



University of Kentucky

Procurement Services

INVITATION FOR BIDS

CCK-2970.0-1-26

CAER OUTREACH & EDUCATION CENTER

ADDENDUM # 1

04/21/2026

IMPORTANT: BID AND ADDENDUM MUST BE RECEIVED BY 05/07/2026 @ 3:00 P.M. LEXINGTON, KY TIME

Bidder must acknowledge receipt of this and any addendum as stated in the Invitation for Bids.

ITEM #1: BIDDER NOTICES

- The deadline for bids has been extended to **May 7, 2026**. The time and location have not changed.
- The question deadline has been extended to 1:00pm Lexington, KY time on April 28, 2026. All questions should be directed to cckbidquestions@uky.edu
- An addendum will be issued on or about April 30, 2026.

ITEM #2: CLARIFICATIONS AND MODIFICATIONS TO THE CONTRACT DOCUMENTS

- Refer to and incorporate within the offer, the enclosed Addendum 1 prepared by Nømi Design (55 pages).

OFFICIAL APPROVAL
UNIVERSITY OF KENTUCKY

Corey W. Leslie/ ADCP

SIGNATURE

Typed or Printed Name

University of Kentucky
Procurement Services
322 Peterson Service Building
Lexington, KY 40506-0005

ADDENDUM NO. 1

April 20, 2026

To: All Planholders

From: Nomi Design

Re: **2970.00 University of Kentucky CAER Outreach Education Building
Lexington, KY**

This addendum contains **(47)** 8 ½” x 11” pages and **(8)** 30” x 42” pages.

The purpose of this addendum is to clarify further requirements of the construction documents. The contractors shall be governed by the information in the addendum as if included in the drawings / specifications. The addendum will become part of the contract documents. The bidders shall acknowledge receipt of the addendum in their form of proposal.

GENERAL ITEMS

1. Refer to Vol. 1 Specifications – Advertisement for Bids under section 13. WRITTEN QUESTIONS revise due date for written questions to 04/28/2026 at 1:00 pm. Additionally, an addendum will be issued on or about 04/30/2026.
2. Refer to Vol. 1 Specifications – Advertisement for Bids under section 9. BID SUBMITTAL the Bid Date is revised to: **05/07/2026 at 3:00 P.M. LEXINGTON, KY TIME.**
3. During HBC plan review the state identified an issue with the property lines and therefore the building needs to shift on the site at least 5-feet. A future addendum on April 23, 2026 will address the shift as it relates to the Site-Civil drawings.
4. Reference attached G0.01: see revised Life Safety Plan.

STRUCTURAL ITEMS

5. Reference attached S1.10 for revised Structural General Notes.

ARCHITECTURAL ITEMS

- 6. Reference attached 013200 CONSTRUCTION PROGRESS DOCUMENTATION, page 3. Section 1.5 Contractors Construction Schedule, C, 1. Activity Duration: Define activities so no activity is longer than twenty (20) days, unless specifically allowed by Architect.
- 7. Reference attached 013233 PHOTOGRAPHIC DOCUMENTATION and add to TOC list of Architectural Specifications.
- 8. Reference attached 015000 TEMPORARY FACILITIES AND CONTROLS page 6, section 3.6 Moisture and Mold Control: corrected text error
- 9. Reference specifications 064100 ARCHITECTURAL WOOD CASEWORK and 064216 FLUSH WOOD PANELING add Morgan Smith Industries to the list of approved manufacturer.
- 10. Reference specifications 074213.13 FORMED METAL WALL PANELS provide Three-Coat Fluoropolymer finish as specified.
- 11. Reference specifications 081111 HOLLOW METAL DOORS AND FRAMES – add De La Fontaine and Metal Products to the list of approved manufacturers.
- 12. Reference 081416 FLUSH WOOD DOORS – add Oshkosh to the list of approved manufacturers.
- 13. Reference 084100 DOOR HARDWARE make the following revisions:
 - a. Assign New Door XB100 to HW Set E01.
 - b. Reassign Door 0101B-C to new HW Set 05 as follows:

Hardware Set 05

(3) Butt Hinges	BB1168 5 X 4.5	652	HAG
(1) Panic Device, Rim, 14	99L x 996L	626	VON
(1) Closer, HD Parallel Arm	4040XP EDA	689	LCN
(1) Kick Plate	KO050 8 x 1LDW x CS x B4E	630	TRI
(1) Wall Stop, Convex	1278CX	626	TRI
(1) Closer Mounting Bracket	5077SPB	689	<u>LEG</u>
Note 1: <u>Do not</u> cut top jamb sound seal for closer arm bracket. Lower the closer on the door and mount closer arm bracket to closer mounting bracket.			
(1) Adjustable Jamb Seal Set	5071	628	LEG
(1) Surface Sound Sweep	SSDB3	628	DHS

- 14. Reference attached 088800 SPECIAL FUNCTION GLAZING and add to TOC list of Architectural Specifications.
- 15. Reference attached 089100 ROOFTOP EQUIPMENT SCREENS and add to TOC list of Architectural Specifications.
- 16. Reference attached 098411 ACOUSTICAL WALL TREATMENT and add to TOC list of Architectural Specifications.
- 17. Reference specifications 101419, 101423.16 and 101426 add Fastsigns of Louisville to the list of approved manufacturers.
- 18. Reference attached 260900 ELECTROCHROMIC WIRED CONTROL SYSTEM and add to TOC list of Electrical Specifications.
- 19. Reference attached A0.10: see revised wall types C08-1, EW-03-1, EW-05-1.

20. Reference attached A1.00:
 - a. Added door XB100 and walk off mats.
 - b. North corner of Board Room 0103 changed to have a 1 hour fire resistance rated barrier (wall types: EW-05-1, EW-03-1 above).
 - c. Clarification: Corridor 0100B wall type changed to fire rated wall C08-1.
 - d. Callout for folding partition detail 7/A4.21 added in Conference 0101B. Keynote for folding partition added in Conference 0101B.
21. Reference A1.20 Roof Plan: R-Value of R-25 required of SBS roof assembly.
22. Reference attached 11/A5.01 for tile change at window sill.
23. Reference attached sheet A6.00:
 - a. XB100 added to door schedule with hardware set E01.
 - b. 0101B-C updated door hardware set.
 - c. A1 Aluminum Frame Type modified.
 - d. Dimension modification to Aluminum Frame Type A2.
24. Reference attached sheet A6.01: clarification for enlarged details.
25. Reference attached sheet A6.02: clarification for enlarged details.

END OF ADDENDUM NO 1

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Contractor's Construction Schedule.
 2. Construction schedule updating reports.
 3. Daily construction reports.
 4. Material location reports.
 5. Site condition reports.
 6. Unusual event reports.
- B. Related Requirements:
1. Section 012900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.
 2. **Section 01000S01 " Special Conditions - General Contractor" for other limitations and procedures and requirements for this contract**
 3. Section 014000 "Quality Requirements" for schedule of tests and inspections.

1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 2. Predecessor Activity: An activity that precedes another activity in the network.
 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.
- E. Float: The measure of leeway in starting and completing an activity.
1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- F. Resource Loading: The allocation of labor and equipment necessary for completing an activity as scheduled.

1.3 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
1. Working electronic copy of schedule file.
 2. PDF file.
- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- C. Construction Schedule Updating Reports: Submit with Applications for Payment.
- D. Daily Construction Reports: Submit at weekly intervals.
- E. Material Location Reports: Submit at weekly intervals.
- F. Site Condition Reports: Submit at time of discovery of differing conditions.
- G. Unusual Event Reports: Submit at time of unusual event.
- H. Qualification Data: For scheduling consultant.

1.4 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from entities involved.
 2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
- B. Time Frame: Extend schedule from date established for the Notice of Award to date of Substantial Completion.
 - 1. Contract completion date to not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities so no activity is longer than twenty (20) days, unless specifically allowed by Architect.
 - 2. Temporary Facilities: Indicate start and completion dates for the following as applicable:
 - a. Securing of approvals and permits required for performance of the Work.
 - b. Temporary facilities.
 - c. Construction of mock-ups, prototypes and samples.
 - d. Owner interfaces and furnishing of items.
 - e. Interfaces with Separate Contracts.
 - f. Regulatory agency approvals.
 - g. Punch list.
 - 3. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - 4. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
 - 5. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
 - 6. Commissioning Time: Include no fewer than 15 days for commissioning.
 - 7. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 - 8. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
 - 1. Phasing: Arrange list of activities on schedule by phase.
 - 2. Work under More Than One Contract: Include a separate activity for each contract.
 - 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.

4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use-of-premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Building flush-out.
 - m. Startup and placement into final use and operation.
 - n. Commissioning.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion, and the following interim milestones:
1. Temporary enclosure and space conditioning.
- F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
 2. Unanswered Requests for Information.
 3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
 5. Pending modifications affecting the Work and the Contract Time.

- G. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Final Completion percentage for each activity.
- H. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
- I. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.6 GANTT-CHART SCHEDULE REQUIREMENTS

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice of Award.
 - 1. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.7 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. Equipment at Project site.
 - 5. Material deliveries.

6. High and low temperatures and general weather conditions, including presence of rain or snow.
 7. Testing and inspection.
 8. Accidents.
 9. Meetings and significant decisions.
 10. Unusual events.
 11. Stoppages, delays, shortages, and losses.
 12. Meter readings and similar recordings.
 13. Emergency procedures.
 14. Orders and requests of authorities having jurisdiction.
 15. Change Orders received and implemented.

 16. Construction Change Directives received and implemented.
 17. Services connected and disconnected.
 18. Equipment or system tests and startups.
 19. Partial completions and occupancies.
 20. Substantial Completions authorized.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List to be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
 2. Material stored prior to previous report and since removed from storage and installed.
 3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.
1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200

SECTION 01 32 33 – PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final completion construction photographs.
- B. Related Requirements:
 - 1. Section 01 33 00 "Submittal Procedures" for submitting photographic documentation.
 - 2. Section 01 77 00 "Closeout Procedures" for submitting photographic documentation as project record documents at Project closeout.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For photographer.
- B. 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.
- C. Digital Photographs: Submit image files within three business days of taking photographs.
 - 1. Digital Camera: Minimum sensor resolution of 12 megapixels.
 - 2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
 - 3. Identification: Provide the following information with each image description in file metadata tag:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect/Engineer.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - 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.

1.4 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.

1.5 USAGE RIGHTS

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

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide 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.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a photographer to take construction photographs.
- B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 1. Date and Time: Include date and time in file name for each image.
 - 2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect/Engineer.
- D. Preconstruction Photographs: Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect/Engineer.
 - 1. Flag construction limits before taking construction photographs.
 - 2. Take **20** photographs to show existing conditions adjacent to property before starting the Work.
 - 3. Take **20** 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.
- E. Periodic Construction Photographs: Take **20** photographs monthly, coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- F. Architect/Engineer-Directed Construction Photographs: From time to time, Architect/Engineer will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.
- G. Final Completion Construction Photographs: Take **20** color photographs after date of Substantial Completion for submission as project record documents. Architect/Engineer will inform photographer of desired vantage points.
 1. Do not include date stamp.

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

- A. See **Article 24-Utilities of 010000S01- Special Conditions - Geneal Contractor.**

1.3 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- C. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
 - 1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
 - 2. Indicate sequencing of work that requires water, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
 - 3. Indicate methods to be used to avoid trapping water in finished work.
- D. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:
 - 1. Locations of dust-control partitions at each phase of work.
 - 2. Other dust-control measures.

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fencing – See Article 16 “Construction Fencing” in specification Section 010000S01 " Special Conditions - General Contractor" for other material and other requirements.
- B. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less in accordance with ASTM E84 and passing NFPA 701 Test Method 2.
- C. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats, minimum 36 by 60 inches.

2.2 TEMPORARY FACILITIES

- A. Field Offices:
 - 1. Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents, including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
 - 3. Drinking water and private toilet.
 - 4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
- C. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.

- D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
- C. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 017700 "Closeout Procedures."

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate exterior storage facilities if used to limit site disturbance as specified in Section 011000 "Summary" and in compliance with the Owner's requirements for Tree Protection.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Use of Permanent Toilets: Use of Owner's existing or new toilet facilities is not permitted.
- C. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
 - 1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.
- D. Electric Power Service:
 - 1. Contact KU for temporary electric to site. Maintain equipment in a condition acceptable to Owner.
- E. Water Service:
 - 1. Contact KAWC for temporary water to site. Maintain equipment in a condition acceptable to Owner.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- G. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Architect and Owner.
 - 1. At each field office door at the interior and exterior, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.
 - f. Engineers' offices.

- g. Owner's office.
- h. Principal subcontractors' field and home offices.

3.4 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:

- 1. Provide construction for temporary field offices, shops, and sheds located in area designated by Owner that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.
- 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

C. Storage and Staging: Use designated areas of Project site for storage and staging needs.

D. Waste Disposal Facilities:

- 1. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

- 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

- 1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- 1. Comply with work restrictions specified in Section 011000 "Summary."

C. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

D. Tree and Plant Protection:

1. Comply with requirements specified in Section 015639 “Temporary Tree and Plant Protection” and **Article 56-Tree Protection Standards of Section 01000S01- Special Conditions - General Contractor.**
 - E. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.
 - F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
 - G. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.
 - H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
- 3.6 MOISTURE AND MOLD CONTROL
- A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.
 - B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 1. Protect porous materials from water damage.
 2. Protect stored and installed material from flowing or standing water.
 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 4. Remove standing water from decks.
 5. Keep deck openings covered or dammed.
 - C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard and replace stored or installed material that begins to grow mold.
 7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.
- D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective and require replacing.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.7 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 08 88 00 – SPECIAL FUNCTION GLAZING – DOUBLE IGUS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Electronically tintable insulating glass units for dynamic light and heat control.

- B. Related Sections:
 - 1. Division 8 – Openings.
 - 2. Division 25 - Integrated Automation.
 - 3. Division 26 - Electrical
- C. Section 26 09 00 – Wired Control System-Instrumentation and Control for Electrical System.

1.2 DEFINITIONS

- A. Fenestration: Openings in building's envelope including windows, doors, and skylights.
- B. Framing System: Basic rigid supporting structure of window.
- C. Glazing System: Soft material used in framing system.
- D. Bite: Dimension by which edge of glass product is engaged into glazing channel.
- E. IGU: Insulating Glass Unit.
- F. IGU Pigtail: Cable that extends from individual insulating glass units.
- G. Frame Cable: Cable that runs through framing system and connects IGU Pigtail to the Window Controller.
- H. 2-ply Laminated Glass: 2-sheets of monolithic glass bonded together with plastic interlayer by heat and pressure.
- I. Inboard Lite: Pane of IGU that faces interior of building.
- J. Outboard Lite: Pane of IGU that faces exterior of building.
- K. Performance Characteristics:
 - 1. Center-of-Glass Characteristics: Performance values that take only center portion of IGU into account and not framing members.
 - 2. Fenestration Performance: Performance based on total fenestration (glass and framing members). Values that can be validated and certified by National Fenestration Rating Council (NFRC).
- L. Insulating Glass Unit Surfaces and Coating Orientation:
 - 1. Surface 1: Exterior surface of outer laminated glass ply.
 - 2. Surface 2: Interior surface of outer laminated glass ply (surface facing the laminating material).

3. Surface 3: Exterior surface of inner laminated glass ply (surface facing the laminating material).
 4. Surface 4: Interior surface of inner laminated glass ply which is coated with the electrochromic layers.
 5. Surface 5: Exterior surface of inner pane.
 6. Surface 6: Room side surface of inner pane.
- M. Full: On state, with lowest visible light transmission.
- N. Clear: Off state, with highest visible light transmission.
- O. Variable Tint: Intermediate tint levels between fully tinted and clear.

1.3 SYSTEM DESCRIPTION

A. Design Requirements:

Electrochromic glass units shall be operated by a control system approved by the electrochromic glass manufacturer and as specified in Section 26 09 00.

System must be capable of providing an in-pane zoning method in vertical applications within each IGU to provide improved balance of light quality in the space. Refer to project drawings for zoning specifics.

B. Framing and Glazing Systems:

1. Designed to accommodate IGU components below:

C. Edge clearance: 1/4 inch (6 mm).

1. Bite clearance: 5/8 inch (16 mm).
2. Face clearance: 3/16 inch (5 mm).
3. Controls wiring, per Section 26 09 00.
4. Glazing materials: compatible with materials of IGU components.
5. Provide glazing and framing systems capable of withstanding normal thermal movements, wind loads, and impact loads, without failure, including loss due to defective manufacture, fabrication, and installation, deterioration of glazing materials, and other defects in construction.
 - a. Normal Thermal Movement: Resulting from ambient temperature range of 120 degrees F (67 degrees C) and from consequent temperature range within glass and glass framing members of 180 degrees F (100 degrees C)

D. Provide glass products in thicknesses and strengths (heat-treated) required to meet or exceed the following criteria based on Project loads and in-service conditions per the methodology described in ASTM E1300.

1. Select minimum thickness of heat-treated glass products to ensure probability of failure does not exceed the following:
 - a. 8 breaks per 1000 for glass installed vertically or not over 15 degrees or more from vertical plan and under wind action.
 - b. 1 break per 1000 for glass installed 15 degrees or more from vertical plane and under action of wind, snow, or both.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's IGU Product and Performance datasheet.

- B. Documentation indicating compliance with ASTM E2141-14 and E2953-14, Standard Specification for Evaluating Accelerated Aging Performance of Electrochromic Devices in Sealed Insulating Glass Units as verified by third party test laboratory such as National Renewable Energy Laboratory (NREL).
- C. Test Report: ASTM E2190 Specification for IGU Seal Durability. Provide certificate or test report stating that IGUs that passed the testing requirement contained the electrochromic system (EC coatings, bus bars, wires etc.) as in the product specified herein.
- D. IG Certification: IGCC/IGMA certification for insulating glass units containing electrochromic system. Provide certificate stating that IGUs that passed the testing requirement contained the electrochromic system (EC coatings, bus bars, wires etc.) as in the product specified herein. If capillary tubes are required for altitude applications, certification covering units with capillary tubes is also required.
- E. Sustainable Design
 - 1. Environmental Product Declaration: Provide third-party verified Environmental Product Declaration (EPD) for processed glass (i.e. – glazing only) conforming with ISO 21930 and ISO 14025 for life cycle assessment data contributing towards the LEED v4 and LEED v4.1 credit: *Building Product Disclosure and Optimization – Environmental Product Declarations*.
 - 2. Health Product Declaration: Provide third-party verified Health Product Declaration (HPD) for glazing material ingredients product data contributing towards the LEED v4 and LEED v4.1 credit: *Building Product Disclosure and Optimization – Material Ingredients*.
 - 3. Declare Label: Provide Declare label for glazing material ingredients contributing towards LEED v4 and LEED v4.1 credit: *Building Product Disclosure and Optimization – Material Ingredients* and Living Building Challenge v4.0 *Responsible Materials Core Imperative*. (Note: electronic components are exempt per Declare Label guidance).
 - 4. Volatile Organic Compounds: Provide attestation letter for product emissions testing according to CDPH Section 01350 for contribution towards the LEED v4 and LEED v4.1 credit *Low-Emitting Materials*. (Note: Glass products and metal frames are inherently inert from emitting volatile organic compounds and are exempt.)
- F. Shop Drawings: Indicate framing system and accommodations for wiring paths, connectors, routing, and exit from framing system.
- G. Structural Calculations: Provide structural calculations for framing system certified by structural engineer licensed in the state in which Project is located.

1.5 QUALITY ASSURANCE

- A. Comply with published recommendations of glass product manufacturers and organizations below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this section or referenced standards.
 - 1. NGA/GANA Publications.
 - 2. FGIA/AAMA/IGMA Publications.
- B. Safety glass products in the US are to comply with CPSC 16 CFR Part 1201 for Category II materials and ANSI Z97.1 2015.

- C. Glass center of glass thermal and optical performance properties shall be based on calculations from the current LBNL WINDOW computer program.
Provide glass that is heat-treated by horizontal (roller hearth) process with inherent roller wave distortion parallel to the base dimension, unless otherwise specified.
- D. Pre-Installation Meetings: Conduct pre-installation meeting/teleconference with the following parties in attendance:
 - 1. Architect, contractor, glazing contractor, frame manufacturer, IGU and controls manufacturer, electrical contractor, and other parties related to work of this section, to review procedures, schedules, safety, and coordination with other elements of Project.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's instruction for receiving, handling, storing, and protecting materials.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store materials in original packaging, protected from exposure to harmful environmental conditions, including static electricity, and at temperature and humidity conditions recommended by manufacturer. Do not remove IGU Pigtail connector cover until making connection to Frame Cable.
- D. Exercise care to prevent edge damage to glass, wire, and coatings on glass.
- E. Where insulating glass units will be exposed to substantial altitude changes, avoid seal ruptures by complying with manufacturer's recommendations for venting and sealing.

1.7 PROJECT / SITE CONDITIONS

- A. Verify frame channel dimensions are adequate for wire runs as designed.
- B. Environmental Requirements:
 - 1. Ensure that substrate surface and ambient air temperature are minimum of 40 degrees F (5 degrees C) and rising at application time and remain above 40 degrees F (5 degrees C) for at least 24 hours after application of sealants.

1.8 WARRANTY

- A. Warrant IGUs against defects in material or workmanship causing material obstruction of vision as a result of fogging or film formation of the internal glass as a result of failure of the seal for a period of ten (10) years from the date of manufacture of the IGUs from the Manufacturer.
- B. Warrant electrochromic glass against defects in material or workmanship, resulting in failure to tint, for a period of five (5) years from the date of manufacture of the electrochromic glass from the Manufacturer.
- C. Warrant laminated products against lamination defects, such as edge separation or delamination that materially obstruct vision through the glass for a period of five (5) years from the date of manufacture of the electrochromic glass from the Manufacturer.
- D. Manufacturer is not responsible for any special punitive, indirect, incidental or consequential damages (including, without limitation, the cost to remove non-conforming product or install replacement product).

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. The basis for design is SageGlass manufactured by SAGE Electrochromics, Inc.
2 Sage Way
Faribault, MN 55021
Telephone: 1-877-724-3321
E-mail: commercialsales@sageglass.com.
Internet: <http://www.sageglass.com>.

2.2 SUSTAINABLE PRODUCT REQUIREMENTS

1. Building Product Disclosure Requirements
 - a. The glazing third-party verified Environmental Product Declaration (EPD) conforms with ISO 21930 and ISO 14025 for life cycle assessment data and contribute towards the LEED v4 and LEED v4.1 credit: *Building Product Disclosure and Optimization – Environmental Product Declarations*.
 - b. The glazing third-party verified Health Product Declaration (HPD) discloses a minimum of 1000ppm of material ingredients or potential health hazards and contributes towards the LEED v4 and LEED v4.1 credit: *Building Product Disclosure and Optimization – Material Ingredients*.
 - c. The glazing Declare label contributes towards the Living Building Challenge v4.0 *Responsible Materials* Core Imperative. (Note: electronic components are exempt per Declare Label guidance). The Declare label also discloses a minimum of 1000ppm of material ingredients or potential health hazards and contributes towards the LEED v4 and LEED v4.1 credit: *Building Product Disclosure and Optimization – Material Ingredients*.
2. Low-Emitting Product Requirements
 - a. The product emissions were tested according to CDPH Section 01350 and no carcinogens and reproductive/developmental toxins could be detected. No individual compound exceeds one-half of the lowest concentrations of interest in a building, and contributes to the LEED v4 and LEED v4.1 credit *Low-Emitting Materials*. (Note: Glass products and metal frames are inherently inert from emitting volatile organic compounds and are exempt from the LEED v4 and LEED v4.1 credit *Low-Emitting Materials*.)

