ADDENDUM

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ADDENDUM NO.: **04**

PROJECT NAME: **Emergency Medical Services (EMS) Addition**

PROJECT NO.: **07215**

CONTRACT NO.: **C1611**

DATE OF ISSUE: **July 31, 2024**

NOTICE OF CHANGES, MODIFICATIONS, OR CLARIFICATIONS TO CONTRACT DOCUMENTS

The following changes, modifications, or clarifications are hereby incorporated and made an integral part of the Contract Documents. Unless clearly expressed otherwise by this Addendum, all terms and conditions defined in the original Contract Documents shall continue in full force and effect and shall have the same meaning in this Addendum. Issued Addenda represent responses/clarifications to various inquiries. Contractors shall be responsible for including all associated labor/material costs in its bid. Drawings/specifications corresponding to inquiry responses will be issued with the Issue for Construction Documents, upon issuance of building permit.

ITEM NO. 1: **CHANGE TO KEY DATES**

None.

ITEM NO. 2: **REVISIONS TO BOOK 1 – PBC INSTRUCTIONS TO BIDDERS**

Change 1. Book 1 – DELETE Page 12 (Master Bid Form) and REPLACE WITH attached Updated Master Bid Form. Added A/V Alternate #1. NOTE: Updated Fillable, Master Bid Form (Excel version) is available from Cushing and Company Planroom, the PBC Current Opportunities Page, as well as the PBC Alert communication.

Change 2. **ADD** Section III(U) Alternates: The Commission expressly reserves the right to accept or decline any alternates offered by Bidder. The commission will notify the successful Bidder, in writing, whether any alternate(s) will be awarded.

ITEM NO. 3: **REVISIONS TO BOOK 2 – PBC STANDARD TERMS AND CONDITIONS**

None.

ITEM NO. 4: **REVISIONS TO BOOK 3 – TECHNICAL SPECIFICATIONS**

Change 1 **Book 3 – Volume 1 – REVISED** – Specification Section 00 01 02 TABLE OF CONTENTS, updated dates for sections included in this addendum.

Change 2 **Book 3 – Volume 1 – REVISED –** Specification Section 01 23 00 – ALTERNATES, updated 3.1.

Change 3 **Book 3 – Volume 1 – REVISED** – Specification Section 10 22 39 FOLDING PANEL PARTITIONS, updated acceptable manufacturers and performance requirements.

Change 4 **Book 3 – Volume 1 – REVISED** – Specification Section 12 50 00 – FURNITURE PACKAGE, updated 2.1.

Change 5 **Book 3 – Volume 1 – ADDED** – Specification Section 26 33 53 – STATIC UNITERUPTIBLE POWER SOURCE

Change 6 **Book 3 – Volume 1 – REVISED** – Specification Section 27 05 28 – PATHWAYS FOR COMMUNICATIONS, updated 2.6E to include through floor information for floor boxes.

Change 7 **Book 3 – Volume 2 – REVISED** – Specification Section 28 13 01 – SECURITY ACCESS CONTROL SYSTEM, added product information, added Owner's Standards language.

Change 8 **Book 3 – Volume 2 – REVISED** – Specification Section 28 13 02 – SIMULATION TRAINING VIDEO RECORDING SYSTEM, updated manufacturer information to align with drawing changes.

Change 9 **Book 3 – Volume 2 – Book 3 – Volume 1** – **REVISED –** Specification Section 28 55 00 – ENTRANCE SECURITY INTERCOM, added card reader to video intercom stations and removed previous project information.

Change 10 **Book 3 – Volume 2 – REVISED** – Specification Section 32 31 00 - ORNAMENTAL METAL FENCING AND GATES, added more information.

Change 11 **Book 3 – Volume 1** – **REVISED** – Specification Section 32 31 11 - GATE OPERATORS, added more information.

ITEM NO. 5: REVISIONS TO DRAWINGS

Change 1 **REVISED** Drawing No. L300– Added more fence screening dimensions.

Change 2 **REVISED** Drawing No. L301 – Updated text label for light traffic control on post.

Change 3 **REVISED** Drawing No. A123 – Roof slope and tags updated.

Change 4 **REVISED** Drawing No. A124 – Roof slope and tags updated.

Change 5 **REVISED** Drawing No. A151 – Lighting fixture schedule updated and type GD tagged.

Change 6 **REVISED** Drawing No. A152 – Lighting fixture type GD tagged.

Change 7 **REVISED** Drawing No. A153 – Lighting fixture type GD tagged.

Change 8 **REVISED** Drawing No. A164 – Restroom signs modified.

Change 9 **REVISED** Drawing No. A320 - Updated Detail 1.

Change 10 **REVISED** Drawing No. A401 – PL-1 tagged in restrooms.

Change 11 **REVISED** Drawing No. A402 – Updated Detail 25.

Change 12 **REVISED** Drawing No. A522 – Added notes for corner angle

Change 13 **REVISED** Drawing No. A602 – Updated Detail 7.

Change 14 **REVISED** Drawing No. A680 – Updated door schedule.

Change 15 **REVISED** Drawing No. A681 – Updated door schedule.

Change 16 **REVISED** Drawing No. A686 – Updated interior glazing schedule.

Change 17 **REVISED** Drawing No. A687 – Updated light fixture schedule.

Change 18 **REVISED** Drawing No. A800 – Updated finish schedule.

Change 19 **REVISED** Drawing No. A801 – Tags and legend updated.

Change 20 **REVISED** Drawing No. A802 – Updated legend.

Change 21 **REVISED** Drawing No. A803 – Updated legend.

Change 22 **REVISED** Drawing No. A901 – Updated locker and furniture schedule.

Change 23 **REVISED** Drawing No. E001 – Added notes to general requirements for raceways.

Change 24 **REVISED** Drawing No. E002 – Updated note to site plan instructing the contractor to refer to civil drawings for additional requirements for the electrical duct bank. Added rebar to the Incoming electrical service duct bank detail.

Change 25 **REVISED** Drawing No. E101 – Updated mechanical VSDs equipment and plumbing equipment tags.

Change 26 **REVISED** Drawing No. E102 – Updated the circuits to wall mounted furniture hardware/quad receptacles.

Change 27 **REVISED** Drawing No. E103 – Updated the circuits to wall mounted furniture hardware/quad receptacles.

Change 28 **REVISED** Drawing No. E104 – Removed note and leader from drawing.

Change 29 **REVISED** Drawing No. E201 – Updated key note 8.

Change 30 **REVISED** Drawing No. T001 – Updated legend and removed AV schedule

Change 31 **REVISED** Drawing No. TS101 – Updated underground conduit sizes and routing as well as note at SW gate. Added Detail 3 with image of existing remote equipment cabinet. Added Keyed Note 118.

Change 32 **REVISED** Drawing Nos. T110, T120 & T130 – Re-positioned/added Voice/Data outlets, changed AV equipment and updated room types.

Change 33 **REVISED** Drawing No. T502 – Updated Details 4 & 9.

Change 34 **REVISED** Drawing No. T503 – Updated Details 3, 4 & 6, added Detail 7.

Change 35 **REVISED** Drawing No. T643 – Updated Note 3 per response to RFI Question 10 and revised note on diagram to clarify system includes hardware and software.

Change 36 **REVISED** Drawing No. T644 – Updated schedules and added room legend.

Change 37 **REVISED** Drawing No. T671 – Updated Access Control Diagram

Change 38 **REVISED** Drawing No. T701 – Updated Details 7 & 10.
Change 39 **REVISED** Drawing No. T702 – Updated Details 3, 4 & 9. Added Detail 10.
Change 40 **REVISED** Drawing No. T771 – Updated Details 3, 6, 7 & 8.
Change 41 **REVISED** Drawing No. FA001 – Updated Fire Alarm Riser Diagram to state correct location of existing fire alarm control panel.

ITEM NO. 6: REQUESTS FOR INFORMATION

RFI-1.
Question: **Please confirm that the furniture described in 12 50 00 and shown on A901, A902 and A903 is to be furnished and installed by the Contractor.**
Response: The Contractor is responsible for the procurement and installation of the FF&E items as specified in the Contract Documents. An allowance amount of $1,250,000 has been established on the Bid Form for the FF&E work. The Contractor's base bid amount shall not include the procurement and installation of the FF&E items. Upon Contract award, authorization to procure and install the FF&E items be issued separately (based on approval of the Contractor's FF&E submittals).

RFI-2.
Question: **Sheet T503. The I/O Plates have both AV & Data: Who is to furnish the plates? It is stated that the Extenders are provided by the Owner: Who is to install the Extenders and cable?**
Response: The Low Voltage/Data Contractor is to furnish and install the plates, extenders and cables. The drawing note "by owner" has been removed and updated part numbers are included in Revised Sheet T-503, included in this Addendum 4.

RFI-3.
Question: **Sheet T641. Is this part of our Scope or is this by others?**
Response: The Simulation Audio System is part of the Low Voltage/Data Contractor scope of work, in accordance with the Contract Documents.

RFI-4.
Question: **Sheet T643. Is this part of our Scope or is this by others?**
Response: The Simulation Video System is part of the Low Voltage/Data Contractor scope of work, in accordance with the Contract Documents.

RFI-5.
Question: **Sheet T643. It states that the Server is by others. Are we to furnish & install the Cameras & Microphones or is this by others? What is the brand & model for the microphones?**
Response: The manufacturer (Intelligent Video Solutions) of the server is stated on Sheet T643. Note 3 on Sheet T643 has been updated to list Intelligent Video Solutions as the manufacturer of the served and is included in this Addendum No 4. The microphone is built into the cameras. The cameras and server are to be furnished and installed by the Contractor, in accordance with the Contract Documents.

RFI-6.
Question: **Sheet T644. This is the audiovisual for conference and training rooms. Who is to provide the rack or storage systems?**
Response: Audio Visual equipment identified on Sheet T644 is to be bid as Alternate #1 in accordance with the Contract Documents. Please refer to Revised Sheet T644 and Revised Specification 01 23 00 included in this Addendum 4.

RFI-7.
Question: **Whom is directly purchasing the product for this project?**
Response: The Contractor is responsible for the procurement and installation of the specified FF&E items. An allowance amount of $1,250,000 has been established on the Bid Form for the FF&E work. The Contractor's base bid amount shall not include the procurement and installation of the FF&E items. Upon Contract award, authorization to procure and install the FF&E items be issued separately (based on approval of the Contractor's FF&E submittals).

RFI-8.

Question: **I am referring to the Division 12 Section 12 50 00 – Furniture Package portion of the bid. In an effort to be competitive with pricing, and due to the exclusivity of the AIS product line, I wanted to confirm there would be alternates accepted that would be of a similar product result. I would also be interested to know if alternates would be accepted on these other product lines in the furniture specification: To reiterate, the lines in the specifications are as follows:**

1. **VIA**
2. **OFS**
3. **Emeco**
4. **Keilhauer**
5. **AIS**

Response: Specification Section 12 50 00 has been revised to allow for alternate manufacturers and is included in this Addendum 04. Any alternate product(s) must have equal performance requirements as the basis of design products listed in the Furniture Specification Schedule. All alternates to be submitted to AOR for review and approval.

RFI-9.

Question: **Whom is issuing the PO?**

Response: The Contractor is responsible for issuing the PO for the Furniture Package.

RFI-10.

Question: **Division 12 Furniture Section 12 50 00: Due to discrepancies of the specifications and the drawings in the furniture package scope of Division 12 Furnishings Section 12 50 00, which takes precedence for the final bid package, would it be the specifications or the drawing?**

Response: Drawing Sheets A901, A902 and A903 should be referenced for quantities and locations. The Furniture Specification Schedule in Section 12 50 00 should be referenced for basis of design manufacturer and finishes.

RFI-11.

Question: **Division 12 Furniture Section 12 50 00: Do the counts of the products in the bid in the furniture specifications in the furniture portion, which would take precedence in the products needing to be ordered, would it be the drawing that takes precedence or would it be the specifications?**

Response: Drawing Sheets A901, A902 and A903 should be referenced for quantities and locations. The Furniture Specification Schedule in Section 12 50 00 should be referenced for basis of design manufacturer and finishes.

RFI-12.

Question: **E002: Detail 2&3: Are rebar cages required for these 2 duct banks?**

Response: Rebar cages are required. Refer to revised Details 2 & 3 on Sheet E002 included in this Addendum 4.

RFI-13.

Question: **E002, Note B: Is a new pole base required, and if so, please provide a detail?**

Response: A new pole base is not required, the existing power and CCTV for the existing site lighting circuits are below grade. See revised Note B on Sheet E002 included in this Addendum 4.

RFI-14.

Question: **E101: What are the following items? BT-1, BT-2, and SP-1?**

Response: Refer to revised Sheet E101 included in this Addendum 4. The (2) equipment previously tagged BT are VSDs for HWP 4 and HWP 5, which is now reflected as such. The SP-1 is a graphics error, tag has been updated to show proper equipment tag "ESP2.

RFI-15.

Question: **E201: What light fixture type is the fixture located in the Elevator pit?**

Response: Type GD. Refer to revised Sheet A151 Second Floor Ceiling Plan and Fixture Schedule included in this Addendum 4.

RFI-16.
Question: **E201: Exterior light fixture type "WB" is not listed in the fixture schedule.**
Response: Refer to revised Sheet A151 Second Floor Ceiling Plan and Fixture Schedule included in this Addendum 4.

RFI-17.
Question: **Please provide a specification for exit signs, and the emergency battery pack from E201, KEYNOTE 5.**
Response: Refer to revised Sheet A151 Second Floor Ceiling Plan and Fixture Schedule included in Addendum 4.

RFI-18.
Question: **Can nlight lighting controls be used in lieu of wattstopper?**
Response: Lighting controls shall be Wattstopper to tie into the existing main building. Refer to "General Requirements for Raceways" note 10 on revised sheet E001 included in this Addendum 4.

RFI-19.
Question: **Please provide a relay schedule for the relay panel located in room 264 for the Simulation Area.**
Response: Refer to revised Note 8 on Sheet E201 included in this Addendum 4 for a 48 zone relay panel.

RFI-20.
Question: **Power Drawing E101 and Drawing T110 show 9 floor boxes in Room 279. Are these combo floor boxes as shown on T702 Detail 4? Please provide a specification for the floor box.**
Response: No - these are not combo floor boxes. Refer to revised Detail 4 on revised Sheet T702 included in this Addendum 4. Refer to revised Specification Section 27 05 28 Pathways for Communications also included in this Addendum 4.

RFI-21.
Question: **Power Drawing E102 shows poke through floor fittings in Room 355. Drawing T121 shows column mounted devices, not floor fittings. Please provide a specification for the power poke through fitting, and clarify if data cabling work is to be done at the work stations in the room.**
Response: As per the bid documents, Sheet E102 shows all electrical through floor fittings. See also revised "General Requirements for Raceways" Notes 8, 11, and 12 on revised Sheet E001 included in this Addendum 4, which specify the type of power floor fittings. Per Sheet T120 data for this room to be supplied from the columns.

RFI-22.
Question: **Please provide a specification for the poke through fitting shown on Drawing T702 Detail 3, and clarify where it is to be used.**
Response: Refer to revised Detail 3 on Sheet T702 included in this Addendum 4. Refer to revised Specification Section 27 05 28 Pathways for Communications included in Addendum 4.

RFI-23.
Question: **Drawing T702 Detail 9 shows the rough-in for the video projectors. The detail shows two conduits stubbed into the ceiling space. Please clarify the size of these conduits, and clarify if all AV cabling for speakers etc., can be installed exposed (not in conduit) above accessible ceilings.**
Response: Refer to revised Detail 9 on Sheet T702 included in this Addendum 4. All AV cabling shall be installed in conduit per contract documents.

RFI-24.
Question: **Drawing TS101 shows detailed information about the technology site work for the gate control and video intercom. Drawing E001 does not show detailed power requirements for gate control and future guard shack. Please provide a detailed power plan for the gate control and future guard shack.**
Response: Refer to revised drawing Sheet E001 included in this Addendum 4 and revised drawing Sheet TS101 included in Addendum 4.

RFI-25.

Question: **Drawing TS101 shows two LED lights on the east side of the site. Who provides these two lights? If they are to be furnished by electrical, please provide a specification.**

Response: LED lights are to be furnished as part of the gate operator package as specified in revised Section 32 31 11 Gate Operators included in this Addendum 4.

RFI-26.

Question: **Drawing FA001 says the existing FACP is located in Room 106. Please provide a location for Room 106 in the existing building.**

Response: The existing FACP is located in Electrical Room 119. Refer to updated fire alarm riser diagram on Sheet FA001 included in this Addendum 4.

RFI-27.

Question: **Drawing FA001 shows a redundant connection between the existing FACP and the new FCP. Please confirm that this will require two conduits between the panels and provide a conduit size.**

Response: Confirmed, two conduits are required. Sizing of conduits is the responsibility of the fire alarm contractor.

RFI-28.

Question: **Please find attached the operable partition company that we represent, Kwik-Wall. We'd like to submit a substitution request to get Kwik-Wall added to the approved manufacturers list for Specification 102239. (AECOM Request form and info attached)**

Response: Kwik-Wall not approved. The load of the panel at 12.9 lbs/sf exceeds contract document allowable design loads.

RFI-29.

Question: **Tile. A401 shows the restroom as typical for all others. Please confirm if we are to follow the details for the other restrooms.**

Response: The elevations shown on A401 are typical for all multi-user restrooms. Refer to Sheet A402 for all single user restrooms.

RFI-30.

Question: **AHU. What is the maximum height, width, and length dimensions for Air Handling Units for AHU-8, AHU-9, & AHU-10? Is it as shown on plans, page M601?**

Response: Maximum dimensions for AHU-8, AHU-9, AHU-10, are as shown on Sheet M601.

RFI-31.

Question: **AHU. Specification section 2.3 in D.1.8 and D.1.9 from 23 73 43.19 Outdoor Air Handling Unit, Unit Casing, Casing Assembly, Insulation for Casing and Walls states different thickness and R-Value requirement for walls and roofs "exposed to air stream" and "not exposed to airstream". Please define which walls are exposed to the air stream and which walls are not exposed, or do all unit walls require insulation with R-25 thermal conductivity and thickness of 4 inches?**

Response: AHUs are equipped with integral service corridors as noted on Sheet M701 and as shown in Details on Sheet M601. Service corridors are not exposed to the airstream. All other AHU sections are exposed to the air stream.

RFI-32.

Question: **AHU. Is the sound data for the air handling units, found on page M701, rated using AHRI 260 or AMCA 300?**

Response: Sound data for AHUs listed on Sheet M701 is rated using AHRI 260.

RFI-33.

Question: **AHU. What is the specification requirement for painted exterior of the air handling units?**

Response: Refer to 2.3AA in Section 23 73 43.19 for painting requirements.

RFI-34.

Question: **Please confirm if AISC requirements for the steel manufacturer and erector can be waived for this project.**

Response: The AISC Certification Requirements will not be waived.

RFI-35.

Question: **Please see the attached substitution request for the Lockers on the EMS Addition project. Submited by Elite Storeage Products, LLC. Proposed substituion LockersMFG All-Welded Metal Lockers**

Response: Alternate manufacturers must be submitted to the AOR for review and approval.

RFI-36.

Question: **Regarding the 15KW UPS shown on One-Line DWG E500, there is no Specification included in Book 3 Volume 2. Can the missing specifications be provided? (Highlighted Sheet E500 provided with RFI indicating reference)**

Response: Refer to New Specification Section 26 33 53 included in this Addendum 4.

RFI-37.

Question: **Please provide specification for walk off mat.**

Response: Per the specification 09 68 13 Tile Carpeting as issued in the Bid Drawings the walk off mat is Amarco Products - Buffalo Tile. Please refer to revised Drawing Sheets A800 and A801 included in this Addendum 4.

RFI-38.

Question: **Regarding floor EP-2 on A801, please confirm EP-2 epoxy floor finish should be the same Dur-A-Flex product as EP-01.**

Response: Refer to revised Sheet A801 included in this Addendum 4. All EP-2 modified to EP-1.

RFI-39.

Question: **The CT-1 tile size on A800 is manufactured in several sizes. Please specify tile size for CT-1 and CT-2.**

Response: CT-1 to be 2"x 8" and CT-2 to be 4" x 8" as indicated in Specification Section 09 30 13 Ceramic Tiling as issued in the bid documents. These sizes have been added to the finish schedule on Sheet A800, refer to revised Sheet A800 included in this Addendum 4.

RFI-40.

Question: **In reference to Sheet G005 Detail A2, there is a typical elevation shown for a cripple stud and control joint above the jambs of hollow metal door frames. The door schedule sheets from A680 to A683 do not reference this condition. Please advise if the control joint / cripple stud condition is to be included as shown on G005 / Detail A2.**

Response: Per G005/Detail A2 as issued, the cripple stud condition to be included for all openings.

RFI-41.

Question: **The door schedule on sheet A680 indicated GL-1 or GL-2 glazing for the wood and hollow metal doors that identified as Type F. Per sheet A681, Type F doors do not have a lite kit, only Type N doors. Please advise if the doors that have glazing, which are Type F are intended to be Type N doors.**

Response: Refer to revised Sheet A680 included in this Addendum 4 which clarifies Type N and Type F doors.

RFI-42.

Question: **Please advise if the lower wall transition along column line 18.1 from Roof System A to Roof System B is similar to detail 3/A522.**

Response: Refer to Detail 1/A523 for the transition from the wall to the Roof System.

RFI-43.

Question: **Please provide the head, jamb and sill detail on the glazing schedules for the exterior and interior windows.**

Response: Refer to revised Glazing Schedule on revised Sheet A686 included in this Addendum 4. For typical exterior and interior head, jamb and sill details, refer to Details 2-7 on Sheet A686.

RFI-44.
Question: **The interior glazing schedule is missing the window types for the room locations. Please provide.**
Response: Refer to revised Sheet A686 included in this Addendum 4 for the window types.

RFI-45.
Question: **Please advise if the folding panel partition (Spec. Section No. 10 22 39) is to be motorized or manual.**
Response: The folding panel partition shall be manual as listed in Specification Section 10 22 39.

RFI-46.
Question: **Modernfold is the basis of design for the partition. Per a representative at Modernfold,**
a. 2.2 – E. calls for STC not less than 55
b. 2.2 – K. calls for laminate finish
c. The highest STC Modernfold can achieve with laminate finish is 50. Should we price 50 STC with laminate finish or above 55 STC with a vinyl or fabric wallcovering finish? Please advise
Response: Refer to revised Section 10 22 39 updated to include vinyl finish. Wall must meet STC rating of 55 as listed in the specification.

RFI-47.
Question: **There are several rooms listed on the "Finish Schedule" in the comment section that states "Washable Wall Panel to 5' AFF w/Trim. BOD: Inpro". These rooms per the "Finish Legend" all have FRP panels, with the BOD listed as Marlite. Please clarify if these rooms to receive the FRP panels by Marlite or should these rooms receive another material that is not indicated that is made by "Inpro".**
Response: Refer to revised Sheet A800 updated to clarify finishes, included in this Addendum 4.

RFI-48.
Question: **Referencing Sheet A401 Det 3 and 10, please specify what kind of cabinetry / finish is required, for the men's and women's restroom sinks.**
Response: Cabinetry finish to be PL-1 and countertop to be SS-1, please refer to revised Sheet A401, included in this Addendum 4.

RFI-49.
Question: **Please provide the contractor that holds the warranty for existing roof.**
Response: The Contractor that holds the warranty for the Phase 1 existing roof is Metalmasters.

RFI-50.
Question: **Regarding Sheet A522 Details 1 to 3, there is a 3x3 corner angle shown that is not present in the structural drawings. Can more information be provided this angle?**
Response: Provide continuous L3" x 3" x 3/16" with 1/2" diameter expansion anchors at 4' O.C. Please refer to revised Sheet A522 included in this Addendum 4.

RFI-51.
Question: **The roofing plan on A-124 shows the existing roofing to be removed and replaced. Is it the architects intent for the roofing to be replaced up until column line 17? Please confirm.**
Response: Yes, the intent is that the roofing is replaced up to Column Line 17. Refer to revised Sheet A124 included in this Addendum 4.

RFI-52.
Question: **In certain areas, the roof pitch for the existing roof on A124, details water flowing away from the roof drains towards the new roof connection where the scuppers are to be infilled. Please advise how this water will be drained.**
Response: Sheet A124 has been revised and is included in this Addendum 4 to clarify drainage strategy.

RFI-53.

Question: **Concrete. Details 5, 9 & 10/S403 require a horizontal construction joint in the SOMD concrete. Is the construction joint required or can the concrete contractor pour the thickened slab with the main SOMD pour.**

Response: The construction joint is required as shown for Sections 9 and 10 on Sheet S403. The construction joint is optional for Section 5 as shown on Sheet S403.

RFI-54.

Question: **Concrete. On details 9&10 if the horizontal construction joint is required, a 7-day cure time is required between the upper and lower pours this note is absent from detail 5, confirm the 7-day cure time is required in the areas of detail 5**

Response: The horizontal construction joint and the 7 day cure time is optional for Section 5.

RFI-55.

Question: **Concrete. Detail 9 shows the adjacent stair core wall with a construction joint, please confirm the 7-day cure is not required for the stair and elevator core walls.**

Response: The stair and core walls will need to be cured sufficiently to allow for the removal of formwork and for the installation of any post-installed anchors.

RFI-56.

Question: **Concrete. Details 7&8/S403 require the bent plate edge form to bear on and within the concrete core walls. Is it the design team's intent to require the concrete wall lifts above the SOMD to be poured after the SOMD or will the contractor be permitted to boxout the wall area and pour the vertical concrete prior to the steel being erected. The boxouts appear to be between 4' and 6' long.**

Response: The walls in Sections 7 & 8 on Sheet S403 are beyond the bent plate. The bent plate will stop at the face of the wall. The bent plate does not extend into or bear upon the core walls.

RFI-57.

Question: **Concrete. On drawing C201 the existing steel stair in the east paving area has a note indicating "For above Grade concrete column see structural plans ". We do not find detail in the structural or architectural drawings showing a column encasement or concrete column. Please clarify what work is required in this area in the 3 columns.**

Response: Columns shall be encased in a 2-foot diameter concrete encasement. The top of the encasement shall be 3'-6" above the new pavement. The concrete encasement shall have (8) #7 vertical bars and #4 ties at 12" on center. The vertical #7 bars shall be drilled and epoxied 6" into the existing stair foundation.

RFI-58.

Question: **General - Please confirm if a common allowance value should be held for Dewatering/Pumping per the Geotechnical report results.**

Response: The cost of dewatering for groundwater conditions consistent with those described in the geotechnical report shall be included in the contractor's base bid.

RFI-59.

Question: **Steel - Please confirm type "F UE" shown on the door schedule on sheet A680 corresponds to type "F2 UE" shown on the elevation drawing on sheet A681.**

Response: Confirmed as shown in the Contract Documents on Sheet A681.

RFI-60.

Question: **Steel - There are doors in the schedule shown to be "F" type flush doors with no vision lite but are noted to have glazing on them. Please confirm if these doors are to have glazing.**

Response: Refer to revised Sheet A680 included in this Addendum 4 for requirements for Type N and Type F doors.

RFI-61.

Question: **Steel - There are doors in the schedule shown to be "N" type flush doors with vision lite but a glazing type is not noted. Please confirm if these doors are to have glazing and what kind.**

Response: Refer to revised Sheet A680 included in this Addendum 4 for requirements for Type N and Type F doors.

RFI-62.
Question: **Glass & Glazing - Please confirm if the NACC certification requirement for Architectural Glass and Metal contractors. Requesting contractor would be supplying Union labor and local union certifications and trained installers.**
Response: NACC certification is required as per the Contract Documents.

RFI-63.
Question: **Specialties - Are the guardhouse lockers in room 258A included in the scope of work? If so, please provide a specification & what trace package should pick these up.**
Response: Bidders are to include Lockers in their base bid. Refer to revised Sheet A901 included in this Addendum 4.

RFI-64.
Question: **Wall and Door Protection - Please confirm what product specification "washable wall panel" refers to. This fits the description of various products. Inpro does not sell FRP. Is there a specific product?**
Response: Sheet A800 has been revised and is included in this Addendum 4.

RFI-65.
Question: **Wall and Door Protection - Please confirm specification requirements for WP-2**
Response: Sheet A800 has been revised and is included in this Addendum 4.

RFI-66.
Question: **Wall and Door Protection - Please confirm specification requirements for WP-3**
Response: Sheet A800 has been revised and is included in this Addendum 4.

RFI-67.
Question: **A/V - Please Specify the brand of access control, video management system, including camera models, intrusion and intercom systems**
Response: Brands are as specified in the contract documents.

RFI-68.
Question: **A/V - Please confirm if there are any schedules for cameras, control panels, or devices for the low voltage systems**
Response: Brands are as specified in the contract documents.

RFI-69.
Question: **Electrical -Drawings A152 & E202 both show a 'LF' fixture in the corridor above room 363. Fixture LF is not listed on either fixture schedule that was provided.**
Response: Refer to revised lighting schedule on Sheet A151 included in this Addendum 4.

RFI-70.
Question: **Electrical -The plans show no 'WA' or 'WB' fixtures as per the fixture schedule on drawing A687. Should these be excluded?**
Response: Sheet A151 has been revised to show WB fixture and is included in this Addendum 4. Sheet A687 has been revised to remove WA fixture and is included in this Addendum 4.

RFI-71.
Question: **Equipment - Please confirm if there is any owner provided equipment included on the drawings**
Response: Owner provided equipment is shown on Sheets A901, A902 and A903 in the Contract Documents.

RFI-72.
Question: **Fireproofing - Drawings call to not fireproof steel structure however details shown some sections shown the steel fireproofed. Please confirm if this is required**
Response: Refer to code matrix on Sheet G002. All steel to be fireproofed, as per the Contract Documents.

RFI-73.
Question: **Operable Partition - Is there any alternate acceptable for this partition?**
Response: Alternate manufacturers must be submitted to the AOR for review and approval.

This Addendum No. 4 and all attachments below can be found at the following Link:

PBC Emergency Medical Services (EMS) Addition C1611 by clicking on: Addendum No. 4

This Addendum includes the following attached Specifications and/or Documents:

1. Specification Section 00 01 02 – TABLE OF CONTENTS
2. Specification Section 01 23 00 – ALTERNATES
3. Specification Section 10 22 39 – FOLDING PANEL PARTITIONS
4. Specification Section 12 50 00 – FURNITURE PACKAGE
5. Specification Section 26 33 53 – STATIC UNITERUPTIBLE POWER SOURCE
6. Specification Section 27 05 28 – PATHWAYS FOR COMMUNICATIONS
7. Specification Section 28 13 01 – SECURITY ACCESS CONTROL SYSTEM
8. Specification Section 28 13 02 – SIMULATION TRAINING VIDEO RECORDING SYSTEM
9. Specification Section 28 55 00 – ENTRANCE SECURITY INTERCOM
10. Specification Section 32 31 00 – ORNAMENTAL METAL FENCING AND GATES
11. Specification Section 32 31 11 – GATE OPERATORS

This Addendum includes the following attached Drawings:

1. L300 – FENCING PLAN AND DETAILS, dated 07/31/2024
2. L301 - SLIDING GATE PLAN, dated 07/31/2024
3. A123 – FOURTH FLOOR CONSTRUCTION PLAN, dated 07/31/2024
4. A124 – ROOF CONSTRUCTION PLAN, dated 07/31/2024
5. A151 – SECOND FLOOR – CEILING PLAN, dated 07/31/2024
6. A152 – THIRD FLOOR – CEILING PLAN, dated 07/31/2024
7. A153 – FOURTH FLOOR – CEILING PLAN, dated 07/31/2024
8. A164 – OVERALL SECOND FLOOR SIGNAGE PLAN, dated 07/31/2024
9. A320 – WALL SECTIONS, dated 07/31/2024
10. A401 – ENLARGED FLOOR PLANS & ELEVATIONS – MENS & WOMENS RESTROOMS, dated 07/31/2024
11. A402 – ENLARGED FLOOR PLANS & ELEVATIONS – UNISEX RESTROOMS, dated 07/31/2024
12. A522 – EXTERIOR SECTION DETAILS, dated 07/31/2024
13. A602 – INTERIOR ELEVATIONS, dated 07/31/2024
14. A680 – DOOR AND CASED OPENING SCHEDULES, dated 07/31/2024
15. A681 – DOOR SCHEDULE, PANEL AND FRAME TYPES, dated 07/31/2024
16. A686 – GLAZING SCHEDULE, FRAME TYPES, AND DETAILS, dated 07/31/2024
17. A687 – LIGHT FIXTURE SCHEDULE, dated 07/31/2024
18. A800 – FINISH AND TOILET ACCESSORY SCHEDULES, dated 07/31/2024
19. A801 – SECOND FLOOR – INTERIOR FINISHES PLAN, dated 07/31/2024
20. A802 – THIRD FLOOR – INTERIOR FINISHES PLAN, dated 07/31/2024
21. A803 – FOURTH FLOOR – INTERIOR FINISHES PLAN, dated 07/31/2024
22. A901 – SECOND FLOOR – EQUIPMENT AND FURNITURE PLAN, dated 07/31/2024
23. E001 – SYMBOLS AND ABBREVIATIONS, dated 07/31/2024
24. E002 – CAMPUS SITE PLAN, dated 07/31/2024
25. E101 – SECOND FLOOR POWER PLAN, dated 07/31/2024
26. E102 – THIRD FLOOR POWER PLAN, dated 07/31/2024
27. E103 – FOURTH FLOOR POWER PLAN, dated 07/31/2024
28. E104 – ROOF POWER PLAN, dated 07/31/2024
29. E201 – SECOND FLOOR LIGHTING PLAN, dated 07/31/2024
30. T001 – TECHNOLOGY LEGEND, dated 07/31/2024
31. TS101 – TECHNOLOGY SITE PLAN, dated 07/31/2024
32. T110 – SECOND FLOOR TECHNOLOGY PLAN, dated 07/31/2024
33. T120 – THIRD FLOOR TECHNOLOGY PLAN, dated 07/31/2024
34. T130 – FOURTH FLOOR TECHNOLOGY PLAN, dated 07/31/2024

35. T502 – TECHNOLOGY DETAILS, dated 07/31/2024
36. T503 – TECHNOLOGY DETAILS, dated 07/31/2024
37. T643 – SIMULATION VIDEO SYSTEM, dated 07/31/2024
38. T644 – AUDIO VISUAL EQUIPMENT SCHEDULES, dated 07/31/2024
39. T671 – ACCESS CONTROL DIAGRAMS, dated 07/31/2024
40. T701 – CONDUIT AND PATHWAY DETAILS, dated 07/31/2024
41. T702 – CONDUIT AND PATHWAY DETAILS, dated 07/31/2024
42. T771 – SECURITY CONDUIT AND PATHWAY DETAILS, dated 07/31/2024
43. FA001 – FIRE ALARM GENERAL NOTES AND SYMBOLS, dated 07/31/2024

END OF ADDENDUM NO. 04

PROJECT NAME:	Emergency Medical Services (EMS) Addition
CONTRACT NO:	C1611
PROJECT NO:	07215

REVISED BID FORM (Addendum No. 4)

(For Electronic Submission Copy)

LINE	DESCRIPTION	AMOUNT
1	Base Work Only	
2	Alternate #1 - Audio/Visual Equipment	
3	Commission's Contract Contingency	$ 825,000.00
4	Site Work Allowance	$ 125,000.00
5	Camera Allowance	$ 110,000.00
6	Furniture, Fixtures, and Equipment Allowance	$ 1,250,000.00
7	Rolling Gate at Chicago Avenue Entrance Allowance	$ 150,000.00
8	**TOTAL BASE BID (equals Line 1 and Lines 3 through 7)**	**$ 2,460,000.00**
9	**TOTAL BASE BID + ALTERNATE #1 (equals Line 1 through Line 7)**	**$ 2,460,000.00**
10	**TOTAL AWARD CRITERIA FIGURE (based on Line 8)**	**$ 2,460,000.00**
11	**TOTAL AWARD CRITERIA FIGURE (based on Line 9)**	**$ 2,460,000.00**
	Accepted by the Commission	

SURETY INFORMATION

(Provide Legal Name and address of Surety)

Name: _____

Address: _____

BIDDER'S INFORMATION

Firm Name: _____

Date: _____

NOTES/INSTRUCTIONS

Prior to submitting your bid electronically, please do the following:

1. **Ensure** Line 1 and Line 2. Base Work Only Amount, and Base Work with Alt 1, the Surety Information section, and Bidder's Information section have been populated.
2. **Save** the file.
3. **Convert** the file to PDF.
4. **Include** copy of the Bid Form **within** the scanned copy of the bid.
5. **Separately Attach** the PDF of this Bid Form, **in the same email with** the scanned copy of the bid.
6. **Send email** to: bids@pbchicago.com and james.borkman@cityofchicago.org.

Light Purple	Base Work Only	For Base Work only, enter numbers without decimals or commas. (ie For Base Bid of $100,000.00, enter 100000)
Light Green	Alternnate #1	For Alternate #1, enter numbers without decimals or commas. (ie For Alt 1 of $100,000.00, enter 100000)
Light Blue	Contingency(ies)	Amount is fixed and will automatically calculate to determine Totatl Base Bid and Total Base Bid + Alt 1 (Total of 1+(2)+3+4+5+6+7)
Light Yellow	Allowance(s)	Amounts are fixed and will automatically calculate to determine Totatl Base Bid and Total Base Bid + Alt 1 (Total of 1+(2)+3+4+5+6+7)
Orange	Total Base Bid	Equals Line 1, 3-7 for Total Base Bid and Lines 1-7 for Total Base Bid + Alt 1. Total Base Bid automatically populates for both.
Green	Total Award Criteria Figure	Based on Line 7 (Totat Base Bid figure). Total Award Criteria Figure automatically populates from Award Criteria Figure Worksheet.

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 01 - GENERAL REQUIREMENTS

DIVISION 02 - EXISTING CONDITIONS

DIVISION 03 – CONCRETE

DIVISION 04 - MASONRY

END OF TABLE OF CONTENTS

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Contract.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.
3. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

1.3 PROCEDURES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Client's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.

B. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

C. Execute accepted alternates under the same conditions as other work of the Contract.

1.4 SCHEDULE OF ALTERNATES

A. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: AV Equipment
1. Alternate: Provide alternate pricing for AV Equipment as listed on Sheet T644.

END OF SECTION 01 23 00

SECTION 10 22 39 - FOLDING PANEL PARTITIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Manually operated, acoustical panel partitions.

B. Related Requirements:

   1. Section 05 50 00 "Metal Fabrications" for supports that attach supporting tracks to overhead structural system.
   2. Section 09 29 00 "Gypsum Board" for fire-rated assemblies and sound barrier construction above the ceiling at track.
   3. Electrical and communications Sections for electrical service and connections for motor operators, controls, and limit switches and for system disconnect switches.

1.2 DEFINITIONS

A. NIC: Noise Isolation Class.

B. NRC: Noise Reduction Coefficient.

C. STC: Sound Transmission Class.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For operable panel partitions.

   1. Include plans, elevations, sections, attachment details, and numbered panel installation sequence.
   2. Indicate stacking and operating clearances. Indicate location and installation requirements for hardware and track, blocking, and direction of travel.
   3. Include diagrams for power, signal, and control wiring.

C. Samples for Initial Selection: For each type of exposed material, finish, covering, or facing.

   1. Include Samples of accessories involving color selection.

D. Samples for Verification: For each type of exposed material, finish, covering, or facing, prepared on Samples of size indicated below:
   1. Panel Facing Material: Manufacturer's standard-size unit, not less than 3 inches square.
   2. Panel Edge Material: Not less than 3 inches long.
   3. Hardware: One of each exposed door-operating device.

E. Delegated-Design Submittal: For operable panel partitions.

F. Sustainable Design Submittals:
   1. Refer to Section 01 81 13 - Sustainable Design Requirements

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

   1. Partition track, track supports and bracing, switches, turning space, and storage layout.
   2. Suspended ceiling components.
   3. Structural members to which suspension systems will be attached.
   4. Size and location of initial access modules for acoustical tile.
   5. Items penetrating finished ceiling including the following:
      a. Lighting fixtures.
      b. HVAC ductwork, outlets, and inlets.
      c. Speakers.
      d. Sprinklers.
      e. Smoke detectors.
      f. Access panels.

   6. Plenum acoustical barriers.

B. Setting Drawings: For embedded items and cutouts required in other work, including support-beam, mounting-hole template.

C. Qualification Data: For Installer.

D. Product Certificates: For each type of operable panel partition.

E. Product Test Reports: For each operable panel partition, for tests performed by a qualified testing agency.

F. Field quality-control reports.

G. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For operable panel partitions to include in maintenance manuals.

1. In addition to items specified in Section 01 78 23 "Operation and Maintenance Data," include the following:
   a. Panel finish facings and finishes for exposed trim and accessories. Include precautions for cleaning materials and methods that could be detrimental to finishes and performance.
   b. Seals, hardware, track, track switches, carriers, and other operating components.
   c. Electric operator and controls.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same production run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Panel Finish-Facing Material: Furnish full width in quantity to cover both sides of two panels when installed.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protectively package and sequence panels in order for installation. Clearly mark packages and panels with numbering system used on Shop Drawings. Do not use permanent markings on panels.

1.10 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of operable panel partitions that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Faulty operation of operable panel partitions.
   b. Deterioration of metals, metal finishes, and other materials beyond normal use.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Acoustical Performance: Provide operable panel partitions tested by a qualified testing agency for the following acoustical properties according to test methods indicated:

1. Sound-Transmission Requirements: Operable panel partition assembly tested for laboratory sound-transmission loss performance according to ASTM E90, determined by ASTM E413, and rated for not less than the STC indicated.
2. Noise-Reduction Requirements: Operable panel partition assembly, identical to partition tested for STC, tested for sound-absorption performance according to ASTM C423, and rated for not less than the NRC indicated.
3. Noise-Isolation Requirements: Installed operable panel partition assembly, identical to partition tested for STC, tested for NIC according to ASTM E336, determined by ASTM E413, and rated for 10 dB less than STC value indicated.

B. Fire-Test-Response Characteristics: Provide panels with finishes complying with one of the following as determined by testing identical products by a testing and inspecting agency acceptable to authorities having jurisdiction:

1. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   a. Flame-Spread Index: 25 or less.
   b. Smoke-Developed Index: 450 or less.
2. Fire Growth Contribution: Complying with acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 265 Method B Protocol or NFPA 286.

2.2 OPERABLE ACOUSTICAL PANELS

A. Operable Acoustical Panels: Partition system, including panels, seals, finish facing, suspension system, operators, and accessories.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   a. Basis of Design: Modernfold, Inc. (Acousti-Seal Encore)
   b. Hufcor, Inc.(643E)
   c. Moderco Inc. (743E / 843E)

B. Panel Operation: Manually operated, continuously hinged panels.

C. Panel Construction: As required to support panel from suspension components and with reinforcement for hardware attachment. Fabricate panels with tight hairline joints and concealed fasteners. Fabricate panels so finished in-place partition is rigid; level; plumb; aligned, with tight joints and uniform appearance; and free of bow, warp, twist, deformation, and surface and finish irregularities.

D. Dimensions: Fabricate operable acoustical panel partitions to form an assembled system of dimensions indicated and verified by field measurements.

1. Panel Width: Standard widths.

E. STC: Not less than 55.

F. NRC: Not less than 0.50.

G. Panel Weight: 8.0 lb/sq. ft. maximum.

H. Panel Thickness: Nominal dimension of.
1. Steel Frame: Steel sheet, manufacturer's standard nominal minimum thickness for uncoated steel.
2. Steel Face/Liner Sheets: Tension-leveled steel sheet, manufacturer's standard minimum nominal thickness for uncoated steel.
3. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use, corrosion resistance, and finish indicated; ASTM B221 for extrusions; manufacturer's standard strengths and thicknesses for type of use.
   a. Frame Reinforcement: Manufacturer's standard steel or aluminum.
4. Gypsum Board: ASTM C1396/C1396M.
5. Cement Board: ASTM C1288.
6. Particleboard: ANSI A208.1.
7. Medium-Density Fiberboard: ANSI A208.2.
8. Plywood: DOC PS 1.

I. Panel Closure: Manufacturer's standard unless otherwise indicated.

1. Initial Closure: Resilient, bulb-shaped acoustical seal.
2. Final Closure: Constant-force, lever-operated mechanical closure expanding from panel edge to create a constant-pressure acoustical seal.

J. Hardware: Manufacturer's standard as required to operate operable panel partition and accessories; with decorative, protective finish.

1. Hinges: Manufacturer's standard.

K. Finish Facing: Heavy Duty Vinyl

2.3 SEALS

A. Description: Seals that produce operable panel partitions complying with performance requirements and the following:

1. Manufacturer's standard seals unless otherwise indicated.
2. Seals made from materials and in profiles that minimize sound leakage.
3. Seals fitting tight at contact surfaces and sealing continuously between adjacent panels and between operable panel partition perimeter and adjacent surfaces, when operable panel partition is extended and closed.

B. Horizontal Top Seals: Continuous-contact, resilient seal exerting uniform constant pressure on track or resilient, mechanical, retractable, constant-force-contact seal exerting uniform constant pressure on track when extended.

C. Horizontal Bottom Seals: Resilient, mechanical, retractable, constant-force-contact seal exerting uniform constant pressure on floor when extended, ensuring horizontal and vertical sealing and resisting panel movement.
   1. Automatically Operated for Acoustical Panels: Extension and retraction of bottom seal automatically operated by movement of partition, with operating range not less than 1 inch between retracted seal and floor finish.

2.4 PANEL FINISH FACINGS

A. Description: Finish facings for panels that comply with indicated fire-test-response characteristics and that are factory applied to operable panel partitions with appropriate backing, using mildew-resistant nonstaining adhesive as recommended by facing manufacturer's written instructions.

   1. Apply facings free of air bubbles, wrinkles, blisters, and other defects, with invisible seams complying with Shop Drawings for location, and with no gaps or overlaps. Horizontal seams are not permitted. Tightly secure and conceal raw and selvage edges of facing for finished appearance.
   2. Where facings with directional or repeating patterns or directional weave are indicated, mark facing top and attach facing in same direction.
   3. Match facing pattern 72 inches above finished floor.
   4. Reinforced Heavy Duty Vinyl
      a. Color/Pattern: As selected by Architect from manufacturer's full range.

B. Trimless Edges: Fabricate exposed panel edges so finish facing wraps uninterrupted around panel, covering edge and resulting in an installed partition with facing visible on vertical panel edges, without trim, for minimal sightlines at panel-to-panel joints.

2.5 SUSPENSION SYSTEMS

A. Tracks: Steel or aluminum with adjustable steel hanger rods for overhead support, designed for operation, size, and weight of operable panel partition indicated. Size track to support partition operation and storage without damage to suspension system, operable panel partitions, or adjacent construction. Limit track deflection to no more than 0.10 inch between bracket supports. Provide a continuous system of track sections and accessories to accommodate configuration and layout indicated for partition operation and storage.

   1. Panel Guide: Aluminum guide on both sides of the track to facilitate straightening of the panels; finished with factory-applied, decorative, protective finish.
   2. Head Closure Trim: As required for acoustical performance; with factory-applied, decorative, protective finish.

B. Carriers: Trolley system as required for configuration type, size, and weight of partition and for easy operation; with ball-bearing wheels.

C. Track Intersections, Switches, and Accessories: As required for operation, storage, track configuration, and layout indicated for operable panel partitions, and compatible with partition assembly specified. Fabricate track intersections and switches from steel or aluminum.

D. Aluminum Finish: Mill finish or manufacturer's standard, factory-applied, decorative finish unless otherwise indicated.

E. Steel Finish: Manufacturer's standard, factory-applied, corrosion-resistant, protective coating unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine flooring, floor levelness, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of operable panel partitions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install operable panel partitions and accessories after other finishing operations, including painting, have been completed in area of partition installation.

B. Install panels in numbered sequence indicated on Shop Drawings.

C. Broken, cracked, chipped, deformed, or unmatched panels are not acceptable.

D. Broken, cracked, deformed, or unmatched gasketing or gasketing with gaps at butted ends is not acceptable.

E. Light-Leakage Test: Illuminate one side of partition installation and observe vertical joints and top and bottom seals for voids. Adjust partitions for alignment and full closure of vertical joints and full closure along top and bottom seals. Perform test and make adjustments before NIC testing.

3.3 FIELD QUALITY CONTROL

A. NIC Testing: Engage a qualified testing agency to perform tests and inspections.

1. Testing Extent: Testing agency shall randomly select 2 operable panel partition installation(s) for testing.
2. Testing Methodology: Perform testing of installed operable panel partition for noise isolation according to ASTM E336, determined by ASTM E413, and rated for not less than NIC indicated. Adjust and fit partitions to comply with NIC test method requirements.

B. An operable panel partition installation will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.4 ADJUSTING

A. Adjust operable panel partitions, hardware, and other moving parts to function smoothly, and lubricate as recommended by manufacturer.

B. Verify that safety devices are properly functioning.

3.5 MAINTENANCE SERVICE

A. Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by manufacturer's authorized service representative. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operable-partition operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain operable panel partitions.

END OF SECTION 10 22 39

SECTION 12 50 00 – FURNITURE PACKAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Furniture and equipment

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
1. Review methods and procedures related to furniture installation including, but not limited to, the following:
   a. Review delivery, storage, and handling procedures
   b. Identify space for furniture installation staging area
   c. Clarify if manufacturer's delivery/installation staff will be placing furniture in specified rooms
   d. Review finishes for all furniture items.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include manufacturer's written data on physical characteristics and durability.

B. Shop Drawings: Show furniture, finishes, quantities, locations of each furniture item.

C. Samples: For each furniture, provide respective finishes.

D. Product Schedule: Use same designations indicated on Drawings and furniture package.

E. Sustainable Design Submittals:
1. Refer to Section 01 81 13 - Sustainable Design Requirements

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranty: Manufacturer's standard warranty

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For furniture include maintenance manuals. Include the following:
   1. Methods for maintaining furniture, including cleaning and manufacturer's recommended maintenance schedule.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match furniture installed and that are packaged with protective covering for storage and identified with labels describing contents.

   1. Furniture: Provide 5 percent of amount installed for each type indicated.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Fabricator of products.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver furniture in factory packages, marked with manufacturer and product name. Install furniture on project site at designated staging area; coordinate with Client and Contractor for furniture staging area. Deliver furniture to specified locations as indicated on Drawings in furniture package; coordinate final locations with Client. and location of installation using same designations indicated on Drawings.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not install furniture until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.10 WARRANTY

A. Special Warranty for Furniture: Manufacturer agrees to repair or replace components or whole furniture that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Dimensional instability
      b. Cracking
      c. Delamination

B. Warranty Period: Manufacturer's standard warranty from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: As indicated in furniture specification schedule.

B. Alternates: Approved Equal by Architect.
   1. Must meet performance criteria as indicated in the furniture specification schedule. All alternates must be submitted to AOR for review and approval.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FURNITURE INSTALLATION

A. Install furniture level, plumb, and aligned according to manufacturer's written instructions.

B. Furniture Locations: As designated in Drawings.

3.3 ADJUSTING

A. Adjust and balance furniture to operate smoothly, easily, safely, and free from binding or malfunction throughout the entire operational range.

3.4 CLEANING AND PROTECTION

A. Clean furniture, after installation, according to manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that the furniture are without damage or deterioration at time of Substantial Completion.

C. Replace damaged furniture that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION 12 50 00

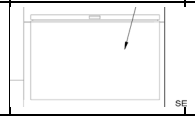
AECOM

FURNITURE SPECIFICATION
EMS ADDITION

Item Label	Furniture Image	Manufacturer	Model	Model Number	Description	Dimensions	Fabric / Finish	Room	Total Counts
Accessory									
AC01		Erg International	Drake	DRPD	Mobile Podium with Modesty, Locking Casters, PVC Edgeband	28"W x 18"D x 28"H	**Top:** Formica Brite White 459-58 **Base -** Brushed Aluminum **Casters -** Black Locking	Classrooms	17
Chair									
CH1.1		VIA	Brisbane HD Mid Back with Large Seat C	1603-67C-SS-FT-39 A6-18BB-16SCG-BA LL1-9GA-GR1	With ergonomic enhancement - #67 Quick Adjust Advanced Synchro Control Mech #SS-FT - Seat depth adjustment & ergonomic forward tilt #39A - Black roll back arms #18BB - Black Nylon 5-Star Swivel Base #16SCG - Two-toned black and grey soft rubber tread all floor casters #BALL1 - Ballistic Brisbane Nylon		9FA - Fabric Textile - Momentum Hue Black (Grade 1) Base- black nylon 5-star swivel base #18BB	Workstations, Offices	146
CH03		OFS	Harpin Mid Back Chair	85115-M	Molded plastic one-piece shell, Swivel base, black hard casters for use on carpet, armless	18.75"Wx34.75"Hx21.5"D	**Seat -** Graphite Plastic Shell (GRPH) **Base -** Polished Aluminum (PAL) **Caster -** Black Hard casters - std (W48)	EMS Staff 103	4
CH04		OFS	Harpin Mid Back Chair	85138-M	Molded plastic one-piece shell, 4 leg with casters for use on carpet, armless	18.75"Wx34.75"Hx21.5"D	**Seat -** Graphite Plastic Shell (GRPH) **Seat Upholstery -** Modena Ecosense Graphite **Base -** Polished Aluminum (PAL) **Caster -** Black Hard casters - std (W48)	Classroom Seating	742
CH05		Emeco	Broom Stacking Chair	FBROOMDARKGRE Y	Polypropylene chair	19" W x 19.5" D x 32.5" H	**Propylene shell -** Dark Grey	Simulation Apartment	2
Lounge Seating									
LS03		Keilhauer	Meander	56033+56000+560 32	Fully Upholstered Sofa with PC01 Onyx powdercoat base.	131.5" x 33.75" x 27.5"	Upholstery - Maharam, Beck; 466570-002 Molecule Legs - PC01 Onyx	Simulation Apartment	2
Markerboard									
MB01		Claridge. Alternates will be accepted	MB S-Deluxe	C-LCS2044R	LCS3 Porcelain Dry Erase Whiteboards Aluminum Trim MT/MR	48" x 48"	LCS3-217-M #100 White Chalk Tray - Flat Tray Trim Finish - Clear Anodized	Private Office, Typical	**22**
MB02		Claridge. Alternates will be accepted	MB S-Deluxe	C-LCS2048R	LCS3 Porcelain Dry Erase Whiteboards Aluminum Trim MT/MR	48 x 96"	LCS3-217-M #100 White Chalk Tray - Flat Tray Trim Finish - Clear Anodized	Training Room Typical	20
MB03 (Refer to AV Equipment Schedules Sheet T644)								Large Classrooms	11

AECOM

FURNITURE SPECIFICATION
EMS ADDITION

Item Label	Furniture Image	Manufacturer	Model	Model Number	Description	Dimensions	Fabric / Finish	Room	Total Counts
Storage									
SG2.1		AIS	L Series Lateral File	S-LATJJ2D30 / W-WSL230JJ	Universal lateral file; (3) 2-drawer 30" wide files w/ (1) common top at 90"w	3H x 30"W	Base - Metal with Satin White Paint; Pulls - rectangular Top - Midwest Maple	EMS Staff 103	**3**
SG3.1		Three H		487540	Computer Storage Cabinet; top grommet and ventilated back; base with levelers and standard pulls	30"H x 36" W	Base - Metal with Satin Pulls - rectangular Top - Laminate white	Training Rooms	17
SG4.1		Storage	Knaack (Alternates accepted)		Oversized Weapons Storage Box	28" H x 48" W x 24" D	Base and Top - Metal	Weapons Storage 258A	1
Stool									
ST01		Emeco	111 Navy Barstool	HCEM-N1S2	111 Navy Barstool	17" x 18.5" x 43" H (SH30")	TBD	Corridor, Simulation	27
Table									
TB02.1		AIS	Day to Day Table	T-RCR488429ATG	AIS Day to Day rectangle table with metal base w/ 2 grommets	84" x 48" x 29"	**Top** - Midwest Maple **Base** - white matte **Grommet** - White	Breakout Rooms	4
TB02.2		AIS	Day to Day Table	T-RCR489629ATG	AIS Day to Day rectangle table with metal base w/ 2 grommets	96" x 48" x 29"	**Top** - Midwest Maple **Base** - white matte **Grommet** - White	Conference Rooms	3
TB4.1		AIS	Day to Day Table	T-RDR3629SXG	AIS Day to Day Round table with metal X base	42" round x 29"H	**Top** - Midwest Maple **Base** - white matte	EMS Staff 103	1
TB4.3		AIS	Day to Day Table	T-RDR3629SXG	AIS Day to Day Round table with metal X base	36" round x 29"H	**Top** - Midwest Maple **Base** - white matte	Offices	1
TB4.4		AIS	Day to Day Table	T-RDR3624SXG	AIS Day to Day Round table with metal X base	36" round x 42H	**Top** - Midwest Maple **Base** - white matte	Corridors, Simulation Bar	6
TB4.5		AIS	Day to Day Table		AIS Day to Day Round table with metal X base	24" round x 29"H	**Top** - Midwest Maple **Base** - white matte	Simulation Apartment	1

Item Label	Furniture Image	Manufacturer	Model	Model Number	Description	Dimensions	Fabric / Finish	Room	Total Counts
TB6.1		AIS	Day to Day Table	T-RCR246029ATC	AIS Day to Day rectangle table with metal base on casters - 24" deep	60"L x 24"D x 29"H	**Top** - Midwest Maple **Base** - Metallic Silver	Classrooms	348
TB6.3		AIS	Day to Day Table	T-RCR306029SCC / T-MOD60 / A-ROK / E-ADTCW	AIS Day to Day Rectangle table, metal base on casters, modesty panel, spin out pencil drawer, clamp mount power 2/Out 2/USB	60"L x 30"D x 29"H	**Top** - Midwest Maple **Base** - Metallic Silver	Guardshack	2

AECOM

FURNITURE SPECIFICATION
EMS ADDITION

Item Label	Furniture Image	Manufacturer	Model	Model Number	Description	Dimensions	Fabric / Finish	Room	Total Counts	Level 2	Level 3	Level 4
TB09		OFS	Kosa	KS-19RD20H	End Table	19"DIA x 20" H	**Top** - Solid Surface Quartz Modern White **Base** - Bone White	Simulation Apartment	2	1	1	0
Private Office												
OFA		AIS Magnuson	Calibrate, Univrsal, L Series, Day to Day Tables, DS-Series		U-Shape Desk w/ wire management, (1) Grommet Overhead Storage, Tackboard & Task Light Lateral File & Mobile BF Manuson Group DS Series Wall Racks	Varies	Metal Door Overhead Paint - White Surfaces & Modesty Laminate - Midwest Maple Grommet - White Table Base & Legs - Paint White Tackboard Fabric - Engage Rain Cloud Wall Racks - Lunar White	Private Offices	3	1	2	0
OFC		AIS Magnuson	Calibrate, Univrsal, L Series, Day to Day Tables, DS-Series		L-Shape Desk w/ wire management, (1) Grommet Overhead Storage, Tackboard & Task Light Mobile BF Magnuson Group DS Series Wall Racks	Varies	Metal Door Overhead Paint - White Surfaces & Modesty Laminate - Midwest Maple Grommet - White Table Base & Legs - Paint White Tackboard Fabric - Engage Rain Cloud Wall Racks - Lunar White	Private Offices	3	1	1	1
OFE		AIS Magnuson	Calibrate, Univrsal, L Series, Day to Day Tables, DS-Series		U-Shape Desk w/ wire management, (1) Grommet Overhead Storage, Tackboard & Task Light Lateral File & Mobile BF	Varies	Metal Door Overhead Paint - White Surfaces & Modesty Laminate - Midwest Maple Grommet - White Table Base & Legs - Paint White Tackboard Fabric - Engage Rain Cloud	Private Offices	1	0	1	0
OFF		AIS Magnuson	Calibrate, Univrsal, L Series, Day to Day Tables, DS-Series		L-Shape Desk w/ wire management, (1) Grommet Overhead Storage, Tackboard & Task Light Lateral File & Mobile BF	Varies	Metal Door Overhead Paint - White Surfaces & Modesty Laminate - Midwest Maple Grommet - White Table Base & Legs - Paint White Tackboard Fabric - Engage Rain Cloud	Private Offices	2	0	2	0
OFI		AIS Magnuson	Calibrate, Univrsal, L Series, Day to Day Tables, DS-Series		L-Shape Desk w/ wire management, (1) Grommet Overhead Storage, Tackboard & Task Light Lateral File & Mobile BF	Varies	Metal Door Overhead Paint - White Surfaces & Modesty Laminate - Midwest Maple Grommet - White Table Base & Legs - Paint White Tackboard Fabric - Engage Rain Cloud	Private Offices	5	0	3	2
Workstation												
WSA		AIS	Oxygen Benching		Double Sided 4-Pack Cluster Straight Leg Base (4) Mobile BF24"D Access Boxes for Hardwired Chicago Code Power Center Spline Screen	OA - 60"D x 144"W Each 30"Dx72"W	Laminate: Midwest Maple Paint Metal: White Fabric: Engage Rain Cloud	Open Offices	20	6	11	3
WSC		AIS	Oxygen Benching		Single Sided 2-Pack Cluster Straight Leg Base (2) Mobile BF24"D Access Boxes for Hardwired Chicago Code Power Center Spline Screen	OA - 60"D x 144"W Each 30"Dx72"W	Laminate: Midwest Maple Paint Metal: White Fabric: Engage Rain Cloud	Open Offices	3	3	0	0
WSD		AIS	Oxygen Benching		Double Sided 2-Pack Cluster Straight Leg Base (2) Mobile BF24"D Access Boxes for Hardwired Chicago Code Power Center Spline Screen	OA - 60"D x 72"W Each 30"Dx72"W	Laminate: Midwest Maple Paint Metal: White Fabric: Engage Rain Cloud	Open Offices	11	3	5	3

SECTION 26 33 53 – STATIC UNINTERUPTABLE POWER SOURCE

PART 1 - GENERAL

1.1 SUMMARY

A. These specifications shall define the electrical and mechanical characteristics and requirements for a continuous-duty, three-phase, solid-state, uninterruptible power system (UPS). The UPS shall provide high-quality AC power for sensitive electronic equipment loads.

1.2 The contractor shall provide a fully functional statis uninterruptible power source including internal static bypass, battery cabinet and VRLA batteries.

1.3 STANDARDS:

A. The UPS shall be designed in accordance with applicable sections of the current revision of the following documents. Where a conflict arises between these documents and statements made herein, the statements in this specification shall govern.

B. 208Y/120V Nominal Units

1. Listed to UL Standard 1778, 5th Edition; CSA 22.2 No. 107.3 and shall be cULus labeled
2. ANSI C62.41, Category B, Level 3
3. IEC 62040-1+ A1:2013
4. IEC 62040-3
5. FCC Part 15, Class A
6. ISTA Procedure 1A/1E/3B
7. RoHS2 (6 by 6) Compliant
8. REACH and WEEE Compliant

1.4 SYSTEM DESCRIPTION

A. Modes of Operation

1. The UPS shall be designed to operate as a true on line double conversion system in the following modes:

a. Normal - In normal operation, incoming AC power shall be fed to the input power factor-corrected (PFC) rectifier that converts the AC power to DC power for the inverter. In this mode, power shall also be derived from utility power for the battery charger. The inverter shall derive DC power from the PFC rectifier to regenerate filtered and regulated AC sinewave power for the connected load. The unit shall begin charging the battery once the UPS is connected to utility

power, regardless of whether the UPS is On or Off. In the event of a utility outage or severe abnormality (sag or swell), the inverter shall support the connected load from battery power until the battery is discharged or until the utility power returns, whichever occurs first.

b. Battery - Upon failure of utility / mains AC power, the critical AC load shall be supplied by the inverter, which obtains power from the battery. There shall be no interruption in power to the critical load upon failure or restoration of the utility / mains AC source.

c. Recharge - Upon restoration of utility / mains AC power, after a utility / mains AC power outage, the input converter shall automatically restart and resume supplying power to the inverter and the battery charger to recharge the battery.

d. Automatic Restart - Upon restoration of utility / mains AC power, after a utility / mains AC power outage and complete battery discharge, the UPS shall automatically restart and resume supplying power to the critical load and the battery charger automatically recharges the battery. This feature shall be capable of being disabled by the user.

e. Bypass - The integral bypass shall perform an automatic transfer of the critical AC load from the inverter to the bypass source in the event of an overload, PFC failure, internal overtemperature, DC bus overvoltage or inverter failure.

f. ECO - The UPS shall allow the user to enable and place the UPS in Eco mode of operation to reduce electrical consumption. Eco mode operation shall be an active type, wherein the UPS will power the connected equipment through the bypass path and the UPS inverter shall be On and operating at no load to stay synchronized to the bypass to ensure rapid and uninterrupted transfers to inverter power when input power falls outside of the user-customizable parameters. The UPS shall also have a user-customizable requalification time that input power must remain within the Eco mode parameters before transferring back to Eco mode operation. This is to minimize the number of transfers between bypass and inverter.

B. Designed Requirements

1. Voltage – Input/output voltage specifications of the UPS shall be:

a. Input

1) 208Y/120V, 60Hz, three-phase, 4-wire-plus-ground.

b. Output

1) 208Y/120V, 60Hz, three-phase, 4-wire-plus-ground (user configurable: 208V, 220V) ±2%, 60Hz, three-phase, 4 wire plus-ground.

2. Output Load Capacity - Specified output load capacity of the UPS shall be rated not less than at 15 kVA/15 kW at 1.0 (unity) power factor.

3. Internal Battery - The UPS shall utilize valve-regulated, non-spillable, lead acid cells with a design life of 6-8 years.

4. Reserve Time - The UPS enclosure shall be capable of housing up to 4 battery strings. The battery run time shall be based upon full rated resistive load with an ambient temperature of 77°F (25°C). The battery run times shall be:

Model	Batteries
15 kVA	Not less than 30 minutes at 100% rating, unity power factor

5. Battery Recharge - The UPS shall contain a temperature compensated three-stage battery charger designed to prolong battery life. Default recharge time for UPS units with 2 strings shall be 6 hours to 90% capacity after a complete discharge with full load connected.

C. Performance Requirements

1. AC Input to UPS

a. Voltage Configuration - The UPS shall require three-phase, four-wire plus ground input wiring. The input voltage range without drawing power from the batteries shall be 166 VAC – 256VAC for 100% to 0% load levels

b. Frequency – The UPS shall auto-sense input frequency when first powered up and shall operate within the following frequency specifications. The UPS shall be capable of cold start with default frequency of 60Hz. Once started the input frequency operating window shall be 40-70Hz.

c. Input Power Factor - >0.99 lagging at rated load.

d. Input Current reflected distortion - 3% THDi typical.

e. Input Current Ratings – maximum input current shall be

1) 15 kVA: 53A at 208V nominal input

f. Inrush Current (initial startup, no load) - The UPS shall have a maximum inrush current of six times the full load peak input current.

g. Input Line Transient Immunity – The UPS shall conform to an input line transient conforming to IEEE C62.41, Category A, Level 3 tests for 208VAC models.

h. Surge Protection - MOV ratings shall be 385V, 80 Joules minimum connected L1-L2-L3, L1-G, L2-G and L3-G.

i. Dual Input - The UPS shall be capable of conversion from a single-input design to a dual-input design to provide separate feeds for the rectifier and bypass circuits. Conversion shall be designed to take 5 minutes or less by the installing contractor; use of manufacturer's service personnel shall not be required.

2. AC Output, UPS Inverter

a. Voltage Configuration

1) 208V units: 208VAC, 50/60Hz, three-phase, four-wire-plus-ground

b. Voltage Regulation - ± 1% steady state for balanced loading; ± 4% for 100% unbalanced loading.

c. Frequency Regulation - ±5% synchronized to utility / mains. ±0.25Hz free running or on-battery operation.

d. Frequency Slew Rate - 0.5Hz per second default; user selectable for 0.2, 0.5 or 1.0Hz per second

e. Voltage Distortion - 2% total harmonic distortion (THD) typical into a 100% linear load; 5% THD typical into a 100% non-linear load with crest factor ratio of 3:1.

f. Load Power Factor Range - The load power factor range shall be 0.5 lagging to 0.80 leading.

g. Output Power Rating – 15kVA/15kW at unity (1.0) power factor

h. Inverter Overload Capability

1) Inverter overload capability while operating on utility/mains power shall be 0%-105% continuous, 105%-125% for 10 min, 125%-150% for 5 min, 150%-200% for 5 secs, 200% or greater for 200ms.

i. Voltage Transient Response

1) ±5% in line mode 0-100-0 % loading of the UPS rating

2) ±5% in battery mode for 0-100-0% loading of the UPS rating

j. Transient Recovery Time - To nominal voltage within 60 milliseconds.

k. AC-AC Efficiency: The UPS model AC-AC efficiency shall be

1) 15 kVA: up to 93.2% AC –AC in double-conversion mode; 99% AC-AC at full rated load in ECO mode

1.5 ENVIRONMENTAL CONDITIONS

A. Ambient Temperature

1. Operating: 32°F to 104°F (0°C to 40°C). for optimum battery performance and battery life operating temperature shall be 68°F to 77°F (20°C to 25°C)
2. Storage: 5°F to 131°F (-25°C to 55°C)

B. Relative Humidity

1. Operating: 0 to 95% non-condensing.
2. Storage:0 to 95% non-condensing.

C. Altitude

1. Sea level to 4,920 ft. (1,500m) maximum without power derating when operated within

the temperature specified in Section 1.4, Item A. For altitudes above 4,920 ft up to 10,000 ft (1,500m up to 3,000m) power derating of 1% of both kVA/kW rating is required for every 328 ft (100m). Ambient temperature shall be derated 9°F (5°C) for each additional 1600 ft. (500m) above 10,000 ft. (3,000m).

D. Audible Noise:

1. <58dBA maximum measured at 1 meter from front, sides, and rear

E. Electrostatic Discharge:
1. The UPS shall be able to withstand an electrostatic discharge compliant to ENC61000-4-2.

1.6 USER DOCUMENTATION

A. The specified UPS system shall be supplied with a Safety Instruction & Warning booklet and a quick- start guide for ease of installation and UPS startup. The user manual shall include installation instructions, a functional description of the equipment with block diagrams, safety precautions, illustrations, step-by-step operating procedures and general maintenance guidelines.

1.7 WARRANTY

A. The UPS Manufacturer shall warrant the UPS against defects in materials and workmanship for (1) year. The manufacturer's standard warranty shall cover labor and all parts, including the battery.

1.8 QUALITY ASSURANCE

A. Manufacturer's Qualifications
1. More than 40 years experience in the design, manufacture and testing of solid-state UPS systems shall be required. The manufacturer shall be certified to ISO 9001:2015.

B. Factory Testing
1. Before shipment, the manufacturer shall fully and completely test the UPS system to ensure compliance within the specifications.

1.9 MANUFACTURERS

1. Vertiv
2. Eaton
3. Emerson
4. Mitsubishi

PART 2 - PRODUCTS

2.1 FABRICATION

A. All materials and components making up the UPS shall be new, of current manufacture and shall not have been in prior service except as required during factory testing. All relays shall be provided with dust covers.

B. Wiring

1. Wiring practices, materials and coding shall be in accordance with the requirements the standards listed in Section 1.2 and other applicable codes and standards. All wiring shall be copper.

C. Cabinet

1. The UPS unit shall be composed of: input PFC converter, IGBT inverter, battery charger, sealed valve- regulated lead acid battery, input filter, internal static bypass circuit, optional integral output distribution port, and electrically isolated maintenance bypass breaker; shall be housed in a tower NEMA Type 1 enclosure and shall meet the requirements of IP20. The UPS cabinet shall be cleaned, primed and painted RAL 7021 Black.
2. Unit dimensions and weights shall be:

Model	Approximate Dimensions, W x D x H, in. (mm)	Approximate Weight, lb. (kg)
UPS w/ 4 battery strings	17.3 x 29.5 x 63 (440 x 750 x 1600)	1,042 (472.6)

D. Cooling

1. The UPS shall be forced-air cooled by internally mounted, continuously operating fans. Fan power shall be provided from the internal DC supply. Air intake shall be through the front of the unit and exhaust shall be out the rear of the unit.

E. Integral Output Distribution

1. The UPS shall have the ability to accept two power output distribution ports to allow optional distribution PODs to be added for integral output receptacles that include circuit breaker protection. See section 2.5.1 for POD details

2.2 COMPONENTS

A. INPUT CONVERTER

1. General

a. Incoming AC power shall be converted to a regulated DC output by the input converter supplying DC power to the inverter. The input converter shall provide input power factor-correction (PFC) and input current distortion reduction.

2. AC Input Current Limit

a. The input converter shall be provided with AC input current limiting whereby the maximum input current is limited to 125% of the full load input current rating.

3. Input Protection

a. The UPS shall have built-in protection against undervoltage, overcurrent and overvoltage conditions including low-energy lightning surges introduced on the primary AC source. The UPS models shall be able to sustain input surges without damage per criteria listed in ANSI C62.41, Category A, Level 3.

4. Battery Recharge

a. The UPS shall contain a three-stage battery charger designed to prolong battery life and shall incorporate temperature compensation as standard. Recharge time for the internal UPS batteries shall be 6 hours to 90% capacity (full load discharge rate). There shall be DC overvoltage protection so that if the DC voltage exceeds the pre-set limit, the UPS will shut down automatically and the critical load will be transferred to bypass.

B. Inverter

1. General

a. The UPS inverter shall be a pulse-width-modulated (PWM) design capable of providing the specified AC output. The inverter shall convert DC power from the input converter output or the battery into precise sinewave AC power for supporting the critical AC load.

2. Overload

a. The inverter shall be capable of supplying current and voltage for overloads exceeding 100% and up to 150% of full load current. A visual indicator and audible alarm shall indicate overload operation. For greater currents or longer duration, the inverter shall have electronic current-limiting protection to prevent damage to components. The inverter shall be self-protecting against any magnitude of connected output overload. Inverter control logic shall sense and disconnect the inverter from the critical AC load without the requirement to clear protective devices.

3. Inverter DC Protection

a. The inverter shall be protected by the following DC shutdown levels:

1) DC Overvoltage Shutdown
2) DC Undervoltage Shutdown (End of Discharge)
3) DC Undervoltage Warning (Low Battery Reserve); factory default set at 5 minutes (user- configurable 3 to 30 minutes).

4. Output Frequency

a. An oscillator shall control the output frequency of the UPS. The inverter shall maintain the output frequency to ±0.25Hz of nominal frequency during Battery

mode, Frequency Converter mode or when otherwise not synchronized to the utility/mains source.

5. Output Protection

   a. The UPS inverter shall employ electronic current limiting circuitry.

6. Battery Over Discharge Protection

   a. To prevent battery damage from over discharging, the UPS control logic shall automatically raise the battery shutdown voltage setpoint; depending on output load and connected battery system at the onset of battery operation.

