LOAD:	
CONTINUOUS LOAD (C):	20300	X 125%	25375	X 100%	25375
NON-CONTINUOUS LOAD (NC):	4920	X 100%	4920	X 100%	4920
KITCHEN LOAD (K):		X 100%		X 100%	
RECEPTACLE BASE LOAD (R):	10000	X 100%	10000	X 100%	10000
RECEPTACLE DEMAND LOAD (R):	26373	X 50%	13187	X 100%	13187
LIGHTING LOAD (L):		X 100%		X 125%	
TRACK LIGHTING (T):		(150VA/2FT)		X 125%	
MOTORS, HIGHEST LOAD (MH):		X 125%		X 100%	
MOTORS, REMAINING LOAD (M):	1127	X 100%	1127	X 100%	1127
TOTAL(KVA):	62.72	TOTAL(KVA):	54.61	TOTAL(KVA):	54.61
TOTAL (AMPS):	174.2	TOTAL (AMPS):	151.7	TOTAL (AMPS):	151.7

NOTES:

NOTE:

FIELD VERIFY EXACT LOCATION AND ARRANGEMENT OF EXISTING PANELS, BREAKERS AND CIRCUITS. LABEL ACCORDINGLY.

GBW WORLD DESIGN, INC.
CONSULTING ENGINEERS
BLOOMFIELD HILLS, MI 48302
TEL. 248-622-4156
GBW JOB NUMBER: 000226

Issue Date:
Bids 19 JUNE 26

WCCCD

LOTT3METZ ARCHITECTURE, LLC
200 Ottawa Suite
Grand Rapids, MI 49503
616/454-5175

607 SHELBY SUITE
DETROIT, MICHIGAN 48226
313/937-6008

STATE OF MICHIGAN
JUAN MARTEZ SNEAD
ENGINEER
No. 50485
LICENSED PROFESSIONAL ENGINEER

No	Description	Date

Project Name
WCCCD CLI HWEC SAUNA
Project number
469-26-01

Floor Plan

E202

©2022 L3MC Architects LLC

Printed: 4/30/2026 11:57:49 AM

GENERAL ELECTRICAL NOTES AND SPECIFICATIONS

GENERAL:
CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR AS INDICATED ON PLANS AND AS REQUIRED FOR A COMPLETE LIGHTING AND POWER SYSTEM.

EXAMINATION OF PREMISES:
CONTRACTOR SHALL VISIT THE JOB SITE AND BE AWARE OF CONDITIONS UNDER WHICH HE MUST WORK.

PERMITS AND FEES:
CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES.

CODES:
ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRICAL CODE 2023, THE CODES OF O.S.H.A. MICHIGAN ENERGY CODE LATEST EDITION AND ALL LOCAL AUTHORITIES HAVING JURISDICTION.

UTILITY COMPANY REQUIREMENTS:
COMPLY WITH CONSTRUCTION STANDARDS AND RULES OF LOCAL UTILITY COMPANIES.

CONTRACTOR SHALL CONTACT UTILITY COMPANIES AND VERIFY ALL SERVICE REQUIREMENTS. INCLUDE IN BASE BID, ALL UTILITY COMPANY CHARGES.

GROUNDING:
CABINETS, MOTOR FRAMES, STARTERS, CONDUIT SYSTEMS, PANELS, ETC., SHALL BE GROUNDED IN ACCORDANCE WITH THE LATEST N.E.C. AND LOCAL CODES.

MATERIALS:
MATERIALS SHALL BE NEW AND BEAR THE U.L. LABEL OR LISTING, WHEREVER STANDARDS HAVE BEEN ESTABLISHED.

AS-BUILT DRAWINGS:
CONTRACTOR SHALL PREPARE AND MAINTAIN ACCURATE RECORD DRAWINGS OF ALL UNDERGROUND AND CONCEALED WORK AND SHALL SUBMIT THESE DRAWINGS TO OWNER UPON FINAL ACCEPTANCE OF THE WORK OR UPON OWNER'S REQUEST.