2.3 MATERIALS

- A. 1 INCH SageGlass SR2.0 Clear Electrochromic Laminated Sealed Insulating Glass Units (IGUs), Argon Filled:
1. Laminated Outboard Lite:
 - a. Outer Ply (Surface 1 & 2):
 - 1) Glass Type: SR2.0 coated float glass.
 - 2) Glass Tint: Clear.
 - 3) Nominal Thickness: 0.250 inch (6 mm).
 - 4) Heat Treatment: Heat Strengthened
 - 5) Coating orientation: Surface No. 2.

- 6) Obscuration: ≤ 26.0 mm from IGU edge black ink obscuration band on surface # 2 around the perimeter.
 - b. Interlayer (between surface 2 & 3):
 - 1) Interlayer Type: PVB interlayer.
 - 2) Interlayer Tint: Clear.
 - 3) Nominal Thickness: 0.030 inch (0.76mm).
 - c. Inner Ply (Surface 3 & 4):
 1. Glass Type: EC 2.0 coated clear float glass.
 2. Glass Tint: Electronically variable tintable.
 3. Nominal Thickness: 0.087 inch (2.2 mm).
 4. Heat treatment: Annealed
 5. Coating Orientation: Surface No. 4
2. Cavity:
 - a. Spacer Material: Austenitic standard stainless steel.
 - b. Nominal Thickness: 0.37" +/- 0.02 in (9.5 mm +/- 0.5mm).
 - c. Cavity: 0.5" (10.mm).
 - d. Wall Thickness: ≥ 0.007 inch (.178 mm).
 - e. Gas Fill: 90% Argon / 10% Air.
 - f. Desiccant: Four legs filled with blend of 3A molecular sieve and silica gel desiccant.
 3. Inboard Lite:
- B. Glass Type: Float glass.
- a. Glass Tint: Clear.
 - b. Nominal Thickness: 0.250 inch (6 mm).
 - c. Heat Treatment: Heat-strengthened. (May be Fully Tempered as well depending on code)
4. Pigtail:
 - a. Multi-conductor sheathed cable.
 - b. 2, 3 or 4 pin weather tight connector.
 5. Clear Performance Characteristics (Center of Glass):
 - a. Visible Transmittance: 60 percent.
 - b. Exterior Reflectance: No greater than 16 percent.
 - c. Interior Reflectance: No greater than 15 percent.
 - d. Summer U-factor (U-value): 0.28 with 90% argon fill.
 - e. Winter U-factor (U-value): 0.28 with 90% argon fill.
 - f. Solar Heat Gain Coefficient (SHGC): 0.41.
 - g. Shading Coefficient: 0.48.
 - h. Exterior reflected color using the $l^*a^*b^*$ color system shall have a negative value of b^* (blue). The b^* coordinate of the reflected exterior color shall not be positive (yellow) according to Window 6 calculations using appropriate NFRC approved International Glazing Database data file.
 6. Full Performance Characteristics (Center of Glass):
 - a. Visible Transmittance: 1 percent.
 - b. Exterior Reflectance: No greater than 11 percent.
 - c. Interior Reflectance: No greater than 10 percent.
 - d. Summer U-factor (U-value): 0.28 with 90% argon fill.

- e. Winter U-factor (U-value): 0.28 with 90% argon fill.
- f. Solar Heat Gain Coefficient (SHGC): 0.09.
- g. Shading Coefficient: 0.10.
- h. Exterior reflected color in the blue-green (-a*, -b*) quadrant of the a*b* color space according to Window calculations using appropriate NFRC approved International Glazing Database data file.

Frame Cable (one per IGU):

1. Multi-conductor plenum rated sheathed cable type CMP/CL2P.
2. 2 or 4 pin weather resistant connector.
3. Connector shall be thin at <0.2" in height and installed in the glazing pocket or other easy to access space in the framing system for ease of maintenance.

Off state: Clear.

Operating Voltage: 5 volts DC or less applied to the EC insulating glass. Class 2 (low voltage, low current) electrical system.

Requirements:

1. Control functionality: Automated control for daylight and glare shall be provided (reference Division 26 section 09 00).
2. Heat-Strengthened Float Glass: Comply with ASTM C1048, Type I, Class 1 (clear), Quality Q3, Kind HS.
3. Tempered Float Glass: Comply with ASTM C1048, Type I, Class 1 (clear), Quality Q3, Kind FT.
4. Safety Tempered Float Glass: Comply with ANSI Z97.1 and CPSC 16 CFR 1201.
5. Laminated Glass: Comply with ASTM C1172 and other requirements as specified.
6. Fabricate laminated glass products in autoclave with heat, plus pressure, free of foreign substances and air pockets.
7. Coated glass: For point defects, comply with ASTM C1376-15 section 6.1 (vision glass) or 6.2 (overhead glass) as appropriate for the glazing application. For vision glass the ASTM C1376-15 standard requires that the glass be inspected at a distance of 10 ft (3m) at a 90° viewing angle against a bright uniform background. It allows for no more than 2 readily apparent blemishes in a 3" (75mm) diameter circle and no more than 5 readily apparent blemishes in a 12" (300mm) diameter circle. In addition, the maximum allowable pinhole and spot size is 1.6mm or 2.4mm in the central area and outer area respectively. The maximum length of a coating scratch or mark is 2" (50mm) and 3" (75mm) in the central and outer areas respectively. For more detail and definitions of central and outer area see ASTM C1376-15.
8. Provide sealed IGU with dehydrated airspace, primary seal of polyisobutylene (PIB); color black and secondary seal of two-part silicone; color- black, and >0.007 inch (.15mm) wall thickness stainless steel spacer as specified.

PART 3 - EXECUTION

3.1 EXAMINATION

Site Verification and Conditions

1. Verify that site conditions are acceptable for glass installation.
2. Verify openings for glazing are correctly sized and within tolerance.
3. Verify that functioning weep system is present.
4. Verify that minimum required face and edge clearances are being met.

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5. Verify that glazing channels and recesses are clear and free of obstructions, weeps are clear, and channels and recesses are ready for glazing.
 6. Verify that framing system is appropriately sized for IGU thickness and that precautions are taken to not over compress the edge seals of the IGU when the glass is installed.
- Do not proceed with glazing until unsatisfactory conditions have been corrected.

3.2 PREPARATION

Surface Preparation:

1. Clean and prepare glazing channels and other framing members to receive glass and wire.
2. Remove coatings and other harmful materials that will prevent glass and glazing installation required to comply with performance criteria specified.
3. Install grommets at all locations where Frame Cable will penetrate metal framing or structure.

3.3 INSTALLATION

Install products using recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in the "GANA Glazing Manual".

Verify that IGU secondary seal is compatible with glazing sealants.

Install glass in prepared glazing channels and other framing members.

Install glass per frame manufacturer's drawings showing IGU orientation and wire exit point into building. Comply with glass manufacturer's labels and instructions for glass orientation. Protect IGU pigtail and Frame Cable from any damage during installation. Use grommets during installation to protect wire when routing through frame. If Frame Cable or the connector is damaged during installation, SAGE must be notified and the cable or the connector must be replaced or repaired with a SAGE approved method.

PVC jacketed plenum cables (IGU Pigtails, 8 Conductor Cable, Frame Cables) should be conditioned for 24 hours at room temperature prior to installation and never installed below 0°C (32° F) ambient temperature. Once installed these wires must not be exposed to sunlight even through glass. If they are installed in an exposed location, they must be covered or painted (latex / water based paint only).

Verify glazing pocket where IGU Pigtail and Frame Cable connection is made is a dry location.

Install silicone setting blocks in rabbets as recommended by referenced glazing standards in GANA Glazing Manual and IGMA Glazing Guidelines and manufacturer's Glazing Guidelines.

Use silicone edge blocks for all installed panes to prevent glass from walking post installation.

Provide bite on glass, minimum edge and face clearances, and glazing material tolerances recommended by GANA Glazing Manual and as approved by glass manufacturer.

Provide weep system as recommended by GANA Glazing Manual.

Distribute weight of glass unit along edge rather than at corners.

Comply with framing manufacturer's and referenced industry recommendations on expansion joints and anchors, accommodating thermal movement, glass openings, use of setting and edge blocks, use of glass spacers, edge blocks, and installation of weep systems. Setting and edge blocks must be made from silicone. Manufacturer does not recommend the use of setting blocks made from other materials, as they been known to alter the chemical makeup of plastics and rubbers they come in contact with, resulting in seal failure.

Protect glass from edge damage during handling and installation.

Install per IGMA North American Glazing Guidelines for Sealed Insulated Glass Units, for Commercial and Residential Use TM-3000-90(04) states "For dry glazed systems, an adequate

seal should consist of a minimum of 0.70 N/mm (4 lb/in) and not exceeding 1.75 N/mm (10 lb/in) applied to the edges of the insulated glass unit by gaskets or other fastening systems.”

Prevent glass from contact with contaminating substances that result from construction operations, such as weld spatter, fireproofing, or plaster.

Once electronically tintable IGUs have been removed from Electrochromics’ packaging, remove labels within 10 days of exposure to sunlight or other UV light sources.

3.4 ADJUSTING

Remove glass that is broken, chipped, cracked, or damaged in any way, and replace with new materials. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

3.5 CLEANING

Clean glass inside and outside, immediately after installation and sealants have cured, per Electrochromics’ written recommendations.

Remove labels and markings from glass.

Clean glass per:

1. NGA Glass Technical Paper FB01-00 (2020) - Proper Procedures for Cleaning Architectural Glass Products.
2. NGA Glass Technical Paper FB02-02 (2018) – Heat-Treated Glass Surfaces Are Different.

Do not use scrapers or other metal tools to clean glass.

3.6 TESTING

Do not use ‘high voltage spark’ gas analyzers such as Sparklike’s Gasglass on this product. Film and controls damage may occur and potentially void the warranty.

END OF SECTION

SECTION 08 91 00 – ROOFTOP EQUIPMENT SCREENS

PART 1 GENERAL

1.1 SECTION INCLUDES

Rooftop equipment screens for enclosing roof top mechanical equipment.

1. Aluminum
- B. Aluminum Support Framing: For direct attachment of screening panels to mechanical equipment; no base or curb required unless shown otherwise on drawings.
- C. Sliding Panels: For access to mechanical equipment for servicing.
- D. Not Included in This Specification:
 1. Touch-up painting required for scratches and screw heads.
 2. Field painting of prime painted screens.

1.2 RELATED SECTIONS

- A. Section 051200 - Structural Steel: Metal Framing.
- B. Section 053113 - Steel Floor Deck.
- C. Section 055000 - Metal Fabrications: Frames and supports.
- D. Section 077213 - Roof Curbs.
- E. Section 099100 - Paints and Coatings: Field applied paint finish.
- F. Division 23 - Roof Top HVAC Equipment.

1.3 REFERENCES

American Society for Testing and Materials (ASTM): ASTM B 221 - Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire Profiles, and Tubes.

- A. The Aluminum Association, Inc. (AA): AA ADM-1516166 - Aluminum Design Manual
- B. American Society of Civil Engineers (ASCE): ASCE 7-18 - Minimum Design Loads for Buildings and Other Structures

1.4 SUBMITTALS

- A. Product Data:
 1. Manufacturer's data sheets on each product to be used.
 2. Preparation instructions and recommendations.
 3. Storage and handling requirements and recommendations.
 4. Typical installation methods.
 5. Sufficient data and detail to indicate compliance with these specifications.

- B. Verification Samples: Two representative units of each panel type.
 - 1. Color Selection: Submit paint chart with full range of colors available for Architect's selection. Custom color samples available upon purchase.
- C. Shop Drawings: Indicate layout heights, component connection details, and details of interface with adjacent construction.
 - 1. Roof top mechanical equipment to be enclosed.
- D. Certification: Manufacturer's Certificate of Compliance certifying that panels supplied meet or exceed requirements specified.
 - 1. Professional Engineer stamped drawings.
- E. Closeout Submittals: Warranty documents, issued and executed by manufacturer, countersigned by Contractor.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of one year documented experience.
- B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
- C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
- D. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
 - 1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
 - 2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
 - 3. Retain mock-up during construction as a standard for comparison with completed work.
 - 4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.6 PRE-INSTALLATION CONFERENCE

- A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items, and approvals.
 - 1. Notify Architect four (4) calendar days in advance of scheduled meeting date.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.
- B. Storage and Handling: Protect materials and finishes during handling and installation to prevent damage.
- C. Protect from damage due to weather, excessive temperature, and construction operations.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
- B. Field Measurements: Take measurements of supporting paving, footings, or piers. Indicate measurements on shop drawings fully documenting any field condition that may interfere with the screen system installation.

1.9 COORDINATION

- A. Installer for work under this Section shall be responsible for coordination of panel and framing sizes and required options with the Contractor's requirements.
 - 1. Request information on sizes and options required from the Contractor.
- B. Submit shop drawings to the Contractor and obtain written approval of shop drawing from the Contractor prior to fabrication.

1.10 WARRANTY

- A. Warranty: Provide manufacturer's standard limited 3 year warranty, starting from the date of substantial completion of the project.
- B. This warranty does not cover failure of your rooftop equipment screen if the Owner damages it, or if the failure is caused by improper installation. In no event shall the Warrantor be liable for incidental or consequential damages.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: CityScapes International Inc., which is located at: 4200 Lyman Ct., Hilliard, OH 43026; Toll Free: 877-SCREENS; Phone: 614-850-2549; Email: Contact@cityscapesinc.com; Web: <https://cityscapesinc.com/>
- B. RoofScreen Mfg., which is located at: 1500 Green Hills Rd. Suite 202. Scotts Valley, CA 95066; Tel: 831-421-9230; Fax: 866-253-0738; Email: [request info \(info@roofscreen.com\)](mailto:request info (info@roofscreen.com)); Web: www.roofscreen.com.
- C. PalmSHIELD, which is located at: 300 East Locust Street, Carter Lake, IA 51510
Tel: [531-329-4406](tel:531-329-4406) Web: <https://palmshieldlouvers.com/> Email requests to info@palmshieldlouvers.com

PERFORMANCE AND DESIGN REQUIREMENTS

- D. Regulatory Requirements: Comply with requirements of building authorities having jurisdiction in Project location.
- E. Design Criteria:
 - 1. Rooftop Equipment Screens:

- a. The manufacturer is responsible for the structural design of all materials, assembly, and attachments to resist snow, wind, suction, and uplift loading at any point without damage or permanent set.
 - b. Framing shall be designed in accordance with the Aluminum Design Manual to resist the following loading:
 - 1) ASCE 7-18 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers.
 - c. Default Clear Space Between Equipment and Screen: 36 inch (914 mm) nominal.
 - d. Standard Truss Sizes: 36 and 48 inch (914 and 1219 mm).
 - e. Screen Heights: 35, 52, and 70 inches (889, 1321, 1778 mm) and may be stacked as needed.
 - f. Corners may have one panel mounted at 45 degrees.
 - g. Screens may partially surround units.
 - h. Trusses: Should be spaced no further than 96 inches (2438 mm) along cabinet perimeter.
 - i. Screens Mounted to Steel Posts: Posts must be set no further than 96 inches (2438 mm) on center.
2. Design Requirements to be Supplied to Manufacturer:
 - a. Obstructions above unit base rail elevation and within 72 inches (1829 mm) of unit must be identified.
 - b. Access panels, access doors, vent hoods, power disconnects, etc. must be accounted for in design; clearly noted on unit cut sheets or roof plans provided to Manufacturer.
 - c. Equipment Obstruction Details Provided to Cityscapes: Such as door swings, horizontal ducting, or piping may be made to run between top and bottom rails. Contact Manufacturer for custom solutions.
 - d. Post Mounting Systems: By others. Must have all steel sizing provided.
 3. Limitations:
 - a. Screens may be designed 22 to 60 inches (559 to 1524 mm) clear, as decided necessary by Manufacturer.
 - 1) Requests for special clearances should be noted.
 - b. Screen Heights:
 - 1) Cannot exceed 8 inches (203 mm) more than cabinet height.
 - 2) Units may have varying screen heights if needed to clear obstructions such as parapet walls.
 - c. Top Trim: May be added to cover as much of the unit above attachment points.
 - d. Screen Supports: To be attached below any drip edges.
 - e. Spans Between Supports Larger than 100 inches (2540 mm): May require a post mount support.
 - 1) Steel HSS by others.
 - 2) Free-standing support posts provided by Manufacturer.
 - f. Removable Screen Sections:
 - 1) May be used for large maintenance clearances under special conditions:
 - 2) Removable Sections:
 - a) Fit between two trusses.
 - b) Are not adjacent to one another; two trusses either side of section.
 - c) Are not placed on the ends of partially sided systems.
 - g. Units May be Nested Together If:

- 1) Cabinets are suitable for screen attachment.
 - 2) Cabinets are no further than 96 inches (2438 mm) apart.
 - 3) Units have similar cabinet and curb heights.
 - 4) Units are not on isolation/vibration curbs.
- h. If nested look is desired but not possible for one of the reasons above, independent screens can be sized to fit together with small gaps.

2.2 MATERIALS

- A. Powder Coated or Painted Metal Panels: Fabricated from rigid aluminum panels in multiple thicknesses.
1. Minimum Thickness: 0.050 inches (1.27 mm).
- B. Perforated Metal Panels: Fabricated from rigid aluminum panels in multiple thicknesses.
1. Minimum Thickness: 0.063 inches (1.60 mm).
- C. Framing: Aluminum Plate, Shapes and Bar: ASTM B 221, alloy 6061-T5 or 6063-T5.
- D. Threaded Fasteners: Screws, bolts, nut, and washers to be Stainless steel.
1. Corner Assembly Fasteners: No. 12-14 x 1-1/4 inches (32 mm) stainless steel self-drilling screws.
 - a. Length: As required to develop full holding capacity of screw when fastened to Mechanical Equipment.
 2. Provide lock washer or other locking device at all bolted connections.

2.3 FABRICATION

- A. Provide factory-formed panel systems with continuous interlocking panel connections and indicated or necessary components: Form all components true to shape, accurate in size, square and free from distortion or defects. Cut panels to precise lengths indicated on approved shop drawings.
- B. Fabricate all panels to slide horizontally to allow access to unit access panels behind.
- C. Design, and Trim:
1. Panel Design: Metal Series. Vented Louver.
- D. Trim and Closures: Material: Aluminum. Thickness: 0.050 to 0.25 inches (1.27 to 6.35 mm),
1. Finish: Manufacturers standard coating system, unless shown otherwise on drawings.
- E. Framing: Fabricate and assemble components in largest practical sizes, for delivery to Project site.
1. Corner Assemblies: Construct to required shape with joints tightly fitted.
 2. Components Required Framing Anchorage: Fabricate anchors and related components of material and finish as required, or as specifically noted.

2.4 FINISHES

- A. Aluminum Framing: Mill finish.
- B. Panel Coating: Manufacturer's standard powder coating system, factory applied.

1. Color: Selected from full range of manufacturer's standard colors.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Installer's Examination: Examine conditions under which construction activities of this section are to be performed.
 1. Submit written notification to Architect and Screen manufacturer if such conditions are unacceptable.
 2. Beginning erection constitutes installer's acceptance of conditions.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install screen systems in accordance with the manufacturer's instructions and approved shop drawings. Keep perimeter lines straight, plumb, and level. Provide brackets, anchors, and accessories necessary for a complete installation.
- B. Insert panels into structural supports, except where fixed attachment points are indicated. Butt panels to adjacent panels for uniform fit. Fasten fixed panels in accordance with the shop drawings.
- C. Metal Separation: Where aluminum materials would contact dissimilar materials, insert rubber grommets at attachment points, thus eliminating where dissimilar metals would otherwise be in contact.
- D. Do not cut or abrade finishes which cannot be restored unless instructed. Return items with such finishes to shop for required alterations.

3.4 ERECTION TOLERANCES

- A. Maximum misalignment from true position: 1/4 inch (6 mm).

3.5 CLEANING AND PROTECTION

- A. Remove all protective masking from material immediately after installation.
- B. Protection:
 1. Ensure that the finishes and structure of installed systems are not damaged by subsequent construction activities.
 2. If minor damage to finishes occurs, repair damage in accordance with manufacturer's recommendations; provide replacement components if repaired finishes are unacceptable to Architect.
- C. Prior to Substantial Completion: Remove dust or other foreign matter from component surfaces; clean finishes in accordance with manufacturer's instructions.
 1. Clean units in accordance with the manufacturer's instructions.

END OF SECTION

SECTION 09 84 11 – ACOUSTICAL WALL TREATMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the Acoustic Finishes as shown and specified in the described system(s):
Adjust list below to suit Project
 - 1. Corridor Display Wall Acoustic Finish

1.3 SUBMITTALS

- A. General: Submit the following in accordance with conditions of contract and Division 1 specification section 01 33 00 “Submittal Procedures”.
- B. Product Data: Submit manufacturer’s product data; include product description, fabrication information, and compliance with specified performance requirements.
- C. Submit product test reports from a qualified independent 3rd party testing agency indicating each type and class of panel system complies with the project performance requirements, based on comprehensive testing of current products. Previously completed test reports will be acceptable if for current manufacturer and indicative of products used on this project.
 - 1. Test reports required are:
 - a. Steiner Tunnel Surface Burning Rate Test (ASTM E 84)
 - b. ASTM C423
 - c. Dynamic environmental testing (ASTM standards D 5116 and D 6670)
- D. Shop Drawings: Include plans, elevations, sections, panel dimensions, details, and attachments to other work.
- E. Samples for Initial Selection:
 - 1. Submit minimum 2-inch by 2-inch samples. Indicate full color and pattern.
- F. Samples for Verification:
 - 1. Submit minimum 4-inch by 4-inch sample for each color
 - 2. Delete below if mockups are not required
- G. Mockups:
 - 1. Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects.
 - 2. Build mockup of Acoustic Finish.

3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

- H. Maintenance Data: Submit manufacturer's care and maintenance data, including care, repair and cleaning instructions. Include in Project closeout documents.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications

1. Materials and systems shall be manufactured by a company continuously and regularly employed in the manufacture of specified materials for a period of at least two (2) consecutive years and which can show evidence of those materials being satisfactorily used on at least three (3) projects of similar size, scope and location. At least three (2) of the projects shall have been successful for use two (2) years or longer.
2. Manufactured panels must be produced from a minimum of 50% post-industrial recycle content.