C. DISPLAY AND CONTROLS

1. The UPS shall be provided with a microprocessor-based unit status display and controls section designed for convenient and reliable user operation. The monitoring functions such as voltages, currents, UPS status and alarm indicators shall be displayed on a liquid crystal display (LCD). The LCD shall present text in any of thirteen (13) languages (English, French, Portuguese, Spanish, Chinese, Czech, Dutch, German, Italian, Polish, Russian, Swedish, and Turkish) for user selection.
2. The UPS display shall also include two LED-based system indicators. The system level indicators shall be: fault indicator and UPS operating status
3. UPS startup and shutdown operations shall be accomplished by using push buttons on the front panel of the UPS. The display shall be menu driven and shall use four control buttons for ease of navigation and selection of the configurable parameters.

   a. Control Buttons - The UPS display control button functionality shall be:

      1) ESC button: This button shall return to the previous menu or abort any change before confirming the change.
      2) UP arrow button: This button shall move the cursor up or increase the value displayed when changing parameters. This button shall also be used to scroll up for navigating the screens.
      3) DOWN arrow button: This button shall move the cursor down or decrease the value displayed when changing parameters. This button shall also be used to scroll down for navigating the screens.
      4) ENTER button: This button shall enter the next level menu or confirm the parameter changes

   b. Display Menu Structure - The UPS display shall have the following menu structure with the following status and configuration screens

   c. System Status (Default screen) - The system status screen shall be the default screen to display a mimic diagram and shall include the input voltage and frequency; bypass voltage and frequency; output voltage, frequency, and load percentage; battery charge state, voltage, capacity and estimated battery time remaining. To prolong display life, the UPS display shall go into “sleep” mode after two minutes of no user interaction. Pressing any of the four functional buttons shall wake up the display and this action shall not perform any operation.

d. Main Menu - The main menu shall list the submenu selections:

1) UPS Status Screens
2) Configuration Settings Screens
3) Control Settings Screens
4) Event Log Screens
5) About Screens
6) Maintenance Screens

e. UPS Status - The UPS status screens shall provide the following information: Input

1) Voltage
2) Frequency
3) Amperage
4) Power Factor

f. Bypass

1) Voltage
2) Frequency

g. Battery

1) Charge Status
2) Capacity
3) Runtime (minutes)
4) Voltage
5) Current
6) Temperature

h. Output

1) Voltage
2) Frequency
3) Amperage

i. Load

1) Capacity Percentage
2) Wattage
3) Volt-Amperes
4) Power Factor
5) Crest Factor

j. Configuration Settings - The UPS Configuration settings screens shall provide the following customizable parameters (default values are listed first):

1) Monitor

- Language (English, Chinese, French, Portuguese, Spanish)
- Date (Year/Month/Day)
- Time (Hour/Minutes/Seconds)
- Audible Alarm (Enable, Disable)
- Serial Port 1 Baud Rate
- Serial Port 2 Baud Rate
- IntelliSlot Port Protocol (Velocity, YDN23)
- Modbus address (1, 1-128)
- Change Settings Password (000000, up to six numbers, 0-9)
- System
- Battery Auto Equalize (Disable, Enable)
- ECO Mode (Disable, Enable)

k. Control Settings: The UPS display shall have the following controls:

1) Clear Faults

l. Event Log - The UPS shall have an event log to record 1024 events and shall be viewable from the display. The event log, once full, shall begin to replace the first event logged to provide a FIFO process for maintaining event history. The event history shall record and display the number of events out of the 1024 (xxx/1024) as well as the event description, time (date/time when the event that occurred), event code.

1) Current - Navigate the event log to view the last 1024 events.
2) History - Navigate the event log to view the last 1024 events.

m. About - The UPS shall have an About screen to display the UPS model number, serial number, hardware version, and firmware version. Additionally, if fitted with a network monitoring card (SNMP) and connected to a network, the network information provided shall be at least the MAC address and IP address.

n. Maintain - The UPS cabinet shall include a make-before-break maintenance bypass with mechanical interlock.

D. Automatic Battery Test

1. The UPS shall feature an automatic battery test. The battery test shall ensure the capability of the battery to supply power to the inverter while loaded. If the battery fails the test, the UPS shall display a warning message to indicate that the internal batteries need replaced. The battery test feature shall be user- accessible with communication software. The automatic battery test feature shall be capable of being disabled or configured from the LCD to operate every 8, 12, 16, 20 or 26 weeks.

2.3 BYPASS

A. GENERAL

1. A static bypass circuit shall be provided as an integral part of the UPS. Bypass control logic shall contain an automatic transfer control circuit that senses the status of the inverter logic signals and operating and alarms conditions. This control circuit shall provide a transfer of the load to the bypass source if available and if the inverter is incapable of powering the load (i.e., if there is an overload condition, if the unit is in Manual Bypass mode or if the voltage or frequency is out of tolerance).

B. AUTOMATIC TRANSFERS

1. The transfer control logic shall activate the bypass automatically, transferring the critical AC load to the bypass source, after the transfer logic senses one of the following conditions:

   a. UPS overload
   b. UPS overtemperature
   c. PFC failure
   d. Inverter failure
   e. DC bus overvoltage

2. Once the overload condition is reduced, the load shall be automatically transferred back to inverter power.

2.4 BATTERY SYSTEM

A. Valve-regulated, non-spillable, lead acid cells (VRLA) shall be used as a stored-energy source for the specified UPS system. The battery shall be housed in the UPS cabinet. The battery shall be sized to support the inverter at rated load and power factor, with ambient temperature of 25°C (77°F) for a minimum of 6 minutes of reserve time. The battery's expected life shall be 6-8 years or a minimum 260 complete discharge cycles. The UPS enclosure shall allow up to four (4) battery strings wired in parallel to provide extended run time capability without external cabinetry or wiring.

2.5 MAINTENANCE BYPASS

A. The UPS system shall include an internal maintenance bypass breaker. The maintenance bypass shall be housed in an electrically isolated section inside the UPS cabinet. The maintenance bypass shall be a make-before-break type with integrated interlock to prevent mis operation.

2.6 COMMUNICATION OPTIONS

A. Communication

1. The UPS shall include two communication ports to with two communications cards.. The card shall deliver SNMP and Web management to the UPS when connected to any 10 or 100 Mbit Ethernet network. The card shall support 10/100 Mbit Ethernet, IPv4 and IPv6, HTTP/HTTPS, SNMPv1/v2/v3 for device Web page access and deliver Web, Vertiv™ LIFE™ Services support, SNMP, e mail, text messaging, and Telnet communication and control capabilities and shall provide for in-the-field upgrade of SNMP firmware. Include the card, MIB, configuration cable and user manual.
2. The card shall also support external environmental sensors for monitoring environmental conditions around the UPS units.

B. USB Port

1. The USB port shall allow factory trained service personnel to connect a computer to use with proprietary Vertiv software. The proprietary service software tool is used for setting operational parameters, collecting diagnostics, and to allow firmware updates

C. Terminal Block Connections

D. 1. The UPS shall contain on the front panel terminal block connections to provide two (2) sets of dry contact output signals and five (5) sets of dry contact input signals. All dry input and output contact signals shall be configurable.

a. Dry Contact Output Signals

1) The dry contact output signals available for configuration shall be: Summary Alarm, On Battery, Low Battery, UPS Fault, On Bypass, On UPS, Remote EPO, Main Input Abnormal, On Maintenance Bypass, Load Shed Signal 1, Load Shed Signal 2, Internal MBB Closed

- Output Contact Port 1 - On Battery signal shall be the default setting for this port and shall be a Normally Open (NO) dry contact.
- Output Contact Port 2 – Summary Alarm signal shall be the default setting for this port and shall be a Normally Open (NO) dry contact.

2) The dry output contacts shall be rated for 24 VDC, 0.5A maximum.

b. Dry Contact Output Signals

1) The dry contact input signals available for configuration shall be: On Generator, Transfer to Inverter Inhibit, External MIB Status, External MBB Status, Module Output Breaker Status, Battery Ground Fault Detected, Charger Shutdown, ECO Mode Inhibit, Start Battery Maintenance Self-

Test, Stop Battery Maintenance Self-Test, Alarm Cleared.

- Input Contact Port 1 – External MIB Status is the default setting for this port and shall be a Normally Open (NO) dry contact.
- Input Contact Port 2 – Module Output Breaker Status shall be the default setting for this port and shall be a Normally Open (NO) dry contact.
- Input Contact Port 3 – External MBB Status shall be the default setting for this port and shall be a Normally Open (NO) dry contact.
- Input Contact Port 4 – On Generator shall be the default setting for this port and shall be a Normally Open (NO) dry contact.
- Input Contact Port 5 – Transfer to Inverter Inhibit shall be the default setting for this port and shall be a Normally Open (NO) dry contact.

2) The dry input contacts shall be rated at 12VDC, 20mA maximum.

E. Remote Emergency Power OFF

1. The UPS shall contain an interface for a Remote Emergency Power Off (REPO) circuit. The REPO shall interface with both Normally Open and Normally Closed REPO systems.

END OF SECTION 26 33 53

SECTION 27 05 28 - PATHWAYS FOR COMMUNICATIONS

PART 1 - GENERAL

1.1 SUBMITTALS

A. Product Data:
1. Raceway.
2. Innerduct.
3. Spillways/waterfalls.
4. Floor boxes.
5. Device boxes.
6. Cable spillways.
7. Discrete cable supports.

B. Shop Drawings:
1. Coordinated floor plan drawings depicting the size(s), locations, and dimensions of the following:
a. Primary pathways.
b. Conduit sleeves (e.g., thru-the-wall, thru-the-floor, and thru-the-bulkhead).
c. Roof penetrations.
d. Conduits: Trade-size 2 inches and larger.
e. Raceway: Featuring a cross-sectional area of ≥ 4 square inches.
f. Vertical and horizontal working clearances around tray and ladder rack.
2. Conduit Interconnect Diagrams: for each totally-enclosed pathway system.

C. Closeout Submittals:
1. Accurate up-to-date as-built versions of shop drawings.

1.2 REFERENCES

A. Definitions:
1. Hybrid Pathway System: A pathway system built from a varied mixture of boxes, raceway, cable tray and discrete cable supports. Fundamentally a pathway system that is not a totally-closed pathway system. A hybrid pathway system supports cables in the horizontal at increments not exceeding 60 inches.
2. Pathway: A collection of products that when used together achieve a complete means for the conveyance of cable(s) from one location to another. A pathway system protects and supports cables to various degrees depending upon the application and products used. The pathway system most frequently terminates into an enclosure, boxes or other apparatus where cables are terminated and associated devices are mounted.
3. Primary Pathway: A cabling pathway typically located in a corridor, public area, or dedicated vertical cable chase and used to enclose and/or support large quantities of compatible-signal cables from one or more systems to the general vicinity of where cables are terminated. Cables carried by a primary pathway transfer to secondary pathways.
4. Raceway: An enclosed pathway component used for the routing of cables. The raceway envelops the cables that pass through it to protect them from physical damage, and at times from heat, humidity, corrosion and water intrusion. A raceway may feature a continuous outer shell, or in select cases (such as surface raceway) may feature a removable outer shell that facilitates installation and removal of cables. Raceway

frequently terminates directly into boxes or enclosures used for the purpose of mounting devices and termination of the cables.

5. Secondary Pathways: Pathways typically branching from a primary pathway and routing to a space(s) where a cable is terminated. A secondary pathway typically accommodates sixteen (16) cables or less. A secondary pathway carries cables from a single system that together can be run in tight parallel proximity to one another without any negative impact on adjacent cables or cause distortion or induce consequential interference on the signals they carry.
6. Totally Enclosed Pathway System: A pathway system that is built from a mixture of boxes and raceway that when assembled are closed on all sides. Fundamentally it is a pathway system where the cables within the system are not visible and not accessible except when a component of the system, or a device mounted to it is removed. A totally enclosed pathway system supports cables run horizontally and continuously.

1.3 SPECIAL REQUIREMENTS

A. Contract Division of Work and issuance of separate contracts notwithstanding, the entity(s) performing work of this Section shall have the responsibility to provide complete, working and code compliant pathway systems for the systems specified in this Division and for the additional systems so specified in the Contract Documents. Such systems shall be constructed in compliance with the Contract Documents.

B. Provide complete, working and code compliant pathway systems for Division 27 and Division 28 Systems (where applicable), and as otherwise identified in the Contract Documents. Note that the Drawings may not fully detail the required complete pathway system and components.

C. Should Work of this Section be performed by a party that is different from the party responsible for providing components (e.g., cabling) that utilize the pathway systems, the pathway provider shall:
1. Review specifications of this Division and Division 28 Systems (where applicable) and the related Drawings to gain a complete understanding of the specific systems that will utilize the pathways.

1.4 SYSTEM DESCRIPTION

A. General:
1. Each communications pathway system shall consist of products to support, protect, enclose, manage and secure the cables that are part of the communication system they serve.
2. Pathway systems shall be supplied and installed to meet the unique requirements of individual communications systems.
3. Separate pathway systems shall be provided for individual communication systems. Individual communication systems shall have unique and dedicated conveyances. Cables from individual communication systems shall be run in separate conveyances (e.g., data system cables shall be run in separate conveyances from sound system cables).
4. Separate pathway conveyances shall be provided for cables that carry incompatible signal types (e.g., analog microphone level and speaker level cables shall be run in separate conveyances).
5. Pathway systems shall include penetrations through walls, floors, ceilings, roofs, bulkheads and other physical barriers that are necessary to route cable between adjacent spaces.

6. Pathway penetrations shall be prepped, installed, sealed and fire stopped in a code-compliant manner.
7. Pathways through expansion joints shall include expansion and deflection joint fittings with bonding straps.
8. Pathways shall be assembled from components that are listed by a recognized safety testing laboratory.
9. The cable fill capacity of each pathway segment shall meet or exceed the capacity necessary to accommodate cables initially installed. Additional capacity shall be provided as identified in the Contract Documents. The sizes and quantities of conveyances shown on the Drawings shall be interpreted as minimums. Larger sizes, or additional quantities, shall be provided as required or further identified herein.
10. Pathway systems shall be provided with sufficient support to carry the weight of the system, plus a full capacity of cables, with a safety factor of greater than or equal to 5. In addition, each individual above-the-floor vertical hanging support shall feature an installed static weight support capacity of not less than 200 lbs. (e.g., hanging all-thread, multi-anchor mounting flange and support cable).
11. Pathway systems shall include matching cover plates over junction and pull boxes.

B. Pathway Systems for Horizontal Copper, Coaxial and Fiber Cabling:
1. Hybrid pathway system.
2. Minimum permissible conduit size: 1-inch.

C. Pathway Systems for Building Intercommunication Systems (e.g., Central Sound/Intercom):
1. Hybrid pathway system.
2. Minimum permissible conduit size: 1-inch.

D. Pathway Systems for Voice Paging, Background Music, Foreground Music Systems:
1. Hybrid pathway system.
2. Minimum permissible conduit size: 3/4-inch.

E. Pathway Systems for Speech Privacy / Sound Masking Systems:
1. Hybrid pathway system.
2. Minimum permissible conduit size: 3/4-inch.

F. Pathway Systems for Audio and Video Systems:
1. Totally enclosed raceway system.
2. Minimum permissible conduit size: 3/4-inch.

G. Pathway Systems for Sound Reinforcement Systems:
1. Totally enclosed raceway system.
2. Minimum permissible conduit size: 3/4-inch.

PART 2 - PRODUCTS

2.1 GENERAL

A. Products furnished of each Type shall be manufactured by a single manufacturer, bear the same brand name, be the same finish color and texture, and be from the same product model series, except where otherwise indicated.

2.2 RACEWAY

A. Conduit:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Hubbell-Raco (Raco).
   b. Allied Tube & Conduit / Atkore (Allied).
   c. Republic Conduit (Republic).
   d. CalConduit (CalConduit).
2. Rigid Steel Conduit (RMC):
   a. NEC Type RMC recognized.
   b. Threaded rigid steel conduit shall be manufactured from mild steel, zinc galvanized both inside and outside including threads.
   c. Constructed in accordance with ANSI C80.1, Underwriters Laboratories Safety Standard UL6.
3. Intermediate Metallic Conduit (IMC):
   a. NEC Type IMC recognized.
   b. Threaded intermediate metallic conduit shall be manufactured from mild steel, zinc galvanized both inside and outside including threads.
   c. Constructed in accordance with ANSI C80.6, Underwriters Laboratories Safety Standard UL6.
4. Electric Metallic Tubing (EMT):
   a. NEC Type EMT recognized.
   b. Electric metallic tubing shall be manufactured from mild steel, zinc galvanized both inside and outside.
   c. Constructed in accordance with ANSI C80.2, Underwriters Laboratories Safety Standard UL6.
5. Flexible metallic conduit (FMC):
   a. NEC Type FMC recognized.
   b. Spirally wound double sized zinc galvanized steel.
   c. Unjacketed.
   d. Integral ground conductor.
   e. Color: Natural zinc.
6. Liquid-Tight Flexible Metal Conduit (LFMC):
   a. NEC Type LFMC recognized.
   b. Spirally wound double sized zinc galvanized steel.
   c. Overall liquid-tight outer jacket.
   d. Integral ground conductor.
   e. Color: Gray.
7. Polyvinylchloride (PVC-A, PVC-B):
   a. Constructed of Type C300 virgin polyvinylchloride.
   b. Schedule 40 or Schedule 80 rated to 90°C.
   c. Constructed in accordance with NEMA TC2 and Federal Specifications W-C-1094A.
8. Conduit LB
   a. Built in bend radius to protect cabling
   b. Madison Electric Products Smart LB

B. Communication Pole:
1. Manufacturers: Subject to compliance with requirements, provide the Basis of Design product listed, or Designer approved comparable product from one of the following manufacturers:
   a. Panduit.
   b. Wiremold.

c. Hubbell.

2. Characteristics:
   a. Designed for multi-service applications.
   b. Metal construction.
   c. Baked enamel or powder coat finish.
   d. Factory pre-terminated AC outlets.
   e. Dual internal cable compartments providing isolation for NEC Class 1 power and NEC Class 2 communications cables.
   f. Designed for mounting Decora-style electrical and communication receptacles using NEMA-standard gang size plates.
   g. Provided with manufacturer accessory mounting hardware, entrance end fitting, and ceiling trim plate.
   h. Provide with manufacturer recommended accessories to allow Telecommunications Outlets to be installed, including cable entrance fittings, expansion fittings, etc.
3. Reference Division 26 for specific information.

2.3 DISCRETE CABLE SUPPORTS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into work include:
   1. Erico CableCat™ Series.
   2. Panduit J-Pro™ Series.
   3. Cooper/B-Line BCH Series.

B. Product Requirements:
   1. UL 2043 Listed and NEC compliant for use in plenum air returns.
   2. J-Hook style design.
   3. No sharp edges that could come in contact with supported cables during or after installation.
   4. Linear bearing surface for cable:
      a. For use with backbone cables: Greater than or equal to 1-3/4 inches.
      b. For use in primary pathways: Greater than or equal to 1-3/4 inches.
      c. For use in secondary pathway: Greater than or equal to 1-3/8 inches.
      d. For use with individual cables less than 0.400 inch diameter: Greater than or equal to 7/8 inch.

2.4 FITTINGS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Hubbell-Raco (Raco).
   2. Allied Tube & Conduit / Atkore (Allied).
   3. Republic Conduit (Republic).
   4. CalConduit (CalConduit).
   5. Cooper Crouse Hinds.

B. Rigid Steel or Intermediate Metallic Conduit:
   1. Threaded to NEMA standards for conduit.
   2. Integral non-conductive plastic throat liner to minimize/eliminate risk of cable abrasion during installation.
   3. Zinc galvanized steel.
   4. Conductive.

C. Electric Metallic Tubing:
1. Compression type.
2. Integral non-conductive plastic throat liner to minimize/eliminate risk of cable abrasion during installation.
3. Attachment: 100-percent concentric compression.
4. Zinc galvanized steel.
5. Conductive.

D. Flexible Metallic Conduit:
1. Fittings shall be manufactured by the same manufacturer as the raceway(s) it connects.
2. Integral non-conductive plastic throat liners to minimize/eliminate risk of cable abrasion during installation.

E. Polyvinylchloride (PVC-A, PVC-B):
1. Fittings shall be manufactured by the same manufacturer as the raceway(s) it connects.
2. Seal connections using PVC cement.

F. Conduit Sealing Bushings:
1. Factory-fabricated watertight conduit sealing bushing assemblies.
2. Suitable for sealing around conduit or tubing passing through concrete floors and walls.
3. Constructed of steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure clamps, and cap screws.

G. Insulating Bushings:
1. Designed to protect cables from damage caused by sharp edges on the exposed end(s) of conduit and associated fittings, fully insulating the exposed end.
2. Rated for use in the environment where the product is installed.
3. Sized to match the conduit or conduit fitting to which it is applied.
4. Soft radius non-conductive front edge to prevent damage to cables passing through the bushing.
5. Sized to hold firmly to the conduit or fitting to which it attaches with sufficient strength that the bushing cannot and will not come free during the installation of cable.
6. Non-conductive version:
   a. Threaded version: Provide threaded version for use on the threaded end of conduits or fittings.
   b. Press-on version: Provide press-on version for use on non-threaded end of conduits and conduit fittings.
   c. Internal diameter of one end equal to or slightly less than the internal diameter of the conduit or fitting to which it attaches. The opposite end sized to match the conduit or fitting to which it is applied.
   d. Designed for installation before any cable is installed.
7. Conductive version:
   a. Conductive metal frame.
   b. Integral grounding lug.
   c. Separate non-conductive insulator to protect cable.
   d. Designed for installation before any cable is installed.

H. Expansion/Deflection Fittings:
1. Shall provide 4” axial expansion/contraction
2. Shall allow ¾” parallel misalignment
3. Shall allow up to 30 degree angular misalignment in any direction
4. Basis of Design shall be Cooper Crouse Hinds:
   a. 2” Expansion/Deflection joint fitting XJGD64 (Galv. Rigid Conduit)
   b. Tinned copper Braid Bonding Jumper 24” BJ64

c. 2.5” Expansion/Deflection joint fitting XJGD74 (Galv. Rigid Conduit)
d. Tinned copper Braid Bonding Jumper 24” BJ74
e. 3” Expansion/Deflection joint fitting XJGD84 (Galv. Rigid Conduit)
f. Tinned copper Braid Bonding Jumper 24” BJ84
g. 4” Expansion/Deflection joint fitting XJGD104 (Galv. Rigid Conduit)
h. Tinned copper Braid Bonding Jumper 36” BJ108

2.5 PENETRATIONS

A. All penetrations through walls, floors, and ceilings shall be sleeved.
1. Reference Firestopping for Communications specification for fire rated sleeve assemblies.
2. All sleeves shall be metallic and shall have bushings at both ends.

2.6 BOXES

A. Standard Wall and Ceiling Device Boxes:
1. General:
a. Stamped steel, code-compliant gauge, zinc galvanized.
b. Available in various depths from 2-1/2 to 3-1/2 inches deep, minimum.
c. Corrosion protection suitable for the atmosphere in which they are installed.
d. Non-modular sheet-steel construction.
e. Conduit knockouts of the size, quantity and locations required.
f. Threaded device-mounting screw holes.
g. Rated for installation in the space where the box is installed.
h. Equip boxes with code compliant accessory Class-1 and Class-2 service partitions when boxes are used in multi-service applications.
2. Boxes in Masonry or Tile Walls:
a. “Masonry” style box construction.
b. Available in standard gang sizes from 1 to 10.
c. Available in various depths from 2-1/2 inches to 3-1/2 inches.
d. Conduit knockouts to suit the application.
3. Boxes used within interior framed walls (e.g., gypsum board walls):
a. 1 to 2 Gang Sizes, 2-1/2 inches box depth:
1) 4 inches square or 4-11/16 inches square box, 2-1/8 inches deep.
2) ¾” deep device ring (single or double as required).
b. 3 to 10 Gang Sizes:
1) Multi-gang style box construction (not gangable), 2-1/2” depth.
2) ¾” deep device ring.
3) Conduit knockouts to suit the application.

B. Exterior Surface Mount Outlet Style Boxes:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Adalet / Scott Fetzer Company (Adalet).
3. Appleton Electric (Appleton).
4. Characteristics:
a. Hinged cover, sized to accommodate the devices being mounted to the box.
b. Cast aluminum construction.
c. Available in standard gang sizes from 1 to 3.
d. Threaded conduit hubs.

C. Junction Boxes and Pull Boxes:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
a. Hubbell-Raco (Raco).
b. Allied Tube & Conduit / Atkore (Allied).
c. Republic Conduit (Republic).
d. CalConduit (CalConduit).
e. Hoffman.
2. Characteristics:
a. Screw-cover type enclosure.
b. Covers fabricated of the same material and with the same finish as the box itself.
c. Boxes installed flush in wall shall be provided with oversize cover plates painted to match the surrounding building surface.
d. Boxes shall be NEMA rated for the atmospheric condition in which the box is installed.
e. Boxes in exterior or moist locations shall meet NEMA 3R (at minimum).

D. Specialty Wall/Ceiling Boxes:
1. Manufacturers: Subject to compliance with requirements, provide the Basis of Design product listed, or Designer approved comparable product from one of the following manufacturers:
a. FSR, Inc.
b. Legrand/Wiremold.
c. Hubbell Inc.
d. Chief.
2. Type WB:
a. Recessed activation type wall box designed to allow connectorized cables to be plugged into internally mounted connectorized device plates while the cable connector is hidden behind a cover plate.
b. Material: 14-gauge zinc coated steel box.
c. Nominal rough opening size required for the back box: 14.25 inches by 7.1 inches.
d. Designed for multi-service.
e. Three separate 1-gang knock-outs for box attachment.
f. Accommodates NEMA standard-size gang plate for AC power.
g. Accommodates both pre-manufactured and custom manufactured plates for mounting low-voltage connectors.
h. Designed in part to serve the connection needs of wall mounted video flat panel applications.
i. UL-listed AC power compartment.
j. Standard Covers:
1) Nominal size: 14.75 inches by 7.5 inches.
2) Stamped steel construction.
3) Cable passage slot in cover to allow cables to exit while hiding connectors beyond.
4) Finish: baked on enamel.
5) Color: To be selected from White, Black and custom paintable in the field.
k. Provide box with Architect/Designer choice of standard cover.
l. Basis of Design: FSR PWB-250.

E. Floor Boxes:
1. Manufacturers: Subject to compliance with requirements, provide the Basis of Design product listed, or Designer approved comparable product from one of the following manufacturers:

a. FSR, Inc.
b. Legrand/Wiremold.
c. Hubbell Inc.

2. See Rough-in details for specific types

2.7 ACCESSORIES

A. Pull Strings:
1. Construction: nylon.
2. Designed and rated by the manufacturer for use as a pull-rope.

B. Fiber Optic Innerduct:
1. Manufacturers: Subject to compliance with requirements, provide the Basis of Design product listed, or Designer approved comparable product from:
a. Arnco.
b. Endot.
c. Opti-Com.
d. Pyramid.
2. NEMA TC 5, UL listed, corrugated, specifically designed for optical fiber cable pathways.
a. Color: Orange.
b. 1-inch minimum inside diameter.
c. 600 pounds minimum pulling strength.
d. Factory installed pull rope.
e. UL Listed and NEC approved for the environment in which it is installed.
f. Basis of Design:
1) Riser Rated Environments: Carlon DF4X1C-****.
2) Plenum Rated Environments: Carlon CF4X1C-****.

C. Cable Waterfalls (Spillways) – for Conduit:
1. Manufacturers: Subject to compliance with requirements, available manufactures offering products that may be incorporated into Work include, but are not limited to, the following:
a. Bejed, Inc.
b. LincTek, Inc.
c. Cooper/B-Line.
d. Chatsworth.
e. Cable Management Corp.
f. Panduit
2. Product Requirements:
a. Available in 2 inches and 4 inches diameter for direct attachment to conduit stubs and sleeves.
b. Integral clamp for securing to EMT conduit.
c. Maintains proper bending radii for cabling entering the conduit served.
d. Self-fastening tie down system.
e. UL Listed and NEC approved for the environment in which it is installed.

D. Supports:
1. General:
a. Supports, support hardware, and fasteners shall be manufacturer protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic.
b. Products used outdoors shall be hot-dip galvanized.
2. Material Types:
a. Raceway Supports:

1) Clevis hangers, riser clamps, conduit straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps.

b. Fasteners:
1) Types, materials, and construction features as follows:
a) Expansion anchors: Carbon steel wedge or sleeve type.
b) Toggle bolts: All-steel springhead type.
c) Powder-driven threaded studs anchors: Heat-treated steel, designed specifically for the intended service.
d) Solid concrete anchors: Drop-in zinc plated steel tubular expansion shield with solid, cone-shaped expander plug.

c. Cable supports for vertical conduit:
1) Factory-fabricated assembly consisting of threaded body and insulating wedging plug for non-armored electrical cables in riser conduits.
2) Provide with plugs with the number and size of conductor gripping holes as required to suit each individual application.
3) Body construction: Malleable-iron casting with hot-dip galvanized finish.

d. Threaded Rod Stock (All-Thread Rod):
1) Available in 1/4-inch, 3/8-inch, 1/2-inch, and 5/8-inch sizes.
2) Utilize 1/2 “ for ladder/tray installations under 24” and 5/8” for 24” or larger.
a) Rod lengths over 6’ will require a “Rod Stiffener” installation for ½” and 5/8” rods.

e. Slotted Metal Angle and U-channel Systems:
1) 16-gauge steel U-shaped channel;
2) Available in a variety of sizes including: 1-5/8 inches square, 1-1/4 inches square and 13/16 inch square.
3) Available with pre-punched and un-punched versions.
4) Available with holes on top or sides of channel.
5) Available with a wide-variety of fittings for field construction of structural support assemblies.

E. Bushing, Knockout Closures and Locknuts:
1. Provide corrosion-resistant box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes, to suit respective installation requirements and applications.

F. Pipe Curb Assemblies:
1. Manufacturers: Subject to compliance with requirements, available manufactures offering products that may be incorporated into the Work include, but are not limited to:
a. The Pate Company, PCC-series.
2. Product Requirements:
a. Designed to seal around pipes penetrating through conventional or metal roofs.
b. Prevents the ingress of water into the building under all weather conditions.
c. Models available to accommodate all standard sizes or pipe from 1/2 inch to 10 inches O.D.
d. Stainless steel pipe fasteners.
e. Provide with manufacturer recommended accessories and options necessary to seal and prevent water infiltration.

PART 3 - EXECUTION

3.1 COORDINATION

A. Review and coordinate the size requirements of pathways with the suppliers and installers of cabling and devices. Pathway segments shall accommodate the quantity and type of cables that will be installed. Upsize pathway segments from any default and minimum size(s) identified so as to accommodate the cables that will be installed, including any future expansion capacities, as identified in the Contract Documents.

B. Review the specific routes and composite length of planned pathway routes with parties responsible for supplying or installing cables as distance limitations will apply differently for different cables and applications.

C. Coordinate the location and routing of pathways with work of this Division, the work of other trades, the work of the Owner, and existing site conditions (where applicable) to ensure adequate headroom, post installation access to and working clearances around the pathways. Review and verify HVAC, Fire Suppression, Electrical Power, Lighting and other Drawings for design coordination. Provide routes accordingly.

D. Proactively participate with other trades in the creation of coordination drawings that depict primary and major secondary pathways. Emphasis shall be placed on ensuring that pathways are accessible for initial cable installation and readily accessible for reuse in accommodating future cable moves, additions and changes.

E. Coordinate the colors and types of surface raceway with the color of surface raceway provided as work of both Division 26 and Division 28. Colors of raceways shall match, except where expressly reviewed and approved by the Architect/Designer.

F. Ensure that pathways, as installed, are adequately sized for the cables to be installed and any future expansion capacities as identified in the Contract Documents.

3.2 GENERAL

A. Provide specified pull wires in all cabling pathways.

B. Ground and bond all systems in accordance with the NEC and ANSI/TIA/EIA 607.

C. All installation material and practices shall fully comply with NFPA 70 “National Electrical Code” and ANSI/TIA/EIA 569A Commercial Building Standard for Telecommunications Pathways and Spaces.

D. Coordinate work with the building structural systems and electrical installation.

E. All work shall fully comply with these Specifications and related Drawings and all manufacturers’ recommended installation practices.

3.3 PATHWAY SIZING

A. Raceways shall be sized so that they are the larger of the following:
1. Minimum size indicated within the Contract Documents.

2. In accordance with the National Electric Code.
3. As recommended by the product manufacturer.

B. Discrete cable supports shall be sized so that they are the larger of the following:
1. Minimum size indicated within the Contract Documents.
2. In accordance with the National Electric Code.
3. As recommended by the product manufacturer.

3.4 RACEWAY USAGE

A. Rigid Steel (GRC) Conduit:
1. Above grade, outside the building envelope, in exposed areas.
2. Above grade, inside the building envelope, within high moisture areas.
3. As a transitional component of a below grade conduit path where the conduit needs to pass through a poured-in-place concrete slab.
4. As a sleeve through poured-in-place concrete slabs.
5. Where specifically indicated on the Drawings.

B. Intermediate Metallic Tubing (IMC) Conduit:
1. Where specifically indicated on the Drawings.

C. Electric Metallic Tubing (EMT) Conduit:
1. Within the building envelope concealed within walls and ceilings.
2. Above grade, inside the building envelope, where no other type of raceway is identified to be used.
3. Where specifically indicated on the Drawings.

D. Flexible Metal Conduit (FMC):
1. Inside the building envelope as a component of a secondary pathway system where flexibility is necessary for constructability to meet specified objectives and where length of the segment does not exceed 6 feet.
2. Inside the building envelope as the transitional segment of a raceway system and interconnection to permanently-cabled systems-furniture is necessary and where the length of the FMC segment does not exceed 12 feet.
3. Where specifically indicated on the Drawings.

E. Liquid-Tight Flexible Metal Conduit (LFMC):
1. Above grade, outside the building envelope, between junction (or pull) boxes and connected devices (e.g., cameras) and where cables to/from the devices would otherwise be visually exposed or exposed to the elements.
2. Above grade, outside the building envelope, between junction (or pull) boxes and connected devices requiring regular movement where cables to/from the device would otherwise be visually exposed or exposed to the elements.
3. Above grade, inside the building envelope, between junction (or pull) boxes and connected devices (e.g., cameras) and where cables to/from the connected devices would otherwise be exposed to water or sustained periods of high moisture.
4. Above grade, outside the building envelope, between junction (or pull) boxes and connected devices requiring regular movement where cables to/from the device would otherwise be exposed to water or sustained periods of high moisture.
5. Where specifically indicated on the Drawings.

F. Polyvinylchloride (PVC) Conduit:
1. Below grade, where conductive conduit is not otherwise required.

2. Where specifically indicated on the Drawings.

G. Electrical Nonmetallic Tubing:
1. Where specifically indicated on the Drawings.

H. Non-metallic:
1. Non-metallic raceway shall be used only where specifically indicated to be used in the Contract Documents.
2. Non-metallic raceway shall only be used where specifically approved for use by the Designer.

I. Conduit Sleeves:
1. In accessible but concealed ceiling cavities, wherever a cable needs to pass through a wall, floor, ceiling, bulkhead (or similar building obstruction) to get from one space to another.
2. In unfinished areas, high to the ceiling, where a cable not installed in raceway, needs to pass through a wall, floor, ceiling, bulkhead (or similar building obstruction) to get from one space to another.
3. Wherever one or more conduits must pass through a poured-in-place formed concrete structure.

J. Wireway:
1. Where specifically indicated on the Drawings.

K. Communications Poles:
1. Where specifically indicated on the Drawings.

3.5 DISCRETE CABLE SUPPORT USAGE

A. Discrete cable supports shall be used to support cable that is not installed within raceway, cable tray or ladder rack.

B. Discrete cable supports shall be supported from the building structure, in a manner that is code compliant.

C. Discrete cable supports shall be anchored using accessories and hardware that is manufactured or recommended by the support manufacturer.

D. Discrete cable supports shall be spaced at horizontal increments not exceeding 60 inches on center. Additional supports shall be installed to limit cable sag to less than 9 vertical inches.

3.6 BOX USAGE

A. Boxes:
1. Boxes shall be used at device and equipment locations. Raceway shall terminate into an approved box, except where indicated.
2. Standard wall and ceiling boxes shall be used in walls and ceilings except where specialty boxes are indicated.
3. Boxes designed expressly for use within floors shall be used within floors. The type of box used shall be appropriate for the floor construction.
4. The size and type of boxes used shall accommodate the quantity and type of cable, raceway and devices the box must accommodate.

5. Junction boxes and pull boxes shall be sized to comply with the NEC, but not less than the sizes indicated in the Contract Documents.
6. Custom size and special order boxes shall be provided where custom sizes and special order boxes are required to meet the project requirements.

3.7 INSTALLATION

A. General:
1. Install in accordance with local codes. Adhere to clearance and fire protection regulations.
2. Install above-grade pathways parallel to and perpendicular to building elements.
3. Install pathways plumb and level except where changes in elevation are specifically necessary for constructability.
4. Document the exact routing of concealed pathways on as-built drawings.

B. Bonding and Grounding:
1. Conductive components of the pathway systems shall be bonded to ground in accordance with the NFPA and the NEC.
2. Additional grounding and bonding shall be provided as set forth in the Contract Documents.

C. Rustproof Fasteners and Hardware:
1. Install pathway components and associated mounted devices with stainless steel nuts, bolts, screws and washers when installed on the exterior of the building, when installed within unconditioned building spaces, and when the pathway serves exterior devices or devices in areas prone to sustained humidity levels in excess of 60-percent.

D. Conduit:
1. Install conduit in a concealed manner except where approved by the Designer in advance.
2. Install conduit terminations into boxes and enclosures using fittings featuring locknuts and insulating throat liners.
3. Install insulating bushings on the exposed ends of conduit stubs and sleeves.
4. Install insulating bushings on the exposed threaded portion of conduits and conduit fittings that terminate conduit to a box or equipment enclosure.
5. Support conduits by using pipe straps or trapeze hangers. Space supports not more than 8 feet on center. Secure supports by means of toggle bolts, inserts or expansion bolts.
6. Space wall brackets supporting conduits not more than 4 feet 6 inches on center. Secure supports by means of toggle bolts, inserts or expansion bolts.
7. Support raceway components directly from structural building systems, not from ceiling suspensions systems. Provide supplemental supports for junction or pull boxes.
8. Conceal conduit raceways under floors, in walls, above ceilings and in furred spaces within finished building areas.
9. Support single conduits 1-1/2 inches and larger by means of rod and cast ring hangers. Support multiple runs in similar manner or use a common trapeze hanger system.
10. Provide two-hole sheet metal pipe straps for surface mounted conduit supports on walls up to a height of 8 feet above the finished floor.
11. Pinch type hangers similar to minerallac shall only be used at heights greater than 8 feet.
12. Protect conduits during construction with temporary plugs or caps. Securely cap conduits until pull string, or cable is installed.
13. Do not install conduit horizontally in concrete slabs on grade.
14. Provide expansion/deflection fittings where raceway crosses the building expansion joints.
    a. Utilize manufacturer recommendations for installation
    b. Provide external bonding jumpers to bond metallic conduits across joint.
15. Conduit Routing:

a. If specific routing information appears on the Drawings, route and maintain conduits as shown. Should interference or a conflict arise, consult the Designer before proceeding with the Work.
b. If specific routing information does not appear on the Drawings, Determine the best route for the conduit in accordance with code, accessibility and other project guidelines.

16. Conduit bends:
    a. Bends shall be made so that the conduit will not be flattened or kinked and so that the internal diameter of the conduit is not reduced.
    b. The radius of the curve of the inner edge of any bend shall not be less than indicated by the National Electrical Code and TIA/EIA-569 Commercial Building Standard for Telecommunications Pathways and Spaces.
    c. All conduit bends or fabricated elbows shall have a bend radius equal or greater than 4 times the trade size.
    d. When it is necessary to make field bends, use tools manufactured for conduit bending.
        1) Heating of metallic conduit to facilitate bending is not permitted.
    e. Constructing an outside entrance to a building from buried conduit to penetrate above the ceiling line will allow an exception for a 4 inches LB fitting at one end to allow placement of the conduit flat to the building outside wall.
17. Do not cut, burn, or drill any structural member to pass through or mount any pathway product without first obtaining approval in writing from the building architect and structural engineer.
18. Install above-ceiling conduits a minimum of 7 inches above ceiling tiles to permit ceiling tile removal.
19. Install conduits at least 6 inches away from insulated pipes, steam lines or any other hot pipes which they pass. Where the lines are not insulated, the clearances shall be increased until the temperature of the conduit, with no live conductors enclosed, does not rise above the ambient temperature of the installation area.
20. Install flashing and counter flashing or pitch pockets for waterproofing of raceways, outlets and fittings that must penetrate the roof.
21. Install oversized sleeves in forms for new concrete walls, floor slabs, and partitions to allow for the passage of raceways.
22. Waterproof sleeved raceways shall be provided below grade and in areas prone to high moisture and condensation.
23. Outside Plant Conduits
    a. All conduits shall drain into open bottom hand holes.
    b. Minimum depth is 24-30”
    c. Conduits may slope from middle of run

E. Pull Boxes:
1. Install each pull box indicated on the Drawings.
    a. As additionally required by Code.
2. Install additional pull boxes outside the building envelope:
    a. Every 500 running feet of below-grade raceway.
    b. Every 180 degrees of raceway bend.
    c. Every 100 feet of above-grade raceway. (less than 2”)
    d. Every 200 feet of above-grade raceway (2” and larger)
    e. As additionally required by Code.
3. Install pull boxes in areas that will be accessible after installation. Accessible areas include spaces above removable tile ceilings and behind access doors that are installed expressly for this purpose. Do not install pull-boxes in locations that will not be accessible after construction is complete and is not accessible after permanently installed furniture or fixtures are installed.
4. Size boxes in accordance with the NEC. Use larger boxes where so specified.

5. Support boxes rigidly.
6. Land conduits on the boxes such that conduits enter and exit across from each other on opposite sides of the box so as to facilitate straight line pulling of cable through the box.
7. Do not use pull boxes in lieu of conduit bends, except as necessary by design or to meet constructability constraints.
8. When directional transition of the cables is necessary through a box, land conduits on the box so that they permit the largest possible bending radius for those cables that will pass through the box.

F. Pull Stings:
1. Install a usable pull string in every pathway prior to the installation of cables. The string shall be installed after pathway installation and prior to such time as the cable installer desires to install cable within the pathway. The string shall be used as an aid to the installation of cables.
2. Install a replacement pull string in each pathway as part of the cable installation process to facilitate installation of additional cable(s). Tie the pull-string off and tag for “Future Use.”

G. Innerduct:
1. Install innerduct within and along pathways that will be used to accommodate fiber optic cables.
   a. Plenum rated innerduct shall be used in pathways that are not 100-percent conduit.
   b. Exception: Innerduct is not required in those pathways that will contain exclusively armored-type fiber optic cables.

H. Spillways:
1. Install cable spillways where cable(s) will exit a conduit sleeve, cable tray, or wireway and where they would otherwise be unsupported for more than 6 inches.

I. Telecommunication Poles:
1. Mount straight and anchor to building structure above the ceiling line.
2. Provide mounting hardware, entrance end fitting, and ceiling trim plate.
3. Utilitze cutouts or add-on compartments for jack frames.
4. Isolated pathway from electrical circuits with separate internal raceway.

J. Discrete Cable Supports:
1. Install supports in areas that will be readily accessible after installation (e.g., above accessible suspended ceilings; up within the building structure in unfinished areas).
2. Do not install supports in any location that is not readily accessible and cannot be reached by the hand of an individual standing flat footed on the ground, a ladder or scaffolding. Do not install in areas where an individual has to strain to reach or where a pole will be required to access.
3. Install separate discrete cable support pathways for cables from each system. Where the allowed capacity of an individual support will be exceeded, install multiple parallel pathways.
4. Install separate discrete cable support pathways for cables from the same system that carry signals that could negatively interfere with one another. Array supports vertically using an appropriate spacing not less than 6 inches for every 6 dB of nominal voltage differential between the cables.
5. Attach supports directly to vertical building surfaces, or from overhead structural members using threaded rod and other approved attachment methods. Support of cables by use of suspended ceiling wires shall not be permitted.
6. Install supports plumb and square.
7. Install horizontal runs of cables supports level. Change elevation only where necessary for coordination with other trades and pathways of other systems.

8. Mount the bottom of supports approximately 12 inches above the top of suspended ceilings.
9. Install cable supports at intervals not exceeding 5 cable feet.
10. Install supports so that they will not interfere with the removal or installation of ceiling tiles.
11. Provide support in close proximity of device conduit pathway termination for service loop.

K. Device Boxes:
1. New-work and old-work device boxes shall be installed flush with or slightly recessed below the finished surface. Do not recess boxes more than is permitted by code, nor more than .078 inches (2mm). Old-work boxes require advanced craftsmanship and construction techniques to achieve specification compliance for communications Work.
2. The installed elevation of boxes shall generally be as indicated on the drawings. Elevations shall be adjusted in the field to ensure a clean appearance resulting from coordination of the new box elevations to match the existing box elevations. Where the specified box elevations and existing condition box elevations differ by more than 4 inches, seek the direction of the Designer prior to installation.
3. Device boxes and associated cover plates shall not span different types of wall finishes either vertically or horizontally. Horizontal and vertical position of boxes shall be adjusted at time of installation to ensure that this condition does not exist after finish is completed.
4. Boxes in masonry shall be installed so that the specified over plates will cover the mortar joints and cut openings completely.
5. Device boxes shall be installed so that they are securely and rigidly attached to structure. Gypsum board and similar non-structural board shall not be used for box support.
6. Devices boxes shall not rely on raceway as a means of support. Boxes shall be fully supported by surrounding building structure.
    a. Provide sufficient support for ceiling device boxes to support weight of installed products.
    b. Provide tile support bridge for device box in accessible ceiling.
7. Device boxes shall be installed plumb and level to within the following limits:
    a. Maximum one-tenth (1/10) of one degree from plumb and from level, and;
    b. Maximum difference from level of .078 inch (2mm) at one end of the box relative to the other end of the box, and;
    c. Maximum difference from plumb of .078 inch (2mm) at the top of the box relative to the bottom of the box.
8. Boxes shall be shimmed as necessary to insure level and plumb installation.
9. Install gaskets on boxes installed outside and in wet or damp locations (e.g., tunnels, crawlspaces, pits).
10. Device boxes shall be protected from plaster, drywall mud, mortar, and other construction debris.
11. Floor boxes shall be installed flush and true with the finished floor, or otherwise in accordance with the manufacturer's instructions.
12. Boxes shall be cleaned of debris after installation.
13. Boxes shall be cleaned of debris thoroughly prior to installation of cover plates;
14. Install blank cover plates on each unused device box.
15. Knock out requirements exceeding manufacturers standard sizes shall be accommodated with punch of correct size.

L. Sleeves and Penetrations:
1. Sleeves through poured-in-place concrete surfaces shall be set in place prior to the concrete pour and protected from concrete ingress.
2. Sleeves through floors shall be installed to prevent the passage of water between the sleeve and the floor.
3. Install cable-protecting insulating bushings on the each end of each sleeve.

4. Extend through-the-wall sleeves a minimum of 2 inches beyond the wall surface. Extend the sleeve a greater distance where necessary to permit proper installation of cable-protecting bushings and any associated cable waterfalls.
5. Extend through-the-floor sleeves to a consistent elevation of 4 inches to 6 inches above finished floors, except where otherwise noted on the Drawings.
6. Fill the voids between sleeve and building surface with approved fire stop material sufficient to maintain the fire-rating of the building surface.
7. Firestop or plug all penetrations, conduits and sleeves to prevent the movement of air between spaces.

M. Conduit Stubs:
1. Install cable-protecting insulating bushings on each conduit stub.

N. Supports:
1. Fabricated Support Devices:
   a. Conform to the manufacturer's recommendations for selection and installation of supports.
   b. Install individual and multiple (trapeze) raceway hangers and riser clamps as necessary to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.
   c. Support parallel runs of horizontal raceways together on trapeze-type hangers.
   d. Support individual horizontal raceways by separate pipe hangers. Spring steel fasteners shall be used in lieu of hangers for 1-1/2 inches and smaller raceways above suspended ceilings only.
   e. For hanger rods with spring steel fasteners, use 1/4 inch diameter or larger threaded steel. Use spring steel fasteners that are specifically designed for supporting single conduits or tubing.
   f. Support exposed and concealed raceway within 1 foot of box and access fittings. In horizontal runs, support at the box and access fittings shall be omitted where box or access fittings are independently supported and raceway terminals are not made with chase nipples or threadless box connectors.
   g. In vertical runs, arrange supports so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports with no weight load on the ends of the raceway.
2. Miscellaneous supports:
   a. Support miscellaneous electrical components as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, pull boxes, junction boxes, and other devices.
   b. Support sheet metal boxes directly from the building structure or by bar hangers. Where bar hangers are used, attach the bar to raceways on opposite sides of the box and support the raceway with an approved type of fastener not more than 24 inches from the box.
3. Fastening:
   a. Fasten pathway products and its supporting hardware securely to the building structure in accordance with the following:
      1) Fasten by means of wood screws or screw-type nails on wood, toggle bolts on hollow masonry units, concrete inserts or expansion bolts on concrete or solid masonry, machine screws, welded threaded studs, or spring-tension clamps on steel. Threaded studs driven by a powder charge and provided with lock washers and nuts shall be used instead of expansion bolts and machine or wood screws. Do not weld conduit, pipe straps, or items other than threaded studs to steel structures. In partitions of light steel construction, use sheet metal screws.

2) When installing fasteners in concrete or CMU structures, do not cut reinforcing bars.
3) Ensure that the load applied to any fasteners does not exceed 25-percent of the proof test load. Use vibration-and shock-resistant fasteners for attachments to concrete slabs.

b. Raceway supports: Hanger spacing shall be as required for adequate support of the raceway, but in no case shall there be less than one hanger per 5 feet of raceway length.

O. Pathway Evacuation:
1. Prior to the installation of cable:
   a. Clean and vacuum boxes, raceway, cable tray, and discrete cable supports.
   b. Remove solids or other hindrances that could impede its full utilization or that could damage cable during or after installation.
   c. Remove liquids. Blow out until raceway is dry, sufficiently that the installed cables will not be subjected to contact with them.
2. Where existing raceways are reused, remove liquid from the raceway.

P. Water Proofing:
1. Protect raceways from moisture infiltration in areas where moisture penetration is probable (e.g., outdoors, natatoriums, wash bays).
2. Provide watertight fittings where one or more cables exit the pathway in areas where moisture penetration is probable.
3. Seal below-grade conduit joints to prevent moisture infiltration.
4. Seal joints of conduits in high-moisture areas to prevent moisture infiltration.
5. Pressure or vacuum test below-grade conduits before and after concealing the conduits to ensure resistance to moisture ingress.

Q. Repair and Patching:
1. Holes and other penetrations into building surfaces or structure that are created to facilitate pathway installation but that are not ultimately used shall be filled, repaired, and restored to their original strength, appearance and integrity.
2. Damage to building or property that occurs during the course of pathway installation shall be repaired and restored to its original condition prior to damage.

R. Cover Plates
1. Provide cover plates over the openings of junction boxes, pull boxes and cast boxes.

END OF SECTION 27 05 28

SECTION 28 13 01 - SECURITY ACCESS CONTROL SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the limited scope construction materials and methods for application with electrical installations as follows:
1. ACMS~~, IDS, CCTV~~ and facility's security related equipment.
2. Remote door lock release as well as card reader equipped door access *monitoring by ACMS.*
3. Miscellaneous materials for support of electrical materials and equipment.
4. Connection to existing head end equipment for monitoring and alarm signals.
5. Monitoring and signal connection to ACMS~~, IDS, CCTV~~ systems.
6. Provide door hardware for ACMS,~~IDS~~ system.

B. The Contractor shall configure the system as described and shown. The system shall include all connectors, adapters, and terminators necessary to interconnect all equipment. The Alarm Contractor's must be a licensed Alarm Contractor in the State of Illinois and City of Chicago, all personnel installing systems must have a State of Illinois Permanent Employee Registration Card (PERC) on their person and shall be furnished to 2FM Security before work is to begin. In the event of personnel changes the above requirements shall be updated and furnished to 2FM Security before that individual is to begin working.

C. Data Entry
1. The Contractor shall enter all data needed to make the system operational. The Contractor shall identify and request from the Owner, any additional data needed to provide a complete and operational security system. The completed forms shall be delivered to the Owner for review and approval at least 10 days prior to the Contractor's scheduled needed date.

D. Related Sections
1. All Division 27 and 28 Sections
2. Technology Series Drawings

E. Related Documents
1. NFPA 70
2. Chicago Electrical code, Title 18 Chapter 27 of the Municipal code of Chicago
3. Provide systems which meet or exceed the requirements of the following publications and
4. organizations as applicable to the Work of this Section Underwriters Laboratories Inc. (UL):
   a. UL 365: Police Station Connected Burglar Alarm Units and Systems.
   b. UL 636: Holdup Alarm Units and Systems.
   c. UL 684: Local, Central Station, and Remote Station.
   d. UL 985: Household Fire-Warning System Units
   e. UL 1037: Antitheft Alarms and Devices
   f. UL 1610: Central-Station Burglar-Alarm Units.
   g. UL 1635: Installation and Classification of Residential Burglar Alarm Systems.
   h. Federal Communications Commission (FCC):
      1) Code of Federal Regulations Title 47: Part 15: Radio Frequency Devic-es.
      2) Code of Federal Regulations Title 47: Part 68: Connection of Terminal Equipment to the Telephone Network.

~~F. Products supplied by others but installed under this Section~~
~~1. Card Readers~~
~~2. Door Controllers~~

1.2 SUBMITTALS

A. Product Data Submittal
1. Manufacturer datasheets for each system component
2. Bill of Materials (BOM) List

B. Shop Drawing Submittal
1. Detail major elements, components, and systems of electrical equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Indicate if sequence and coordination of installations are important to efficient flow of the Work.
2. Plan Drawing(s)
   a. Depicting the location of all devices and major equipment locations on the project site, coordinated with work of related sections.
3. System Diagram(s).
   a. Depicting the interconnecting cabling between system equipment located at different locations at the project site.
4. Panel Board Elevations
   a. Depicting system equipment drawn to scale, including cabling paths and support products and methods.
   b. Location of products shall be shown coordinated with work of other Sections.
5. Equipment Rack Elevations
   a. Scaled
   b. Depicting the locations of all system products installed within the rack, coordinated with work of other sections, as applicable.

C. Furnish a copy of an operation and maintenance manual consisting of PDFs, word documents etc. with a copy of the warranty, equipment specification, programming instructions, programming software disks, maintenance instructions and full sized copies of as built drawings including conduit routing, junction points, and devices in electronic format as well. In addition all system programming data shall be backed up and provided in electronic USB format to 2FM Alarm Section. Include names and phone numbers to contact for assistance, maintenance, and warranty service on the first page. Deliver to 2FM Alarm Section at time of demonstration and training required in Part 3.

D. License to Use: All software required for each component, and for the complete operation of the system as specified herein shall be delivered with either full Ownership transferred to the Owner or a non-time limited License to use on each machine it is installed on, including the right to make backup copies and the right to install the software on a new piece of hardware upon failure of the original. The licenses are to be provided on a CDROM or other storable form at the time of project acceptance.

1.3 INTELLECTUAL PROPERTY
1. Patents
   a. Should patented articles, methods, materials apparatus, etc., be used in this work, the Contractor shall acquire the right to use same. The Contractor shall hold the Owner and his agents harmless for any delay, action, suit, or cost growing out of the patent rights for any device on this Project.

2. Copyrights
   a. Should copyrighted software be used in this work, the Contractor shall acquire the right to use same. The Contractor shall hold the Owner and his agents harmless for any delay, action, suit, or cost growing out of the copyrights for any software on this Project.

1.4 QUALITY ASSURANCE

~~A. The contractor providing work of this section shall be engaged in the full-time business of providing integrated security systems of the type and scale of system specified herein.~~

~~B. The contractor shall have been in the full-time business of providing like systems for the last contiguous (60) months. Contractor shall have completed not less the (6) systems of similar size, scope and complexity within the last 12 calendar months and shall be able to demonstrate proof of such upon request.~~

C. Qualifications: The Alarm Contractor's must be a licensed Alarm Contractor in the State of Illinois, all personnel installing systems must have a State of Illinois Permanent Employee Registration Card (PERC).
   1. Company with a minimum of five (5) years system design, engineering supervision, and installation experience in the security industry and has been authorized to install the products identified under PART 2 – PRODUCTS of this document.

D. Comply with City of Chicago Electrical Code.

E. Code Compliance: UL or ULC Compliance and Labeling.

F. Installer Qualifications: Engage an experienced installer for the installation and application of the products identified herein. Installer must be licensed by the State of Illinois (PERC) and certified to install the required products.

G. Programing of the system shall be performed by the Owner.

1.5 WARRANTY

A. System Components including all subsystems that comprise the systems as described within this specification shall be warranted for a period of one (1) year that shall begin after Owner acceptance.

B. The Contractor shall guarantee all labor, workmanship, and materials for a period of three years from the date of final acceptance. Should a failure occur within the warranty period, the Contractor shall provide all labor and materials necessary to restore the system to the condition required for the final test and acceptance for this contract, at no cost to the Owner. During this period, the Contractor shall provide, free of charge, all software upgrades and patches.

C. During the warranty period, additional card readers and components may be connected and their use entered in database. New devices will be connected in the same manner as shown on the drawings for this contract and the existence of the new connections shall not void this warranty.

1.6 SYSTEM DESCRIPTION

A. General
1. The system shall be constructed of products from one or more manufacturers that are designed by the manufacturer to integrate and interoperate with one another to the degree necessary to achieve compliance with these specifications.
2. The system shall achieve integrated Access control functionality within a single unified software user interface solution.
3. The system shall be capable of and enabled to communicate across a LAN and WAN for both fundamental and administrative functions.
4. The system shall allow upgrades of both hardware and software seamlessly without the loss of database, system configuration, and historical data.
5. The system shall feature integrated user interface maps that enable viewing of system status and control of devices (end points), e.g. doors, gates.
6. Coordinate layout and installation of system equipment and system components with other construction that penetrates roofs, risers, masonry, ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. This specification, the functionality, the products and the system capabilities that are represented herein are based upon capabilities achievable through integration of products from a variety of listed product manufacturers. It is however the responsibility of the Contractor to provide such combination that meets and exceeds all expressed and implied requirements of these project documents.

B. Commercial Security Products from the following manufacturers will be considered acceptable
1. Access Control System
   a. Genetec Security Center – Synergis Enterprise
2. ACS Server (hardware)
   a. None Required
3. Switches
   a. By 2FM
4. Accessories
   a. Altronix
   b. Life Safety Power

C. Latest Version
1. Software supplied shall be the latest and most up-to-date official-release shipping version shipping at the time of acceptance.
2. Hardware supplied shall be the latest and most up-to-date shipping version available at the time of installation, complete with the most current official-release firmware.

2.2 ACCESS CONTROL SYSTEM
1. The system shall include alarm monitoring, video imaging and credential badging.
2. Authentication device control modules throughout the installation shall communicate with the system server using IP based communications.
3. Events within the access control installation shall cause video alarm / recordings.

4. The system shall feature a distributed software and hardware architecture.
5. The architecture shall place key access decisions, event/action processing, and alarm monitoring functions within the controllers.
6. Controllers shall operate independently of the host server for extended periods of time in the event communications with the host server is temporarily lost.
7. Communications between the server/workstations, controllers, and other system hardware shall be via the Security Management System server software.
8. Hardware shall include upgradable flash memory designed to enable firmware updates via network communications.
9. The system shall feature supervised and non-supervised alarm point monitoring.
10. Manual or automatic arming or disarming alarm points shall be achievable through the creation of schedules by time of day, day of the week, and date.

B. Database partitioning shall be provided to achieve an administrative option that allows restrictive access to sensitive information by user ID.

~~2.3 COMPUTERS, MONITORS AND ACCESSORIES~~

~~A. General~~

~~1. All supplied computers (Servers, Workstations, etc.…) and peripherals (monitors etc.…) shall meet or exceed software manufacturers' recommendations for running the software and operating the specified system.~~

~~a. Computers that meet the Access Control manufacturer's "minimum" computer requirements are not acceptable.~~

~~B. Work Station Computers~~

~~1. Provide software and install it on (5) work station computers, that shall be owner furnished or designated. The software shall also be compatible with Mac OS or the Mac OS Microsoft OS simulation.~~

2.4 DOOR HARDWARE (COORDINATE WITH ARCHITECTURAL HARDWARE SPECIFICATIONS AND SCHEDULE)

A. Coordinate with the published door hardware schedule and specifications to assure no duplication in the provision of components required for fully functioning access control and door hardware.
1. This includes but is not limited to:
a. Door locking device
b. Door locking device power supply(s)
c. Authentication devices
1) Integral within the door hardware being provided
2) Type of device being provided to assure interchangeable with the access control system provided
d. Door status device
1) Integral with the door hardware being provided
2) Assurance with the specified capabilities of the access control and intrusion alarm system(s)
e. Request to exit (REX) device
1) Integral within the door hardware being provided
2) Type of device being provided to assure interchangeable with the access control system provided
2. Where these devices are provided in the architectural door hardware specification, the contractor shall integrate them into the access control system.

a. This includes but is not limited to:
   1) Connection to the access control panel(s)
   2) Provision of cabling between the door hardware termination point and the access control panel(s)

2.5 NETWORK SWITCH
1. Cisco Catalyst 2960-24LT-L (Min. 8 POE ports) IEEE 802.3af standard
   a. Provided by Owner.

2.6 AUTHENTICATION DEVICES

A. Card Reader Dual Frequency 125kHz & 13.56mHz
1. HID (interior only)
2. Essex Electronics (exterior only)

B. Interior units shall be a HID sealed, single package weatherproof unit and shall be constructed of high impact ABS plastic.

C. Exterior units shall be an Essex Electronics sealed unit, single package weatherproof unit faceplate shall be constructed of 1/8" stainless steel. Basis of Design shall be Essex IRXP-2

D. Power for card reader shall be derived from the HID controller; therefore, the Contractor shall adhere to the manufacturer's guidelines for maximum distance from the reader to the controller.

E. Access control devices shall incorporate a dual means of notification of door operation. Specifically, the access control reader shall supply an audible tone for access granted, access denied, out of service and door propped conditions. Additionally, the reader shall also supply a visual means of notification, such as colored LED's, for the above events. Each of these notifications shall be selectable by the host ACMS system.

F. Typical access control readers shall be furnished and installed on a single gang backbox in accordance with the manufacturer guidelines. Standard card readers requiring a special mountings shall not be acceptable.

2.7 DOOR CONTROLLER

A. Pre-wired kits
1. 4 reader kit
   a. (1) SY-4RDHIDPW-Chicago-Kit 4 reader kit (Pre-wired) for America
   b. 21X23 inch enclosure
   c. 6A power supply kit.
   d. Synergis cloud link
   e. 2 HID V100s with stand offs and screws
   f. 4 software reader connections included
   g. Chicago only-includes Synergis enterprise
2. 8 reader kit
   a. (1) SY-8RDHIDPW-Chicago-Kit 8 reader kit (Pre-wired) for America
   b. 29X23 inch enclosure
   c. 6A power supply kit.
   d. Synergis cloud link
   e. 4 HID V100s with stand offs and screws

f. 8 software reader connections included
g. Chicago only-includes Synergis enterprise

2.8 DOOR HARDWARE COMPONENTS

A. General
1. All electronic locking hardware shall operate on 24 volts DC.
2. The use of magnetic locking hardware will not be accepted.

B. Equipment Requirements
1. The Contractor shall furnish individually fused power supplies for electrified hardware, as shown on the security drawings.
2. Power supplies shall be furnished to provide 120% of the current requirements for all associated locking devices.
3. Power supplies shall be equipped with a minimum of a (8) eight-hour backup battery for continued electrified lockset operation after a power failure.
4. Power supplies shall be equipped with the following features
   a. Battery Backup:
   b. Built-in charger for sealed lead acid or gel type batteries.
   c. Automatic switch over to stand-by battery when AC fails.
   d. Zero voltage drop when unit switches over to battery backup (AC failure condition).
   e. AC failure supervision (form "C" contact).
   f. Battery fail and battery presence supervision (form "C" contact).
5. The Contractor shall provide any additional inputs and wiring, as required, to facilitate the above conditions to the ACMS system.
6. All power supply enclosures shall be wall mounted in the security closets as shown on the security drawings and shall be lockable steel UL Kit enclosure and equipped with a tamper switch.
7. All devices requiring power shall be distributed using a terminal strip only one conductor per terminal. No splicing of conductors allowed.
8. The Contractor shall ensure that the above specifics are provided. It is the Contractor's responsibility to coordinate and possibly furnish and install the above items if not provided.
9. Emergency Door Release Button In the event an emergency exit button is required to disconnect power to the door components. The use of a push button with key reset type switch w/two "C" form contacts. One n/c contact to be used as notification of button activation.

2.9 DOOR HARDWARE (SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE)

A. Door Status Switches (Provide if not integral with architectural door hardware)
1. Two-piece design
2. Designed for concealed installation
3. Rare-earth magnet switch trigger
4. Double Pull Double Throw (DPDT) contacts

B. Request to Exit (REX) sensor (Provide if not integral with architectural door hardware)
1. Passive Infrared (PIR) motion sensing type
2. Adjustable time
3. Variable coverage angle

2.10 CABLE

A. General
1. Supply cable that meets or exceeds the technical requirements of the components being interconnected suitable for the length and signal type and communication speed carried.
2. Supply cable of sufficient gauge to ensure that connected components receive adequate voltage, power and signal integrity to ensure reliable operation of the system.
3. Supply shielded version of cable for interconnection of system components that require such for proper operation.
4. Safety listed by a nationally recognized safety testing laboratory (UL or equivalent)
5. Code compliant for its purpose, location and method of installation.
   a. For example, plenum rated cable shall be installed in plenum environments.
6. Approved Cable Manufacturers: Windy City Wire.
   a. Basis of Design shall be Windy City Wire #NJ446110

EXECUTION

3.1 GENERAL

A. Provide labor and all products necessary to render the system(s) complete and working.

B. In addition to the requirements set forth by these project documents, provide additional work that is reasonable and customary for systems of the type and scope identified herein, as well as additional work recommended to be performed by the product manufacturers for completion of like systems.

C. Perform work in a code-compliant manner to the satisfaction of the Authority having jurisdiction.

D. Perform work according to the highest quality industry standards.

3.2 COORDINATION

A. Refer to project drawings, including but not limited to architectural and electrical drawings for additional details that impact work of this section.

B. Coordinate adequately with other trades to resolve conflicts.

C. Review in detail the cabling pathway requirements for this system against the pathways indicated on the drawings.
1. Review pathways with the pathway system provider.
2. Take timely and proactive action to ensure that the pathway system is installed accurately and sufficiently supports this system.

D. Provide qualified representation at project meetings to ensure that work of this section is adequately represented in the project schedule and that work is coordinated with other trades.

E. Coordinate with the Owner's designated IT and security representative(s):
1. Sufficiently early in the project so to negate negative impact on the project schedule and allow for timely completion of work.
2. For the assignment of IP addresses and device naming conventions

3. Communicate network configuration parameters material to the successful implementation of this system.

3.3 INSTALLATION

A. General
1. Install products in accordance these project documents and with product manufacturer's published installation instructions.

B. Conduits

1. All IDS cabling shall be encased in conduit **Blue** in color minimum of ¾".
2. All CCTV cabling shall be encased in conduit **Purple** in color minimum of ¾".
3. All ACMS cabling shall be encased in conduit **Orange** in color minimum of ¾".
4. All fire systems shall be encased in conduit **Red** in color minimum of ¾".
5. If conditions do not allow for colored conduit to be installed, the contractor is responsible for labeling the conduit and to inform the Owner as how to proceed immediately.

C. Authentication Devices
1. Coordinate with door hardware schedule and specifications.
2. Install authentication devices (e.g. card readers, keypads etc...) at the locations and height(s) designated on the drawings.
3. Install devices flat, plumb and level.

D. Door Controllers, Reader and I/O Modules
1. Install door controllers, reader and input/output modules in designated rooms as indicated on the drawings.
2. Equipment shall be mounted within approved communications rooms except where otherwise indicated on the drawings.
3. Equipment shall be mounted to plywood backboards installed over the finished walls within the rooms.
4. Where specific wall locations are indicated on the drawings, use these locations.
   a. Where specific locations are not identified, review and coordinate mounting locations with the Owner's representative and other trades that also have work in the space.

E. Power Supplies
1. Supply and install power supplies of adequate capacity to allow for full rated operation of all system equipment.
2. Install and Provide power supplies for door hardware, controllers and other equipment within designated/approved rooms.
3. Connect power supplies to AC power.

F. Cabling
1. Install cabling that meets or exceeds the technical requirements of the components being interconnected suitable for the length and signal type carried.
2. Install cable of sufficient gauge to ensure that connected components receive adequate power, voltage and signal integrity to ensure reliable operation.
3. Install shielded cable for interconnection of system components that require such for proper operation.
4. Neatly dress and support all cables.
5. Take precautions to avoid damage to cable during installation, and to protect cables from damage after installation. Avoid cable bends and pulling tensions that are outside the manufacturer's recommended limits.

6. Maintain adequate separation of cables from sources of ingress interference that could negatively impact the performance of this system.
7. Utilize approved pathway products for supporting, securing and protecting cables. Ensure that horizontal cable runs are supported at increments not exceeding 48-inch.
8. Route cables in dedicated pathways, separated from cables serving other systems.
9. Label each end of each cable.
10. Use cable pulling compound/lubricant where necessary. Use only non-hardening compounds that do not deteriorate cable conductors, insulation or pathway components.

G. Grounding
1. All twisted pair shields shall be grounded at one point only. Cables that originate from equipment in systems/electrical rooms and terminate at field devices shall be grounded to the signal ground terminal in the system / electrical room. The field end shield shall be pulled back, trimmed, and taped in a good workmanlike manner.
2. Equipment, racks and associated devices shall be grounded per Division 27 specification
3. Ground products in accordance with industry standards, the NEC and in accordance with additional codes applicable at the project site.
4. Provide special grounding in accordance with referenced standards.

H. Labeling
1. Uniquely label the ends of every cable in the system using permanent computer generated self-laminating wrap-around cable labels.
2. Labels shall be clearly legible, using dark-black bold-type fonts.
3. Record actual label nomenclature on the as-built drawings.
4. Concealed Equipment
   a. Identify the location of concealed equipment (e.g. TVSS devices) above ceilings, in walls, etc… using a labeling schema agreeable to Owner.

I. AC Power
1. Provide connection of supplied equipment to source(s) of AC power.
2. Provide services of licensed professional electrician to perform work required by code and the local jurisdiction to be performed by a licensed electrician.

3.4 PROGRAMMING
1. By Owner

3.5 TESTING

A. General
1. Conduct a complete inspection and test installed system equipment, inclusive of Owner furnished equipment utilized.
2. Include testing of interconnected equipment specified in other Divisions or Sections (e.g. Life Safety and Elevators).
3. Conduct tests recommended by all system equipment manufacturer(s).
4. Verify alarm condition scenarios perform as programmed
5. Exercise interactive maps and test each object/control.
6. Simulate alarm scenarios and verify each performs as intended by the Owner.
7. Update program to remediate problems encountered.
8. Replace malfunctioning and/or damaged items with new product and retest until satisfactory specification compliant conditions are achieved.

B. Access Control

1. Lock/Unlock based on credential presented
2. Lock/unlock based on time schedule
3. Door status alarm reported correctly on screen
4. Door status shut not reported
5. Schedules function as programmed
6. Special event override works when applied
7. Entry of credential works for each group applied, based on group access rights.
8. Exercise each authentication device, status switch, request to exit device and locking mechanism
9. Verify restoration of normal operation following simulated complete and partial power outage scenarios

3.6 ACCEPTANCE TESTING

A. Acceptance testing shall be conducted after designer receipt and review of the pre-acceptance submittal aka “Sign Off Report”. Allow (10) business days in the project schedule for the Designer’s review.

B. Acceptance testing may include, but may not necessarily be limited to:
1. Visual and mechanical inspections of Contractor’s workmanship.
2. Inventory of equipment.
3. Inspection of system components, sub-systems, software, component functionality, etc.
4. Any other tests or inspections determined necessary by the Designer.

C. The Contractor shall be onsite in advance of the scheduled acceptance testing time.

D. Contractor shall have made adequate arrangements for access to all areas of work.

E. Acceptance Testing will not pass if:
1. Contractor’s work does not appear to the Designer to be of Professional quality and/or the Contractor has failed to follow clearly established installation requirements.
2. Detailed as-built drawings are not present on site for review and/or are found to be incomplete or inaccurate.
3. More than one cable inspected is found to be missing required labels or if more than one cable is verified to be inaccurately recorded on the as-built drawings.
4. Installed equipment does not match the equipment specified and/or reviewed by the Designer (in writing) during the course of the project.
5. More than one piece of equipment, cable, connector, circuit, etc. fails to pass any test performed upon it by the Designer.
6. Any substantive specification or workmanship issue judged by the Designer to be of material importance to the long-term usability, safety, professional appearance, or service and maintainability of the Contractor’s work; any material deviation from the intent of these specifications.
7. Terminations of connectors ruled to be below the highest quality industry standards.

F. Contractor's Field Testing
1. The Contractor shall calibrate and test all equipment, place the systems in service, and test the systems. The Contractor shall deliver a report describing results of functional tests, diagnostics, and calibrations including written certification to the Owner that the installed complete system has been calibrated, tested, and is ready to begin performance verification testing. The report shall also include a copy of the approved performance verification test procedure.

2. If any conditions or other conditions exist that cause degradation or interfere with any security device, the Contractor shall inform the Owner.
3. The field testing shall as a minimum include:

    a. Verification that the any signal or control cabling have been installed, tested, and approved as specified. All cabling to be identified and labeled to be included in test report.
    b. When the system includes remote control/monitoring stations or remote switch panels, verification that the remote devices are functional, communicate with the center, and perform all functions as specified.
    c. Verification that all systems devices are fully functional, and that applicable software has been programmed as needed for the site configuration.
    d. Operation of all electrical and mechanical controls and verification that the control performs the designed function.
    e. Verification that all cables are terminated properly. Verification that the any signal or control cabling have been installed, tested, and approved as specified.
    f. When the system includes remote control/monitoring stations or remote switch panels, verification that the remote devices are functional, communicate with the center, and perform all functions as specified.
    g. Verification that all security devices are fully functional, and that applicable software has been programmed as needed for the site configuration.
    h. Verification that applicable software is functioning correctly. All software functions shall be exercised.
    i. Operation of all electrical and mechanical controls and verification that the control performs the designed function.
    j. Verification that all data sources and data outputs provide a full bandwidth signal at all data inputs.
    k. Verification that all cables are terminated properly.
4. Deliver a report describing results of functional tests, diagnostics, and calibrations including written certification to the Designer that the installed complete system has been calibrated, tested, and is ready to begin performance verification testing. The report shall also include a copy of the approved performance verification test procedure.

3.7 SYSTEM STARTUP

A. Do not apply power to any systems until the following items have been completed:
1. Equipment items have been set up in accordance with manufacturer's instructions.
2. A visual inspection has been conducted to ensure that defective equipment items have not been installed and that there are no loose connections.
3. System wiring has been tested and verified as correctly connected as indicated.
4. All system grounding and transient protection systems have been verified as properly installed and connected as indicated.
5. Power supplies to be connected to the Systems have been verified as the correct voltage, phasing, and frequency as indicated.
6. Verify network communications for the NVR, cameras, S2 controller, and network switch.
7. Provide written and signed checklist indicating this was done.
8. Satisfaction of the above requirements shall not relieve the Contractor of responsibility for incorrect installation, defective equipment items, or collateral damage as a result of Contractor work/equipment.

3.8 DEMONSTRATION AND ACCEPTANCE

A. Create a written, step by step, plan to demonstrate the operation of all systems and submit it for approval two weeks prior to the demonstration date. The Owner will review and comment, or approve the plan at that time. Submit a suggested demonstration date and time along with the plan.

B. On the accepted date, execute the demonstration plan in the presence of the Owner and their representatives. If the demonstration is successful, the systems will be considered accepted and a punch list will be generated. If the demonstration fails, the systems will be considered not accepted and another demonstration event shall be scheduled. This process will be repeated until the systems are accepted.

C. Multiple Contractor User privilege levels will likely be established during the installation and testing periods of this Project. As a condition of system final acceptance, all Contractor User privileges shall be removed from the system, unless otherwise authorized in writing, by the Owner.