DRAWINGS AND MEASUREMENTS:
THE DRAWINGS ARE PARTLY DIAGRAMMATIC AND ARE NOT INTENDED TO BE SCALED FOR ROUGH-IN MEASUREMENTS NOR TO SERVE AS SHOP DRAWINGS. FIELD MEASUREMENTS NECESSARY FOR GETTING OUT MATERIALS AND FITTING THE INSTALLATION TO THE BUILDING CONSTRUCTION AND ARRANGEMENT SHALL BE TAKEN BY THE CONTRACTOR.

SHOP DRAWINGS:
COMPLETE SHOP DRAWINGS FOR ALL ELECTRICAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE FABRICATION OF THE WORK. SEVEN (7) COPIES OF THE SHOP DRAWINGS SHALL BE SUBMITTED ON ALL ITEMS OF ELECTRICAL EQUIPMENT, PANELS, LIGHT FIXTURES, SPECIALTIES, ETC.

CLEANING AND FINISHING:
AFTER ALL TESTS HAVE BEEN MADE THE CONTRACTOR SHALL CAREFULLY MAKE A THOROUGH INSPECTION OF THE ENTIRE INSTALLATION AND HAVE THE ENTIRE WORK THOROUGHLY CLEANED, ALL RUBBISH REMOVED, AND LEAVE ALL WORK SATISFACTORY TO THE ARCHITECT AND THE OWNER.

COORDINATION WITH OTHER WORK:
CONSULT THE PLANS COVERING THE WORK FOR THE VARIOUS OTHER TRADES, THE FIELD LAYOUTS OF THE CONTRACTORS FOR THESE TRADES, AND THEIR SHOP DRAWINGS. BE GOVERNED ACCORDINGLY IN LAYING OUT THE ELECTRICAL WORK.

DAMAGE TO OTHER WORK:
THE ELECTRICAL CONTRACTOR WILL BE HELD RESPONSIBLE FOR DAMAGE TO WORK CAUSED BY HIS WORK OR THROUGH THE NEGLECT OF HIS WORKMEN. ALL PATCHING AND REPAIRING OF DAMAGED WORK SHALL BE DONE BY THE GENERAL CONTRACTOR, BUT THE COST OF SAME SHALL BE PAID BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.

TESTING:
AFTER ALL ELECTRICAL WORK HAS BEEN COMPLETED, THE CONTRACTOR SHALL DEMONSTRATE TO THE ARCHITECT OR ENGINEER THAT THE ENTIRE INSTALLATION IS IN WORKING ORDER. ANY DEFECTIVE WORK OR EQUIPMENT, OR ANY WORK THAT IS NOT IN COMPLIANCE WITH THE SPECIFICATIONS, SHALL BE PROMPTLY CORRECTED BY THE CONTRACTOR.

CUTTING AND PATCHING:
CUTTING, CORE DRILLING, INSERTS AND CONDUIT OR CABLE SLEEVES AND PATCHING REQUIRED IN THE GENERAL CONSTRUCTION FOR COMPLETION OF THE WORK, SPECIFIED HEREIN, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

WIRING:
FEEDERS SHALL BE TYPE "THW" OR "XHHW". BRANCH CIRCUIT WIRING SHALL BE TYPE "TW" OR "THWN/THHN", #12 MINIMUM. ALL WIRE SHALL BE COPPER, HAVE 600 VOLT INSULATION AND BE INSTALLED IN CONDUIT.

MINIMUM SIZE CONDUIT SHALL BE 1/2", THINWALL (EMT). CONDUIT INSTALLED IN OR UNDER FLOOR SHALL BE 3/4" MINIMUM, RIGID GALVANIZED STEEL. CONDUIT INSTALLED IN FINISHED AREAS SHALL BE CONCEALED.

SWITCHES:
SWITCHES SHALL BE 20A., 120/277V., 1 POLE, 3 AND 4 WAY AS INDICATED, HUBBELL #1221 SERIES OR EQUAL.

RECEPTACLES:
RECEPTACLES SHALL BE DUPLEX GROUNDING TYPE 20A., 125V., HUBBELL #5362 OR EQUAL. SPECIAL PURPOSE RECEPTACLES 30A., 40A., 50A. – 2P. OR 3P., ETC., SHALL BE SPECIFICATION GRADE, HUBBELL OR EQUAL.