DELIVERY, STORAGE, AND HANDLING

- B. Deliver Acoustic Finishes and specified items in manufacturer's standard protective packaging.
- C. Do not deliver Acoustic Finishes, components and accessories to Project site until areas are ready for installation.
- D. Store materials in a flat orientation in a dry place that is not exposed to exterior elements.
- E. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent damage or staining following installation for duration of project.
- F. Before installing Acoustic Finishes, permit them to reach room temperature.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install Acoustic Finishes until spaces are enclosed and weatherproof, and ambient temperatures and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.6 WARRANTY

- A. Manufacturer's Special Warranty on polymer panel system: Manufacturer's standard form agreeing to repair or replace units that fail in material or workmanship within the specified warranty period.
- B. Warranty Period: 1 year after the date of substantial completion.
- C. The warranty shall not deprive the owner of other rights or remedies the Owner may have under other provisions of the Contract Documents, and is in addition to and runs concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:

1. **Basis of Design** 3form, LLC., Salt Lake City, Utah, USA / Telephone 801-649-2500
2. Filzfelt - 425 Cross Point Parkway, Getzville, NY, USA / Telephone 716-446-2380
3. BuzziSpace - West Merchandise Mart Plaza, Chicago, IL, USA / Telephone 336-821-3150

2.2 MATERIALS

- A. 3Form - Hush Clad produced from Sola Felt
- B. Filzfelt – Akustika 10 Wall
- C. BuzziSpace - BuzziBack
- D. Sheet minimum performance attributes:
1. Noise Reduction Coefficient (ASTM C423) – 0.35
 2. Dynamic environmental testing (ASTM standards D 5116 and D 6670). Panels must not have detectable VOC off-gassing agents and must be have Greenguard™ Indoor Air Quality certified.
 3. Panels must be produced from a minimum of 50% post-industrial recycle content.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide products of material, size, and shape required for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaner: Type recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where installation of Acoustic Finishes will occur, with Installer present, for compliance with manufacturer's requirements. Verify that substrates and conditions are satisfactory for installation and comply with requirements specified.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for the installation of Acoustic Finishes.
- B. Utilize fasteners provided by manufacturer.
- C. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
- D. We recommend that installation is completed by a Certified Installer.

3.3 CLEANING AND PROTECTION

- A. Protect surfaces from damage until date of substantial completion. Repair work or replace damaged work, which cannot be repaired to Architect's satisfaction.

END OF SECTION

SECTION 26 09 00 - ELECTROCHROMIC WIRED CONTROL SYSTEM - INSTRUMENTATION AND CONTROL FOR ELECTRICAL SYSTEM

PART 1 - GENERAL

1. SUMMARY

- a. Section includes:
 - 1) Control system for use with electrochromic insulating glass units.
- b. Related Sections:
 - 1) Section 08 88 00 – Special Function Glazing.
 - 2) Division 25 – Integrated Automation.
 - 3) Division 26 – Electrical.

2. DEFINITIONS

- a. 8-Conductor Cable: Cable which runs from the Window Controller to the Terminal Box, extending total range from the Window Controller to the IGU
- b. Cell Modem: Cellular modem used to transmit and receive data for updates, system diagnostics, system modifications, and mobile control.
- c. Control Panel: Enclosure for IGU Window Controller(s) which mounts to an indoor surface.
- d. Ethernet Cable: Creates connections between electronic components to create a local area network
- e. Electrochromic System Intelligence: Software that uses proprietary algorithms to drive and control electrochromic IGUs.
- f. Electrochromic Control System: Control system for use with electrochromic IGUs.
- g. Façade Mounted Sensor: A multi-sensor unit mounted on or near the exterior of the framing system or building façade to measure available daylight and thermal transmittance radiated from the sun; used for automatic control of tint level to achieve desired daylighting.
- h. Firewall: Hardware component that provides an additional layer of cybersecurity protection.
- i. Frame Cable: Cable that runs through framing system and connects IGU Pigtail to the Window Controller
- j. IGU: Insulating Glass Unit.
- k. IGU Pigtail: Cable that extends from individual insulating glass units.
- l. Industrial Computer: Computer hardware used to operate and drive Electrochromic System Intelligence.
- m. Mobile Application (App): Software control program downloaded and installed on third party smart devices; requires active internet connection for functionality.
- n. Power over Ethernet (PoE) Switch: Electronic component that functions as a junction for multiple communications connections and providing power to Wall Touch Panels and Sensors.
- o. Rooftop Mounted Sensor: A multi-sensor unit mounted on or near the top of the building to measure the amount of light and thermal transmittance radiated from the sun; used for automatic control of tint level to achieve desired daylighting.
- p. Sub-Panes: Discrete controllable area within a single electrochromic IGU.
- q. Scenes: Pre-configured patterns of tint among one or more Sub-Panes.

- r. Terminal Box: Junction Box where 8-Conductor Cables are connected to Frame Cables; mounts to an indoor surface.
- s. Wall Touch Panel: Capacitive touch panel with a Graphical User Interface used to override automatic function and manually control IGUs.
- t. Window Controller: Control module for up to 16 IGUs.
- u. Zones: Grouping of one or more electrochromic IGUs or sub-panes that can be controlled in tandem.

3. SYSTEM DESCRIPTION

- a. Basic Controls
 - 1) Each Window Controller controls and monitors up to sixteen (16) IGUs.
 - 2) Window Controller will be configured for the connected IGUs and used in conjunction with Electrochromic System Intelligence, Wall Touch Panel, and Mobile App to manually override multiple zones for independent operation of specific areas of the glazing.
 - 3) System is configured for four (4) tint levels (fully tinted, fully clear, and two intermediate).
 - 4) System is configured for eight (8) tint levels (fully tinted, fully clear, two intermediate uniform, and four graded transition).
- b. Automation
 - 1. Electrochromic System Intelligence will automatically control all of the IGUs based on a combination of occupant layout, time, solar time (referenced to sunrise, sunset, or solar noon) and sensor levels (e.g., light or irradiance).
- c. User Interface
 - 1. Wall Touch Panels and Mobile App provides the ability to override the automatic control system via Zone or Scene command.
- d. System Integration
 - 1) Electrochromic System Intelligence enables integration with other automation systems using BACnet interface.

4. SUBMITTALS

- a. Product Data: Electrochromic IGU manufacturer's Product Sheets including installation instructions.
- b. Shop Drawings Provided: Manufacturer Wiring Diagram: connections to Frame Cables, 8-Conductor Cable and other related connections. Indicate approximate locations of materials and provide guidance for routing of wiring.
- c. Shop Drawings Not Provided: Exact location of materials and routing of wires to be determined by parties responsible for installation.

5. QUALITY ASSURANCE

- a. Pre-Installation Meetings: Conduct pre-installation meeting or teleconference with the following parties in attendance:
 - 1) Architect, contractor, glazing contractor, framing manufacturer, Electrochromic IGU manufacturer, electrical contractor, automation engineer, and other parties related to Work of this Section, to review procedures, schedules, safety, and coordination with other elements of Project.

6. DELIVERY, STORAGE, AND HANDLING

- a. Comply with Electrochromic IGU manufacturer's instruction for receiving, handling, storing, and protecting materials.
- b. Deliver materials in Electrochromic IGU manufacturer's original, unopened, undamaged containers with identification labels intact.
- c. Store materials in original packaging, protected from exposure to harmful environmental conditions, including static electricity.
- d. All cables supplied by Electrochromic IGU manufacturer should be conditioned for 24 hours at room temperature prior to installation and never installed below 32 degrees F (0 degrees C) ambient temperature.

7. PROJECT / SITE CONDITIONS

- a. Verify locations of Control Panels, Wall Touch Panels, Industrial Computer, and Power over Ethernet Switch within building.
- b. Verify locations of Terminal Boxes (if used) near IGUs.
- c. Verify locations of Rooftop Mounted Sensor, and Façade Mounted Sensor(s) if used.
- d. Verify penetration locations of Frame Cables/Ethernet, and any other wiring that may be deemed necessary by the manufacturer into building.
- e. Verify locations for Cell Modem and Firewall.
- f. Electrochromic Control System must be installed in an indoor, climate-controlled environment. Exceptions are the Rooftop Mounted Sensor, Façade Mounted Sensor and any other components which may be deemed necessary by the manufacturer and are designed for exterior use.
- g. Once installed, cables supplied by Electrochromic IGU manufacturer must not be routinely exposed to sunlight, even through glass.

8. WARRANTY

- a. Warrant electrochromic controls against defects in material or workmanship for a period of five (5) years from the date of shipping of the Controls from manufacturer per the manufacturer's warranty.

PART 2 - PRODUCTS

9. MANUFACTURER

- a. Basis of Design: SageGlass Symphony™ electrochromic control system as supplied by:

SAGE Electrochromics, Inc
One Sage Way
Faribault, MN 55021
Phone: 507-331-4848
Email: FieldOperations@sageglass.com
Website: www.sageglass.com

2.2 MATERIALS

A. Electrochromic Control System:

1. Cell Modem:
 - a. Dimensions:
 - 1) Length: 5.5 inch (14.0 cm)
 - 2) Width: 3.0 inch (7.6 cm)
 - 3) Height: 1.6 inch (4.1 cm)
 - b. Power Specifications:
 - 1) Voltage: 100 – 240 V AC, 50/60 Hz
 - 2) Amperes: 0.15 A
 - 3) Max Power: 15 W
 - c. Color:
 - 1) Black
2. Control Panel (Small):
 - a. Dimensions:
 - 1) Length: 13.5 inch (34.3 cm)
 - 2) Width: 14.5 inch (36.8 cm)
 - 3) Height: 2.3 inch (5.8 cm)
 - b. Capacity:
 - 1) Number of Controllers: 1
 - 2) Maximum IGU Quantity: 16
 - 3) Maximum IGU Area: 960 square feet
 - c. Power Specifications:
 - 1) Voltage: 100 – 240 V AC, 50/60 Hz
 - 2) Amperes: 3.5 A
 - 3) Max Power: 350 VA
 - d. Color:
 - 1) White
3. Control Panel (Large):
 - a. Dimensions:
 - 1) Length: 36.0 inch (91.4 cm)
 - 2) Width: 17.5 inch (44.5 cm)
 - 3) Height: 4.3 inch (10.9 cm)
 - b. Capacity:
 - 1) Number of Controllers: 4
 - 2) Maximum IGU Quantity: 64
 - 3) Maximum IGU Area: 3840 square feet
 - c. Power Specifications:
 - 1) Voltage: 100 – 240 V AC, 50/60 Hz
 - 2) Amperes: 3.5 – 14 A (dependent on number of controllers)
 - 3) Max Power: 350 – 1400 VA (dependent on number of controllers)
 - d. Color:
 - 1) White
4. Façade Mounted Sensor:
 - a. Dimensions:
 - 1) Length: 3.9 inches (9.9 cm)

- 2) Width: 2.0 inches (5.1 cm)
 - 3) Height: 1.9 inches (4.8 cm)
 - b. Sensor Measurement Ranges:
 - 1) Illuminance range: 0 – 100k Lux
 - 2) Irradiance: 0 – 800 W/m²
 - 3) Temperature: -40°C to 60°C
 - c. Power Specifications (PoE):
 - 1) Peak Power: 1.1 W
 - 2) PoE Standard: IEEE 802.3af/at Type 1
 - d. Color:
 - 1) Black or White
- 5. Firewall:
 - a. Dimensions:
 - 1) Length: 0.9 inch (2.2 cm)
 - 2) Width: 4.3 inch (11.0 cm)
 - 3) Height: 3.0 inch (7.5 cm)
 - b. Power Specifications:
 - 1) Voltage: 100 – 240 V AC, 50/60 Hz
 - 2) Amperes: 0.1 A
 - 3) Max Power: 10 W
 - c. Color:
 - 1) Black
- 6. Industrial Computer:
 - a. Dimensions:
 - 1) Length: 4.8 inch (12.2 cm)
 - 2) Width: 7.7 inch (19.6 cm)
 - 3) Height: 1.5 inch (3.8 cm)
 - b. Power Specifications:
 - 1) Voltage: 100 – 240 V AC, 50/60 Hz
 - 2) Amperes: 0.45 A
 - 3) Max Power: 45 W
 - c. Color:
 - 1) Orange
- 7. Power over Ethernet (PoE) Switch:
 - a. Dimensions:
 - 1) Length: 7.1 inch (18.0 cm)
 - 2) Width: 11.6 inch (29.4 cm)
 - 3) Height: 1.7 inch (4.4 cm)
 - b. Power Specifications:
 - 1) Voltage: 100 – 240 V AC, 50/60 Hz
 - 2) Amperes: 0.45 A
 - 3) Max Power: 45 W
 - 4) PoE Standard: IEEE 802.3af/at (Output per port)
 - c. Color:
 - 1) Black
- 8. Rooftop Mounted Sensor:
 - a. Dimensions:
 - 1) Length: 3.5 inches (8.9 cm)
 - 2) Width: 3.5 inches (8.9 cm)

- 3) Height: 3.3 inches (8.4 cm)
 - b. Sensor Measurement Ranges:
 - 1) Illuminance range: 0 – 100k Lux
 - 2) Irradiance: 0 – 800 W/m²
 - 3) Temperature: -40°C to 60°C
 - c. Power Specifications (PoE):
 - 1) Peak Power: 1.1 W
 - 2) PoE Standard: IEEE 802.3af/at Type 1
 - d. Color:
 - 1) Black
- 9. Terminal Box:
 - a. Terminal Box Enclosure:
 - 1) Length: 2.4 inch (6.1 cm)
 - 2) Width: 6.0 inch (15.2 cm)
 - 3) Height: 10.1 inch (25.7 cm)
 - b. Capacity:
 - 1) Quantity of 8-conductor Cables supported: Four
 - 2) Terminal block type: Spring clamp terminals
 - c. Color:
 - 1) Unfinished galvanized metal
- 10. Wall Touch Panel:
 - a. Dimensions:
 - 1) Length: 5.0 inch (12.7 cm)
 - 2) Width: 3.4 inch (8.6 cm)
 - 3) Height: 1.8 inch (4.6 cm)
 - b. Power Specifications (PoE):
 - 1) Peak Power: 2.2 W
 - 2) PoE Standard: IEEE 802.3af/at Type 1
 - c. Color:
 - 1) Black
- 11. Window Controller:
 - a. Dimensions:
 - 1) Length: 4.7 inch (12.0 cm)
 - 2) Width: 8.9 inch (22.8 cm)
 - 3) Height: 1.8 inch (4.6 cm)
 - b. Power specifications:
 - 1) Input Voltage: 22-26 V DC
 - 2) Maximum Input Current: 10.2 A
 - 3) Electrical Peak Power: 240 W
 - 4) Maximum Output Voltage (IGU): 16 V DC
 - 5) Maximum Output Current (IGU): 1.5 A
 - c. Color:
 - 1) Black

B. Class 2 Wiring:

- 1. 8-conductor Cable: Eight-conductor 16 AWG cable. Cable is of type Plenum PVC, CMP/CL2P insulation which complies with the typical requirements of the NEC and applicable building codes for Class 2 low-voltage DC circuits.

- 2. Frame Cable: Two- or four-conductor 22 AWG. Cable is of type Plenum PVC, CMP/CL2P insulation which complies with the typical requirements of the NEC and applicable building codes for Class 2 low-voltage DC circuits.
- C. The following materials are not provided by Electrochromic IGU manufacturer, however, minimum performance specifications are supplied for each component.
 - 1. 100 – 240V AC Wiring: Three conductor 12 AWG cable. 15A or 20A service to each control enclosure.
 - 2. Ethernet Cable: 8 conductor 26 AWG, CAT5e UTP or STP cable.

PART 3 - EXECUTION

3.1 INSTALLATION

- a. Cross functional team required.
- b. Ensure that equipment, conduit, gang boxes, and other related materials are installed and ready to receive Work of this Section.
- c. Install products per manufacturer’s instructions and approved Manufacturer Wiring Diagram.
- d. Install Wall Touch Panels, Terminal Boxes, Control Panels, Industrial Computer, PoE Switches, Firewall and Cell Modem in an indoor, climate-controlled environment.
- e. Ensure Wall Touch Panels, Control Panels, Terminal Boxes, Industrial Computer and Cell Modem are installed so as to be accessible.
- f. Ensure Window Controllers are located at ground working level so as to be accessible without special equipment.
- g. Ensure 8-Conductor Cable runs between Control Panels and Terminal Boxes do not exceed the lengths shown in the following table, based on the length of Frame Cables used (top row):

	Cable lengths in feet		
Standard Frame Cables	50	75	125
8-Conductor Cable Maximum (AWG16)	300	200	0

- h. Ensure any point-to-point Ethernet Cable run between Control Panels, Wall Touch Panels, Sensors, and Power over Ethernet (PoE) Switch is no longer than 100 meters.

3.2 COMMISSIONING

- A. Before start-up of electrochromic system, conduct visual inspection to verify system is installed per the manufacturer provided plans and wiring diagrams. Verify proper wire connections to and from equipment and insulating glass units.
- B. When system is in start-up, conduct an overall system test and verify system components are fully functional.

END OF SECTION

STRUCTURAL GENERAL NOTES

DESIGN LOADS

STRUCTURAL RISK CATEGORY **CATEGORY III**

FLOOR LIVE LOAD **10 PSF**

SLAB ON GRADE **10 PSF**

ROOF LIVE LOAD **20 PSF MIN**

ROOF SNOW LOAD (PER ASCE 7-10) **15 PSF**

GROUND SNOW LOAD **Ps = 15 PSF**

IMPORTANCE FACTOR **I = 1.1**

SNOW EXPOSURE FACTOR **Cs = 1.0**

THERMAL FACTOR (BUILDING) **Ct = 1.0**

(CANOPES) **Ct = 1.2**

RAIN ON SNOW SURCHARGE **Ps = 5 PSF**

FLAT-ROOF SNOW LOAD (P = 0.7G/CsPa) (BUILDING) **Ps = 15.9 PSF**

MAXIMUM SNOW DRIFT HEIGHT **hd = 1.0 FT**

MINIMUM ROOF SNOW LOAD (Wp) **Ps = 16.5 PSF**

"INCREASE FOR DRIFTING PER ASCE 7-10, SECTIONS 7.7 & 7.8"

MAXIMUM SNOW DRIFT HEIGHT **hd = 1.0 FT**

MAXIMUM SNOW DRIFT MAGNITUDE (P = hd²) **Ps = 30 PSF**

MAXIMUM SNOW DRIFT WIDTH **w = 7.6 FT**

WIND LOAD (PER ASCE 7-10)

ULTIMATE DESIGN WIND SPEED **Vult = 120 MPH**

NOMINAL DESIGN WIND SPEED **Vnom = 93 MPH**

WIND EXPOSURE **EXPOSURE C FULLY ENCLOSED**

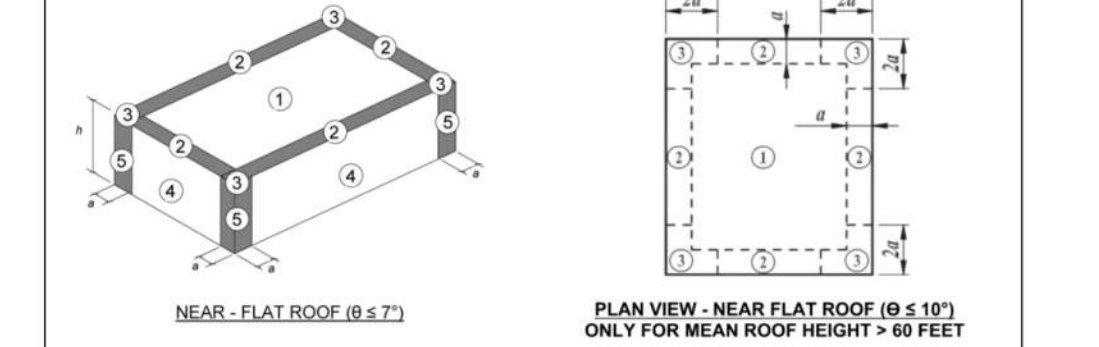
INTERNAL PRESSURE COEFFICIENT **GCF = +0.18**

END ZONE WIDTH **a = 7.6 FT**

COMPONENTS & CLADDING EXTERNAL PRESSURE (ULTIMATE (LRFD) LOADS) (PSF)

EFFECTIVE WIND AREA (SQ FT)	LOCATION PER ASCE 7-10			
	(1)	(2)	(3)	(4)
10	16	16	16	30
	-33	-54	-43	-33
20	16	16	16	29
	-32	-50	-49	-31
50	16	16	16	27
	-31	-42	-40	-27
100	16	16	16	26
	-30	-36	-28	-32
500			23	23
			-26	-26

- NOTES:**
- WIND LOADS PROVIDED ARE ULTIMATE (LRFD) LOADING. FOR ALLOWABLE STRESS DESIGN MILL TYPICAL LOADS PROVIDED BY 0.6
 - LOADING PROVIDED IS FOR WORST CASE ROOF HEIGHT. DELEGATED DESIGNERS MAY RECALCULATE LOADS FOR SPECIFIC COMPONENT HEIGHTS USING PARAMETERS SPECIFIED.
 - PRESSURES SHOWN ARE APPLIED NORMAL TO THE SURFACE.
 - PLUS AND MINUS SIGNS INDICATE PRESSURES ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY.
 - FOR HIP ROOFS WITH $\theta \leq 25^\circ$, ZONE 3 SHALL BE TREATED AS ZONE 2.
 - EACH COMPONENT MUST BE DESIGNED FOR MAXIMUM POSITIVE AND NEGATIVE FORCES.
 - FOR COMPONENTS HAVING EFFECTIVE AREAS IN BETWEEN TABULATED VALUES, DESIGN LOADS MAY BE INTERPOLATED. OTHERWISE DESIGN LOAD MUST BE TAKEN FROM THE NEXT LOWEST EFFECTIVE AREA.
 - INTERNAL PRESSURE FOR ENCLOSED BUILDING IS INCLUDED IN ABOVE VALUES.
 - THE NET C/C PRESSURE INCLUDING INTERNAL PRESSURE FOR ANY COMPONENT SHALL NOT BE TAKEN LESS THAN 16 PSF ACTING IN EITHER DIRECTION NORMAL TO THE SURFACE.
 - NOTATION:
 - 1) PERCENT OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4% OF LEAST HORIZONTAL DIMENSION OR 3 FT.
 - 2) MEAN ROOF HEIGHT, IN FEET, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ROOF AREAS $\theta > 10^\circ$
 - 3) ANGLE OF PLANE OF ROOF FROM HORIZONTAL, IN DEGREES.