3.9 ON-SITE ASSISTANCE

A. When requested by 2FM within one year of date of 2FM sign off/acceptance, provide on-site assistance in tuning and adjusting the system to suit actual occupied conditions and to optimize performance. Provide up to 36 hours of time by a qualified technician, on site, for adjustments of the system without additional cost.

3.10 CLEANING AND ADJUSTING

A. Clean installed items using methods and materials recommended by manufacturer.

END OF SECTION 28 13 01

SECTION 28 13 02 - SIMULATION TRAINING VIDEO RECORDING SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the materials, software and labor as required for a complete working system as follows:
   1. New Video Cameras with audio recording capability.
   2. Video Recording and Playback Server.
   3. Client Playback Software to be installed on owner supplied computer workstation.
   4. Provide all required software licenses.

B. Related Sections
   1. All Division 27 and 28 Sections
   2. Technology Series Drawings

1.2 SUBMITTALS

A. Product Data Submittal
   1. Manufacturer datasheets for each system component
   2. Bill of Materials (BOM) List

B. Shop Drawing Submittal
   1. Plan Drawing(s)
      a. Depicting the location of all devices and major equipment locations on the project site, coordinated with work of related sections.
   2. System Diagram(s).
      a. Depicting the interconnecting cabling between system equipment located at different locations at the project site.
   3. Equipment Rack Elevations
      a. Scaled
      b. Depicting the locations of all system products installed within the rack, coordinated with work of other sections, as applicable.

C. Training Plan Submittal

D. Closeout Submittal

1.3 QUALITY ASSURANCE

A. The contractor providing work of this section shall be engaged in the full-time business of providing integrated security systems of the type and scale of system specified herein.

B. The contractor shall have been in the full-time business of providing like systems for the last contiguous (60) months. Contractor shall have completed not less the (6) systems

of similar size, scope and complexity within the last 12 calendar months and shall be able to demonstrate proof of such upon request.

C. Programming of the system shall be performed by individuals that are manufacturer certified and fluent in both the software and hardware used to build the system.
   1. Each individual shall possess a comprehensive knowledge of the programming options available and have no less than (2) years of actual programming experience for systems of this type.

1.4 SYSTEM DESCRIPTION

A. General
   1. The system shall be constructed of products from one or more manufacturers that are designed by the manufacturer to integrate and interoperate with one another to the degree necessary to achieve compliance with these specifications.
   2. The system shall be capable of and enabled to communicate across a LAN and WAN for both fundamental and administrative functions.
   3. The system shall allow upgrades of both hardware and software seamlessly without the loss of database, system configuration, and historical data.
   4. The system shall feature integrated user interface maps that enable viewing of system status and control of devices (end points), e.g. doors.

B. The Contractor shall configure the system as described and shown. The system shall include all connectors, adapters, and terminators necessary to interconnect all equipment. The Contractor's must be a licensed Contractor in the State of Illinois and City of Chicago, all personnel installing systems must have a State of Illinois Permanent Employee Registration Card (PERC) on their person and shall be furnished to 2FM Security before work is to begin. In the event of personnel changes the above requirements shall be updated and furnished to 2FM Security before that individual is to begin working.

C. Data Entry
   1. The Contractor shall enter all data needed to make the system operational. The Contractor shall identify and request from the Owner, any additional data needed to provide a complete and operational security system. The completed forms shall be delivered to the Owner for review and approval at least 10 days prior to the Contractor's scheduled needed date.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. This specification, the functionality, the products and the system capabilities that are represented herein are based upon capabilities achievable through integration of products from a variety of listed product manufacturers. It is however the responsibility of the Contractor to provide such combination that meets and exceeds all expressed and implied requirements of these project documents.

B. Products from the following manufacturers will be considered acceptable
   1. VMS Software.
      a. Inteligent Video Solutions
         1) Video Recording and Capture Software - Intelligent Video Solutions (ipivs.com)
         2) Contact - Michael Farran, Regional Sales Director, Great Lakes
            C: 517.281.5931 Email: mfarran@ipivs.com
   2. Vault VMS Server (hardware)
      a. Inteligent Video Solutions
      b. Model R1Z16S
         1) 1U full-depth chassis
         2) Single XEON SILVER 4310CPU
         3) 32 GB RAM
         4) RAID 1 SSD OS/Application array and 16 TB RAID 5 video archive
         5) Support for 25 1080p cameras
         6) 8,000 hours of video archive.
      c. Provide a 22" color monitor, keyboard and mouse. A rack mounted tray/shelve to serve as an operator interface for the NVR
   3. Switches
      a. By AIS
   4. Cameras
      a. Axis
      b. See Drawings Sheet T-643 that has the list of cameras with model numbers
   5. Workstations
      a. By AIS

C. Latest Version
   1. Software supplied shall be the latest and most up-to-date official-release shipping version shipping at the time of acceptance.
   2. Hardware supplied shall be the latest and most up-to-date shipping version available at the time of installation, complete with the most current official-release firmware.

2.2 SOFTWARE REQUIREMENTS

A. View up to nine simultaneous sessions on a single display.

B. Perform point-tilt-zoom (PTZ) with a click or create presets to quickly position cameras.

C. Observe from anywhere on tablet or mobile device with in-browser viewing.

D. Create markers during recording to index key points and quickly access them later.

E. Communicate with live sessions via computer microphone or headset (requires optional talkback hardware).

2.3 CAMERAS, MOUNTS & ACCESSORIES

A. Cameras

1. IP Cameras
   a. See Drawings Sheet T-643 for list of cameras with model numbers
2. Baseline Camera Features
   a. Listed by a national recognized safety testing laboratory (UL or equivalent)
   b. Min illumination/ light sensitivity (Color) 0.23 lux
   c. Min illumination/ light sensitivity (B/W) 0.05 lux
   d. Image sensor CMOS
   e. Image sensor size 1/2.5"
   f. Wide dynamic range WDR
   g. Thermal sensitivity (NETD) –
3. General
   a. Built-in IR Yes
   b. Storage (memory card slot) Yes
   c. Operating temperature -20 to 50 °C
   d. Vandal rating IK10+
   e. IP rating IP66, IP6K9K
   f. Designed for repaint Yes
4. Video
   a. Max video resolution 2304x1728
   b. Max frames per second 25/30
   c. Day and Night functionality Yes
5. Lens
   a. Focal length 2.4 mm
   b. Varifocal lens Off
   c. Aperture 2.1
   d. Horizontal field of view 125 °
   e. Vertical field of view 95 °
   f. Detection range: Human (1.5px) 0.00 m
   g. Detection range: Vehicle (1.5px) 0.00 m
   h. Lens mount M12
6. Pan, Tilt, Zoom
   a. Digital Pan/Tilt Yes
   b. Digital zoom Yes
   c. Remote PTRZ
7. Compression
   a. Zipstream Yes
   b. H.264 High, Main
   c. H.265 Yes
   d. Motion JPEG Yes
8. Audio
   a. Audio Support Yes
   b. Built-in microphone Yes
   c. Two-way audio Yes
9. System Integration
   a. Audio detection Yes
   b. Active tampering Yes
   c. Alarm inputs/outputs 1/1
   d. Serial connectors –
   e. ONVIF Profile G
   f. AXIS Camera Application Platform Yes
   g. Video motion detection Yes

10. Network
    a. Power over Ethernet Yes
    b. PoE Class 3
    c. Wireless –
11. Security
    a. HTTPS encryption Yes
    b. IEEE 802.1X

A. Lens Optics
   1. Provide high quality CCTV lenses sized according to the intended area of coverage as shown on the drawings and in accordance with the following minimum specifications:
      . Fixed cameras shall be provided with aspherical varifocal lens optics. Lenses provided for fixed cameras shall be aspherical varifocal length type and shall include provisions for automatic iris adjustment and standard "CS" or "C" mounting. Adapter rings shall be provided for all "C" mount lenses, aspherical varifocal lenses shall also be compatible with a CCD camera imager. Exact focal lengths of the lenses will be coordinated with the Owner based on the scene to be viewed.
      a. The average video level sampled from the camera will determine automatic iris operation. Iris control signals and operating voltage shall be obtained from the camera and the lens will include a pre-wired plug assembly compatible with the cameras being provided.
      b. Lenses for speed-dome cameras shall be provided as an integral part of the speed-dome camera configuration.
      c. Lens optics shall be high quality precision ground glass. All optics shall be color corrected to provide accurate color scene reproduction.

B. Mounts
   1. Camera Mounts
      a. Camera mounts shall be 100% compatible with the housing being provide and shall have the following characteristics:
      b. The Contractor shall field verify each camera location, prior to ordering.
      c. Mounts shall be constructed from steel or aluminum and shall prevent corrosion.
         1) Mounts shall be 100% compatible with the housing.
         2) Fixed cameras mounts and their installation shall be coordinated with the owner as to maintain the esthetics of the installation sites.
   2. Provide commercial grade mounts heavy duty mounts and mounting hardware for cameras.
   3. Outdoor mounts shall be designed for outdoor mounting and exposure to the elements
      a. All outdoor hardware shall be stainless steel.
   4. Refer to drawings and camera matrix for mounting form-factors of individual camera locations.
   5. Provide custom painted mounts and mounting hardware where indicated on the drawings.

C. CCTV Camera Housing

1. The Contractor shall provide all cameras with permanent connections. Specifically, wiring shall not be open or loose. It is the contractors responsibility to provide rigid conduit for all installations to prevent wire tampering.
2. Camera housings and their installation shall be coordinated with the owner as to maintain the esthetics of the installation sites.
3. Camera platform shall be constructed of a non-conductive or insulated to eliminate grounding problems.
4. Exterior camera housing shall be equipped with internal heating element.
5. Camera housings shall also have the following characteristics:
   a. All cables shall be terminated, encapsulated in rigid conduit.
   b. The housing shall be constructed with the intent to provide quick and easy servicing of the camera within it. Specifically, a slip in tray or cover with 180° opening.
   c. The Contractor shall coordinate with the Owner the exact architectural style of the housing and finish, prior to ordering.
   d. It the Contractors responsibility to perform all necessary calculations to verify that lens and camera combination can be accommodated by the housing being furnished.
   e. Camera Housing shall have tamper resistant screws. The Contractor shall provide the Owner (2FM Alarm Section) with a tool to remove the tamper resistant screws allowing them to service the housing themselves

2.4 ACCESSORIES

A. Provide microphone at each Training camera location (if not built-in).
   1. An ultra-low-noise microphone with an SNR of 80 dBA. It comes included with a Terminal Block to 3.5 mm Audio Extension, and could be installed with AXIS P32-LV Network Cameras in combination with AXIS TP3201.
   2. Specification: Frequency response 20 Hz – 20 kHz, ± 2 dB. Signal-to-noise ratio (SNR): 80 dBA (relative 1 kHz @ 1 Pa, 94 dB SPL). Sensitivity -28 dB ± 3 dB (at 1 kHz, 0 dB=1 V/Pa). Max sound pressure level (SPL): 119 dB at 1 kHz. Impedance 1.5 kΩ @ 1 kHz. Temperature range: -20 °C to 60 °C (-4 °F to 140 °F)
   3. Basis of Design shall be Axis Device Microphone B.

B. Provide speaker at each Training camera location.
   1. See specification section 27 41 00 for speaker details.

2.5 COMPUTERS, MONITORS AND ACCESSORIES

A. General
   1. All supplied computers (Servers, Workstations, etc…) and peripherals (monitors etc…) shall meet or exceed the software manufacturers' recommended specifications for running the software and operating the specified system.
      a. Computers that meet the VMS manufacturer's "minimum" computer requirements are not acceptable.
   2. Computers shall be furnished fully loaded and configured with operating system software client user licenses necessary to allow the system to operate capacity. The operating system and database software shall be the latest version supported by the security system software.

B. Server Computers
1. Provide minimum (1) dedicated rack mount server-class computer to run the Video Management System surveillance server.
a. The access control server software may be virtualized on the dedicated video surveillance server where this feature is supported by both the video surveillance manufacturer and the access control manufacturer.
1) This includes systems that have been expressly manufactured for this purpose by the video surveillance and access control system manufacturers.
b. This function shall result in no degradation in performance of either access control or video system's server software.
2. Provide (1) rack mount LCD monitor (17"-class minimum), plus rack mount computer keyboard and mouse drawer system.
3. Provide rack mount hardware based KVM switching system that enables all security system servers to be accessed, controlled and viewed by a single keyboard, monitor and mouse.
a. Combination rack mount monitor, keyboard, mouse and KVM units where the features described above have been met shall be acceptable.
4. Provide servers with operating system, database software and sufficient Client Access Licenses and other applicable licensing to ensure that full operation of the system, and concurrent access by all access control and video client software computers.

C. Work Station Computers
1. Provide software and install it on (5) work station computers, that shall be owner furnished or designated. The software shall also be compatible with Mac OS or the Mac OS Microsoft OS simulation.

2.6 MASS STORAGE

A. Hard-disk-drive (HDD) or Solid-state-drive (SSD) based arrays.

B. Expandable without loss of existing data.

C. Self-healing configuration with integral hot-swappable spare drives.

D. Sufficient read/write data bandwidth to accommodate writing of data from all system video sources simultaneously (multiplied by a factor of 4) at the full resolution and frame rate of the video source, plus an equivalent amount of bandwidth for playing back (i.e. reading) data.

E. 19" Rack mountable

2.7 CABLE

A. General
1. Supply cable that meets or exceeds the technical requirements of the components being interconnected suitable for the length and signal type and communication speed carried.

2. Supply cable of sufficient gauge to ensure that connected components receive adequate voltage, power and signal integrity to ensure reliable operation of the system.
3. Supply shielded version of cable for interconnection of system components that require such for proper operation.
4. Safety listed by a nationally recognized safety testing laboratory (UL or equivalent)
5. Code compliant for its purpose, location and method of installation.
   a. For example, plenum rated cable shall be installed in plenum environments.
6. Approved Cable Manufacturers: West Penn, Belden, CommScope, General Cable Corporation and Windy City Wire.

PART 3 - EXECUTION

3.1 GENERAL

A. Provide labor and all products necessary to render the system(s) complete and working.

B. In addition to the requirements set forth by these project documents, provide additional work that is reasonable and customary for systems of the type and scope identified herein, as well as additional work recommended to be performed by the product manufacturers for completion of like systems.

C. Perform work in a code-compliant manner to the satisfaction of the Authority having jurisdiction.

D. Perform work according to the highest quality industry standards.

3.2 COORDINATION

A. Refer to project drawings, including but not limited to architectural and electrical drawings for additional details that impact work of this section.

B. Coordinate adequately with other trades to resolve conflicts.

C. Review in detail the cabling pathway requirements for this system against the pathways indicated on the drawings.
   1. Review pathways with the pathway system provider.
   2. Take timely and proactive action to ensure that the pathway system installed accurately and sufficiently supports this system.

D. Coordinate the location of camera rough-in to ensure it allows for professional quality camera installation with serviceability and with aesthetic appeal.

E. Review existing conditions (where applicable).

F. Provide qualified representation at project meetings to ensure that work of this section is adequately represented in the project schedule and that work is coordinated with other trades.

G. Coordinate with the Owner's designated IT and security representative(s)
   1. Sufficiently early in the project so to negate negative impact on the project schedule and allow for timely completion of work.
   2. For the assignment of IP addresses and device naming conventions
   3. Communicate network configuration parameters material to the successful implementation of this system.

3.3 INSTALLATION

A. General
   1. Install products in accordance these project documents and with product manufacturer's published installation instructions.
   2. All CCTV cabling shall be encased in conduit Purple in color minimum of ¾".

B. Power Supplies
   1. Supply and install power supplies of adequate capacity to allow for full rated operation of all system equipment.
   2. Install and Provide power supplies for cameras, controllers and other equipment within designated/approved rooms.
   3. Connect power supplies to AC power.

C. Cameras
   1. Terminate cabling provided
   2. Mount cameras per the manufacturer's instructions and as additionally detailed in these project documents.
   3. Install cameras at the locations identified on the plans, coordinating with field conditions as appropriate.
      a. Unless identified by scaled or dimensioned detail, camera mounting heights are for reference. Actual mounting heights shall be verified in the field and coordinated with architectural detail for aesthetic appeal and with obstacles that may have negative impact on visual coverage or impact serviceability.
      b. Seek the direction of the Designer should any consequential issues arise from the use of an identified camera location or mounting height.
   4. Set camera angles and field of view in collaboration with the Owner's designated representative.
      a. Make adjustments to the satisfaction of the Owner.
      b. Clean, lens, cover, housing anything that may impede or obstruct the view and assure camera is performing optimally.
   5. Assure that power source for camera is set to the proper voltage to match the cameras specified requirements.

D. Equipment Racks
   1. Secure equipment within racks using approved rack-mounting products.
   2. Utilize manufacturer accessory rack mounts where available;
      a. Utilize custom fabricated product-specific rack mounts for other equipment.
      b. Open shelves shall not be permitted for equipment mounting except where expressly specified, detailed or otherwise approved by the Designer.
   3. Securely attach non-portable racks to the building floor or other approved structure.

a. Racks that require movement for equipment installation or service shall be secured using such means that allow the rack to be deliberately moved to achieve this objective. Review proposed mounting with the Designer.

4. Internal Cabling
   a. Neatly route and support cables level and plumb.
   b. Bundle and route cables of different signal types independently.
   c. Use removable Velcro-like wire ties for bundling of cables. Do not use standard wire ties
   d. Route vertical runs of cables along the sides of the rack.
   e. Support horizontal runs of cables using horizontal support bars.
   f. Fan cables to equipment neatly between horizontal lacing bars and equipment.
   g. Provide a service loop of adequate length between lacing bars equipment so as permit ease of installation and service access to equipment.
   h. Ensure that cable connections are not subjected to any stress of strain at the point of termination during idle installation or routine servicing of system equipment.
5. Filler Panels
   a. Install solid and vent-type filler panels in all unused spaces of equipment racks. Use combinations that ensure adequate cooling of installed product.
6. Power Distribution
   a. Install AC power distribution sufficient to serve all housed equipment.
   b. Connect power distribution equipment to local area AC power, utilizing the services of a licensed electrician where required by code.
   c. Provide a minimum of 20% spare outlets within each rack to accommodate future equipment.

E. Cabling
1. Install cabling that meets or exceeds the technical requirements of the components being interconnected suitable for the length and signal type carried.
2. Install cable of sufficient gauge to ensure that connected components receive adequate power, voltage and signal integrity to ensure reliable operation.
3. Install shielded cable for interconnection of system components that require such for proper operation.
4. Neatly dress and support all cables.
5. Take precautions to avoid damage to cable during installation, and to protect cables from damage after installation. Avoid cable bends and pulling tensions that are outside the manufacturer's recommended limits.
6. Maintain adequate separation of cables from sources of ingress interference that could negatively impact the performance of this system.
7. Utilize approved pathway products for supporting, securing and protecting cables. Ensure that horizontal cable runs are supported at increments not exceeding 48-inch.
8. Route cables in dedicated pathways, separated from cables serving other systems.
9. Label each end of each cable. See Labeling.
10. Use cable pulling compound/lubricant where necessary. Use only non-hardening compounds that do not deteriorate cable conductors, insulation or pathway components.

F. Grounding

1. Ground products in accordance with industry standards, the NEC and in accordance with additional codes applicable at the project site.
2. Provide special grounding in accordance with referenced standards.

G. Labeling
1. Uniquely label the ends of every cable in the system using permanent computer generated self-laminating wrap-around cable labels.
2. Labels shall be clearly legible, using dark-black bold-type fonts.
3. Record actual label nomenclature on the as-built drawings.
4. Concealed Equipment
   a. Identify the location of concealed equipment (e.g. TVSS devices) above ceilings, in walls, etc. using a labeling schema agreeable to Owner.

H. AC Power
1. Provide connection of supplied equipment to source(s) of AC power.
2. Provide services of licensed professional electrician to perform work required by code and the local jurisdiction to be performed by a licensed electrician.

3.4 PROGRAMMING

A. Perform initial programming of the system to establish fundamental operational parameters; parameters shall represent industry standards for best practice.

B. Following initial programming, collaborate with the Owner's designated representative to formulate specific programming to satisfy Owner's objectives. Present baseline programming already in place to the Owner at the start of this collaboration.
1. The programmer shall advise the Owner of the fundamental choices that must be made to render the system useful for its intended purpose and shall supply forms which the Owner shall use to aid in making programming influencing decisions.

C. Create dynamic graphical user-interface maps of each facility and site served by the system.
1. Maps shall include interactive icons reflecting the location of each video camera. The camera icon shall allow users to interact with the icon to view live video from the associated camera.
2. The programming shall include the ability for the administrator to grant map based control based upon user rights.
3. Map navigational hierarchy shall allow for easy navigation to maps associated with remote facilities that are connected to the system.

D. Video System
1. Enter system configuration data necessary to render the system operational and usable to the Owner.
2. Programming shall include setting up Owner designated views of cameras and sequencing behaviors.
3. Programming shall include setting up separate views and behaviors for each viewing location; up to maximum of (5) separate locations.
4. Enable remote control of remote controllable cameras in the system.
5. Program the recording behaviors of cameras.
   a. Program when cameras are recorded;

b. Program when cameras are recorded at a low frame rate and / or resolution
c. Program when cameras are recorded at higher frame rate and / or resolution.

6. If pre-recording is an option of the system, program pre-recording of designated cameras in collaboration with the Owner's direction.
7. Provide programming to integrate camera behaviors with the access control functionality and maps.
8. Provide programming that results in cameras being recorded when credentials are presented to authentication device.
9. Log unauthorized credential presentation as a searchable alarm condition.
10. Program masking zones of each fixed position camera.
    a. Where required by the owner
11. Program areas of interest on each fixed position camera.

3.5 TESTING

A. General
1. Conduct a complete inspection and test installed system equipment, inclusive of Owner furnished equipment utilized.
2. Include testing of interconnected equipment specified in other Divisions or Sections (e.g. Life Safety and Elevators).
3. Conduct tests recommended by all system equipment manufacturer(s).
4. Verify alarm condition scenarios perform as programmed
5. Exercise interactive maps and test each object/control.
6. Simulate alarm scenarios and verify each performs as intended by the Owner.
7. Update program to remediate problems encountered.
8. Replace malfunctioning and/or damaged items with new product and retest until satisfactory specification compliant conditions are achieved.

B. Video
1. Verify restoration of normal operation following simulated complete and partial power outage scenarios
2. View, record and playback video from cameras, singularly and in combination with other cameras.
3. Exercise remote control functions of cameras

3.6 ACCEPTANCE TESTING

A. Acceptance testing shall be conducted after designer receipt and review of the pre-acceptance submittal aka "Sign Off Report". Allow (10) business days in the project schedule for the Designer's review.

B. Acceptance testing may include, but may not necessarily be limited to:
1. Visual and mechanical inspections of Contractor's workmanship.
2. Inventory of equipment.
3. Inspection of system components, sub-systems, software, component functionality, etc.
4. Any other tests or inspections determined necessary by the Designer.

C. The Contractor shall be onsite in advance of the scheduled acceptance testing time.

D. Contractor shall have made adequate arrangements for access to all areas of work.

E. Acceptance Testing will not pass if:
1. Contractor's work does not appear to the Designer to be of Professional quality and/or the Contractor has failed to follow clearly established installation requirements.
2. Detailed as-built drawings are not present on site for review and/or are found to be incomplete or inaccurate.
3. More than one cable inspected is found to be missing required labels or if more than one cable is verified to be inaccurately recorded on the as-built drawings.
4. Installed equipment does not match the equipment specified and/or reviewed by the Designer (in writing) during the course of the project.
5. More than one piece of equipment, cable, connector, circuit, etc. fails to pass any test performed upon it by the Designer.
6. Any substantive specification or workmanship issue judged by the Designer to be of material importance to the long-term usability, safety, professional appearance, or service and maintainability of the Contractor's work; any material deviation from the intent of these specifications.
7. Terminations of connectors ruled to be below the highest quality industry standards.

F. The Contractor's staff may, if permitted by the Designer, undertake very minor corrections of encountered problems while acceptance testing continues provided that such corrective action does not in any way impede Acceptance Testing progress.

3.7 SPECIAL REQUIREMENTS

A. Preventative Maintenance
1. Following final acceptance of the system the contractor shall return to each of the project sites to perform basic cleaning and maintenance of cameras, make minor focus and/or viewing angle adjustments to cameras as requested by the Owner.
2. Visits shall occur as 6 and 12 months following acceptance.
3. During each visit, the contractor shall clean the exposed optical components (lens, dome, glass, etc.) of each camera in the system.
4. Check in with the Owner's designated security representatives to determine if there are any issues with the system that need to be addressed under warranty.

B. Software Assurance
1. Contractor shall supply and install software patches or upgrades that are made available from the software manufacture for the first 365 calendar days following final acceptance of the system.
   a. Such upgrades shall be coordinated with the Owner and undertaken only after discussion with and approval of the Owner's designated representative.

C. Installing and Updating VMS Client Software.
1. Installing a new release of the VMS Client software shall be easily accessed by clicking on an icon in the Client software that will connect to a website and give an option to automatically download the new software. If the most recent version of the VMS software is already installed a message box will be displayed informing you have the most recent release.

2. Provide required power outlets, interconnecting cables, hardware and equipment for a complete and operable system.
3. Perform complete programming of the system, including matrix switch, and NVR(s) in coordination with the Owner, or designated representative. Programming shall include, but not be limited to, elimination of duplicate or redundant titling information, synchronization of system clocks, camera sequences, dome presets, salvos and tours. Programming of any system passwords or limiting of accessibility prior to commissioning and training is prohibited.
4. Obtain IP addresses from 2FM Alarm Section for initial setup of all devices

3.8 TRAINING

A. Train Owner's designated personnel on the procedures and schedules involved in daily use of the system, administration, troubleshooting, and preventative maintenance.

B. Provide advanced and detailed technical and administrative training (to the level desired by Owner's Security and IT) personnel covering advanced software and hardware configuration and administrative aspects of the system.

C. Provide not less than (16) hours of dedicated training on the system, not exceeding (8) independent trips to the project site.

D. A detailed training agenda shall be worked out with the Owner's security representative in advance of conducting the formal training intended by this section.

E. Time spent by the contractor discussing the system prior to 100% completion, and without an agreed upon clear training agenda shall not be considered training as intended by these specifications.

F. Training shall be conducted by factory trained and certified individuals fluent with the hardware and software used to make up the system.

G. Schedule training with Owner at least (14) days in advance each training session.

END OF SECTION 28 13 02

PART 1 - GENERAL

1.1 SYSTEM DESCRIPTION

A. General Requirements
1. The specified unit shall be of manufacturer's official product line, designed for commercial and/or industrial 24/7/365 use.
2. The specified unit shall be based upon standard components and proven technology using open and published protocols.

B. Sustainability
1. The specified unit shall be manufactured in accordance with ISO 14001.
2. The specified unit shall be compliant with the EU directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE).
3. The specified unit shall be compliant with the EU regulation 1907/2006 (REACH).

C. The specified unit shall carry the following EMC approvals:
1. EN55032: 2015
2. EN55024: 2010
3. 2014/35/EU
4. 2014/30/EU
5. 2012/19/EU
6. 2011/65/EU
7. EN 55032 Class A
8. EN 55032 Class B
9. EN 55024
10. FCC Part 15 - Subpart B Class A
11. FCC Part 15 - Subpart B Class B
12. FCC Part 15 - Subpart B Class A + B
13. ICES-003 Class A
14. ICES-003 Class B

D. The specified unit shall meet the following product safety standards:
1. IEC/EN/UL 60950-1

E. The specified unit shall meet the following standards
1. Audio:
   a. G.711
   b. G.729
   c. G.722 (wideband)
   d. L16 / 16kHz (wideband)
2. Video:
   a. H.264 (MPEG-4 AVC)

(i)

3. Networking:

a. IEEE 802.3af/802.3at (Power over Ethernet) [applies to products with PoE]
b. IEEE 802.1X (Authentication)
c. IPv4 (RFC 791)
d. QoS

4. Mechanical Environment:
   a. EN90529 IP69K
   b. IEC/EN 62262 IK10

1.2 QUALITY ASSURANCE

A. The Contractor or security sub-contractor shall be a licensed security Contractor with a minimum of five (5) years' experience installing and servicing systems of similar scope and complexity and evidence that is completed at least three (3) projects of similar design and is currently engaged in the installation and maintenance of systems herein described.
   1. All installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.
   2. The contractor or designated sub-contractor shall submit credentials of completed manufacturer certification, verified by a third-party organization, as proof of the knowledge.
   3. The Contractor shall provide four (4) current references from clients with systems of similar scope and complexity that became operational in the past three (3) years. At least three (3) of the references shall be utilizing the same system components, in a similar configuration as the proposed system
   4. The specified unit shall be manufactured in accordance with ISO9001.

1.3 WARRANTY

A. All security system components and labor furnished by the contractor including wiring, software, hardware and custom parts shall be fully warranted for parts, materials, labor and travel expenses for a minimum of three (3) years.

B. The manufacturer shall provide warranty and optional extended warranty for the unit for a total period of maximum five years. If enacted as part of the contract, the contractor will repair or replace parts and/or labor per the warranty for the length of this warranty at no cost to the client.

1.4 System Description

1. Master Station
   a. Aiphone IX-MV7-H (Existing – Previous Project)
2. Door Station
   a. Aiphone IX-DVF-10KP
   b. Provide to access existing master station
      1) Re-Configure master station
      2) Duplicate existing functionality for door/gate stations

3) Coordinate mounting with bollards provided by others
4) Cable for gate actuation.

PART 2 - PRODUCTS

2.1 General

A. Intercoms shall be IP-based and comply with established network and video standards.

B. Intercoms shall be powered by the switch utilizing the network cable.

C. Intercoms shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.

2.2 Intercom schedule

A. Intercom types listed below describing various resolutions, form-factor and features shall be supplied by a single intercom manufacturer.

B. The intercom manufacture will be as follows:
1. AI Phone.
   a. IX-DV(F) -10KP

2.3 Intercom

A. IP intercom
1. The intercom shall meet or exceed the following design specifications:
2. Power Source
   a. PoE (IEEE 802.3af class 0)
3. Power Draw
   a. 5.28 Watts
4. Camera
   a. ⅓" CMOS 1.23 megapixel
5. Min. illumination
   a. 5 lux
6. Audio Codec
   a. G.711 (μ-law, A law), G.722
7. Video Codec
   a. H.264/AVC, motion JPEG
8. Protocols
   a. IPv4, IPv6, TCP, UDP, SIP, HTTP, HTTPS, RTSP, RTP, RTCP, IGMP, MLD, SMTP, FTP, DHCP, NTP, DNS
9. Port Security
   a. IEEE 802.1X

10. Operating Temp
    a. -40° - 140°F (-40° - 60°C)
11. Protection
    a. IP54, IK08
12. Dimensions
    a. 8-1⁄16" H x 4-½" W x 2-1⁄16" D
13. Mounting
    a. Coordinated with Bollard supplier.

PART 3 - Execution

3.1 Installation

A. The Contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.
   1. System shall be configured to connect to existing

B. All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

C. All firmware found in products shall be the latest and most up-to-date provided by the manufacturer.

D. All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

END OF SECTION

SECTION 32 31 00 - ORNAMENTAL METAL FENCING AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Remove some panels of the existing fencing to accommodate new gates, and connect all new gates with new fencing, as described below, so that site is secure with no gaps in security fencing and between fencing and gates of all descriptions.

2. All new fusion welded and rackable ornamental steel picket fence system, including all components such as posts, top, couplings, rails, braces, bars, panels, gates, tracks, uprights, bracing, pickets, hardware, fittings, fasteners, finish hardware, locks, accessories, footings, and all other incidental components necessary thereto, including required screening. See Drawings for changes to fencing required, including removals.

3. All new matching, automated, industrial sliding gate system, including components described above; with warning signs; screening, and other components as described in these specifications, operationally compatible among all components, manufactured and installed to comply with both current versions of UL 325 and ASTM F2200.

4. All new pedestrian-style gates, and all components described above, installed in compliance with both current versions of UL 325 and ASTM F2200.

   a. One security control gate, pedestrian style, hinged in two directions, with locking latch, which opens by two card readers, one on each side of gate.
   b. One pedestrian egress gate, with a panic push bar, leading out of sally port, hinged to open to public area and gravel path for pedestrian egress. Provide panel which prevents use of push bar from outside the secure area.
   c. Both pedestrian style gates shall be self-closing, self-latching, and self-locking. Provide specified keys for each gate.

5. Renovate the existing sliding gate so that it complies with both current versions of UL 325 and ASTM F2200, providing all new screening, accessories and compatible components shown on the Drawings.

6. Bottoms of all gates, including pedestrian and security control gates, and new and renovated sliding gates, shall be no more than 2” above finish surfaces, including driveways, curbs, gutters, concrete, gravel or landscape areas, immediately under the gate when in open and closed positions, to prevent entrapment under the gates.

7. Provide Phase 2 Area Screening Panels as shown on the Drawings and specified hereunder.

B. Related Sections:

1. Applicable provisions of Division 01 – General Requirements shall govern work under this specification section.

2. Applicable provisions of "owner" General and Detailed Technical Specifications utilized for this project.
3. Section 01 81 13 - Sustainable Design Requirements
4. Section 01 81 13.13 -- Sustainable Design Requirements.
5. Division 03 – Concrete.
6. Division 25 – Integrated Automation.
7. Division 26 – Electrical.
8. Division 27 – Communications.
9. Division 31 – Earthwork.
10. Section 31 13 00 - Landscape Removal, Pruning & Protection.
11. Section 32 31 11 - Gate Operators
12. Section 32 92 01 – Sod and Seed.
13. Section 32 93 11 – Landscape Plantings.

1.2 ACTION SUBMITTALS

A. LEED Submittals: Product Data as required to show compliance with LEED MR Credit Sourcing of materials, meeting all documentation requirements, including back-up documentation.

B. Manufacturer's Data: Submit manufacturer's data, including catalog cuts, materials compliance and specified options prior to construction.

1. The manufacturer's submittal package shall include gate elevations, hardware details, and installation details. Details shall be submitted prior to installation.

2. Submit manufacturer's warranty to Owner at Substantial Completion.

C. Shop Drawings: Submit three copies of Shop Drawings prior to construction. Shop Drawings shall include plans which show layouts of fences and gates with dimensions and elevations at not less than 1"=1'-0" scale; and details or sections of component accessories, finishes, post foundations, anchorages and connections at not less than 3"=1'-0".

1. Note all step-downs due to elevation changes on shop drawings.

1.3 QUALITY ASSURANCE

A. Qualifications: A single installer with a minimum of 5 years of experience on comparable projects building fences and automated sliding gate systems of equal materials, of equal length and complexity.

1. Installer Qualifications: Installation performed by factory authorized dealer contractor specifically trained in gate operator systems of the type found within this and Section 32 31 11; using a qualified gate operator technician who is certified by the Institute of Dealer Education and Accreditation (IDEA) or the American Fence Association (AFA).

a. This requirement is to assist the installer with required compliance to safety standards and for the safety of the installer and all end users.

B. Finish Quality: The finished fences and gates shall stand straight, plumb, level or with

consistent slope, and true to line and grade. Finished fences and gates shall cleanly meet building or other fences, as shown on the Drawings, leaving no gaps that could allow a person to penetrate security function.

C. References for Fence:

1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
3. ASTM D523 - Test Method for Specular Gloss.
4. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
5. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
6. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
7. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
8. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
9. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
10. ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.

D. References for Automated Sliding Gates:

1. UL 325 – Standard to Which Vehicular Gate Operators are Manufactured and Tested. Deviations from these standards are not acceptable.
2. ASTM F2200 – Standard Specification for Automated Vehicular Gate Construction. Deviations from these standards are not acceptable.
3. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
4. ASTM B221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
5. ASTM D523 - Test Method for Specular Gloss.
6. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
7. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
8. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
9. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
10. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
11. ASTM F1184 – Industrial & Commercial Horizontal Slide Gates

E. Other Referenced Specification: See tables in Manufacturer's specifications for specific products specified.

F. Manufacturer's Product Warranties: All structural fence and gate components (i.e. rails, pickets, posts and gates) shall be warranted within specified limitations, by the manufacturer for a period of 20 years from the date of original purchase. Warranty shall cover any defects in the material finish, including cracking, peeling, chipping, blistering or corroding.

1. Reimbursement for labor necessary to restore or replace components that have been

found to be defective under the terms of the manufacturer's warranty shall be guaranteed for five (5) years from date of original purchase.

1.4 PRODUCT HANDLING

A. Upon receipt at the job site, check all materials to ensure that no damage occurred during shipping or handling.

B. Store materials in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

1.5 JOB CONDITIONS

A. Coordination: Coordinate work with tree removal, retaining wall, concrete and paving installers to assure proper alignment and leveling of fence and gates.

1. Whether a new sliding gate or a renovated, all gates shall be no more than 2 inches above the finish surface below the gates.

B. Utilities: Determine whether utilities will be encountered, and if so, notify Architect immediately of obstructions to the work.

C. Sequencing: Install fences and renovate existing gate prior to landscape planting installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer's Qualifications: Manufacturer shall have a minimum of five years of experience manufacturing ornamental picket fencing of fences which have equal design, size, gauge of metal parts and fabrication.

1. Basis of Design Manufacturer: Ameristar, Tulsa, Oklahoma; or approved equivalent. (Phone: 888.333.3422); fences and gates must smoothly operate with all specified components.

B. Fence Style and Height: Ameristar Industrial Montage Plus style to match existing fence; with two rails on top and one on bottom; with screening; 6 feet height as designated on the Drawings; or equivalent.

C. Automated Sliding Gate Style: Automated Industrial cantilever gate system such as, Transport Traverse II, without extended uprights, with 4" square posts; with specified screening; 24 foot opening; 6 feet height as designated on the Drawings; opens to west; or equivalent.

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1. Basis of Design Manufacturer: Ameristar Transport Traverse, Majestic design.

2. Total Length: Submit Shop Drawings with gate lengths for approval.

3. Self-latching and self-locking, automated opening and closing, with all accessories as

components described on the Drawings, and specified in this Section.

2.2 FENCE AND PEDESTRIAN STYLE GATE MATERIALS AND FABRICATION

A. See Tables 1-4 at the end of this Section.

B. Ornamental Fence: Ornamental fence shall be heavy duty industrial grade ornamental iron fence, in the style as shown on the Drawings, finished as specified below, with the following components:

1. General: Metal surfaces shall be smooth, free of surface blemishes, including pitting, seam marks, roller marks, trade names and roughness.

2. Fence Panels and Posts: Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.90 oz/ft2 (276 g/m2), Coating Designation G-90.

3. Pickets: Material for pickets shall be 1" square x 14 Ga. tubing. The rails shall be steel channel, 1.75" x 1. 75" x .105". Picket holes in the rail shall be spaced 4.715" o.c. Fence posts and gate posts shall meet the minimum size requirements of Table 1 of manufacturer's specification.

C. Pedestrian Style Gates:

1. Gate frame uprights and diagonal bracing shall be prefabricated and pre-punched to accept frame fasteners. Enclosed track shall be pre-punched to accept gate uprights. Pickets shall be precut to specified length and predrilled to accept picket to track fasteners. Posts shall be precut to specified lengths.

2. Top and bottom enclosed track extrusions shall be mechanically fastened to vertical gate uprights and intermediate supports, as required by assembly instructions. Diagonal bracing shall be mechanically fastened to vertical gate uprights and intermediate supports, as required by assembly instructions. Pickets shall be mechanically fastened to top and bottom enclosed track, as required by assembly instructions.

3. The manufactured gate components shall be subjected an approved thermal stratification coating process (high-temperature, in-line, multi-stage, and multi-layer) including, as a minimum, a six-stage pretreatment/wash and an electrostatic spray application of a polyester finish. The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be Black. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1 at the end of this Section.

D. Fabrication:

1. Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.

2. Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing using a specially calibrated alignment fixture. The aligned pickets and

rails shall be joined at each picket-to-rail intersection by Ameristar's proprietary fusion welding process, thus completing the rigid panel assembly (Note: The process produces a virtually seamless, spatter-free good-neighbor appearance, equally attractive from either side of the panel).

3. The manufactured panels and posts shall be subjected to an inline electrode position coating (E-Coat) process consisting of a multi-stage pretreatment/wash, followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The color shall be Black. The coated panels and posts shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2 (Note: The requirements in Table 2 meet or exceed the coating performance criteria of ASTM F2408).

4. The manufactured fence system shall be capable of meeting the vertical load, horizontal load, and infill performance requirements for Commercial weight fences under ASTM F2408.

5. Majestic style with 3 & 4-rail configurations shall meet IBC compliance. Panel, post and bracket assemblies shall be subjected to structural performance testing according to Chapter 17 – Structural Tests and Special Inspections – International Building Code (IBC) 2018. Physical testing to be completed by accredited third party testing facility. Completed assembly shall demonstrate loading capacity of 2.5 times prescribed design loads found in section 1607.8.1, 1607.8.1.1 and 1607.8.1.2 of IBC 2018 for Handrails and Guards. IBC compliant fence system requirements detailed within Table 4.

6. Gates with an out-to-out leaf dimension less than and including 72 inches shall be fabricated using Montage Plus ornamental panel material and 1-3/4" sq. x 14ga. gate ends. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding.

2.3 SLIDING GATE MATERIALS AND FABRICATION

A. Sliding Gate Materials:

1. See Table 5 at the end of this Section.

2. The materials used for the cantilever gate framing (uprights & diagonal bracing) shall be manufactured from ASTM A653 Steel with yield strength of 34,800 PSI, a tensile strength of 37,700PSI and a standard mill finish. The TransPort™ aluminum extrusions for top and bottom enclosed tracks shall be alloy and temper designation 6005-T5 to meet ASTM B221.

3. Material for pickets shall be 1" square x 16 ga. steel pickets on gate systems less than 22' openings, gate systems greater than 22' openings shall have 1" square x 1/8" wall aluminum pickets. Picket on center spacing shall not exceed 5". Pickets shall be securely fastened to face of top and bottom enclosed track extrusions.

4. Material for gate uprights shall be 2 ½" X 16 ga. and diagonal bracing shall be 2" square x 16 ga. steel. The cross-sectional shape of the enclosed-track shall confirm to the manufacturers Traverse-Trak™ design with a single extrusion consisting of a

3.75" x 7" channeled support with integrated 3" x 3" enclosed-track raceway. Construct as a spliced track system.

5. Steel material for fence posts and pickets shall be galvanized prior to forming in accordance with the requirements of ASTM A653/A653M, with minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft^2 (276 g/m^2), Coating Designation G-90. Depending on application and gate size, material for gate support posts shall be 4" x 11 Ga., or 6" x 3/16".
6. Support carriage trolly assemblies, for the gates enclosed bottom track, shall have two mounting options: concrete slab or post mount bracket configuration, and shall support the vertical load of the gate. The gates center of gravity shall be centered on the bottom support carriage trolly assemblies. Installation of the carriage trolly assemblies shall be per manufacturer's installation instructions (written or video).

B. Sliding Gate Fabrication:

1. Gate frame uprights and diagonal bracing shall be prefabricated and pre-punched to accept frame fasteners. Enclosed track shall be pre-punched to accept gate uprights. Pickets shall be precut to specified length and predrilled to accept picket to track fasteners. Posts shall be precut to specified lengths.
2. Top and bottom enclosed track extrusions shall be mechanically fastened to vertical gate uprights and intermediate supports, as required by assembly instructions. Diagonal bracing shall be mechanically fastened to vertical gate uprights and intermediate supports, as required by assembly instructions. Pickets shall be mechanically fastened to top and bottom enclosed track, as required by assembly instructions.
3. The manufactured gate components shall be subjected to an approved thermal stratification coating process (high-temperature, in-line, multi-stage, and multi-layer) including, as a minimum, a six-stage pretreatment/wash and an electrostatic spray application of a polyester finish. The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be Black to match existing fence. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1.

2.4 FENCE AND GATE FINISHES

A. Polyester Powder Coat Finish: After components have been galvanized to provide maximum corrosion resistance, galvanized surfaces shall be pretreated, cleaned and prepared to assure complete adhesion of finish coat.

1. Fence System: The manufactured panels and posts shall be subjected to an inline electrodeposition coating (E-Coat) process consisting of a multi-stage pretreatment/wash (with zinc phosphate), followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The coated panels and posts shall be capable of meeting the performance requirements for each quality characteristic shown in Tables 1-4 of Manufacturer's Specification for the specified fence which meet or exceed the coating performance criteria of ASTM F2408.

2. Gate System: For color coating, the manufactured components shall be subjected to an approved thermal stratification coating process (high-temperature, in-line, multi-stage, and multi-layer) including, as a minimum, a six-stage pretreatment/wash and an electrostatic spray application of a polyester finish. The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 5 of Manufacturer's Specification for the specified gate.

3. Color: Black.

2.5 SETTING MATERIAL

A. Concrete: Concrete shall have minimum 28 day compressive strength of 3,000 psi.

2.6 SECURITY LOCKING MECHANISM

A. Provide heavy duty industrial grade lock and 6 sets of keys for gates

2.7 GATE OPERATOR AND OTHER AUTOMATION COMPONENTS

A. Refer to Section 32 31 11.

2.8 SCREENING AND ACCESSORIES FOR SLIDING GATES

A. Automated Gate F2200 Kit: For new sliding gate and renovated sliding gate.

1. Screening Mesh: 1 Inch, 20-Gauge Reverse Twist Hex screening, 6 foot height, black, PVC-coated metal, with black cable ties CNT safety shield, and ¼ by 1-¼ inch Tek screw #4.

2. Tension Wire: Black, PVC coated metal, 2-¼ inch square tension bands, 1" SS carriage bolts and 5/16 inch SS nuts.

B. Safety Signs: Reflective aluminum signs to comply with UL 325 and ASTM F2200, and Owner's selected additional safety signs. See Drawings.

2.9 PHASE 2 AREA SCREENING PANELS FOR EXISTING FENCE

A. Manufacturer's Qualifications: Panel manufacturer shall have a minimum of five years of experience manufacturing aluminum panels which have equal design, size, gauge, perforation size and pattern, and capable of powder coating panels in-house.

1. Basis of Design: Ametco Manufacturing Corporation, Willoughby, Ohio; or approved equivalent. (Phone: 440.951.4300)

B. Fence Panels: Perforated aluminum infill panels, .125" thick, with 3/16" round holes on 1/4" staggered centers, and approximately 51% opening, designed for resistance to training bullets.

1. Size 48" by 72" panels, except where custom panels are needed to fit tightly without gaps. Field measure fence sections prior to ordering panels. Some custom sizes are required.

2. Two panels per fence section, tightly abutted, typical, except where custom panels are needed to fit tightly without gaps.

3. Finished edges, four sides, with 2" margins on three sides and ½" margin where panels meet in center of fence section. Margins shall apply to standard and to custom panels.

C. Polyester Powder Coat Finish: After components have been galvanized to provide maximum corrosion resistance, galvanized surfaces shall be pretreated, cleaned and prepared to assure complete adhesion of finish coat.

1. The manufactured panels shall be subjected to an inline electrodeposition coating (E-Coat) process consisting of a multi-stage pretreatment/wash (with zinc phosphate), followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). Meet or exceed the coating performance criteria of ASTM F2408.

2. Powder coated standard color: Black Velvet.

D. Rivets: Stainless steel rivets, 3/16" diameter, with domed head, sized appropriately to securely attach aluminum panels to posts, to C Channel rails and to angle irons. Paint black to match fence after installation.

1. Use rivets, not zip ties, wherever possible.

E. Angle Irons: Stainless steel L Straps, pre-drilled with two holes; painted black to match fence.

F. Zip Ties: Use only if approved by Architect. If approved, zip ties shall be Grade 304 stainless steel, cable zip ties, manufactured for outdoor use; flame resistant; temperature performance range of 112 degrees to 1000 degrees Fahrenheit; 200 lbs. tensile strength; with self-locking mechanism for secure attachments.

1. Size: 0.18 inch width. Zip ties come in various sizes; use appropriate length to wrap completely around rails and through panel with margins, or to abut panel to panel, with at least 2" to spare before trimming.

2. Material and Color: PVC coated black stainless steel to match fence.

PART 3 - EXECUTION

3.1 PREPARATION

A. Verification: Verify areas to receive fencing are completed to final grades and elevations and

ensure that property lines and legal boundaries of work are clearly established.

1. Where slopes occur, step fence up or down to meet grades and provide security.

2. Confirm that concrete gutters have been installed for the proper function of the sliding gates, prior to fence and gate installation.

B. Layout and Field Measuring: Stake layout of fence and gate for Design Builder's review and take field measurements prior to preparation of shop Drawings and fabrication, to assure proper fitting of work. Do not delay progress of work; allowing time for fitting and trimming in field if necessary.

C. Anchoring: Furnish inserts, templates, anchoring devices or other incidentals for the setting into concrete footings where shown on the Drawings.

D. Pre-Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly at site and disassemble units only to extent necessary for shipping and handling. Units shall be clearly marked for reassembly and the Contractor shall coordinate installation.

E. Removals: Remove some panels of the existing fencing to accommodate new gates. Layout new gates and new fencing so that upon finish the site is secure with no gaps in security fencing and between fencing and gates of all descriptions.

G. Fence and Pedestrian Style Gate Preparation: All new installation shall be laid out by the contractor in accordance with the construction plans.

H. Gate Preparation: All new installation shall be laid out by the contractor in accordance with the construction plans

1. All hardware shall be installed in accordance with the Transport installation instructions. Transport cantilever gates shall be installed so they comply with current ASTM F2200 & UL325 standards.

2. Gate stops and catch posts shall be installed on each track in a way that conforms to current ASTM F2200 standards.

3.2 FENCE AND PEDESTRIAN GATE INSTALLATION

A. Manufacturer’s Instructions: Install fence, gates and all accessories in accordance with manufacturer’s instructions, in locations shown on Drawings.

B. Installing Fence: Install fence true to line, plumb and level and with accurate angles and surfaces and straight sharp edges. Accommodate changes of grade at posts by stepping up or down, and accommodate any angles as shown on the Drawings.

C. Spacing Posts: Fence post shall be spaced according to Table 3, plus or minus ¼”. For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade.

D. Concrete Set Posts: Drill holes into firm, undisturbed or compacted soil to depths and widths

as specified, place concrete around posts in continuous pour and trowel finish around post, sloping to direct water away from posts.

1. Posts shall be set in concrete footers having a minimum depth of 48" The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer.

E. Installing Panels: Fence panels shall be attached to posts with brackets supplied by the manufacturer. Align fence panels between posts and firmly attach rail brackets to posts with 1/4" bolt and lock nut, ensuring panels and posts remain plumb.

F. Check Alignment: Check each post and gate post for vertical and top alignment and maintain in position during placement and finishing operation.

G. Fence Installation: When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces.

1. Remove all metal shavings from cut area.

2. Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry.

3. Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty.

4. Manufacturer's spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray.

5. Do not use non-manufacturer's parts or components as they will negate the manufactures' warranty.

H. Finish Accessories: Install post caps and other accessories to complete the fence.

I. Securing Fence: Provide additional anchorages and accessories as necessary for adequate support for intended use as safety fence.

J. Gate Installation: Install gates true to line, plumb, level, and secure for full opening without interference.

1. Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out-to-out gate dimensions and gate hardware selected.

2. Gate post shall be spaced according to specified gate elevation.

3. Posts shall be set in concrete footers having a minimum depth of 48" with a minimum diameter of 12".

K. Gate Hardware: The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacturer of the gate and shall be installed per manufacturer's recommendations. Attach and adjust all hardware for smooth operation and by means which will prevent unauthorized removal.

3.3 SLIDING GATE INSTALLATION

A. Cantilever support posts shall be set in concrete footers having a minimum depth of 48" Posts shall be spaced according to gate specific submittal drawings.

1. The Safety Kit must be included if the gate is automated.

2. The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer.

B. Install sliding gate per manufacturers gate installation instructions (written or video). For gates that will be automated, the contractor shall be responsible to ensure the gate, and installation, meet ASTM F2200 and UL325 Standards.

C. When cutting/drilling posts adhere to the following steps to seal the exposed steel surfaces:

1. Remove all metal shavings from cut area.

2. Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry.

3. Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty.

4. Manufacture's spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Avoid use of parts or components that will negate the manufacturers' warranty.

D. Gate Installation:

1. Space the gate posts according to the manufacturers' drawings, dependent on clear opening.

2. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application.

3. Gate hardware shall be provided by the manufacturer of the gate and shall be installed per manufacturer's recommendations.

E. Attach Accessories: Securely attach including mesh screening and tension wires according to manufacturer's installation instructions.

3.4 RENOVATE EXISTING SLIDING GATE TO REMAIN

A. Preparation: Examine the existing sliding gate, assess and confirm all missing fence and gate components for an automated gate to comply with UL 325 and ASTM F2200.

B. Repairs: Inspect and clean the existing gate prior to renovation. Straighten bent sections to the extent reasonably possible. Touch up paint all abraded areas of sliding gate and posts, using manufacturer recommended methods and products.

C. Attach specified mesh screening to renovated gate, attached in same manner as for the new

sliding gate.

D. Provide all other components missing from the existing sliding gates that are required to bring the gate into conformance with UL 325 and ASTM F2200, such as catch posts if missing, for example.

3.5 INSTALL SAFETY SIGNS

A. Install signs straight and plumb, and securely attach all safety signs for both sliding gates in locations indicated on the Drawings, at heights easily visible for all entering and exiting vehicles, including police, fire and emergency vehicles.

3.6 INSTALL SCREEN PANELS ON PHASE 2 EXISTING FENCE

A. Preparation: Inspect and clean existing fence to receive panels prior to installing screen panels. Straighten bent sections to the extent reasonably possible. Touch up paint all abraded areas of fencing to receive panels, using manufacturer recommended methods and products.

B. Install panels straight, square, aligned, and flush with each other, using attachments shown on the Drawings. Panels shall completely fill fencing from post to post and shall end at posts, not in the middle of a fence section.

1. Tightly abut panels to posts and rails, and attach to each other, so that there are no gaps larger than 5.56 mm for the full length of the fencing to be screen in this manner.

2. Any gaps larger than 5.56 mm shall be corrected prior to Substantial Completion.

3.7 REPAIR AND CLEANING

A. General: Perform final quality control work, repair and cleaning with specified materials and methods. Finish and color on repairs shall exactly match.

B. Clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

C. Repair: Perform touch-up painting on abraded areas according to manufacturer recommendations and repair or replace defective work.

D. Clean-Up: Remove all resultant debris and unused material, including post hole excavation, and dispose of legally off site.

TABLE 1-4 FOR MONTAGE PLUS FENCES AND PEDESTRIAN STYLE GATES

Table 1 – Minimum Sizes for Montage Plus Posts	
Fence Posts	Panel Height
2-1/2” x 16 Ga.	Up to & Including 6’ Height

Gate Leaf	Gate Height	
	Up to & Including 4'	Over 4' Up to & Including 6'
Up to 4'	2-1/2" x 16 Ga.	2-1/2" x 14 Ga.
4'1" to 6'	3" x 12 Ga.	3" x 12 Ga.
6'1" to 10'	4" x 11 Ga.	4" x 11 Ga.
10'1" to 16'	6" x 3/16" wall	6" x 3/16" wall

Table 2 – Coating Performance Requirements for Fencing and Pedestrian Style Gates

Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 1,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60-inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 3 – Montage Plus – Post Spacing By Bracket Type

Span	For CLASSIC, GENESIS, MAJESTIC, & WARRIOR 8' Nominal (91.95" Rail)					
Post Size	2-1/2"	2-1/2"	2-1/2"	3"	2-1/2"	3"
Bracket Type	Montage Plus Universal (BB112)	Montage Plus Line Blvd. (BB114)	Montage Plus Flat Mount (BB111)		Montage Plus Swivel (BB113)*	
Post Settings ± 1/4" O.C.	95"	95"	95"	95-1/2"	*95"	*95-1/2"

*Note: When using BB113 swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This will require trimming one or both ends of the panel.

Table 4 – Montage Plus – IBC Compliant System Requirements

Panel Options		Post Options		Brackets Options
Styles	Rail Configuration	Steel Post Options	Post Plate Options (anchorage by others)	Line Boulevard Brackets
Classic	3-Rail & 4-Rail	2.5" SQ x 14ga	8" x 8" x 3/8" – for 2.5" posts	End Boulevard Brackets
Majestic		3" SQ x 12ga	10" x 10" x 3/8" – for 3" posts	Corner Boulevard Brackets
Genesis		4" SQ x 12ga		*Flat Mount Brackets
Warrior				*Note: Flat Mount Brackets require a thru-bolt installation*

Panel, post, and bracket assemblies shall be subjected to structural performance testing according to

Chapter 17 - Structural Tests and Special Inspections - International Building Code (IBC) 2018. Physical testing to be completed by accredited third party testing facility. Completed assembly shall demonstrate loading capacity of 2.5 times prescribed design loads found in section 1607.8.1, 1607.8.1.1 and 1607.8.1.2 of IBC 2018 for Handrails and Guards.

Table 5 – Coating Performance Requirements for Sliding Gate

Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654chart	Corrosion Resistance over 1,000 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60˚ Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

END OF SECTION 32 31 00

SECTION 32 31 11 -- GATE OPERATORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Electric Gate Operator: One gate operator which is designed to open and close the specified automated sliding gate, in conformance with UL325 and ASTM F2200.
2. The Owner/Operator (End User) shall assume responsibility for providing traffic and safety engineering, including all necessary safety features to be used at each automated vehicular gate location, including, but not limited to: sidewalks for pedestrian traffic, sufficient roadway lighting, entrapment protection devices, warning signage, traffic lights, audible warning alerts, visual warning alerts, secondary traffic control devices, guard/control booths or centers and other required accessories, components or elements required by UL3215 and F2200.
3. Utilize all forms of safety equipment to the maximum extent possible. Such safety equipment includes, but is not limited to, entrapment protection devices, proper lighting, warning signs, traffic lights, sensors and audible alarms.
4. Sensors and controls as shown on the Drawings and as required by UL325 and ASTM F2200 safety standards.
5. Monthly check of reversing devices and quarterly Maintenance for one year following Substantial Completion and completion of Owner Training.

B. Related Sections:

1. Applicable provisions of Division 01 – General Requirements shall govern work under this specification section.
2. Applicable provisions of “Owner” General and Detailed Technical Specifications utilized for this project.
3. Section 01 81 13 - Sustainable Design Requirements
4. Section 01 81 13.13 -- Sustainable Design Requirements.
5. Division 03 – Concrete.
6. Division 25 – Integrated Automation.
8. Division 26 – Electrical.
9. Division 27 – Communications.
10. Division 28 – Electronic Safety and Security
11. Division 31 – Earthwork.
12. Section 31 13 00 - Landscape Removal, Pruning & Protection.
13. Section 32 31 11 - Gate Operators
14. Section 32 92 01 – Sod and Seed.
15. Section 32 93 11 – Landscape Plantings.
16. Division 34 – Transportation

1.2 REFERENCES

A. Underwriters Laboratories (UL): UL 325 – Standard for Safety for Door, Drapery, Gate, Louver, and Window Operators and Systems.

B. American Society Testing Materials (ASTM): ASTM F2200 – Standard Specification for Automated Vehicular Gate Construction.

C. Canadian Standards Association (CSA): CSA C22.2 No. 247.

D. Underwriters Laboratories (UL): UL 991 – Standard for Tests for Safety Related Controls Employing Solid-State Devices.

E. National Electrical Manufacturers Association (NEMA): NEMA ICS 6 – Industrial Control Systems: Enclosures.

1.3 SUBMITTALS

A. Submit under provisions of Section 01 30 00 – Administrative Requirements.

B. Product Data: Manufacturers data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements.

3. Installation methods.

C. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, edge connections, and accessories.

1. Operation, installation, and maintenance manuals including wire diagrams.

2. Risers, layouts, and special wiring diagrams showing any changes to standard drawings.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials and products in strict compliance with manufacturer's instructions and industry standards.

B. Store products indoors in manufacturer's original containers and packaging with labels clearly identifying product name and manufacturer. Protect from damage.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Substantial transformation and final assembly shall occur in the United States of America per Section 1605 of the ARRA-09.

B. Installer Qualifications: Installation performed by factory authorized dealer contractor specifically trained in gate operator systems of the type found within this Section; using a

qualified gate operator technician who is certified by the Institute of Dealer Education and Accreditation (IDEA) or the American Fence Association (AFA).

1. Provide documentation of maintenance and repair service availability for emergency conditions.

2. Provide quarterly maintenance for one year following Substantial Completion of the Project. Submit report outlining all maintenance operations and safety concerns to Owner's building facility manager upon completion of maintenance inspection.

C. This vehicular automated gate system has been carefully planned with safety as a paramount concern. The products specified are designed to control vehicle traffic.

1. Provide review of system by a traffic safety engineer before installation.

2. All forms of safety equipment shall be utilized to the maximum extent possible. Such safety equipment includes, but is not limited to, entrapment protection devices, proper lighting, warning signs, traffic lights, sensors and audible alarms.

1.6 WARRANTY

A. Manufacturers standard five (5) year warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: DoorKing, Inc.; 120 S. Glasgow Ave; Inglewood, CA 90301; Toll-Free Tel: 800-826-7493; Tel: 310-645-0023; Fax: 310-641-1586; Email: ghendrix@doorking.com; The 9024 series system shall consist of one (or multiple) 9024 vehicular slide gate operator and additional items, as specified and as shown on the Drawings; or equivalent in compliance with UL325 and ASTM F2200.

B. Substitutions: All substitutions must meet requirements of UL325 and ASTM 2200 and be operable and compatible with all required accessories and components necessary for the complete automation of the sliding gate.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 – Product Requirements; and must be compatible with all other components for intended smooth function and compliance with referenced safety standards.

2.2 SLIDING GATE OPERATORS

A. Microprocessor based solid-state control board interacting with card readers, RF transmitters, access control systems, ticket machines, other activating devices as required, external devices (photo-eyes, contact edges) for entrapment protection and vehicle (loop) sensing systems. Control board shall include built-in close timer (1-25 seconds), built-in

ports for two (2) plug-in loop detectors, partial open input, programming switches to set various operating modes, inherent current sensing reverse system.

1. Compliance: Compliant to UL 325, UL 991 and CSA C22.2 No. 247 and listed by Intertek Testing Laboratories NA, Inc. (ETL), a Nationally Recognized Testing Laboratory.
   a. This model is intended for use in Class IV vehicular sliding gate applications.

2. Warranty: Five (5) year manufacturer's standard warranty.

3. Maximum Gate Length: 40 feet.

4. Maximum Gate Weight: 1000 Lbs

5. Operator speed: approximately 10-inches per second.

6. Enclosure: polypropylene, 0.125 inch (3.175 mm) 390 texture gray.

7. Configuration: Left or right hand mount; front, center or rear mounting configurations.

8. Mounting: Concrete pad mount.

9. Electrical Power Requirements: 115/230 VAC or 24 VDC.

10. Motor: 24 VDC Continuous Duty Motor.

11. Manual Operation: Upon loss of primary (AC) power, a T-handle release is engaged allowing the gate to be manually pushed open.

12. Primary Reduction: 30:1 gear reduction, single cog belt drive train.

13. Pulling Medium: #40 roller chain.

14. Mechanically set Limit Switches.

15. Operating Switches: Built-in AC and DC power (on-off), reset and operating switches.

16. Convenience Outlets: Two (2) 115 VAC for accessory transformers (115/230 VAC models only).

17. Entrapment Protection:

    a. Photo-electric eye (non-contact sensor).
    b. Sensing edge (contact sensor).

18. Accessories: Provide the accessories listed below.

    a. Traffic control signal (red / green) mounted painted on metal post, with 2 yellow painted pipe bollards protecting the signals, each.
    b. Thermostatically controlled heater kit.
    c. Base Plate: Provide if post mount application.
    d. Chain tray kit: Provide for roller support if required for specified 24' gate.

e. Electric reversing edge: Provide for reverse direction of gate on contact with an obstruction.
f. Photo-electric beams: Provide for reverse direction of gate if the light beam is obstructed.
g. Gate Tracker Expansion: Provide for time and date stamped electronic record of cycles, input errors, other errors, obstruction hits and power cycles.
   1) Basis of Design: Requires companion DoorKing 1830 Series access controller, or equivalent subject to compliance with UL 325 and ASTM F2200 standards.

PART 3 - EXECUTION

3.1 COORDINATION

A. Coordinate with all required trades installing all portions of adjacent installations so that all safety requirements are met prior to substantial completion and final automation of the sliding gate.

3.2 INSTALLATION

A. Coordinate all work with other effected trades and contractors. Advise adjacent installers regarding safety concerns when working in the area of the automated gate until all system controls are tested and operable.

B. Gate operator shall be mounted, firmly secured, plumb and level.

C. Wiring shall be uniform and in accordance with national electric codes and manufacturer's instructions.

D. All splices shall be in easily accessible junction boxes or on terminal boards.

E. All cable runs in all junction boxes shall be tagged and identified.

3.3 SYSTEM INITIALIZING AND PROGRAMMING

A. System shall be turned on and adjustment made to meet requirements of specifications and on-site conditions.

B. System shall function as specified.

3.4 SYSTEM TEST PROCEDURES

A. System shall be completely tested to assure that all components and accessories are hooked-up and in working order.

B. System shall be pre-tested by contractor and certified to function in accordance with plans and specifications.

C. System shall be tested in presence of owner's representative.

3.5 OWNER TRAINING

A. Installation contractor shall conduct up to (1) hour of instruction in safe use and operation of the system to designated Owner Representatives, within (30) days of acceptance.

B. Installation contractor shall conduct up to (1) hour of technical training, in troubleshooting and service of the system, to designated owner representatives within (90) days of system acceptance.

3.6 MANUALS AND DRAWINGS

A. Contractor shall provide Owner with (2) copies of standard factory prepared operation, installation and maintenance manuals. Manuals shall include typical wiring diagrams.

B. Contractor shall provide Owner with (2) copies of any risers, layouts, and special wiring diagrams showing any changes to standard drawings, if required on project.

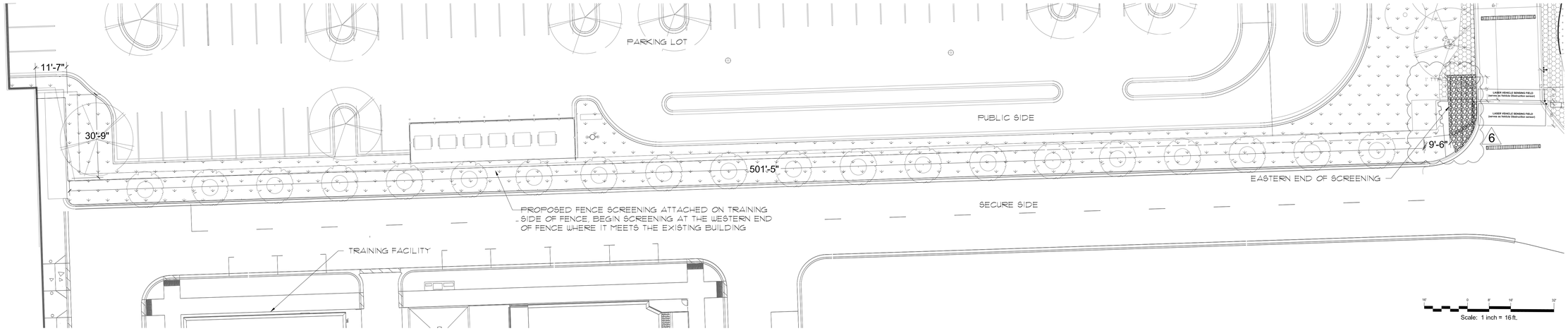
3.7 MAINTENANCE

A. Provide periodic maintenance at one (1), three (3) and 12 month intervals as described in the installation and maintenance manual, for one year starting after Substantial Completion and when Owner Training has been completed.

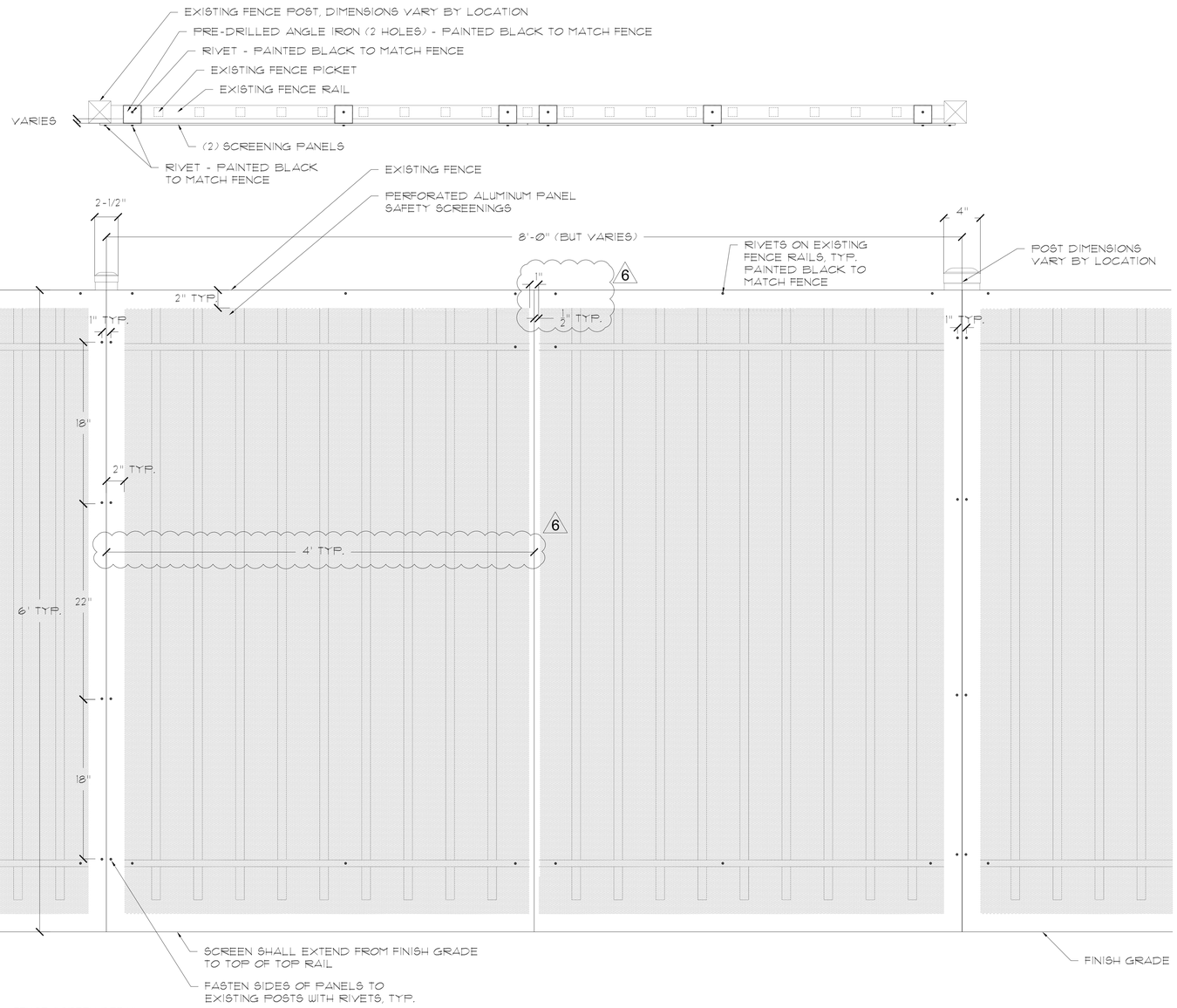
B. Check external reversing devices at least once a month.

END OF SECTION 32 31 11

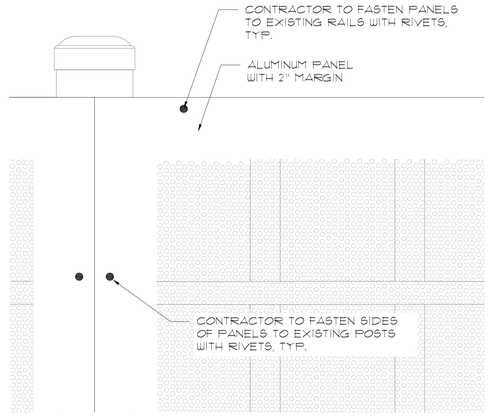
Designer: Checked: Approved: ARCH E1 30"X42"



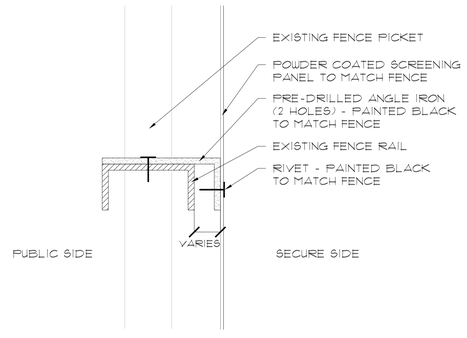
1 FENCING PLAN
SCALE: 1/16" = 1'-0"



2 FENCE SCREEN DETAIL
SCALE: 2"=1'-0"



3 MESH ENLARGEMENT AND SCREEN FASTENING DETAIL
SCALE: 6"=1'-0"



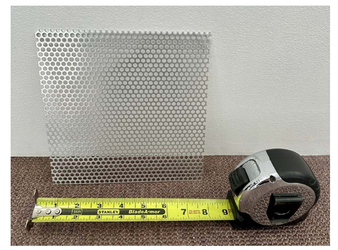
4 SCREEN ATTACHMENT DETAIL
SCALE: 1'-0"=1'-0"

LEGEND:

- PROJECT LIMIT LINE
- TREE PROTECTION FENCE
- EXISTING 6' CHAIN LINK FENCE
- EXISTING GUARDRAIL
- GRAVEL
- SEED
- PROTECTION AREA

NOTES:

1. FIELD MEASURE EACH PANEL BEFORE ORDERING MESH PANELS FROM MANUFACTURER.
2. SOME FENCE PANELS MAY VARY IN LENGTH, AND MAY REQUIRE CUSTOM FABRICATION OF MESH SCREENS.
3. TIGHTLY ABUT MESH TO POSTS AND RAILS AND TO EACH OTHER.
4. NO OPENINGS INCLUDING THOSE AT POSTS, TOP RAIL OR TO FINISH GRADE SHALL EXCEED 5.56MM.
5. MESH ENLARGEMENT SAMPLE DOES NOT SHOW REQUIRED POWDER COATING.
6. PANELS MAY NEED TO BE BENT AT CORNERS.
7. POSITION THE VERTICAL EDGES OF THE PANELS AT THE CENTER ON EACH POST.
8. THE LENGTH OF THE FENCE THAT REQUIRES PANELS SHOWN IN DRAWING 1 ABOVE IS SHOWN WITH APPROXIMATE DIMENSIONS AND CONTRACTOR SHALL FIELD VERIFY FINAL LENGTH PRIOR TO INSTALLING PANELS.
9. PAINT ALL FASTENERS AND ACCESSORIES BLACK TO MATCH FENCE.