WEATHERPROOF RECEPTACLES SHALL HAVE CAST GASKETED COVERPLATE, HUBBELL #5206WO OR EQUAL.

WALL PLATES:
WALL PLATES FOR SWITCHES AND RECEPTACLES SHALL BE SUPER STAINLESS STEEL, AISI 302, HUBBELL #97000 SERIES OR EQUAL.

OUTLETS
OUTLET BOXES FOR CONCEALED WORK SHALL BE PRESSED STEEL BOXES, GALVANIZED, #12 GAUGE. CEILING BOXES SHALL BE 4" ROUND OR OCTAGONAL. WALL OUTLET BOXES SHALL BE 4" SQUARE BY 1-1/2" DEEP.

MOTOR STARTERS:
SINGLE PHASE MOTOR STARTERS SHALL HAVE MANUAL TOGGLE SWITCH WITH THERMAL OVERLOADS, FLUSH MOUNTED WITH PILOT LIGHT, SQUARE D, WESTINGHOUSE OR I.T.E.

DISCONNECT SWITCHES:
DISCONNECT SWITCHES SHALL BE HEAVY DUTY, FUSED OR NON-FUSED AS INDICATED, IN A NEMA I ENCLOSURE. DISCONNECT SWITCHES INSTALLED OUTDOORS SHALL BE IN A NEMA 3R ENCLOSURE. SQUARE D, WESTINGHOUSE OR I.T.E. PROVIDE WHITE PHENOLIC LABEL WITH 3/8" LETTERS AS INDICATING ITEM SERVED.

FUSES:
0 TO 600 AMPERE SHALL BE PROTECTED BY CURRENT LIMITING BUSSMANN LOW-PEAK DUAL ELEMENT FUSES LPN, 250 VOLTS.

MOTOR CIRCUITS SHALL BE PROTECTED BY BUSSMANN LOW-PEAK DUAL-ELEMENT FUSES LPN, 250 VOLTS.

CIRCUIT BREAKER PANELS SHALL BE PROTECTED BY BUSSMANN LOW-PEAK DUAL-ELEMENT FUSES LPN, 250 VOLTS.

LAMPS:
INCANDESCENT LAMPS SHALL BE INSIDE FROSTED, "A", "R" OR "PAR" TYPE AS REQUIRED, "EXTENDED SERVICE" WHERE AVAILABLE.

FLUORESCENT LAMPS SHALL BE WARM WHITE, ENERGY SAVING TYPE, GENERAL ELECTRIC WATT MISER I OR EQUAL.

BALLASTS:
FLUORESCENT LAMP BALLAST SHALL BE ENERGY SAVING TYPE, GENERAL ELECTRIC MAXI-MISER I OR EQUAL.

H.I.D. BALLASTS SHALL BE HIGH POWER FACTOR, AUTO-TRANSFORMER TYPE AS REQUIRED, FUSED FOR FULL BALLAST PROTECTION.

CERTIFICATE OF APPROVAL:
WHEN THE JOB IS COMPLETED, THE CONTRACTOR SHALL PROVIDE THE ARCHITECT/ENGINEER WITH CERTIFICATE OF APPROVAL FROM THE LOCAL ELECTRICAL INSPECTION AUTHORITY. THE CONTRACTOR SHALL GIVE THE OWNER A WRITTEN GUARANTEE THAT HE WILL MAKE GOOD, AT HIS OWN EXPENSE, ANY DEFECTS IN MATERIALS OR WORKMANSHIP WHICH MAY DEVELOP WITHIN ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE.

THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE BEFORE HE SUBMITS HIS BID, TO FAMILIARIZE HIMSELF WITH THE ACTUAL JOB CONDITIONS AND TO CHECK FOR ANY INTERFERENCES BETWEEN HIS WORK AND THAT OF OTHER TRADES, AND/OR ANY APPARENT VIOLATIONS OF LOCAL OR STATE CODES, LAWS, ORDINANCES, AND REGULATIONS. IF ANY INTERFERENCES OR VIOLATIONS APPEAR AND DEPARTURE FROM THE DESIGN INTENT OF THE CONTRACT DOCUMENTS IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER BEFORE ENTERING INTO CONTRACTOR WITH THE OWNER.