EARTHQUAKE DESIGN DATA

COUNTY / STATE **FAYETTE / KENTUCKY**

IMPORTANCE FACTOR **I = 1.25**

MAPPED SHORT PERIOD RESPONSE ACCELERATION **Ss = 0.187**

MAPPED 1 SECOND PERIOD RESPONSE ACCELERATION **S1 = 0.09**

SEISMIC DESIGN CATEGORY **CLASS C**

DESIGN SHORT PERIOD SPECTRAL RESPONSE COEFFICIENT **Sds = 0.146**

DESIGN 1 SECOND PERIOD SPECTRAL RESPONSE COEFFICIENT **Sd1 = 0.103**

SEISMIC DESIGN CATEGORY **CATEGORY B**

BASIC STRUCTURAL SYSTEM **BEARING WALL SYSTEM**

SEISMIC RESISTING SYSTEM **ORDINARY REINFORCED CONCRETE**

RESPONSE MODIFICATION FACTOR **R = 4.0**

SEISMIC RESPONSE COEFFICIENT **Cs = 0.047**

METHOD OF ANALYSIS **EQUIVALENT LATERAL FORCE PROCEDURE**

SEISMIC BASE SHEAR **24.3 KIPS**

DESIGN STRESSES

CONCRETE (STRENGTH DESIGN) MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS:

FOOTINGS **Fc = 3,000 PSI**

INTERIOR SLABS ON GRADE, WALLS **Fc = 4,000 PSI**

CONCRETE PAVEMENT EXPOSED TO FREEZE/THAW **Fc = 4,000 PSI**

STRUCTURAL CONCRETE EXPOSED TO FREEZE/THAW **Fc = 5,000 PSI**

REINFORCING BARS (ASTM A618 GRADE 60) **Fy = 60,000 PSI**

WELDED WIRE FABRIC (ASTM A1064) **Fy = 65,000 PSI**

WIDE FLANGE AND TEEL SHAPES DESIGNATED AS W AND WT (ASTM A992) **Fy = 50,000 PSI**

ANGLES (ASTM A36) **Fy = 50,000 PSI**

PLATES AND BARS EQUAL TO OR LESS THAN 4 INCHES THICK (ASTM A36) **Fy = 50,000 PSI**

CHANNELS DESIGNATED AS C AND MC (ASTM A992) **Fy = 50,000 PSI**

HOLLOW STRUCTURAL SECTIONS - RECTANGULAR STEEL TUBES (ASTM A500 GRADE C) **Fy = 50,000 PSI**

HOLLOW STRUCTURAL SECTIONS - ROUND STEEL TUBES (ASTM A500 GRADE C) **Fy = 50,000 PSI**

STRUCTURAL STEEL PIPE (ASTM A53 GRADE B) **Fy = 35,000 PSI**

STEEL JOISTS (K) AS PER SJI SPECIFICATIONS **Fy = 50,000 PSI MAX**

STEEL ROOF DECK (ASTM A653) **Fy = 50,000 PSI**

SOIL BEARING PRESSURE FOR FOUNDATIONS (NATURAL SOILS) **2,500 PSF**

- DESIGN CRITERIA**
- STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE 2018 KENTUCKY BUILDING CODE, AS AMENDED BY ORDINANCES.
 - MAXIMUM ESTIMATED DEFLECTIONS (IN INCHES) ARE AS FOLLOWS:
 - WHERE L = SPAN LENGTH BETWEEN CENTERLINE OF SUPPORTS (INCHES)
 - FOR CANTILEVERS L = TWICE THE LENGTH OF THE CANTILEVER.
 - NO PROVISION HAS BEEN MADE FOR FLOOR HORIZONTAL OR VERTICAL EXPANSION.
- GENERAL**
- THE REQUIREMENTS OF THESE GENERAL NOTES APPLY UNLESS NOTED OTHERWISE.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL CONTRACT DOCUMENTS, ADDENDA, AND SUPPLEMENTARY INFORMATION AND DISTRIBUTING SUCH TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE PREPARATION AND SUBMITTAL OF SHOP DRAWINGS, FABRICATION, AND INSTALLATION OF ANY STRUCTURAL MEMBERS.
 - THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES THAT MAY EXIST.
 - ANY DISCREPANCIES BETWEEN STRUCTURAL AND ARCHITECTURAL DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER. THE CONTRACTOR SHALL NOT SCALE DRAWINGS.
 - THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION AND IS THEREFORE DEPENDENT UPON DIAPHRAGM ACTION OF THE ROOF DECK AND ATTACHMENT TO THE SHEAR WALLS AND FRAMES FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY BRACING REQUIRED TO PROPERLY CONSTRUCT THE STRUCTURE. ALL SUCH ELEMENTS ARE COMPLETE AND CAPABLE OF PROVIDING THIS SUPPORT.
 - THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEANS AND METHODS TO CORRECT THE STRUCTURE TO CONFORM TO THE DESIGN AND TO THE REQUIREMENTS OF THE STRUCTURE, NEW OR EXISTING, TO SUPPORT STRUCTURE ACTIVITIES, EQUIPMENT, AND FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. THE CONTRACTOR SHALL NOT EXCEED THE DESIGN CAPACITY OF THE STRUCTURE AT ANY TIME. THE LOADS ARE IMPOSED. DAMAGE TO THE STRUCTURE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE CORRECTED BY THE RESPONSIBLE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
 - SHOP DRAWINGS MUST BE CHECKED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION.
 - NON-STRUCTURAL ELEMENTS OF THE BUILDING (ARCHITECTURAL FINISHES, MASONRY VENEER AND ASSOCIATED TIES, INSULATION, SHEATHING, DUCTWORK, PIPING, FOUNDATION/FLOOR/ROOF DRAINS, ETC.) ARE TYPICALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. WHERE NON-STRUCTURAL ELEMENTS ARE SHOWN ON THE STRUCTURAL DRAWINGS, THEY ARE SHOWN FOR REFERENCE AND DESIGN INTENT ONLY. NON-STRUCTURAL ELEMENTS SHALL BE CONSTRUCTED AS SHOWN ON THE ARCHITECTURAL, ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS.
 - ELEVATIONS SHOWN ON STRUCTURAL DRAWINGS ARE IDEALIZED ELEVATIONS BASED ON DECK THICKNESS AND SLOPES SHOWN ON DRAWINGS AND DO NOT ACCOUNT FOR BEAM OR JOIST CAMBER. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO COORDINATE ANY CAMBER OF THEIR WORK WITH OTHER TRADES AND JUSTIFY ELEVATIONS AS NECESSARY TO ACCOUNT FOR DEAD LOAD DEFLECTION AND THIS CAMBER.
 - WALL OPENINGS AND TERMINATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE DIAGNOSTIC ONLY. WALL TERMINATIONS AND OPENING JAMBES, HEADS, AND SILLS SHALL BE CONSTRUCTED AS SHOWN ON THE ARCHITECTURAL DRAWINGS, WHERE VENEERS W/ JAMBES, DETAIL, AND FABRICATE LINTELS TO BEAR ON SOLID STRUCTURE. DO NOT BEAR LINTELS OR BEAMS ON VENEERS, SILLING, ETC.) IF THE ARCHITECTURAL DRAWINGS DO NOT INCLUDE DETAILS FOR ANY OF THESE CONDITIONS, CONSULT WITH ARCHITECT FOR UNRESOLVED CONSTRUCTION DOCUMENTS AND/OR GENERAL CONSTRUCTION PRACTICE AND IS NOT GUARANTEED TO BE TRUE OR EXACT. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS RELIANT TO THEIR WORK PRIOR TO CONSTRUCTION.
 - DETAILS LABELED "TYPICAL" ON THESE DRAWINGS SHALL APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR AND SHALL APPLY REGARDLESS OF WHETHER THEY ARE KEYS ON THE PLANS. CONSTRUCTION NOT SPECIFICALLY INDICATED BY DETAIL OR SECTION SHALL BE SIMILAR TO DETAILS SHOWN FOR SIMILAR CONDITIONS.

- FOUNDATION CONSTRUCTION**
- FOUNDATIONS ON THIS PROJECT ARE DESIGNED IN ACCORDANCE WITH RECOMMENDATIONS MADE BY S&S, INC. GEOTECHNICAL ENGINEERS, IN THEIR REPORT DATED OCTOBER 2, 2025. THE GEOTECHNICAL REPORT IS PROVIDED AS REFERENCE INFORMATION AVAILABLE TO BIDDERS, BUT IS NOT PART OF THE CONTRACT DOCUMENTS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE OR LIABLE FOR THE ACCURACY OF THE INFORMATION PRESENTED IN THE GEOTECHNICAL REPORT.
 - ELEVATIONS GIVEN ARE TO THE TOP OF FOOTINGS AND GRADE BEAMS.
 - ALL EXISTING SHALL BE SUPPORTED ON UNDISTURBED SOIL CAPABLE OF SUPPORTING DESIGN LOADS WITHOUT APPRECIABLE SETTLEMENT. CONTRACTOR SHALL PROBE BEARING STRATA WITH DRIVEN RODS, REMOVE SHALLOW BEDROCK AND OBSTRUCTIONS (AND OVERLYING SOIL) WITHIN ONE FOOT BELOW SLAB SUBGRADE ELEVATION, AND REPLACE WITH ENGINEERED SOIL BACKFILL. FOUNDATIONS SHALL NOT BEAR ON EXISTING UNDOCUMENTED FILL MATERIAL. ALL EXISTING FILL MATERIAL SHALL BE REMOVED (SHALL BE WITHIN THE INFLUENCE ZONE OF THE FOOTING (SEE DRAWINGS FOR DEFINITION OF "INFLUENCE ZONE").
 - ALL SLABS ON GRADE SHALL BE SUPPORTED ON UNDISTURBED SOIL CAPABLE OF SUPPORTING DESIGN LOADS WITHOUT APPRECIABLE SETTLEMENT. CONTRACTOR SHALL PROBE BEARING STRATA WITH DRIVEN RODS, REMOVE SHALLOW BEDROCK AND OBSTRUCTIONS (AND OVERLYING SOIL) WITHIN ONE FOOT BELOW SLAB SUBGRADE ELEVATION, AND REPLACE WITH ENGINEERED SOIL OR D.G.A. BACKFILL. SLABS ON GRADE SHALL NOT BEAR ON EXISTING UNDOCUMENTED FILL MATERIAL OR EXISTING FAT CLAY. CONTRACTOR SHALL REMOVE SHALLOW FILL TO A MINIMUM OF TWO FEET BELOW SLAB SUBGRADE ELEVATION AND REPLACE WITH ENGINEERED SOIL OR D.G.A. BACKFILL.
 - IN GRANULAR SOILS (SANDS AND GRAVEL), THE SOIL SHALL BE MECHANICALLY TAMPED TO A HARD SURFACE IMMEDIATELY PRIOR TO PLACING FOOTING.
 - LOCATE EXISTING UNDERGROUND UTILITIES IN AREAS OF CONSTRUCTION. COORDINATE WITH UTILITY COMPANIES FOR ANY SHUT-OFF REQUIREMENTS OF STILL-ACTIVE LINES.
 - WHEN EXCAVATIONS APPROACH THE GROUND WATER LEVEL, THE WATER LEVEL SHALL BE LOWERED BY AN ACCEPTABLE Dewatering SYSTEM SO THAT THE WATER LEVEL IS MAINTAINED CONTINUOUSLY A MINIMUM OF 2'-0" BELOW THE EXCAVATION.
 - FOR PLACEMENT AND COMPACTION OF FILL UNDER SLABS ON GRADE, SEE SPECIFICATIONS. IF NOT NOTED OTHERWISE, COMPACT ALL FILL TO 98% OF OPTIMUM LABORATORY DENSITY IN ACCORDANCE WITH ASTM D985 STANDARD PROCTOR METHOD. PLACE FILL IN 6" TO 8" LAYERS AND COMPACT WITH VIBRATORY TAMPER EQUIPMENT.
 - WHERE ELECTRICAL CONDUIT CONGREGATES BELOW ELECTRICAL ROOMS AND PANELS, CONTRACTOR SHALL HOLD DOWN SUBGRADE APPROPRIATELY FOR CONDUIT TO BE BELOW SLAB. COVER CONDUIT WITH FLOWABLE FILL (LEAN CONCRETE) TO BOTTOM OF SLAB ELEVATION.
 - SEE ARCHITECTURAL AND SITE DRAWINGS FOR CONTOUR AND LAYOUT OF SITE WALKS AND BREEZEWAYS. SLOPE EXTERIOR CONCRETE 1/8" FT AWAY FROM BUILDING, UNLESS NOTED OTHERWISE.
 - HIGH PLASTICITY (FAT) CLAYS WITH A PLASTICITY INDEX OF 30 OR MORE WHICH ARE PRESENT WITHIN 2 FEET OF FINAL SUBGRADE ELEVATION OR FOOTING BEARING ELEVATION SHALL BE UNDERCUT FOR THE ENTIRE BUILDING AREA TO A DISTANCE OF 5 FEET OUTSIDE THE BUILDING FOOTPRINT. PROFOUNDLY UNDERCUT ELEVATION AND FURTHER UNDERCUT SOFT AND YIELDING MATERIALS TO FIRM MATERIAL AT THE DIRECTION OF THE SPECIAL INSPECTOR. BACKFILL UNDERCUT WITH ON-SITE LEAN CLAY SOILS OR BORROW MATERIALS WITH A PLASTICITY INDEX LESS THAN 18.
 - FOUNDATION CONCRETE SHALL BE PLACED IMMEDIATELY FOLLOWING EXCAVATION. A LEAN CONCRETE (1:500 PSI) M/M MAT SHALL BE PLACED OVER THE PREPARED BEARING MATERIALS IF EXCAVATION MUST REMAIN OPEN DURING INCLEMENT WEATHER OR FOR MORE THAN 72 HOURS.
 - CONTRACTOR SHALL EXERCISE CAUTION THAT DENSE GRADE AGGREGATE BLANKET BELOW FLOOR SLAB DOES NOT BECOME SATURATED DURING CONSTRUCTION. CONTRACTOR SHALL CAST FLOOR SLAB OR PROVIDE TYPICAL PROTECTION FOR SUBGRADE UNTIL SLAB IS CAST TO PREVENT WATER INFILTRATION INTO SUBGRADE.

CONCRETE CONSTRUCTION

- ALL CONCRETE CONSTRUCTION TO BE IN ACCORDANCE WITH THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACI 301, ACI 318 AND AGI DETAILING MANUAL, EXCEPT THAT CONSTRUCTION AND REMOVAL OF FORMS AND RESHORING SHALL BE INSTRICTED BY THE CONTRACTORS EXPERTS.
- FURNISH SHAPES SUPPORTS WHERE NECESSARY DURING CONSTRUCTION.
- PROVIDE PLASTIC, PLASTIC-COATED (NOT PLASTIC-TIPPED) OR STAINLESS STEEL CHAIRS IN ALL CONCRETE EXPOSED TO VIEW ON COMPLETED STRUCTURE. PROVIDE PIPE SLEEVES AND INSERTS IN CONCRETE WORK WHERE REQUIRED. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS.
- CONSTRUCTION REQUIREMENTS SHALL BE POSITIONED SO AS NOT TO CHANGE THE STRUCTURAL DESIGN REQUIREMENTS.
- WELDING OF REINFORCING BARS (INCLUDING TACK WELDING) IS NOT PERMITTED.
- PROVIDE STEEL JOIST END ANCHORAGE, BRIDGING AND BRIDGING ANCHORAGE IN ACCORDANCE WITH STANDARD SPECIFICATIONS OF THE STEEL JOIST INSTITUTE, LATEST EDITION. WELD ALL STEEL JOIST BEARING ENDS TO STEEL SUPPORTS OR BEARING PLATES.
- JOIST BRIDGING SHOWN ON STRUCTURAL PLANS IS DIAGRAMMATIC ONLY. JOIST BRIDGING SHALL BE DESIGNED AND FURNISHED TO COMPLY WITH THE REQUIREMENTS OF THE STEEL JOIST INSTITUTE SPECIFICATION AND ALL REQUIREMENTS SHOWN IN THE CONSTRUCTION DOCUMENTS.
- IN STEEL BUILDING FRAME SYSTEMS, STEEL JOISTS AT COLUMN CENTERLINES AND STEEL JOISTS OVER 40 FEET IN LENGTH SHALL BE FIELD BOLTED AT THE END CONNECTIONS TO PROVIDE LATERAL STABILITY DURING ERECTION. THE FINAL CONNECTION SHALL BE MADE BY WELDING ADDITIONAL TO THE ERECTION BOLTS.
- MINIMUM CONNECTION TO STRUCTURE UNLESS NOTED OTHERWISE SHALL BE:
 - K-SERIES: 1 TO 2 (2) 1/8" X 1/2" FILLET WELD TO COLUMN CENTERLINE/PLUS (2) 1/2" BOLTS
 - L-SERIES: 1 TO 2 (2) 1/8" X 1/2" FILLET WELD TO COLUMN CENTERLINE/PLUS (2) 1/2" BOLTS

CONCRETE PROTECTION FOR REINFORCEMENT:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	COVER
A. CONCRETE EXPOSED TO EARTH OR WEATHER	3"
NO. 6 THROUGH NO. 18 BARS	1.5"
NO. 4 BARS, W/OT EXPOSED TO WEATHER AND SMALLER	1"
C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND WALLS	NO. 11 BAR AND SMALLER

- LOOSE LINTEL SCHEDULE**
- | BAR SIZE | CONCRETE COMPRESSIVE STRENGTH | 1. INCREASE SPlice LENGTH BY THE FOLLOWING: | 2. NOTE: INCREASED LENGTHS ARE ACCUMULATIVE |
|-----------|-------------------------------|---|---|
| 3,000 PSI | 4,000 PSI | 5,000 PSI | |
| #3 | 21" | 19" | 17" |
| #4 | 20" | 20" | 22" |
| #5 | 30" | 31" | 28" |
| #6 | 43" | 37" | 33" |
- THIS SCHEDULE IS FOR LINTELS OVER MASONRY OPENINGS NOT OTHERWISE SHOWN OR NOTED ON DRAWINGS, INCLUDING NON-BEARING PARTITION WALLS AND VENEERS. A. ANGLES AND SUPPORT PLATES EXPOSED TO WEATHER OR CIVIL INTERIOR SHALL BE 1/4" THICK. B. MINIMUM BEARING LENGTH FOR ANGLES AND W/T'S FOR MASONRY VENEERS AND 4" OR 6" C/MJ SHALL BE 6" EACH END. C. SEE TYPICAL DETAILS FOR BOND BEAM CONSTRUCTION. D. PROVIDE STEEL LINTELS ABOVE ALL PENETRATIONS 18" AND WIDER THROUGH MASONRY WALLS OR MASONRY VENEERS, INCLUDING C/D PENETRATIONS. LOUVERS, GROUPED WINDOWS, WINDOWS WITH CETERA. E. FOR MULTI-WYTHE WALL CONSTRUCTION, PROVIDE LINTEL FOR EACH WYTHE PER SCHEDULE FOR GIVEN WYTHE THICKNESS.
 - FOR 4" MASONRY WALLS PROVIDE:

SPAN LENGTHS	ANGLE SIZE
0' TO 4'	1/2" X 1/2" X 1/8"
4' TO 9' 6"	L4x3 1/2x1/8 1/8 D.V.
9' 7' TO 9' 6"	L6x3 1/2x1/8 1/8 D.V.
7' TO 9' 6"	L7x3 1/2x1/8 1/8 D.V.
9' 7' TO 11' 4"	L7x4x3/8 L.D.V.
- STEEL CONSTRUCTION**
- STEEL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE, AND THE AWS STRUCTURAL WELDING CODE.
 - A. A325-SC / F1852-CLASS A, WITH HARDENED WASHERS - USE FOR ALL MOMENT CONNECTIONS, HANGERS, AND OTHER CONNECTIONS AS NOTED ON DRAWINGS. B. A325-1 / F1852 WITH HARDENED WASHERS - USE FOR ALL CONNECTIONS OTHER THAN SLIP CRITICAL CONNECTIONS.
 - C. UNLESS SNUG-TIGHT CONNECTIONS ARE NOTED ON THE DRAWINGS AS BEING PERMITTED, ALL BOLTS SHALL BE TIGHTENED TO FULL PRETENSIONING LOAD. D. UNLESS SPECIFICALLY NOTED ON THE DRAWINGS OR WITHOUT WRITTEN PERMISSION FROM THE ENGINEER, ALL BOLTS FOR THE PROJECT SHALL BE OF ONE ASTM TYPE AND ONE DIAMETER.
 - E. USE STANDARD HOLES WITH THE FOLLOWING EXCEPTIONS: OVERSIZE HOLES ARE PERMITTED WHEN BOLTS ARE LOADED IN TENSION. SHORT-SLOTTED HOLES ARE PERMITTED FOR SHEAR LOADING PERPENDICULAR TO THE SLOT IN ANY ONE PLY AT EACH FACING SURFACE.
 - F. HARDENED WASHERS SHALL BE USED OVER ALL OVERSIZED OR SHORT-SLOTTED HOLES IN AN OUTER PLY. WHERE LONG-SLOTTED HOLES ARE USED IN AN OUTER PLY, 5/16" THICK AIN PLATE WASHERS OR CONTINUOUS BAR WITH STANDARD HOLES SHALL BE PROVIDED.
 - G. WHERE REACTION IS NOTED, DEVELOP SAME. WHERE NOT NOTED, FOR NON-COMPOSITE BEAMS, CONNECTIONS SHALL DEVELOP ONE-HALF OF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM.
 - H. WHEREVER POSSIBLE, USE FRAMED BEAM CONNECTIONS AS LISTED IN TABLES 10-1, 10-2, 10-3-10-4, 10-10, 10-11 AND 10-12 OF THE AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION. THE LENGTH OF CONNECTION ANGLES AND PLATES SHALL BE NOT LESS THAN ONE-HALF OF THE DISTANCE OF THE BEAM WEB.
 - J. PRE-APPROVED CONNECTION DETAILS ARE SHOWN ON THE TYPICAL FRAMING DETAILS DRAWING SHEET.
 - K. SHEAR CONNECTIONS TO VERTICAL EMBED PLATES IN CONCRETE WALLS SHALL BE DOUBLE ANGLE TYPE.
 - L. WELDING ELECTRODES SHALL BE E70XX EXCEPT WHERE OTHER ELECTRODES ARE REQUIRED FOR COMPATIBILITY WITH MATERIAL BEING WELDED. A. USE E70XX ELECTRODES FOR WELDING ASTM A708 (WELDABLE) REBAR. ALL SLIP CONNECTIONS SHALL BE PROVIDED WITH A MEANS OF PREVENTING THE NUTS FROM UNTHREADING.
 - M. SHOP DRAWINGS ARE REQUIRED AND SHALL NOTE TYPE OF ELECTRODES, SIZE OF ALL WELDS, AND TYPE AND SIZE OF ALL BOLTS.
 - N. SEE SPECIFICATIONS FOR ALL PRIMING REQUIREMENTS.
 - O. ALL SHOP AND FIELD WELDING SHALL BE DONE BY A CERTIFIED WELDER.
 - P. PROVIDE MINIMUM OF (4) 3/4" DIAMETER X 1'-0" EMBED ANCHOR BOLTS AND 2" GROUT UNDER ALL COLUMN BASE PLATES.
 - Q. PROVIDE MINIMUM OF (2) 1/2" DIAMETER X 8" STD ANCHORS UNDER ALL ROOF BEAM BEARING PLATES.
 - R. MISCELLANEOUS HANGING LOADS SUCH AS PIPES, MECHANICAL UNITS, ETC., SUPPORTED BY STEEL MEMBERS SHALL HAVE THESE LOADS APPLIED IN SUCH A MANNER THAT NO TORSIONAL FORCES ARE INDUCED IN THESE MEMBERS, I.E., LOADS SHALL PASS THROUGH THE CENTERLINE OF WIDE FLANGE SECTIONS AND THROUGH THE SHEAR CENTER OF CHANNELS.