5 MESH ENLARGEMENT SAMPLE
SCALE: NTS

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PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

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LICENSED LANDSCAPE ARCHITECT
TERRY W. RYAN
157-000003
EXP. 8/31/25
STATE OF ILLINOIS

NORTH ARROW

N

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
5	07/25/2024	ADD 03
3	07/12/2024	ADD 01
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

FENCING PLAN AND DETAILS

SHEET NUMBER

L300

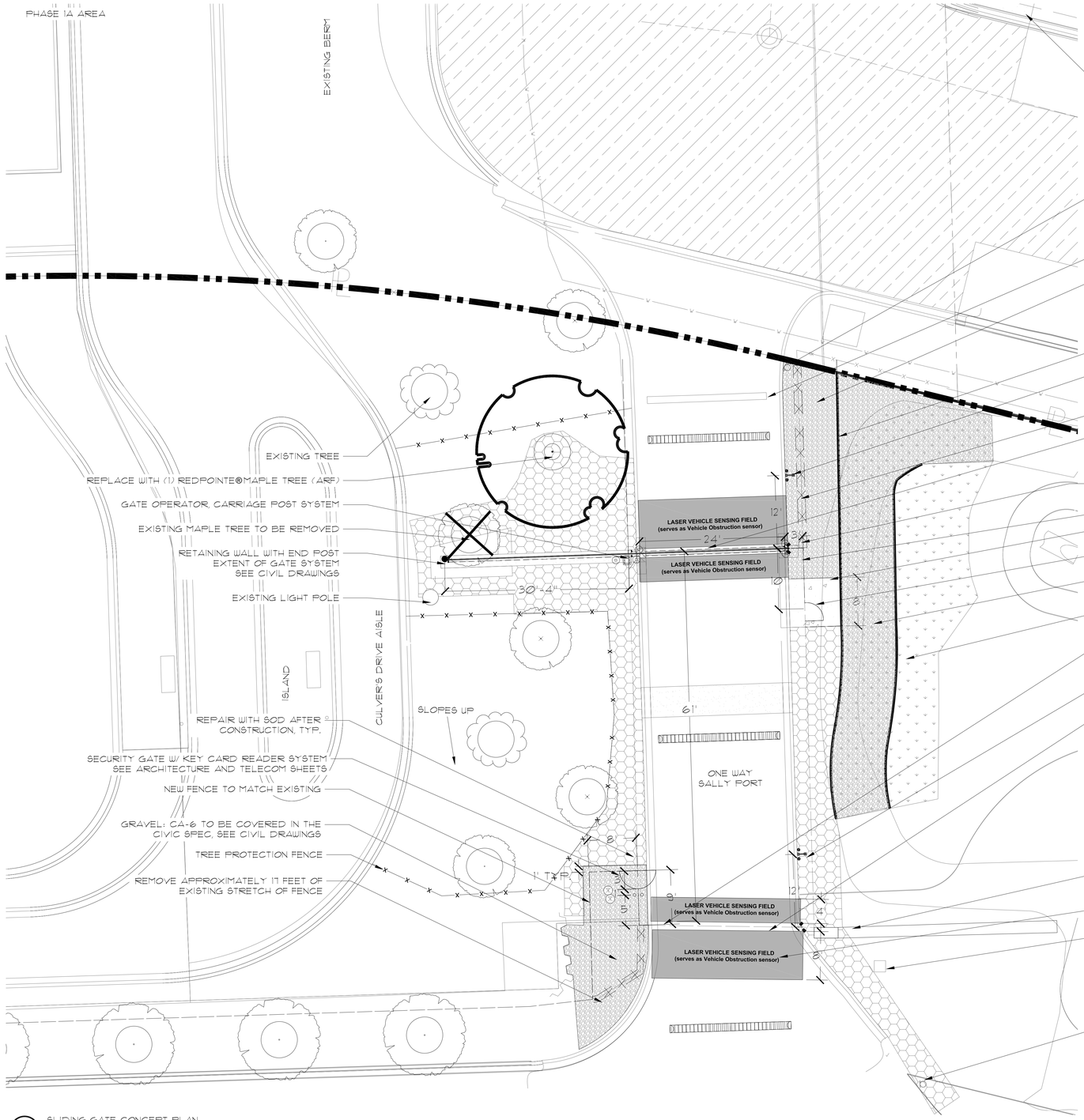
Designer:
Checked:
Approved:
ARCH E1 30"x42"

PROVIDE SIGN ON NORTH SIDE OF NORTH GATE AND SOUTH SIDE OF SOUTH GATE, (2) TOTAL

PROVIDE SIGN FOR EXITING VEHICLES ON SOUTH SIDES OF GATES, (2) TOTAL

SPEED LIMIT SIGN ON EACH TRAFFIC CONTROL LIGHT POST (2) TOTAL

WARNING SIGN, ONE ON EACH SIDE OF EACH SLIDING GATE (4) TOTAL



1 SLIDING GATE CONCEPT PLAN

SCALE: 1" = 10'-0"

LEGEND:

- PROJECT LIMIT LINE
- EXISTING 6' CHAIN LINK FENCE
- TREE PROTECTION FENCE
- GRAVEL
- SEED
- PROTECTION AREA
- SINGLE PANEL LED LIGHT
- CARD READER
- GATE POSTS

NOTES:

1. SLIDING GATES AND THE AUTOMATED GATE SYSTEM SHALL CONFORM TO THE CURRENT UL 325 AND ASTM F2200 STANDARDS. IF NOT IN COMPLIANCE, IT SHALL NOT BE ALLOWED.
2. REFER TO ALL OTHER SAFETY MEASURES, PRECAUTIONS, DEVICES AND STANDARDS REQUIRED IN UL 325 STANDARD TO WHICH GATE OPERATORS ARE MANUFACTURED AND TESTED, AND ASTM F2200 STANDARD SPECIFICATIONS FOR AUTOMATED VEHICULAR GATE CONSTRUCTION.
3. FOR CLASS IV - RESTRICTED ACCESS VEHICULAR GATE OPERATOR, WARNING SIGNS SHALL BE ATTACHED TO BOTH SIDES OF THE GATE AREA IN HIGHLY VISIBLE LOCATIONS.
4. ENTRAPMENT AREAS SHALL BE COVERED WITH AT LEAST 2 SAFETY DEVICES IN EACH DIRECTION OF TRAVEL. EVERY ENTRAPMENT ZONE SHALL BE PROTECTED.
5. A SEPARATE PEDESTRIAN GATE, OUT OF REACH OF THE MOVING GATE BUT WITHIN 10 FEET, SHALL BE PROVIDED FOR EACH SLIDING GATE.
6. PROVIDE ROLLER COVERS ON CANTILEVER WHEELS.
7. PROVIDE VINYL COATED WIRE MESH SCREEN WITH OPENINGS LESS THAN 2-¼ INCHES APPLIED TO GATE AND FENCE TO 6 FOOT HEIGHT ABOVE GRADE.
8. THE GATE SHALL NOT MOVE ON ITS OWN WHEN POWER IS TURNED OFF.
9. THE GAP BETWEEN THE GATE AND THE STATIONARY FENCE POSTS SHALL BE LESS THAN 2-¼ INCHES, OR A FIXED PANEL MUST BE INSTALLED.
10. PROVIDE POSITIVE STOPS AT BOTH THE FULLY OPEN AND CLOSED POSITIONS.
11. RECEIVER GUIDES SHALL BE RECESSED BEHIND THE RECEIVER POST.
12. PROVIDE A CATCH POST TO PREVENT GATE FROM FALLING IF DISCONNECTED FROM SUPPORTING HARDWARE.
13. PROVIDE TWO SETS OF PHOTO SENSORS FOR EACH DIRECTIONS OF TRAVEL, FOR EACH SIDE, FOR HUMAN SAFETY.
14. PROVIDE LASER VEHICLE DETECTORS ON EACH SIDE OF EACH GATE, FOR VEHICLE SAFETY
15. PROVIDE DOUBLE HEIGHT CARD READERS A MINIMUM OF 6 FEET AWAY FROM GATE ON NORTH SIDE OF NEW GATE.
16. PROVIDE EDGE SENSORS ON BOTH THE LEADING AND TRAILING EDGES OF THE GATES.
17. CLASS IV GATES SHALL HAVE A GUARDHOUSE OR CCTV GATE MONITORING TO VERIFY CREDENTIALS OF VEHICLES ENTERING OR EXITING THE FACILITY, AND TO ENSURE SAFE GATE OPERATION WHEN PEDESTRIANS ARE PRESENT.
18. PROVIDE AN AUDIO ALARM ON GATE OPERATOR, COMPLYING WITH ASTM F2200.
19. ALL GATES SHALL HAVE SMOOTH BOTTOM EDGES WHICH SHALL BE NO MORE THAN 2" ABOVE FINISHED SURFACES UNDER GATES WHEN IN OPEN AND CLOSED POSITIONS.
20. SEE CIVIL DRAWINGS FOR RETAINING WALL, WALKWAYS, AND MODIFICATIONS TO EXISTING PAVEMENTS AND CURBS.
21. PROVIDE NECESSARY SIGNAGE TO ADHERE TO UL325/ASTM F2200 STANDARDS.
22. BASIS OF DESIGN: AMERISTAR MONTAGE PLUS, MAJESTIC, AMERISTAR PEDESTRIAN STYLE GATE (TO MATCH FENCE)AND DOOR KING OPERATOR: OR EQUIVALENT, WITH ALL SYSTEMS AND COMPONENTS COMPATIBLE WITH EACH OTHER FOR SMOOTH OPERATION OF ALL GATES.

N

Scale: 1 inch = 8 ft.

IN PROGRESS - NOT FOR CONSTRUCTION

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PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

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6	07/31/2024	ADD 04
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1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

SLIDING GATE PLAN ALLOWANCE

SHEET NUMBER

L301

Designer: JD Checked: MS Approved: JJ ARCH E1 30"x42"

GENERAL NOTES - FLOOR PLANS

A. REFER TO THE PROJECT GENERAL NOTES FOR GENERAL PROJECT REQUIREMENTS.

B. THE TYPICAL PARTITION TYPE IS LB6 UNLESS OTHERWISE NOTED. ALL WALLS SHALL EXTEND TO FLOOR OR ROOF DECK ABOVE UNLESS NOTED OTHERWISE - SEE TYPICAL DETAILS.

C. ALL FIRE RATED PARTITION INTERSECTIONS WITH NON-RATED OR LOWER RATED PARTITIONS SHALL CONTINUE THROUGH THE INTERSECTION. ALL FIRE RATED PARTITIONS ARE NOTED ON LIFE SAFETY SHEETS.

D. CONTRACTOR SHALL VERIFY OWNER PREFERENCE OF WOOD BLOCKING OR METAL STRAPPING FOR EACH UNIQUE ITEM (EQUIPMENT, FIXTURE, ETC.) THAT WILL BE WALL-MOUNTED. WHERE PERMITTED BY THE OWNER, ANY WOOD BLOCKING SHALL BE FIRE RETARDANT TREATED. CONTRACTOR SHALL PROVIDE ALL BLOCKING AS REQUIRED TO SUPPORT WALL MOUNTED ACCESSORIES, INCLUDING BUT NOT LIMITED TO DOOR STOPS, CABINETS, AND SHELVING. ELECTRICAL, IDF AND LAN ROOMS TO RECEIVE FRT PLYWOOD BACKBOARD. REFER TO ELECTRICAL AND TELECOM DRAWINGS FOR LOCATIONS.

E. DIMENSIONS FOR INTERIOR PARTITION AND EXTERIOR WALL LAYOUT ARE TO FINISHED FACE OF WALL, UNLESS OTHERWISE NOTED.

F. SEE STRUCTURAL DRAWINGS FOR RECESSED SLAB LOCATIONS.

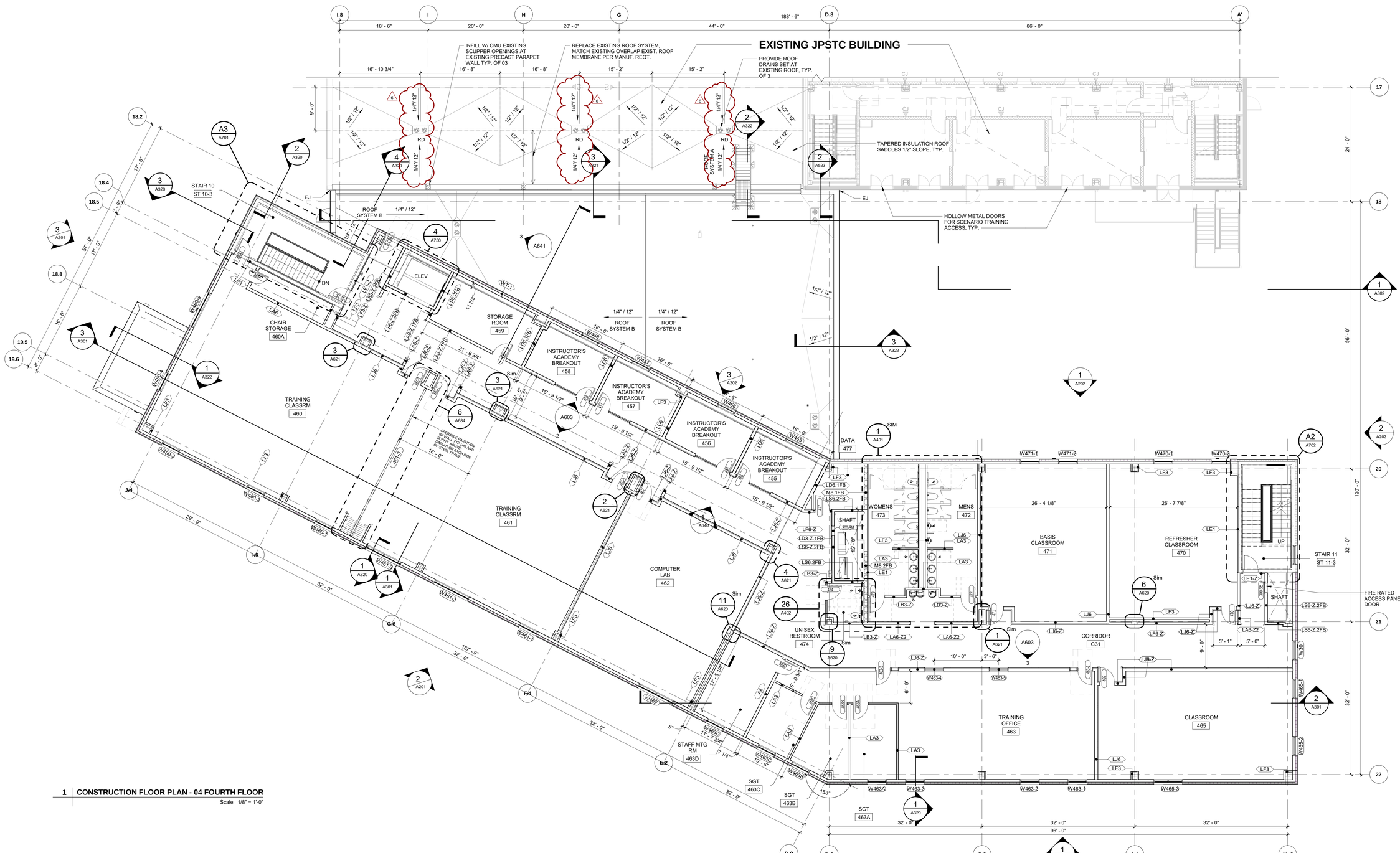
G. PROVIDE NEW EXPANSION JOINT ASSEMBLIES WHERE INDICATED. AT ALL EXISTING EXPANSION JOINT LOCATIONS (INCLUDING FLOORS, WALLS, AND CEILINGS), CLEAN, REPAIR, AND PAINT AS NOTED.

H. PROVIDE HOUSEKEEPING PADS BENEATH MECHANICAL AND PLUMBING EQUIPMENT IN MECHANICAL ROOMS.

I. ALL DOOR OPENINGS ARE 4" FROM THE CLOSEST PERPENDICULAR PARTITION UNO

J. ALL EXISTING WALLS TO REMAIN ARE SHOWN GREY.

K. FURNITURE LAYOUTS REPRESENT INDUSTRY STANDARDS AND ANY DEVIATIONS FROM THESE STANDARDS MAY RESULT IN CHANGES TO FLOOR PLAN LAYOUTS AND BUILDING SYSTEMS ENGINEERING. THIS INCLUDES: WORKSTATIONS, CHAIRS, CONFERENCE TABLES, LOCKERS, ETC.



1 CONSTRUCTION FLOOR PLAN - 04 FOURTH FLOOR
Scale: 1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

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2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

FOURTH FLOOR - CONSTRUCTION FLOOR PLAN

SHEET NUMBER

A123

08_08.10_ARCHITECTURE_A123

Last Plotted: 7/31/2024 6:27:42 PM
Filename: Autodesk Docs://BP-AMER (USA) (60710711-PSTC EMS Addition)/60710711_ACM_R22_JPSTC_ADD_A.rvt

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ROOF SYSTEM TYPES

ROOF SYSTEM A (RS-A), RE: A305

INSULATED TPO SINGLE PLY ROOFING SYSTEM: R-40.67
- 60 MIL TPO MEMBRANE, FULLY ADHERED, COLOR WHITE
- 1/2" HD POLYISO COVER BOARD
- INSULATION - 2 LAYERS MIN. (R-30 MIN.)
- VAPOR RETARDING AIR BARRIER
- 1/2" SUBSTRATE BOARD
- STEEL DECK ON SLOPED STRUCTURE

**IECC NOTE: ROOF COVERING W/ INITIAL REFLECTANCE VALUE OF 0.72 OR A THREE YEAR INSTALLED REFLECTANCE VALUE OF 0.5 OR GREATER .

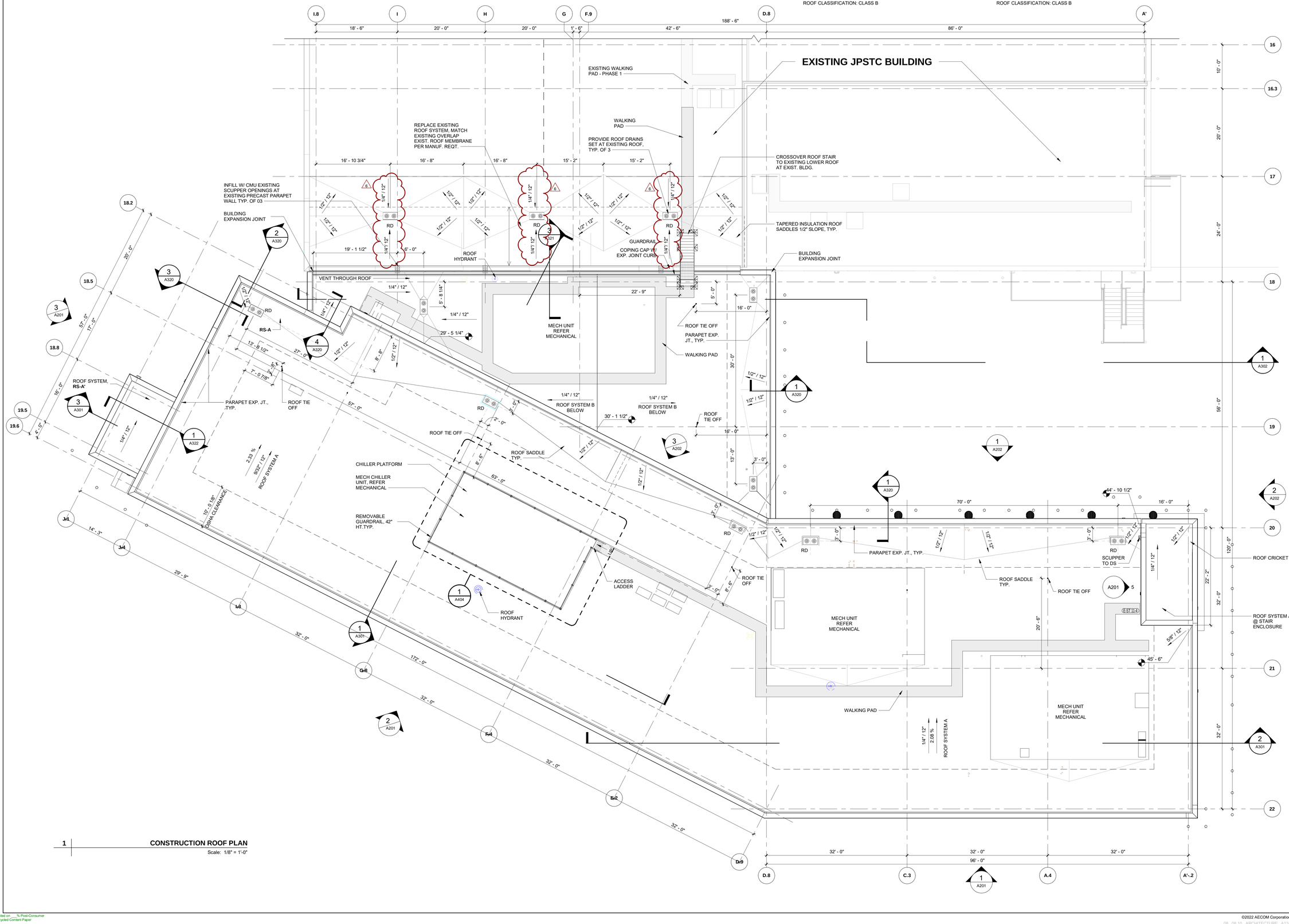
ROOF CLASSIFICATION: CLASS B

ROOF SYSTEM B (RS-B), RE: A305

TAPERED INSULATED TPO SINGLE PLY ROOFING SYSTEM: R-40.67
- 60 MIL TPO MEMBRANE FULLY ADHERED, COLOR WHITE
- 1/2" HD POLYISO COVER BOARD
- INSULATION - 2 LAYERS MIN. (R-30 MIN.)
- VAPOR RETARDING AIR BARRIER
- 1/2" SUBSTRATE BOARD
- STEEL DECK ON FLAT STRUCTURE

**IECC NOTE: ROOF COVERING W/ INITIAL REFLECTANCE VALUE OF 0.72 OR A THREE YEAR INSTALLED REFLECTANCE VALUE OF 0.5 OR GREATER .

ROOF CLASSIFICATION: CLASS B



1 CONSTRUCTION ROOF PLAN
Scale: 1/8" = 1'-0"

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

ROOF - CONSTRUCTION PLAN

SHEET NUMBER

A124

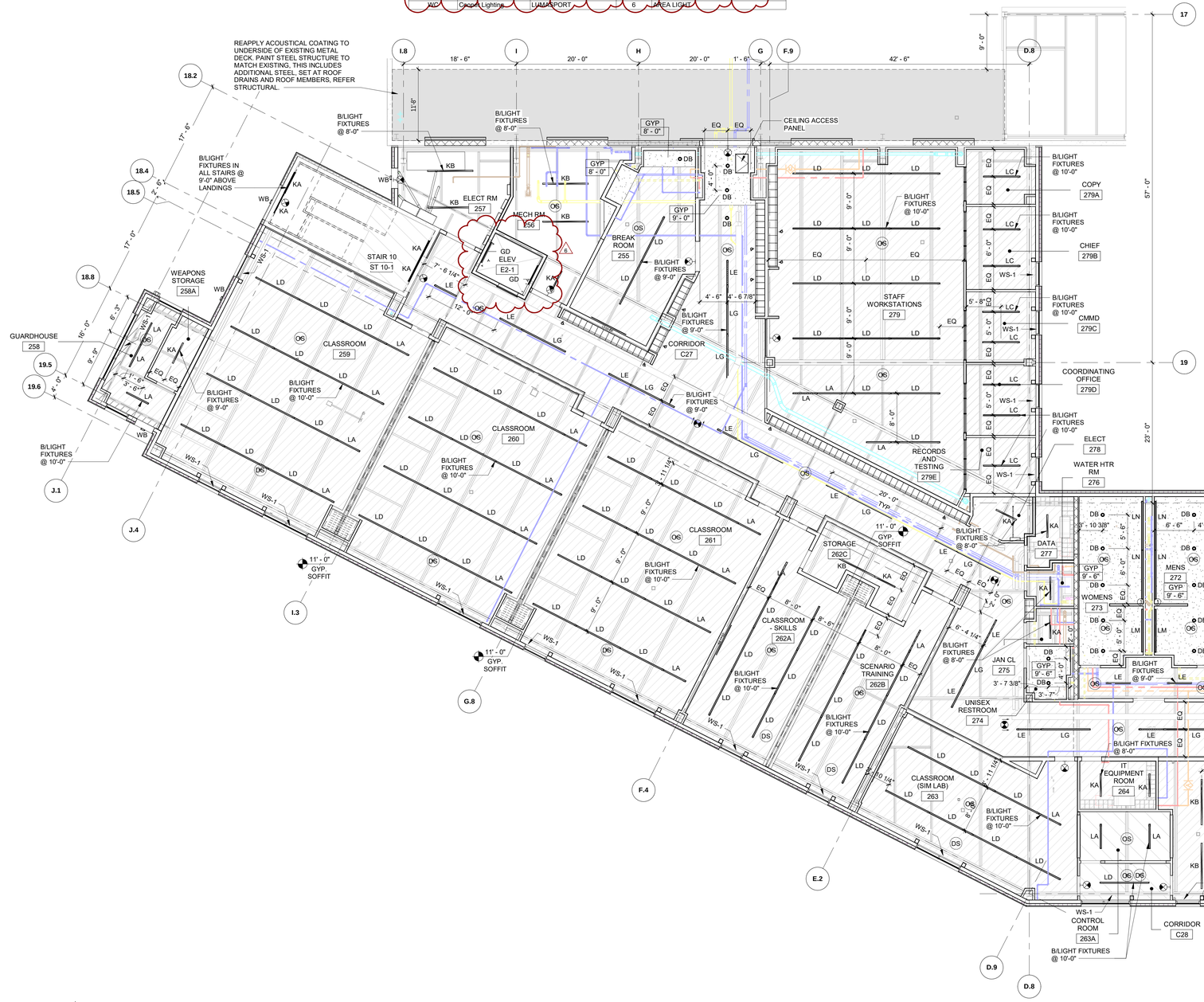
ARCH E1 30"x42"
Approved: JJ
Checked: MS
Designer: JD

LIGHTING SCHEDULE

TAG	MANUFACTURER	MODEL	COUNT	DESCRIPTION
SECOND FLOOR				
DB	CSL	Acrobat/A4-SP	42	RECESSED 4" CAN LIGHT
EA	Sure-Lites	ECHX7RH	3	EXIT SIGN WITH PUSH TO TEST BUTTON
GD	Day-Brite	V3W VAPORLUME	2	4' VAPORLUME LED
KA	Day-Brite	FSS	24	4' LINEAR STRIP LIGHT
KB	Day-Brite	FSS	24	8' LINEAR STRIP LIGHT
LA	XAL Inc.	BASO 2.5 Indirect	33	4' LINEAR UP/DOWN PENDANT
LC	XAL Inc.	BASO 2.5 Indirect	6	6' LINEAR UP/DOWN PENDANT
LD	XAL Inc.	BASO 2.5 Indirect	78	8' LINEAR UP/DOWN PENDANT
LE	XAL Inc.	BASO 2.5 Indirect	22	4' LINEAR DOWN PENDANT
LG	XAL Inc.	BASO 2.5 Indirect	14	8' LINEAR DOWN PENDANT
LM	XAL Inc.	BASO 2.5 Indirect	6	7' LINEAR UP/DOWN WALL
LN	XAL Inc.	BASO 2.5 Indirect	12	8' LINEAR UP/DOWN WALL
WB	Lumark	XTOR	10	LED WALL PACK

LIGHTING SCHEDULE

TAG	MANUFACTURER	MODEL	COUNT	DESCRIPTION
THIRD FLOOR				
DB	CSL	Acrobat/A4-SP	4	RECESSED 4" CAN LIGHT
EA	Sure-Lites	ECHX7RH	4	EXIT SIGN WITH PUSH TO TEST BUTTON
GD	Day-Brite	V3W VAPORLUME	2	4' VAPORLUME LED
KA	Day-Brite	FSS	20	4' LINEAR STRIP LIGHT
KB	Day-Brite	FSS	6	8' LINEAR STRIP LIGHT
LA	XAL Inc.	BASO 2.5 Indirect	36	4' LINEAR UP/DOWN PENDANT
LB	XAL Inc.	BASO 2.5 Indirect	10	5' LINEAR UP/DOWN PENDANT
LC	XAL Inc.	BASO 2.5 Indirect	8	6' LINEAR UP/DOWN PENDANT
LD	XAL Inc.	BASO 2.5 Indirect	100	8' LINEAR UP/DOWN PENDANT
LE	XAL Inc.	BASO 2.5 Indirect	18	4' LINEAR DOWN PENDANT
LF	XAL Inc.	BASO 2.5 Indirect	1	8' LINEAR DOWN PENDANT
LG	XAL Inc.	BASO 2.5 Indirect	13	8' LINEAR DOWN PENDANT
FOURTH FLOOR				
EA	Sure-Lites	ECHX7RH	4	EXIT SIGN WITH PUSH TO TEST BUTTON WITH BATTERY BACKUP
GD	Day-Brite	V3W VAPORLUME	2	4' VAPORLUME LED
KA	Day-Brite	FSS	12	4' LINEAR STRIP LIGHT
KB	Day-Brite	FSS	2	8' LINEAR STRIP LIGHT
LA	XAL Inc.	BASO 2.5 Indirect	40	4' LINEAR UP/DOWN PENDANT
LC	XAL Inc.	BASO 2.5 Indirect	4	6' LINEAR UP/DOWN PENDANT
LD	XAL Inc.	BASO 2.5 Indirect	77	8' LINEAR UP/DOWN PENDANT
LE	XAL Inc.	BASO 2.5 Indirect	14	4' LINEAR DOWN PENDANT
LG	XAL Inc.	BASO 2.5 Indirect	7	8' LINEAR DOWN PENDANT
ROOF				
KA	Day-Brite	FSS	2	4' LINEAR STRIP LIGHT
WB	Lumark	XTOR	2	LED WALL PACK
WC	Cooper Lighting	LUMASPORT	6	AREA LIGHT



1 **CEILING PLAN - 02 SECOND FLOOR**
Scale: 1/8" = 1'-0"

LEGEND - REFLECTED CEILING PLAN

ANNOTATIONS

- WALL WASHER
- RECESSED DOWNLIGHT
- SUSPENDED LINEAR
- SUSPENDED LINEAR WITH NIGHT LIGHT
- 2x2 RECESSED DIRECT/INDIRECT LED
- 2x4 RECESSED DIRECT/INDIRECT LED
- EXIT SIGN WITH DIRECTIONAL ARROWS WHERE INDICATED (LIGHTING TYPE EA)
- LINEAR SUPPLY DIFFUSER
- LINEAR RETURN/EXHAUST GRILLE
- SUPPLY DIFFUSER
- RETURN/EXHAUST GRILLE
- ACCESS DOOR
- OCCUPANCY SENSOR (OS)

MATERIALS

- 2' x 2' GRID AND TILE SYSTEM - SEE FINISH SCHEDULE FOR ADDITIONAL INFORMATION **AC-1**
- GYPSUM BOARD CEILING AS INDICATED ON PLAN. SEE FINISH PLAN FOR PAINT SPECIFICATIONS. **GYP**
- EXPOSED
- EXPOSED PAINTED STRUCTURE AND MEP / FIRE INFRASTRUCTURE SEE FINISH SCHEDULE FOR ADDITIONAL INFO.
- EXPOSED ACOUSTIC SPRAY ON DECK, PAINT MEP AND INFRASTRUCTURE. SEE FINISH SCHEDULE FOR ADDITIONAL INFO.

ANNOTATIONS

- ALIGN — ALIGN SYMBOL
- X'-XX" — FINISHED CEILING HEIGHT AS INDICATED ON PLAN U.O.N.
- X / X — FINISH TAG, REFER TO FINISH SCHEDULE FOR ADDITIONAL INFORMATION.
- START POINT

NOTE: NOT ALL SYMBOLS MAY BE USED

GENERAL NOTES - REFLECTED CEILING PLANS

A. REFER TO THE PROJECT GENERAL NOTES FOR GENERAL PROJECT REQUIREMENTS.

B. THE TYPICAL CEILING HEIGHT SHALL BE 9' – 0" UNLESS OTHERWISE NOTED.

C. TYPICAL ACOUSTIC CEILING TILE SYSTEM SHALL BE AC-1 UNLESS OTHERWISE NOTED.

D. ALL CEILING HEIGHTS ARE ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED.

E. THE REFLECTED CEILING PLANS SHALL BE USED FOR LAYOUT OF ALL CEILING DEVICES. CONSULT ARCHITECT IF A CONFLICT ARISES WITH STRUCTURAL OR MEP DRAWINGS.

F. CENTER CEILING TILES IN ROOM AS SHOWN TO PROVIDE EQUAL TILES AT EACH END WALL IN EACH DIRECTION UNLESS OTHERWISE NOTED OR DIMENSIONED.

G. CENTER RECESSED LIGHT FIXTURES, ELECTRICAL AND MECHANICAL DEVICES, AND SPRINKLER HEADS WITHIN A CEILING TILE UNLESS OTHERWISE NOTED. COORDINATE LAYOUT WITH ALL OTHER CEILING MOUNTED DEVICES.

H. ROOMS WITH NO CEILINGS SHALL HAVE EXPOSED STRUCTURE PAINTED.

I. GYPSUM BOARD SOFFITS ARE SHOWN TO INTENDED SIZES. PAINT ALL GYPSUM BOARD SOFFITS AND HEADERS THE TYPICAL GYPSUM CEILING PAINT COLOR UNLESS OTHERWISE NOTED.

J. AT TOILETS, SHOWERS, AND JANITOR CLOSETS, PROVIDE WATER RESISTANT GYPSUM BOARD AT CEILINGS AND SOFFITS.

K. CAREFULLY REMOVE CEILINGS AS REQUIRED FOR ABOVE CEILING WORK IN AREAS WITH NO OR LIMITED ARCHITECTURAL DEMOLITION WORK. REINSTALL CEILING AND PATCH TO MATCH EXISTING.

L. COORDINATE EXACT LOCATIONS OF ACCESS PANELS IN THE FIELD, AND WITH CEILING MOUNTED EQUIPMENT VENDORS OR FOR UTILITY CONTROLS ACCESS, WHERE APPLICABLE. ACCESS PANEL PAINT FINISH SHALL MATCH ADJACENT CEILING COLOR.

M. NOT ALL CEILING MOUNTED DEVICES ARE SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER TO PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATIONS OF SPRINKLER HEADS, EXIT SIGNS, AND ADDITIONAL CEILING MOUNTED DEVICES.

N. NOT ALL SPRINKLER HEADS ARE SHOWN, HOWEVER, ALL AREAS SHALL BE SPRINKLERED AS SPECIFIED. HEADS ARE SHOWN IN SELECTED SPACES TO CONTROL THE LOCATIONS FOR AESTHETIC PURPOSES ONLY. WHEN ADDITIONAL HEADS ARE REQUIRED, COORDINATE LOCATIONS WITH ARCHITECT.

O. REFER FIRE PROTECTION SPECS FOR PAINTING OF FIRE ALARM INFRASTRUCTURE REQT'S. AT EXPOSED CEILINGS.

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

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303 E. Wacker Dr. #1400
Chicago, IL 60601
312-373-7700

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ARCHITECTURE
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LEVEL-1 GLOBAL SOLUTIONS
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312-202-3300

REGISTRATION

NORTH ARROW

N

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
3	07/12/2024	ADD 01
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

SECOND FLOOR - CEILING PLAN

SHEET NUMBER

A151

Last Plotted: 7/31/2024 6:28:02 PM
Filename: Autodesk Docs://BP-MBER (USA) 60710711-PSTC EMS Addition/60710711_ACM_R22_JPSTC ADD_A+H

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1 **CEILING PLAN - 03 THIRD FLOOR**
Scale: 1/8" = 1'-0"

LEGEND - REFLECTED CEILING PLAN

ANNOTATIONS

- WALL WASHER
- RECESSED DOWNLIGHT
- SUSPENDED LINEAR
- SUSPENDED LINEAR WITH NIGHT LIGHT
- 2x2 RECESSED DIRECT/INDIRECT LED
- 2x4 RECESSED DIRECT/INDIRECT LED
- EXIT SIGN WITH DIRECTIONAL ARROWS WHERE INDICATED (LIGHTING TYPE EA)
- LINEAR SUPPLY DIFFUSER
- LINEAR RETURN/EXHAUST GRILLE
- SUPPLY DIFFUSER
- RETURN/EXHAUST GRILLE
- ACCESS DOOR
- OCCUPANCY SENSOR

MATERIALS

- 2' x 2' GRID AND TILE SYSTEM - SEE FINISH SCHEDULE FOR ADDITIONAL INFORMATION **AC-1**
- GYPSUM BOARD CEILING AS INDICATED ON PLAN. SEE FINISH PLAN FOR PAINT SPECIFICATIONS. **GYP**
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- EXPOSED ACOUSTIC SPRAY ON DECK, PAINT MEP AND INFRASTRUCTURE. SEE FINISH SCHEDULE FOR ADDITIONAL INFO.

ANNOTATIONS

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- X'-XX" — FINISHED CEILING HEIGHT AS INDICATED ON PLAN U.O.N.
- X / X — FINISH TAG, REFER TO FINISH SCHEDULE FOR ADDITIONAL INFORMATION.
- START POINT

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H. ROOMS WITH NO CEILINGS SHALL HAVE EXPOSED STRUCTURE PAINTED.

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L. COORDINATE EXACT LOCATIONS OF ACCESS PANELS IN THE FIELD, AND WITH CEILING MOUNTED EQUIPMENT VENDORS OR FOR UTILITY CONTROLS ACCESS, WHERE APPLICABLE. ACCESS PANEL PAINT FINISH SHALL MATCH ADJACENT CEILING COLOR.

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REGISTRATION

NORTH ARROW

N

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

THIRD FLOOR - CEILING PLAN

SHEET NUMBER

A152

LEGEND - REFLECTED CEILING PLAN

ANNOTATIONS

- WALL WASHER
- RECESSED DOWNLIGHT
- SUSPENDED LINEAR
- SUSPENDED LINEAR WITH NIGHT LIGHT
- 2x2 RECESSED DIRECT/INDIRECT LED
- 2x4 RECESSED DIRECT/INDIRECT LED
- EXIT SIGN WITH DIRECTIONAL ARROWS WHERE INDICATED (LIGHTING TYPE EA)
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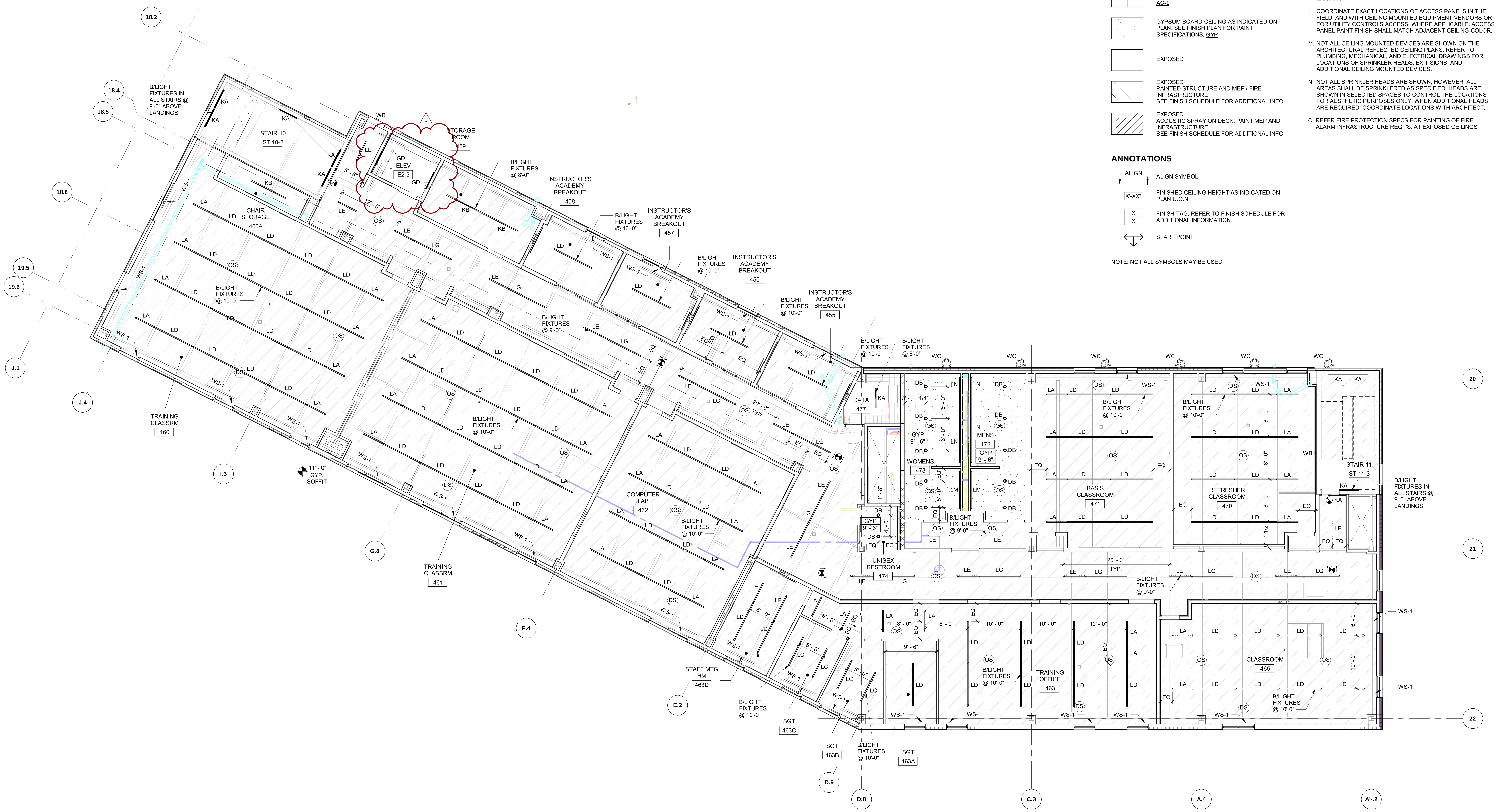

1 **CEILING PLAN - 04 FOURTH FLOOR**
Scale: 1/8" = 1'-0"

AECOM

PROJECT
Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

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REGISTRATION

NORTH ARROW

N

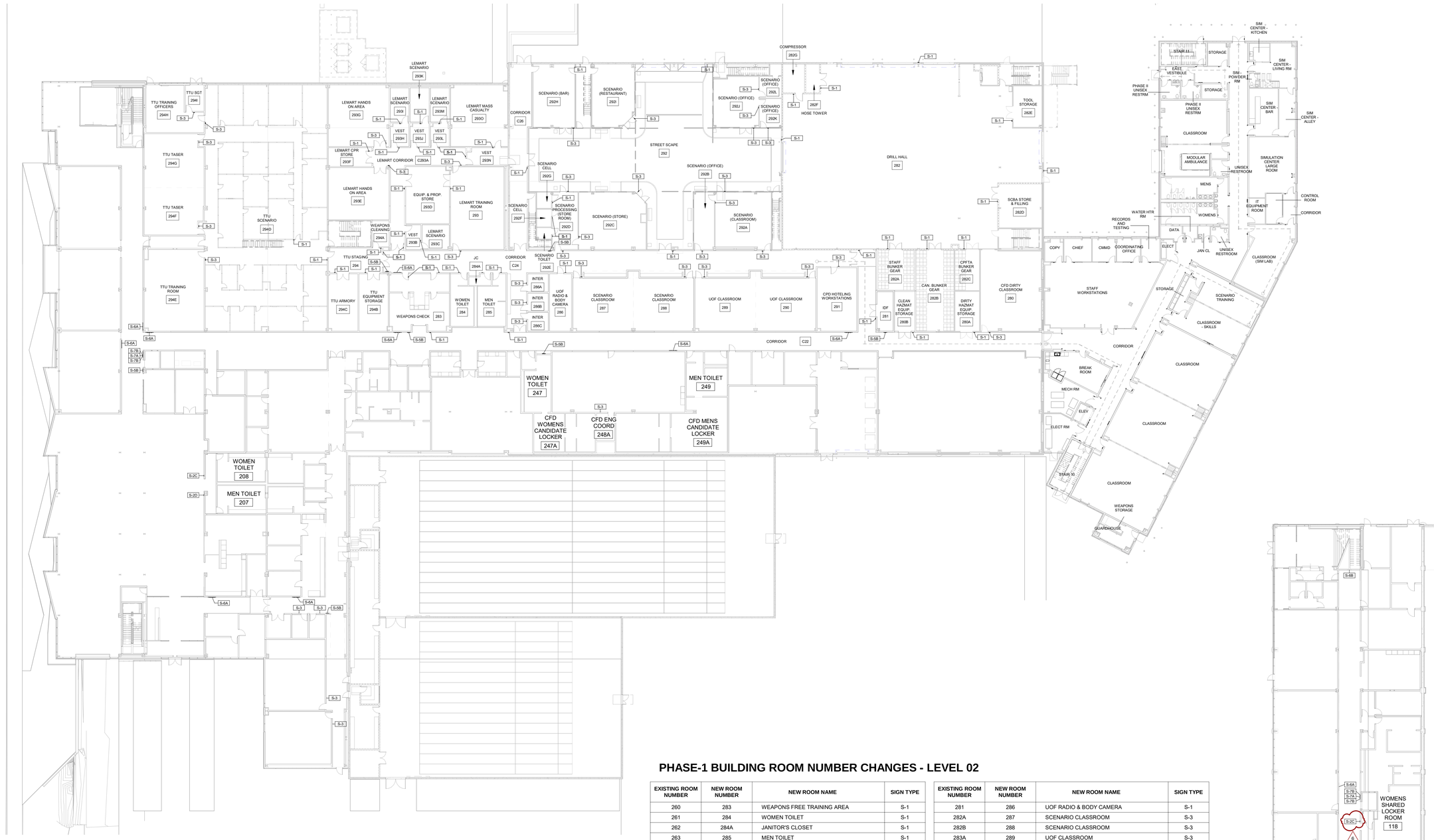
ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER
PBC: #07215 AECOM: 60710711

SHEET TITLE
FOURTH FLOOR - CEILING PLAN

SHEET NUMBER
A153



1 SIGNAGE PLAN - OVERALL - 02 SECOND FLOOR
Scale: 1" = 20'-0"

N

PHASE-1 BUILDING ROOM NUMBER CHANGES - LEVEL 02

EXISTING ROOM NUMBER	NEW ROOM NUMBER	NEW ROOM NAME	SIGN TYPE
260	283	WEAPONS FREE TRAINING AREA	S-1
261	284	WOMEN TOILET	S-1
262	284A	JANITOR'S CLOSET	S-1
263	285	MEN TOILET	S-1
264	294	TTU STAGING	S-1
264A	294B	TTU EQUIPMENT STORAGE	S-1
264C	294C	TTU ARMORY	S-1
264B	294A	WEAPONS CLEANING	S-1
265	294D	TTU SCENARIO	S-1
266	294E	TTU TRAINING ROOM	S-3
267A	294F	TTU TASER	S-3
267B	294G	TTU TASER	S-3
268	294H	TTU TRAINING OFFICERS	S-3
268A	294I	TTU SGT	S-3
270	293	LEMART TRAINING ROOM	S-3
270A	293D	EQUIP. & PROP. STORE	S-1
271	293E	LEMART HANDS ON AREA	S-3
272	293F	LEMART CPR STORE	S-1
273	293G	LEMART HANDS ON AREA	S-3
274	293H	VEST	S-1
274A	293I	LEMART SCENARIO	S-1
275	293J	VEST	S-1
275A	293K	LEMART SCENARIO	S-1
276	293L	VEST	S-1
276A	293M	LEMART SCENARIO	S-1
C25	C293A	LEMART CORRIDOR	S-1
277	293N	VEST	S-1
277A	293O	LEMART MASS CASUALTY	S-1
278	293B	VEST	S-1
278A	293C	LEMART SCENARIO	S-1
280A	286C	INTER	S-3
280B	286B	INTER	S-3
280C	286A	INTER	S-3

EXISTING ROOM NUMBER	NEW ROOM NUMBER	NEW ROOM NAME	SIGN TYPE
281	286	UOF RADIO & BODY CAMERA	S-1
282A	287	SCENARIO CLASSROOM	S-3
282B	288	SCENARIO CLASSROOM	S-3
283A	289	UOF CLASSROOM	S-3
283B	290	UOF CLASSROOM	S-3
284	291	CPD WORKSTATIONS	S-3
285	292	INDOOR STREET SCAPE	S-1
286	292C	STREET SCAPE (STORE)	S-3
286A	292D	STREET SCAPE PROCESSING (STORE ROOM)	S-3
286B	292G	STREET SCAPE CELL	S-1
286C	292F	STREET SCAPE CELL	S-1
286D	292E	STREET SCAPE TOILET	S-1
287	292B	STREET SCAPE OFFICE	S-3
287A	292A	STREET SCAPE (CLASSROOM)	S-3
288	292J	STREET SCAPE (OFFICE)	S-3
288A	292K	STREET SCAPE (OFFICE)	S-3
288B	292L	STREET SCAPE (OFFICE)	S-3
289	292I	STREET SCAPE (RESTAURANT)	S-3
289A	292H	STREET SCAPE (BAR)	S-3
290	282	DRILL HALL	S-1
290A	282A	STAFF BUNKER GEAR	S-1
290B	282B	CAN BUNKER GEAR	S-1
290C	282C	CPFTA BUNKER GEAR	S-1
290D	282D	SCBA STORE & FILLING	S-1
290G	282E	TOOL STORAGE	S-1
290H	282F	HOSE TOWER	S-1
290J	282G	COMPRESSOR	S-1
291	281	IDF	S-1
292	280B	CLEAN HAZMAT EQUIP. STORAGE	S-1
293	280A	DIRTY HAZMAT EQUIP. STORAGE	S-1
294	280	CFD CLASSROOM	S-3

ALL ROOM NAMES AND NUMBERS TO BE REVIEWED AND CONFIRMED WITH OWNER BEFORE PRODUCTION.

REFER TO SHEET G003 FOR SIGNAGE TYPE DETAILS.

ROOMS WITH MULTIPLE ENTRIES WILL HAVE A SIGN AT EACH DOOR REFER TO PLAN FOR LOCATIONS.

GENERAL NOTES - SIGNAGE PLANS

A. ALL SIGNAGE SHALL BE CONTRACTOR FURNISHED AND INSTALLED.

B. ALL SIGNAGE MUST CONFIRM TO AMERICANS WITH DISABILITIES ACT (ADA) AND ARCHITECTURAL BARRIERS ACT (ABA) ACCESSIBILITY GUIDELINES.

C. PERMANENT ROOM SIGNAGE MUST INCLUDE RAISED LETTERS AND BRAILLE SIGNAGE SHALL BE LOCATED AT LATCH SIDE OF DOOR AND MUST BE MOUNTED IN ACCORDANCE WITH ALL CURRENT ADA STANDARDS.

D. WHERE TACTILE SIGN IS PROVIDED AT A SINGLE DOOR, THE SIGN SHALL BE LOCATED ON LATCH SIDE OF DOOR. WHERE TACTILE SIGN IS PROVIDED AT A DOUBLE DOOR, THE SIGN SHALL BE LOCATED ON RIGHT SIDE OF THE RIGHT HAND DOOR. IF WALL SPACE IS NOT AVAILABLE FOR SIGNAGE PER MOUNTING STANDARDS, SIGNS SHALL BE INSTALLED PER CURRENT ADA STANDARDS ON NEAREST ADJACENT WALL, SO THAT CLEAR FLOOR SPACE OF 18" BY 18" MINIMUM. CENTERED ON TACTILE CHARACTERS IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED POSITION AND 45 DEGREE OPEN POSITION.

E. PROVIDE PAPER AND SOFTWARE FOR FOR CREATING TEXT AND SYMBOLS FOR COMPUTERS INDICATED BY OWNER FOR OWNER PRODUCTION OF PAPER INSERTS AFTER INSTALLATION.

F. FURNISH TWO DEVICES TO ASSIST IN REMOVING PAPER INSERTS.

G. PROVIDE MAXIMUM OCCUPANCY SIGNS AS DIRECTED AND COORDINATE MESSAGE CONTENT PRIOR TO ORDER AND INSTALLATION.

H. UPDATE ALL EXISTING PANELS/PROGRAMMING INCLUDING BUT NOT LIMITED TO BUILDING AUTOMATION SYSTEM, ELECTRICAL PANELS, AND FIRE ALARM PANELS. EXISTING PANELS TO BE RELABELED/REPROGRAMMED AS INDICATED IN ROOM NUMBER CHANGES SCHEDULE

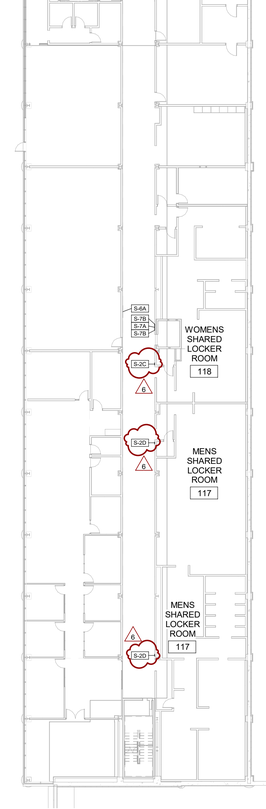
I. ALL BRAILLE TO BE STAINLESS STEEL GRADE II BRAILLE INTEGRAL TO SIGN PLATE; DO NOT USE "BRAILLE TAB".

J. AT EACH ELEVATOR LANDING, PROVIDE RED SIGN WHICH INDICATES IN CASE OF FIRE USE STAIRWAY; MATCH EXISTING JPSTC BUILDING.

K. FIELD VERIFY ALL SIGN QUANTITIES BEFORE FABRICATION.

L. IF ROOM OCCUPANCY IS GREATER THAN 100 PERSONS, PROVIDE MAXIMUM CAPACITY SIGN ISSUED UNDER SECTION 14A-8-802 WHICH READS THE BELOW WORDS. LETTERING WILL BE OF BOLD GOTHIC TYPE IN RED ON A BACKGROUND OF WHITE, NOT LESS THAN ONE INCH IN HEIGHT. THE NUMERALS WILL BE ONE AND ONE-QUARTER INCHES IN HEIGHT.
   a. OCCUPANCY MORE THAN _____ PERSONS IS
   b. DANGEROUS AND UNLAWFUL
   c. BUILDING COMMISSIONER
   d. CITY OF CHICAGO.

M. REFER TO SHEET G003 FOR SIGNAGE TYPES.



2 SIGNAGE PLAN - FIRST FLOOR
Scale: 1" = 20'-0"

AECOM

PROJECT

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REGISTRATION

NORTH ARROW

N

ISSUE/REVISION

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1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

OVERALL SECOND FLOOR - SIGNAGE PLAN

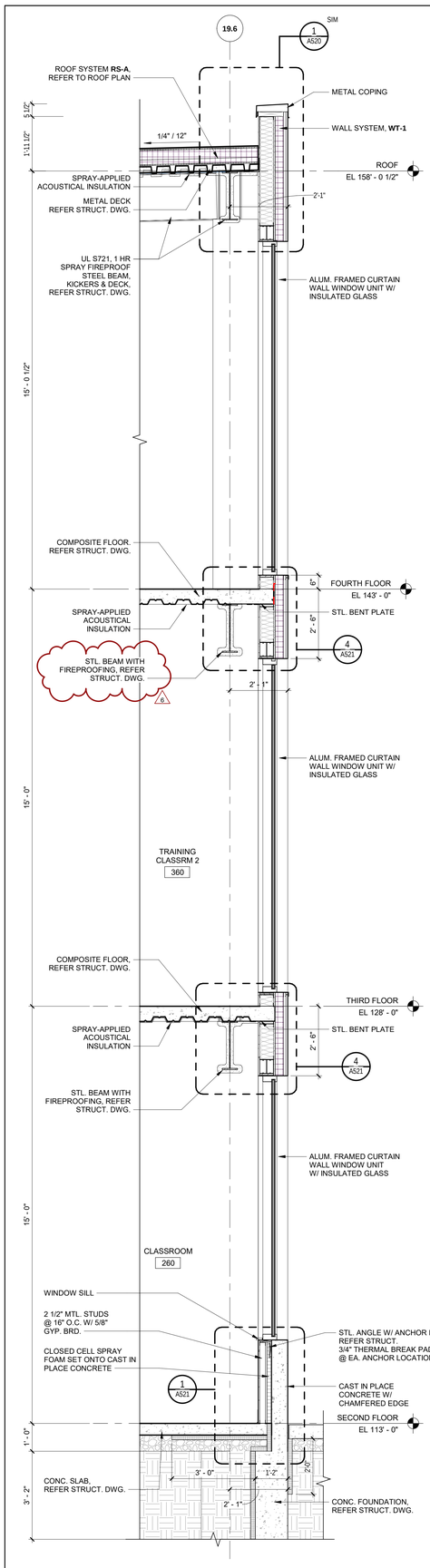
SHEET NUMBER

A164

Designer: Designer Checker: Checker Approved: Approver4RCH E1 30"x42"

Last Plotted: 7/31/2024 6:28:49 PM
Filename: Autodesk Docs://EP-AMER (USA) 60710711-PSTC EMS Addition/60710711_ACM_R22_JPSTC ADD_A.rvt

Printed on ___% Post-Consumer Recycled Content Paper



1 A121 **WALL SECTION - STUD WALL** Scale: 1/2" = 1'-0"

2 A121 **WALL SECTION @ CONCRETE BACK UP WALL 01** Scale: 1/2" = 1'-0"

3 A121 **WALL SECTION @ CONCRETE BACK UP WALL 02** Scale: 1/2" = 1'-0"

4 A121 **WALL SECTION @ CONCRETE BACK UP WALL 03** Scale: 1/2" = 1'-0"

EXTERIOR WALL TYPES

WALL SYSTEMS TO MEET NFPA 285 REQUIREMENTS

EXTERIOR WALL TYPE 1 (WT-1)

VERTICAL METAL PANEL RAINSCREEN WALL SYSTEM
- 7/8" VERTICAL METAL PANEL
- RAINSCREEN ATTACHMENT SYSTEM: 1" HORIZ. MTL. GIRTS W/ CONTINUOUS VERTICAL SUPPORT SYSTEM SET ON BRACKETS & THERMAL PAD SPACERS
- 3.5" MINERAL WOOL INSULATION (R=15)
- WATER RESISTIVE SELF-ADHERED AIR BARRIER
- 5/8" GLASS MAT EXTERIOR SHEATHING BOARD
- 6" COLD FORMED METAL FRAMING 16" OC. W/ BATT INSUL (R-19)
- 5/8" GYPSUM WALL BOARD

ENERGY CODE REQUIREMENTS TABLE C402.1.3: METAL FRAMED (ABOVE GRADE): R-13 + R-10ci

EXTERIOR WALL TYPE 2 (WT-2)

VERTICAL METAL PANEL RAINSCREEN WALL SYSTEM W/ CMU BACK UP
- 7/8" VERTICAL METAL PANEL
- RAINSCREEN ATTACHMENT SYSTEM: 1" HORIZ. MTL. GIRTS W/ CONTINUOUS VERTICAL SUPPORT SYSTEM SET ON BRACKETS & THERMAL PAD SPACERS
- 3" MINERAL WOOL INSULATION (R-12.9)
- VAPOR RETARDING AIR BARRIER
- 8" CONCRETE WALL BACK-UP, REFER STRUCTURAL

ENERGY CODE REQUIREMENTS TABLE C402.1.3: MASS WALL (ABOVE GRADE): R-11.4ci

EXTERIOR WALL TYPE 3 (WT-3)

CAST-IN-PLACE CONCRETE WALL SYSTEM
- SPRAY APPLIED DAMPPROOFING BELOW GRADE
- CAST-IN-PLACE CONCRETE STEM WALL @ 3'-0" HT
- 2" CLOSED CELL SPRAY INSULATION (R-13)
- 2-1/2" COLD FORMED METAL FRAMING @16" OC.
- 5/8" GYPSUM WALL BOARD

ENERGY CODE REQUIREMENTS TABLE C402.1.3: MASS WALL (ABOVE GRADE): R-11.4ci

EXTERIOR WALL TYPE 4 (WT-4)

FORMED PAN METAL PANEL RAINSCREEN WALL SYSTEM
- 1 3/8" FORMED PAN FLAT METAL PANEL
- RAINSCREEN ATTACHMENT SYSTEM: 1" HORIZ. MTL. GIRTS W/ CONTINUOUS VERTICAL SUPPORT SYSTEM SET ON BRACKETS & THERMAL PAD SPACERS
- 3" MINERAL WOOL INSULATION (R=12.9)
- WATER RESISTIVE SELF-ADHERED AIR BARRIER
- 5/8" GLASS MAT EXTERIOR SHEATHING BOARD
- 6" COLD FORMED METAL FRAMING 16" OC. W/ BATT INSUL (R-19)
- 5/8" GYPSUM WALL BOARD

ENERGY CODE REQUIREMENTS TABLE C402.1.3: METAL FRAMED (ABOVE GRADE): R-13 + R-10ci

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

AECOM
ARCHITECTURE, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION
303 E. Wacker Dr. #1400
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Chicago, IL 60606
312-642-2600

ABERCROMBIE PLANNING+DESIGN
PUBLIC SAFETY DESIGN CONSULTANT
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CIVIL ENGINEERING
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ELECTRICAL ENGINEERING
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JACOBS / RYAN ASSOCIATES
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1527 N. Sandburg Terrace
Chicago, IL 60610
312-664-3217

LEVEL-1 GLOBAL SOLUTIONS
TECHNOLOGY CONSULTANT
233 S. Wacker Dr. #4400
Chicago, IL 60606
312-202-3300

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
4	07/19/2024	ADD 02
3	07/12/2024	ADD 01
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

WALL SECTIONS

SHEET NUMBER

A320

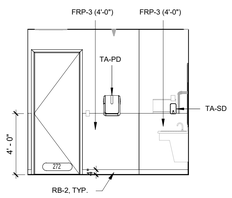
Last Plotted: 7/31/2024 6:28:54 PM
Filename: Autodesk Docs://EP-AMER (USA) 60710711-PSTC EMS Addition/60710711_ACAL_R22_JPSTC AND_A+t

Designer: JD Checked: MS Approved: JJ ARCH E1 30"x42"

12 | A401 — DRINKING FOUNTAIN - TYPICAL ELEVATION
Scale: 1/4" = 1'-0"

11 | A401 — MENS - RM 272 - ADA STALL - SOUTH ELEVATION
Scale: 1/4" = 1'-0"

10 | A401 — MENS - RM 272 - WEST ELEVATION
Scale: 1/4" = 1'-0"



9 | A401 — MENS - RM 272 - SOUTH ELEVATION
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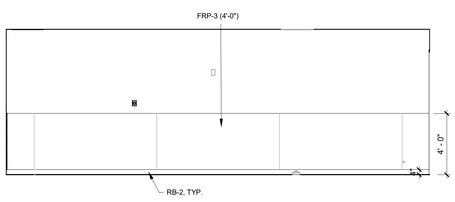
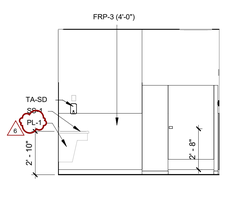
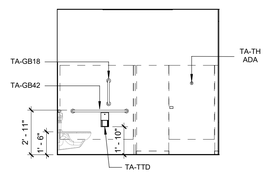


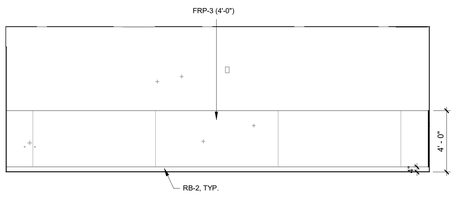
8 | A401 — MENS - RM 272 - EAST ELEVATION
Scale: 1/4" = 1'-0"



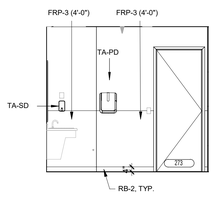
7 | A401 — MENS - RM 272 - NORTH ELEVATION
Scale: 1/4" = 1'-0"



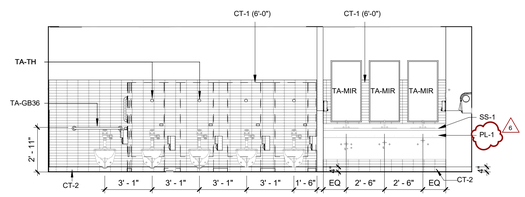
6 | A401 — WOMENS 116 - ADA STALL - SOUTH ELEVATION
Scale: 1/4" = 1'-0"



5 | A401 — WOMENS - RM 273 - WEST ELEVATION
Scale: 1/4" = 1'-0"



4 | A401 — WOMENS - RM 273 - SOUTH ELEVATION
Scale: 1/4" = 1'-0"



3 | A401 — WOMENS - RM 273 - EAST ELEVATION
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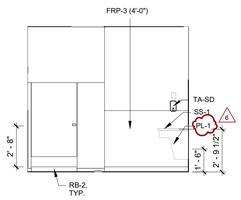

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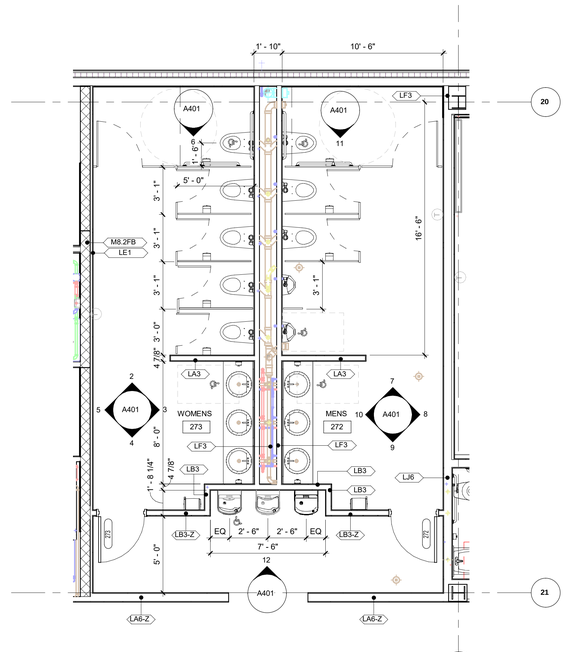

1 | A121 — RESTROOM - TYPICAL
Scale: 1/4" = 1'-0"

AECOM

PROJECT

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TECHNOLOGY CONSULTANT
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REGISTRATION

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I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
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PROJECT NUMBER
PBC: #07215 AECOM: 60710711

SHEET TITLE
ENLARGED FLOOR PLANS & ELEVATIONS - MENS & WOMENS RESTROOMS

SHEET NUMBER
A401

08_ 08.40_ ARCHITECTURE_ A401

Last Plotted: 7/31/2024 11:44:26 AM
Filename: Autodesk Docs://BP-HMEB (USA) 60710711-PSTC EMS Addition/60710711_ACM_R22_JPSTC ADD_A+I.rvt

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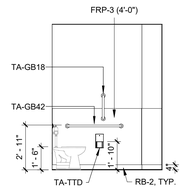
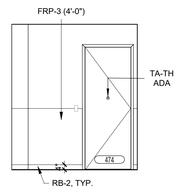
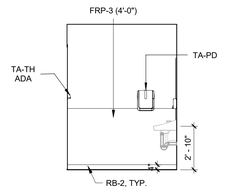


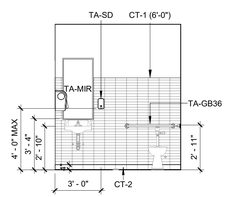
UNISEX RESTROOM - RM 474 - SOUTH ELEVATION
30 | A402 | Scale: 1/4" = 1'-0"



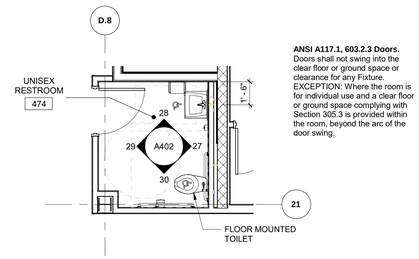
UNISEX RESTROOM - RM 474 - WEST ELEVATION
29 | A402 | Scale: 1/4" = 1'-0"



UNISEX RESTROOM - RM 474 - NORTH ELEVATION
28 | A402 | Scale: 1/4" = 1'-0"

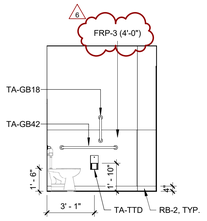


UNISEX RESTROOM - RM 474 - EAST ELEVATION
27 | A402 | Scale: 1/4" = 1'-0"

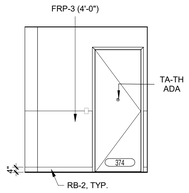


ANSI A117.1, 603.2.3 Doors.
Doors shall not swing into the clear floor or ground space or clearance for any Fixture.
EXCEPTION: Where the room is for individual use and a clear floor or ground space complying with Section 305.3 is provided within the room, beyond the arc of the door swing.