THE ELECTRICAL CONTRACTOR SHALL PROVIDE AN UPDATED AND ACCURATE PANEL INDEX FOR PANEL RP-1B. LOCATE THE UPDATED INDEX INSIDE THE PANEL DOOR AS REQUIRED.

GENERAL FIRE ALARM NOTES:

1. PROVIDE AN FULLY ADDRESSABLE FIRE ALARM SYSTEM AS INDICATED ON THE DRAWINGS. NOTIFICATION SYSTEM MUST BE CAPABLE OF PROVIDING EVACUATION SIGNALS ASREQUIRED DEPENDING ON THE ALARM.

2. COORDINATE ALL REQUIRED SYSTEMS TO THE SATISFACTION OF THE ENGINEER AND AUTHORITY HAVING JURISDICTION. ANY DEFICIENCIES, INCONSISTENCIES, OR POORLY COORDINATED INSTALLATIONS MUST BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.

3. THE FIRE ALARM DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW A MINIMAL QUANTITY OF DEVICES. DETERMINE THE FINAL QUANTITY AND LOCATION OF ALL DEVICES IN ACCORDANCE WITH THE SPECIFICATIONS, CONTRACT DRAWINGS, AND MANUFACTURER'S WRITTEN RECOMMENDATIONS TO BE COMPLIANT WITH ALL APPLICABLE CODES AND STANDARDS. PROVIDE ADDITIONAL DEVICES WHEN REQUIRED FOR A FULLY FUNCTIONING FIRE ALARM SYSTEM AS REQUIRED BY NFPA 72.

4. SURFACE MOUNT CONDUITS TO WALLS AND CEILINGS THROUGHOUT THE BUILDING. WHERE A CONDUIT SUPPLIES A DEVICE NOT MOUNTED DIRECTLY ON THE WALL OR CEILING, ROUTE THE CONDUIT AS A SINGLE PENDENT DROP TO EACH DEVICE FROM THE CEILING SURFACE ABOVE. DO NOT TRAPEZE CONDUIT ACROSS AN OPEN SPACE.

5. ALL FIRE ALARM JUNCTION BOXES, COVERS AND CONDUITS IN UNFINISHED AREAS ARE TO BE PROVIDED PRE-FINISHED RED FROM THE FACTORY. PAINT EXPOSED CONDUIT AND JUNCTION BOXES IN FINISHED AREAS TO MATCH ADJACENT SURFACES WITH JUNCTION BOXES INSIDE COVER LABELED, "FIRE ALARM", AND WHERE CONDUIT PENETRATES A WALL, PAINT RED 3/4 INCH BANDS EVERY 20 FT AND BOTH SIDES OF PENETRATIONS

6. PROVIDE CONDUIT IN ACCORDANCE WITH THE REQUIREMENTS OF THE ELECTRICAL SPECIFICATIONS, UNLESS OTHERWISE NOTED. SUPPORT CONDUIT IN ACCORDANCE WITH THE NEC SUCH AS MAXIMUM 10 FT SUPPORT INTERVALS AND 3 FT FROM A TERMINATION. TENSION ONLY HANGERS ARE NOT PERMITTED SUCH AS BATWINGS.
7. PROVIDE CONDUCTOR SIZING NOT LESS THAN 18 AWG FOR SLC. PROVIDE CONDUCTOR SIZING NOT LESS THAN 16 AWG FOR NAC, AND IDC. CONSISTENTLY COLOR COORDINATE ALL CONDUCTORS THROUGH THE SYSTEM IN RELATION TO DEVICES THEY FEED SUCH AS SLC – BLACK/RED, STROBE – YELLOW/BLUE. PROVIDE ADDRESSABLE SLC CIRCUITS WITH SHIELDED CONDUCTORS, WHERE THE SHIELDING IS GROUNDED AT ONE END WHERE REQUIRED BY THE MANUFACTURER.

8. RUN CONDUCTORS FROM DEVICE TO DEVICE WITHOUT SPLICES. WIRE NUTS ARE PROHIBITED. UTILIZE TERMINAL STRIPS WHERE CONDUCTORS CANNOT BE DIRECTLY TERMINATED AT THE DEVICE SUCH AS PIGTAILS OFF A HEAT DETECTOR.