- STEEL JOIST CONSTRUCTION**
- STEEL JOIST CONSTRUCTION SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND CODE OF STANDARD PRACTICE FOR STEEL JOISTS AND JOIST GIRDERS OF THE STEEL JOIST INSTITUTE, LATEST EDITION.
 - PROVIDE STEEL JOIST END ANCHORAGE, BRIDGING AND BRIDGING ANCHORAGE IN ACCORDANCE WITH STANDARD SPECIFICATIONS OF THE STEEL JOIST INSTITUTE, LATEST EDITION. WELD ALL STEEL JOIST BEARING ENDS TO STEEL SUPPORTS OR BEARING PLATES.
 - JOIST BRIDGING SHOWN ON STRUCTURAL PLANS IS DIAGRAMMATIC ONLY. JOIST BRIDGING SHALL BE DESIGNED AND FURNISHED TO COMPLY WITH THE REQUIREMENTS OF THE STEEL JOIST INSTITUTE SPECIFICATION AND ALL REQUIREMENTS SHOWN IN THE CONSTRUCTION DOCUMENTS.
 - IN STEEL BUILDING FRAME SYSTEMS, STEEL JOISTS AT COLUMN CENTERLINES AND STEEL JOISTS OVER 40 FEET IN LENGTH SHALL BE FIELD BOLTED AT THE END CONNECTIONS TO PROVIDE LATERAL STABILITY DURING ERECTION. THE FINAL CONNECTION SHALL BE MADE BY WELDING ADDITIONAL TO THE ERECTION BOLTS.
 - MINIMUM CONNECTION TO STRUCTURE UNLESS NOTED OTHERWISE SHALL BE:
 - K-SERIES: 1 TO 2 (2) 1/8" X 1/2" FILLET WELD TO COLUMN CENTERLINE/PLUS (2) 1/2" BOLTS
 - L-SERIES: 1 TO 2 (2) 1/8" X 1/2" FILLET WELD TO COLUMN CENTERLINE/PLUS (2) 1/2" BOLTS
 - IF JOIST BEARING SEATS ARE DETAIL FOR A BOLTED CONNECTION, BOLTS SHALL BE INSTALLED. IF HOLE MISALIGNMENT OCCURS, ADDITIONAL FIELD WELD MATCHING SIZE OF BASE CONNECTION SHALL BE DEPOSITED FULL LENGTH OF BOLT SLOTS ON SIDES CLOSEST TO JOIST CENTERLINE AS A SUBSTITUTION.

STEEL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE LATEST AWS STRUCTURAL WELDING CODE AND THE STEEL DECK INSTITUTE SPECIFICATIONS.

- STEEL ROOF DECK SHALL BE CONTINUOUS OVER A MINIMUM OF 3 SPANS.
- DO NOT HANG OR SUPPORT ANY LOADS SUCH AS STUD WALLS, BULKHEADS, PIPES, ETC. FROM STEEL ROOF DECK.
- WHERE JOISTS/BEAMS DO NOT ALIGN ON OPPOSITE SIDES OF A GIRDER AND A JOINT IS MADE IN THE DECK, PROVIDE AN ADDITIONAL LAYER OF SINGLE SPAN DECK ABOVE CANTILEVERED ENDS TO SPAN BETWEEN SUPPORTS.
- ROOF DECK CLOSURES AND ACCESSORIES SHALL BE LOCATED IN THE FIELD OF DIAPHRAGM, NOT AT DIAPHRAGM COLLECTOR LOCATIONS SUCH AS MOMENT FRAMES, BRACED FRAMES OR SHEAR WALLS.
- CONSTRUCTION LOADS APPLIED ON BARE STEEL DECKING SHALL NOT EXCEED THE BARE DECK LOADING CAPACITY. CONTRACTOR SHALL USE CAUTION REGARDING OVERLOADING MATERIALS ON BARE DECK TO AVOID DAMAGING THE DECK AND AVOID EXCEEDING THE DECK CAPACITY.

- EQUIPMENT SUPPORT**
- APPLY LOADS TO MEMBERS THAT ARE DESIGNATED FOR ADDITIONAL LOADS AS NOTED ON DRAWINGS. NOTIFY ENGINEER IF LOADS NOTE ARE EXCEEDED, OR IF LOADS DO NOT OCCUR IN LOCATION ANTICIPATED AND AS INDICATED ON FRAMING PLANS.
- COLD-FORMED STEEL FRAMING**
- THE FOLLOWING NOTES APPLY ONLY TO LOAD BEARING FRAMING OR FRAMING LOCATED IN EXTERIOR WALLS. STUD WALLS SHOWN ON THE STRUCTURAL PLANS SHALL BE CONSIDERED BEARING WALLS. SEE ARCHITECTURAL DRAWINGS FOR NON-LOAD BEARING INTERIOR PARTITIONS, SOFFITS, AND OTHER MISCELLANEOUS FRAMING.
 - ALL COLD-FORMED STEEL FRAMING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE "COLD-FORMED STEEL DESIGN MANUAL" (AIS), LATEST EDITION.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL TEMPORARY SHORING AND BRACING REQUIRED DURING CONSTRUCTION FOR ERECTION STABILITY AND SAFETY.
 - THE FORMAT FOR MEMBER DESIGNATION IS AS FOLLOWS:
 - WEB DEPTH, SECTION TYPE, FLANGE WIDTH - BASE METAL THICKNESS (IN MILS) SECTION TYPE DESIGNATIONS ARE AS FOLLOWS:
 - S - STUD AND JOIST SECTION WITH FLANGE STIFFENERS (RETURN LIPS)
 - T - TRACK SECTIONS (NO FLANGE STIFFENERS)
 - U - COLD-ROLLED CHANNEL WITH FLANGE STIFFENERS (NO FLANGE STIFFENERS)
 - F - FURRING CHANNEL.
 - EXAMPLE: 60S162-S4 DESIGNATES A 4" STUD WITH A FLANGE WIDTH OF 1.58" AND 43 MILS BASE STEEL THICKNESS.
 - EXAMPLE: 40T154-S4 DESIGNATES A 4" TRACK WITH A FLANGE WIDTH OF 1.14" AND 43 MILS BASE STEEL THICKNESS.
 - THE MINIMUM BASE METAL THICKNESS FOR COLD-FORMED STEEL FRAMING MATERIAL SHALL BE AS FOLLOWS:

MIL THICKNESS (0.001 INCHES)	GAGE DESIGNATION (FOR REFERENCE ONLY)	MINIMUM BASE METAL THICKNESS PRIOR TO GALVANIZING (INCH)
18	25	0.019
28	22	0.0269
33	20	0.0329
43	18	0.0428
54	16	0.0538
68	14	0.0677
96	12	0.0966
118	10	0.1180

- MAINTENANCE STATEMENT AND STRUCTURE LIFESPAN**
- THE ENGINEER MAKES NO CLAIM OR AGREEMENT AS TO THE LIFESPAN OF THE BUILDING STRUCTURE. THE CLIENT AND OWNER OF THE STRUCTURE ARE RESPONSIBLE FOR PERIODIC MAINTENANCE TO EXTEND LIFESPAN AND TO ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. THE ENGINEER SHALL NOT BE HELD LIABLE FOR MAINTENANCE DEFICIENCIES OR DETERIORATION RESULTING FROM LACK OF BUILDING MAINTENANCE.
 - A PLANNED PROGRAM OF MAINTENANCE SHALL INCLUDE ITEMS SUCH AS, BUT NOT LIMITED TO: PAINTING OF STRUCTURAL STEEL AND LINTELS, PROTECTIVE COATING FOR CONCRETE AND TIMBER, SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, TIMELY REPAIR OF SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF STRUCTURAL ELEMENTS EXPOSED TO A SALT ENVIRONMENT OR OTHER HARSH CHEMICALS.

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- ALL MATERIAL EQUAL TO OR GREATER THAN 54 MILS IN THICKNESS SHALL CONFORM TO ASTM A653 WITH G60 GALVANIZED COATING AND HAVE A MINIMUM YIELD STRENGTH OF 50 KSI.
- ALL OPEN END SECTIONS (TUBES, PIPES, ETC) SHALL BE CAPPED AND SEAL WELDED WITH PLATE MATCHING SECTION THICKNESS, UNLESS OTHERWISE NOTED.
 - STEEL RELIEF ANGLES THAT SUPPORT MASONRY VENEER SHALL BE INSTALLED AS FOLLOWS:
 - A. ANGLES SHALL BE DISCONTINUOUS AT ALL MASONRY VENEER EXPANSION JOINTS. WIDTH OF GAP BETWEEN ANGLES SHALL MATCH WIDTH OF MASONRY EXPANSION JOINT. NOT LESS THAN 1/2" OR MORE THAN 1/4".
 - B. AT BUILDING CORNER, THE ANGLES SHALL BE MITER CUT. THE VERTICAL LEGS OF THE ANGLES SHALL NOT EXTEND PAST THE CORNER CAUSING INTERFERENCE WITH THE MASONRY VENEER.
 - C. CLEAN ALL FIELD WELDS, CUTS AND ABRASION AREAS AND APPLY GALVANIZING REPAIR PAINT.

STEEL JOIST CONSTRUCTION

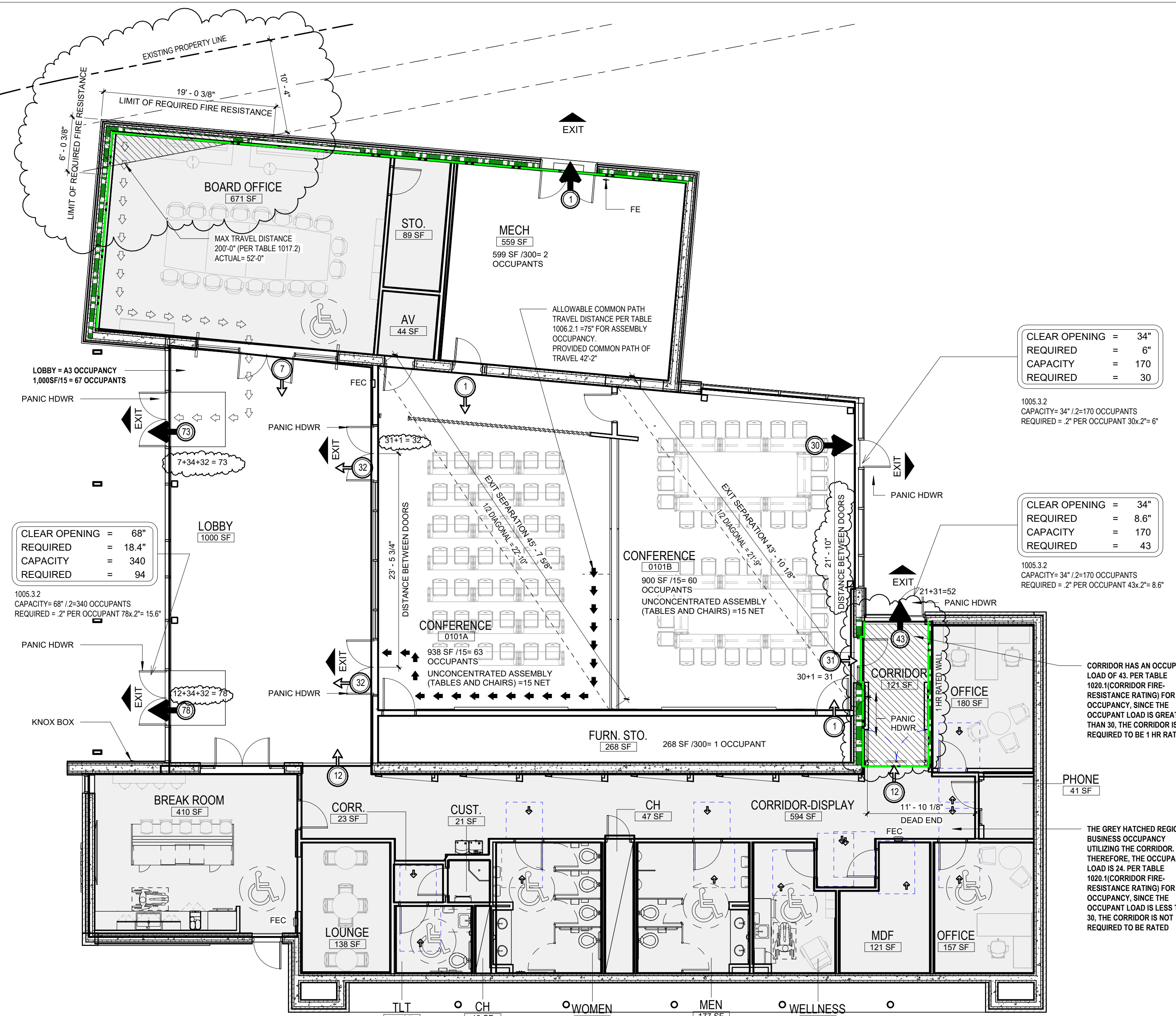
DESIGNATION	NOMINAL SCREW DIAMETER (IN)	MINIMUM CENTER-TO-CENTER SPACING	MINIMUM EDGE DISTANCE	TOTAL PANEL THICKNESS STEEL TO STEEL
10	0.190	9/16"	9/16"	0.11 MAXIMUM #2 POINT 0.175 MAXIMUM #3 POINT
12	0.216	5/8"	5/8"	0.14 MAXIMUM #2 POINT 0.21 MAXIMUM #3 POINT
14"	0.250	3/4"	3/4"	0.175 MAXIMUM #2 POINT 0.21 MAXIMUM #3 POINT

- POWDER ACTUATED FASTENERS USED FOR FASTENING COLD-FORMED METAL FRAMING (RUNNER TRACKS, CLIP ANGLES, ETC.) TO CONCRETE SHALL BE 1/4" LONG, 0.157" SHANK DIAMETER, WITH PRE-MOUNTED PLASTIC WASHER. OTHER FASTENERS OF EQUIVALENT OR LARGER DIMENSION AND WITH EQUIVALENT OR GREATER LOAD CAPACITY MAY BE SUBSTITUTED UPON REVIEW AND APPROVAL FROM THE STRUCTURAL ENGINEER. FASTENERS SHALL BE ZINC PLATED WITH A MINIMUM ZINC THICKNESS OF 5 MICRONS. POLYMER COATED FASTENERS USED FOR FASTENING COLD-FORMED METAL FRAMING (RUNNER TRACKS, CLIP ANGLES, ETC.) TO STEEL SHALL BE 3/4" LONG, 0.157" SHANK DIAMETER, WITH PRE-MOUNTED PLASTIC WASHER. OTHER FASTENERS OF EQUIVALENT OR LARGER DIMENSION AND WITH EQUIVALENT OR GREATER LOAD CAPACITY MAY BE SUBSTITUTED UPON REVIEW AND APPROVAL FROM THE STRUCTURAL ENGINEER. FASTENERS SHALL BE ZINC PLATED WITH A MINIMUM ZINC THICKNESS OF 5 MICRONS.**

- ONE-INCH WIDE STRAP**
- | BASE STEEL THICKNESS (MILS) | MAXIMUM ALLOWABLE PRETENSION LOAD PER INCH WIDTH (LBS) |
|-----------------------------|--|
| 33 | 75 |
| 43 | 100 |
| 54 | 130 |
| 68 | 200 |
- SEE COLD-FORMED METAL FRAMING SCHEDULE FOR MATERIAL SIZES AND SPACINGS.
- WHERE A DEFLECTION CLIP OR STATICALLY LOCKED CLIP IS USED TO SECURE FRAMING, CLIP SHALL OCCUR AT EACH MEMBER IN THE FRAMING SYSTEM UNLESS NOTED OTHERWISE (e.g. CLIP NOTED TO STUD WALL FRAMING SHALL OCCUR AT EACH STUD IN THE WALL SYSTEM).
 - THE OWNER MAY EMPLOY AN INDEPENDENT TESTING AGENCY TO PERFORM FIELD TESTS AND INSPECTION OF COLD-FORMED CONSTRUCTION FOR CONFORMANCE WITH CONTRACT DOCUMENTS. THE CONTRACTOR SHALL FACILITATE AND ALLOW ACCESS TO THE WORK FOR TESTS AND INSPECTIONS TO BE PERFORMED.
 - SUBMIT REPORTS DETAILING RESULTS OF ALL INSPECTIONS AND TESTING TO THE ARCHITECT/ENGINEER FOR APPROVAL, WITHIN FIVE DAYS OF COMPLETION OF THE TESTS.
 - FIELD MODIFICATIONS OF COLD-FORMED STEEL SYSTEMS SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL BY ENGINEER OF RECORD.

- ROOF FLOOR OR WALL OPENINGS**
- THE CONTRACTOR SHALL VERIFY AND COORDINATE THE NUMBER, SIZE, AND LOCATION OF ALL SLEEVES AND OPENINGS REQUIRED FOR MECHANICAL, OR ELECTRICAL ITEMS, OR SLEEVES AND OPENINGS SHALL BE LOCATED IN A MANNER THAT WILL MAINTAIN THE STRUCTURAL INTEGRITY OF THE ROOF, FLOOR, OR WALL SYSTEM.
 - STRUCTURAL ELEMENTS ARE TO BE CUT UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.
- OPENINGS/PENETRATIONS/ATTACHMENTS TO STRUCTURE BY OTHER TRADES**
- THE CONTRACTOR SHALL COORDINATE AND VERIFY THE NUMBER, SIZE, AND LOCATION OF ALL SLEEVES AND OPENINGS REQUIRED FOR OTHER TRADES IN STRUCTURAL ELEMENTS.

- STRUCTURAL STEEL**
- FIELD CUTTING/DRIILLING OF HOLES LARGER THAN 3/8" INTO BEAM FLANGES OR COLUMNS IS PROHIBITED



1 LIFE SAFETY PLAN
1/8" = 1'-0"



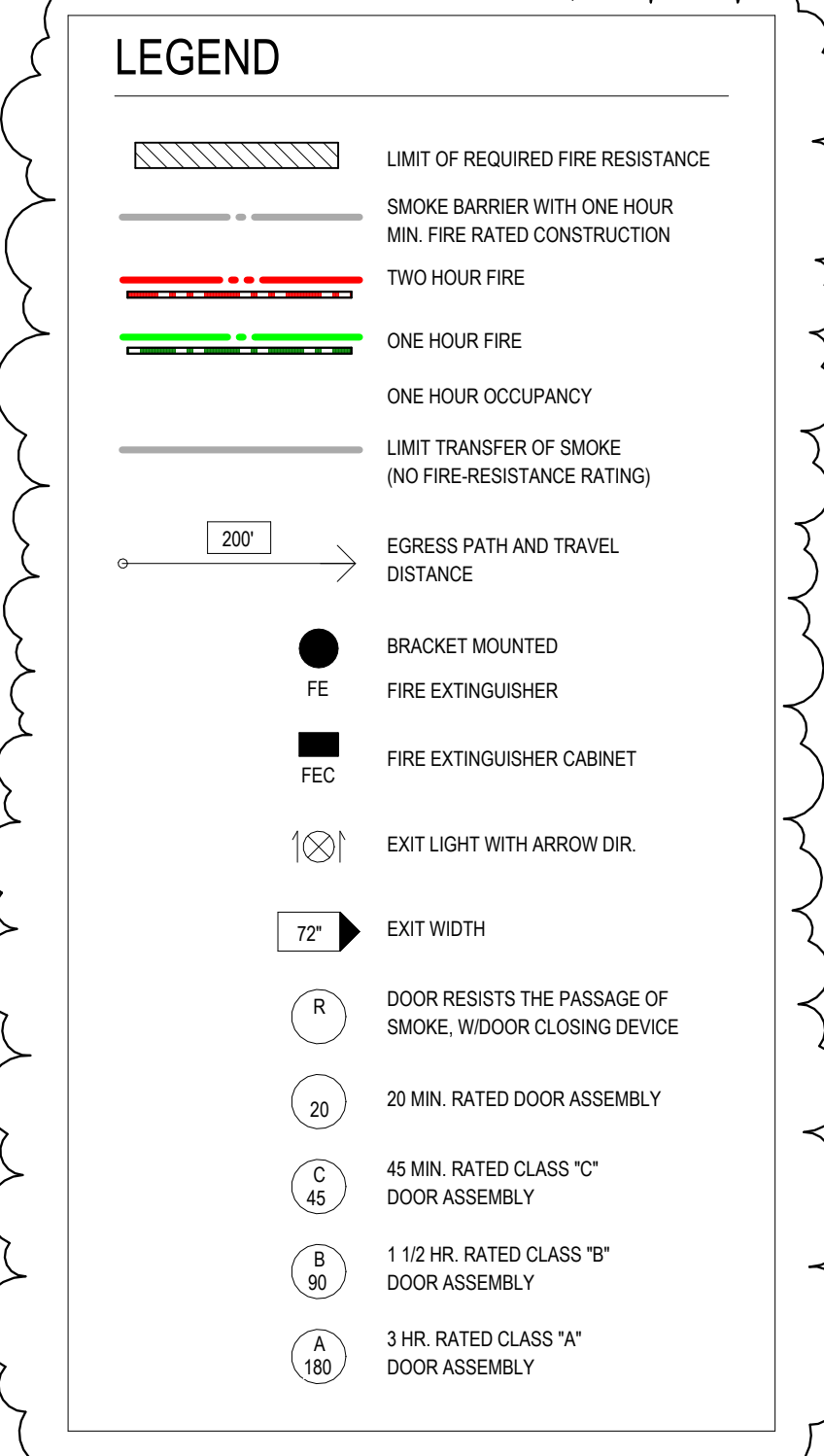
3 GROSS AREA PLAN
1/8" = 1'-0"

NUMBER	NAME	NET AREA
0100	LOBBY	1017 SF
0100A	CORRIDOR	571 SF
0100B	CORRIDOR	103 SF
0101A	CONFERENCE	943 SF
0101B	CONFERENCE	911 SF
0101C	AV	44 SF
0101D	FURNITURE STORAGE	269 SF
0102	BREAK ROOM	373 SF
0102A	LOUNGE	114 SF
0103	BOARD ROOM	660 SF
0103B	STORAGE	89 SF
0104	MECHANICAL	507 SF
0105	CORRIDOR	29 SF
0105A	CUSTODIAN	21 SF
0105B	TOILET	63 SF
0106	WOMEN	167 SF
0107	MEN	174 SF
0108	WELLNESS	118 SF
0109	MDF	121 SF
0110	OFFICE	159 SF
0111	PHONE	40 SF
0112	OFFICE	177 SF
PC1	CHASE	14 SF
PC2	CHASE	48 SF
XA100	COVERED ENTRY	563 SF
XA101	COVERED ENTRY	239 SF

AREA	SCHEDULE NET
CONFERENCE	943 + 911 + 1864 + 7 = 2644 OCCUPANTS
BUSINESS OCCUPANCY REST OF BUILDING	100 GROSS
7747-1864 + 9893100 = 59 OCCUPANTS	
TOTAL BUILDING OCCUPANTS	323