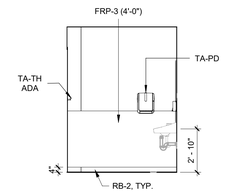
UNISEX RESTROOM - RM 474
26 | A123 | Scale: 1/4" = 1'-0"



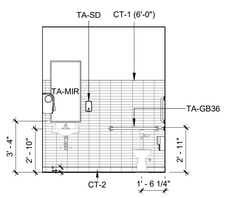
UNISEX RESTROOM - RM 374 - SOUTH ELEVATION
25 | A402 | Scale: 1/4" = 1'-0"



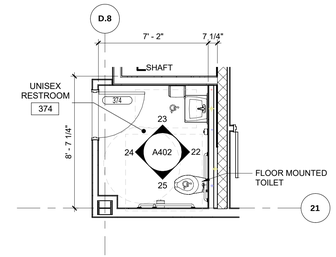
UNISEX RESTROOM - RM 374 - WEST ELEVATION
24 | A402 | Scale: 1/4" = 1'-0"



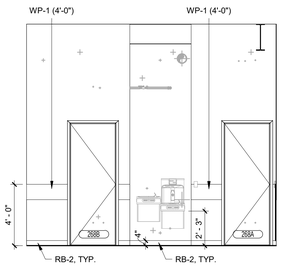
UNISEX RESTROOM - RM 374 - NORTH ELEVATION
23 | A402 | Scale: 1/4" = 1'-0"



UNISEX RESTROOM - RM 374 - EAST ELEVATION
22 | A402 | Scale: 1/4" = 1'-0"



UNISEX RESTROOM - RM 374
21 | A122 | Scale: 1/4" = 1'-0"



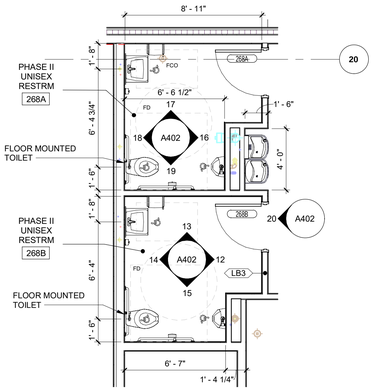
UNISEX RESTROOM ENTRANCE ELEVATION
20 | A402 | Scale: 1/4" = 1'-0"

PHASE II UNISEX RESTROOM - RM 268A - SOUTH ELEVATION
19 | A402 | Scale: 1/4" = 1'-0"

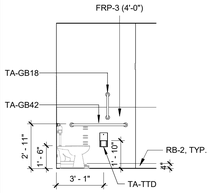
PHASE II UNISEX RESTROOM - RM 268A - WEST ELEVATION
18 | A402 | Scale: 1/4" = 1'-0"

PHASE II UNISEX RESTROOM - RM 268A - NORTH ELEVATION
17 | A402 | Scale: 1/4" = 1'-0"

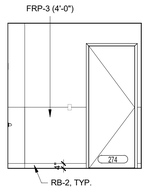
PHASE II UNISEX RESTROOM - RM 268A - EAST ELEVATION
16 | A402 | Scale: 1/4" = 1'-0"



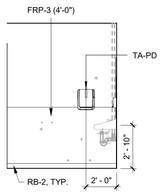
PHASE II UNISEX RESTROOMS - RM 268A & 268B
11 | A121 | Scale: 1/4" = 1'-0"



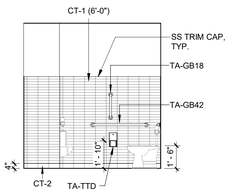
UNISEX RESTROOM 274 - SOUTH ELEVATION
10 | A402 | Scale: 1/4" = 1'-0"



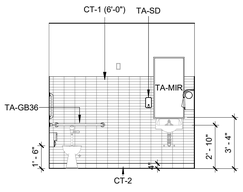
UNISEX RESTROOM 274 - WEST ELEVATION
9 | A402 | Scale: 1/4" = 1'-0"



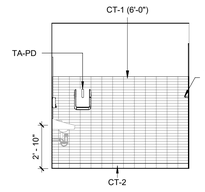
UNISEX RESTROOM 274 - NORTH ELEVATION
8 | A402 | Scale: 1/4" = 1'-0"



PHASE II UNISEX RESTROOM - RM 268B - SOUTH ELEVATION
15 | A402 | Scale: 1/4" = 1'-0"



PHASE II UNISEX RESTROOM - RM 268B - WEST ELEVATION
14 | A402 | Scale: 1/4" = 1'-0"



PHASE II UNISEX RESTROOM - RM 268B - NORTH ELEVATION
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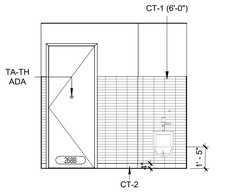

PHASE II UNISEX RESTROOM - RM 268B - EAST ELEVATION
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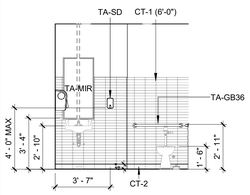
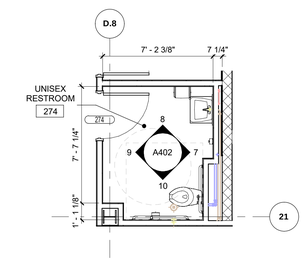
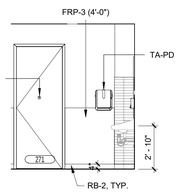


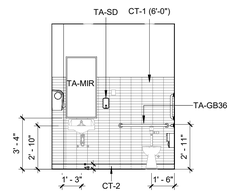
UNISEX RESTROOM 274 - EAST ELEVATION
7 | A402 | Scale: 1/4" = 1'-0"



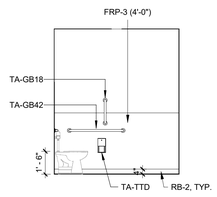
UNISEX RESTROOM - RM 274
6 | A121 | Scale: 1/4" = 1'-0"



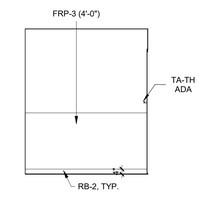
UNISEX RESTROOM - RM 271 - SOUTH ELEVATION
5 | A402 | Scale: 1/4" = 1'-0"



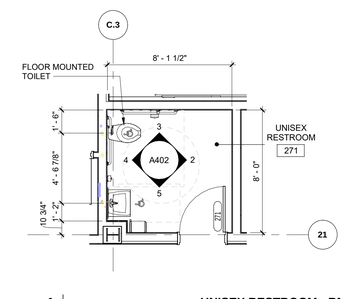
UNISEX RESTROOM - RM 271 - WEST ELEVATION
4 | A402 | Scale: 1/4" = 1'-0"



UNISEX RESTROOM - RM 271 - NORTH ELEVATION
3 | A402 | Scale: 1/4" = 1'-0"



UNISEX RESTROOM - RM 271 - EAST ELEVATION
2 | A402 | Scale: 1/4" = 1'-0"



UNISEX RESTROOM - RM 271
1 | A121 | Scale: 1/4" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

AECOM
ARCHITECTURE, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION
303 E. Wacker Dr. #1400
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Chicago, IL 60606
312-642-2600

ABERCROMBIE PLANNING+DESIGN
PUBLIC SAFETY DESIGN CONSULTANT
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Fort Worth, TX 76109
817-920-9198

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CIVIL ENGINEERING
One South Wacker #2650
Chicago, IL 60606
312-425-8560

MILHOUSE ENGINEERING
ELECTRICAL ENGINEERING
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312-618-7185

JACOBS / RYAN ASSOCIATES
LANDSCAPE ARCHITECTURE
1527 N. Sandburg Terrace
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312-664-3217

LEVEL-1 GLOBAL SOLUTIONS
TECHNOLOGY CONSULTANT
233 S. Wacker Dr. #4400
Chicago, IL 60606
312-202-3300

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

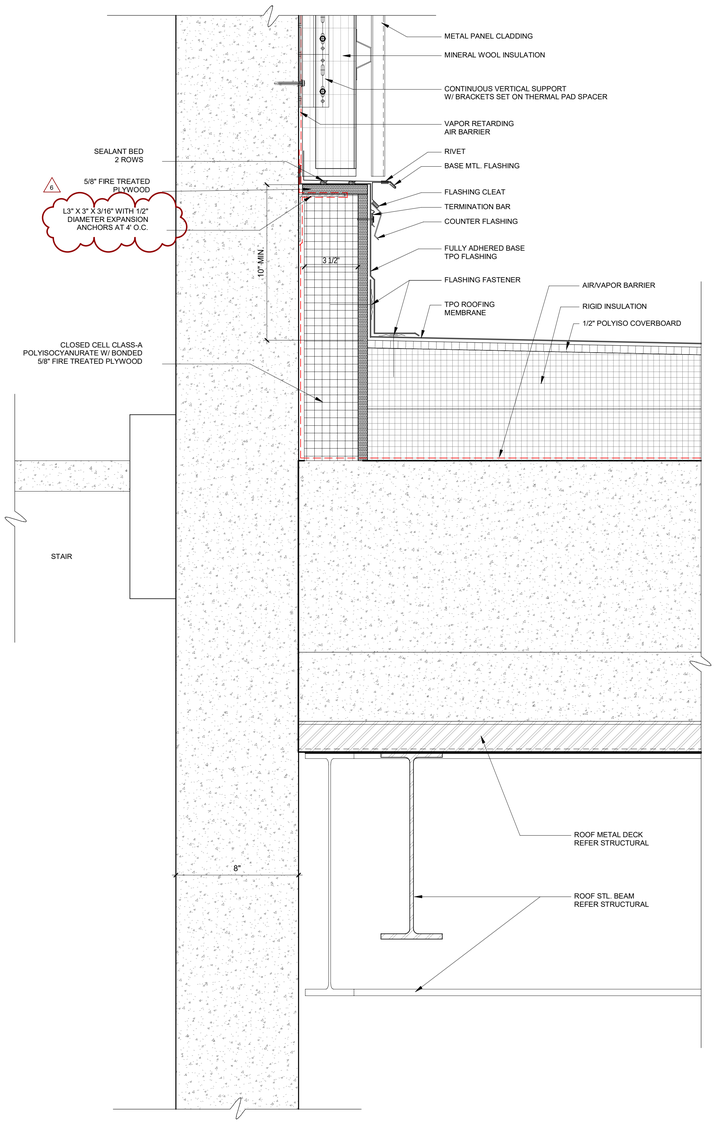
PBC: #07215 AECOM: 60710711

SHEET TITLE

ENLARGED FLOOR PLANS & ELEVATIONS - UNISEX RESTROOMS

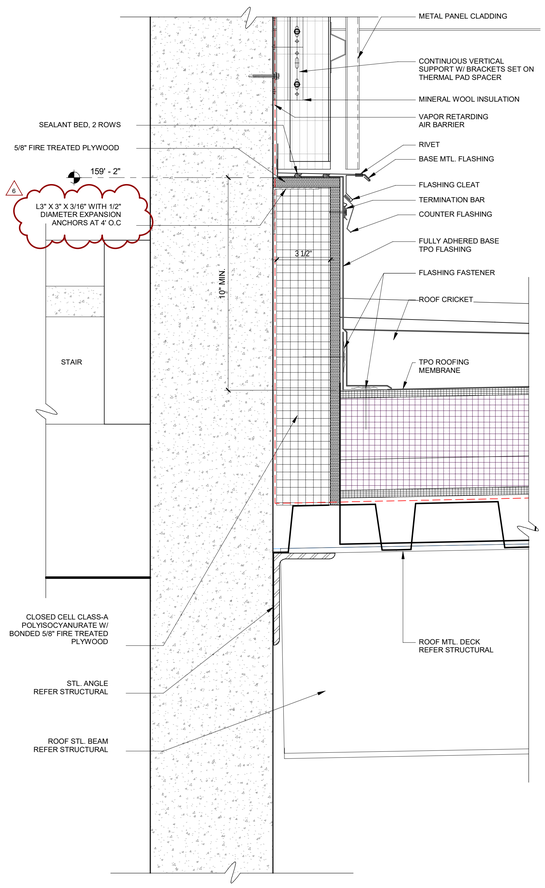
SHEET NUMBER

A402



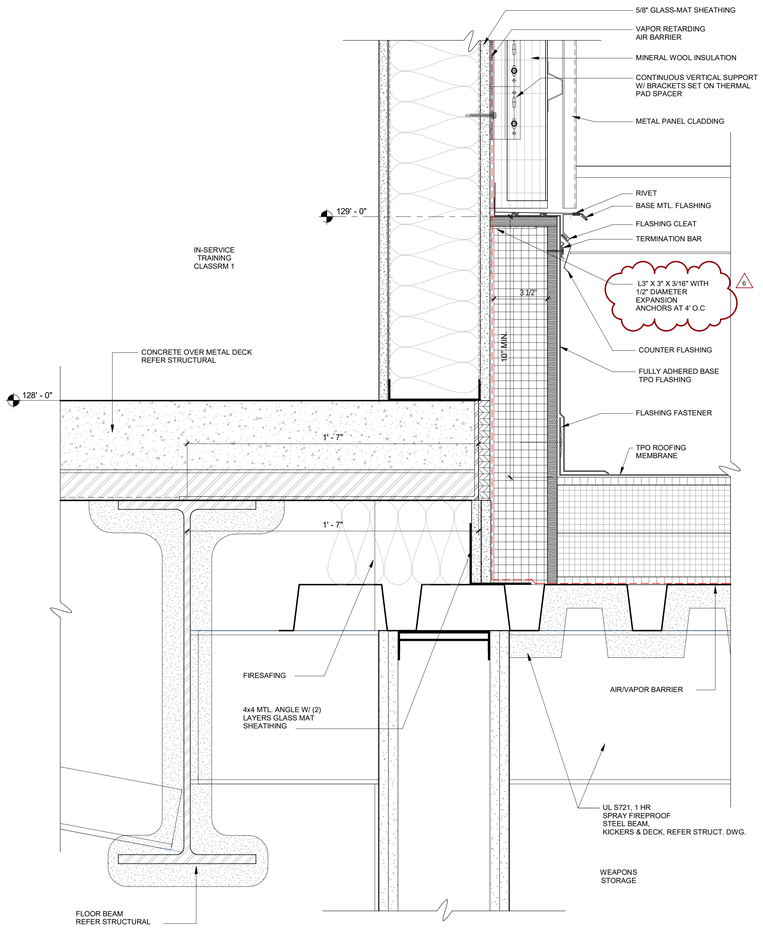
1 | A320 **TRANSITION OF ROOF TO EXT. WALL**

Scale: 3" = 1'-0"



2 | A702 **TRANSITION OF ROOF TO EXT. WALL**

Scale: 3" = 1'-0"



3 | A322 **TRANSITION OF ROOF AT GUARDHOUSE**

Scale: 3" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

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REGISTRATION

ISSUE/REVISION

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6	07/31/2024	ADD 04
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PROJECT NUMBER

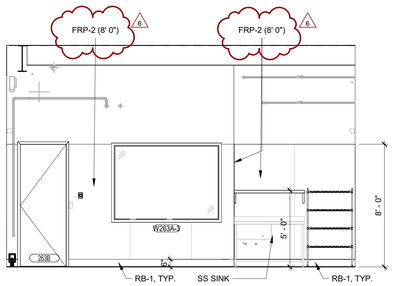
PBC: #07215 AECOM: 60710711

SHEET TITLE

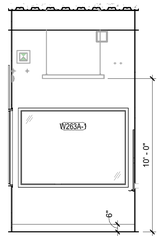
EXTERIOR SECTION DETAILS

SHEET NUMBER

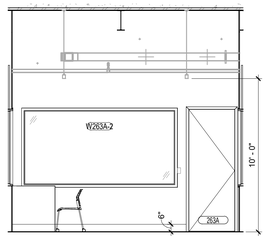
A522



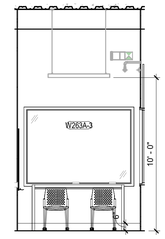
7 A121 **SIMULATION CENTER LARGE ROOM - RM 263B - 1**
Scale: 1/4" = 1'-0"



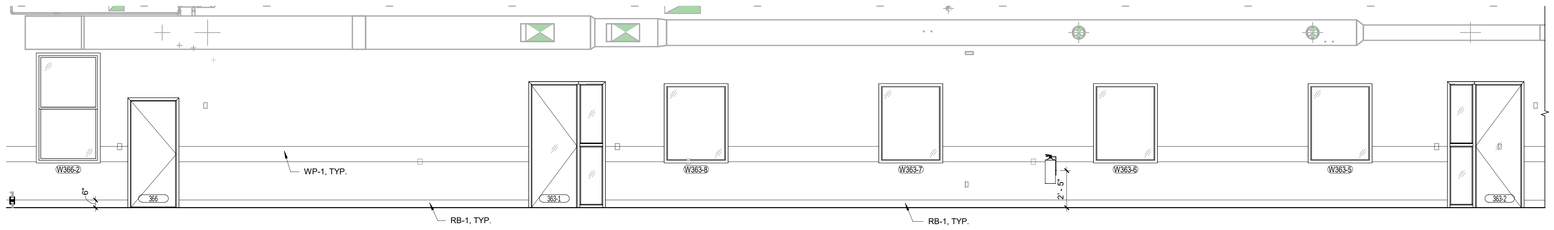
6 A121 **CONTROL ROOM - RM 263A - 3**
Scale: 1/4" = 1'-0"



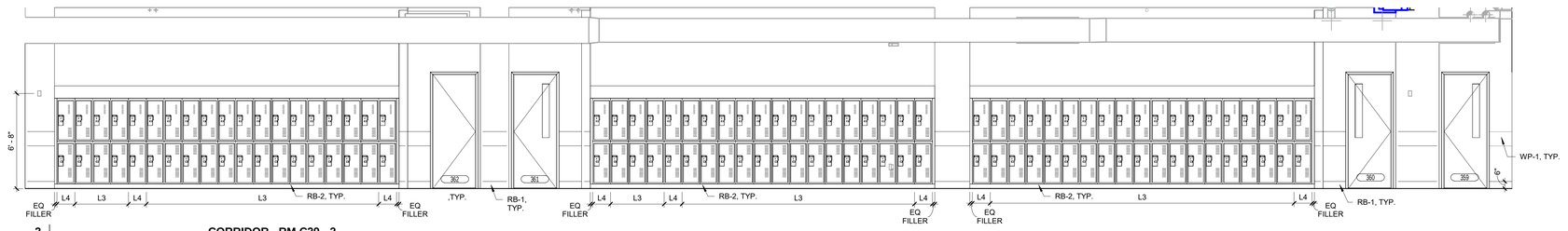
5 A121 **CONTROL ROOM - RM 263A - 2**
Scale: 1/4" = 1'-0"



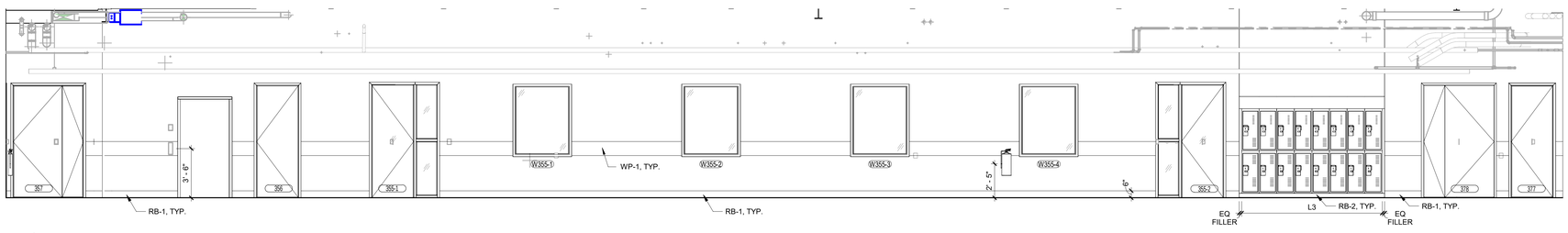
4 A121 **CONTROL ROOM - RM 263A - 1**
Scale: 1/4" = 1'-0"



3 A122 **CORRIDOR - RM C29 - 3**
Scale: 1/4" = 1'-0"



2 A122 **CORRIDOR - RM C29 - 2**
Scale: 1/4" = 1'-0"



1 A122 **CORRIDOR - RM C29 - 1**
Scale: 1/4" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

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CONSULTANTS

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

INTERIOR ELEVATIONS

SHEET NUMBER

A602

DOOR SCHEDULE

DOOR NO.	ROOM NAME	ROOM NUMBER	DOOR PANEL TYPE	DOOR PANEL GLAZING	DOOR PANEL MATERIAL	DOOR PANEL WIDTH	DOOR PANEL HEIGHT	DOOR PANEL THICKNESS	DOOR FRAME TYPE	DOOR FRAME MATERIAL	DETAIL HEAD	DETAIL JAMB	DETAIL SILL	FIRE RATING	STC RATING REQUESTED	STC RATING	HW SET	LOCKSET FUNCTION	SECURITY	DOOR CLOSER	NOTES
SECOND FLOOR																					
255	BREAK ROOM	255	F	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	6.00	CLASSROOM	THUMBTURN CYL.	Yes	
256	MECH RM	256	F UE		HM	5' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	44	44	AC2.01	STOREROOM	CR	Yes	
257	ELECT RM	257	F UE		HM	5' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		90 MIN	-	-	AC3.01	STOREROOM	CR	Yes	EXIT DEVICE
258	GUARDHOUSE	258	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	43	43	AC2.02	STOREROOM	CR	Yes	
259	CLASSROOM	259	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	2.01	CLASSROOM SECURITY		Yes	EXIT DEVICE
260	CLASSROOM	260	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	2.01	CLASSROOM SECURITY		Yes	EXIT DEVICE
261	CLASSROOM	261	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	2.01	CLASSROOM SECURITY		Yes	EXIT DEVICE
262A	CLASSROOM - SKILLS	262A	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			44	43	8.01	CLASSROOM SECURITY		Yes	
262B	SCENARIO TRAINING	262B	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			-	-	8.00	CLASSROOM SECURITY		Yes	
262C-1	STORAGE	262C	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	E1.01	STOREROOM		Yes	ELECTROMAGNETIC HOLD
262C-2	STORAGE	262C	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	E1.01	STOREROOM		Yes	ELECTROMAGNETIC HOLD
263	CLASSROOM (SIM LAB)	263	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			44	43	8.03	CLASSROOM SECURITY		Yes	
263A	CONTROL ROOM	263A	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	AC2.07	STOREROOM	CR / LATCHBOLT	Yes	
263B	SIMULATION CENTER LARGE ROOM	263B	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	44	44	7.01	PASSAGE		Yes	
264	IT EQUIPMENT ROOM	264	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	44	44	AC2.03	STOREROOM	CR	Yes	
265-1	SIM CENTER - BAR	265	N	GL1	HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			44	44	AC2.08	CLASSROOM SECURITY	CR / LATCHBOLT	Yes	
265-2	SIM CENTER - BAR	265	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	44	44	7.02	PASSAGE		Yes	
265A-1	SIM CENTER - ALLEY	265A	F		HM	3' - 0"	7' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	44	44	7.04	PASSAGE		Yes	
265A-2	SIM CENTER - ALLEY	265A	F		HM	3' - 0"	8' - 0"	1 3/4"	02	HM	6/A681	2/A681		-	44	44	7.02	PASSAGE		Yes	
266	SIM CENTER - LIVING RM	266	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	44	44	AC2.08	CLASSROOM SECURITY	CR / LATCHBOLT	Yes	
266A	SIM - POWDER RM	266A	F		HM	2' - 6"	7' - 0"	1 3/4"	01	HM	6/A681	2/A681			-	-	7.00	PASSAGE		Yes	PROVIDE HINGE PIN OR FLOOR STOP WHERE WALL STOP WON'T WORK
267	STORAGE	267	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	1.00	STOREROOM		Yes	
268	EAST VESTIBULE	268	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	AC3.02	STOREROOM	CR	Yes	EXIT DEVICE / ALWAYS LOCKED / ALARM
268A	PHASE II UNISEX RESTRM	268A	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	4.00	PRIVACY		Yes	OCCUPANCY INDICATOR
268B	PHASE II UNISEX RESTRM	268B	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-			4.00	PRIVACY		Yes	OCCUPANCY INDICATOR
269	STORAGE	269	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	1.00	STOREROOM		Yes	
270	CLASSROOM	270	N	GL1	HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	43	43	8.03	CLASSROOM SECURITY		Yes	
270A	MODULAR AMBULANCE	270A	N	GL1	HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	1.00	STOREROOM		Yes	
271	UNISEX RESTROOM	271	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	4.00	PRIVACY		Yes	OCCUPANCY INDICATOR
272	MENS	272	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	3.00	PASSAGE		Yes	PUSH / PULL
273	WOMENS	273	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	3.00	PASSAGE		Yes	PUSH / PULL
274	UNISEX RESTROOM	274	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	4.00	PRIVACY		Yes	OCCUPANCY INDICATOR
275	JAN CL	275	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	1.02	STOREROOM		Yes	
276	WATER HTR RM	276	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681		90 MIN	44	44	AC2.02	STOREROOM	CR	Yes	
277	DATA	277	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681		90 MIN	-	-	AC2.00	STOREROOM	CR	Yes	
278	ELECT	278	F UE		HM	5' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		90 MIN	-	-	AC3.01	STOREROOM	CR	Yes	EXIT DEVICE
279	STAFF WORKSTATIONS	279	AL2	GL1	AL/GL	6' - 0"	8' - 0"	1 3/4"	04	AL	7/A682	3/A682	1/A682	-	-	-	AC4.00	STOREROOM	CR / THUMBTURN CYL.	No	CONCEALED CLOSER
279A	COPY	279A	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	05	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
279B	CHIEF	279B	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
279C	STAFF WORKSTATIONS	279	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
279D	STAFF WORKSTATIONS	279	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
279E	RECORDS AND TESTING	279E	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
C27	CORRIDOR	C27	F2		HM	8' - 0"	8' - 0"	1 3/4"	01	HM	-	-	-	90 MIN	-	-	E1.00	PASSAGE	MGH	Yes	ELECTROMAGNETIC HOLD; PUSH BARS INTEGRATED INTO DOOR PANEL
C28	CORRIDOR	C28	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	AC2.09	CLASSROOM SECURITY	CR	Yes	
E-257	ELECT RM	257	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	11/A681	14/A683	13/A683	-			AC3.03				PROVIDE DOOR SWEEP WITH THICK NEOPRENE SEAL AND DRIP CAP
E-258	GUARDHOUSE	258	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM							AC2.04				LEVEL-3 BALLISTIC DOORS WITH BALLISTIC GLAZING; PROVIDE DOOR SWEEP WITH THICK NEOPRENE SEAL AND DRIP CAP
E-268	EAST VESTIBULE	268	F		HM	3' - 0"	7' - 6"	1 3/4"	01	HM	11/A681	10/A681		-	-	-	2.03	AL-CLASSROOM SECURITY		Yes	EXIT DEVICE / ALWAYS LOCKED; PROVIDE DOOR SWEEP WITH THICK NEOPRENE SEAL AND DRIP CAP
E-270A	MODULAR AMBULANCE	270A				10' - 0"	12' - 6"				10/A682	9/A682	8/A682	-	-	26	b/o			Yes	OVERHEAD DOOR, REF TO SPEC 083323
E-C27	CORRIDOR	C27	F		HM	6' - 0"	8' - 0"	1 3/4"	01	HM	11/A681	10/A681	9/A681	-	-	-	E2.00	PASSAGE	CR	Yes	EXIT DEVICE / EXIT ONLY, ALARM WITH DISABLE KEY; PROVIDE DOOR SWEEP WITH THICK NEOPRENE SEAL AND DRIP CAP
E-ST 10	STAIR 10	ST 10-1	F		HM	6' - 0"	7' - 6"	1 3/4"	01	HM	11/A681	14/A683	13/A683		-		AC1.00	STOREROOM			EXIT DEVICE / FIREMEN ACCESS FROM OUTSIDE; PROVIDE DOOR SWEEP WITH THICK NEOPRENE SEAL AND DRIP CAP
E-ST 11	STAIR 11	ST 11-1	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	11/A681	14/A683	13/A683	-	34	34	E2.01	AL-CLASSROOM SECURITY		Yes	EXIT DEVICE / EXIT ONLY WITH ALARM; PROVIDE DOOR SWEEP WITH THICK NEOPRENE SEAL AND DRIP CAP
ST 10-1	STAIR 10	ST 10-1	F		HM	6' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681	-	-	34	34	2.00	PASSAGE		Yes	EXIT DEVICE
ST 11-1	STAIR 11	ST 11-1	N	GL2	HM	3' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681	-	90 MIN	34	34	2.04	PASSAGE		Yes	EXIT DEVICE
THIRD FLOOR																					
355-1	TRAINING STAFF	355	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	AC2.05	STOREROOM	CR	Yes	
355-2	TRAINING STAFF	355	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	AC2.05	STOREROOM	CR	Yes	
355A	TRAINING STAFF	355	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
355B	STAFF OFFICER	355B	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
355C	TRAINING STAFF	355	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
355D	STAFF OFFICER	355D	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
355E	STAFF MTG RM	355E	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	07	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
356	STORAGE	356	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	-	-	1.00	STOREROOM		Yes	
357	MECH	357	F UE		HM	5' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		90 MIN	44	44	AC2.01	STOREROOM	CR	Yes	
358	ELECT RM	358	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	-	-	AC2.05	STOREROOM	CR	Yes	
359	TRAINING CLASSRM 1	359	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	2.01	CLASSROOM SECURITY	THUMBTURN CYL.	Yes	EXIT DEVICE
360	TRAINING CLASSRM 2	360	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	2.01	CLASSROOM SECURITY	THUMBTURN CYL.	Yes	EXIT DEVICE
361	IN-SERVICE TRAINING CLASSRM 3	361	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	2.01	CLASSROOM SECURITY	THUMBTURN CYL.	Yes	EXIT DEVICE
362	IN-SERVICE TRAINING CLASSRM 4	362	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	2.01	CLASSROOM SECURITY	THUMBTURN CYL.	Yes	EXIT DEVICE
363-1	IN-SERVICE TRAINING STAFF	363	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	AC2.05	STOREROOM	CR	Yes	
363-2	IN-SERVICE TRAINING STAFF	363	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	AC2.05	CLASSROOM SECURITY	CR	Yes	
363A	TRAINING LT.	363A	F		WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-		-	5.00				
363B	TRAINING SGT.	363B	F		WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-		-	5.00				
363C	TRAINING SGT.	363C	F		WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-		-	5.00				
363D	TRAIN. SGT.	363D	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	5.00	OFFICE / ENTRY		No	
363E	TRAINING SGT.	363E	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	5.00	OFFICE / ENTRY		No	
366	SIM CENTER - BEDROOM	366	F		HM	3' - 0"	7' - 0"	1 3/4"	01	HM	6/A681	2/A681			-	-	AC2.09	CLASSROOM SECURITY	CR / LATCHBOLT	Yes	
366-2	SIM CENTER - BEDROOM	366	F		HM	2' - 6"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			34	34	7.01	PASSAGE		Yes	
366A	SIM CENTER - NURSERY	366A	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	7.03	PASSAGE			
366B	SIM CENTER BATHROOM	366B	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	7.03	PASSAGE		Yes	
369	TRAINING CLASSROOM	369	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	8.02	CLASSROOM SECURITY		Yes	STATUS INDICATOR
370	TRAINING CLASSROOM	370	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	8.02	CLASSROOM SECURITY		Yes	STATUS INDICATOR
372	MENS	372	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	3.00	PASSAGE		Yes	PUSH / PULL
373	WOMENS	373	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	3.00	PASSAGE		Yes	PUISH / PULL
374	UNISEX RESTROOM	374	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	4.00	PRIVACY		Yes	OCCUPANCY INDICATOR
377	DATA	377	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	44	44	AC2.03	STOREROOM	CR	Yes	
378	ELECTRICAL	378	F UE		HM	5' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		90 MIN	-	-	AC3.00	STOREROOM	CR	Yes	
S-356						2' - 0"	4' - 0"	1 1/4"						90 MIN	-						SHAFT ACCESS PANEL DOOR
ST 10-2	STAIR 10	ST 10-2	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681		90 MIN	34	34	2.04	PASSAGE		Yes	EXIT DEVICE
ST 11-02	STAIR 11	ST 11-2	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681		-	34	34	2.04	PASSAGE		Yes	EXIT DEVICE

CASED DOOR OPENING SCHEDULE

NO.	ROOM NAME	ROOM NO.	DIMENSIONS HEIGHT	DIMENSIONS WIDTH	DETAIL HEAD	DETAIL JAMB	MATERIAL	NOTES
SECOND FLOOR								
266B	SIM CENTER - KITCHEN	266B	7' - 0"	3' - 0"	6/A684	3/A684	HM	OPENING FRAME
THIRD FLOOR								
366-C	SIM CENTER - BEDROOM	366	7' - 0"	8' - 0"	6/A684	3/A684	HM	OPENING FRAME
Grand total: 2								

NOTES

GENERAL

1. THIS PROJECT IS REQUIRED TO COMPLY FULLY WITH THE FOLLOWING REGULATIONS. THE MOST STRINGENT BETWEEN THE REGULATIONS APPLY.
   A. CHICAGO BUILDING CODE, CHAPTER 18-11 / ANSI A117.1-2009
   B. ILLINOIS ACCESSIBILITY CODE
   C. NEW 2010 ADA (CITY HAS NO AUTHORITY TO ENFORCE, HOWEVER, STILL APPLICABLE)

DOORS

1. ALL CONTROLS AND OPERATING MECHANISMS ARE TO BE BE WITHIN REACH PER ICC/ANSI A117.1-2009, CHAPTER 3.308 & 3.309 (I.E. 15 AND 48 INCHES AFF)
2. PROVIDE PROPER MANUEVERING CLEARANCE AT THE DOOR PER ICC/ANSI A117.1-2009 CHAPTER 4.404.2.3
3. ALL DOORS TO ACCESSIBLE ROOMS AND SPACES TO RECEIVE HARDWARE PER ADAGG 4.13.9, MIN 32" CLEAR OPENING, AND COMPLY WITH ALL ADAAG SECTION 4.13 REQUIREMENTS
   a. ALL DOORS MUST HAVE A 32" CLEAR DOOR OPENING MEASURED FROM THE FACE OF THE DOOR WHEN IT IS OPENED 90% TO THE DOOR STOP PER ICC/ANSI A117.1-2009 CHAPTER 4.404
4. ALL PUBLIC AND COMMON AREA INTERIOR DOORS TO HAVE 5LB MAX FORCE TO OPEN PER IAC 400.310 (J-10)
5. ALL PUBLIC AND COMMON AREA EXTERIOR DOORS TO HAVE A 8.5LB MAX FORCE TO OPEN PER IAC400.310 (J-10)
6. ALL FIRE RATED DOORS SHALL BE LABELED ACCORDINGLY AS REQUIRED BY CODE, AND HAVE A CLOSING DEVICE.
7. REFER TO SPECIFICATION 08 11 13 FOR SOUND RESISTANT DOOR INFORMATION TO MEET SCHEDULED STC RATING.
8. REFER TO SPECIFICATION 08 71 00 FOR HARDWARE SET INFORMATION

ABBREVIATIONS

AL	-	ALUMINUM
AO	-	AUTO OPENER
CR	-	CARD READER
GL	-	GLASS
MGH	-	MAGNETIC HOLD OPEN
HM	-	HOLLOW METAL
HW	-	HARDWARE
STC	-	SOUND TRANSMISSION CLASS
WD	-	WOOD DOOR

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

AECOM
ARCHITECTURE, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION
303 E. Wacker Dr. #1400
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LEVEL-1 GLOBAL SOLUTIONS
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233 S. Wacker Dr. #4400
Chicago, IL 60606
312-202-3300

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
3	07/12/2024	ADD 01
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

DOOR & CASED OPENING SCHEDULES

SHEET NUMBER

A680

Designer: JD
Checked: MS
Approved: JJ
ARCH E1 30"x42"

DOOR SCHEDULE

DOOR NO.	ROOM NAME	ROOM NUMBER	DOOR PANEL TYPE	DOOR PANEL GLAZING	DOOR PANEL MATERIAL	DOOR PANEL WIDTH	DOOR PANEL HEIGHT	DOOR PANEL THICKNESS	DOOR FRAME TYPE	DOOR FRAME MATERIAL	DETAIL HEAD	DETAIL JAMB	DETAIL SILL	FIRE RATING	STC RATING REQUESTED	STC RATING	HW SET	LOCKSET FUNCTION	SECURITY	DOOR CLOSER	NOTES
FOURTH FLOOR																					
455	INSTRUCTOR'S ACADEMY BREAKOUT	455	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
456	CORRIDOR	C31	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
457	INSTRUCTOR'S ACADEMY BREAKOUT	457	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
458	INSTRUCTOR'S ACADEMY BREAKOUT	458	AL1	GL1	AL/GL	3' - 0"	8' - 0"	1 3/4"	06	AL	6/A681	3/A682	1/A682	-	-	-	3.01	OFFICE / ENTRY	THUMBTURN CYL.	No	
459	STORAGE ROOM	459	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	1.00	STOREROOM		Yes	
460-1	TRAINING CLASSRM	460	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	-	-	2.05	CLASSROOM SECURITY		Yes	EXIT DEVICE
460-2	TRAINING CLASSRM	460	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681		90 MIN	-	-	2.02	STOREROOM	THUMBTURN CYL.	Yes	EXIT DEVICE / EXIT ONLY
460A	CHAIR STORAGE	460A	N		HM	2' - 6"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			-	-	1.00	STOREROOM		Yes	
461-1	TRAINING CLASSRM	461	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	-	-	2.05	CLASSROOM SECURITY		Yes	EXIT DEVICE
461-2	TRAINING CLASSRM	461	N	GL2	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	-	-	2.05	CLASSROOM SECURITY		Yes	EXIT DEVICE
462	COMPUTER LAB	462	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	-	-	8.02	CLASSROOM SECURITY		Yes	
463-1	TRAINING OFFICE	463	N		WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	AC2.05	STOREROOM		Yes	
463-2	TRAINING OFFICE	463	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681 / 3/A681	1/A681	-	-	-	AC2.05	STOREROOM		Yes	
463A	SGT	463A	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			-	-	5.00	OFFICE / ENTRY		No	
463B	SGT	463B	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			-	-	5.00	OFFICE / ENTRY		No	
463C	SGT	463C	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681			-	-	5.00	OFFICE / ENTRY		No	
463D	STAFF MTG RM	463D	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	4/A683		-	43	43	7.01	PASSAGE		Yes	
465	CLASSROOM	465	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	8.01	CLASSROOM SECURITY		Yes	
470	REFRESHER CLASSROOM	470	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	8.01	CLASSROOM SECURITY		Yes	
471	BASIS CLASSROOM	471	N	GL1	WD	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	43	43	8.01	CLASSROOM SECURITY		Yes	
472	MENS	472	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	3.00	PASSAGE		Yes	PUSH / PULL
473	WOMENS	473	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		-	-	-	3.00	PASSAGE		Yes	PUSH / PULL
474	UNISEX RESTROOM	474	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	-	-	4.00	PRIVACY		Yes	OCCUPANCY INDICATOR
477	DATA	477	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	6/A681	2/A681		45 MIN	44	44	AC2.03	STOREROOM	CR	Yes	
E-C30	CORRIDOR	C31	F		HM	3' - 0"	7' - 6"	1 3/4"	01	HM	11/A681	10/A681		-	34	34	AC2.06	STOREROOM	CR	Yes	KEY ACCESS
ST 10-3	STAIR 10	ST 10-3	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681		90 MIN	34	34	2.04	PASSAGE		Yes	EXIT DEVICE
ST 11-3	STAIR 11	ST 11-3	F		HM	3' - 0"	8' - 0"	1 3/4"	01	HM	8/A681	5/A681		-	-	-	2.04	PASSAGE		Yes	EXIT DEVICE
ROOF																					
E-ST 11-4	STAIR 11	ST 11-4	F		HM	3' - 0"	7' - 6"	1 3/4"	01	HM	11/A681	10/A681		-	34	34	1.01	STOREROOM		Yes	KEY ACCESS

Grand total: 116

NOTES

GENERAL

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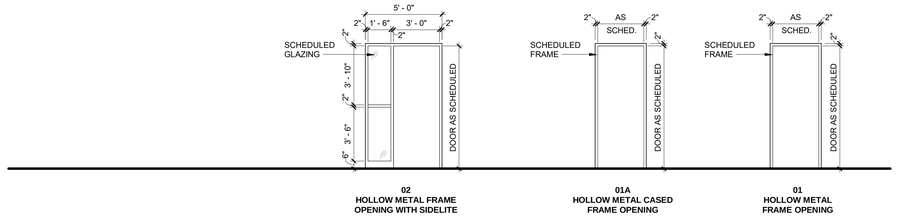
8. REFER TO SPECIFICATION 08 71 00 FOR HARDWARE SET INFORMATION

ABBREVIATIONS

AL	-	ALUMINUM
AO	-	AUTO OPENER
CR	-	CARD READER
GL	-	GLASS
MGH	-	MAGNETIC HOLD OPEN
HM	-	HOLLOW METAL
HW	-	HARDWARE
STC	-	SOUND TRANSMISSION CLASS
WD	-	WOOD DOOR

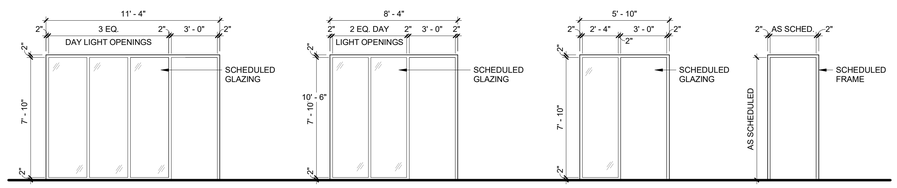


02
HOLLOW METAL FRAME OPENING WITH SIDELITE

01A
HOLLOW METAL CASED FRAME OPENING

01
HOLLOW METAL FRAME OPENING

OH



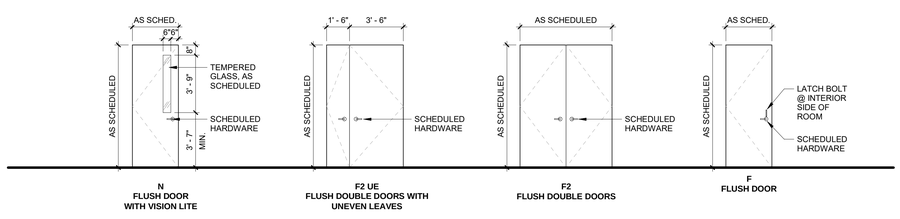
07
INTERIOR ALUMINUM STOREFRONT OPENING WITH LITE(S)

06
INTERIOR ALUMINUM STOREFRONT OPENING WITH LITE(S)

05
INTERIOR ALUMINUM STOREFRONT OPENING WITH LITE(S)

04
INTERIOR ALUMINUM STOREFRONT OPENING

2 FRAME TYPES
NTS

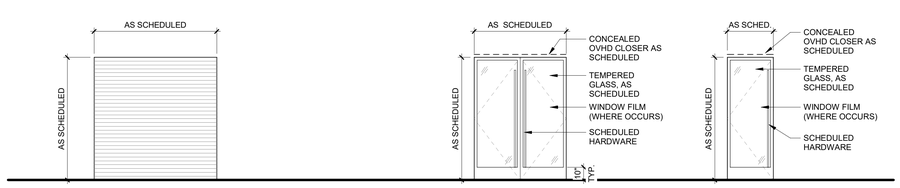


N
FLUSH DOOR WITH VISION LITE

F2 UE
FLUSH DOUBLE DOORS WITH UNEVEN LEAVES

F2
FLUSH DOUBLE DOORS

F
FLUSH DOOR



OH
POWER OPERATED COILING OVERHEAD DOOR

AL2
DOUBLE GLASS DOOR - NARROW STILE (REFER TO HARDWARE SETS FOR ACTUAL CONFIGURATION, MAY VARY FROM ELEVATION)

AL
GLASS DOOR - NARROW STILE (REFER TO HARDWARE SETS FOR ACTUAL CONFIGURATION, MAY VARY FROM ELEVATION)

1 DOOR PANEL TYPES
NTS

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

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TECHNOLOGY CONSULTANT
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Chicago, IL 60606
312-202-3300

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

DOOR SCHEDULE, PANEL AND FRAME TYPES

SHEET NUMBER

A681

Last Plotted: 7/31/2024 6:29:04 PM
Filename: Autodesk Docs://EP-AMER (USA) 60710711-PSTC EMS Addition/60710711_ACH_E02_(PSTC ADD_A.rvt

EXTERIOR GLAZING SCHEDULE

NO.	ROOM NO.	ROOM NAME	FRAME TYPE	FRAME MATERIAL	GLAZING	DIMENSIONS WIDTH	DIMENSIONS HEIGHT	DIMENSIONS SILL HEIGHT	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	NOTES
02_SECOND FLOOR												
W28			W02	AL	IG1	8' - 0"	9' - 6"	3' - 0"				
W258-1			W01	AL	IG2 IG2	4' - 0"	7' - 0"	0"				GL-3 AT INTERIOR. LEVEL-3 BALLISTICS RATING WITH 1-WAY VISION.
W258-2			W03	AL	IG2	12' - 0"	7' - 0"	0"				GL-3 AT INTERIOR. LEVEL-3 BALLISTICS RATING WITH 1-WAY VISION.
W258-3			W01	AL	IG1	4' - 3"	7' - 0"	0"				GL-3 AT INTERIOR. LEVEL-3 BALLISTICS RATING WITH 1-WAY VISION.
W259-1			W02	AL	IG1	8' - 0"	9' - 6"	3' - 0"				
W259-2			W01	AL	IG1	4' - 0"	9' - 6"	3' - 0"				
W259-3			W01	AL	IG1	4' - 0"	9' - 6"	0"				
W260			W02	AL	IG1	8' - 0"	9' - 6"	3' - 0"				
W261-1			W02	AL	IG1	8' - 0"	9' - 6"	3' - 0"				
W261-2			W01	AL	IG1	4' - 0"	9' - 6"	3' - 0"				
W262A			W01	AL	IG1	4' - 0"	9' - 6"	3' - 0"				
W262B			W01	AL	IG1	4' - 0"	9' - 6"	3' - 0"				
W263			W02	AL	IG1	8' - 0"	9' - 6"	3' - 0"				
W263B			W01	AL	IG1	4' - 0"	9' - 6"	3' - 0"				
W265A			W02	AL	IG1	6' - 0"	9' - 6"	3' - 0"				
W266			W01	AL	IG1	4' - 0"	9' - 6"	3' - 0"				
W270			W01	AL	IG1	4' - 0"	9' - 6"	3' - 0"				
W279B			W01	AL	IG1	4' - 0"	9' - 6"	0"				
W279C			W01	AL	IG1	4' - 0"	9' - 6"	0"				
W279D			W01	AL	IG1	4' - 0"	9' - 6"	0"				
W279E			W01	AL	IG1	4' - 0"	9' - 6"	0"				
02_SECOND FLOOR: 21												
03_THIRD FLOOR												
W29			W02	AL	IG1	6' - 0"	12' - 6"	0"				
W355A			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W355B			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W355C			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W355D			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W355E			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W359-1			W03	AL	IG1	10' - 0"	12' - 0"	6"				
W359-2			W01	AL	IG1	4' - 0"	12' - 0"	0"				
W360-1			W02-B	AL	IG1	6' - 0"	12' - 0"	6"				
W360-2			W02	AL	IG1	8' - 0"	12' - 0"	6"				
W361-1			W01	AL	IG1	4' - 0"	12' - 0"	6"				
W361-2			W02-A	AL	IG1	6' - 0"	12' - 0"	6"				
W362			W02-B	AL	IG1	6' - 0"	12' - 0"	6"				
W363-1			W02	AL	IG1	6' - 0"	12' - 0"	6"				
W363-2			W01	AL	IG1	4' - 0"	12' - 0"	6"				
W363-3			W01	AL	IG1	4' - 0"	12' - 0"	6"				
W363-4			W01	AL	IG1	4' - 0"	12' - 0"	6"				
W363A			W01	AL	IG1	4' - 0"	12' - 0"	6"				
W363B			W02-A	AL	IG1	6' - 0"	12' - 0"	6"				
W363E			W01	AL	IG1	4' - 0"	12' - 0"	6"				
W366-1			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W366A			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W369-1			W01	AL	IG1	4' - 0"	12' - 6"	6"				
W369-2			W01	AL	IG1	4' - 0"	12' - 6"	6"				
W370-1			W01	AL	IG1	4' - 0"	12' - 6"	6"				
W370-2			W01	AL	IG1	4' - 0"	12' - 6"	6"				
WST11-02			W01	AL	IG1	4' - 0"	12' - 6"	0"				
03_THIRD FLOOR: 27												
04_FOURTH FLOOR												
W30			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W455			W01	AL	IG1	4' - 0"	12' - 0 1/2"	1' - 0"				
W456			W01	AL	IG1	4' - 0"	12' - 0 1/2"	1' - 0"				
W457			W01	AL	IG1	4' - 0"	12' - 0 1/2"	1' - 0"				
W458			W01	AL	IG1	4' - 0"	12' - 0 1/2"	1' - 0"				
W460-1			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W460-2			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W460-3			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W460-4			W01	AL	IG1	4' - 0"	12' - 0"	0"				
W460-5			W02	AL	IG1	8' - 0"	12' - 0 1/2"	0"				
W461-1			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W461-2			W02	AL	IG1	8' - 0"	12' - 0 1/2"	6"				
W461-3			W02	AL	IG1	8' - 0"	12' - 0 1/2"	6"				
W462			W02	AL	IG1	8' - 0"	12' - 0 1/2"	6"				
W463-1			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W463-2			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W463-3			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W463A			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W463B			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W463C			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W463D			W01	AL	IG1	4' - 0"	12' - 0 1/2"	6"				
W465-1			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W465-2			W01	AL	IG1	4' - 0"	12' - 6"	0"				
W465-3			W02	AL	IG1	6' - 0"	12' - 0 1/2"	6"				
W470-1			W01	AL	IG1	4' - 0"	12' - 6 1/2"	6"				
W470-2			W01	AL	IG1	4' - 0"	12' - 6 1/2"	6"				
W471-1			W01	AL	IG1	4' - 0"	12' - 6 1/2"	6"				
W471-2			W01	AL	IG1	4' - 0"	12' - 6 1/2"	6"				
WST11-03			W01	AL	IG1	4' - 0"	12' - 6"	0"				
04_FOURTH FLOOR: 29												
Grand total: 77												

INTERIOR GLAZING SCHEDULE

TAG	ROOM NAME	ROOM NO.	MATERIALS FRAME	MATERIALS GLAZING	DIMENSIONS WIDTH	DIMENSIONS HEIGHT	DIMENSIONS SILL HEIGHT	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	WINDOW TYPE	NOTES
SECOND FLOOR												
W263A-1	CONTROL ROOM	263A	HM	GL1	7' - 0"	5' - 0"	3' - 0"				IG-02	
W263A-2	CONTROL ROOM	263A	HM	GL1	10' - 0"	5' - 0"	3' - 0"				IG-02	
W263A-3	CONTROL ROOM	263A	HM	GL1	7' - 0"	5' - 0"	3' - 0"				IG-02	
W279	STAFF WORKSTATIONS	279	AL	GL1	6' - 8"	8' - 0"	0"				IG-01	
THIRD FLOOR												
W355-1	TRAINING STAFF	355	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W355-2	TRAINING STAFF	355	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W355-3	TRAINING STAFF	355	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W355-4	TRAINING STAFF	355	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W363-5	IN-SERVICE TRAINING STAFF	363	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W363-6	IN-SERVICE TRAINING STAFF	363	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W363-7	IN-SERVICE TRAINING STAFF	363	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W363-8	IN-SERVICE TRAINING STAFF	363	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W363C	TRAINING SGT.	363C	HM	GL1	2' - 6"	7' - 0"	1' - 0"				IG-02	
W366-2	SIM CENTER - BEDROOM	366	HM	SG1	4' - 0"	7' - 0"	3' - 0"				IG-03	DOUBLE HUNG OPERABLE WINDOW W/ SAFETY GLAZING GL-1
FOURTH FLOOR												
W463-4	TRAINING OFFICE	463	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
W463-5	TRAINING OFFICE	463	HM	GL1	4' - 0"	5' - 0"	3' - 0"				IG-02	
Grand total: 16												

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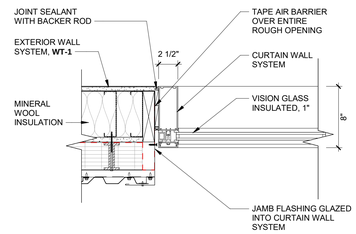
GLAZING SCHEDULE

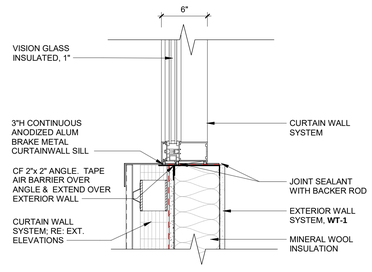
MARK	TYPE	SPEC
GL1:	TEMPERED SAFETY GLAZING	08 80 00
GL2:	FIRE-RATED GLAZING	08 80 00
GL3:	BALLISTIC GLAZING	08 80 00
IG1:	INSULATED GLAZING	08 80 00
IG2:	INSULATED GLAZING - ONE WAY VISION	08 80 00
SG1:	POLYCARBONATE SHEET	08 88 56

ABBREVIATIONS

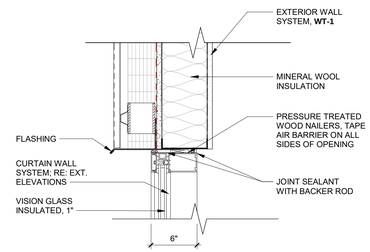
AL - ALUMINUM
HM - HOLLOW METAL
GL - GLASS



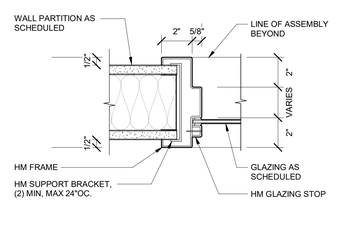
4 **EXTERIOR GLAZING JAMB DETAIL**
Scale: 1 1/2" = 1'-0"



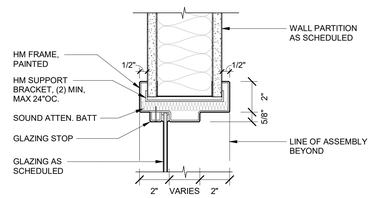
3 **EXTERIOR GLAZING SILL DETAIL**
Scale: 1 1/2" = 1'-0"



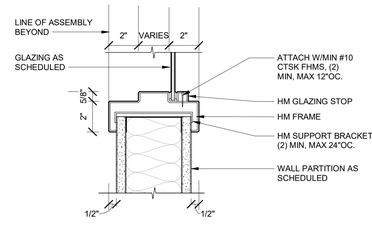
2 **EXTERIOR GLAZING HEAD DETAIL**
Scale: 1 1/2" = 1'-0"



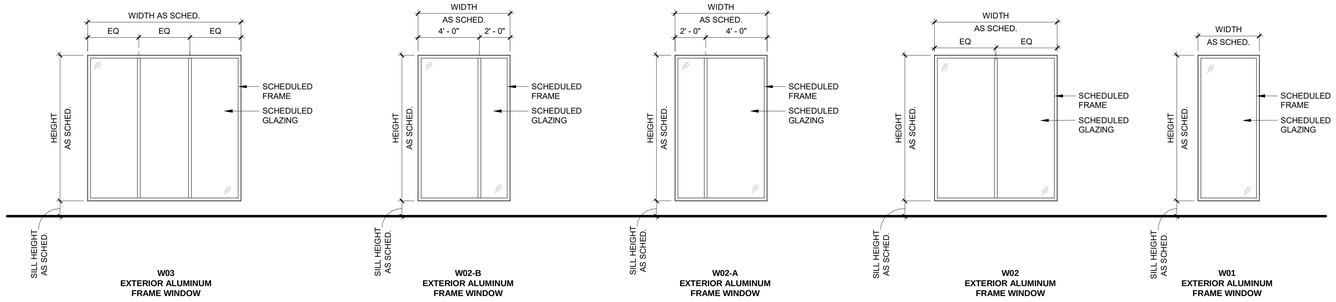
7 **HM WINDOW JAMB DETAIL**
Scale: 3" = 1'-0"

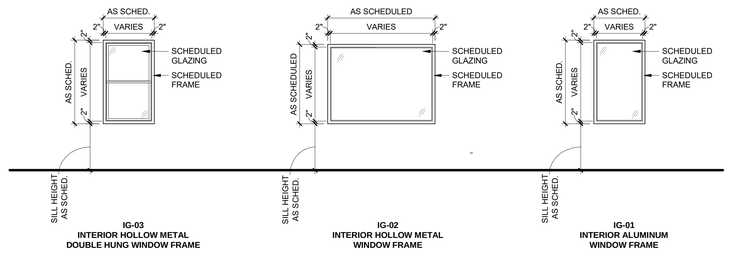


6 **HM WINDOW HEAD DETAIL**
Scale: 3" = 1'-0"



5 **HM WINDOW SILL DETAIL**
Scale: 3" = 1'-0"





1 **WINDOW TYPES**
Scale: 1/4" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

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ARCHITECTURE, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION
303 E. Wacker Dr. #1400
Chicago, IL 60601
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ARCHITRAVE LIMITED
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ABERCROMBIE PLANNING+DESIGN
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LEVEL-1 GLOBAL SOLUTIONS
TECHNOLOGY CONSULTANT
233 S. Wacker Dr. #4400
Chicago, IL 60606
312-202-3300

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

GLAZING SCHEDULE, FRAME TYPES, AND DETAILS

SHEET NUMBER

A686

LIGHT FIXTURE SCHEDULE

TAG	MANUFACTURER	MODEL	HEIGHT FROM FLOOR	COUNT	WATTAGE	DESCTRIPTION	COMMENTS	SPEC SHEET
INTERIOR								
DB	CSL	Acrobat A4-SP		PER PLAN	15W	RECESSED 4" CAN LED LIGHT	Match Existing	
KA	DAY-BRITE	FSS455L830-UNV-DIM	9' AFF	PER PLAN	42W	4' LINEAR STRIP LIGHT	Match Existing	FLUXSTREAM STRIP
KB	DAY-BRITE	FSS860L830-UNV-DIM	9' AFF	PER PLAN	44W	8' LINEAR STRIP LIGHT	Match Existing	FLUXSTREAM STRIP
LA	BASO (formerly XAL)	BASO2.5PDT-WH-OPBW-30K-C90-UNV-010V-1200LF-50%UP50%DOWN-ST-48IN	10' AFF	PER PLAN	10W/FT	4' LINEAR UP/DOWN PENDANT	Match Existing	BASO 2.5 DIRECT/INDIRECT
LB	BASO (formerly XAL)	BASO2.5PDT-WH-OPBW-30K-C90-UNV-010V-1200LF-50%UP50%DOWN-ST-60IN	10' AFF	PER PLAN	10W/FT	5' LINEAR UP/DOWN PENDANT	Match Existing	BASO 2.5 DIRECT/INDIRECT
LC	BASO (formerly XAL)	BASO2.5PDT-WH-OPBW-30K-C90-UNV-010V-1200LF-50%UP50%DOWN-ST-72IN	10' AFF	PER PLAN	10W/FT	6' LINEAR UP/DOWN PENDANT	Match Existing	BASO 2.5 DIRECT/INDIRECT
LD	BASO (formerly XAL)	BASO2.5PDT-WH-OPBW-30K-C90-UNV-010V-1200LF-50%UP50%DOWN-ST-XXFTXXIN	10' AFF	PER PLAN	10W/FT	CONTINUOUS LINEAR UP/DOWN PENDANT, SEE PLANS FOR CONFIGURATIONS	Match Existing	BASO 2.5 DIRECT/INDIRECT
LE	BASO (formerly XAL)	BASO2.5-PDT-WH-OP-30K-C90-UNV-010V-600LF-ST-XXFTXXIN	10' AFF	PER PLAN	6W/FT	CONTINUOUS LINEAR DOWN ONLY PENDANT, SEE PLANS FOR CONFIGURATIONS	Match Existing	BASO 2.5 DIRECT
LG	BASO (formerly XAL)	BASO2.5-PDT-WH-OP-30K-C90-UNV-010V-600LF-ST-96IN	9' AFF	PER PLAN	6W/FT	8' LINEAR DOWN PENDANT	Match Existing	BASO 2.5 DIRECT
LM	BASO (formerly XAL)	CORNER-SUR-WH-OP-30K-C90-0470LF-ST-84IN	SURFACE MOUNT	PER PLAN	6W/FT	7' LINEAR TWO-SIDED LENS CORNER MOUNT	Match Existing	CORNER
LN	BASO (formerly XAL)	CORNER-SUR-WH-OP-30K-C90-UNV-010V-0470LF-ST-96IN	SURFACE MOUNT	PER PLAN	6W/FT	7' LINEAR TWO-SIDED LENS CORNER MOUNT	Match Existing	CORNER
LO	BASO (formerly XAL)	BASO2.5-WAL-WH-30K-C90-UNV-010V-0500LF-ST-72IN	SURFACE MOUNT	PER PLAN	6W/FT	6' LINEAR DIRECT DOWN WALL MOUNT	Match Existing	BASO 2.5 DIRECT
KA	DAY-BRITE	FSS455L830-UNV-DIM	9' AFF	PER PLAN	42W	4' LINEAR STRIP LIGHT	Match Existing	FLUXSTREAM STRIP
EA	SURE-LITES	ECHX	9'-0"	PER PLAN	5W	LED SINGLE FACE WALL MOUNTED EXIT, W/ LED LAMP MODULES; RED UNIFORMLY ILLUMINATED LETTERS; EDGE LIT ACRYLIC PANEL; ARROWS AS SHOWN; DUAL VOLTAGE; AC ONLY; AND CHICAGO APPROVED WITH BATTERY BACKUP	Match Existing	
EB	SURE-LITES	ECHX		PER PLAN	5W	LED SINGLE FACE WALL MOUNTED EXIT, W/ LED LAMP MODULES; RED UNIFORMLY ILLUMINATED LETTERS; EDGE LIT ACRYLIC PANEL; ARROWS AS SHOWN; DUAL VOLTAGE; RECESSED MOUNTED; AC ONLY; AND CHICAGO APPROVED.	Match Existing	
EC	SURE-LITES	ECHX		PER PLAN	5W	LED DOUBLE FACE WALL MOUNTED EXIT, W/ LED LAMP MODULES; RED UNIFORMLY ILLUMINATED LETTERS; EDGE LIT ACRYLIC PANEL; ARROWS AS SHOWN; DUAL VOLTAGE; AC ONLY; AND CHICAGO APPROVED	Match Existing	
ED	SURE-LITES	ECHX	9'-0"	PER PLAN	5W	LED DOUBLE FACE PENDANT MOUNTED EXIT, W/ LED LAMP MODULES; RED UNIFORMLY ILLUMINATED LETTERS; EDGE LIT ACRYLIC PANEL; TYPE #21 W/ ARROWS; DUAL VOLTAGE; AC ONLY; AND CHICAGO APPROVED	Match Existing	
EE	SURE-LITES	ECHX		PER PLAN	5W	SINGLE FACE 'STAIRS' WALL MOUNTED SIGN, W/ LED LAMP MODULES; RED UNIFORMLY ILLUMINATED LETTERS; EDGE LIT ACRYLIC PANEL; ARROWS AS SHOWN; DUAL VOLTAGE; AC ONLY; AND CHICAGO APPROVED	Match Existing	
EXTERIOR								
WB	GARDCO	GWS-A05-840-T3M-UNV-MG		PER PLAN	41W	LED WALL PACK, SMALL	Color - Medium Gray	GEOFORM SMALL
WC	GARDCO	PFF-276L-1_2A-NW-G2-AIRP-UNV-MGY		PER PLAN	1022W	LED FLOOD LIGHT, NEMA 7X5	Courtyard lighting; Color - Medium Gray	POWERFORM
WD	GARDCO	PFF-230L-1A-NW-G2-RM-UNV-MGY-GS-PFF-230		PER PLAN	1050W	LED FLOOD LIGHT, NEMA 7X4 W/ GLARE SHIELD	Courtyard lighting; Color - Medium Gray	POWERFORM

6

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

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LEVEL-1 GLOBAL SOLUTIONS
TECHNOLOGY CONSULTANT
233 S. Wacker Dr. #4400
Chicago, IL 60606
312-202-3300

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

LIGHT FIXTURE SCHEDULE

SHEET NUMBER

A687

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	INTERIOR FINISHES						COMMENTS
		FLOOR	BASE	WALL				
				NORTH	EAST	SOUTH	WEST	
SECOND FLOOR								
255	BREAK ROOM	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
256	MECH RM	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
257	ELECT RM	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
258	GUARDHOUSE	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
258A	WEAPONS STORAGE	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
259	CLASSROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
260	CLASSROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
261	CLASSROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
262A	CLASSROOM - SKILLS	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
262B	SCENARIO TRAINING	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
262C	STORAGE	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
263	CLASSROOM/SIM LAB	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
263A	CONTROL ROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
263B	SIMULATION CENTER LARGE ROOM	SC-1	RB-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	REFER TO FINISH PLANS AND ELEVATIONS
264	IT EQUIPMENT ROOM	SD-1	RB-1	PT-1	PT-1	PT-1	PT-1	
265	SIM CENTER - BAR	SC-1	RB-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	REFER TO FINISH PLANS AND ELEVATIONS
265A	SIM CENTER - ALLEY	SC-1	RB-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	REFER TO FINISH PLANS AND ELEVATIONS
266	SIM CENTER - LIVING RM	SC-1	RB-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	REFER TO FINISH PLANS AND ELEVATIONS
266A	SIM - POWDER RM	SC-1	RB-1	FRP-2; PT-1	PT-1	FRP-2; PT-1	FRP-2; PT-1	REFER TO FINISH PLANS AND ELEVATIONS
266B	SIM CENTER - KITCHEN	SC-1	RB-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	REFER TO FINISH PLANS AND ELEVATIONS
267	STORAGE	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
268	EAST VESTIBULE	EP-1	RB-1	PT-1	PT-1	PT-1	PT-1	
268A	PHASE II UNISEX RESTRM	EP-1	CT-1	CT-1	CT-1	CT-1	CT-1	REFER TO A402
268B	PHASE II UNISEX RESTRM	EP-1	CT-1	CT-1	CT-1	CT-1	CT-1	REFER TO A402
269	STORAGE	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
270	CLASSROOM	EP-2	RB-1	PT-1	PT-1	PT-1	PT-1	
270A	MODULAR AMBULANCE	EP-1	RB-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	REFER TO ELEVATOR SPECIFICATION FOR FINISHES
271	UNISEX RESTROOM	EP-1	CT-2 AND RB-2	FRP-1	FRP-1	FRP-1	CT-1	REFER TO A402
272	MENS	EP-1	CT-2 AND RB-2	FRP-1	FRP-1	FRP-1	CT-1	REFER TO A401
273	WOMENS	EP-1	CT-2 AND RB-2	FRP-1	CT-1	FRP-1	FRP-1	REFER TO A401
274	UNISEX RESTROOM	EP-1	CT-2 AND RB-2	FRP-1	CT-1	FRP-1	FRP-1	REFER TO A402
275	JAN CL	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	FRP 1 AROUND SINK
276	WATER HTR RM	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
277	DATA	SD-1	RB-1	PT-1	PT-1	PT-1	PT-1	
278	ELECT	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
279	STAFF WORKSTATIONS	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
279A	COPY	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
279B	CHIEF	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
279C	CMMD	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
279D	COORDINATING OFFICE	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
279E	RECORDS AND TESTING	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
C27	CORRIDOR	SC-1	RB-1	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	
C28	CORRIDOR	CPT-1	RB-1	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	
E2-1	ELEV		-	-	-	-	-	REFER TO ELEVATOR SPECIFICATION FOR FINISHES
ST 10-1	STAIR 10	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
ST 11-1	STAIR 11	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
THIRD FLOOR								
355	TRAINING STAFF	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
355A	STAFF OFFICER	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
355B	STAFF OFFICER	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
355C	STAFF OFFICER	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
355D	STAFF OFFICER	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
355E	STAFF MTG RM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
356	STORAGE	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
357	MECH	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
358	ELECT RM	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
359	TRAINING CLASSRM 1	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
360	TRAINING CLASSRM 2	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
361	IN-SERVICE TRAINING CLASSRM 3	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
362	IN-SERVICE TRAINING CLASSRM 4	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
363	IN-SERVICE TRAINING STAFF	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
363A	TRAINING LT.	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
363B	TRAINING SGT.	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
363C	TRAINING SGT.	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
363D	TRAIN. SGT.	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
363E	TRAINING SGT.	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
366	SIM CENTER - BEDROOM	SC-1	RB-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	INTERIOR FINISHES						COMMENTS
		FLOOR	BASE	WALL				
				NORTH	EAST	SOUTH	WEST	
366A	SIM CENTER - NURSERY	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
366B	SIM CENTER BATHROOM	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
369	TRAINING CLASSROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
370	TRAINING CLASSROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
372	MENS	EP-1	CT-2 AND RB-2	FRP-1	FRP-1	FRP-1	CT-1	REFER TO A401
373	WOMENS	EP-1	CT-2 AND RB-2	FRP-1	CT-1	FRP-1	FRP-1	REFER TO A401
374	UNISEX RESTROOM	EP-1	CT-2 AND RB-2	FRP-1	CT-1	FRP-1	FRP-1	
377	DATA	SD-1	RB-1	PT-1	PT-1	PT-1	PT-1	
378	ELECTRICAL	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
C29	CORRIDOR	SC-1	RB-1	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	
C29-S1	SHAFT	-	-	-	-	-	-	
C29-S2	SHAFT	-	-	-	-	-	-	
E2-2	ELEV.		-	-	-	-	-	REFER TO ELEVATOR SPECIFICATION FOR FINISHES
ST 10-2	STAIR 10	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
ST 11-2	STAIR 11	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
ST 12	STAIR 12	SC-1	RB-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	FRP-2; PT-1	
FOURTH FLOOR								
300-SE	SHAFT	-	-	-	-	-	-	
300-SM	SHAFT	-	-	-	-	-	-	
455	INSTRUCTOR'S ACADEMY BREAKOUT	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
456	INSTRUCTOR'S ACADEMY BREAKOUT	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
457	INSTRUCTOR'S ACADEMY BREAKOUT	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
458	INSTRUCTOR'S ACADEMY BREAKOUT	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
459	STORAGE ROOM	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
460	TRAINING CLASSRM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
460A	CHAIR STORAGE	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
461	TRAINING CLASSRM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
462	COMPUTER LAB	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
463	TRAINING OFFICE	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
463A	SGT	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
463B	SGT	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
463C	SGT	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
463D	STAFF MTG RM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
465	CLASSROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
470	REFRESHER CLASSROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
471	BASIS CLASSROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
472	MENS	EP-1	CT-2 AND RB-2	FRP-1	FRP-1	FRP-1	CT-1	REFER TO A401
473	WOMENS	EP-1	CT-2 AND RB-2	FRP-1	CT-1	FRP-1	FRP-1	REFER TO A401
474	UNISEX RESTROOM	EP-1	CT-2 AND RB-2	FRP-1	CT-1	FRP-1	FRP-1	
477	DATA	SD-1	RB-1	PT-1	PT-1	PT-1	PT-1	
C31	CORRIDOR	SC-1	RB-1	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	PT-2 UP TO 4' ;WP-1 @ 4' AFF, PT-1 ABOVE	
E2-3	ELEV		-	-	-	-	-	REFER TO ELEVATOR SPECIFICATION FOR FINISHES
ST 10-3	STAIR 10	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
ST 11-3	STAIR 11	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	
ROOF								
ST 11-4	STAIR 11	SC-1	RB-1	PT-1	PT-1	PT-1	PT-1	

TOILET ACCESSORIES SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	FINISH	PROVIDED BY	COMMENTS
TA-GB18	GRAB BAR 18"	BRADLEY CORPORATION	8122-001240		CONTRACTOR	CFCI
TA-GB36	GRAB BAR 36"	BRADLEY CORPORATION	8122-001360		CONTRACTOR	CFCI
TA-GB42	GRAB BARS 42"	BRADLEY CORPORATION	8122-001420		CONTRACTOR	CFCI
TA-MIR	BOBRICK B-290 2448 WELDED FRAME MIRROR	BOBRICK WASHROOM EQUIPMENT, INC.	B-290 2448		CONTRACTOR	CFCI
TA-PD	PAPER TOWEL DISPENSER	GP PRO Georgia-Pacific LLC	59589		OWNER	OFCI
TA-SD	SOAP DISPENSER	SYMMETRY	99610001		OWNER	OFCI
TA-TH	TOWEL HOOK				CONTRACTOR	CFCI
TA-TH ADA	TOWEL HOOK - ADA				CONTRACTOR	CFCI
TA-TTD	TOILET TISSUE DISPENSER	SAN JAMAR	R2090TBk		OWNER	OFCI

FINISH LEGEND

MATERIAL CODE	MATERIAL TYPE	MANUFACTURER	STYLE	MODEL NUMBER/ COLOR	ADDITIONAL NOTES	SPEC SECTION
BASE						
RB-1	RUBBER BASE	TARKETT (JOHNSONITE)	BASEWORKS THERMOSET RUBBER (TYPE TS), 6"	38 PEWTER CG	6" TALL BASE	
RB-2	RUBBER BASE	TARKETT (JOHNSONITE)	BASEWORKS THERMOSET RUBBER (TYPE TS), 4"	38 PEWTER CG	4" TALL BASE AT LOCKERS	
CEILING						
ACT-1	ACOUSTIC CEILING TILE, TYP	USG		24" x 24" HALCYON	WHITE	
EXP-1	EXPOSED	-		-	-	
EXP-2	EXPOSED PAINTED STRUCTURE AND MEP/ FIRE INFRASTRUCTURE	BENJAMIN MOORE		LATEX DRYFALL	OC - 64 PURE WHITE	
EXP-3	EXPOSED; ACOUSTIC SPRAY ON DECK; PAINTED STRUCTURE AND MEP/ FIRE INFRASTRUCTURE	K13; BENJAMIN MOORE		ACOUSTIC SPRAY INTEGRAL COLOR WHITE; MEPFP LATEX DRYFALL PAINT	WHITE	ACOUSTIC SPRAY INTEGRALLY COLORED
GB-1	GYPSUM BOARD, PAINTED	BENJAMIN MOORE		ULTRA SPEC 500 FLAT CEILING PAINT	OC - 64 PURE WHITE	
FLOORING						
CPT-1	CARPET	INTERFACE		HUMAN NATURE COLLECTION HN840, ASHEN PATTERN	104221 FLINT	
CPT-2	CARPET	AMARCO		BUFFALO TILE	3/8" RECYCLED TILE - WALK-OFF TILE - COLOR TO BE SELECTED FROM MANUFACTURERS FULL RANGE	MEDIUM DUTY
CPT-2	CARPET	AMARCO		BUFFALO TILE	3/8" RECYCLED TILE - WALK-OFF TILE - COLOR TO BE SELECTED FROM MANUFACTURERS FULL RANGE	MEDIUM DUTY
EP-1	EPOXY	DUR-A-FLEX		DUR-A-GARD	COLOR TO BE SELECTED FROM MANUFACTURERS FULL RANGE	MEDIUM DUTY
RT-2	TILE	ARNSON FLOORS		STEEL STUDDED RUBBER TILES 12" X 12" X 1/8"	-	FOR USE IN ELEVATOR ONLY
SC-1	CONCRETE	LATICRETE		L&M DENSIFIER/HARDENER	TBD	
SD-1	TILE	ARMSTRONG FLOORING		EXCELON SDT	-	
HIGH PRESSURE LAMINATE						
HPL-1	HIGH PRESSURE LAMINATE	TRESPA		TOPLAB BASE	S17-32	SIMULATION COUNTERTOPS
LAMINATE						
PL-1	PLASTIC LAMINATE	WILSON ART		PORTICO TEAK; GLOSS LINE FINISH	8210K-28	FOR USE IN ALL BREAKROOMS
PAINT						
PT-1	PAINT	BENJAMIN MOORE		ULTRA SPEC LOW SHEEN EGGSHELL	OC - 64 PURE WHITE	
PT-2	PAINT	BENJAMIN MOORE		ULTRA SPEC SEMI GLOSS	OC - 64 PURE WHITE	IN CORRIDORS UP TO 4' AFF
ROLLER SHADES						
WS-1	ROLLER SHADES	DRAPER		BEAD CHAIN CLUTCH FLEX SHADE	SUNBLOC SERIES WHITE SB9010	FASCIA COLOR TO MATCH WINDOW FRAMES; CLEAR ANODIZED
SOLID SURFACE						
SS-1	SOLID SURFACE	CORIAN QUARTZ		GRAPHITE	ZS4GRP	
WALL PROTECTION						
CG-1	CORNER GUARD	INPRO		STAINLESS STEELSURFACE MTD	STAINLESS STEEL	
CG-2	CORNER GUARD	INPRO		STAINLESS STEEL SURFACE MTD - WIDE ANGLE	STAINLESS STEEL	
CRASH RAIL	STAINLESS STEEL	INPRO		SURFACE MOUNTED	STAINLESS STEEL	
FRP-1	FIBER REINFORCED PLASTIC PANEL	MARLITE		STANDARD TEXTURED FINISH FRP	WHITE	AT JANITOR'S CLOSET, AROUND SINK
FRP-2	WALL PROTECTION	ACROVYN		STANDARD SUEDE TEXTURE	265 FOG	NO BASE 4' X 8' PANELS
FRP-3	FIBER REINFORCED PLASTIC PANEL	MARLITE		STANDARD SMOOTH FRP	WHITE	4'X8' PANELS
WP-1	WALL PROTECTION	CONSTRUCTION SPECIALTIES		TP RUB RAIL	FOLKSTONE #907	12" TALL MOUNTED AT 4'-0" AFF
WALL TILE						
CT-1	TILE	AMERICAN OLEAN		CERAMIC WALL TILE	COLOR STORY - ICE WHITE	2" x 8" ; BATHROOM WALLS
CT-2	TILE	AMERICAN OLEAN		CERAMIC WALL TILE	COLOR STORY - ICE WHITE	4" x 8" ; BATHROOM WALL BASE

GENERAL NOTES - FINISHES

GENERAL

A. WALL AND CEILING FINISH REQUIREMENTS; CLASS A FLAME SPREAD INDEX OF 0-25, SMOKE DEVELOPED INDEX 0-450.
B. FLOOR FINISH REQUIREMENTS; CLASS I, CRITICAL RADIANT FLUX 0.45 WATTS PER SQUIRE CENTIMETER OR GREATER.
C. SEE FINISH PLAN, ELEVATIONS, REFLECTED CEILING PLAN AND DETAILS FOR CLARIFICATION OF EXTENT OF FINISH MATERIALS.
D. NO PAINTING OR INTERIOR FINISHING SHALL BE DONE UNDER CONDITIONS WHICH WILL JEOPARDIZE THE QUALITY OR APPEARANCE OF SUCH WORK. ALL WORKMANSHIP WHICH IS JUDGED LESS THAN FIRST QUALITY BY THE ARCHITECT WILL BE REJECTED.
E. REMOVE ALL WALL MOUNTED FIXTURES, ELECTRICAL DEVICES ETC. PRIOR TO PAINTING VERTICAL SURFACES. REINSTALL AFTER PAINTING IS COMPLETE.
F. INTERIOR GYP. BOARD SURFACES SHALL BE WIPED WITH A DAMP CLOTH JUST PRIOR TO APPLICATION OF THE FIRST COAT OF PAINT IN ORDER TO LAY FLAT ANY NAP WHICH MAY HAVE FORMED IN SANDING PROCESS.
G. EXAMINE ALL FINISH SURFACES AFTER COMPLETION OF WORK AND PROCEED WITH "TOUCH-UP" AS REQUIRED.
H. COORDINATE FINISH OF ALL ELECTRICAL, DATA AND AV DEVICES LOCATED ON WALLS WHICH FINISH IS DESIGNATED OTHER THAN P1 WITH ARCHITECT.
I. ALL CRACKS, HOLES, IMPERFECTIONS IN EXISTING WALLS, PARTITIONS OR GYP BOARD SHALL BE FILLED WITH PARCHING PLASTER AND SMOOTHED OFF TO MATCH ADJOINING SURFACES TRANSITION FLOOR MATERIALS UNDER CENTERLINE OF DOORS/OPENINGS UNLESS NOTED OTHERWISE.

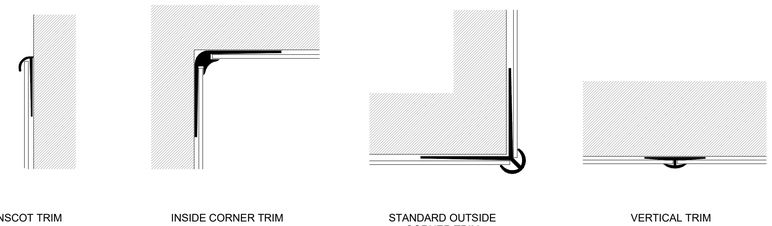
PROCEDURE

A. THE CONTRACTOR SHALL SUBMIT (2) SAMPLES OF ALL FINISH MATERIALS TO THE ARCHITECT FOR APPROVAL, INCLUDING, BUT NOT LIMITED TO: PAINT, WALL COVERINGS, LAMINATES, FLOORING MATERIALS, ETC. ANY NEW WALL, FLOOR, CEILING OR WINDOW TREATMENTS MUST BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING. FINISHES NOT SUBMITTED IN THE MINIMUM QUANTITY OF (2) SHALL BE REJECTED. SUBMIT SAMPLES TO ARCHITECT PRIOR TO PLACING FULL ORDERS WHERE MATERIALS ARE NOT RETURNABLE.
B. INSTALL ALL FINISH MATERIALS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED SPECIFICATIONS, SURFACE PREPARATION, ADHESIVES AND BACKINGS. INCLUDING WALL COVERINGS, FLOORING MATERIALS, LAMINATES ETC.
C. CONTRACTOR TO BE RESPONSIBLE FOR ALLOWING FOR DELIVERY AND LEAD TIMES FOR ALL FABRICS AND OTHER CUSTOM FINISHES WITHIN THE CONSTRUCTION SCHEDULE. ALL DELIVERY TIMES MUST BE CONFIRMED, AND ANY EXCESSIVE LEAD TIMES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION IMMEDIATELY TO ALLOW FOR RE-SPECIFICATION IF NECESSARY.

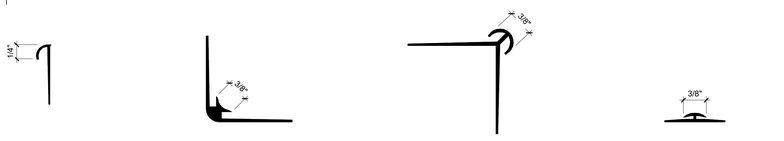
SUBMIT FLOORING SEAMING DIAGRAM FOR REVIEW PRIOR TO PURCHASING MATERIALS. SEAMING DIAGRAM SHALL INDICATE TRANSITION LOCATIONS, INSTALLATION METHOD, ORIENTATION FOR ALL FLOORING MATERIALS.