9. DO NOT USE FIRE ALARM EQUIPMENT PANELS AS RACEWAY FOR ROUTING POWER WIRING OR LOW VOLTAGE WIRING. ONLY ROUTE WIRING TERMINATING WITHIN THE PANEL INTO THE PANEL. PROVIDE 1/4 INCH SEPARATION BETWEEN POWER-LIMITED FIRE ALARM CIRCUITS AND POWER CIRCUITS.

10. MOUNTING DEVICES IN THE FACP, INCLUDING ANY SUBPANELS SUCH AS NAC AND FAC, WHICH ARE NOT UL LISTED OR FM APPROVED AS PART OF THE UNIT IS PROHIBITED.

11. PROVIDE SURGE SUPPRESSORS TO PROTECT ALL POWER SUPPLY CIRCUITS TO THE FACP, INCLUDING ANY SUBPANELS SUCH AS NAC, FAC, AND ALL FIRE ALARM CIRCUITS LEAVING OR ENTERING THE BUILDING. DEVICES AND APPLIANCES MOUNTED DIRECTLY ON THE EXTERIOR OF THE BUILDING SUCH AS WALL MOUNTED EXTERIOR HORN STROBES DO NOT REQUIRE SUPPRESSORS. MOUNT SURGE SUPPRESSORS IN A SEPARATE ENCLOSURE, UNLESS IT IS UL LISTED OR FM APPROVED AND INSTALLED IN THE CONTROL UNIT BY THE FACTORY.

12. INSTALL FIRE ALARM BATTERIES IN THE ENCLOSURE OF THE DEVICE/UNIT IT SUPPORTS SUCH AS FACP ENCLOSURE OR IN AN INDEPENDENT DEDICATED ENCLOSURE.

GENERAL PUBLIC ADDRESS NOTES:

SCOPE OF WORK

THE SCOPE OF WORK COVERS SUPPLY, INSTALLATION, COMMISSIONING AND TESTING OF THE PUBLIC ADDRESS SYSTEM RELATING TO THE FIRE ALARM SYSTEM MEETING THE INTENTS OF THE SPECIFICATIONS. THE SYSTEM MAY HAVE CENTRALISED OR DISTRIBUTED AMPLIFIERS

THE SYSTEM COULD BE COMBINED WITH OTHER PAGING FUNCTIONS OR PIPED MUSIC OR ANY OTHER ANNOUNCEMENTS REQUIRED.

SYSTEM DESCRIPTION:

THE MAIN OBJECTIVE OF THE PUBLIC ADDRESS SYSTEM IS TO CONVEY CLEAR AND AUDIBLE INSTRUCTIONS TO ALL THE PEOPLE ON ALL FLOORS / BUILDINGS IN CASE OF OCCURRENCE OF FIRE / OTHER EMERGENCY TO REACH A PLACE OF SAFETY IN THE OPEN, OUTSIDE THE BUILDINGS. THE SOUND OUTPUT SHOULD NOT BE SO LOUD THAT PEOPLE NEAREST TO THE SPEAKERS FEEL UNCOMFORTABLE, NOR SO WEAK THAT PEOPLE AWAY CANNOT DISCERN WHAT IS BEING BROADCAST. THIS IS ACHIEVED BY SETTING THE SPEAKER TAP AT 50% POWER INPUT AND DISTRIBUTING SPEAKERS UNIFORMLY ALL OVER FLOOR AREA.

PA SYSTEM SHALL CATER TO FIRE EVACUATION SPEAKERS FOR BROADCASTING ALARM SIGNALS AND EVACUATION MESSAGES IN THE EVENT OF AN EMERGENCY. THE SAME SPEAKERS SHALL BE USED FOR SOFT MUSIC FOR THE SELECTED AREA IF ASKED FOR.

THE PUBLIC ADDRESS SYSTEM SHALL OPERATE ON 24 VDC POWER AND SHALL SUITABLE FOR CONTINUOUS DUTY, BE OF MODULAR DESIGN AND UTILIZE COMPONENT BASED ON SOLID STATE TECHNOLOGY.