CODE SUMMARY	
PROJECT SUMMARY	NEW STAND ALONE EDUCATION AND OUTREACH BUILDING ON THE UNIVERSITY OF KENTUCKY CENTER FOR APPLIED RESEARCH CAMPUS.
DESIGN CRITERIA	2018 KENTUCKY BUILDING CODE 2015 IBC WITH AMENDMENTS 2018 KENTUCKY BUILDING CODE
USE AND OCCUPANCY CALCULATION	USE GROUP: A-3 CONSTRUCTION TYPE: II B FIRE SUPPRESSION: NO ALLOWABLE HEIGHT: 55' - 0" 2 STORIES ALLOWABLE AREA: A-3 = 9,500 SF
ALLOWABLE AREA	BUILDING AREA MODIFICATIONS 504 BUILDING HEIGHT AND NUMBER OF STORIES 504.3 ALLOWABLE AREA IN FEET ABOVE GRADE PLANE A, TYPE IIB, NS = 55 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE A-3, TYPE IIB, NS = 2 STORIES 506 BUILDING AREA 506.2 ALLOWABLE AREA DETERMINATION A-3, TYPE IIB, NS = 9,500 SF 508.3 NON SEPARATED OCCUPANCIES 508.3.1 OCCUPANCY CLASSIFICATION NON SEPARATED OCCUPANCIES SHALL BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1. 508.3 ALLOWABLE BUILDING AREA AND HEIGHT BASED ON THE MOST RESTRICTIVE
TYPES OF CONSTRUCTION	TABLE 601 - FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS) IIB = 0 FOR ALL BUILDING ELEMENTS. EXCEPTION: CONSTRUCTION SUPPORTING FIRE BARRIERS IS REQUIRED TO HAVE THE SAME FIRE RESISTANCE RATING AS THE ELEMENT IT IS SUPPORTING. 602 FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE GREATER THAN 30 FEET = 0

CODE SUMMARY	
FIRE AND SMOKE PROTECTION FEATURES	708 FIRE PARTITION 708.3 FIRE PARTITIONS SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 1 HOUR. EXCEPTION - CORRIDOR WALLS PERMITTED TO HAVE 1/2 HOUR FIRE-RESISTANCE RATING BY TABLE 1020.1. 708.4 FIRE PARTITIONS SHALL EXTEND FROM THE TOP OF THE FOUNDATION OR FLOOR/CILING ASSEMBLY BELOW TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING, SLAB OR DECK ABOVE OR TO THE FIRE-RESISTANCE-RATED FLOOR/CILING OR ROOF/CEILING ASSEMBLY ABOVE, AND SHALL BE SECURELY ATTACHED THERE TO. MEANS OF EGRESS OCCUPANCY LOAD 1004.1.2 ASSEMBLY WITHOUT FIXED SEATS, CONCENTRATED 7 NET AND UNCONCENTRATED 15 NET 1025.3.2 MIN WIDTH BASED ON COMPONENT - EGRESS COMPONENTS: 0.20" PER OCCUPANT - CALCULATED OCCUPANT LOAD CAPACITY EACH EXIT DOOR CAN ACCOMMODATE TABLE 1006.2.1 EDUCATIONAL - MAXIMUM OCCUPANT LOAD OF SPACE 49 WITH ONE EXIT - MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE 75 FEET EXIT AND TRAVEL DISTANCES 1017.2 EXIT ACCESS TRAVEL DISTANCE - WITHOUT SPRINKLER SYSTEM 200 FEET 1020.1 CORRIDOR FIRE-RESISTANCE RATING - 1 HOUR RATED 1029.2 ASSEMBLY MAIN EXIT - ACCOMMODATE HALF 1029.6 CAPACITY OF AISLE FOR ASSEMBLY 1029.6.1 WITHOUT SMOKE PROTECTION (1.) 3" OF AISLE CAPACITY FOR STEPPED AISLE RISERS LESS THAN 7" AND TREADS GREATER. (3.) RAMPED AISLE ONE IN 12 UNITS HORIZ. - 0.20" OF CLEAR AISLE CAPACITY
ENERGY SUMMARY	METHOD OF COMPLIANCE - ENVELOP PRESCRIPTIVE IECC 2012 ENERGY CODE: PERFORMANCE OR PRESCRIPTIVE () ASHRAE 90.1 PERFORMANCE OR PRESCRIPTIVE () THERMAL ENVELOPE - IECC 2012 ROOF ASSEMBLY: INSULATION ENTIRELY ABOVE DECK R-25 CI EXTERIOR WALLS: WALLS, ABOVE GRADE MASS R-23ci, METAL FRAMED R-13 + R-13ci WALLS BELOW GRADE: R 7.5 CI FLOOR SLAB ON GRADE: UNHEATED R-10 FOR 24" BELOW PORTABLE FIRE EXTINGUISHERS KY FC 906.3 SIZE AND DISTRIBUTION EXTINGUISHER RATING 0 LIGHT HAZARD OCCUPANCY PER NFPA 10.5.4 MINIMUM-RATED SINGLE EXTINGUISHER 2-A 3,000 SF PER EXTINGUISHER

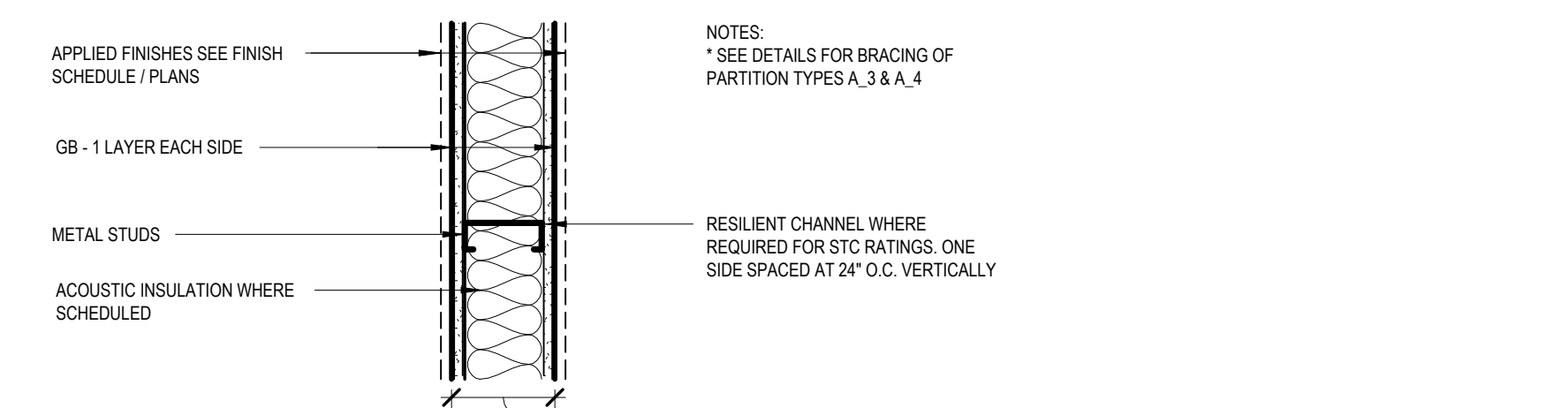
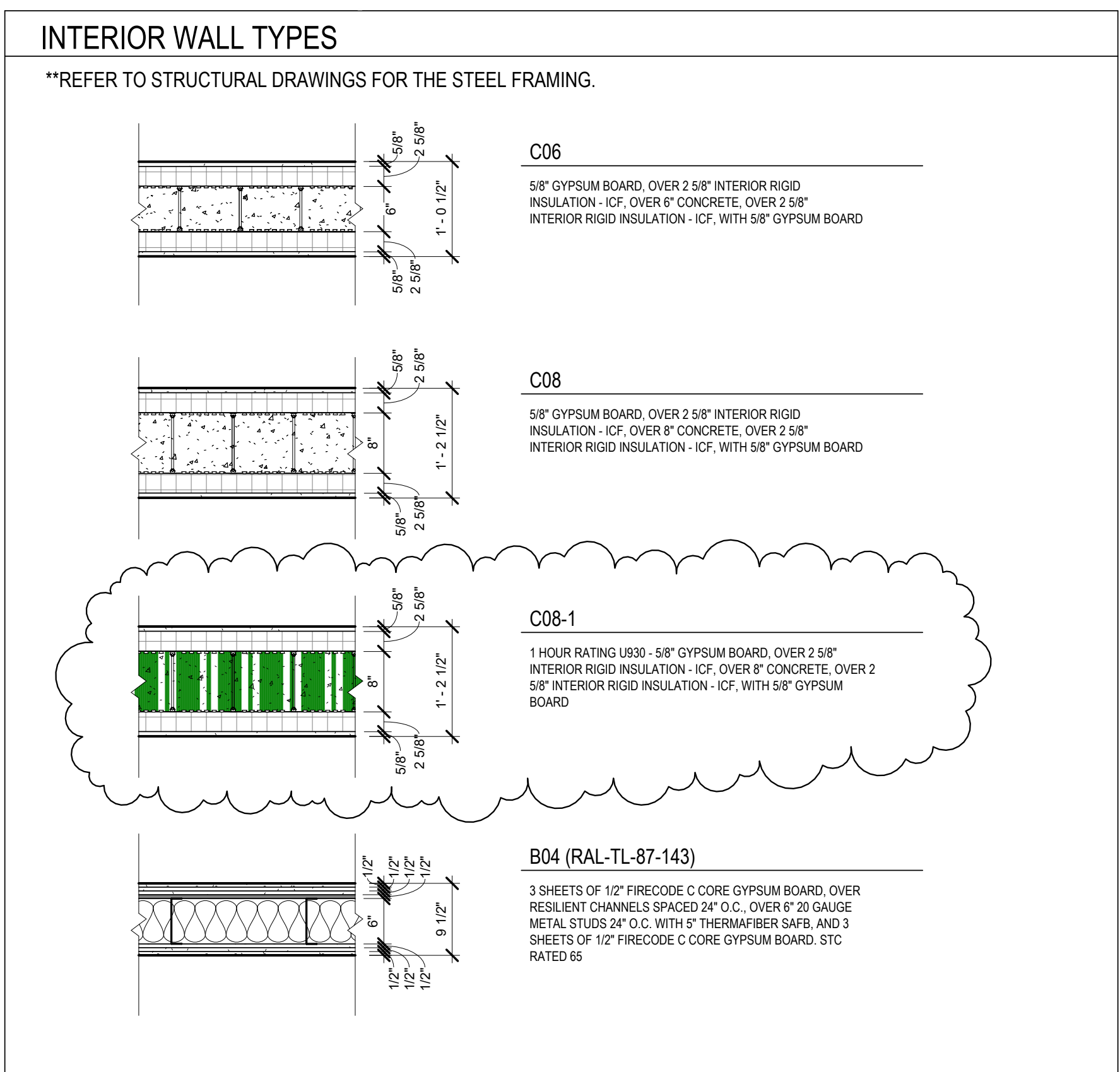


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2	ADDENDUM #1	04/17/26
1	RTA	01/27/26
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CODE - LIFE SAFETY PLAN

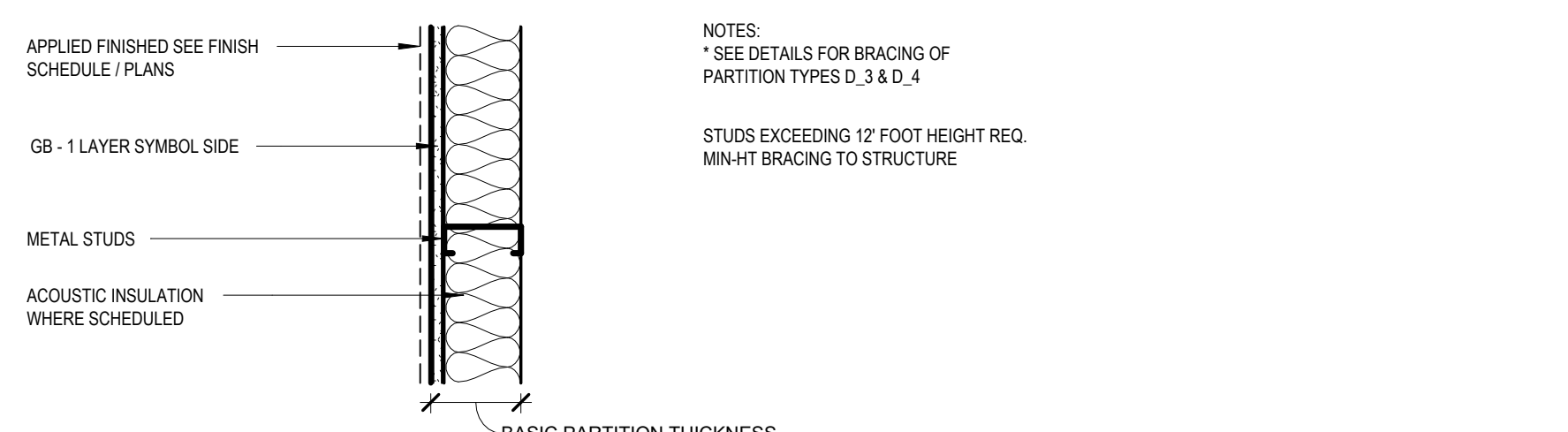
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STUDS TO STRUCTURE ABOVE (SEE DETAILS)	1 HR. RATED WITH GB TO STRUCTURE ABOVE	BASIC PARTITION THICKNESS							
		A01	A02	A03	A04	A05	A06	A07	A08
NON RATED WITH GB TO STRUCTURE ABOVE	NON RATED WITH GB TO STRUCTURE ABOVE	A01	A02	A03	A04	A05	A06	A07	A08
NON RATED WITH GB TO 6\"/>									

1 TYPE 'A'

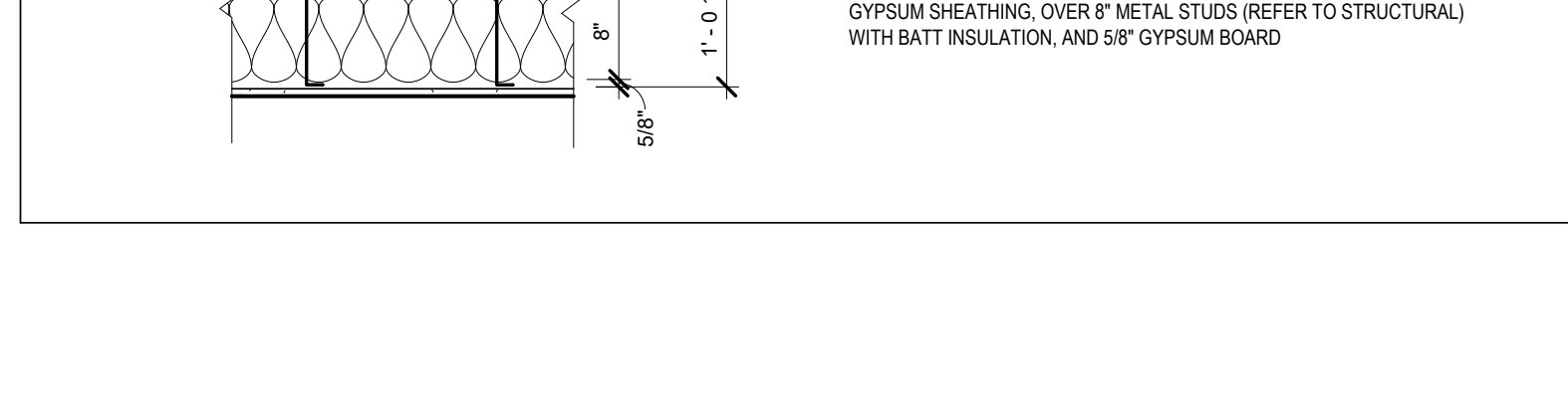
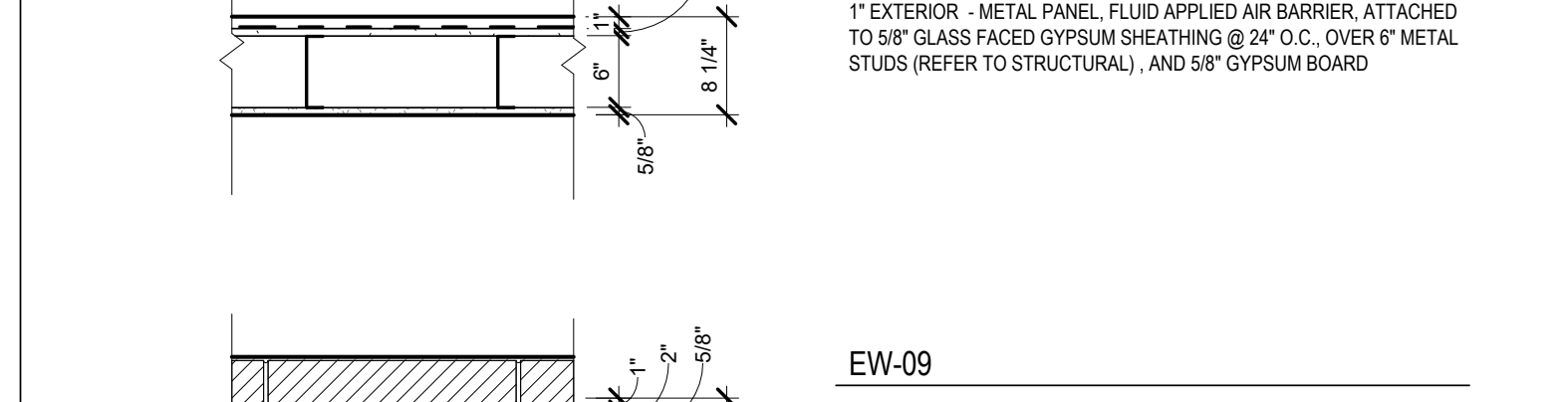
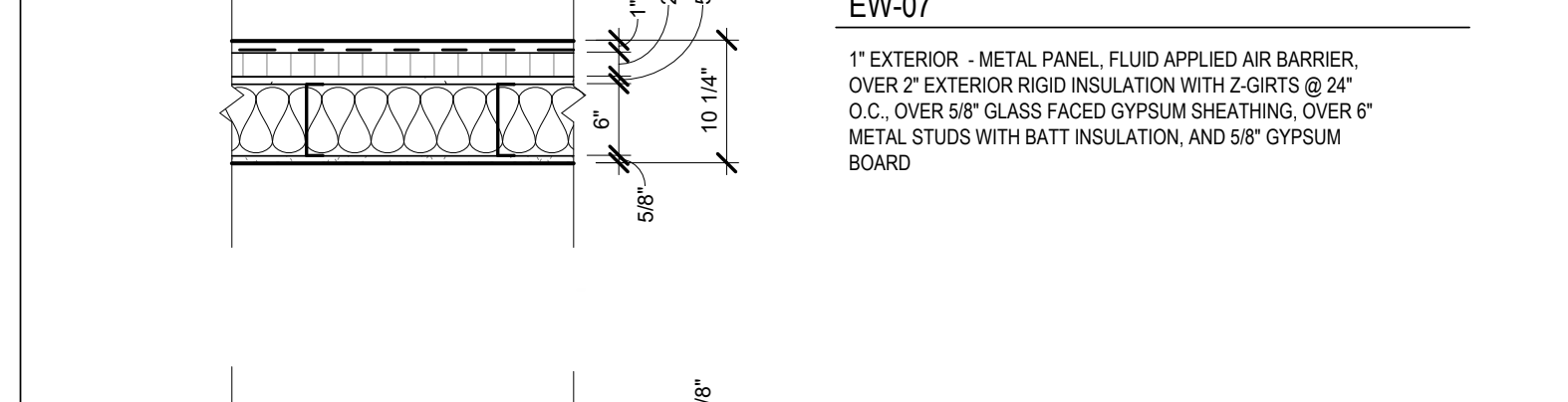
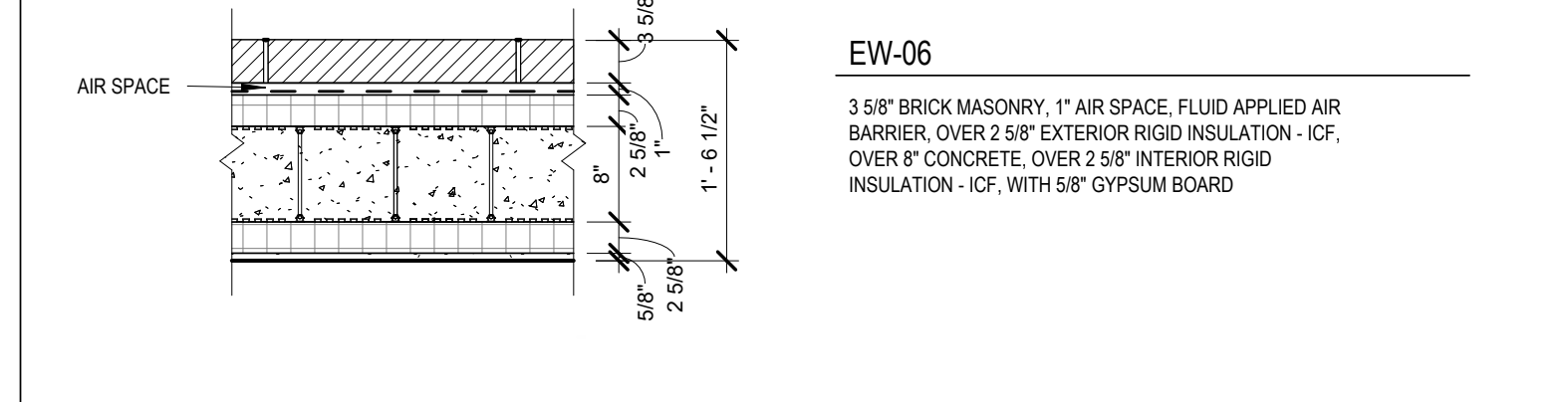
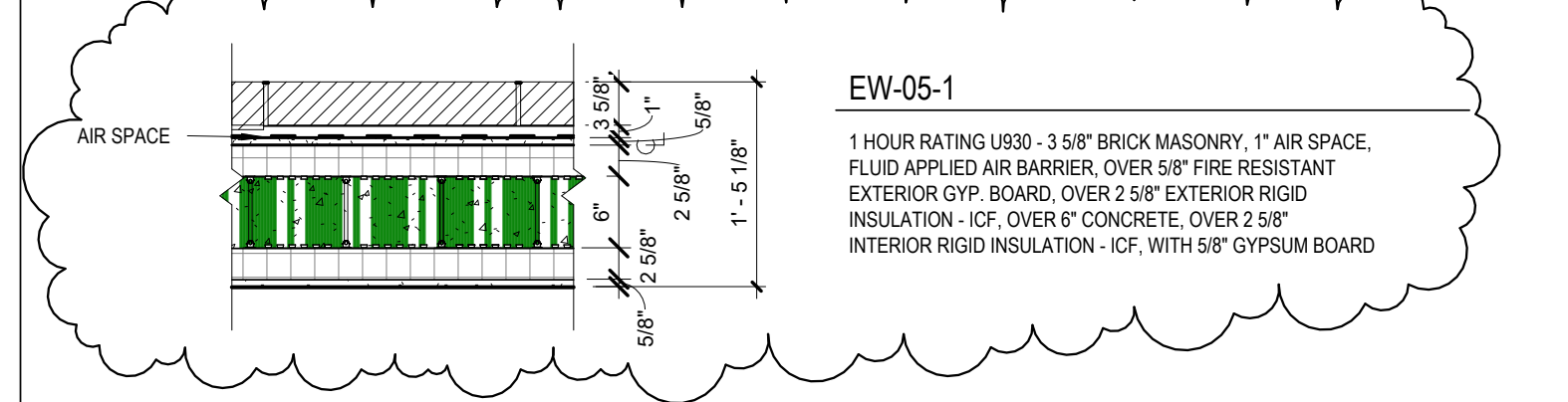
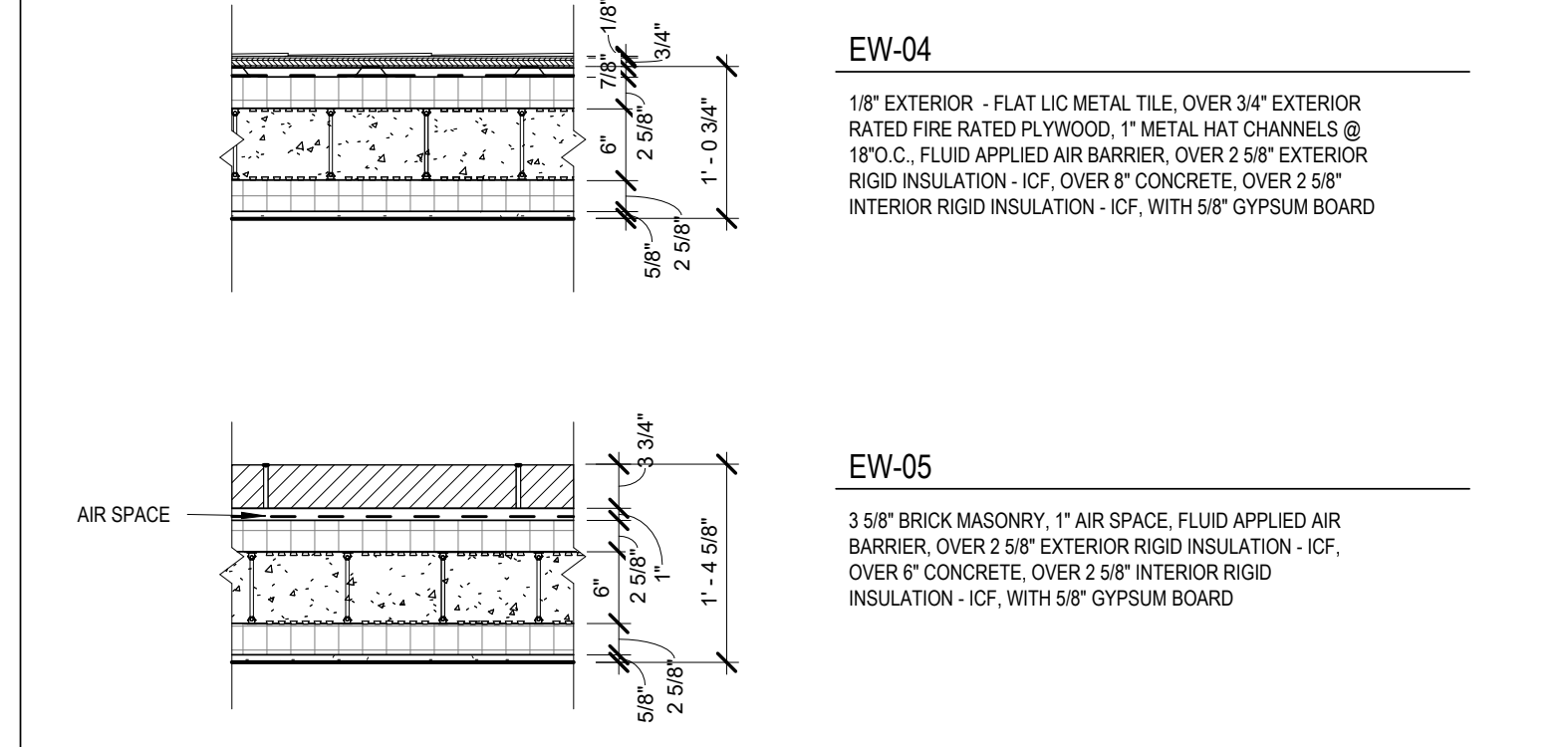
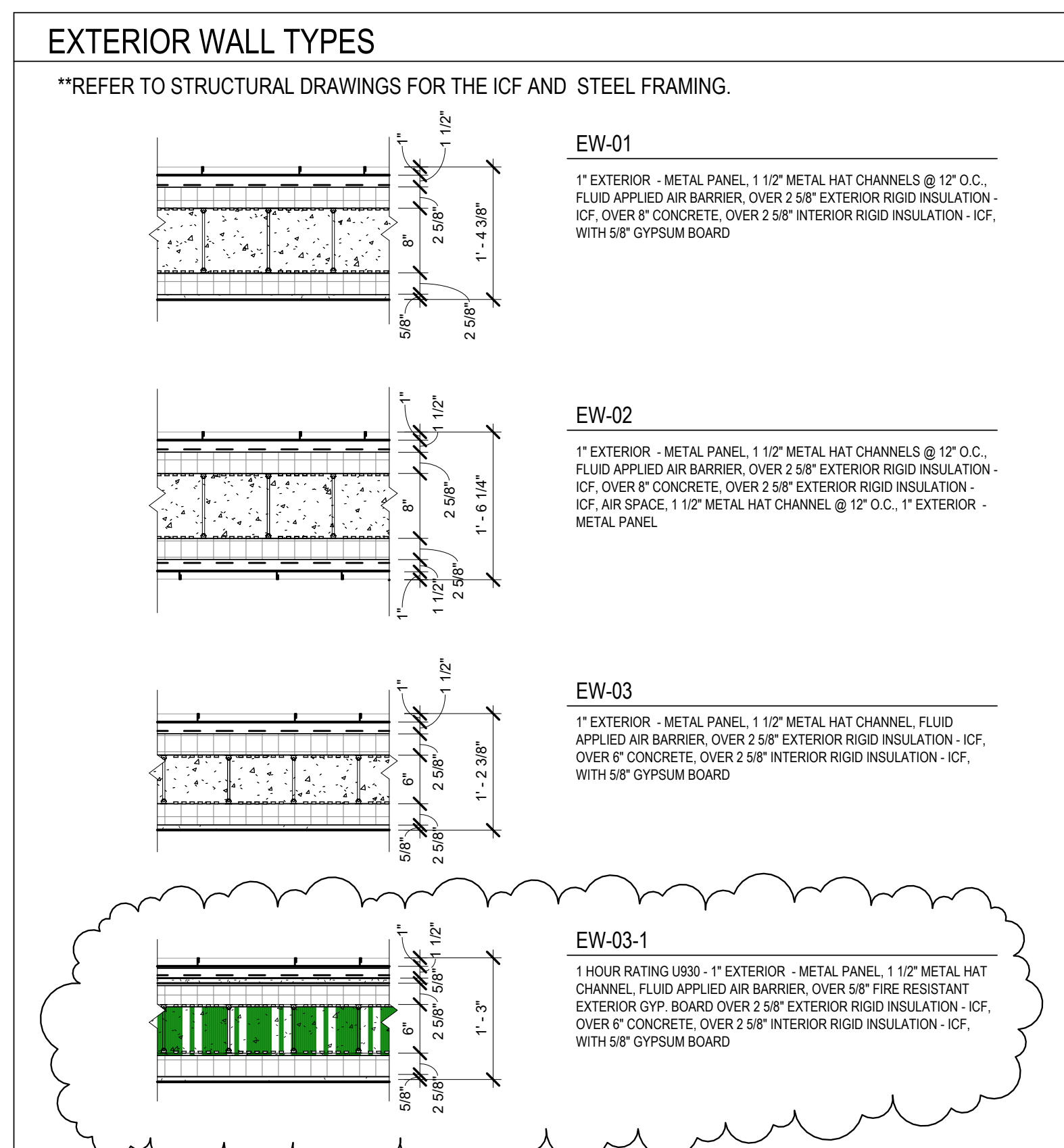
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STUDS TO STRUCTURE ABOVE (SEE DETAILS)	2 HR. RATED WITH GB TO STRUCTURE ABOVE	BASIC PARTITION THICKNESS							
		D01	D02	D03	D04	D05	D06	D07	D08
NON RATED WITH GB TO STRUCTURE ABOVE	NON RATED WITH GB TO STRUCTURE ABOVE	D01	D02	D03	D04	D05	D06	D07	D08
NON RATED WITH GB TO 6\"/>									