MATERIALS + FINISHES

A. ALL WALLS AND COLUMN SURFACES TO BE PAINTED PT-1 U.N.O.
B. ALL PAINTED WALLS TO HAVE EGGSHELL FINISH U.N.O.
C. ALL PAINTED CEILINGS TO HAVE FLAT FINISH.
D. ALL PAINTED WOOD WORK, HOLLOW METAL FRAMES AND DOORS TO HAVE SEMI-GLOSS FINISH.
E. PAINT UNDERCOUNTER SUPPORT BRACKETS TO MATCH WALL COLOR.
F. ALL EXPOSED CEILING AND EXPOSED EQUIPMENT INCLUDING ALL BEAMS, DUCTWORK, CONDUIT, ETC. SHALL BE PAINTED PER SPECIFICATIONS U.N.O. REVIEW ALL MATERIALS TO BE PAINTED AT EXPOSED AREAS AND PROVIDE PROPER PRIMER TO ENSURE PAINT ADHESION.
G. UNDERSIDE OF SOFFITS (WHERE OCCURS) TO RECEIVE A FINISH TO MATCH ADJACENT VERTICAL FINISH, U.N.O.
H. PAINT CEILING ACCESS PANELS WHERE THEY OCCUR TO MATCH ADJACENT CEILING FINISH.
I. PAINT ALL EXPOSED SURFACES U.N.O. INCLUDING HOLLOW METAL DOOR FRAMES, GRILLES, FIRE HOSE OR EXTINGUISHER CABINETS, EXPOSED PIPING, ETC. U.N.O. TO MATCH ADJACENT WALL FINISH. DO NOT PAINT EXTRUDED ALUMINUM FRAMES OR STOREFRONTS. UPON COMPLETION, REMOVE ALL PAINT FROM WHERE IT HAS SPILLED, SPLASHED, OR SPATTERED ON EXPOSED SURFACES.
J. EXISTING DOORS TO REMAIN TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
K. ALL STAINED MATERIALS TO HAVE UNIFORM COLOR.
L. ALL VERTICAL SURFACES U.N.O. SHALL RECEIVE WALL BASE RB-1.
M. SUBMIT TILED GROUT MOCK-UP FOR REVIEW. REFER TO FINISH MATERIAL LEGEND FOR GROUT COLORS REQUIRED.
N. FLOOR FINISHES TO CONTINUE UNDER ALL MILLWORK.
O. ALL OPEN PLASTIC LAMINATE CABINETRY SHALL BE PLASTIC LAMINATE ON ALL EXPOSED SURFACES, U.N.O. APPLY MELAMINE TO INTERIOR OF CABINETRY WITH DOORS AND DRAWERS, U.N.O. SHADE OF MELAMINE TO BEST MATCH PLASTIC LAMINATE. CONFIRM WITH ARCHITECT.
P. PROVIDE SQUARE "EASED" EDGES ON ALL SOLID SURFACE COUNTERTOPS
Q. ROLL GOODS WALL BASE TO BE COVE AT HARD SURFACE FLOORING AND STRAIGHT AT CARPET FLOORING. PROVIDE PRE-FORMED BASE AT CORNERS. DO NOT CUT OR BEND BASE TO MAKE CORNERS.
R. ALL WALL AND CEILING REVEALS SHALL BE PAINTED TO MATCH WALL FINISH U.N.O.
S. ALL TILE GROUT JOINTS TO BE 1/8".
T. ALIGN ALL TILE WALL BASE JOINTS WITH FLOOR JOINTS.



1 **TRIM - SECTION**
NTS



2 **TRIM - PROFILE**
NTS

AECOM

PROJECT
Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT
2FM Fleet and Facility Management

CONSULTANTS

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TECHNOLOGY CONSULTANT
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REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
5	07/25/2024	ADD 03
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER
PBC: #07215 AECOM: 60710711

SHEET TITLE
FINISH AND TOILET ACCESSORY SCHEDULES

SHEET NUMBER
A800

Last Printed: 7/31/2024 10:44:42 AM
Filename: Autodesk Docs://BP-AMER (USA) 60710711-PSTC EMS Addition/60710711_ACM_R22_JPSTC ADD_A.rvt

FINISH FLOOR PLAN LEGEND

FLOOR MATERIAL OR FINISH

- CARPET (CPT-1)
- WALK OFF MAT (CPT-2) — 6
- RUBBER TILE (RT-1)
- RUBBER TILE (RT-2)
- RESILIENT FLOORING (RF-1)
- SEALED CONCRETE (SC-1)
- EPOXY (EP-1) — 6
- STATIC DISSIPATIVE TILE (SD-1)

ANNOTATIONS

- ALIGN — ALIGN SYMBOL
- FLOOR MATERIAL TRANSITION
- X-X — WALL FINISH TYPE REFER TO FINISH SCHEDULE
- EXTENT OF WALL FINISH
- MATERIAL DIRECTION

GENERAL NOTES - FINISHES

GENERAL

A. WALL AND CEILING FINISH REQUIREMENTS: CLASS A FLAME SPREAD INDEX OF 0-25, SMOKE DEVELOPED INDEX 0-450.
B. FLOOR FINISH REQUIREMENTS: CLASS I, CRITICAL RADIANT FLUX 0.45 WATTS PER SQURE CENTIMETER OR GREATER.
C. SEE FINISH PLAN, ELEVATIONS, REFLECTED CEILING PLAN AND DETAILS FOR CLARIFICATION OF EXTENT OF FINISH MATERIALS.
D. NO PAINTING OR INTERIOR FINISHING SHALL BE DONE UNDER CONDITIONS WHICH WILL JEOPARDIZE THE QUALITY OR APPEARANCE OF SUCH WORK. ALL WORKMANSHIP WHICH IS JUDGED LESS THAN FIRST QUALITY BY THE ARCHITECT WILL BE RE-JECTED.
E. REMOVE ALL WALL MOUNTED FIXTURES, ELECTRICAL DEVICES ETC. PRIOR TO PAINTING VERTICAL SURFACES. REINSTALL AFTER PAINTING IS COMPLETE.
F. INTERIOR GYP. BOARD SURFACES SHALL BE WIPED WITH A DAMP CLOTH JUST PRIOR TO APPLICATION OF THE FIRST COAT OF PAINT IN ORDER TO LAY FLAT ANY NAP WHICH MAY HAVE FORMED IN SANDING PROCESS.
G. EXAMINE ALL FINISH SURFACES AFTER COMPLETION OF WORK AND PROCEED WITH "TOUCH-UP" AS REQUIRED.
H. COORDINATE FINISH OF ALL ELECTRICAL, DATA AND AV DEVICES LOCATED ON WALLS WHICH FINISH IS DESIGNATED OTHER THAN P1 WITH ARCHITECT.
I. ALL CRACKS, HOLES, IMPERFECTIONS IN EXISTING WALLS, PARTITIONS OR GYP BOARD SHALL BE FILLED WITH PARCHING PLASTER AND SMOOTHED OFF TO MATCH ADJOINING SURFACES TRANSITION FLOOR MATERIALS UNDER CENTERLINE OF DOORS/OPENINGS UNLESS NOTED OTHERWISE.

PROCEDURE

A. THE CONTRACTOR SHALL SUBMIT (2) SAMPLES OF ALL FINISH MATERIALS TO THE ARCHITECT FOR APPROVAL; INCLUDING, BUT NOT LIMITED TO: PAINT, WALL COVERINGS, LAMINATES, FLOORING MATERIALS, ETC. ANY NEW WALL, FLOOR, CEILING OR WINDOW TREATMENTS MUST BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING. FINISHES NOT SUBMITTED IN THE MINIMUM QUANTITY OF (2) SHALL BE REJECTED. SUBMIT SAMPLES TO ARCHITECT PRIOR TO PLACING FULL ORDERS WHERE MATERIALS ARE NOT RETURNABLE.
B. INSTALL ALL FINISH MATERIALS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED SPECIFICATIONS, SURFACE PREPARATION, ADHESIVES AND BACKINGS. INCLUDING WALL COVERINGS, FLOORING MATERIALS, LAMINATES ETC.
C. CONTRACTOR TO BE RESPONSIBLE FOR ALLOWING FOR DELIVERY AND LEAD TIMES FOR ALL FABRICS AND OTHER CUSTOM FINISHES WITHIN THE CONSTRUCTION SCHEDULE. ALL DELIVERY TIMES MUST BE CONFIRMED, AND ANY EXCESSIVE LEAD TIMES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION IMMEDIATELY TO ALLOW FOR RE-SPECIFICATION IF NECESSARY.

SUBMIT FLOORING SEAMING DIAGRAM FOR REVIEW PRIOR TO PURCHASING MATERIALS. SEAMING DIAGRAM SHALL INDICATE TRANSITION LOCATIONS, INSTALLATION METHOD, ORIENTATION FOR ALL FLOORING MATERIALS.

MATERIALS + FINISHES

A. ALL WALLS AND COLUMN SURFACES TO BE PAINTED PT-1 U.N.O.
B. ALL PAINTED WALLS TO HAVE EGGSHELL FINISH U.N.O.
C. ALL PAINTED CEILINGS TO HAVE FLAT FINISH.
D. ALL PAINTED WOOD WORK, HOLLOW METAL FRAMES AND DOORS TO HAVE SEMI-GLOSS FINISH.
E. PAINT UNDERCOUNTER SUPPORT BRACKETS TO MATCH WALL COLOR.
F. ALL EXPOSED CEILING AND EXPOSED EQUIPMENT INCLUDING ALL BEAMS, DUCTWORK, CONDUIT, ETC. SHALL BE PAINTED PER SPECIFICATIONS U.N.O. REVIEW ALL MATERIALS TO BE PAINTED AT EXPOSED AREAS AND PROVIDE PROPER PRIMER TO ENSURE PAINT ADHESION.
G. UNDERSIDE OF SOFFITS (WHERE OCCURS) TO RECEIVE A FINISH TO MATCH ADJACENT VERTICAL FINISH, U.N.O.
H. PAINT CEILING ACCESS PANELS WHERE THEY OCCUR TO MATCH ADJACENT CEILING FINISH.
I. PAINT ALL EXPOSED SURFACES U.N.O. INCLUDING HOLLOW METAL DOOR FRAMES, GRILLES, FIRE HOSE OR EXTINGUISHER CABINETS, EXPOSED PIPING, ETC. U.N.O. TO MATCH ADJACENT WALL FINISH. DO NOT PAINT EXTRUDED ALUMINUM FRAMES OR STOREFRONTS. UPON COMPLETION, REMOVE ALL PAINT FROM WHERE IT HAS SPILLED, SPLASHED, OR SPATTERED ON EXPOSED SURFACES.
J. EXISTING DOORS TO REMAIN TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
K. ALL STAINED MATERIALS TO HAVE UNIFORM COLOR.
L. ALL VERTICAL SURFACES U.N.O. SHALL RECEIVE WALL BASE RB-1.
M. SUBMIT TILED GROUT MOCK-UP FOR REVIEW. REFER TO FINISH MATERIAL LEGEND FOR GROUT COLORS REQUIRED.
N. FLOOR FINISHES TO CONTINUE UNDER ALL MILLWORK.
O. ALL OPEN PLASTIC LAMINATE CABINETRY SHALL BE PLASTIC LAMINATE ON ALL EXPOSED SURFACES, U.N.O. APPLY MELAMINE TO INTERIOR OF CABINETRY WITH DOORS AND DRAWERS, U.N.O. SHADE OF MELAMINE TO BEST MATCH PLASTIC LAMINATE. CONFIRM WITH ARCHITECT.
P. PROVIDE SQUARE "EASED" EDGES ON ALL SOLID SURFACE COUNTERTOPS
Q. ROLL GOODS WALL BASE TO BE COVE AT HARD SURFACE FLOORING AND STRAIGHT AT CARPET FLOORING. PROVIDE PRE-FORMED BASE AT CORNERS. DO NOT CUT OR BEND BASE TO MAKE CORNERS.
R. ALL WALL AND CEILING REVEALS SHALL BE PAINTED TO MATCH WALL FINISH U.N.O.
S. ALL TILE GROUT JOINTS TO BE 1/8".
T. ALIGN ALL TILE WALL BASE JOINTS WITH FLOOR JOINTS.

1 | A201 — **FINISH PLAN - 02 SECOND FLOOR**
Scale: 1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

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REGISTRATION

NORTH ARROW

N

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
5	07/25/2024	ADD 03
3	07/12/2024	ADD 01
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

SECOND FLOOR - INTERIOR FINISHES PLAN

SHEET NUMBER

A801

FINISH FLOOR PLAN LEGEND

FLOOR MATERIAL OR FINISH

- CARPET (CPT-1)
- WALK OFF MAT (CPT-2)
- RUBBER TILE (RT-1)
- RUBBER TILE (RT-2)
- RESILIENT FLOORING (RF-1)
- SEALED CONCRETE (SC-1)
- EPOXY (EP-1) 6
- STATIC DISSIPATIVE TILE (SD-1)

ANNOTATIONS

- ALIGN — ALIGN SYMBOL
- FLOOR MATERIAL TRANSITION
- X-X — WALL FINISH TYPE REFER TO FINISH SCHEDULE
- EXTENT OF WALL FINISH
- MATERIAL DIRECTION

GENERAL NOTES - FINISHES

GENERAL

A. WALL AND CEILING FINSIH REQUIREMENTS; CLASS A FLAME SPREAD INDEX OF 0-25, SMOKE DEVELOPED INDEX 0-450.
B. FLOOR FINISH REQUIREMENTS; CLASS I, CRITICAL RADIANT FLUX 0.45 WATTS PER SQURE CENTIMETER OR GREATER.
C. SEE FINISH PLAN, ELEVATIONS, REFLECTED CEILING PLAN AND DETAILS FOR CLARIFICATION OF EXTENT OF FINISH MATERIALS.
D. NO PAINTING OR INTERIOR FINISHING SHALL BE DONE UNDER CONDITIONS WHICH WILL JEOPARDIZE THE QUALITY OR APPEARANCE OF SUCH WORK. ALL WORKMANSHIP WHICH IS JUDGED LESS THAN FIRST QUALITY BY THE ARCHITECT WILL BE REJECTED.
E. REMOVE ALL WALL MOUNTED FIXTURES, ELECTRICAL DEVICES ETC. PRIOR TO PAINTING VERTICAL SURFACES. REINSTALL AFTER PAINTING IS COMPLETE.
F. INTERIOR GYP. BOARD SURFACES SHALL BE WIPED WITH A DAMP CLOTH JUST PRIOR TO APPLICATION OF THE FIRST COAT OF PAINT IN ORDER TO LAY FLAT ANY NAP WHICH MAY HAVE FORMED IN SANDING PROCESS.
G. EXAMINE ALL FINISH SURFACES AFTER COMPLETION OF WORK AND PROCEED WITH "TOUCH-UP" AS REQUIRED.
H. COORDINATE FINISH OF ALL ELECTRICAL, DATA AND AV DEVICES LOCATED ON WALLS WHICH FINISH IS DESIGNATED OTHER THAN P1 WITH ARCHITECT.
I. ALL CRACKS, HOLES, IMPERFECTIONS IN EXISTING WALLS, PARTITIONS OR GYP BOARD SHALL BE FILLED WITH PARCHING PLASTER AND SMOOTHED OFF TO MATCH ADJOINING SURFACES TRANSITION FLOOR MATERIALS UNDER CENTERLINE OF DOORS/OPENINGS UNLESS NOTED OTHERWISE.

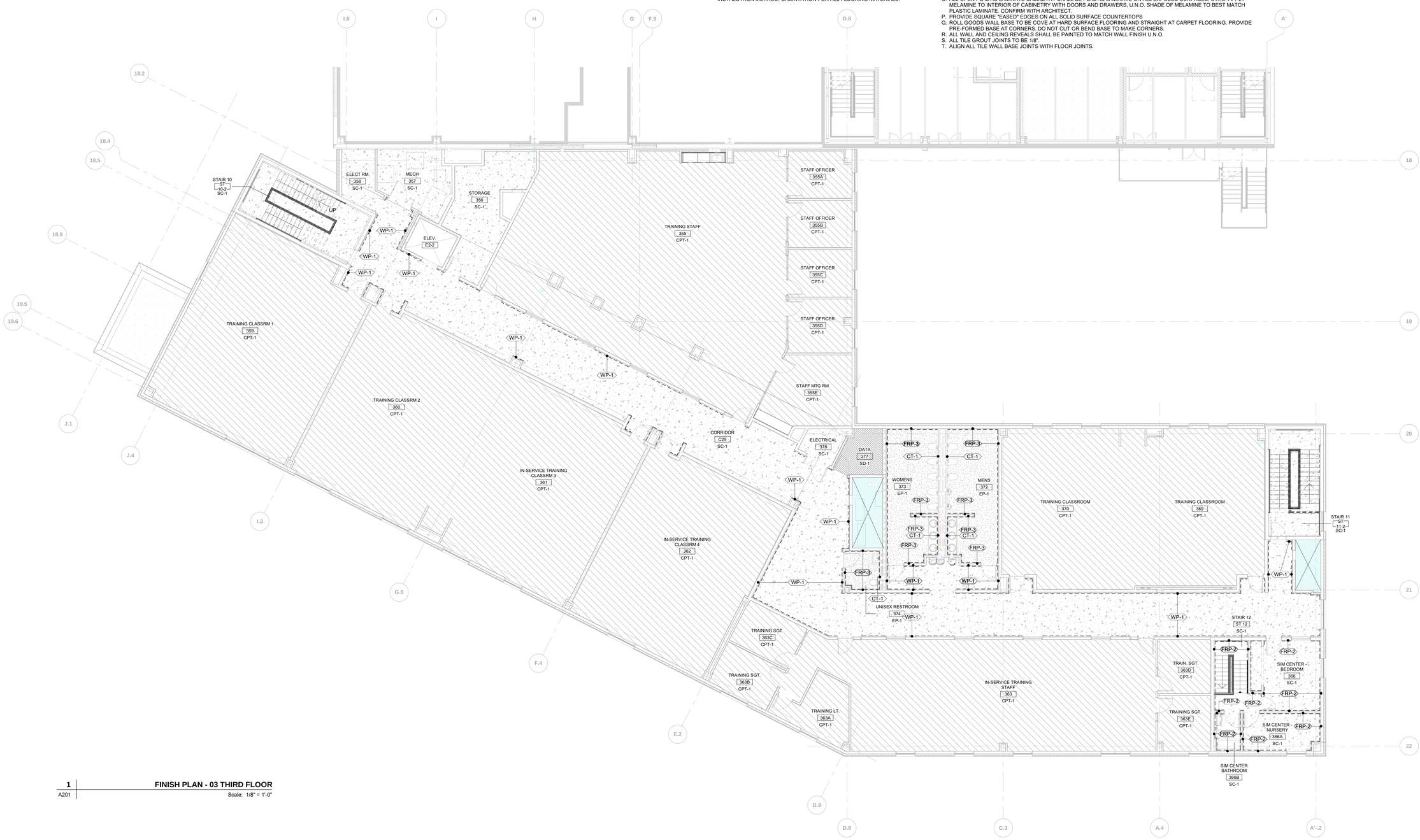
PROCEDURE

A. THE CONTRACTOR SHALL SUBMIT (2) SAMPLES OF ALL FINISH MATERIALS TO THE ARCHITECT FOR APPROVAL; INCLUDING, BUT NOT LIMITED TO: PAINT, WALL COVERINGS, LAMINATES, FLOORING MATERIALS, ETC. ANY NEW WALL, FLOOR, CEILING OR WINDOW TREATMENTS MUST BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING. FINISHES NOT SUBMITTED IN THE MINIMUM QUANTITY OF (2) SHALL BE REJECTED. SUBMIT SAMPLES TO ARCHITECT PRIOR TO PLACING FULL ORDERS WHERE MATERIALS ARE NOT RETURNABLE.
B. INSTALL ALL FINISH MATERIALS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED SPECIFICATIONS, SURFACE PREPARATION, ADHESIVES AND BACKINGS. INCLUDING WALL COVERINGS, FLOORING MATERIALS, LAMINATES ETC.
C. CONTRACTOR TO BE RESPONSIBLE FOR ALLOWING FOR DELIVERY AND LEAD TIMES FOR ALL FABRICS AND OTHER CUSTOM FINISHES WITHIN THE CONSTRUCTION SCHEDULE. ALL DELIVERY TIMES MUST BE CONFIRMED, AND ANY EXCESSIVE LEAD TIMES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION IMMEDIATELY TO ALLOW FOR RE-SPECIFICATION IF NECESSARY.

SUBMIT FLOORING SEAMING DIAGRAM FOR REVIEW PRIOR TO PURCHASING MATERIALS. SEAMING DIAGRAM SHALL INDICATE TRANSITION LOCATIONS, INSTALLATION METHOD, ORIENTATION FOR ALL FLOORING MATERIALS.

MATERIALS + FINISHES

A. ALL WALLS AND COLUMN SURFACES TO BE PAINTED PT-1 U.N.O.
B. ALL PAINTED WALLS TO HAVE EGGSHELL FINISH U.N.O.
C. ALL PAINTED CEILINGS TO HAVE FLAT FINISH.
D. ALL PAINTED WOOD WORK, HOLLOW METAL FRAMES AND DOORS TO HAVE SEMI-GLOSS FINISH.
E. PAINT UNDERCOUNTER SUPPORT BRACKETS TO MATCH WALL COLOR.
F. ALL EXPOSED CEILING AND EXPOSED EQUIPMENT INCLUDING ALL BEAMS, DUCTWORK, CONDUIT, ETC. SHALL BE PAINTED PER SPECIFICATIONS U.N.O. REVIEW ALL MATERIALS TO BE PAINTED AT EXPOSED AREAS AND PROVIDE PROPER PRIMER TO ENSURE PAINT ADHESION.
G. UNDERSIDE OF SOFFITS (WHERE OCCURS) TO RECEIVE A FINISH TO MATCH ADJACENT VERTICAL FINISH, U.N.O.
H. PAINT CEILING ACCESS PANELS WHERE THEY OCCUR TO MATCH ADJACENT CEILING FINISH.
I. PAINT ALL EXPOSED SURFACES U.N.O. INCLUDING HOLLOW METAL DOOR FRAMES, GRILLES, FIRE HOSE OR EXTINGUISHER CABINETS, EXPOSED PIPING, ETC. U.N.O. TO MATCH ADJACENT WALL FINISH. DO NOT PAINT EXTRUDED ALUMINUM FRAMES OR STOREFRONTS. UPON COMPLETION, REMOVE ALL PAINT FROM WHERE IT HAS SPILLED, SPLASHED, OR SPATTERED ON EXPOSED SURFACES.
J. EXISTING DOORS TO REMAIN TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
K. ALL STAINED MATERIALS TO HAVE UNIFORM COLOR.
L. ALL VERTICAL SURFACES U.N.O. SHALL RECEIVE WALL BASE RB-1.
M. SUBMIT TILED GROUT MOCK-UP FOR REVIEW. REFER TO FINISH MATERIAL LEGEND FOR GROUT COLORS REQUIRED.
N. FLOOR FINISHES TO CONTINUE UNDER ALL MILLWORK.
O. ALL OPEN PLASTIC LAMINATE CABINETRY SHALL BE PLASTIC LAMINATE ON ALL EXPOSED SURFACES, U.N.O. APPLY MELAMINE TO INTERIOR OF CABINETRY WITH DOORS AND DRAWERS, U.N.O. SHADE OF MELAMINE TO BEST MATCH PLASTIC LAMINATE. CONFIRM WITH ARCHITECT.
P. PROVIDE SQUARE "EASED" EDGES ON ALL SOLID SURFACE COUNTERTOPS
Q. ROLL GOODS WALL BASE TO BE COVE AT HARD SURFACE FLOORING AND STRAIGHT AT CARPET FLOORING. PROVIDE PRE-FORMED BASE AT CORNERS. DO NOT CUT OR BEND BASE TO MAKE CORNERS.
R. ALL WALL AND CEILING REVEALS SHALL BE PAINTED TO MATCH WALL FINISH U.N.O.
S. ALL TILE GROUT JOINTS TO BE 1/8".
T. ALIGN ALL TILE WALL BASE JOINTS WITH FLOOR JOINTS.



1 — **FINISH PLAN - 03 THIRD FLOOR**
A201 — Scale: 1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

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REGISTRATION

NORTH ARROW

N

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

THIRD FLOOR - INTERIOR FINISHES PLAN

SHEET NUMBER

A802

FINISH FLOOR PLAN LEGEND

FLOOR MATERIAL OR FINISH

- CARPET (CPT-1)
- WALK OFF MAT (CPT-2)
- RUBBER TILE (RT-1)
- RUBBER TILE (RT-2)
- RESILIENT FLOORING (RF-1)
- SEALED CONCRETE (SC-1)
- EPOXY (EP-1) 6
- STATIC DISSIPATIVE TILE (SD-1)

ANNOTATIONS

- ALIGN SYMBOL
- FLOOR MATERIAL TRANSITION
- WALL FINISH TYPE REFER TO FINISH SCHEDULE
- EXTENT OF WALL FINISH
- MATERIAL DIRECTION

GENERAL NOTES - FINISHES

GENERAL

A. WALL AND CEILING FINSIH REQUIREMENTS; CLASS A FLAME SPREAD INDEX OF 0-25, SMOKE DEVELOPED INDEX 0-450.
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P. PROVIDE SQUARE "EASED" EDGES ON ALL SOLID SURFACE COUNTERTOPS
Q. ROLL GOODS WALL BASE TO BE COVE AT HARD SURFACE FLOORING AND STRAIGHT AT CARPET FLOORING. PROVIDE PRE-FORMED BASE AT CORNERS. DO NOT CUT OR BEND BASE TO MAKE CORNERS.
R. ALL WALL AND CEILING REVEALS SHALL BE PAINTED TO MATCH WALL FINISH U.N.O.
S. ALL TILE GROUT JOINTS TO BE 1/8".
T. ALIGN ALL TILE WALL BASE JOINTS WITH FLOOR JOINTS.

1 | **FINISH PLAN - 04 FOURTH FLOOR**
A201 | Scale: 1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

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MILHOUSE ENGINEERING
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REGISTRATION

NORTH ARROW

N

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

FOURTH FLOOR - INTERIOR FINISHES PLAN

SHEET NUMBER

A803

ARCH E1 30"x42"
Approved: JJ
Checked: MS
Designer: JD
Last Plotted: 7/31/2024 6:29:28 PM
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EQUIPMENT SCHEDULE

TAG	QTY	DESCRIPTION	MANUFACTURER	PRODUCT, COLOR/FINISH	FURNISHED BY	INSTALLED BY	COORDINATE				COMMENTS
							BLOCKING	ELECTRICAL	DATA	PLUMBING	GAS	
EQ-01	2	REFRIGERATOR	DELFIELD	COOLSCAPES LINE, ONE SECTION	O	O		X		X		
EQ-02	1	COFFEE MACHINE	TBD	TBD	O	O		X		X		
EQ-03	1	SOAP DISPENSER	SIMPLE HUMAN		O	O		X				
EQ-04	2	MICROWAVE OVEN	AMANA	RFS12TS MEDIUM	O	O		X				
EQ-05	1	PRINTER / COPIER	TBD	TBD	O	C		X	X			
EQ-06	104	COMPUTER MONITOR	TBD	TBD	O	O		X	X			
EQ-07	1	AMBULANCE TRAILER	TBD	TBD	O	O		X				
EQ-08	9	DISPLAY MONITOR	REFER TO AV (T SHEETS)	REFER TO AV PACKAGE (T SHEETS)	C	C		X				

LOCKER SCHEDULE - SECOND FLOOR

LOCKER TYPE	COUNT	COMMENTS
L1	75	12X18X36, 2 TIER SINGLE DOOR WITH NUMBER LABEL; BOD REPUBLIC STANDARD DOUBLE TIER
L2	8	12X18X36, 2 TIER SINGLE DOOR, BOTTOM LOCKER ADA WITH NUMBER LABEL; BOD REPUBLIC STANDARD DOUBLE TIER
L3	11	15X18X36, 2 TIER SINGLE DOOR WITH NUMBER LABEL; BOD REPUBLIC STANDARD
L4	2	15X18X36, 2 TIER SINGLE DOOR, BOTTOM LOCKER ADA WITH NUMBER LABEL; BOD REPUBLIC STANDARD
L5	6	LIGHT GAUGE SIDEARM LOCKER; 3 TIER; BOD TIFFIN WLK24061204KNAB
L6	1	LIGHT GAUGE SIDEARM LOCKER AND LONG GUN LOCKER; SINGLE TIER; BOD TIFFIN ELK34127413KNAB

FURNITURE SCHEDULE - SECOND FLOOR

TAG	QTY	DESCRIPTION
SECOND FLOOR		
AC01	5	LECTURE PEDESTAL
CH1.1	23	OFFICE CHAIR WITH SWIVEL BASE AND ARMS
CH03	4	CHAIR WITH SWIVEL BASE NO ARMS
CH04	218	4 LEG CHAIR NO ARMS
CH05	2	SCENARIO CHAIR
LS03	2	SOFA
MB01	4	48" X 48" MAGNETIC WHITEBOARD
MB02	7	48" X 96" MAGNETIC WHITEBOARD
MB03	5	60" x 96" WHITEBOARD, PROJECTABLE, MAGNETIC
OFA	1	PRIVATE OFFICE DESK CONFIGURATION
OFC	1	PRIVATE OFFICE DESK CONFIGURATION
SG2.1	1	(3) 30" LATERAL FILING CABINET WITH COUNTERTOP
SG3.1	5	36" x 21" CABINET FOR COMPUTER WITH TOP GROMMET AND VENTED BACK
SG4.1	1	72" x 28" STORAGE CABINET
ST01	21	HIGH STOOL
TB02.2	1	96" W RECTANGULAR CONFERENCE TABLE
TB4.1	1	42" ROUND TABLE WITH BASE
TB4.3	1	36" ROUND TABLE WITH BASE
TB4.4	4	36" ROUND HIGH TOP TABLE
TB4.5	1	24" ROUND TABLE
TB6.1	102	60" X 20" RECTANGULAR TABLE
TB6.3	2	60" X 30" RECTANGULAR TABLE
TB09	1	18" ROUND SIDE TABLE
WSA	6	4 WORKSTATION SETUP
WSC	3	SINGLE WORKSTATION SETUP
WSD	3	2 WORKSTATION SETUP

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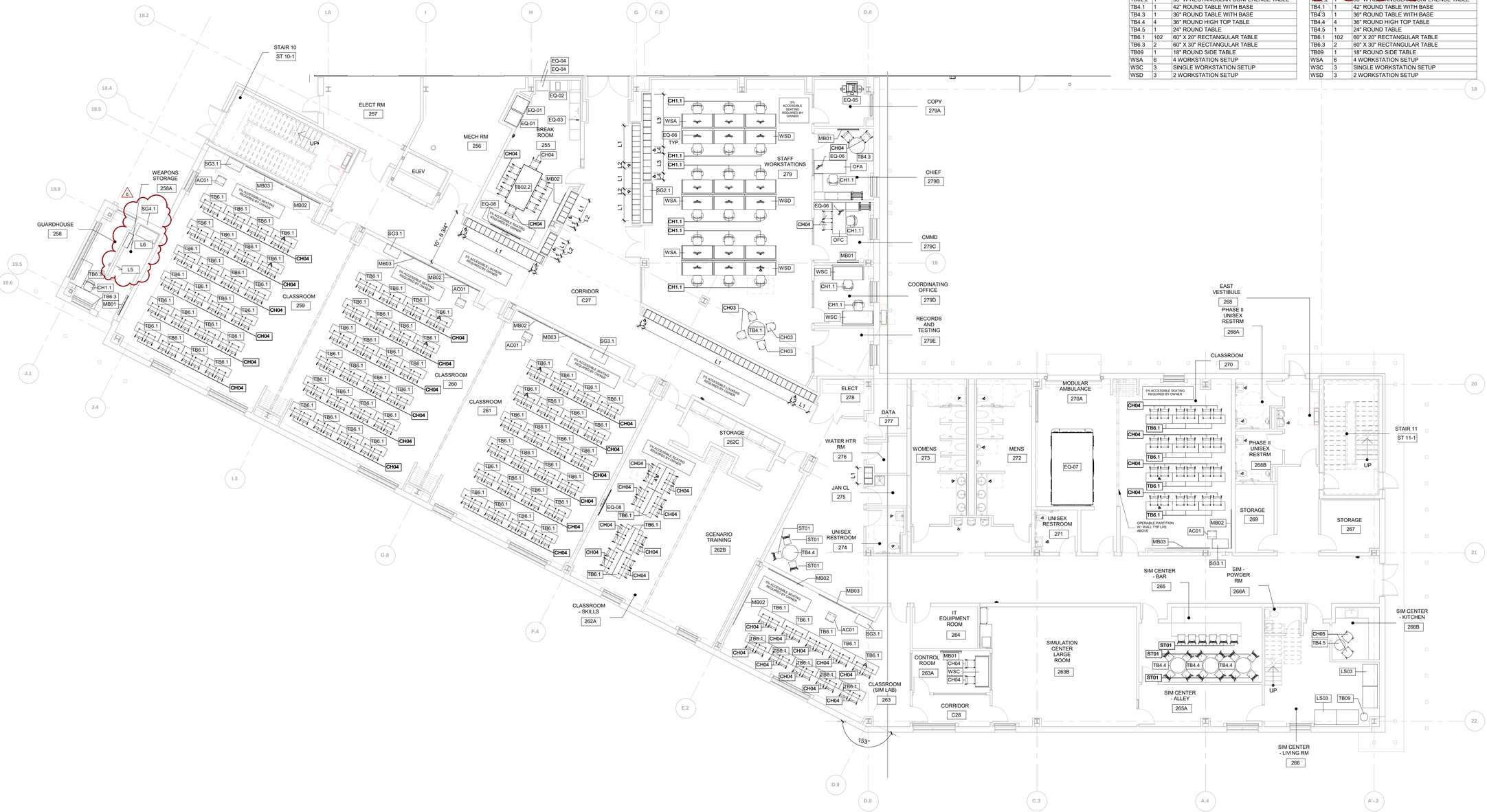

1 FURNITURE PLAN - 02 SECOND FLOOR
A201 Scale: 1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

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5	07/25/2024	ADD 03
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

SECOND FLOOR - EQUIPMENT AND FURNITURE PLAN

SHEET NUMBER

A901

ARCH E1 30"x42"

Approved: RJE

Checked: RJE

Designer: MPB

ELECTRICAL GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE CHICAGO ELECTRICAL CODE AND OTHER APPLICABLE FEDERAL AND STATE REGULATIONS.
2. THE LAYOUT IS DIAGRAMMATIC, AND THE CONTRACTOR SHALL INSTALL EQUIPMENT TO MEET THE FIELD CONDITIONS.
3. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTION FEES AS REQUIRED FOR THEIR PORTION OF THE WORK.
4. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL COMPLETION.
5. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE RESPECTIVE TRADES AND VERIFY LOCATIONS FROM THE ARCHITECTURAL DRAWINGS, FIELD MEASUREMENTS, AND SUPPLIER SHOP DRAWINGS.
6. SUBCONTRACTORS FOR EACH TRADE ARE ADVISED THAT INFORMATION PERTINENT TO THEIR WORK MAY OCCUR IN OTHER PORTIONS OF THE CONTRACT DOCUMENTS. REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, ELECTRICAL, FIRE PROTECTION, FIRE ALARM, SECURITY, COMMUNICATIONS, AND PLUMBING DRAWINGS FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS. ALL NOTES ARE TO BE REVIEWED AND APPLIED TO RELEVANT BUILDING COMPONENTS. NOTES APPEAR ON VARIOUS SHEETS FOR DIFFERENT SYSTEMS AND MATERIALS. SHEETS ARE TO BE REVIEWED AND NOTES ON ANY ONE SHEET IS TO BE APPLIED ON RELATED DRAWINGS AND DETAILS.
7. THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS ON ALL EQUIPMENT AND FIXTURES TO THE ENGINEER FOR REVIEW; QUANTITY AS PER GENERAL PROVISIONS.
8. THE CONTRACTOR SHALL CHECK ALL DRAWINGS AND SPECIFICATIONS OF OTHER TRADES AND INCLUDE IN THEIR BID ANY ADDITIONAL WORK REQUIRED BY THIS TRADE. COORDINATE WORK WITH OTHER TRADES AND INSTALL CONDUIT AND BOXES TO CLEAR EMBEDDED DUCTS, OPENINGS, AND OTHER STRUCTURAL FEATURES, WHILE MAINTAINING A CLEAR AND UNOBSTRUCTED PATH IN ALL ELECTRICAL, IT, AND MECHANICAL ROOMS. CODE REQUIRED CLEARANCES MUST BE PROVIDED. MANUFACTURER RECOMMENDED CLEARANCES LARGER THAN THOSE REQUIRED BY CODE MUST ALSO BE PROVIDED AS AVAILABLE SPACE ALLOWS. CONTRACTOR IS TO INFORM THE CMR OF ANY MANUFACTURER REQUIRED CLEARANCES THAT CANNOT BE PROVIDED.
9. THE CONTRACTOR SHALL AVOID ALL STRUCTURAL SUPPORT MEMBERS. RELOCATE EQUIPMENT AS NECESSITATED BY FIELD CONDITIONS, DIFFERENT FROM WHERE SHOWN ON DRAWINGS. CUTTING SHALL ONLY BE DONE AFTER OBTAINING THE ARCHITECT'S REVIEW.
10. CIRCUIT NUMBERS GIVEN ON DRAWINGS ARE FOR CIRCUIT IDENTIFICATION ONLY. THE CONTRACTOR SHALL INSTALL CIRCUITRY AS GOVERNED BY FIELD CONDITIONS. THE CONTRACTOR SHALL KEEP A TYPED RECORD CORRELATING GIVEN AND ACTUAL CIRCUIT NUMBERS AND RECORD THIS INFORMATION ON THE PANEL DIRECTORIES.
11. THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH THAT OF OTHER CONTRACTORS AND WITH THE EXISTING JOB SITE CONDITIONS. THE CONTRACTOR SHALL RELOCATE EQUIPMENT AS REQUIRED TO AVOID CONFLICT WITH OTHER TRADES. ALL DEVIATIONS SHALL BE APPROVED BY THE ENGINEER BEFORE THE EXECUTION OF WORK.
12. CONDUCTORS SHALL BE COPPER, MINIMUM #12 AWG, WITH TYPE THWN INSULATION. MINIMUM CONDUIT SIZE SHALL BE 3/4"
13. RACEWAY FITTINGS SHALL BE GALVANIZED STEEL; CODE-APPROVED TYPE.
14. WHERE THREADS HAVE TO BE CUT INTO CONDUIT, THE THREAD SHALL HAVE THE SAME EFFECTIVE LENGTH AND SHALL HAVE THE SAME THREAD DIMENSIONS AND TAPER AS SPECIFIED FOR FACTORY CUT THREADS ON CONDUIT.
15. CONTRACTORS MAY GROUP BRANCH CIRCUITS INTO PHASE-BALANCED MULTIPLE CIRCUIT HOMERUNS, WITH A MAXIMUM OF 6 CIRCUITS PER HOMERUN.
16. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A COMPLETE CONDUCTOR AND RACEWAY SYSTEM FOR ALL CIRCUIT DEVICES INDICATED ON THE PLANS, EVEN THOUGH NOT DELINEATED.
17. WIRES FOR BRANCH CIRCUITS THAT EXCEED 75 FEET IN LENGTH FROM PANEL TO CENTER OF LOAD SHALL BE SUFFICIENTLY UP-SIZED TO ACCOMMODATE PER NEC VOLTAGE DROP REQUIREMENTS. CONTRACTOR SHALL INSURE THAT VOLTAGE DROP BETWEEN SERVICE ENTRANCE EQUIPMENT AND BRANCH PANELS IS NOT TO EXCEED 2% VOLTAGE DROP. VOLTAGE DROP SHALL NOT EXCEED 3% FROM THE BRANCH PANELS TO THE LAST DEVICE OR RECEPTACLE. CONDUCTORS SHALL BE UPSIZE ACCORDINGLY. CONTRACTOR SHALL PREPARE AND PROVIDE THE CALCULATIONS AS REQUIRED BY THE CONTRACT SPECIFICATIONS.
18. ALL CIRCUITRY TO RUN CONCEALED UNLESS OTHERWISE INDICATED.
19. THE E.C. SHALL PROVIDE RACEWAY WITH A PULL STRING FOR ALL LOW-VOLTAGE DEVICES WHERE NECESSARY. E.C. TO COORDINATE WITH THE LOW-VOLTAGE CONTRACTOR WHERE PULL STRING MAY BE REQUIRED.
20. HORN/STROBES AND HORN OR STROBES ARE TO BE MOUNTED AT 80 INCHES A.F.F. WHEN WALL-MOUNTED; 15 FEET MAX FROM A WALL WHEN CEILING-MOUNTED. CEILING-MOUNTED DEVICES SHALL BE LISTED FOR USE IN THE CEILING.
21. ALL ELECTRIC RISERS AND SHAFTS SERVING ELECTRICAL SYSTEMS AND VOICE COMMUNICATION SYSTEMS TO INCLUDE CONTINUOUS 4-INCH HIGH WATER STOPS ON ALL SIDES.
22. PRIOR TO SHOP DRAWING SUBMITTAL FOR REVIEW, THE ELECTRICAL CONTRACTOR SHALL VERIFY SWITCH, OUTLET, AND FACEPLATE STYLE/COLOR WITH ARCHITECTURAL DRAWINGS.
23. EXTERIOR POWER RECEPTACLES SHALL BE WEATHER-RESISTANT AND HAVE A WEATHERPROOF COVER WITH DIE-CAST ALUMINUM COVER.
24. REFER TO SPECIAL SYSTEMS, SECURITY DRAWINGS, ETC. THE CONTRACTOR SHALL PROVIDE ALL POWER, CONDUITS, AND BACKBOXES. THE SPECIAL SYSTEM CONTRACTOR SHALL PROVIDE WIRE, DEVICES, TERMINATIONS, STARTUP, TESTING, AND COMMISSIONING.
25. MOUNTING HEIGHTS OF ELECTRICAL ITEMS SHALL BE AS LISTED BELOW, ABOVE FINISHED FLOOR TO CENTERLINE, UNLESS NOTED OTHERWISE:
    - A. GENERAL RECEPTACLES 15"
    - B. OUTDOOR RECEPTACLES 24"
    - C. GENERAL TOGGLE SWITCHES 48"
    - D. OCCUPANCY SENSORS 48"
    - E. VACANCY SENSORS 48"
    - F. FIRE ALARM PULL STATIONS 48"
    - G. GENERAL WALL MOUNTED LIGHTS 90"
    - H. EXIT SIGNS 90"
    - I. INDIVIDUAL DISCONNECTS AND STARTERS 60"
    - J. GROUPED DISCONNECTS AND STARTERS
        - a. >12" TO <72"
    - K. PANELBOARD OVERCURRENT DEVICES
        - a. >12" TO <72"
26. ALL UNDERGROUND/UNDERSLAB CONDUITS, DUCTS, AND DUCTBANKS ARE TO BE CONCRETE ENCASED FIBERGLASS REINFORCED EPOXY CONDUIT, AND ADHERE TO THE STANDARDS BELOW:
    - A. ALL CONDUITS ARE TO HAVE MINIMUM 2" SEPARATION BETWEEN DUCTS.
    - B. ALL CONCRETE ENCASED DUCTS ARE TO HAVE MINIMUM 3" CONCRETE ENCASEMENT AROUND THE EXTERIOR OF THE DUCTBANK.
    - C. ALL DUCTBANKS ARE TO UTILIZE PRE-MANUFACTURED PLASTIC DUCTBANK SPACERS TO MAINTAIN REQUIRED SEPARATION.
    - D. ALL DUCTBANKS ARE TO BE MINIMUM 12" BELOW SLAB.
    - E. COORDINATE ALL PENETRATIONS OF THE FLOOR WITH THE RESPECTIVE ELECTRICAL EQUIPMENT CONDUIT OPENINGS IT IS MEANT TO SERVE, CONDUIT ROUTING SHOWN ON PLANS IS DIAGRAMMATIC AND CONTRACTOR IS RESPONSIBLE FOR FINAL UNDERGROUND/UNDERSLAB CONDUIT/DUCTBANK ROUTING.
    - F. DUCTBANK IS NOT TO EXCEED 270° OF BEND WITHOUT AN INTERMEDIATE HANDHOLE.
    - G. WARNING TAPE TO BE INSTALLED MINIMUM 6" ABOVE DUCTBANK.

RECEPTACLES

	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	SWITCHED DUPLEX RECEPTACLE
	SWITCHED DOUBLE DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE ON SEPARATE CIRCUIT
	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER
	DUPLEX RECEPTACLE WITH HALF SWITCHED OUTLET
	SPECIAL RECEPTACLE - REFER TO PLANS FOR NEMA TYPE
	DUPLEX RECEPTACLE - FLUSH MOUNTED AND FLOOR BOX
C	CLOCK RECEPTACLE
	CEILING MOUNTED RECEPTACLE
J PWR	WALL MOUNTED OUTLET WITH FLEXIBLE CONNECTION TO FURNITURE SYSTEM OR EQUIPMENT CONNECTION
PWR	FLOOR BOX OUTLET WITH FLEXIBLE CONNECTION TO FURNITURE SYSTEM OR EQUIPMENT CONNECTION
PWR	POKE THROUGH OUTLET WITH FLEXIBLE CONNECTION TO FURNITURE SYSTEM OR EQUIPMENT CONNECTION
PWR	UNDERFLOOR DUCT OUTLET INCLUDING SYSTEM ACTIVATION OF CELL OR DUCT WITH FLEXIBLE CONNECTION TO FURNITURE SYSTEM OR EQUIPMENT CONNECTION
EWC J	ELECTRIC WATER COOLER

RECEPTACLE NOTES:

'IG'	DENOTES ISOLATED GROUND
'GFI'	DENOTES GROUND FAULT INTERRUPTER
'AFCI'	DENOTES ARC FAULT CURRENT INTERRUPTER
'WP'	DENOTES 'WHILE IN USE' WEATHERPROOF COVER
'TR'	DENOTES TAMPER RESISTANT
'SC'	DENOTES SEPARATE CIRCUIT
'CT'	COUNTER TOP

SWITCHES

	DIMMER OR SINGLE POLE SWITCH. THE NUMBER '1' DENOTES CIRCUIT NUMBER AND THE LETTER 'a' SWITCH CONTROL 'WP' DENOTES WEATHERPROOF REFER TO LIGHTING CONTROL SCHEDULE FOR ADDITIONAL REQUIREMENTS
3W	THREE WAY SWITCH
4W	FOUR WAY SWITCH
K	KEY OPERATED SWITCH
P	SWITCH WITH PILOT LIGHT
MC	MOMENTARY CONTACT SWITCH
VS	MANUAL ON FOR VACANCY SENSOR
XXX	LIGHTING CONTROL STATION 'XXX' IS UNIQUE IDENTIFIER REFER TO SCHEDULE
	EMERGENCY- SHROUDED TYPE REMOTE CONTROL 'OFF' PUSHBUTTON (EPO)
JS	DOOR JAMB LIGHT SWITCH, EDWARDS #502A OR EQUIVALENT

RACEWAYS AND WIREWAYS

PB	PULL BOX OR TAP JUNCTION BOX FOR FEEDERS
J	JUNCTION BOX
J	JUNCTION BOX - WALL MOUNTED
J	JUNCTION BOX WITH FLEXIBLE CONNECTION

EXIT SIGN SCHEDULE

SHADED QUADRANTS ON SYMBOL INDICATE FACE ORIENTATION

SINGLE FACE			DOUBLE FACE		
No.	DESCRIPTION	SYMBOL	No.	DESCRIPTION	SYMBOL
1	FIRE ESCAPE		16	FIRE ESCAPE	
2	STAIRS		17	STAIRS	
3	EXIT		18	EXIT	
4	FIRE ESCAPE →		19	FIRE ESCAPE →	
5	STAIRS →		20	STAIRS →	
6	EXIT →		21	EXIT →	
7	FIRE ESCAPE ←		22	FIRE ESCAPE ↔	
8	STAIRS ←		23	STAIRS ↔	
9	EXIT ←		24	EXIT ↔	
10	FIRE ESCAPE ↔				
11	STAIRS ↔				
12	EXIT ↔				

OCCUPANCY SENSOR SYSTEM

	WALL SWITCH VACANCY SENSOR (DUAL TECHNOLOGY): 'P' DENOTES PASSIVE INFRARED ONLY TYPE 'OS' DENOTES OCCUPANCY SENSOR 'PC' DENOTES DUAL TECHNOLOGY WITH PHOTOCELL
VS	CEILING MOUNTED DUAL TECHNOLOGY 360° VACANCY SENSOR AND POWER PACK(S). '2P' DENOTES 2-POLE 'PIR' DENOTES PASSIVE INFRARED ONLY 'US' DENOTES ULTRASONIC ONLY 'PC' DENOTES DUAL TECHNOLOGY WITH PHOTOCELL
OS	CEILING MOUNTED DUAL TECHNOLOGY 360° OCCUPANCY SENSOR AND POWER PACK(S). '2P' DENOTES 2-POLE 'PIR' DENOTES PASSIVE INFRARED ONLY 'US' DENOTES ULTRASONIC ONLY 'PC' DENOTES DUAL TECHNOLOGY WIT PHOTOCELL
	WIDE ANGLE OCCUPANCY SENSOR
DS	DAYLIGHT SENSOR WITH POWER PACK AS REQUIRED

DISTRIBUTION EQUIPMENT

A1-LD-2

NAMING CONVENTION:
1ST GROUP OF CHARACTERS CODED AS FOLLOWS:

DENOTES THE LEVEL ON WHICH THE PANEL IS LOCATED

IF MORE THAN ONE LETTER IS SHOWN, THE FIRST LETTER DENOTES THE BUILDING IN WHICH THE PANEL IS LOCATED

2ND GROUP OF CHARACTERS CODED AS FOLLOWS:

'ATS'	AUTOMATIC TRANSFER SWITCH
'B'	BASE BUILDING
'C'	CRITICAL
'D'	DISTRIBUTION
'E'	EMERGENCY
'HP'	HEATING
'HV'	480Y/277V
'ISO'	ISOLATION
'K'	KITCHEN
'L'	LIGHTING
'LV'	208Y/120V
'LVSG'	LOW VOLTAGE SWITCHGEAR
'LS'	LIFE SAFETY
'M'	MECHANICAL
'MCC'	MOTOR CONTROL CENTER
'MVSG'	MEDIUM VOLTAGE SWITCHGEAR
'P'	POWER PANEL
'PDU'	POWER DISTRIBUTION UNIT
'R'	RECEPTACLE
'RPP'	REMOTE POWER PANEL
'STS'	STATIC TRANSFER SWITCH
'SWGR'	SWITCHGEAR
'SWBD'	SWITCHBOARD
'T'	TRANSFORMER
'TC'	TERMINAL CABINET
'UPS'	UNINTERRUPTIBLE POWER SUPPLY
'USS'	UNIT SUBSTATION

COMBINATION OF LETTERS IS ALLOWED 3RD NUMBER DENOTES:

'#'	NUMBER DENOTES NUMBER FOR THAT PARTICULAR TYPE AND FLOOR
'#A'	NUMBER DENOTES NUMBER FOR THAT PARTICULAR TYPE AND FLOOR, LETTER DENOTES UTILITY SUBSTATION SOURCE
'A#'	LETTER DENOTES CORE CLOSET NUMBER, NUMBER DENOTES NUMBER FOR THAT PARTICULAR TYPE AND FLOOR

	FLUSH MOUNTED PANEL. SEE DESCRIPTION FOR TYPE.
	SURFACE MOUNTED PANEL. SEE DESCRIPTION FOR TYPE.
CTB	CABLE TAP BOX.

HEATING EQUIPMENT

UH	ELECTRIC UNIT HEATER WITH BUILT IN THERMOSTAT. WALL OR CEILING MOUNTED.
CUH	CABINET UNIT HEATER WITH BUILT IN DISCONNECT SWITCH AND THERMOSTAT
BB	BASEBOARD HEATER WITH BUILT IN THERMOSTAT. LENGTH AS INDICATED ON PLAN. SEE MECHANICAL & ELECTRICAL EQUIPMENT SCHEDULES FOR KW OR WATTAGE PER LINEAR FOOT.
EDH	ELECTRIC DUCT HEATER
FPB	FAN POWERED BOX
EF	EXHAUST FAN - REFER TO SCHEDULES FOR HORSEPOWER AND VOLTAGE
WH	ELECTRIC WATER HEATER - REFER TO SCHEDULES FOR WATTAGE AND VOLTAGE
HT	HEAT TRACE

EXIT SIGN NOTES:

1. EXITS SIGNS SHALL COMPLY WITH CHICAGO ELECTRICAL CODE AND FIRE PREVENTION BUREAU REQUIREMENTS.
2. CONTRACTOR TO COORDINATE WITH LOCAL AUTHORITY FOR QUANTITY, LOCATION, TYPE, FACES, ETC. FOR ALL EXIT SIGNS WITHOUT ANY ADDITIONAL COST TO OWNER.
3. VERIFY TYPE OF MOUNTING FOR ALL EXIT SIGNS PRIOR ORDERING.

LUMINARIES

CEILING	WALL	NORMAL
F1 3a		1x4 LIGHTING FIXTURE
		2x4 LIGHTING FIXTURE
		2x2 LIGHTING FIXTURE
		STRIP LIGHT
		FLOODLIGHT
		ADJUSTABLE LUMINAIRE, ARROW DENOTES AIMING ORIENTATION
		RECESSED WALLWASHER LUMINAIRE
		RECESSED DOWNLIGHT LUMINAIRE
		EMERGENCY
F1 EM1		1x4 LIGHTING FIXTURE WIRED TO EMERGENCY LIGHTING SYSTEM
		2x2 LIGHTING FIXTURE WIRED TO EMERGENCY LIGHTING SYSTEM
		2x4 LIGHTING FIXTURE WIRED TO EMERGENCY LIGHTING SYSTEM
		STRIP LIGHT WIRED TO EMERGENCY LIGHTING SYSTEM
		DOWNLIGHT WIRED TO EMERGENCY LIGHTING SYSTEM
		CRITICAL
F1 C3a		1x4 LIGHTING FIXTURE WIRED TO CRITICAL SYSTEM
		2x2 LIGHTING FIXTURE WIRED TO CRITICAL SYSTEM
		2x4 LIGHTING FIXTURE WIRED TO CRITICAL SYSTEM
		DOWNLIGHT WIRED TO CRITICAL SYSTEM

LUMINAIRE NOTES:

'F1'	DENOTES FIXTURE TYPE, REFER TO LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION AND MOUNTING.
'3a'	'3' DENOTES THE CIRCUIT NUMBER AND 'a' DENOTES SWITCH CONTROL.
'EM1'	'EM' DENOTES A LIGHT FIXTURE WIRED TO THE EMERGENCY SYSTEM.
'C3a'	'C' DENOTES A LIGHT FIXTURE WIRED TO THE CRITICAL SYSTEM.
'DIM'	DIMMING BALLAST OR DRIVER

MOTORS AND CONTROLS

	MOTOR, REFER TO EQUIPMENT SCHEDULE FOR HORSEPOWER, DESCRIPTION, WIRING AND PANEL FED FROM
DP	MOTOR OPERATED DAMPER REFER TO EQUIPMENT SCHEDULE FOR HORSEPOWER, DESCRIPTION, WIRING AND PANEL FED FROM
VFD	VARIABLE FREQUENCY CONTROLLER WITH RATING AS INDICATED (ALSO 'VFD')
C	CONTACTOR WITH ENCLOSURE RATING AS INDICATED
C	COMBINATION CONTACTOR WITH DISCONNECT SWITCH
CB	CIRCUIT BREAKER WITH ENCLOSURE, RATING AS INDICATED
	NON-FUSED DISCONNECT SWITCH, RATING AS INDICATED
	FUSIBLE DISCONNECT, RATING AS INDICATED
	MOTOR CONTROLLER
	COMBINATION MOTOR CONTROLLER AND DISCONNECT SWITCH WITH OVERCURRENT PROTECTION
LO	LOCK-OUT SWITCH
P	PUSH BUTTON CONTROL STATION. 'P' DENOTES STATION WITH PILOT LIGHT
	EQUIPMENT IDENTIFICATION - SEE EQUIPMENT SCHEDULE
P 2T	SINGLE POLE MANUAL STARTER WITH THERMAL OVERLOAD PROTECTION FOR FRACTIONAL SINGLE PHASE MOTORS. 'P' DENOTES PILOT LIGHT, '2' DENOTES DOUBLE POLE, AND 'T' DENOTES THERMAL OVERLOAD

GENERAL REQUIREMENTS FOR RACEWAYS:

1. ALL POWER WIRING SHALL BE IN CONDUIT.
2. PROVIDE A SEPARATE RACEWAY FOR ALL EMERGENCY LIGHTING CIRCUITS.
3. PROVIDE A SEPARATE RACEWAY FOR ALL UPS CIRCUITS.
4. THE CONTRACTOR SHALL PROVIDE A COMPLETE SEPARATE CONDUIT SYSTEM FOR FIRE ALARM. REFER TO FIRE ALARM DRAWINGS FOR DEVICE LOCATIONS AND OTHER RACEWAY REQUIREMENTS. IN ADDITION PROVIDE ALL REQUIRED CONTROL POWER COMPLETE, CONNECT TO THE EMERGENCY LIGHTING PANEL.
5. THE CONTRACTOR SHALL PROVIDE A COMPLETE SEPARATE CONDUIT SYSTEM FOR BAS CONTROL. REFER TO THE MECHANICAL DRAWINGS FOR DEVICE LOCATIONS AND OTHER RACEWAY REQUIREMENTS . IN ADDITION PROVIDE ALL REQUIRED CONTROL POWER COMPLETE FROM THE UPS PANEL.
6. THE CONTRACTOR SHALL PROVIDE A COMPLETE SEPARATE CONDUIT SYSTEM FOR ALL TECHNOLOGY AND TELECOMMUNICATIONS. STUB THE CONDUIT TO THE OVERHEAD WIREWAY SYSTEM. REFER TO THE TECHNOLOGY AND TELECOMMUNICATIONS DRAWINGS FOR DEVICE LOCATIONS AND OTHER RACEWAY REQUIREMENTS . IN ADDITION PROVIDE ALL REQUIRED CONTROL POWER COMPLETE.
7. THE CONTRACTOR SHALL PROVIDE A COMPLETE SEPARATE CONDUIT SYSTEM FOR ALL AUDIO VISUAL SYSTEM. REFER TO THE AV DRAWINGS FOR DEVICE LOCATIONS AND OTHER RACEWAY REQUIREMENTS. IN ADDITION PROVIDE ALL REQUIRED CONTROL POWER COMPLETE.
8. THE CONTRACTOR SHALL PROVIDE A COMPLETE SEPARATE CONDUIT SYSTEM FOR ALL CCTV, SECURITY AND ACCESS CONTROL SYSTEMS. REFER TO THE CCTV, SECURITY AND ACCESS CONTROL DRAWINGS FOR DEVICE LOCATIONS AND OTHER RACEWAY REQUIREMENTS. IN ADDITION PROVIDE ALL REQUIRED CONTROL POWER COMPLETE FROM THE UPS PANEL.
9. THE CONTRACTOR SHALL PROVIDE ALL FLOOR BOXES FOR POWER, TELECOM AND AV. POWER FLOOR BOXES ARE NOT COMBINED.
10. THE CONTRACTOR SHALL MATCH EXISTING LIGHTING CONTROL SYSTEM. WATTSTOPPER.
11. PROVIDE 1"C WITH CONTROL WIRES AND TIE INTO THE EXISTING BUILDING SYSTEM. LOCATED IN THE MAIN SWITCHBOARD ROOM NEAR THE MAIN WATER SERVICE (SEE E002).
12. FLOOR BOXES ON THE THIRD AND FOURTH FLOOR SHALL BE FIRE RATED THRU FLOOR FITTING WITH ROUND BRASS FLUSH FACE PLATE. MANUFACTURED BY HUBBELL.
13. THE CONTRACTOR SHALL FIELD COORDINATE THE LOCATION OF ALL FLOOR AND WALL BOXES FOR POWER AND TELECOM. PROVIDE DIMENSION SHOP DRAWING SHOWING BOX LOCATION , CONDUIT SIZE AND ROUTHING FOR REVEIW PRIOR TO INSTALL.

6

ONE-LINE ELECTRICAL DIAGRAM

	INCOMING LINE
	POLY PHASE TRANSFORMER
	3 PHASE, DELTA, UNGROUNDED
	3 PHASE, DELTA, CORNER-GROUNDED
	3 PHASE, DELTA, MIDPOINT-GROUNDED
	3 PHASE WYE OR STAR UNGROUNDED
	3 PHASE WYE, GROUNDED NEUTRAL
	POTENTIAL TRANSFORMER
	CURRENT TRANSFORMER
	GROUND
	MEDIUM VOLTAGE POWER CIRCUIT BREAKER
XXX 400 AF 400 AT	LOW VOLTAGE DRAW-OUT CIRCUIT BREAKER
XXX 400 AF 400 AT	CIRCUIT BREAKER-(3-POLE, UNO) CIRCUIT BREAKER TRIP UNIT FEATURES: 'L' ADJUSTABLE LONG TIME DELAY & ADJUSTABLE LONG TIME PICKUP 'S' ADJUSTABLE SHORT TIME DELAY & ADJUSTABLE SHORT TIME PICKUP 'I' ADJUSTABLE INSTANTANEOUS 'G' ADJUSTABLE GROUND FAULT DELAY & ADJUSTABLE GROUND FAULT PICKUP 'A' GROUND FAULT ALARM ONLY 'Z' ZONE SELECTIVE INTERLOCKING 'ST' SHUNT TRIP '100R' 100% RATED N.O. NORMALLY OPEN N.C. NORMALLY CLOSED
	NETWORK PROTECTOR
NO	NORMALLY OPEN CONTROL CONTACT
NC	NORMALLY CLOSED CONTROL CONTACT
	SINGLE THROW SWITCH
	DOUBLE THROW SWITCH
P A	AUTOMATIC TRANSFER SWITCH
	MEDIUM VOLTAGE FUSED CUTOUT
	FUSE
S	FUSIBLE ELEMENT
	SURGE ARRESTOR
SPD	SURGE PROTECTION DEVICE (FORMERLY TVSS)
	CABLE TERMINATION
	POT HEAD
	STRESS CONE
SS	SELECTOR SWITCH
A	AMMETER
AS	AMMETER SWITCH
V	VOLTMETER
VS	VOLTMETER SWITCH
R	BASIC RELAY SYMBOL
GEN	GENERATOR
	BATTERY
WH	WATTHOUR METER
VAR	VARMETER
M	UTILITY METER
MMD	MICROPROCESSOR METERING DEVICE
MPD	MICROPROCESSOR MOTOR PROTECTION DEVICE
	THERMAL OVERLOAD
ST	SHUNT TRIP
K 1	KEY INTERLOCK DEVICE, NUMBER DENOTES POSITION
5	MOTOR, NUMBER DENOTES HORSEPOWER
	3-PHASE CAPACITOR BANK
STS	STATIC TRANSFER SWITCH
	DRAWOUT ELEMENT

ABBREVIATIONS AND DEFINITIONS

AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BB	BASEBOARD HEATER
BPS	BOLTED PRESSURE SWITCH
BFP	BLOWN FUSE PROTECTION
CB	CIRCUIT BREAKER
CCT	CIRCUIT
CO	CONDUIT ONLY
CPT	CONTROL POWER TRANSFORMER
CTR	CURRENT TRANSFORMER
CT	COUNTER TOP RECEPTACLE
CR	CARD READER
CUH	CABINET UNIT HEATER
DISC	DISCONNECT
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
E.C.	ELECTRICAL CONTRACTOR
EM	EMERGENCY
EPO	EMERGENCY POWER OFF
EQPT	EQUIPMENT
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FCU	FAN COIL UNIT
FPB	FAN POWERED BOX
FFC	FORCED FLOW CONVECTOR
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CURRENT INTERRUPTER
GRD	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND OFF AUTOMATIC (SELECTOR)
HP	HORSEPOWER
JB	JUNCTION BOX
IG	ISOLATED GROUND
INC	INCANDESCENT
KV	KILOVOLT
KW	KILOWATT
KVA	KILOVOLT AMP
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
M	METER FITTING
MCB	MAIN CIRCUIT BREAKER
MCP	MOTOR CIRCUIT PROTECTOR
MLO	MAIN LUGS ONLY
MS	MAIN SWITCH
MTD	MOUNTED
MV	MEDIUM VOLTAGE
MW	MICROWAVE
NC	NORMALLY CLOSED (CONTACTS)
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED DISCONNECT
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN (CONTACTS)
NTS	NOT TO SCALE
PFC	POWER FACTOR CORRECTION
PNL	PANEL
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
RCP	REFLECTED CEILING PLAN
RMC	RIGID METAL CONDUIT
SEC	SECONDARY
SPD	SURGE PROTECTION DEVICE (TVSS)
SPDT	SINGLE POLE DOUBLE THROW
ST	SHUNT TRIP
SW	SWITCH
TEL	TELEPHONE
TR	TAMPER RESISTANT
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
VP	VAPOR PROOF (ENCLOSED AND GASKETED)
WP	WEATHERPROOF (NEMA-3R OUTDOOR, NEMA-4 IN PLENUMS)
WH	WATER HEATER
WT	WATERTIGHT (NEMA-4)
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
VCB	VACUUM CIRCUIT BREAKER
VFC	VARIABLE FREQUENCY CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE

REFERENCE SYMBOLS

TYPE XX XX NUM.	RISER DESIGNATION
TYPE XXX XX-XX LOC. NUM.	EQUIPMENT IDENTIFICATION
	MATCHLINE
X EX-XXX	DETAIL / ENLARGED PLAN CALLOUT
X EX-XXX	DETAIL / SECTION ELEVATION
X X EX-XXX X X	INTERIOR ELEVATION

NOMENCLATURE:

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

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6	07/31/24	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

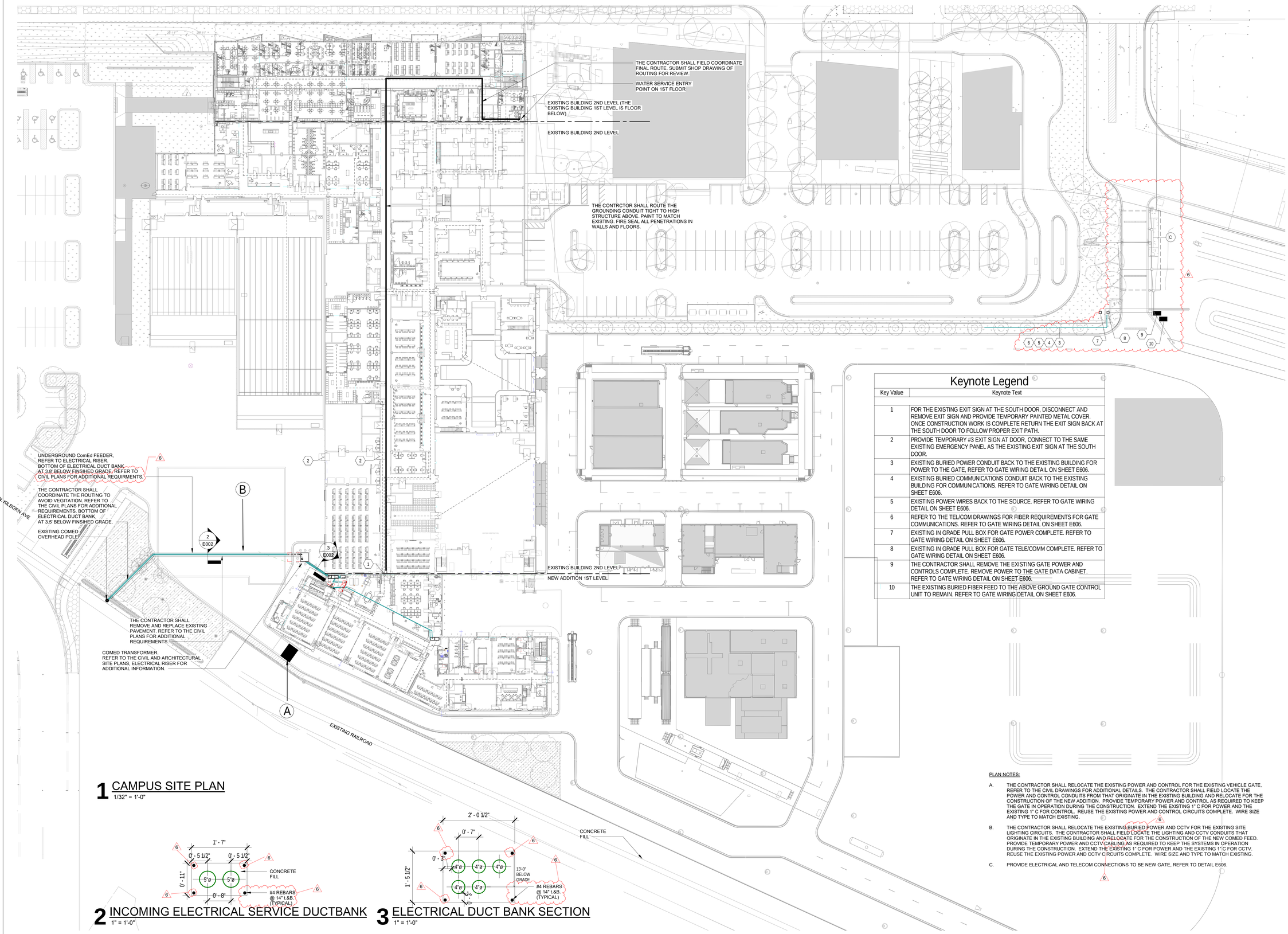
SHEET TITLE

SYMBOLS AND ABBREVIATIONS

SHEET NUMBER

E001

Last Plotted: 7/31/2024 2:07:58 PM
Filename: Autodesk Docs://BP-AMER (USA)/60710711-PSTC EMS Addition/60710711_ACM_R22_JPSTC ADD_E.rvt



1 CAMPUS SITE PLAN
1/32" = 1'-0"

2 INCOMING ELECTRICAL SERVICE DUCTBANK
1" = 1'-0"

3 ELECTRICAL DUCT BANK SECTION
1" = 1'-0"

Keynote Legend

Key Value	Keynote Text
1	FOR THE EXISTING EXIT SIGN AT THE SOUTH DOOR, DISCONNECT AND REMOVE EXIT SIGN AND PROVIDE TEMPORARY PAINTED METAL COVER. ONCE CONSTRUCTION WORK IS COMPLETE RETURN THE EXIT SIGN BACK AT THE SOUTH DOOR TO FOLLOW PROPER EXIT PATH.
2	PROVIDE TEMPORARY #3 EXIT SIGN AT DOOR, CONNECT TO THE SAME EXISTING EMERGENCY PANEL AS THE EXISTING EXIT SIGN AT THE SOUTH DOOR.
3	EXISTING BURIED POWER CONDUIT BACK TO THE EXISTING BUILDING FOR POWER TO THE GATE, REFER TO GATE WIRING DETAIL ON SHEET E606.
4	EXISTING BURIED COMMUNICATIONS CONDUIT BACK TO THE EXISTING BUILDING FOR COMMUNICATIONS. REFER TO GATE WIRING DETAIL ON SHEET E606.
5	EXISTING POWER WIRES BACK TO THE SOURCE. REFER TO GATE WIRING DETAIL ON SHEET E606.
6	REFER TO THE TEL/COM DRAWINGS FOR FIBER REQUIREMENTS FOR GATE COMMUNICATIONS. REFER TO GATE WIRING DETAIL ON SHEET E606.
7	EXISTING IN GRADE PULL BOX FOR GATE POWER COMPLETE. REFER TO GATE WIRING DETAIL ON SHEET E606.
8	EXISTING IN GRADE PULL BOX FOR GATE TELE/COMM COMPLETE. REFER TO GATE WIRING DETAIL ON SHEET E606.
9	THE CONTRACTOR SHALL REMOVE THE EXISTING GATE POWER AND CONTROLS COMPLETE. REMOVE POWER TO THE GATE DATA CABINET. REFER TO GATE WIRING DETAIL ON SHEET E606.
10	THE EXISTING BURIED FIBER FEED TO THE ABOVE GROUND GATE CONTROL UNIT TO REMAIN. REFER TO GATE WIRING DETAIL ON SHEET E606.

PLAN NOTES:

A. THE CONTRACTOR SHALL RELOCATE THE EXISTING POWER AND CONTROL FOR THE EXISTING VEHICLE GATE, REFER TO THE CIVIL DRAWINGS FOR ADDITIONAL DETAILS. THE CONTRACTOR SHALL FIELD LOCATE THE POWER AND CONTROL CONDUITS FROM THAT ORIGINATE IN THE EXISTING BUILDING AND RELOCATE FOR THE CONSTRUCTION OF THE NEW ADDITION. PROVIDE TEMPORARY POWER AND CONTROL AS REQUIRED TO KEEP THE GATE IN OPERATION DURING THE CONSTRUCTION. EXTEND THE EXISTING 1" C FOR POWER AND THE EXISTING 1" C FOR CONTROL. REUSE THE EXISTING POWER AND CONTROL CIRCUITS COMPLETE. WIRE SIZE AND TYPE TO MATCH EXISTING.

B. THE CONTRACTOR SHALL RELOCATE THE EXISTING BURIED POWER AND CCTV FOR THE EXISTING SITE LIGHTING CIRCUITS. THE CONTRACTOR SHALL FIELD LOCATE THE LIGHTING AND CCTV CONDUITS THAT ORIGINATE IN THE EXISTING BUILDING AND RELOCATE FOR THE CONSTRUCTION OF THE NEW COMED FEED. PROVIDE TEMPORARY POWER AND CCTV CABLING AS REQUIRED TO KEEP THE SYSTEMS IN OPERATION DURING THE CONSTRUCTION. EXTEND THE EXISTING 1" C FOR POWER AND THE EXISTING 1"C FOR CCTV. REUSE THE EXISTING POWER AND CCTV CIRCUITS COMPLETE. WIRE SIZE AND TYPE TO MATCH EXISTING.