CODES AND STANDARDS:

THE DESIGN, MANUFACTURE AND PERFORMANCE OF EQUIPMENT SHALL COMPLY WITH ALL CURRENTLY APPLICABLE STATUTES, REGULATIONS AND SAFETY CODES. NOTHING IN THIS SPECIFICATION SHALL BE CONSTRUED TO RELIEVE VENDOR OF THIS RESPONSIBILITY. ALL THE COMPONENTS SHOULD BE DESIGNED AND INSTALLED AS PER NFPA - 72.

THE PUBLIC ADDRESS SYSTEM SHALL BE ROBUST AND THE COMPONENTS SUCH AS SPEAKER AMPLIFIER, TONE GENERATOR, WIRING CIRCUITS, UNINTERRUPTED POWER SUPPLIES, STANDBY BATTERIES ALONG WITH DVD PLAYER SHALL BE CONSTANTLY ELECTRICALLY SUPERVISED FOR ANY SINGLE GROUND FAULT, SHORT OR OPEN CIRCUIT.

SYSTEM REQUIREMENTS:

THE SYSTEM WILL COMPRISE OF A MICROPHONE SUITABLE FOR VOICE COMMUNICATION / ANNOUNCEMENTS THROUGH SPEAKERS ON VARIOUS FLOORS/BUILDINGS. THE SYSTEM SHALL CONSIST OF THE FOLLOWING FOR EACH BUILDING/BLOCK. CABLING SHALL BE CARRIED OUT FROM LOCAL CONSOLES TO MAIN

P.A. SYSTEM SHALL BE CAPABLE OF GENERATING BOTH EMERGENCY AND EVACUATION MESSAGES TO 'ALL'OR SELECTED SPEAKER ZONES LOCATED WITHIN THE FLOOR. IT SHALL ALSO ABLE TO PLAY MUSIC 'ALL'OR SELECTED SPEAKER ZONE.

THE SYSTEM SHALL ESSENTIALLY CONSIST OF MICROPROCESSOR BASED CENTRAL CONTROL EQUIPMENT WITH ZONE SELECTABLE ANNOUNCEMENT. NORMALLY BACKGROUND MUSIC SHALL BE PLAYED, IN SELECTED ZONE ONLY, USING THE CENTRAL DVD/CASSETTE PLAYER SOURCE. WHEN, A PARTICULAR ZONE IS SELECTED FOR MAKING AN ANNOUNCEMENT, THE BACKGROUND MUSIC TO THAT PARTICULAR ZONE ONLY SHALL BE CUT-OFF AND THE ANNOUNCEMENT RELAYED. ALL OTHER ZONES SHALL REMAIN UNAFFECTED. ONCE THE ANNOUNCEMENT IS OVER, THE MUSIC SHALL RESUME.

AN EMERGENCY CALL SHALL INCLUDE FOLLOWING:

A SPECIAL SLOW-WHOOP SIGNAL, SWEEPING FROM 500HZ UP TO 1200 HZ.

PA PRE-RECORDED MESSAGE SHALL BE BROADCASTED ON COMPLETION OF THE SLOW-WHOOPING SIGNAL.

IT SHALL BE POSSIBLE TO REPEAT BOTH OF THE ABOVE PROCEDURES TO BE REPEATED DURING THE EMERGENCY PERIOD.

GBW WORLD DESIGN, INC.
CONSULTING ENGINEERS
BLOOMFIELD HILLS, MI 48302
TEL. 248-622-4156
GBW JOB NUMBER: 000226

Issue Date:
Bids 19 JUNE 26

WCCCD

L3MC

LOTT3METZ ARCHITECTURE, LLC
200 Ottawa
Suite
Grand Rapids, MI
49503
616/454-5175

607 SHELBY
SUITE
DETROIT, MICHIGAN
48226
313/937-6008

STATE OF MICHIGAN
JUAN MARTEZ SNEAD
ENGINEER
No. 50485
PROFESSIONAL ENGINEER

No	Description	Date

Project Name
WCCCD CLT HWEC SAUNA
Project number
469-26-01

ELECTRICAL SPECIFICATIONS

E500

©2022 L3MC Architects LLC

Printed: 4/30/2026 11:57:49 AM