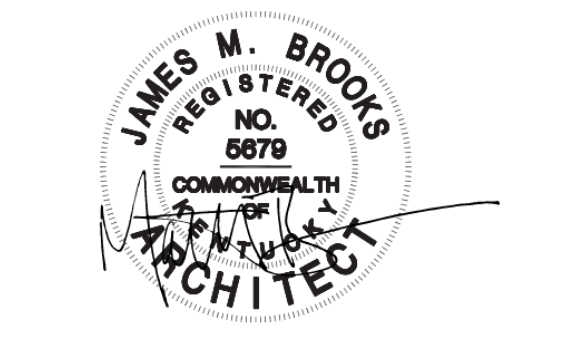
2 TYPE 'D'

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GENERAL PARTITION NOTES

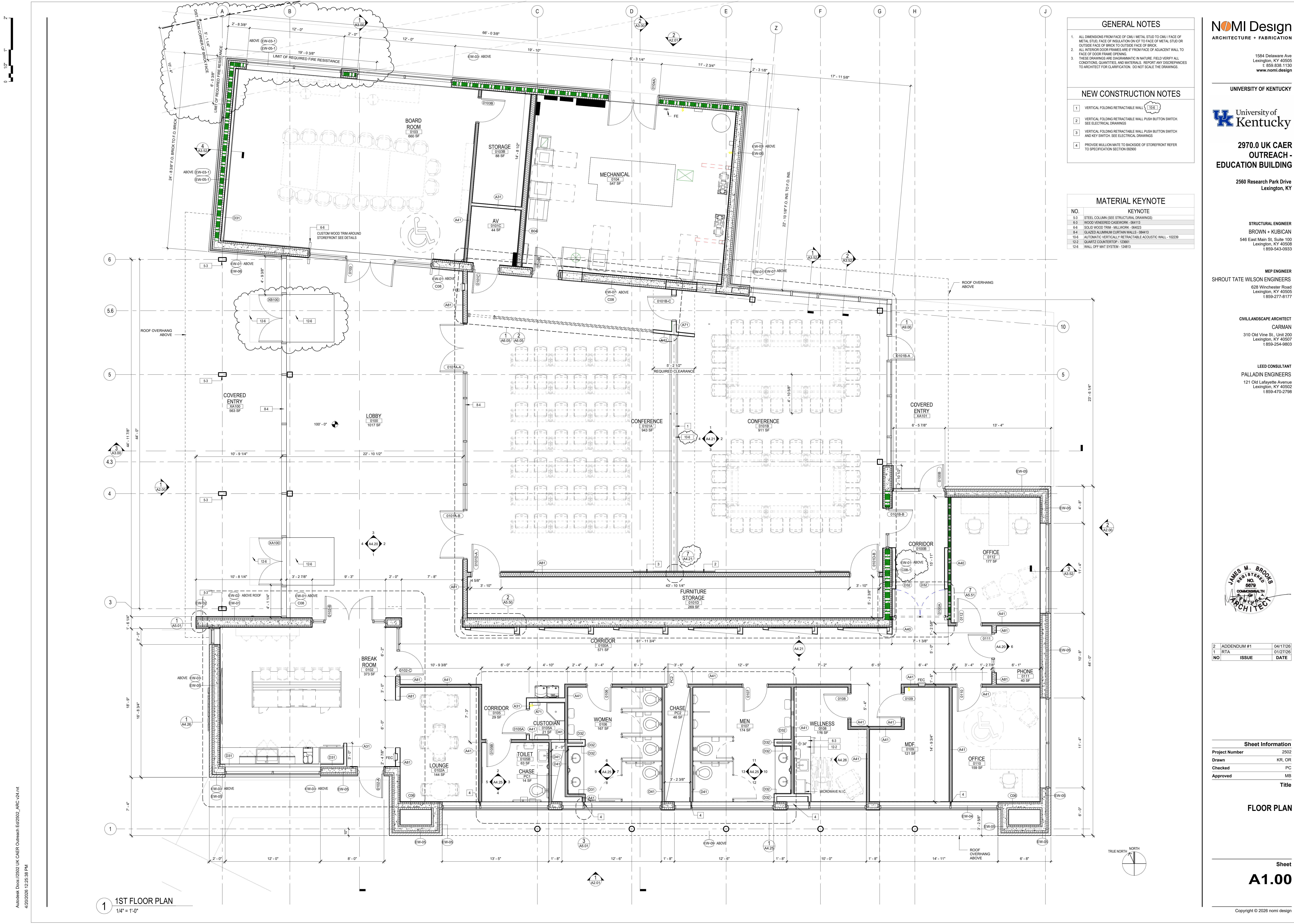
- PARTITION TYPES ARE NOT SEQUENTIAL AND MAY NOT BE USED. REFER TO PLANS AND SECTIONS FOR PARTITIONS USED IN WORK.
- ALL PARTITION SHEATHING TO BE 5/8\"/>



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WALL TYPES



- GENERAL NOTES**
- ALL DIMENSIONS FROM FACE OF CMU/ METAL STUD TO CMU/ FACE OF METAL STUD, FACE OF INSULATION ON ICF TO FACE OF METAL STUD OR FACE OF BRICK TO OUTSIDE FACE OF BRICK.
 - ALL INTERIOR DOOR FRAMES ARE P FROM FACE OF ADJACENT WALL TO FACE OF DOOR FRAME OPENING.
 - THESE DRAWINGS ARE DIAGNOSTIC IN NATURE. FIELD VERIFY ALL CONDITIONS, QUANTITIES, AND MATERIALS. REPORT ANY DISCREPANCIES TO ARCHITECT FOR CLARIFICATION. DO NOT SCALE THE DRAWINGS.
- NEW CONSTRUCTION NOTES**
- VERTICAL FOLDING RETRACTABLE WALL. SEE ELECTRICAL DRAWINGS.
 - VERTICAL FOLDING RETRACTABLE WALL. PUSH BUTTON SWITCH AND KEY SWITCH. SEE ELECTRICAL DRAWINGS.
 - VERTICAL FOLDING RETRACTABLE WALL. PUSH BUTTON SWITCH AND KEY SWITCH. SEE ELECTRICAL DRAWINGS.
 - PROVIDE MILLION MATE TO BACKSIDE OF STOREFRONT REFER TO SPECIFICATION SECTION 02900.

MATERIAL KEYNOTE

NO.	KEYNOTE
5.3	STEEL COLUMN (SEE STRUCTURAL DRAWINGS)
6.3	WOOD VENEERED CASEWORK - 06413
6.6	SOLID WOOD TRIM - MILLWORK - 06403
8.4	GLAZED ALUMINUM CURTAIN WALLS - 08413
10.4	AUTOMATIC VERTICALLY RETRACTABLE ACUSTIC WALL - 10229
12.2	QUARTZ COUNTERTOP - 12961
12.6	WALL OFF MAT SYSTEM - 12493

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ARCHITECTURE + FABRICATION

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MEP ENGINEER
SHROUT TATE WILSON ENGINEERS
628 Winchester Road
Lexington, KY 40505
1.859-277-6177

CIVIL/LANDSCAPE ARCHITECT
CARMAN
310 Old Vine St., Unit 200
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1.859-254-9803

LEED CONSULTANT
PALLADIN ENGINEERS
121 Old Lafayette Avenue
Lexington, KY 40502
1.859-470-2798



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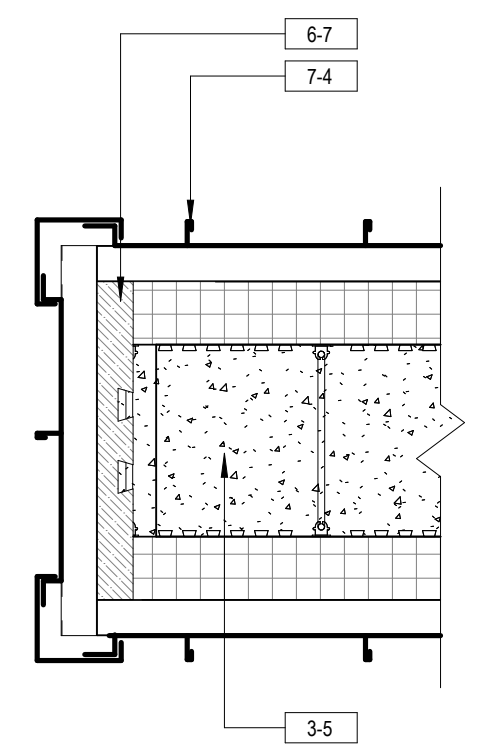
FLOOR PLAN

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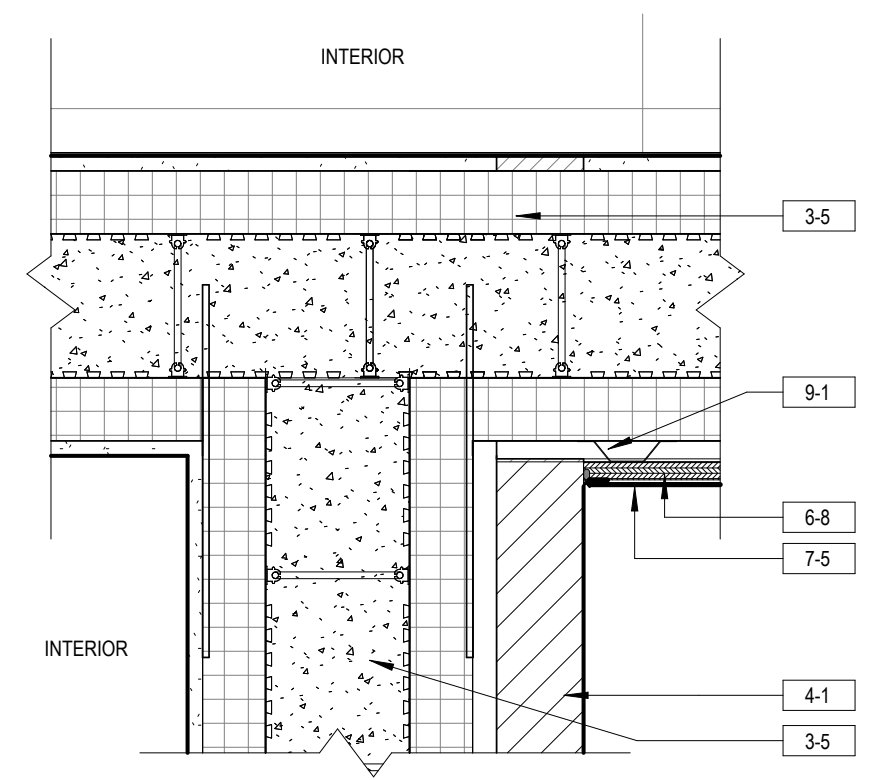
1 1ST FLOOR PLAN
1/4" = 1'-0"



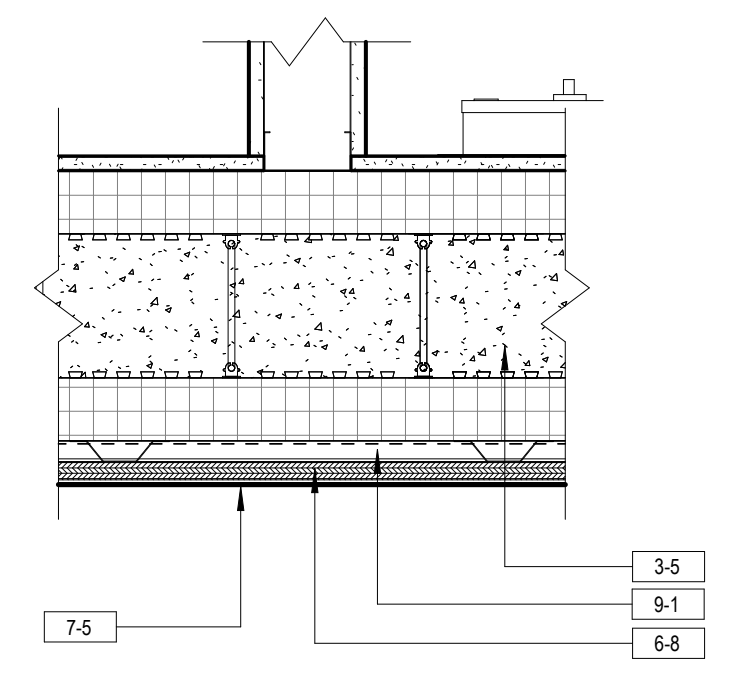
MATERIAL KEYNOTE	
NO.	KEYNOTE
3.2	CONCRETE SLAB (SEE FINISH SCHEDULE) - (SEE SITE & STRUCTURAL)
3.5	INSULATED CONCRETE FORM - (SEE STRUCTURAL)
4.1	BRICK - MODULAR MASONRY UNIT - 042113
4.4	MASONRY VENT - 042113
6.7	ENGINEERED LUMBER PREBUCK FRAMING SYSTEM - 031119
6.8	FIRE TREATED EXTERIOR GRADE PLYWOOD SHEATHING - 061000
7.3	PRE-FINISHED METAL FLASHING - 074213.13
7.4	PRE-FINISHED METAL WALL PANEL - 074213.13
7.5	LIC STAINLESS STEEL METAL TILES - 074213.16
7.7	JOINT SEALANT WITH BACKER ROD - 070200
7.9	PRE-FINISHED METAL SOFFIT PANELS - 074230
7.10	SPRAY APPLIED WEATHER BARRIER - 072726
8.1	ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS - 084113
9.1	NON-STRUCTURAL METAL FRAMING - 092216
9.7	MATERIAL TRANSITION STRIP - (SEE FLOORING SPECS AND TYP DETAILS)
9.8	CERAMIC TILE - 090315
9.10	7/8" HAT CHANNELS OVER METAL FRAMING - 092216