C. PROVIDE ELECTRICAL AND TELECOM CONNECTIONS TO BE NEW GATE, REFER TO DETAIL E606.

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6	07/31/24	ADD 04
5	07/25/2024	ADD 03
3	07/12/2024	ADD 01
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER
PBC: #07215 AECOM: 60710711

SHEET TITLE
CAMPUS SITE PLAN

SHEET NUMBER
E002

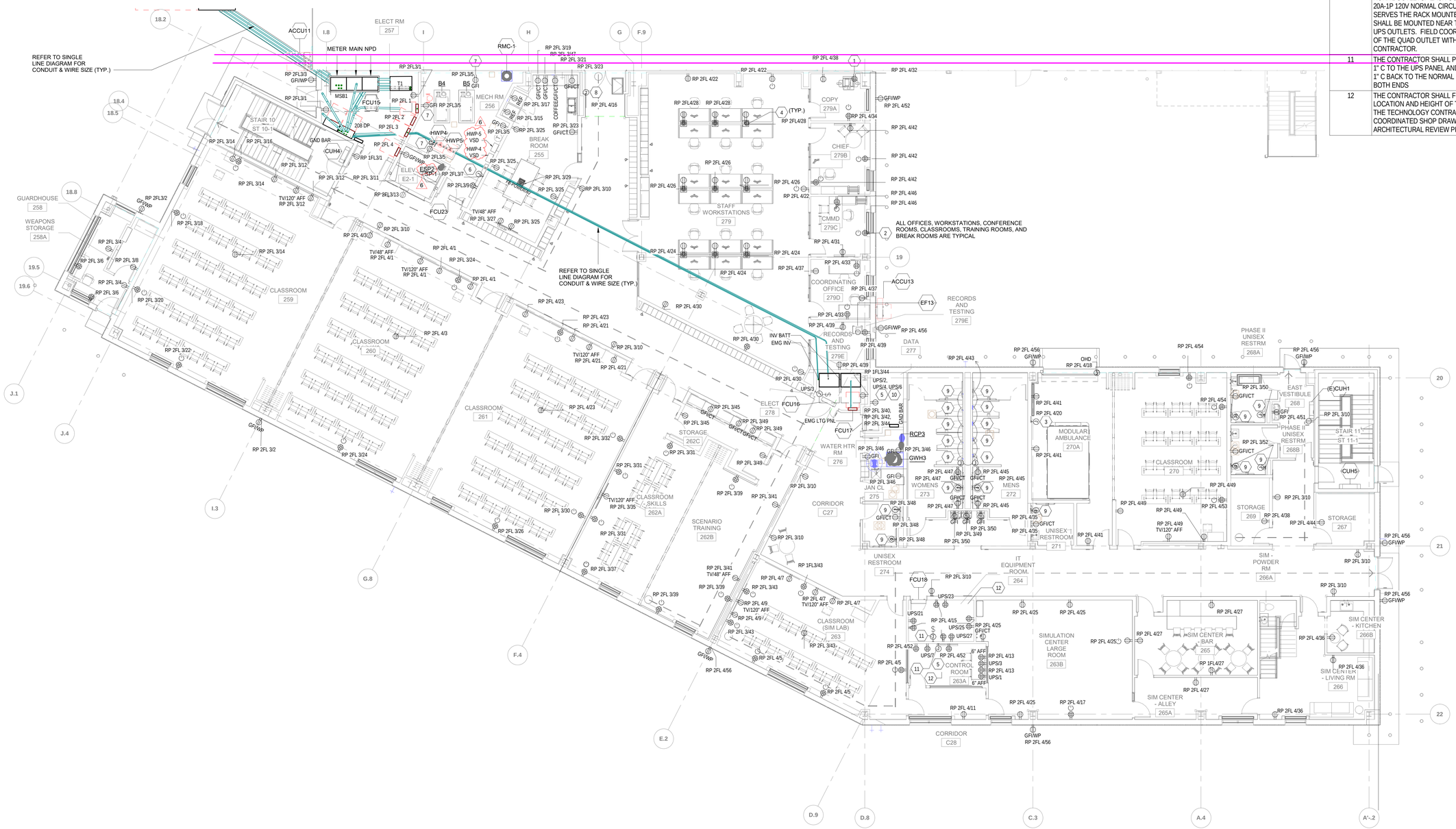
Last Plotted: 7/31/2024 2:08:38 PM
Filename: Autodesk Docs://IP-MEP (USA) 60710711-PSTC EMS Addition/60710711_ACM_R22_IPSTC ADD_E+t

GENERAL NOTES:

A. PROVIDE FULL CONDUIT SYSTEM FOR FIRE ALARM, BAS, SECURITY. REFER TO SPECIAL SYSTEM DRAWINGS FOR ADDITIONAL REQUIREMENTS.
B. STUB TELE/DATA CONDUITS INTO WIREWAY ON EACH FLOOR. REFER TO COMMUNICATIONS DRAWINGS FOR ADDITIONAL REQUIREMENTS.

Keynote Legend

Key Value	Keynote Text
1	DEDICATED CIRCUIT
2	SWITCHED RECEPTACLE PER ENERGY CODE
3	AMBULANCE CHASSIS CIRCUIT, NEMA L5-30R
4	FLUSH IN SLAB, COMBINATION POWER/DATA
5	THE CONTRACTOR SHALL PROVIDE (3) QUAD UPS OUTLETS. EACH OUTLET ON A DEDICATED 20A-1P 120V UPS CIRCUIT. THE QUAD OUTLET SERVES THE RACK MOUNTED EQUIPMENT AND SHALL BE MOUNTED NEAR THE RACK. PROVIDE AN ENGRAVED NAMEPLATE FOR THE UPD OUTLETS. FIELD COORDINATE THE LOCATION OF THE QUAD OUTLET WITH THE TECHNOLOGY CONTRACTOR. EACH CIRCUIT WITH A DEDICATED NEUTRAL AND GROUNDING WIRE.
6	DEDICATED 20A-120V CIRCUIT, HARDWIRED
7	DEDICATED CIRCUIT NEMA 5-20R, GFI
8	DEDICATED 20A-120V CB FOR DOOR HOLD OPEN
9	120V FOR HANDS FREE SINK, URINAL AND WATER CLOSETS. COORDINATE FINAL LOCATION WITH PLUMBING CONTRACTOR
10	THE CONTRACTOR SHALL PROVIDE (3) QUAD NORML OUTLETS. EACH OUTLET ON A DEDICATED 20A-1P 120V NORMAL CIRCUIT. THE QUAD OUTLET SERVES THE RACK MOUNTED EQUIPMENT AND SHALL BE MOUNTED NEAR THE RACK NEXT TO THE UPS OUTLETS. FIELD COORDINATE THE LOCATION OF THE QUAD OUTLET WITH THE TECHNOLOGY CONTRACTOR.
11	THE CONTRACTOR SHALL PROVIDE A DEDICATED 1" C TO THE UPS PANEL AND ANOTHER DEDICATED 1" C BACK TO THE NORMAL PANEL. TAG AND CAP BOTH ENDS
12	THE CONTRACTOR SHALL FIELD COORDINATE THE LOCATION AND HEIGHT OF THE OUTLETS WITH THE TECHNOLOGY CONTRACTOR. PROVIDE A COORDINATED SHOP DRAWING FOR ARCHITECTURAL REVIEW PRIOR TO RUFF IN.



1 SECOND FLOOR POWER PLAN

1/8" = 1'-0"

PROJECT

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2	07/05/2024	ISSUED FOR PERMIT
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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

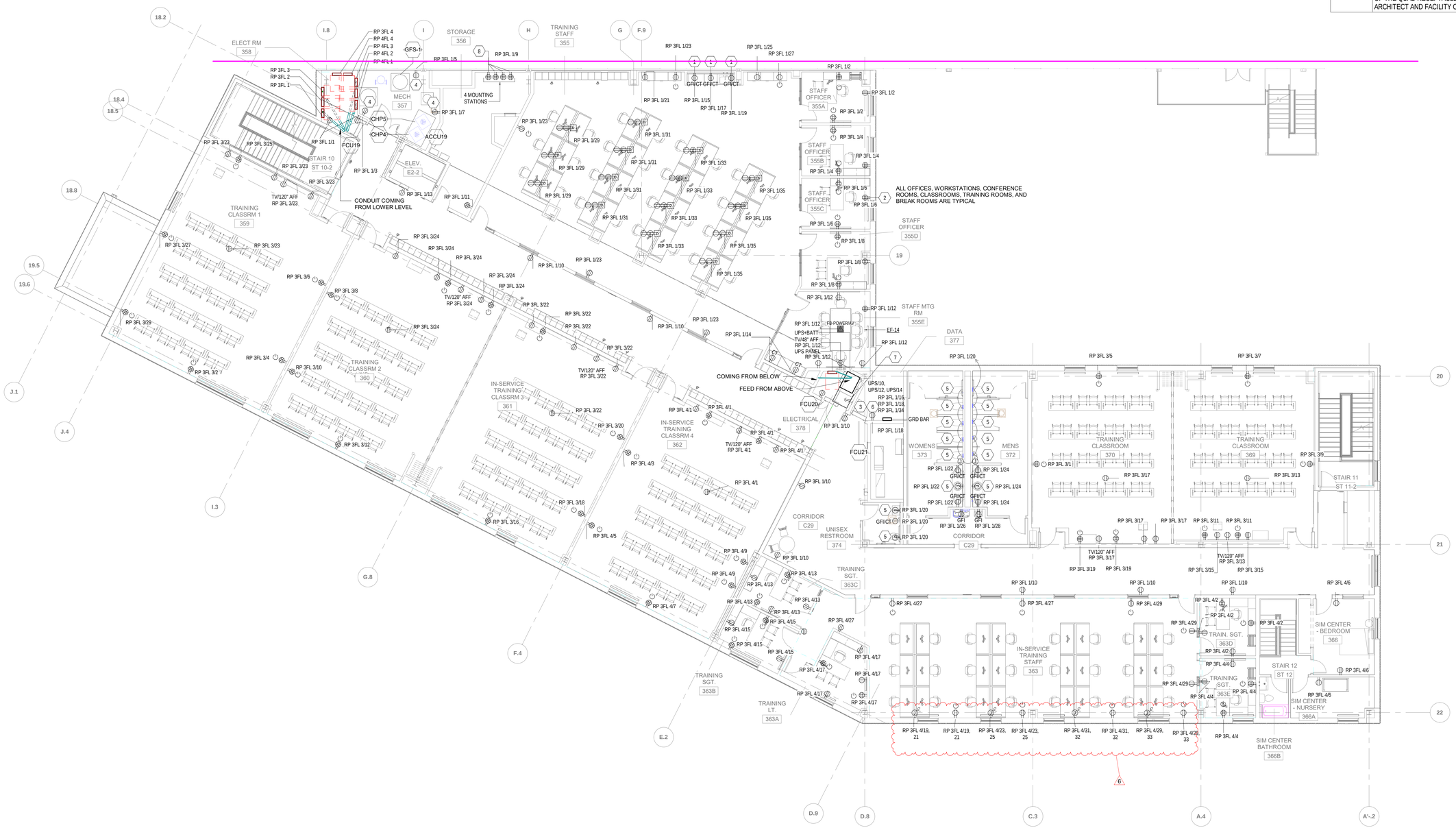
SECOND FLOOR POWER PLAN

SHEET NUMBER

E101

Keynote Legend

Key Value	Keynote Text
1	DEDICATED CIRCUIT
2	SWITCHED RECEPTACLE PER ENERGY CODE
3	THE CONTRACTOR SHALL PROVIDE (3) QUAD UPS OUTLETS. EACH OUTLET ON A DEDICATED 20A-1P 120V UPS CIRCUIT. THE QUAD OUTLET SERVES THE RACK MOUNTED EQUIPMENT AND SHALL BE MOUNTED NEAR THE RACK. PROVIDE AN ENGRAVED NAMEPLATE FOR THE UPD OUTLETS. FIELD COORDINATE THE LOCATION OF THE QUAD OUTLET WITH THE TECHNOLOGY CONTRACTOR. EACH CIRCUIT WITH A DEDICATED NEUTRAL AND GROUNDING WIRE.
4	DEDICATED CIRCUIT NEMA 5-20R, GFI
5	120V FOR HANDS FREE SINK, URINAL AND WATER CLOSETS. COORDINATE FINAL LOCATION WITH PLUMBING CONTRACTOR
6	THE CONTRACTOR SHALL PROVIDE (3) QUAD NORML OUTLETS. EACH OUTLET ON A DEDICATED 20A-1P 120V NORMAL CIRCUIT. THE QUAD OUTLET SERVES THE RACK MOUNTED EQUIPMENT AND SHALL BE MOUNTED NEAR THE RACK NEXT TO THE UPS OUTLETS. FIELD COORDINATE THE LOCATION OF THE QUAD OUTLET WITH THE TECHNOLOGY CONTRACTOR.
7	PROVIDE REMOTE EPO SWITCH FOR UPS.
8	FIELD COORDINATE THE LOCATION AND HEIGHT OF THE QUAD RECEPTACLES WITH THE ARCHITECT AND FACILITY OPERATOR.



1 THIRD FLOOR POWER PLAN

1/8" = 1'-0"

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PBC: #07215 AECOM: 60710711

SHEET TITLE

THIRD FLOOR POWER PLAN

SHEET NUMBER

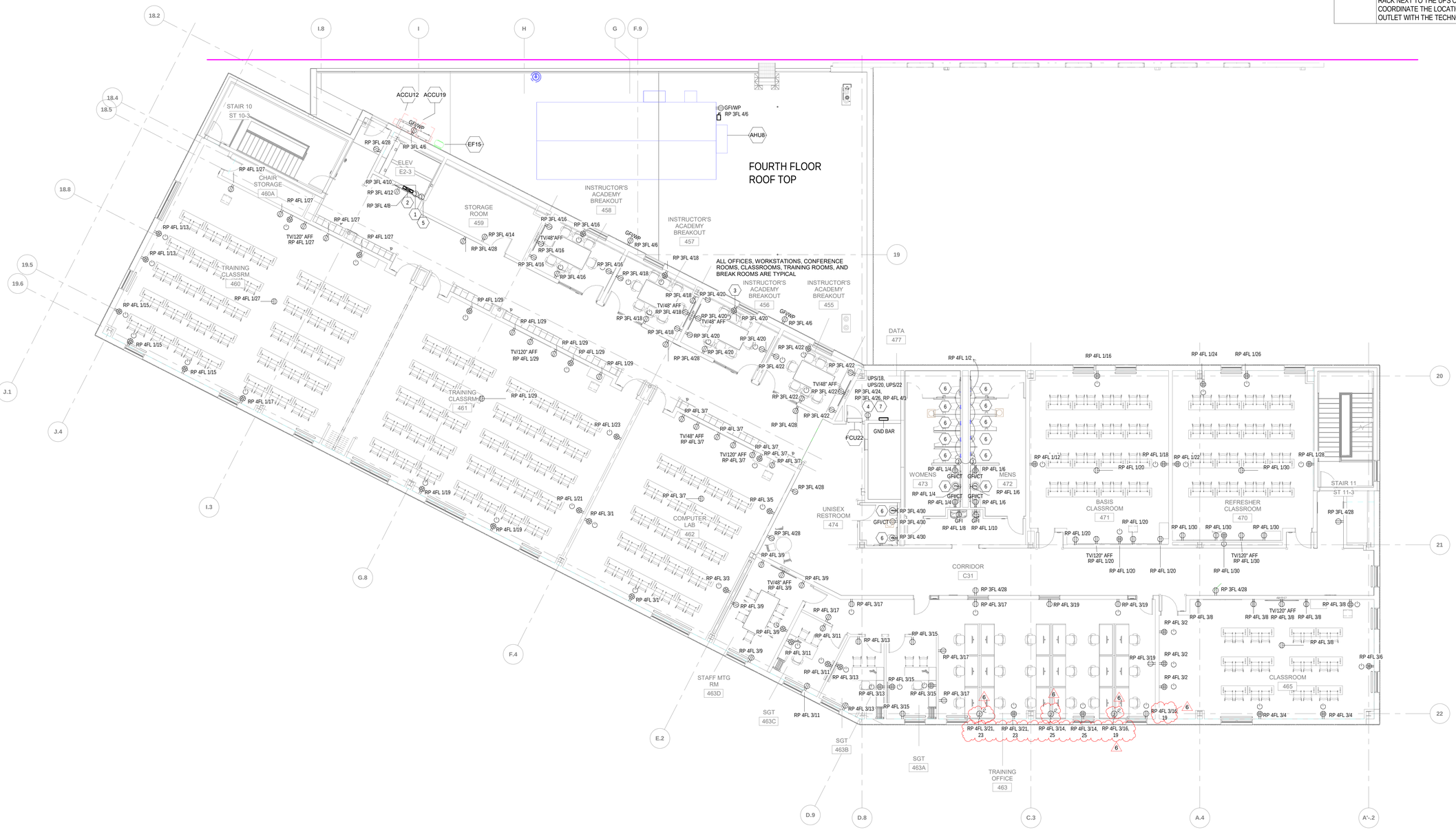
E102

GENERAL NOTES:

A. PROVIDE FULL CONDUIT SYSTEM FOR FIRE ALARM, BAS, SECURITY. REFER TO SPECIAL SYSTEM DRAWINGS FOR ADDITIONAL REQUIREMENTS.
B. STUB TELE/DATA CONDUITS INTO WIREWAY ON EACH FLOOR. REFER TO COMMUNICATIONS DRAWINGS FOR ADDITIONAL REQUIREMENTS.

Keynote Legend

Key Value	Keynote Text
1	120V POWER FOR ELEVATOR
2	PROVIDE ELEVATOR POWER CONNECTION IN DOOR JAMB. REFER TO EQUIPMENT SCHEDULE.
3	SWITCHED RECEPTACLE PER ENERGY CODE
4	THE CONTRACTOR SHALL PROVIDE (3) QUAD UPS OUTLETS. EACH OUTLET ON A DEDICATED 20A-1P 120V UPS CIRCUIT. THE QUAD OUTLET SERVES THE RACK MOUNTED EQUIPMENT AND SHALL BE MOUNTED NEAR THE RACK. PROVIDE AN ENGRAVED NAMEPLATE FOR THE UPD OUTLETS. FIELD COORDINATE THE LOCATION OF THE QUAD OUTLET WITH THE TECHNOLOGY CONTRACTOR. EACH CIRCUIT WITH A DEDICATED NEUTRAL AND GROUNDING WIRE.
5	EMPTY 1" CONDUIT TO THE FIRE ALARM CONTROL PANEL, EMPTY 1" CONDUIT TO THE THIRD FLOOR TELE/DATA ROOM FOR COMMUNICATIONS
6	120V FOR HANDS FREE SINK, URINAL AND WATER CLOSETS. COORDINATE FINAL LOCATION WITH PLUMBING CONTRACTOR
7	THE CONTRACTOR SHALL PROVIDE (3) QUAD NORML OUTLETS. EACH OUTLET ON A DEDICATED 20A-1P 120V NORMAL CIRCUIT. THE QUAD OUTLET SERVES THE RACK MOUNTED EQUIPMENT AND SHALL BE MOUNTED NEAR THE RACK NEXT TO THE UPS OUTLETS. FIELD COORDINATE THE LOCATION OF THE QUAD OUTLET WITH THE TECHNOLOGY CONTRACTOR.



1 FOURTH FLOOR POWER PLAN

1/8" = 1'-0"

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6	07/31/24	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

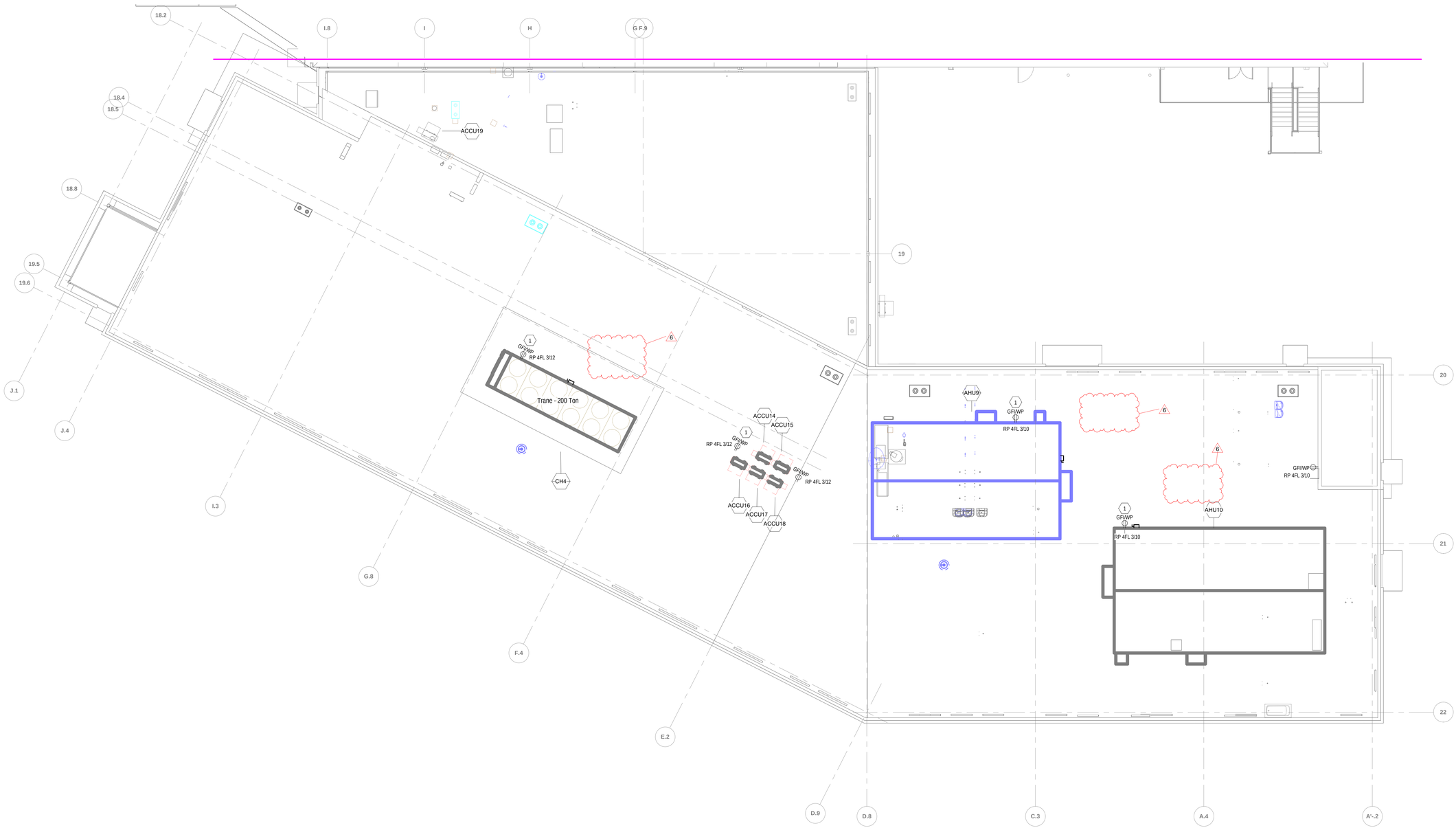
FOURTH FLOOR POWER PLAN

SHEET NUMBER

E103

Designer: Designer Checkset: Checker Approved: Approver#ARCH E1 30"x42"

Keynote Legend	
Key Value	Keynote Text
1	UNISTRUT SUPPORT FOR GFI/WP RECEPTACLE



1 ROOF POWER PLAN
1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

CONSULTANTS

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ARCHITECTURE, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION
303 E. Wacker Dr. #1400
Chicago, IL 60601
312-373-7700

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312-202-3300

REGISTRATION

NORTH ARROW

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I/R	DATE	DESCRIPTION
6	07/31/24	ADD 04
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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

ROOF POWER PLAN

SHEET NUMBER

E104

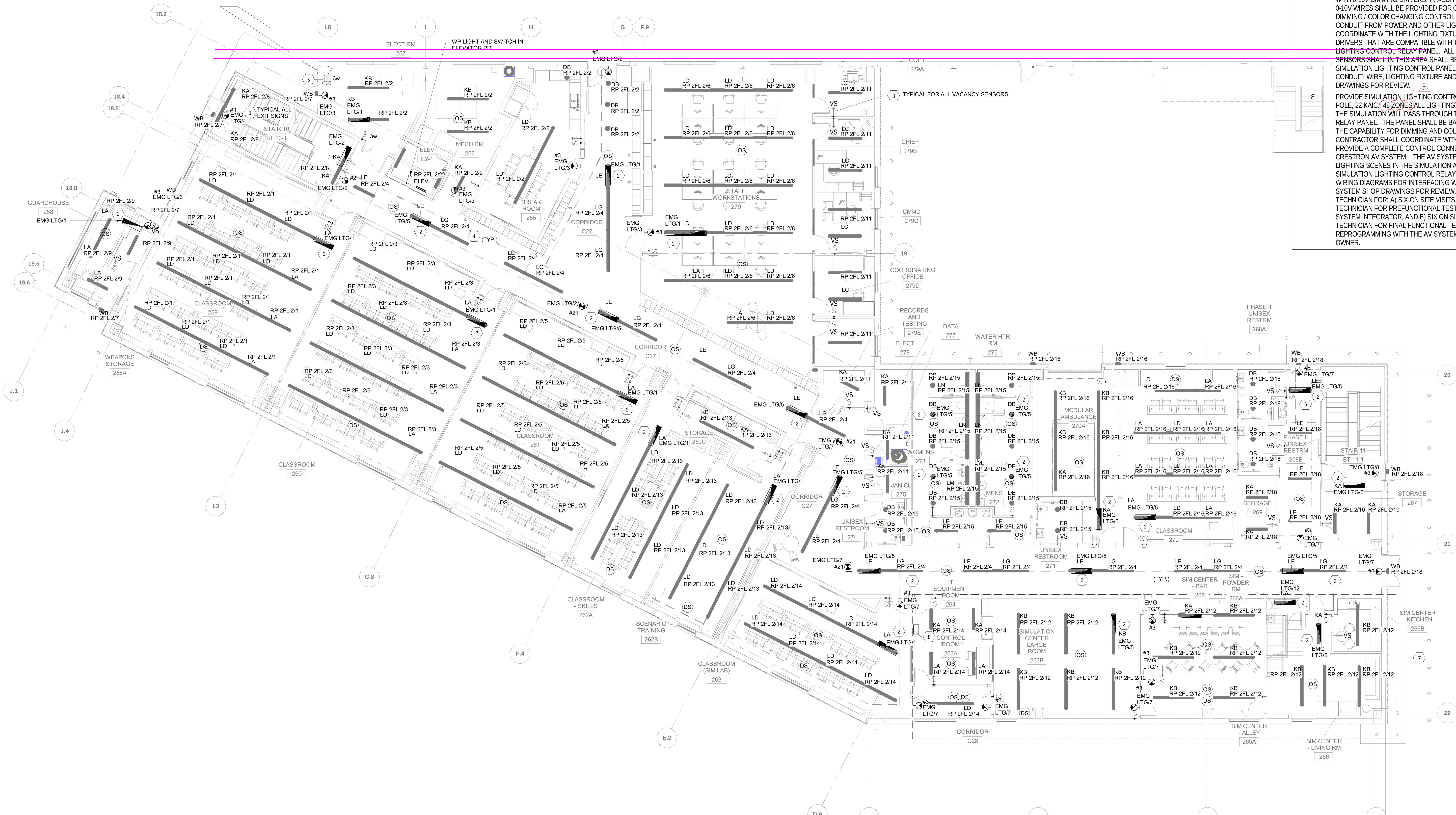
Last Plotted: 7/31/2024 2:06:13 PM
Filename: J:\Autodesk Docs\JBP-AMER (USA) 60710711-PSTC EMS Addition\60710711_ACM_R22_JPSTC ADD_E.rvt

GENERAL NOTES:

A. REFER TO ARCHITECTURAL PLANS FOR LIGHTING FIXTURE LOCATIONS, MOUNTING HEIGHTS, AND LIGHTING FIXTURE SCHEDULE. (TYP.)

Keynote Legend

Key Value	Keynote Text
1	CONNECT THE EXIT SIGNS TO THE EMERGENCY LIGHTING PANEL. PROVIDE DEDICATED RACEWAY FOR EMERGENCY LIGHTING AND EXIT SIGN CIRCUITS, INCLUDE DEDICATED NEUTRALS
2	EMERGENCY LIGHTING FIXTURE WITH LISTED EMERGENCY LIGHTING RELAY. CONNECT THE EMERGENCY SIDE TO THE EMERGENCY LIGHTING RELAY TO THE EMERGENCY LIGHTING PANEL. CONNECT THE NORMAL SIDE OF THE EMERGENCY LIGHTING RELAY TO THE LOCAL NORMAL CIRCUIT. THE LIGHT WILL WORK ON NORMAL POWER AND CONTROL. UPON LOSS OF NORMAL POWER, THE RELAY WILL TRANSFER TO EMERGENCY AND THE LIGHT WILL COME TO FULL BRIGHTNESS
3	OCCUPANCY SENSOR PROGRAMMED AS VACANCY SENSOR
4	PROVIDE A #6 COPPER GROUND IN ALL CABLE TRAYS. REFER TO THE TECHNOLOGY DRAWINGS FOR CABLE TRAY LOCATIONS.
5	PROVIDE CHICAGO APPROVED EMERGECNY LIGHTING BATTERY PACK AND CONNECTED TO THE EMERGENCY LIGHTING CIRCUIT.
6	KEY OPERATED SWITCH WITH ENGRAVED NAME PLATE TO CONTROL THE "WB" LIGHTING FIXTURES IN THE COURT YARDS.
7	THE LIGHTING AND LIGHTING CONTROL IN THIS SIMULATION AREA IS CONNECTED TO THE SIMULATION LIGHTING CONTROL PANEL. THIS AREA IS NOT INDIVIDUALLY CONTROLLED, BUT SYSTEM CONTROLLED. ALL LIGHTING IN THIS AREA SHALL OUTFITTED WITH 0-10V DIMMING DRIVERS, IN ADDITION A SECOND SET OF 0-10V WIRES SHALL BE PROVIDED FOR COLOR CHANGING. THIS DIMMING / COLOR CHANGING CONTROL WIRE IS IN A SEPARATE CONDUIT FROM POWER AND OTHER LIGHTING CONTROLS. COORDINATE WITH THE LIGHTING FIXTURE MANUFACTURER FOR DRIVERS THAT ARE COMPATIBLE WITH THE SIMULATION LIGHTING CONTROL RELAY PANEL. ALL LIGHTING SWITCHES AND SENSORS SHALL IN THIS AREA SHALL BE CONNECTED TO THE SIMULATION LIGHTING CONTROL PANEL. PROVIDE DETAILED CONDUIT, WIRE, LIGHTING FIXTURE AND DEVICE LOCATION SHOP DRAWINGS FOR REVIEW. 6
8	PROVIDE SIMULATION LIGHTING CONTROL RELAY PANEL, 48 POLE, 22 KAIC. 48 ZONES ALL LIGHTING AND RECEPTACLES IN THE SIMULATION WILL PASS THROUGH THIS LIGHTING CONTROL RELAY PANEL. THE PANEL SHALL BE BACNET BASED AND HAVE THE CAPABILITY FOR DIMMING AND COLOR CHANGING. THE CONTRACTOR SHALL COORDINATE WITH THE AV SYSTEM AND PROVIDE A COMPLETE CONTROL CONNECTION TO THE CRESTRON AV SYSTEM. THE AV SYSTEM SHALL CONTROL LIGHTING SCENES IN THE SIMULATION AREA. PROVIDE SIMULATION LIGHTING CONTROL RELAY AND SENSOR DETAILS, WIRING DIAGRAMS FOR INTERFACING WITH THE CRESTRON SYSTEM SHOP DRAWINGS FOR REVIEW. INCLUDE FACTORY TECHNICIAN FOR; A) SIX ON SITE VISITS WITH FACTORY TECHNICIAN FOR PREFUNCTIONAL TESTING WITH THE AV SYSTEM INTEGRATOR, AND B) SIX ON SITE VISITS WITH FACTORY TECHNICIAN FOR FINAL FUNCTIONAL TESTING AND REPROGRAMMING WITH THE AV SYSTEM INTEGRATOR AND THE OWNER. 6



1 SECOND FLOOR LIGHTING PLAN

1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition

701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

PUBLIC BUILDING COMMISSION — 2FM Fleet and Facility Management

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

SECOND FLOOR LIGHTING PLAN

SHEET NUMBER

E201

Designer: Designer Checked: Checker Approved: Approver ARCH E1 30"x42"
Last Plotted: 7/31/2024 2:09:31 PM
Filename: Autodesk Docs://BP-AMER (USA)/60710711-PSTC EMS Addition/60710711_ACM_R22_JPSTC ADD_E.rvt

TECHNOLOGY SHEET INDEX

SECURITY/LIFE SAFETY

		ROUGH-IN	DETAILS
CAM # C	**VIDEO SURVEILLANCE CAMERA OUTLET WALL MOUNTED** VIDEO SURVEILLANCE CAMERA LOCATION. PROVIDE ROUGH-IN AND CABLE ONLY. CAP AND SEAL PENETRATION ON EXTERIOR INSTANCES; EXTERIOR MOUNTING HEIGHT 10' UON	6 & 7 T702	11 T502
	VIDEO SURVEILLANCE CAMERA CEILING MOUNTED WIDE ANGLE VIDEO SURVEILLANCE CAMERA. EACH INSTANCE WILL HAVE A IDENTIFICATION NUMBER CORRESPONDING WITH THE CAMERA SPREADSHEET. PROVIDE ROUGH-IN, CABLE AND CAMERA. CEILING MOUNTED.	5 T702	1 T503
X SD	**SECURE DOOR** DENOTES A DOOR WITH CONNECTIVITY FOR STATUS SENSOR(S) AND LOCKING AND UN-LOCKING CAPABILITIES. X – ROUGH-IN TYPE. SEE DETAILS	1-8 T771	DIAGRAM 1/T671
CR	**CARD READER/KEYPAD/PROX READER** REGARDLESS OF STYLE (SEE SPECIFICATIONS), DEVICE UTILIZED TO ACTUATE ACCESS TO A SECURE DOOR. SYMBOLS USED IN CONJUNCTION WITH SECURE DOOR TO INDICATE DEVICE LOCATION	1-8 T771	DIAGRAM 1/T671
DR	**DOOR RELEASE** DOOR RELEASE IS A FUNCTION, AT A SECURE DOOR IT IS THE RETRACTION OF THE LOCK BY MANUAL CONTROL OF AN OPERATOR VIA A SWITCH OR INTERCOM SYSTEM. WHERE SHOWN AT A DESK, THE CONTROL FUNCTION IS TO BE PROVIDED.		DIAGRAM 1/T671
REX	**REQUEST TO EXIT** MOTION SENSOR UTILIZED TO INITIATE EXIT FROM A SECURE AREA SYMBOL NOT SHOWN ON FLOORPLANS	1-8 T771	DIAGRAM 1/T671
	ELECTRIC DOOR LOCK/STRIKE POWER FROM POWER SUPPLIES IN TRS. ALL SECURE DOORS SHALL HAVE POWER. SYMBOL NOT SHOWN ON FLOORPLANS.	1-8 T771	DIAGRAM 1/T671
DS	**DOOR STATUS SENSOR** DOOR STATUS SENSOR ALLOWS DOOR MONITORING AND SHALL BE ON EACH SECURE DOOR OPPOSITE OF HINGE SIDE. SYMBOLS NOT INDICATED IN THE FLOORPLAN	1-8 T771	DIAGRAM 1/T671
PS	**PANIC (DURESS) SWITCH** SWITCH UTILIZED TO MANUALLY ACTUATE ALARM AND/OR ACCESS CONTROL SYSTEM. CONNECT TO ALARM SYSTEM.	11 T702	BUTTON TO ACCESS CTRL

TELECOMMUNICATIONS

		ROUGH-IN	DETAILS
X	**VOICE OUTLET; STANDARD** X = QUANTITY OF (4) PAIR VOICE CABLES (MIN. 1 VOICE CABLE WITHOUT SUBSCRIPT) B = BLANK COVER. NO CONNECTORS OR CABLE DOUBLE GANG IF SUBSCRIPT INDICATES 5 OR MORE PORTS	5 & 6 T701	4-7 T502
W	**VOICE OR DATA OUTLET; WALL MOUNTED DEVICE** 1 4 PAIR UTP CABLE W = WALL TELEPHONE	7 T701	8 T502
FACP	**FIRE ALARM CONTROL PANEL** 2 = QUANTITY OF (4) PAIR VOICE CABLES B = BLANK COVER. NO CONNECTORS OR CABLE	1 T702	9 T502
X SP	**SECURITY ALARM PANEL OUTLET** X = QUANTITY OF (4) PAIR VOICE CABLES (MIN. 1 VOICE CABLE WITHOUT SUBSCRIPT)	1 T702	9 T502
X BAS	**BUILDING AUTOMATION SYSTEMS OUTLET** X = QUANTITY OF (4) PAIR VOICE/DATA CABLES (MIN. 1 DATA CABLE WITHOUT SUBSCRIPT)	1 T702	9 T502
X	**DATA OUTLET; STANDARD** X = QUANTITY OF (4) PAIR DATA CABLES (MIN. 1 DATA CABLE WITHOUT SUBSCRIPT) B = BLANK COVER. NO CONNECTORS OR CABLE. CC = CLASSROOM CAMERA DOUBLE GANG IF SUBSCRIPT INDICATES 5 OR MORE PORTS	5 & 6 T701	4-7 T502
X	**VOICE AND DATA OUTLET; STANDARD** X = QUANTITY OF (4) PAIR VOICE/DATA CABLES (MIN. 1 VOICE AND 2 DATA CABLE WITHOUT SUBSCRIPT) DOUBLE GANG IF SUBSCRIPT INDICATES 5 OR MORE PORTS	5 & 6 T701	4-7 T502
X WAP	**WIRELESS LAN ACCESS POINT OUTLET WALL MOUNTED** X = QUANTITY OF (4) PAIR DATA CABLES (MIN. 2 DATA CABLES WITHOUT SUBSCRIPT)	8 T701	10 T502
X WAP	**WIRELESS LAN ACCESS POINT OUTLET CEILING MOUNTED** X = QUANTITY OF (4) PAIR DATA CABLES (MIN. 2 DATA CABLES WITHOUT SUBSCRIPT) ☐ = ACCESS POINT ENCLOSURE	4 T701	10 T502
TC	**TIME CLOCK** 1 4 PAIR UTP CABLE TC = TIME CLOCK	8 T702	9 T502
X	**VOICE AND DATA OUTLET; FLOORBOX** X = QUANTITY OF (4) PAIR VOICE/DATA CABLES (MIN. 1 VOICE AND 1 DATA CABLE WITHOUT SUBSCRIPT)	MFGR'S MTG INSTR	6 T503

PATHWAY AND SPACES DEVICES

		ROUGH-IN	DETAILS
	TELECOMMUNICATION WALL LINING (BACKBOARD) 8' TALL, 4' WIDTH ¾" AC PLYWOOD; CUT TO FIT SPACE AS SHOWN PAINTED WITH FIRE RETARDANT WHITE PAINT	SHEET NOTES 9/T501	N/A
	LADDER RACK SIZE AS INDICATED 8' 6" MOUNTING HEIGHT WHEN HORIZONTAL, UON	MFGR'S MTG INSTR	SHEET NOTES 9/T501
	CABLE TRAY SIZE AS INDICATED 10' MOUNTING HT UON	1 & 2 T701	N/A
	GROUNDING BUSBAR	SEE SPECS AND BEST PRACTICES	2 T601
	VERTICAL CABLE RUNWAY	SEE SPECS AND BEST PRACTICES	N/A
	FLOOR OUTLET - POKE-THRU OR FLOORBOX *SEE DETAILS FOR DEVICE SPECIFICS* [LOWEST LEVEL FLOORBOX; UPPER LEVELS POKE THROUGHS] ADJACENT SYMBOL DENOTES CABLING REQUIREMENTS MODIFIED TO FIT BOX	3&4 T702	N/A
4"	**FIRE RATED SLEEVE THROUGH WALL** 4" DIAMETER UNLESS OTHERWISE NOTED; PROVIDE FIRE STOPPING; ROUTE FROM ROOM TO ACCESSIBLE CEILING NOTE: PROVIDE WATERFALL DEVICE WHEN CABLE DROP IS GREATER THAN 6"	1 T701	SPEC SECTION 270500
	WALL JUNCTION BOX WITH WHIP TO FURNITURE 4 SQUARE DEEP BOX WITH 2 X 1 ¼" CONDUITS TO PATHWAY SYSTEM. STAINLESS STEEL 2 GANG COVER PLATE WITH 90 DEGREE CONDUIT FITTING(S) TO ATTACH SEAL-TITE FLEXIBLE CONDUIT WHIP(S) UNLESS OTHERWISE NOTED; 2 X 1 ¼" OR 1 X 2"	SEE SPECS AND BEST PRACTICES	N/A

DISTRIBUTED SYSTEMS

		ROUGH-IN	DETAILS
VIC	**VIDEO INTERCOM CALL STATION**		SEE DIAGRAM
VIM	**VIDEO INTERCOM MASTER STATION**		SEE DIAGRAM

AUDIO-VISUAL SYSTEMS

		ROUGH-IN	DETAILS
LI X	**VOICE AND DATA OUTLET WITH LOCAL INPUT** X = QUANTITY OF (4) PAIR VOICE/DATA CABLES (MIN. 1 VOICE AND 2 DATA CABLE WITHOUT SUBSCRIPT) LI = LOCAL INPUT CABLING TO A VIDEO PROJECTOR, TELEVISION, ETC.	6 T701	3 T503
LO FP	**FLAT PANEL TV WITH INPUT CABLES** X = QUANTITY OF (4) PAIR VOICE/DATA CABLES (MIN. 2 DATA CABLES W/O SUBSCRIPT) LO = THIS OUTLET WILL ALSO INCLUDE CABLING FROM LOCAL INPUT LOCATIONS ## = CENTER OF BLOCKING/MOUNT – OUTLET BOXES 47"	9 T701	4 T503
FP	**PENDANT FLAT PANEL TV** X = QUANTITY OF (4) PAIR VOICE/DATA CABLES (MIN. 2 DATA CABLES W/O SUBSCRIPT) M = THIS OUTLET WILL MIRROR PRIMARY DISPLAY PENDANT MOUNT; ADJACENT OUTLET BOXES	10 T702	4 T503
	SPEAKER SHIELDED SPEAKER CABLE – SEE DIAGRAM	10 T701	5 T503
MC	**MICROPHONE** SHIELDED MICROPHONE CABLE – SEE DIAGRAM	5,7,8 T702	1 T503
X AV	**A/V CONTROL OUTLET** X = TYPE	11 T701	2 T503
	LOUD SPEAKER SHIELDED SPEAKER CABLE TO ER/TR UON	MFGR'S MTG INSTR	SEE DIAGRAM
V V P	**SPEAKER, VOLUME CONTROL** P SUBSCRIPT = PRIORITY OVERRIDE OPTION	7 T701	SEE DIAGRAM

LEGEND NOTES

(1) BASE SYMBOLS ARE UTILIZED TO REFERENCE THE FLOORPLAN LOCATION AND PROPER ROUGH-IN REQUIREMENTS. WHERE SUBSCRIPTS ARE USED WITH THESE SYMBOLS, THEY MODIFY THE REQUIREMENTS. # INDICATES MORE THAN ONE DETAIL MAY APPLY DEPENDING ON SUBSCRIPT.
(2) PRIOR TO INSTALLATION OF ROUGH-IN, VERIFY ROUGH-IN SIZE REQUIREMENTS WITH DEVICE SUPPLIER;
(3) INCREASE SIZE OF BOX, AS REQUIRED TO ACCOMMODATE THE QUANTITY AND SIZE OF CONDUITS ENTERING BOX.
(4) ALL 1-GANG AND 2-GANG ROUGH-IN BOXES, RECESS/FLUSH MOUNTED, SHALL BE ASSEMBLED FROM 4" SQUARE BOXES AND SEPARATE TRIM RINGS. DEPTH OF COMPOSITE ASSEMBLY SHALL AS INDICATED, MINIMUM.
(5) IN APPLICATIONS WHERE THE DRAWINGS AND/OR SPECIFICATIONS REQUIRE THE USE OF SURFACE RACEWAY AND BOXES IN LIEU OF CONCEALED ROUGH-IN, CONTRACTOR SHALL MATCH THE SIZE OF THE BOX LISTED ON THE LEGEND; SHALL MATCH THE QUANTITY OF USABLE RACEWAYS; AND SHALL MATCH THE USABLE RACEWAY CABLE AREA SUBSTANTIALLY. TO QUANTITY AND SIZES OF RACEWAYS LISTED ON THE LEGEND, CONTRACTOR IS ADVISED THAT THIS MAY REQUIRE PROCUREMENT OF MATERIALS ONLY AVAILABLE BY SPECIAL ORDER FROM THE MANUFACTURERS.
(6) WHERE FIELD CONDITIONS INVOLVE INACCESSIBLE AREAS THE ROUGH-IN SHALL BE MODIFIED TO ALLOW THE PATHWAY TO BE ACCESSIBLE AND REUSABLE.
(7) COLOR CODING OF CABLING SHALL BE COORDINATED AND APPROVED PRIOR TO PROCUREMENT AND INSTALLATION.
(8) SYMBOLS AND SUBSCRIPTS MAY DISTINGUISH BETWEEN VOICE (V) AND DATA (D) INTENDED USES. MATERIALS AND INSTALLATION FOR VOICE AND DATA USES SHALL BE IDENTICAL UNLESS SPECIFICALLY NOTED. (1D, 1V IS THE SAME AS 2 CABLES).
(9) SYMBOLS PLACED ON EXTERIOR WALLS WITH A "WP" SUBSCRIPT SHALL BE INSTALLED WITH WEATHERPROOF HOUSINGS AND THE ROUGH-IN SEALED FROM MOISTURE INGRESS.
(10) WHERE A TELECOMMUNICATIONS OUTLET LOCATION IS ADJACENT TO AN ELECTRICAL OUTLET, THE MOUNTING HEIGHT WILL BE THE SAME FOR EACH. WHERE MULTIPLE TELECOMMUNICATIONS ARE ADJACENT (SUCH AS TELECOMMUNICATIONS AND SOUND DEVICES, FACEPLATES SHALL BE COORDINATED TO THE SAME TYPE AND COLOR AND MOUNTED AT THE SAME HEIGHT.

6

AECOM

PROJECT

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REGISTRATION

ISSUE/REVISION

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

TECHNOLOGY LEGEND

SHEET NUMBER

T001

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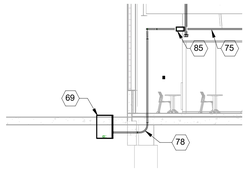
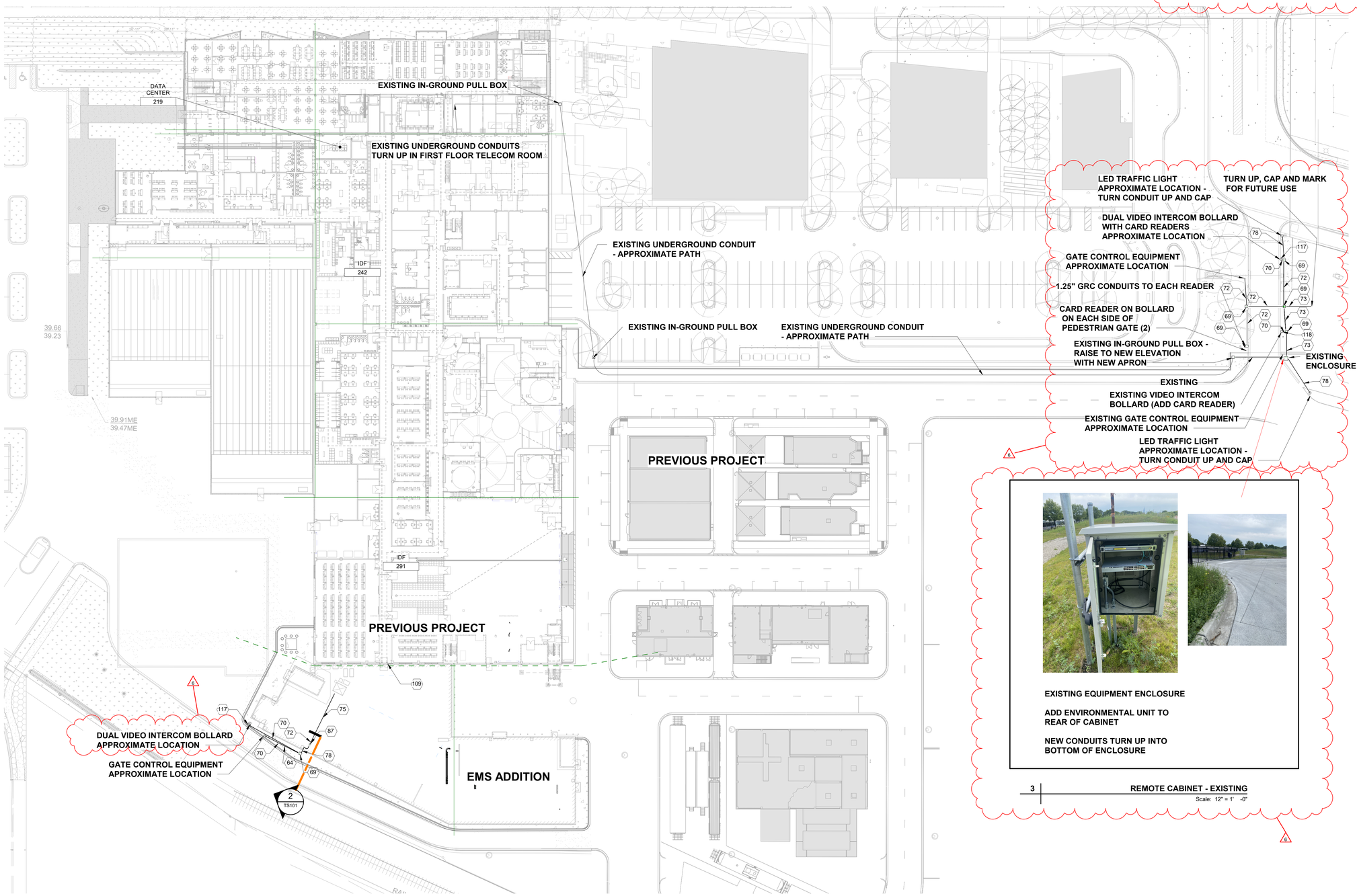


2 ENTRANCE CONDUITS SW
Scale: 1/8" = 1'-0"

KEYNOTES

64	UNDERGROUND CONDUITS; SEE SITE PLAN FOR CONTINUATION.
69	IN-GROUND OPEN BOTTOM PULL BOX, 24 X 24" MINIMUM.
70	1.25" CONDUIT
72	2" CONDUIT
73	3" CONDUIT
75	2" EMT CONDUIT WITH BUSHINGS (TYPICAL).
78	2" GRC CONDUIT WITH BUSHINGS (TYPICAL).
85	12" X 12" X 6" PULL BOX WITH COVER.
87	18" X 18" X 8" PULL BOX WITH COVER.
109	EXPANSION JOINT; PROVIDE EXPANSION FITTINGS FOR ALL CONDUITS THAT CROSS EXPANSION JOINTS AND BUILDING SEPARATIONS (TYPICAL).
117	TWO VIDEO INTERCOM STATIONS, DUAL HEIGHT ON BOLLARD
118	VIDEO INTERCOM STATION ON BOLLARD; REPLACE WITH VIDEO INTERCOM WITH CARD READING PROVISION.



EXISTING EQUIPMENT ENCLOSURE

ADD ENVIRONMENTAL UNIT TO REAR OF CABINET

NEW CONDUITS TURN UP INTO BOTTOM OF ENCLOSURE

3 REMOTE CABINET - EXISTING
Scale: 12" = 1' -0"

6

1 TECHNOLOGY SITE PLAN
Scale: 1/32" = 1'-0"

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

TECHNOLOGY SITE PLAN

SHEET NUMBER

TS101

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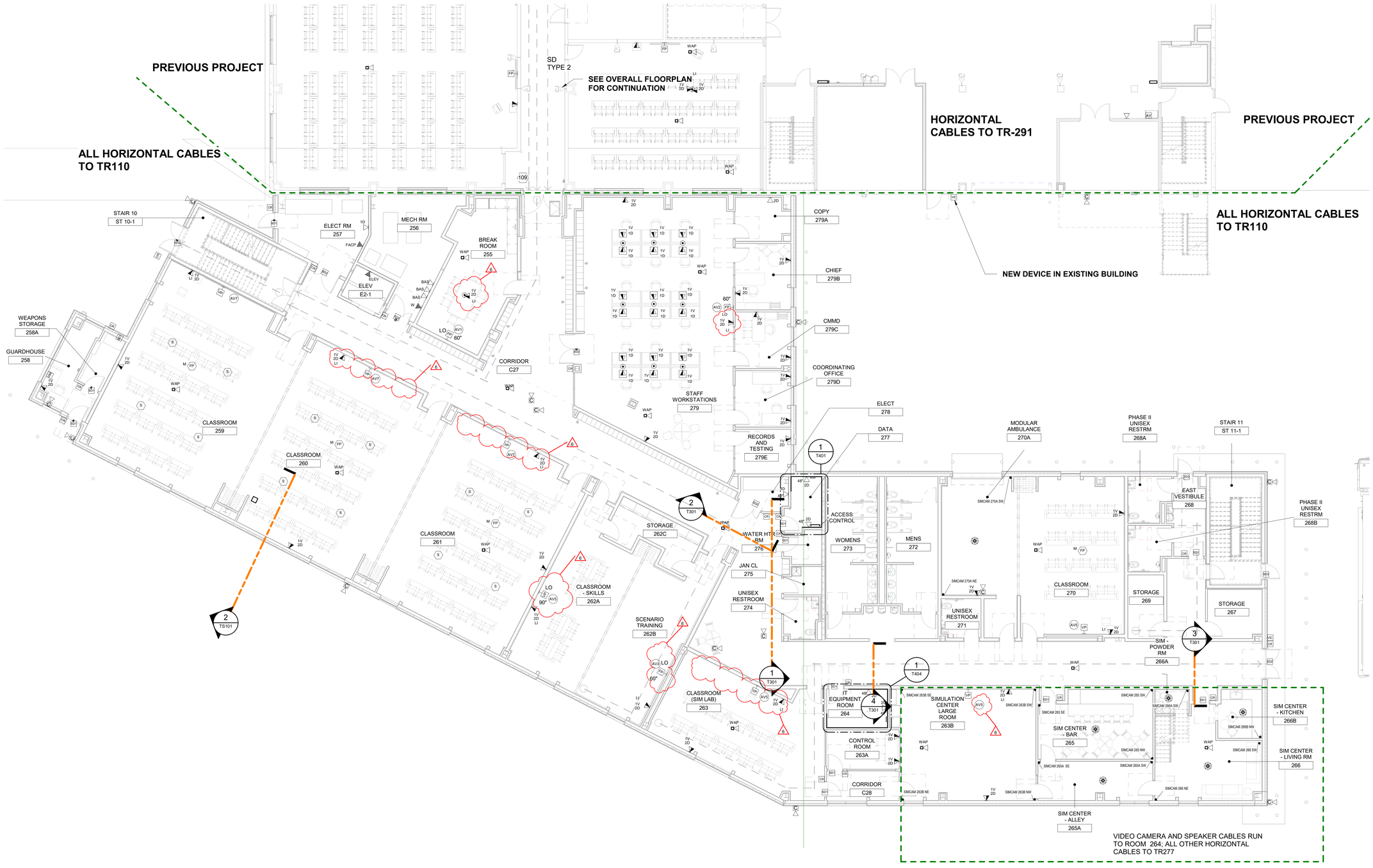
Designer: TKP Checked: BKS Approved: BKS ARCH E1 30"x42"

GENERAL NOTES

1. EACH OUTLET OR DEVICE SHALL HAVE THE APPROPRIATE ROUGH-IN WITH CONDUIT TO THE HALLWAY CABLE TRAY.
2. CONDUITS TO BUILDING EXTERIOR SHALL BE PROPERLY PLUGGED AGAINST MOISTURE AND AIR FLOW.
3. SIMULATION AREA ROOMS ON THE FIRST AND SECOND FLOOR AND ROOM 270A WILL HAVE A VIDEO AND SOUND CAPTURE SYSTEM. IP VIDEO AND AUDIO CABLES FOR THESE SYSTEMS SHALL TERMINATE IN IT EQUIPMENT ROOM 264.



1 **TECHNOLOGY SECOND FLOOR PLAN**
Scale: 1/8" = 1'-0"

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INFRASTRUCTURE ENGINEERING
CIVIL ENGINEERING
One South Wacker #2650
Chicago, IL 60606
312-425-8560

MILHOUSE ENGINEERING
ELECTRICAL ENGINEERING
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Chicago, IL 60604
312-618-7185

JACOBS / RYAN ASSOCIATES
LANDSCAPE ARCHITECTURE
1527 N. Sandburg Terrace
Chicago, IL 60610
312-664-3217

LEVEL-1 GLOBAL SOLUTIONS
TECHNOLOGY CONSULTANT
233 S. Wacker Dr. #4400
Chicago, IL 60606
312-202-3300

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

SECOND FLOOR TECHNOLOGY PLAN

SHEET NUMBER

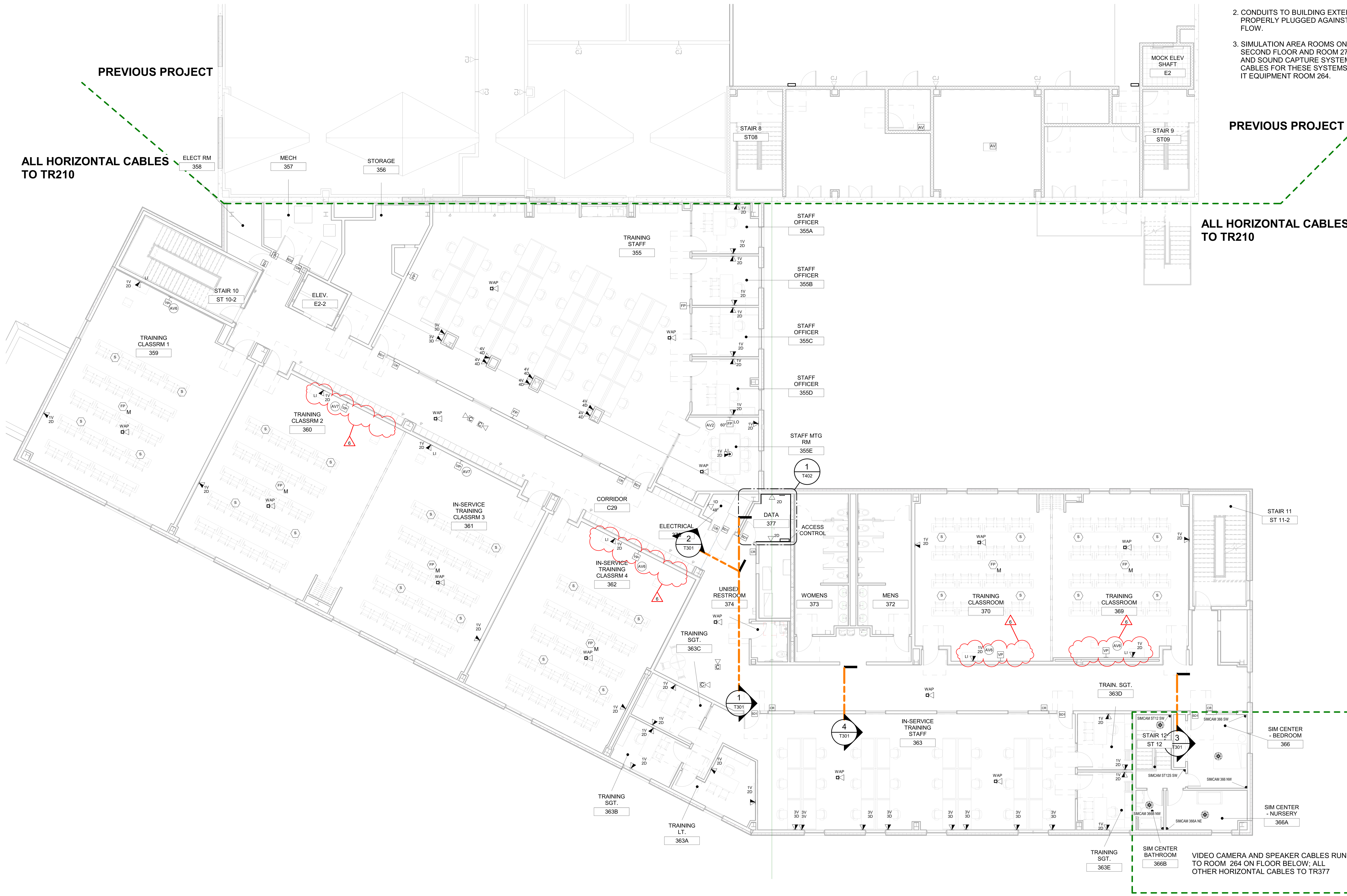
T110

16_16.10_IT & SECURITY_T110

Designer: Designer Checked: Checker Approved: Approver ARCH E1 30"x42"

GENERAL NOTES

1. EACH OUTLET OR DEVICE SHALL HAVE THE APPROPRIATE ROUGH-IN WITH CONDUIT TO THE HALLWAY CABLE TRAY.
2. CONDUITS TO BUILDING EXTERIOR SHALL BE PROPERLY PLUGGED AGAINST MOISTURE AND AIR FLOW.
3. SIMULATION AREA ROOMS ON THE FIRST AND SECOND FLOOR AND ROOM 270A WILL HAVE A VIDEO AND SOUND CAPTURE SYSTEM. IP VIDEO AND AUDIO CABLES FOR THESE SYSTEMS SHALL TERMINATE IN IT EQUIPMENT ROOM 264.



1 **TECHNOLOGY THIRD FLOOR PLAN**
Scale: 1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM

CONSULTANTS

AECOM
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Chicago, IL 60601
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ARCHITRAVE LIMITED
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Chicago, IL 60606
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ABERCROMBIE PLANNING+DESIGN
PUBLIC SAFETY DESIGN CONSULTANT
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REGISTRATION

NORTH ARROW

ISSUE/REVISION

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

THIRD FLOOR TECHNOLOGY PLAN

SHEET NUMBER

T120

GENERAL NOTES

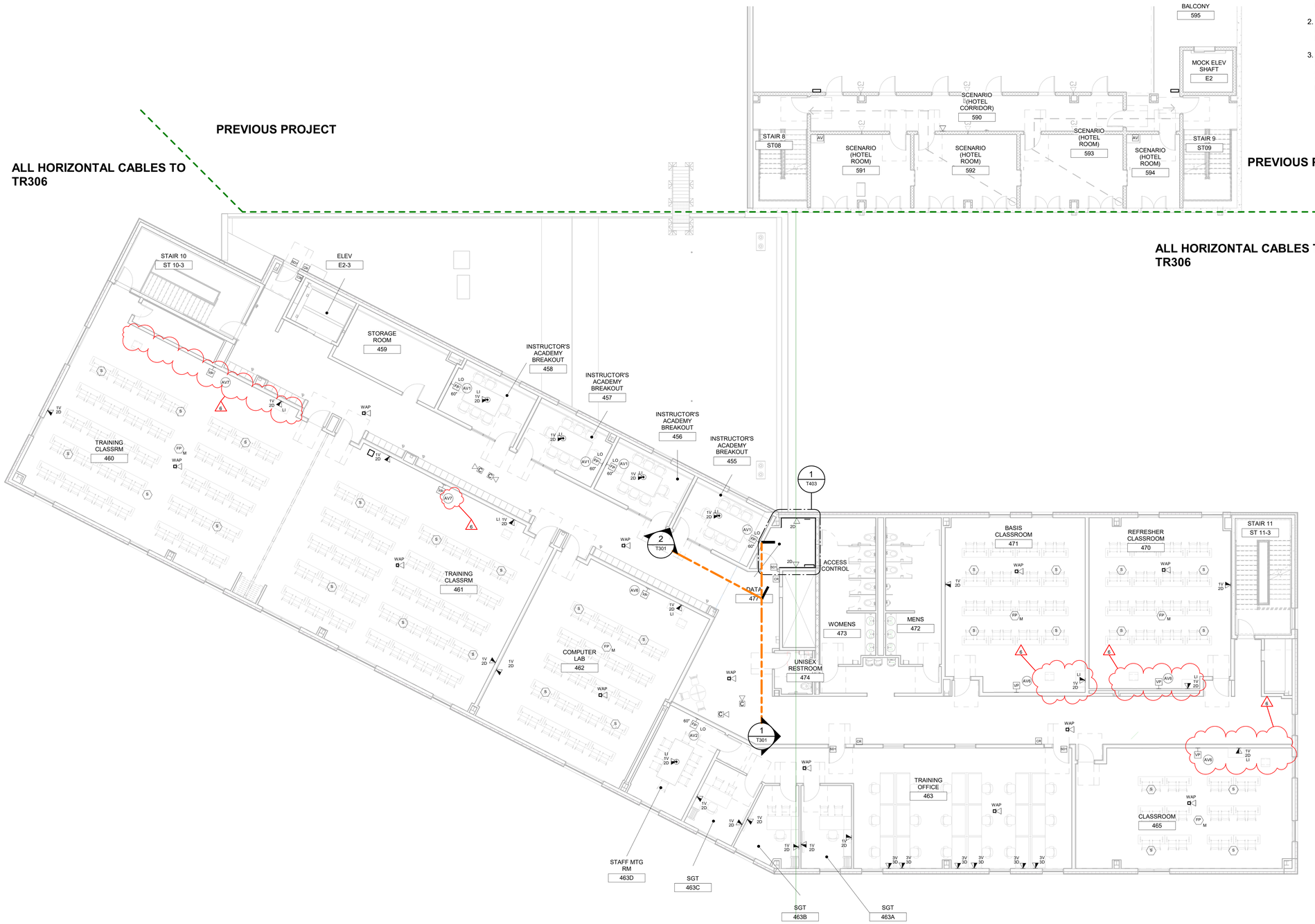
1. EACH OUTLET OR DEVICE SHALL HAVE THE APPROPRIATE ROUGH-IN WITH CONDUIT TO THE HALLWAY CABLE TRAY.
2. CONDUITS TO BUILDING EXTERIOR SHALL BE PROPERLY PLUGGED AGAINST MOISTURE AND AIR FLOW.
3. SIMULATION AREA ROOMS ON THE FIRST AND SECOND FLOOR AND ROOM 270A WILL HAVE A VIDEO AND SOUND CAPTURE SYSTEM. IP VIDEO AND AUDIO CABLES FOR THESE SYSTEMS SHALL TERMINATE IN IT EQUIPMENT ROOM 264.

PREVIOUS PROJECT

ALL HORIZONTAL CABLES TO TR306

PREVIOUS PROJECT

ALL HORIZONTAL CABLES TO TR306



1 TECHNOLOGY FOURTH FLOOR PLAN
Scale: 1/8" = 1'-0"

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

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REGISTRATION

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

FOURTH FLOOR TECHNOLOGY PLAN

SHEET NUMBER

T130

(NOTE: WAP SUBSCRIPT SHALL HAVE CABLE TERMINATED ON "SPECIAL USE" PANEL IN ER/TR)

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS

(1) TWO PORT JACK HOUSING
(1) RJ45 JACK INSERT; (1) 4 PR CABLE TO ER/TR
(1) 1 PORT BLANK
(1) PLENUM RATED RJ45 TO RJ45 5' PATCH CABLE

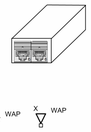
NOTE: COMPLETELY WRAP JACK ASSEMBLY WITH UNIFRAX FYREWRAP 0.5 PLENUM INSULATION

271513

11 | 271513 CAMERA OUTLET
NTS

(NOTE: WAP SUBSCRIPT SHALL HAVE CABLE TERMINATED ON "SPECIAL USE" PANEL IN ER/TR)

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS



(1) TWO PORT JACK HOUSING
(2) RJ45 JACK INSERT; (2) 4 PR CABLE TO ER/TR
(1) PLENUM RATED RJ45 TO RJ45 5' PATCH CABLE

271513

10 | 271513 WIRELESS AP OUTLET
NTS

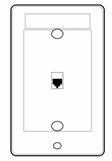
(NOTE: WAP SUBSCRIPT SHALL HAVE CABLE TERMINATED ON "SPECIAL USE" PANEL IN ER/TR)

(1) DUAL PORT SURFACE JACK (MOUNTED AS DIRECTED)
(1) RJ45 8P 8C MOD JACK; (1) 4 PAIR CABLE TO ER/TR

COORDINATE FINAL TERMINATION WITH EQUIPMENT VENDOR

271513

9 | 271513 SERVICE PANEL OUTLET
NTS



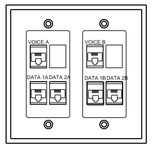
(1) SINGLE GANG SS FACEPLATE W/ MTG STUDS
(1) 8P 8C MOD JACK; 4 PAIR CABLE TO ER/TR

271513

8 | 271513 SINGLE GANG WALL PHONE
NTS

WHERE DEVICE IS LOCATED IN A SPECIAL MOUNTING ARRANGEMENT SUCH A A FLOORBOX OR TELEPOWER POLE, UTILIZE INTEGRAL FACEPLATE IN LIEU OF STANDARD SINGLE GANG FACEPLATE.

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS



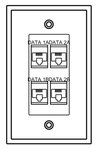
(1) DOUBLE GANG SS FACEPLATE (DECORA STYLE)
(2) 4 PORT DECORA STYLE MODULE FRAME
(2) 1 PORT BLANKS
(6) RJ45 UTP JACK INSERTS; 4 PR UTP CABLES TO ER/TR ("HORIZONTAL" PANEL)

271513

7 | 271513 DOUBLE GANG 6 PORT
NTS

WHERE DEVICE IS LOCATED IN A SPECIAL MOUNTING ARRANGEMENT SUCH A A FLOORBOX OR TELEPOWER POLE, UTILIZE INTEGRAL FACEPLATE IN LIEU OF STANDARD SINGLE GANG FACEPLATE.

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS



(1) SINGLE GANG SS FACEPLATE (DECORA STYLE)
(1) 4 PORT DECORA STYLE MODULE FRAME
(0) 1 PORT BLANKS
(4) RJ45 UTP JACK INSERTS; 4 PR UTP CABLES TO ER/TR

271513

6 | 271513 SINGLE GANG 4 PORT
NTS

WHERE DEVICE IS LOCATED IN A SPECIAL MOUNTING ARRANGEMENT SUCH A A FLOORBOX OR TELEPOWER POLE, UTILIZE INTEGRAL FACEPLATE IN LIEU OF STANDARD SINGLE GANG FACEPLATE.

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS

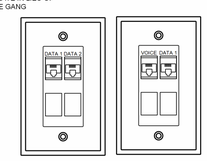
(1) SINGLE GANG SS FACEPLATE (DECORA STYLE)
(1) 4 PORT DECORA STYLE MODULE FRAMES
(1) 1 PORT BLANKS
(3) RJ45 UTP JACK INSERTS; 4 PR UTP CABLES TO ER/TR

271513

5 | 271513 SINGLE GANG 3 PORT
NTS

WHERE DEVICE IS LOCATED IN A SPECIAL MOUNTING ARRANGEMENT SUCH A A FLOORBOX OR TELEPOWER POLE, UTILIZE INTEGRAL FACEPLATE IN LIEU OF STANDARD SINGLE GANG FACEPLATE.

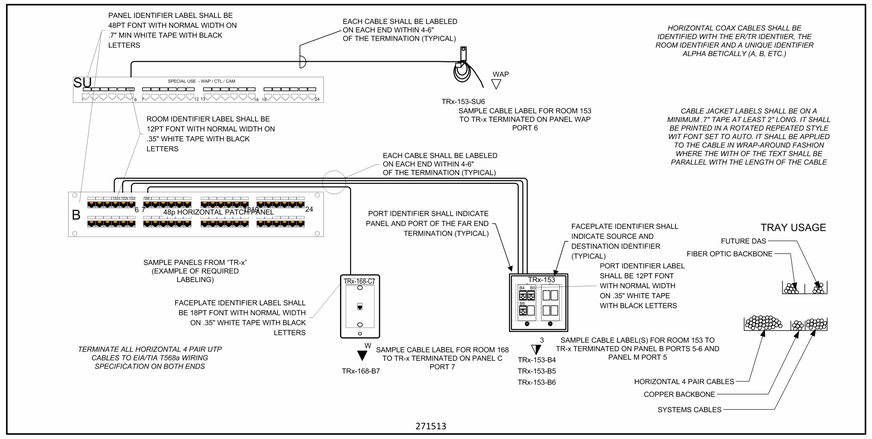
REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS



(1) SINGLE GANG SS FACEPLATE (DECORA STYLE)
(1) 4 PORT DECORA STYLE MODULE FRAMES
(2) 1 PORT BLANKS
(2) RJ45 UTP JACK INSERTS: 4 PR UTP CABLES TO ER/TR

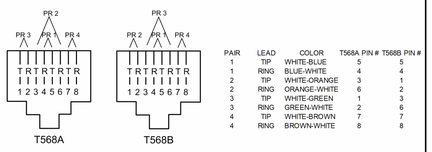
271513

4 | 271513 SINGLE GANG 2 PORT
NTS



271513

3 | 271513 HORIZONTAL CABLING
NTS



PAIR	LEAD	COLOR	T568A PIN #	T568B PIN #
1	TIP	WHITE-BLUE	5	5
1	RING	BLUE-WHITE	4	4
2	TIP	WHITE-ORANGE	3	1
2	RING	ORANGE-WHITE	6	2
3	TIP	WHITE-GREEN	1	3
3	RING	GREEN-WHITE	2	6
4	TIP	WHITE-BROWN	7	7
4	RING	BROWN-WHITE	8	8

CABLE AND TERMINATION SUMMARY (THIS PROJECT)

CABLE	DESCRIPTION	USE	CABLE COLOR	TERMINATION 1	TERMINATION 2
1	4 PAIR UTP CATEGORY 6	HORIZONTAL DATA 1	RED	RED JACK IN HORIZ PNL	RED JACK
2	4 PAIR UTP CATEGORY 6	HORIZONTAL DATA 2	WHITE	WHITE JACK IN HORIZ PNL	WHITE JACK
3	4 PAIR UTP CATEGORY 6	HORIZONTAL VOICE	BLUE	BLUE JACK IN HORIZ PNL	BLUE JACK
4	4 PAIR UTP CATEGORY 6	HORIZONTAL CAMERA	PURPLE	PUR JACK IN CAM PNL	PURPLE JACK
5	4 PAIR UTP CATEGORY 6	HORIZONTAL TIME CLOCK	YELLOW	YEL JACK IN HORIZ PNL	PURPLE JACK
6	4 PAIR UTP CATEGORY 6A	HORIZONTAL WAP	GRAY	GRAY JACK IN WAP PNL	GRAY JACK
7	MULTI-PAIR PAIR UTP CAT 3-5E	COPPER BACKBONE	N/A	110 STYLE BLOCKS	BACKBONE PANEL
8	SINGLEMODE ARMORED	FIBER OPTIC BACKBONE	YELLOW	LC CONN IN PANEL	LC CONN IN PANEL
9	MULTIMODE ARMORED	FIBER OPTIC BACKBONE	AQUA	ST CONN IN PANEL	ST CONN IN PANEL
10	RG-6 VIDEO COAX (RF)	HORIZONTAL RF	BLACK	F STYLE ON DEVICE	F STYLE ON FP CPLR
11	RG-11 VIDEO COAX (RF)	RF BACKBONE	BLACK	F STYLE ON DEVICE	F STYLE ON DEVICE

NOTE 1: UNLESS OTHERWISE SPECIFICALLY NOTED, ALL CABLES USED ABOVE CEILING LINE SHALL HAVE A PLENUM RATING

271513

2 | 271513 COLORS AND TERMINATIONS
NTS

WORKSTION OUTLET (FACEPLATE) NOTES: (THIS DETAIL)

A. OUTLET REQUIREMENTS WHERE POWER/COMMUNICATIONS MULTI-COMPARTMENT SURFACE RACEWAY IS REQUIRED SHALL SUBSTITUTE TWO (2) 4-PORT JACK FRAMES AND FACEPLATE(S) IN PLACE OF THE DOUBLE GANG FACEPLATES SHOWN ON THIS DRAWING. ADDITIONAL FACEPLATES SHALL BE CUT-IN ADJACENT TO FULFILL THE OUTLET PORT REQUIREMENT. OUTLET LOCATIONS REQUIRING FOUR (4) OR FEWER PORTS SHALL UTILIZE A SINGLE 4 PORT JACK FRAME AND FACEPLATE.

B. ALL CABLES USED FOR DATA SHALL BE TERMINATED ON "HORIZONTAL DATA" PATCH PANELS IN THE ER/TR. ALL CABLES USED FOR VOICE SHALL BE TERMINATED ON "HORIZONTAL VOICE" PATCH PANELS IN THE ER/TR. ALL WIRELESS ACCESS POINT CABLES WILL BE TERMINATED ON A "SPECIAL USE" PATCH PANELS IN THE ER/TR. ALL CABLES USED FOR CONTROL SHALL BE TERMINATED ON "SPECIAL USE" PATCH PANELS IN THE ER/TR.