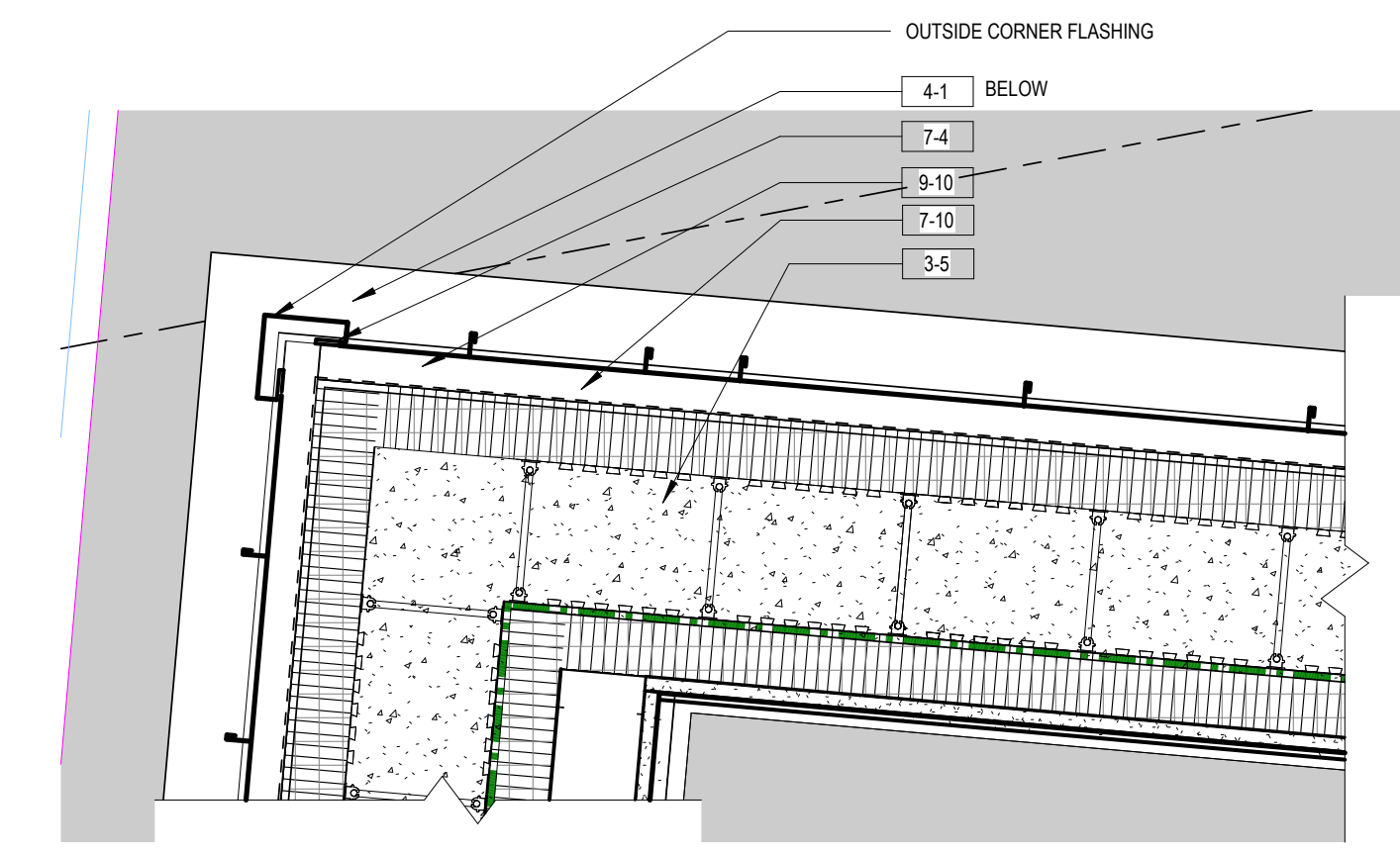
1 ICF PLAN DETAIL - END OF WALL
1 1/2" = 1'-0"



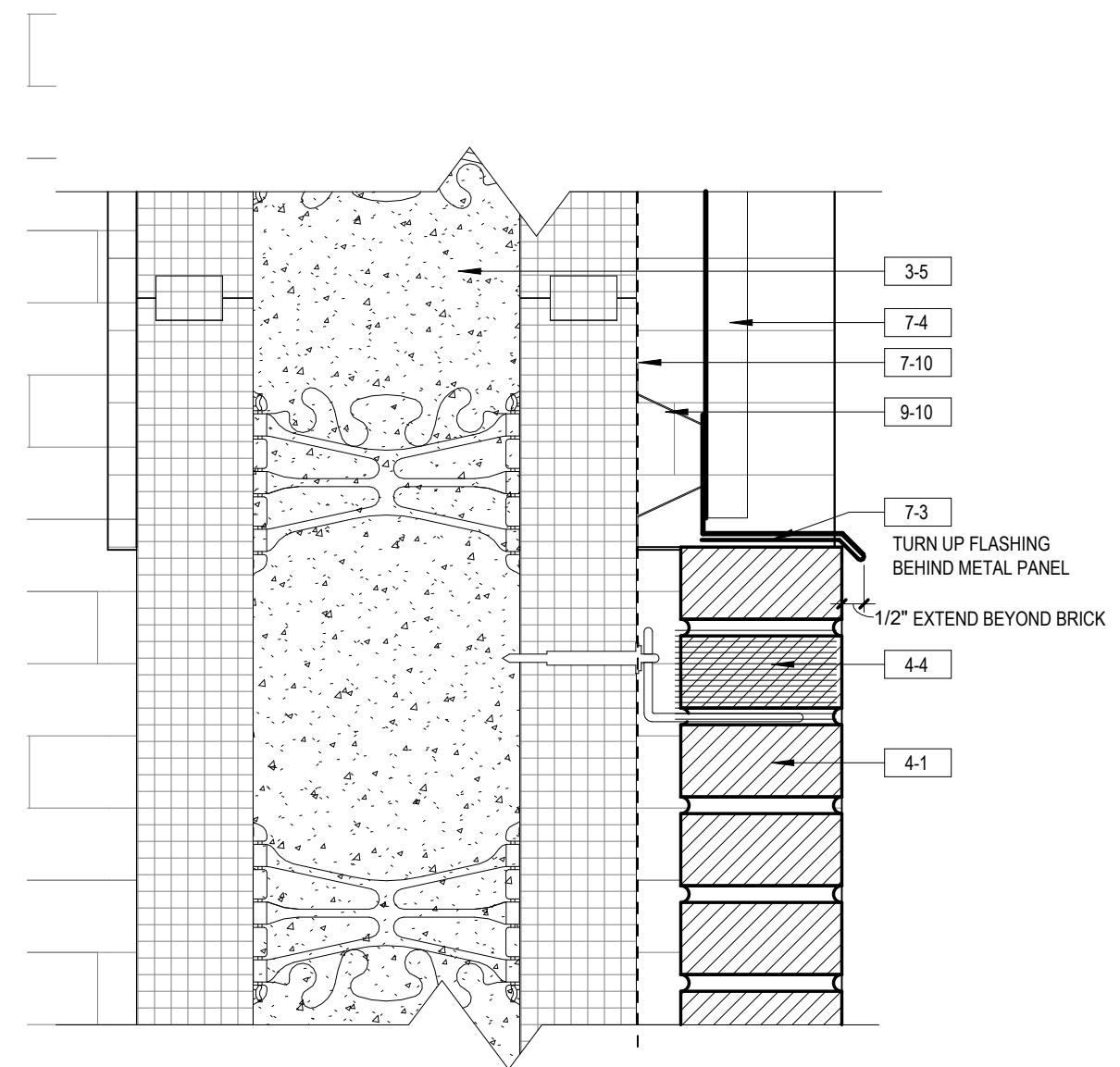
2 ICF BRICK TO METAL TILE
1 1/2" = 1'-0"



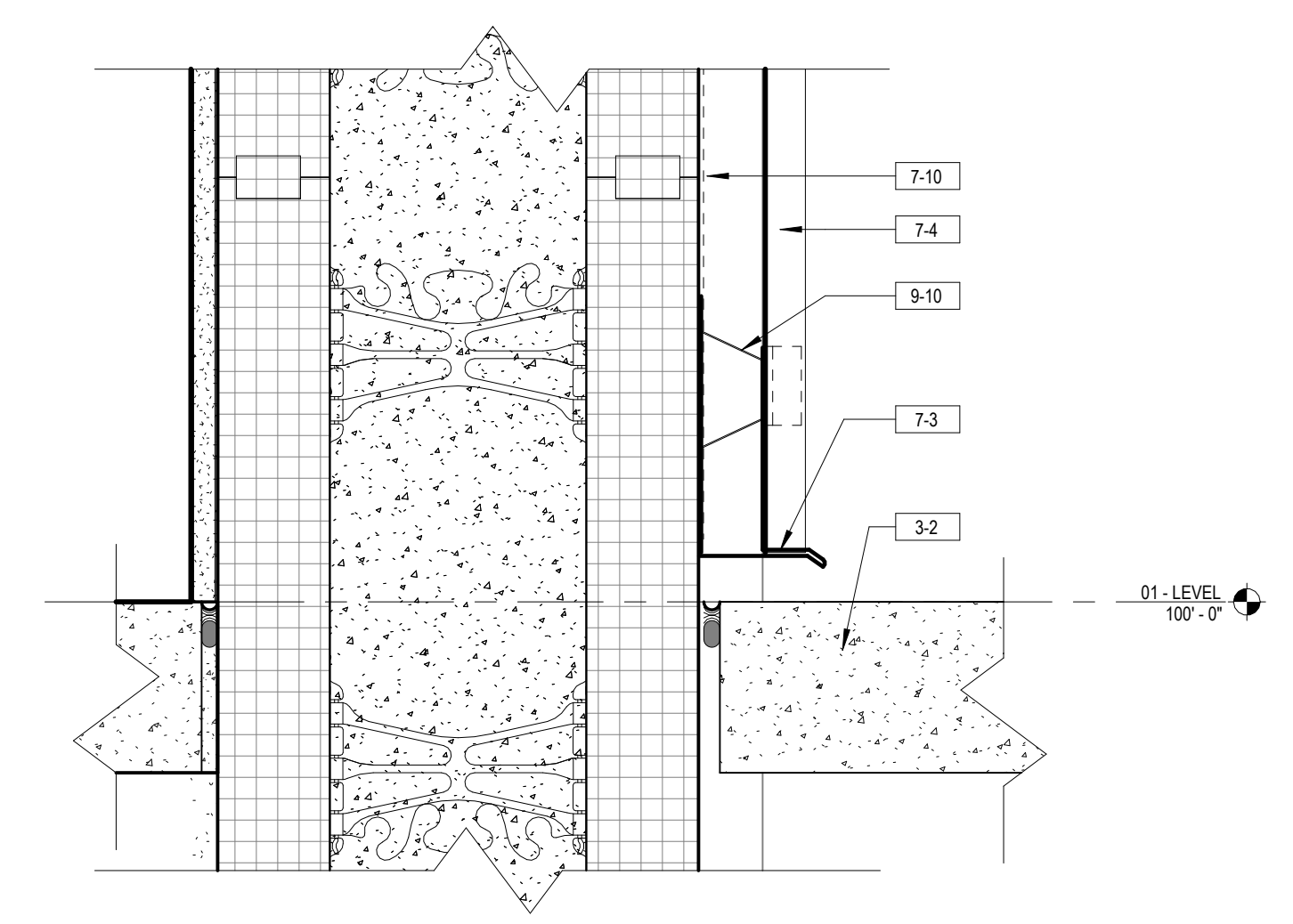
3 ICF TO GYP
1 1/2" = 1'-0"



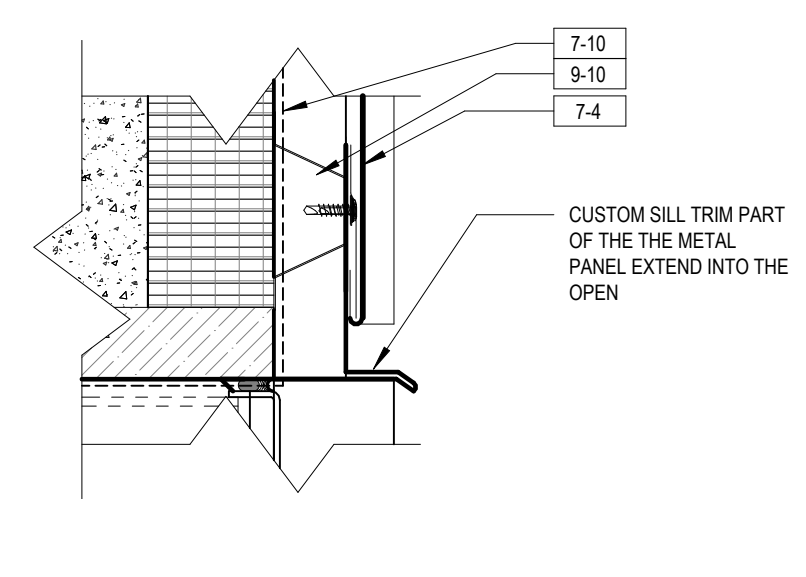
4 EXT METAL PANEL ICF CORNER
1 1/2" = 1'-0"



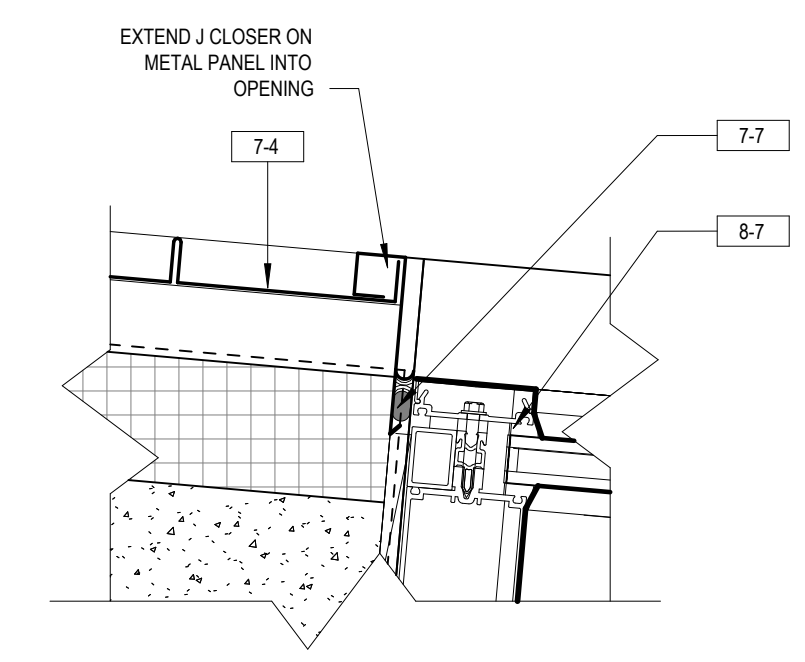
5 DETAIL - METAL PANEL TO BRICK
3" = 1'-0"



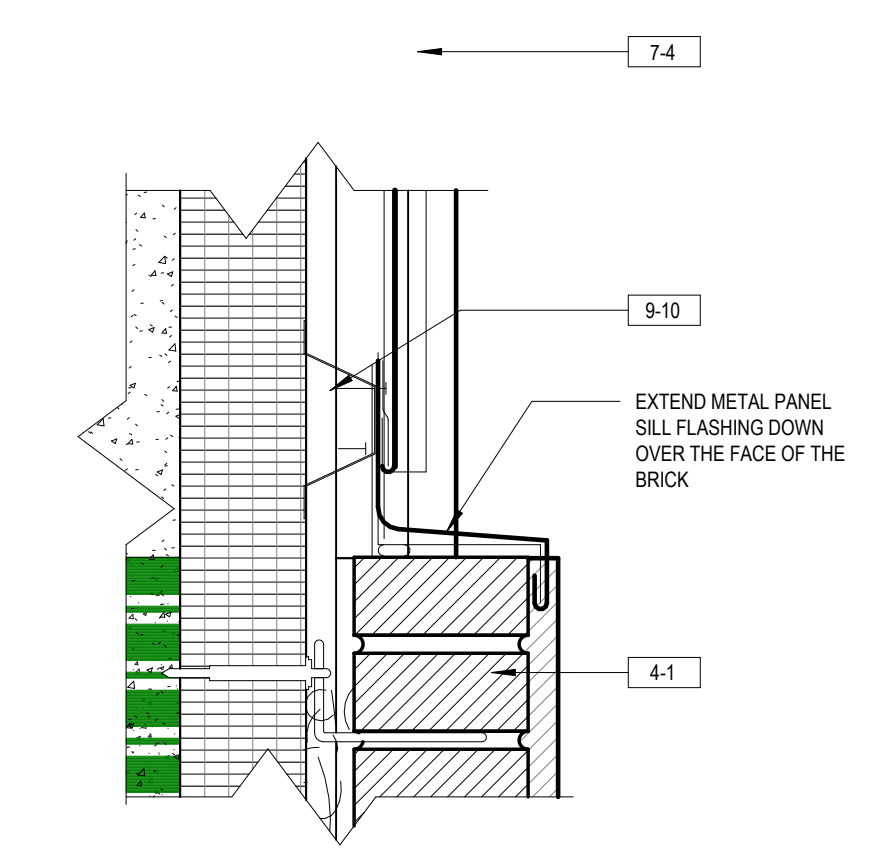
6 METAL WALL PANEL BASE DETAIL
3" = 1'-0"



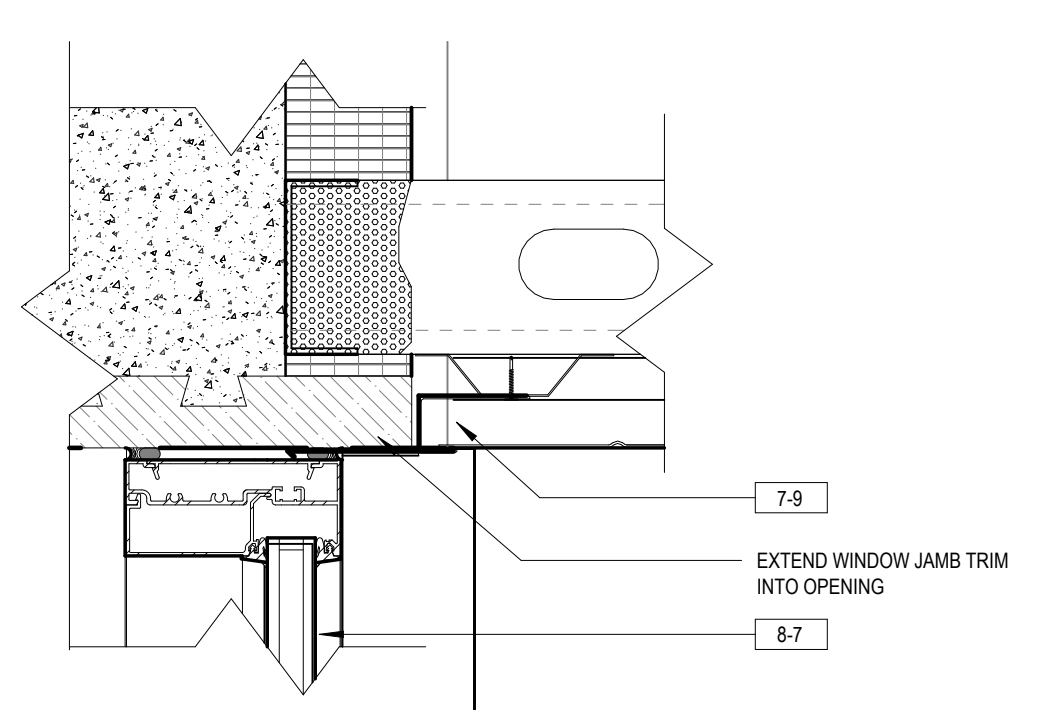
7 METAL PANEL FLASHING
3" = 1'-0"



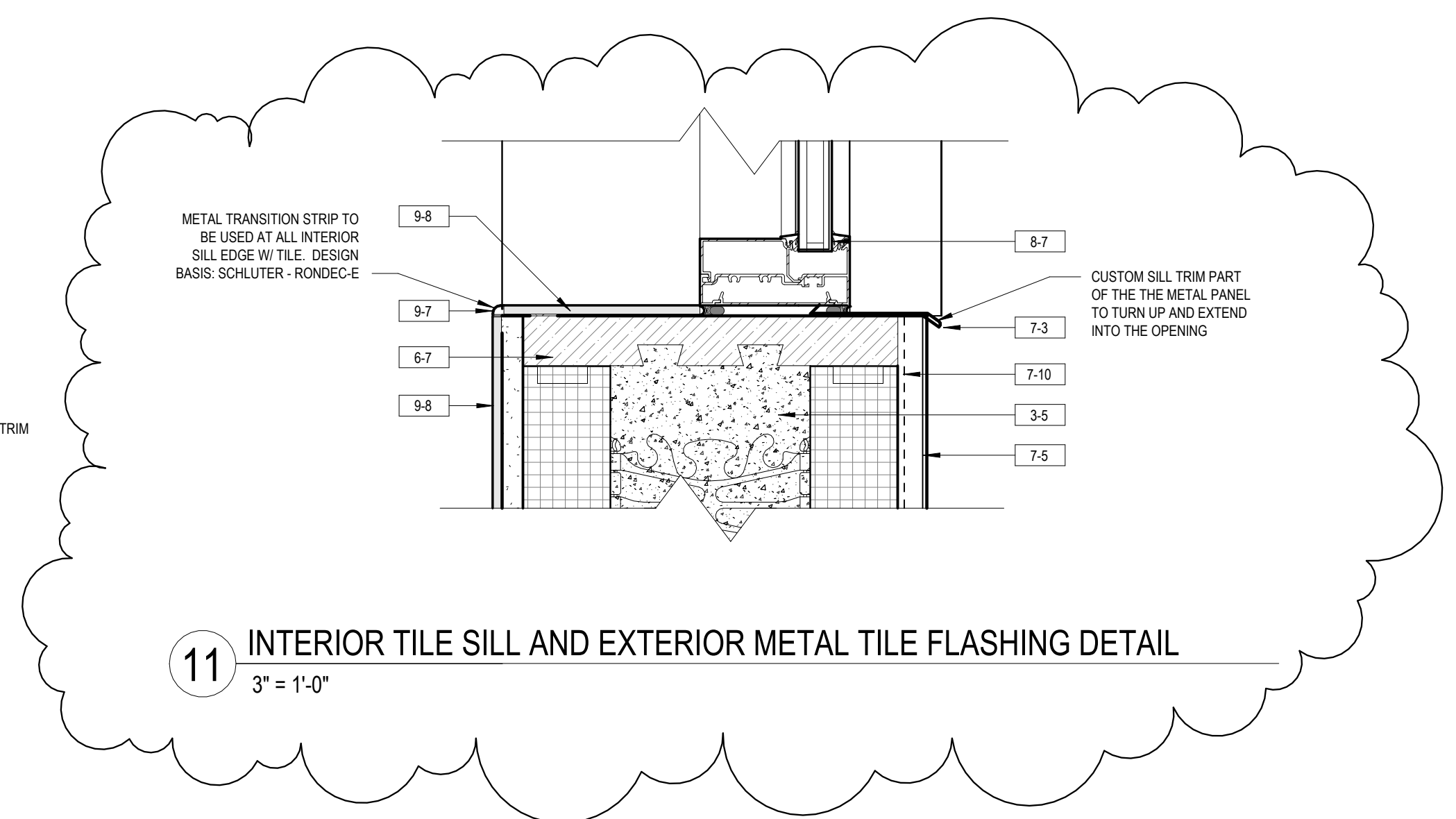
8 METAL PANEL JAMB DETAIL
3" = 1'-0"



9 METAL PANEL DETAIL TO BRICK
3" = 1'-0"



10 SOFFIT TO WINDOW DETAIL
3" = 1'-0"



11 INTERIOR TILE SILL AND EXTERIOR METAL TILE FLASHING DETAIL
3" = 1'-0"



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Sheet Information	
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Drawn	KR, OR
Checked	PC
Approved	MB
Title	

EXTERIOR DETAILS

Sheet
A5.01