C. SOLID TRIANGLES DENOTE VOICE (TELEPHONE) REQUIREMENTS. HOLLOW TRIANGLES DENOTE DATA REQUIREMENTS. HALF SOLID TRIANGLES DENOTE VOICE AND DATA REQUIREMENTS; UNLESS NOTED OTHERWISE*, EACH HALF SOLID TRIANGLE WILL RECEIVE ONE VOICE JACK AND THE REMAINDER WILL BE DATA.

*NOTATIONS WILL BE SUBSCRIPTS TO THE SYMBOL; xV WHERE x IS THE QUANTITY OF VOICE CABLES AND xD WHERE x IS THE QUANTITY OF DATA CABLES.

D. ALL DECORA STYLE JACK FRAMES SHALL MATCH ELECTRICAL DEVICE COLOR.

E. JACK COLOR-CODING WILL BE AS LISTED IN CABLE AND TERMINATION CHART ON LABELING AND TERMINATION DETAIL SHEET.

F. CABLE COLOR-CODING WILL BE AS LISTED IN CABLE AND TERMINATION CHART ON LABELING AND TERMINATION DETAIL SHEET.

G. COORDINATE PROPER MOUNTING DEVICE FOR USE WITH FLOORBOX/POKE THROUGH DEVICES PROVIDED BY OTHERS.

271513

1 | 271513 OUTLET NOTES
NTS

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

TECHNOLOGY DETAILS

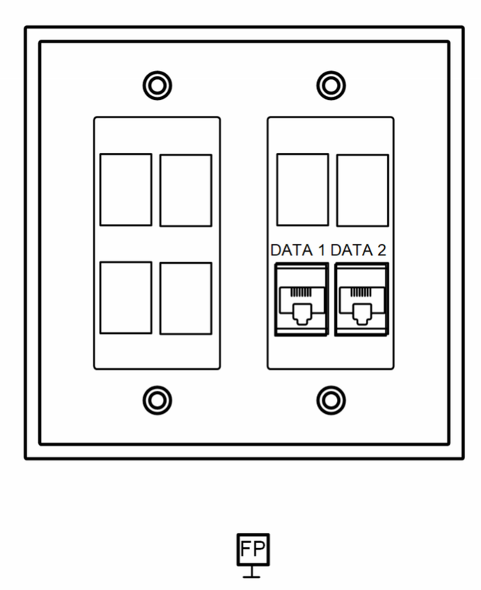
SHEET NUMBER

T502

Last Plotted: 7/30/2024 7:00:23 PM
Filename: Autodesk Docs://BP+MEP (USA) 60710711-PSTC EMS Addition/60710711_ACM_R22_-PSTC ADD_TC.rvt

WHERE DEVICE IS LOCATED IN A SPECIAL MOUNTING ARRANGEMENT SUCH A A FLOORBOX OR TELEPOWER POLE, UTILIZE INTEGRAL FACEPLATE IN LIEU OF STANDARD SINGLE GANG FACEPLATE.

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS



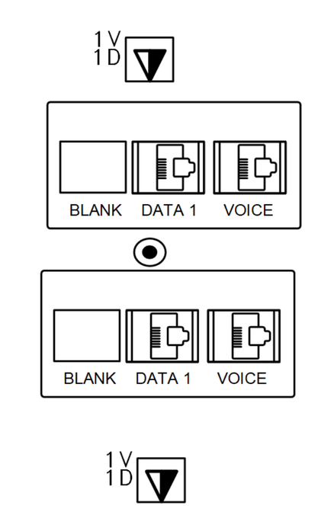
NOTE: MULTI-GANG SS FACEPLATE WITH (DECORA STYLE) OPENING; SEE A/V FACEPLATE DETAILS FOR ADDITIONAL INFORMATION

(2) 4 PORT DECORA STYLE MODULE FRAMES
(6) 1 PORT BLANK
(2) RJ45 UTP JACK INSERTS; 4 PR UTP CABLES TO ER/TR (HORIZONTAL PANEL)

271513

7 271513 DOUBLE GANG FP
NTS

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS



OUTLET TERMINATIONS SHARE FLOORBOX

(1) INTEGRAL SUB PLATE (DECORA STYLE)
(2) 3 PORT DECORA STYLE MODULE FRAMES
(2) 1 PORT BLANKS
(4) RJ45 UTP JACK INSERTS; 4 PR UTP CABLES TO ER/TR

271513

6 271513 SHARED FLOORBOX
NTS

SEE TRAINING AUDIO DIAGRAM AND SPECIFICATIONS FOR ADDITIONAL INFORMATION

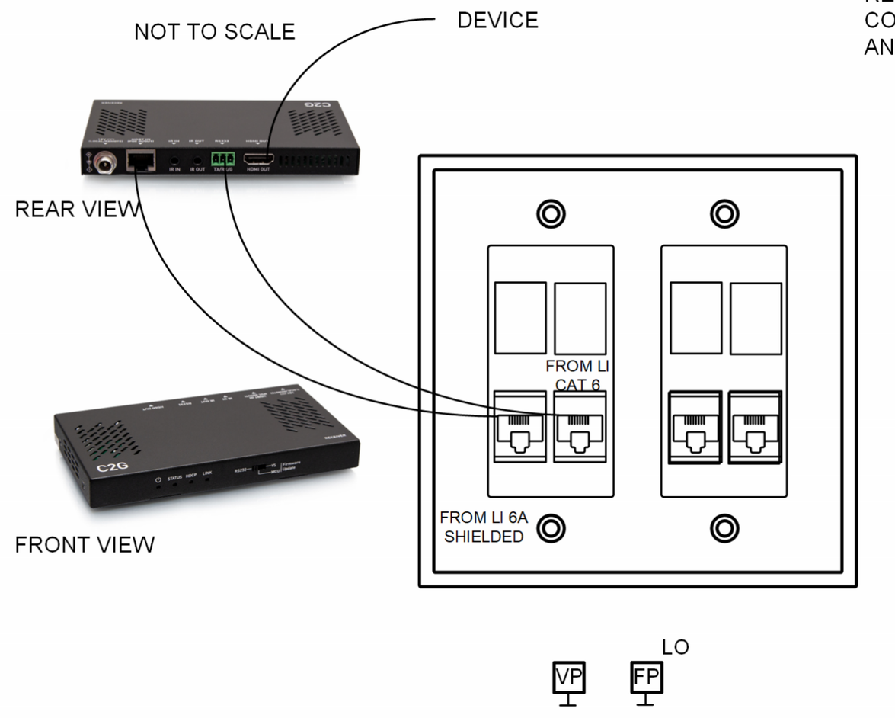
(1) SHIELDED SPEAKER CABLE TO ER/TR WALL FIELD
(1) SPEAKER WITH SUPPORT CABLE

271513

5 274100 SPEAKERS - TRAINING
NTS

NOT TO SCALE

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS



NOTE: MULTI-GANG SS FACEPLATE WITH (DECORA STYLE) OPENING

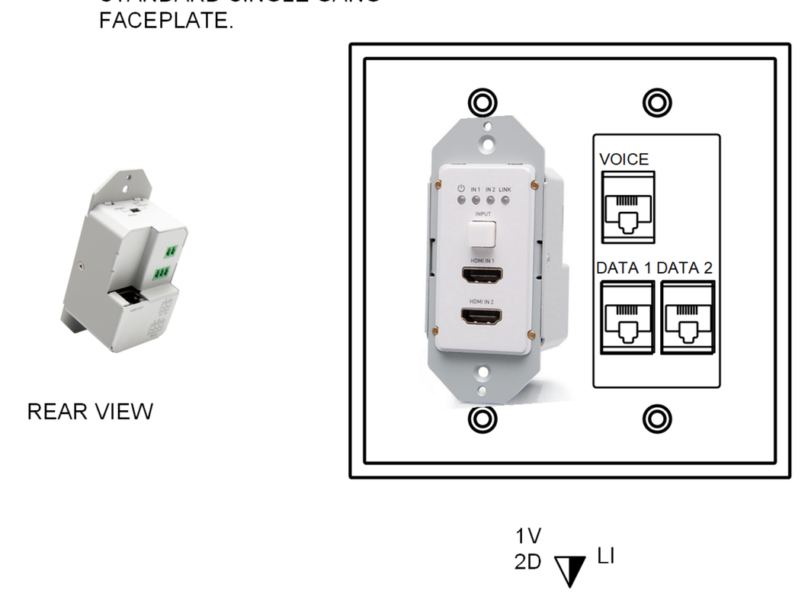
(2) 4 PORT DECORA STYLE MODULE FRAMES
(4) 1 PORT BLANKS
(2) RJ45 UTP JACK INSERTS; 4 PR UTP CABLES TO ER/TR (HORIZONTAL PANEL)
(1) RJ45 STP (6A) JACK INSERT; 4 PAIR SHIELDED CAT 6A FROM LI OUTLET
(1) RJ45 UTP JACK INSERTS; 4 PAIR CAT 6 CABLE FROM LI OUTLET

(1) EXTENDER BOX RECIEVER; CABLES TO GO C2G31015 MOUNTED NEATLY (AND ACCESSIBLE) TO DISPLAY DEVICE MOUNTING BRACKET
(1) RJ45 TO RJ45 CAT 6A SHIELDED 6' CABLE FROM OUTLET TO RECIEVER.
(1) RJ45 TO PHOENIX CONNECTORS 6' CABLE ASSEMBLY FROM OUTLET TO RECIEVER
(1) HDMI MALE TO HDMI MALE 6' CABLE ASSEMBLY FROM RECIEVER TO DISPLAY

4 271513 FP OUTLET 2/LO
NTS

WHERE DEVICE IS LOCATED IN A SPECIAL MOUNTING ARRANGEMENT SUCH A A FLOORBOX OR TELEPOWER POLE, UTILIZE INTEGRAL FACEPLATE IN LIEU OF STANDARD SINGLE GANG FACEPLATE.

REFERENCE TERMINATION AND COLOR CODING CHART FOR CABLE AND JACK COLORS

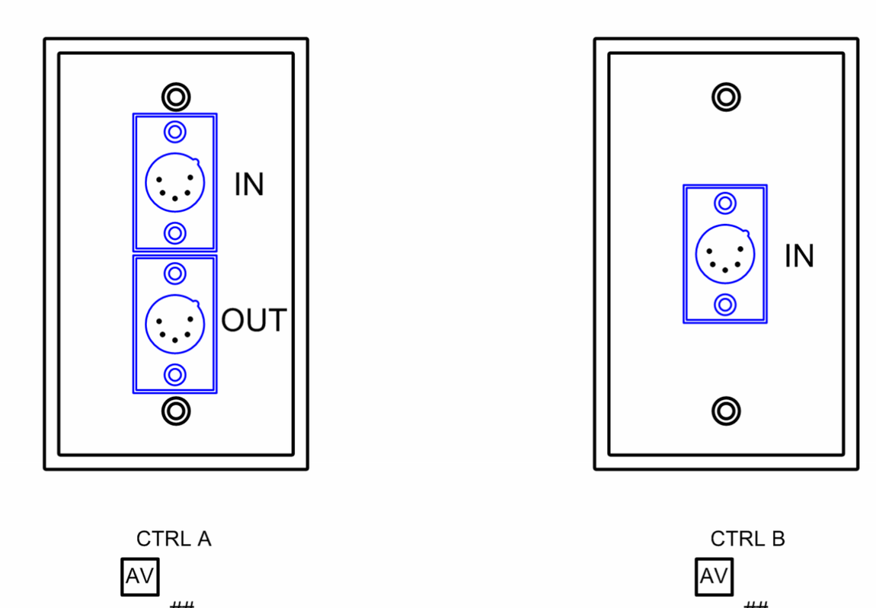


NOTE: MULTI-GANG SS FACEPLATE WITH (DECORA STYLE) OPENING

(1) 4 PORT DECORA STYLE MODULE FRAME
(1) 1 PORT BLANK
(3) RJ45 UTP JACK INSERTS; 4 PR UTP CABLES TO ER/TR (HORIZONTAL PANEL)
(1) CABLES TO GO TRANSMITTER FACEPLATE C2G30022
(1) 4 PAIR SHIELDED CAT 6A WITH MODULAR PLUG TO LO OUTLET
(1) 4 PAIR CAT 6 CABLE (PHOENIX CONNECTORS) TO LO OUTLET

271513

3 271513 DOUBLE GANG 3/LI
NTS



(1) SINGLE GANG SS FACEPLATE
(2) 5P XLR JACK; 2 PAIR SHIELDED CABLE
(1) FROM TR OR PREVIOUS DEVICE
(1) TO NEXT DEVICE

(1) SINGLE GANG SS FACEPLATE
(2) 5P XLR JACK; 2 PAIR SHIELDED CABLE
(1) FROM TR OR PREVIOUS DEVICE

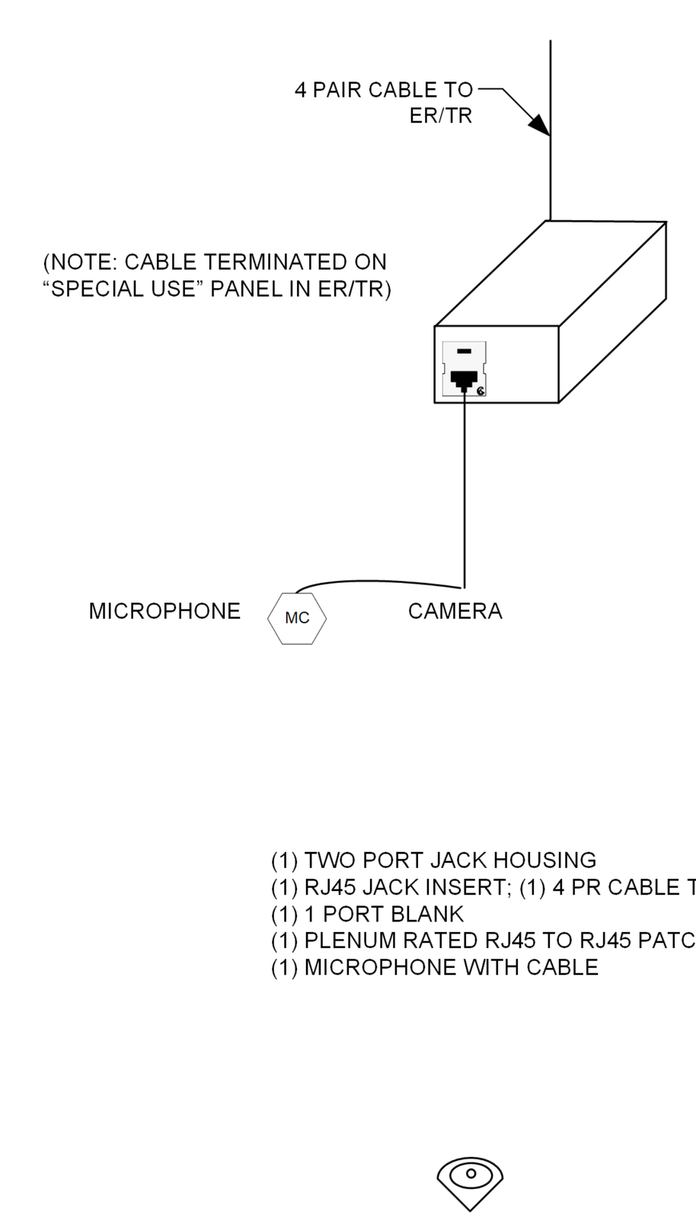
PIN 1 SIGNAL COMMON
PIN 2 DATA 1-
PIN 3 DATA 1+
PIN 4 DATA 2-
PIN 5 DATA 2+

2 PAIR, 24 AWG, 7X32 STRANDED, TINNED COPPER

CABLES ORIGINATE FROM TR ROOM SERVING AREA. MAY BE CHAINED BETWEEN ZONE LOCATIONS. SEE DIAGRAM IF AVAILABLE.

27 41 00

2 274100 AV CONTROL
NTS



(1) TWO PORT JACK HOUSING
(1) RJ45 JACK INSERT; (1) 4 PR CABLE TO ER/TR
(1) 1 PORT BLANK
(1) PLENUM RATED RJ45 TO RJ45 PATCH CABLE
(1) MICROPHONE WITH CABLE

1 281302 CAMERA WITH AUDIO
NTS

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
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312-618-7185

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1527 N. Sandburg Terrace
Chicago, IL 60610
312-664-3217

LEVEL-1 GLOBAL SOLUTIONS
TECHNOLOGY CONSULTANT
233 S. Wacker Dr. #4400
Chicago, IL 60606
312-202-3300

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID

PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

TECHNOLOGY DETAILS

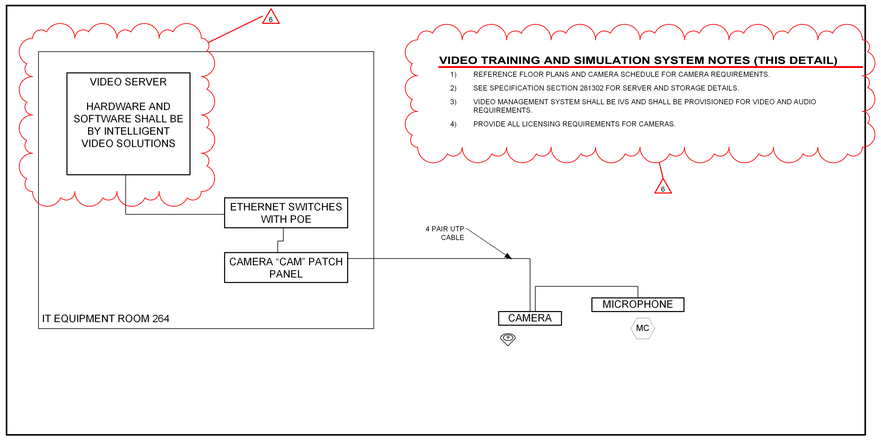
SHEET NUMBER

T503

CAMERA SCHEDULE

LABEL	TYPE	DESCRIPTION	MP	ELEVATION	ROOM
SIMCAM 263B SE	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	263B
SIMCAM 263B SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	263B
SIMCAM 263B NW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	263B
SIMCAM 263B NE	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	263B
SIMCAM 265 SE	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	265
SIMCAM 265 SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	265
SIMCAM 265 NW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	265
SIMCAM 256A SE	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	265A
SIMCAM 265A SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	265A
SIMCAM 266 NE	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	266
SIMCAM 266 SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	266
SIMCAM 266A SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	266A
SIMCAM 266B NW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	266B
SIMCAM 270A SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	270A
SIMCAM 270A NE	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	270A
SIMCAM 366 SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	366
SIMCAM 366 NW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	366
SIMCAM 366A NE	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	366A
SIMCAM 366B NW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	366B
SIMCAM ST12 SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	ST 12
SIMCAM ST12S SW	AXIS Q9216-SLV_Surface Ceiling Mount	125 X 95 DEG W/MIC & 3.5MM; IR	4	9'0"	ST 12S

2 **281302 VIDEO DEVICE SCHEDULE**
NTS



1 **281302 VIDEO RECORDING SYSTEM DIAGRAM**
NTS

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM Fleet and Facility Management

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

SIMULATION VIDEO SYSTEM

SHEET NUMBER

T643

AV EQUIPMENT ALTERNATE NOTES:

1. ALL AV EQUIPMENT IN THE FOLLOWING SCHEDULES TO BE PRICED AS ALTERNATE 1.
2. A/V BACKBONE, CABLE, AND PATHWAYS, SHALL BE PROVIDED AS A PART OF THE BASE BID SCOPE OF WORK.
3. MEDIA CABINET IS PART OF THE FURNITURE PACKAGE REFER TO SPECIFICATION 12 50 00 AND ARCHITECTURAL DRAWINGS.

AV EQUIPMENT SCHEDULE BY ROOM

ROOM NO.	ROOM NAME	AV EQUIPMENT ROOM TYPE
2		
255	BREAK ROOM	1
259	CLASSROOM	7
260	CLASSROOM	7
261	CLASSROOM	7
262A	CLASSROOM - SKILLS	5
262B	SCENARIO TRAINING	3
263	CLASSROOM (SIM LAB)	5
263B	SIMULATION CENTER LARGE ROOM	3
270	CLASSROOM	5
279	STAFF WORKSTATIONS	2
3		
355E	STAFF MTG RM	2
359	TRAINING CLASSRM 1	6
360	TRAINING CLASSRM 2	7
361	IN-SERVICE TRAINING CLASSRM 3	7
362	IN-SERVICE TRAINING CLASSRM 4	6
369	TRAINING CLASSROOM	6
370	TRAINING CLASSROOM	6
4		
455	INSTRUCTOR'S ACADEMY BREAKOUT	1
456	INSTRUCTOR'S ACADEMY BREAKOUT	1
457	INSTRUCTOR'S ACADEMY BREAKOUT	1
458	INSTRUCTOR'S ACADEMY BREAKOUT	1
460	TRAINING CLASSRM	7
461	TRAINING CLASSRM	7
462	COMPUTER LAB	6
463D	STAFF MTG RM	2
465	CLASSROOM	6
470	REFRESHER CLASSROOM	6
471	BASIS CLASSROOM	6

AV EQUIPMENT	SYSTEM DESCRIPTION
TYPE 1	**Office / Break Room / Small Conference Room** Medium TV Display typically 65 inch Input to allow user to connect laptops for display
TYPE 2	**Large Conference Room** Large TV Display typically 75" inch Input to allow user to connect laptops for display Huddle System for video conferencing
TYPE 3	**Small Training / Classroom < 1000 Sq Ft. (No Audio)** Large TV Display typically 75" inch Media Cabinet with Built in PC workstation connected to TV where user can login and display content from the local PC on Display (Refer to Architectural specifications) Sound Bar Secondary Input to allow guests to connect laptops for display
TYPE 4	**Small Training / Classroom > 1000 Sq Ft.** Large TV Display typically 86" inch Media Cabinet with Built in PC workstation connected to TV where user can login and display content from the local PC on Display (Refer to Architectural specifications) Secondary Input to allow guests to connect laptops for display Classroom Audio Systems
TYPE 5	**Medium Training / Classroom > 1500 Sq Ft.** Short Throw Projector (Full HD) with Wall Mount 4' x 6' Marker Board with Projectable Surface (100" Image) Secondary Input to allow guests to connect laptops for display Classroom Audio Systems
TYPE 6 & 7	**Large Group Instruction >3000 Sq Ft.** Short Throw Projector (Full HD) with Wall Mount 5' x 8' Marker Board with Projectable Surface (120" Image)Wall Mount (Peerless SF680P) Media Cabinet with Built in PC workstation connected to TV where user can login and display content from the local PC on Display (Refer to Architectural specifications) Secondary Input to allow guests to connect laptops for display Classroom Audio Systems AV Control system / Switcher (Type 7 Rooms)

6

2 ALTERNATE 1 - AV ROOM TYPE SCHEDULE

NTS

ITEM DESCRIPTION	MANUFACTURER	MODEL NUMBER	COMMENT
65" TV	LG	65UR340C	CHIEF WALL MOUNT MODEL VXF730-B3
75" TV	LG	75UR340C	CHIEF WALL MOUNT MODEL VXF730-B4
86" TV	LG	86UR340C	CHIEF WALL MOUNT MODEL VXF30-B5
SOUND BAR	JBL	PSB-2	TYPICAL FOR ROOM TYPE 3
HUDDLE SYSTEM	LOGITECH	RALLY	
SHORT THROW PROJECTOR	EPSON	810E	WITH EPSON ELPMB75 WALL MOUNT
PROJECTABLE MARKERBOARD (100" AND 120" IMAGE)	CLARUS	VIEW WHITEBOARD	ALTERNATES ACCEPTED; SURFACE REQUIRED TO BE MATTE AND HAVE A LOW GLARE FINISH
MULTI ROOM SWITCHER	CRESTRON	HD-MD6X2-4K-E	INCLUDE TOUCH SCREEN CONTROL
AUDIO SYSTEM - WALL SPEAKERS	CABLES 2 GO	40880	50 WATT AMPLIFIER
	JBL	29AV-1	WALL SPEAKER - 2 PER ROOM ON EITHER SIDE OF PROJECTOR; TYPICAL FOR ROOM TYPE 5
AUDIO SYSTEM - CEILING SPEAKERS	CABLES 2 GO	40880	50 WATT AMPLIFIER
	JBL	CONTROL 65 P/T	CEILING PENDANT SPEAKER - REFER TO PLANS FOR COUNT AND LAYOUT; TYPICAL FOR ROOM TYPE 6 & 7

1 ALTERNATE 1 - AV EQUIPMENT SCHEDULE

NTS

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

2FM

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

AUDIO VISUAL EQUIPMENT SCHEDULES

SHEET NUMBER

T644

Designer: Designer Checked: Checker Approved: Approver ARCH E1 30"x42"

Last Plotted: 7/31/2024 4:19:23 PM
Filename: Autodesk Docs://BP-AMER (USA) 60710711-PSTC EMS Addition/60710711_ACM_R22_JPSTC ADD_TC.rvt

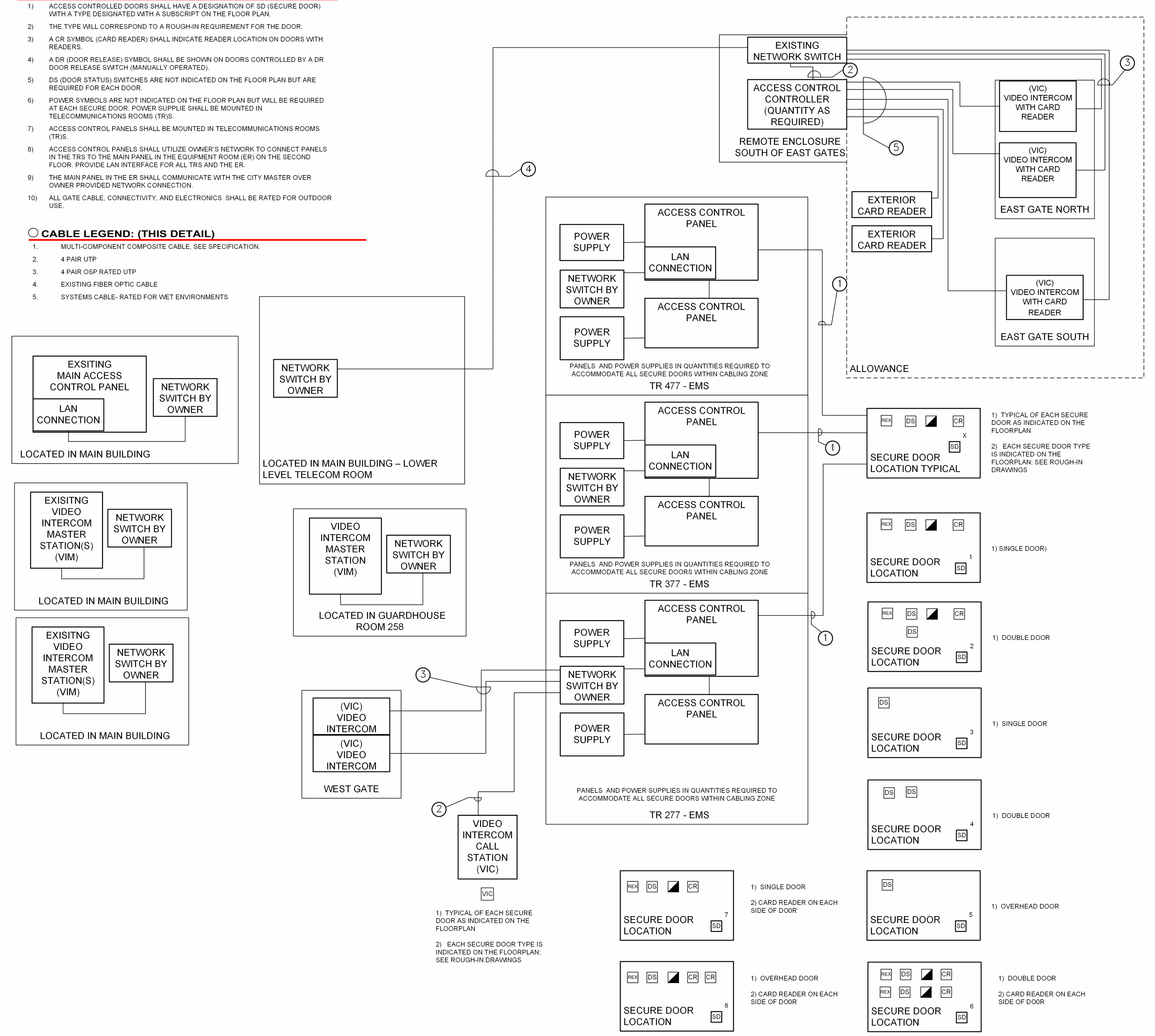
Designer: TKP   Checked: BKS   Approved: BKS   ARCH E1 30"x42"

ACCESS CONTROL NOTES (THIS DETAIL)

1) ACCESS CONTROLLED DOORS SHALL HAVE A DESIGNATION OF SD (SECURE DOOR) WITH A TYPE DESIGNATED WITH A SUBSCRIPT ON THE FLOOR PLAN.
2) THE TYPE WILL CORRESPOND TO A ROUGH-IN REQUIREMENT FOR THE DOOR.
3) A CR SYMBOL (CARD READER) SHALL INDICATE READER LOCATION ON DOORS WITH READERS.
4) A DR (DOOR RELEASE) SYMBOL SHALL BE SHOWN ON DOORS CONTROLLED BY A DR DOOR RELEASE SWITCH (MANUALLY OPERATED).
5) DS (DOOR STATUS) SWITCHES ARE NOT INDICATED ON THE FLOOR PLAN BUT ARE REQUIRED FOR EACH DOOR.
6) POWER SYMBOLS ARE NOT INDICATED ON THE FLOOR PLAN BUT WILL BE REQUIRED AT EACH SECURE DOOR. POWER SUPPLIE SHALL BE MOUNTED IN TELECOMMUNICATIONS ROOMS (TR)S.
7) ACCESS CONTROL PANELS SHALL BE MOUNTED IN TELECOMMUNICATIONS ROOMS (TR)S.
8) ACCESS CONTROL PANELS SHALL UTILIZE OWNER'S NETWORK TO CONNECT PANELS IN THE TRS TO THE MAIN PANEL IN THE EQUIPMENT ROOM (ER) ON THE SECOND FLOOR. PROVIDE LAN INTERFACE FOR ALL TRS AND THE ER.
9) THE MAIN PANEL IN THE ER SHALL COMMUNICATE WITH THE CITY MASTER OVER OWNER PROVIDED NETWORK CONNECTION.
10) ALL GATE CABLE, CONNECTIVITY, AND ELECTRONICS SHALL BE RATED FOR OUTDOOR USE.

◯ CABLE LEGEND: (THIS DETAIL)

1. MULTI-COMPONENT COMPOSITE CABLE, SEE SPECIFICATION.
2. 4 PAIR UTP
3. 4 PAIR OSP RATED UTP
4. EXISTING FIBER OPTIC CABLE
5. SYSTEMS CABLE- RATED FOR WET ENVIRONMENTS



1 | 281301 ACCESS CONTROL DIAGRAM

NTS

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

PUBLIC BUILDING COMMISSION   PUBLIC BUILDING COMMISSION   2FM Fleet and Facility Management

CONSULTANTS

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PROJECT NUMBER

PBC: #07215   AECOM: 60710711

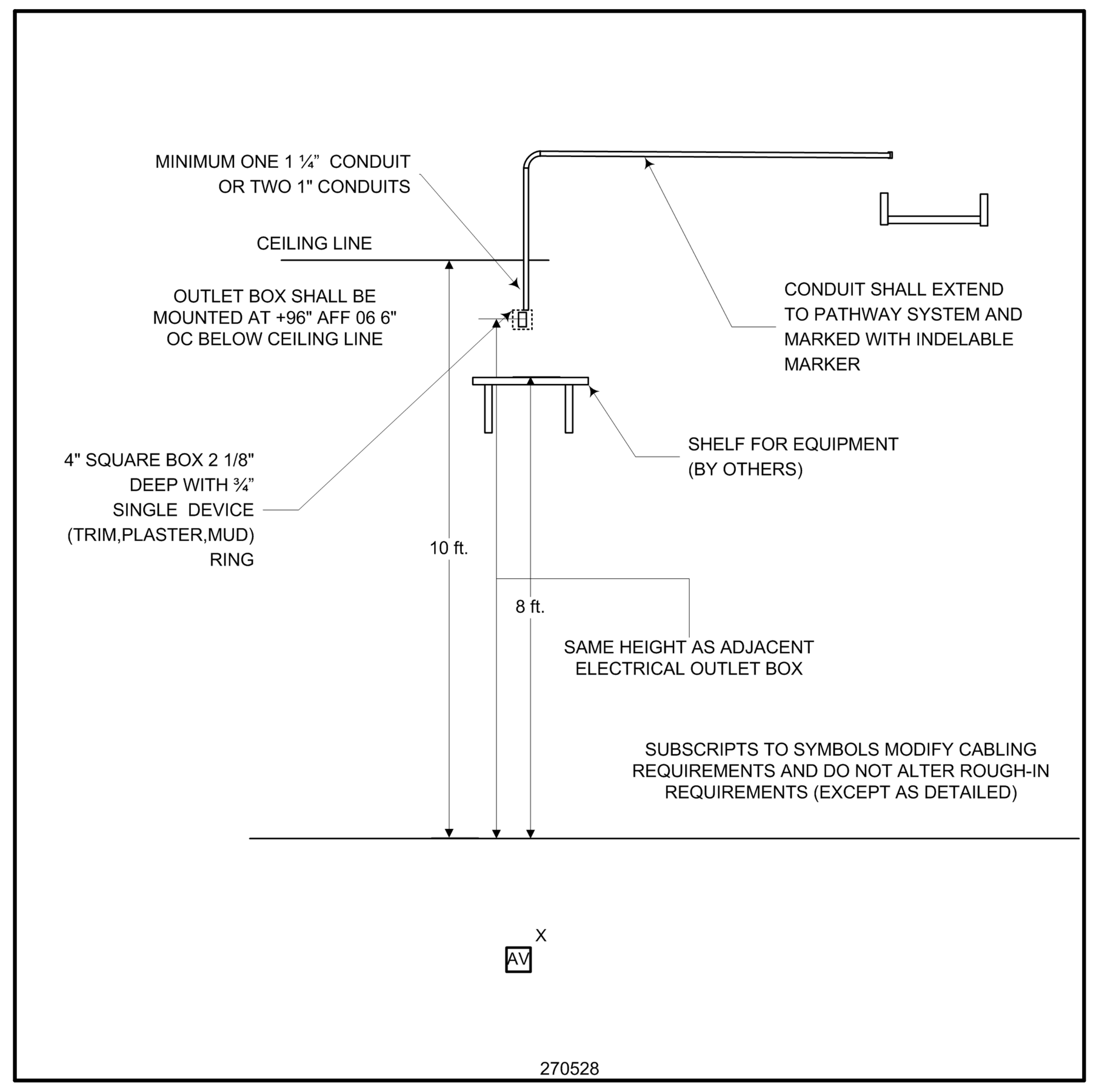
SHEET TITLE

ACCESS CONTROL DIAGRAMS

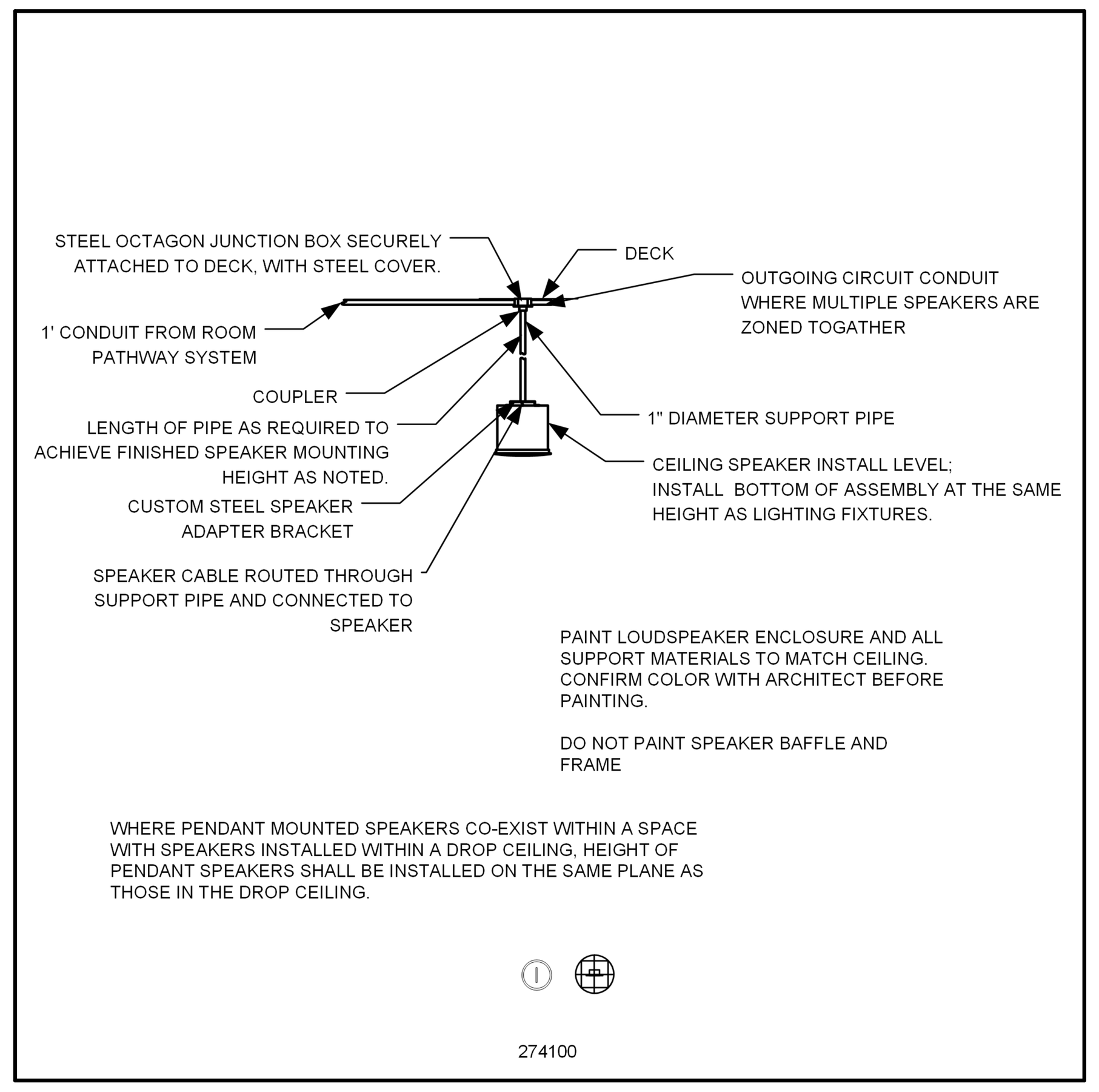
SHEET NUMBER

T671

ARCH E1 30"x42"
Approved: BKS
Checked: BKS
Designer: TKP



11 — 270528 OUTLET ROUGH-IN A/V CONTROL
NTS



10 — 270528 CEILING DEVICE SPEAKERS PENDANT
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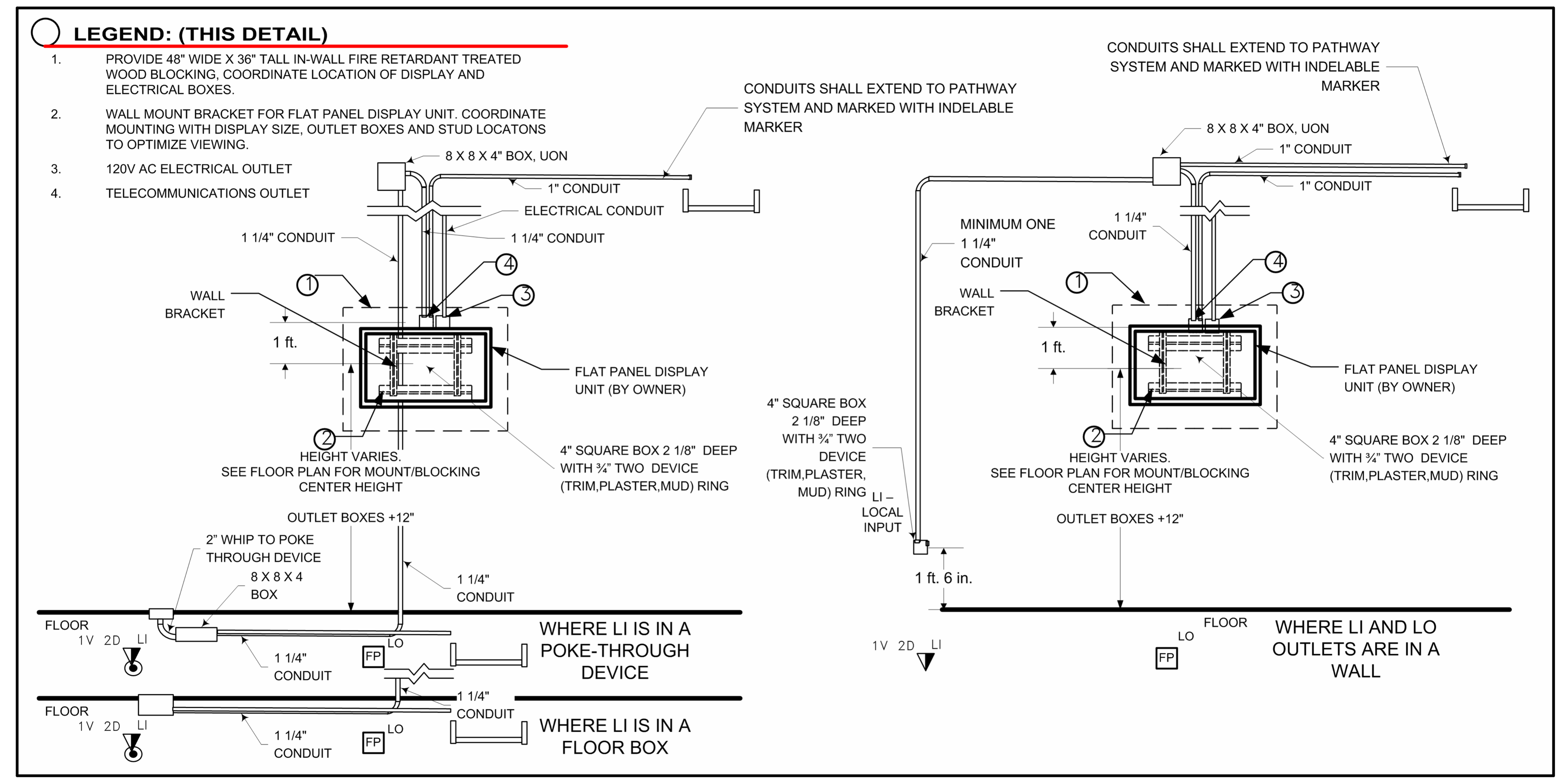
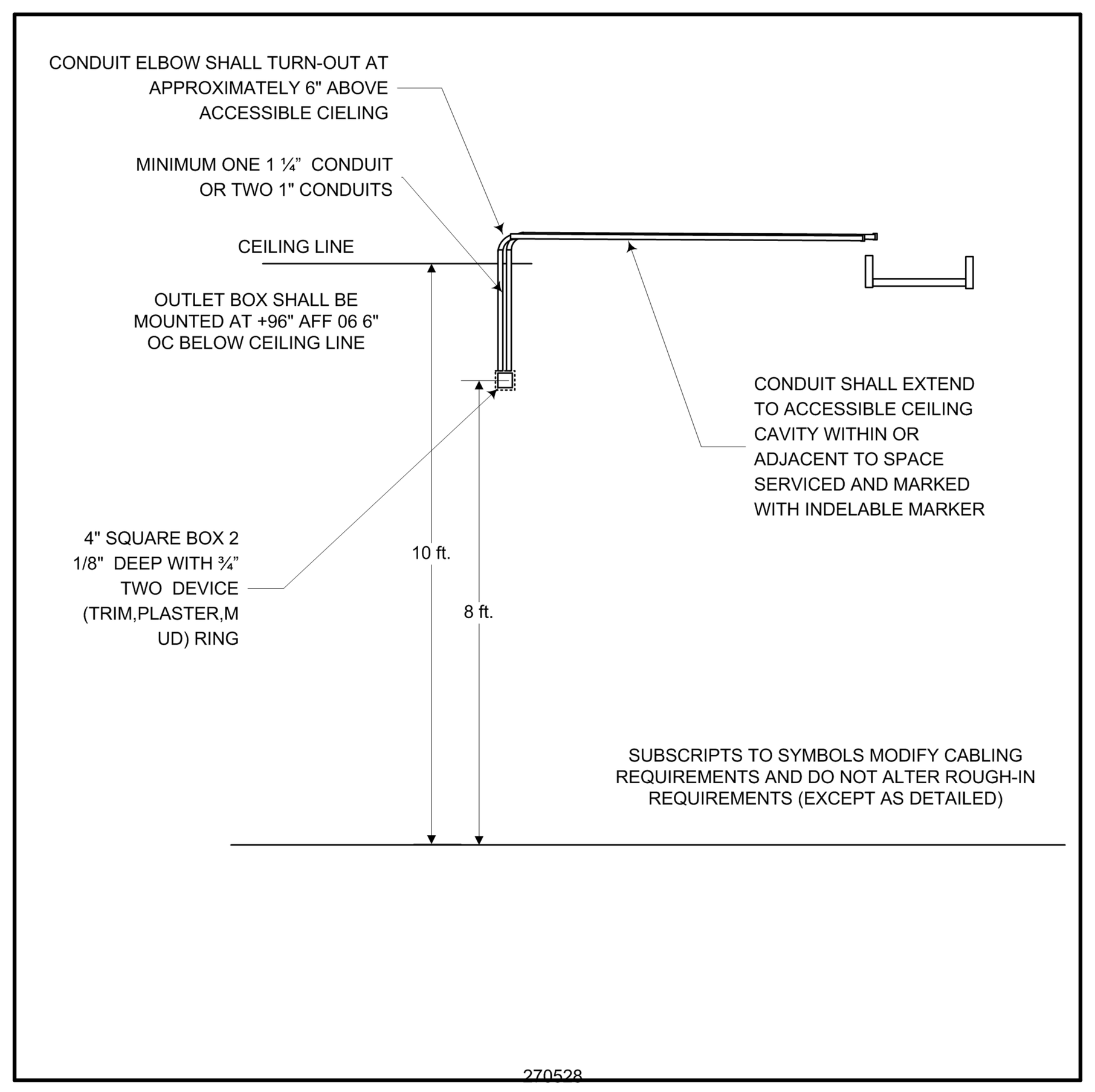
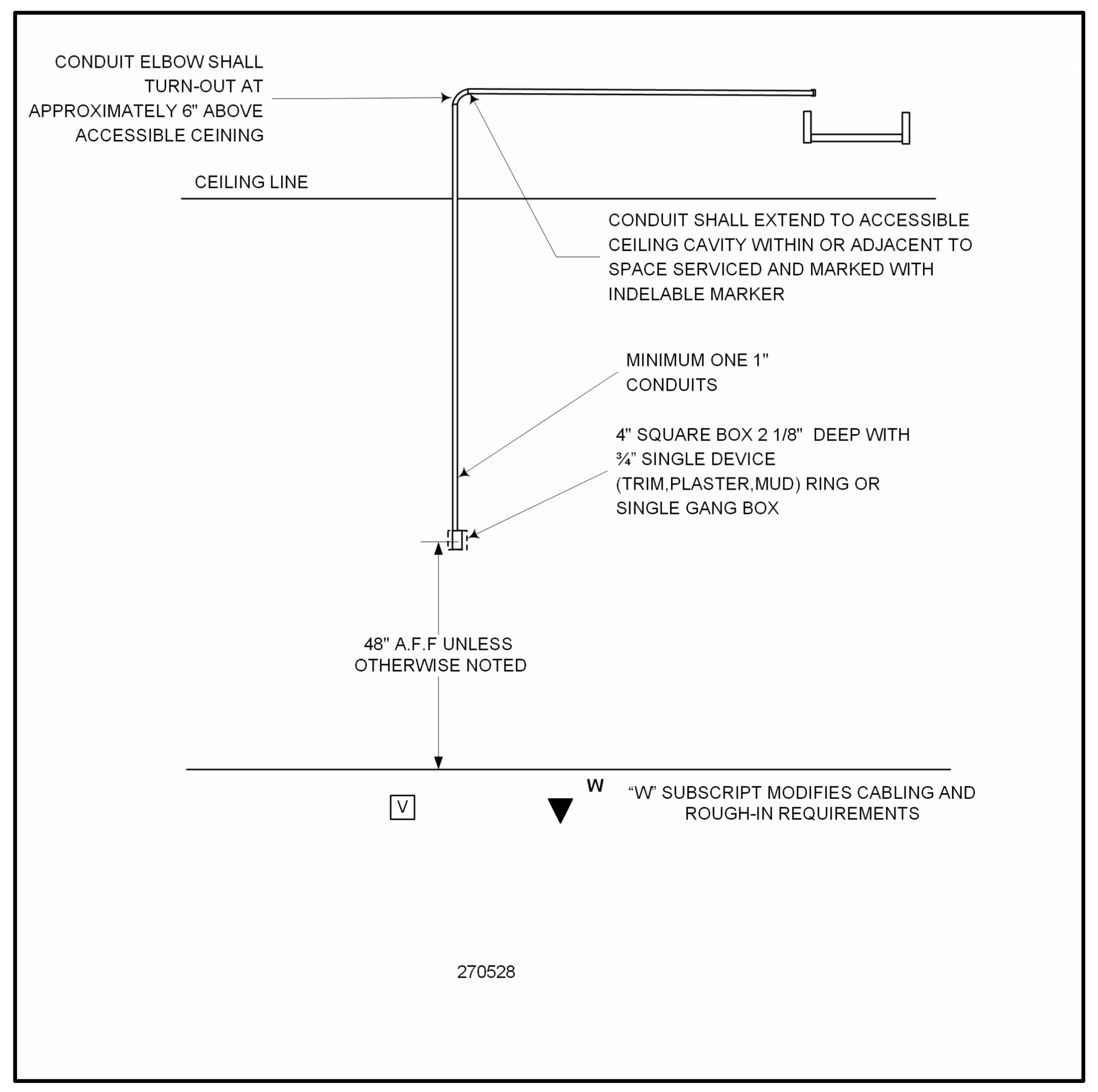


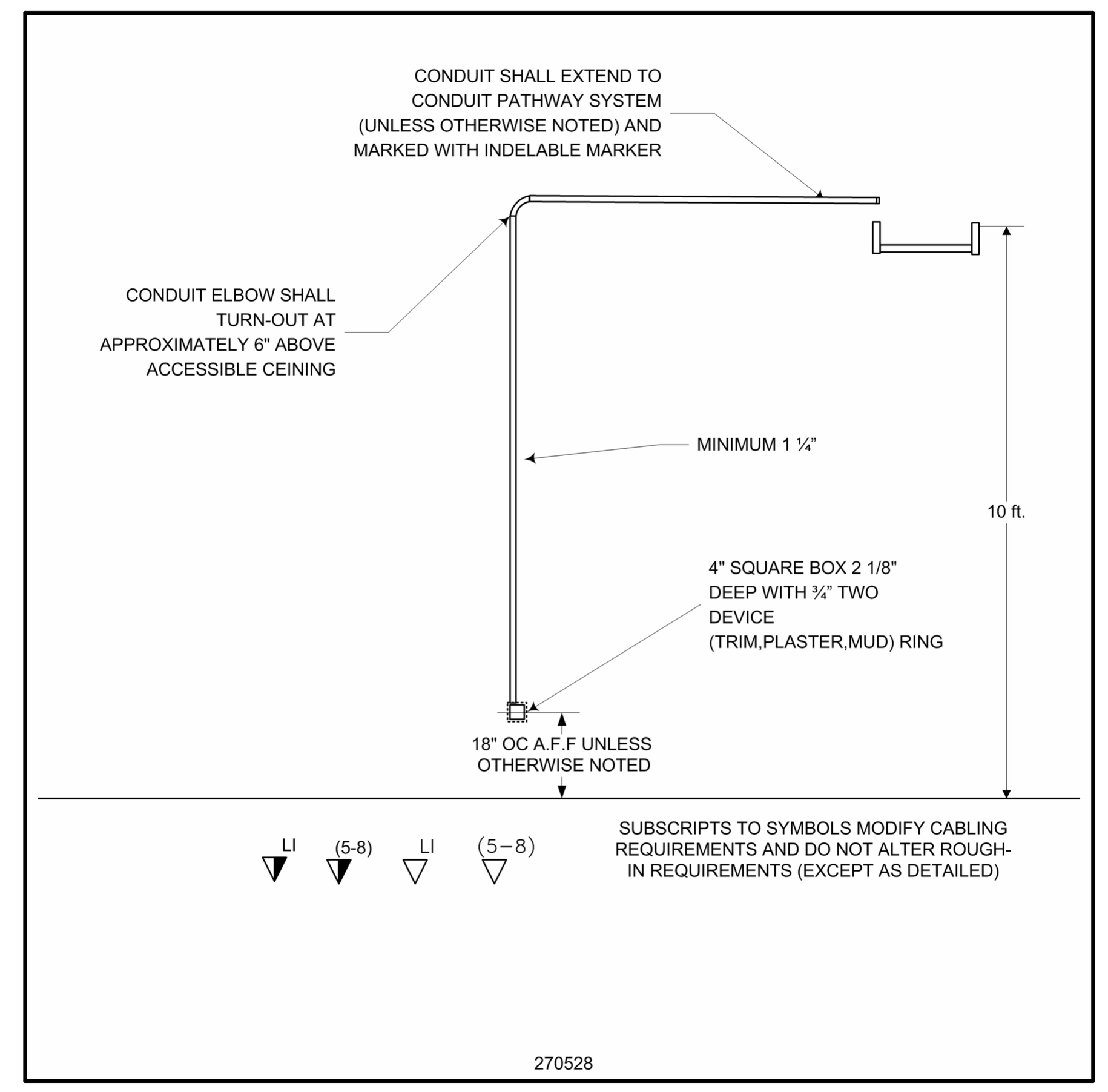
9 — 270528 TELEVISION MOUNTING



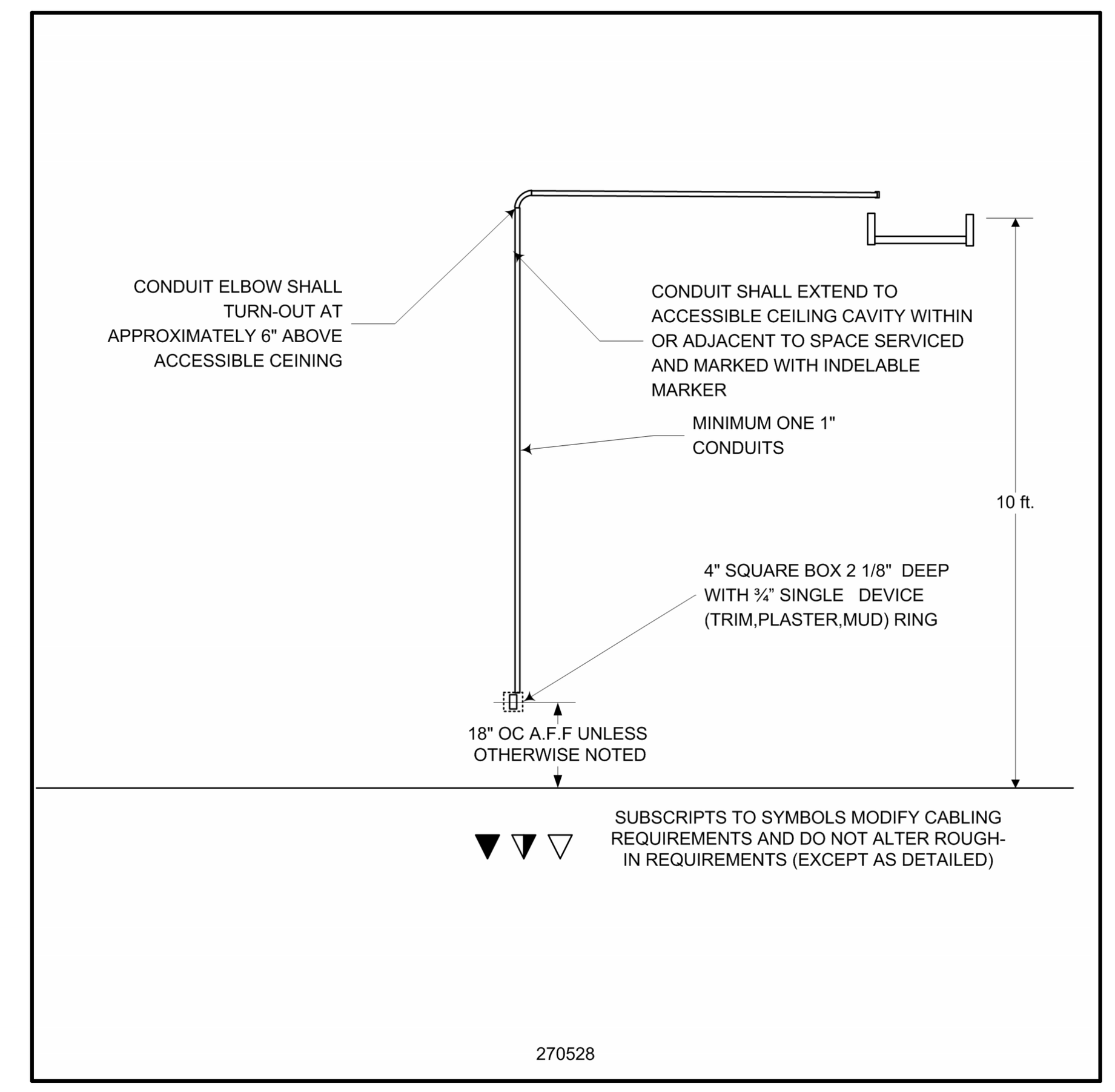
8 — 270528 UPPER OUTLET 2G
NTS



7 — 270528 WALL PHONE ROUGH-IN 1G
NTS



6 — 270528 VOICE DATA ROUGH-IN 2G
NTS



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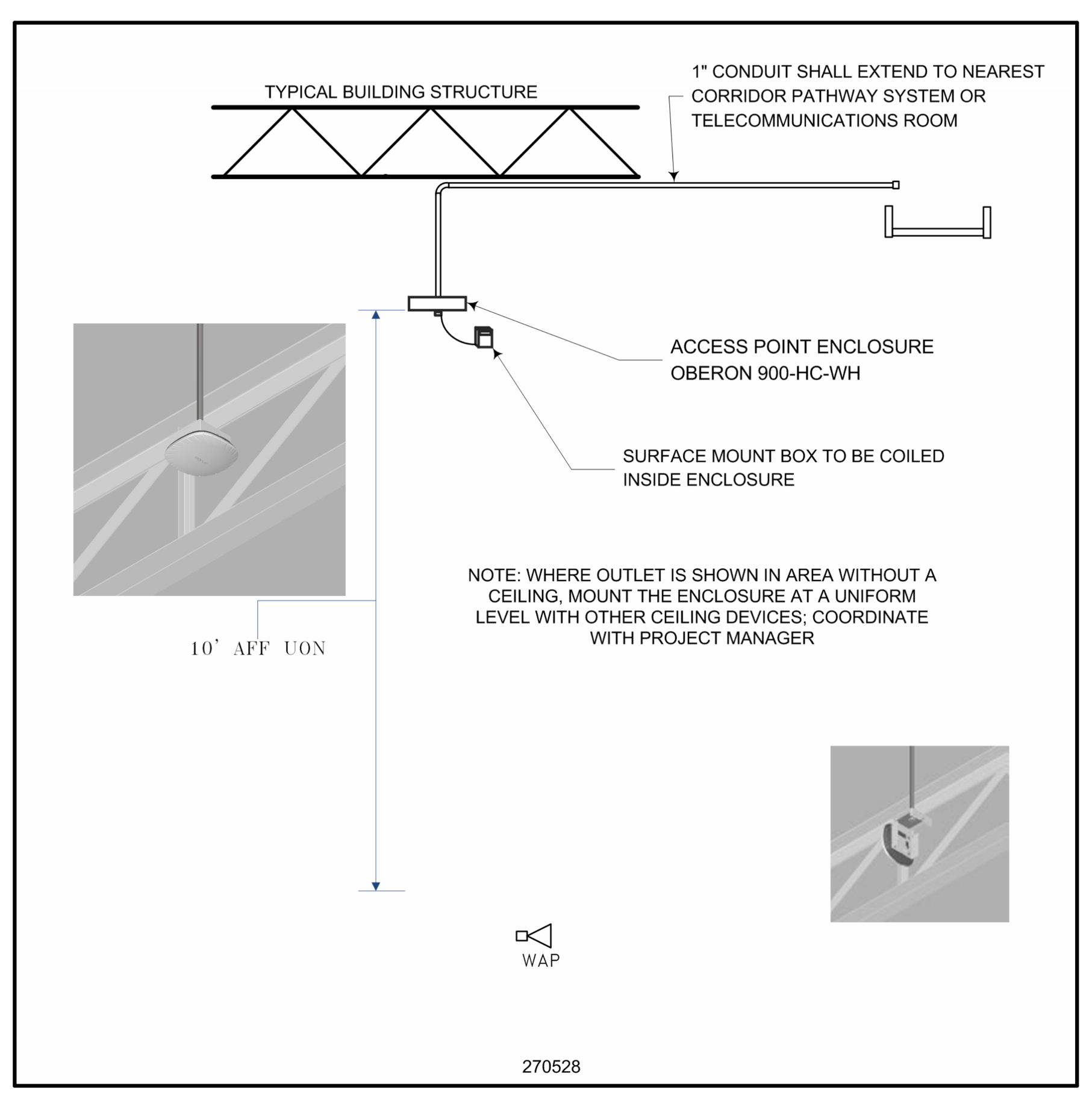
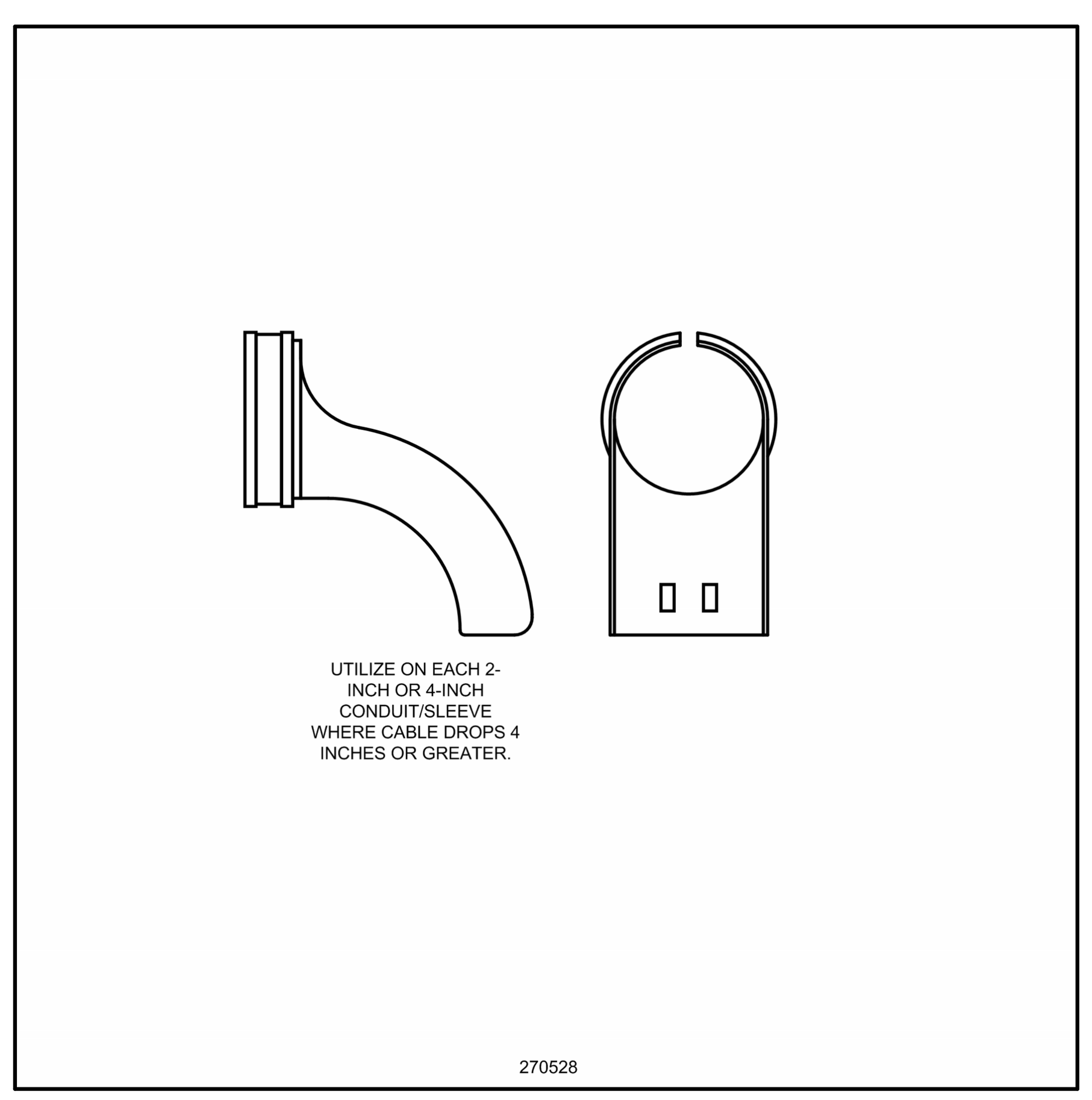
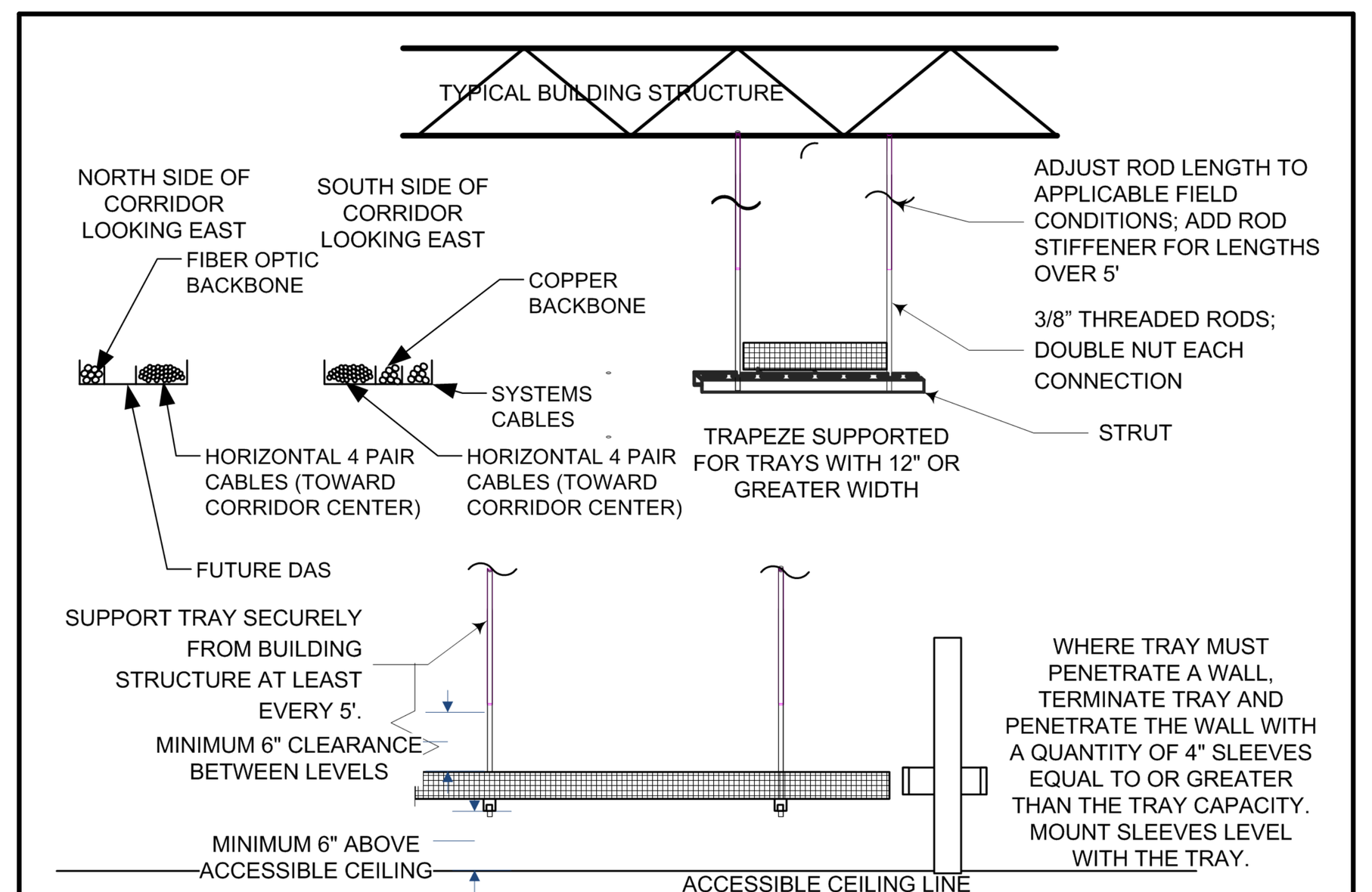


4 — 270528 WIRELESS ACCESS
NTS



3 — 270528 CONDUIT RADIUS CONTROL
NTS

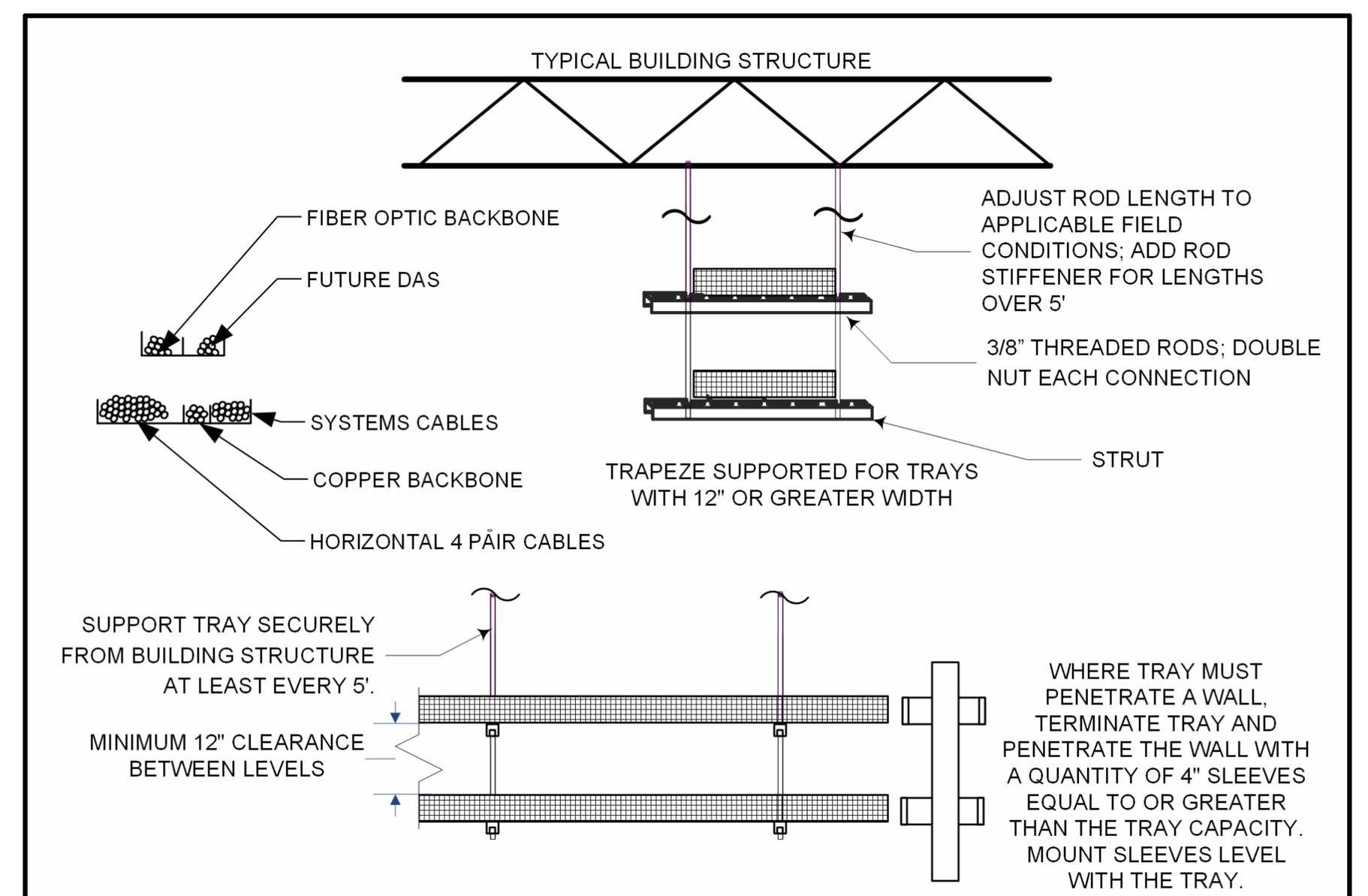


CABLE TRAY NOTES (THIS DETAIL)

1) COORDINATE PLACEMENT OF TRAYS WITH ALL TRADES.
2) PROVIDE TRAY DIVIDERS TO SEPARATE TRAY COMPARTMENTS AS SHOWN.
3) GROUND ALL TRAY SEGMENTS.
4) BASKET STYLE TRAY; SEE SPECIFICATIONS FOR CORRECT TYPE.
5) BENDS SHALL BE ACCOMPLISHED WITH FACTORY MANUFACTURED OR WIDE SWEEP ELBOWS.
6) REMOVE ALL BURRS OR SHARP EDGES FROM TRAY AND SUPPORTS.
7) CENTER SUPPORTS WHERE UTILIZED SHALL BE COVERED TO PROTECT CABLES FROM DAMAGE BY ROD THREADS.

270536

2 — 270536 CABLE TRAY MOUNTING
NTS



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7) CENTER SUPPORTS WHERE UTILIZED SHALL BE COVERED TO PROTECT CABLES FROM DAMAGE BY ROD THREADS.

270536

1 — 270536 CABLE TRAY MOUNTING - TIERED
NTS

AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

CLIENT

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PROJECT NUMBER

PBC: #07215 AECOM: 60710711

SHEET TITLE

CONDUIT AND PATHWAY DETAILS

SHEET NUMBER

T701

Last Plotted: 7/30/2024 7:00:27 PM
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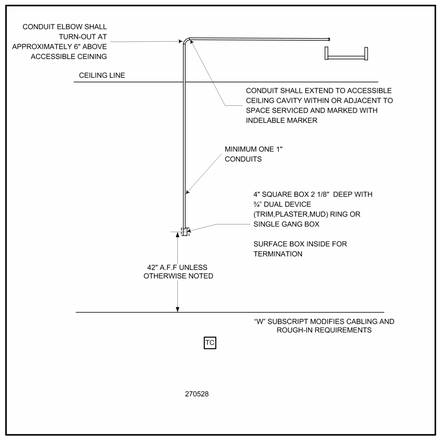

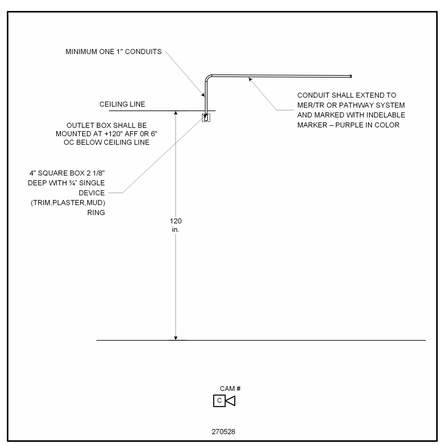

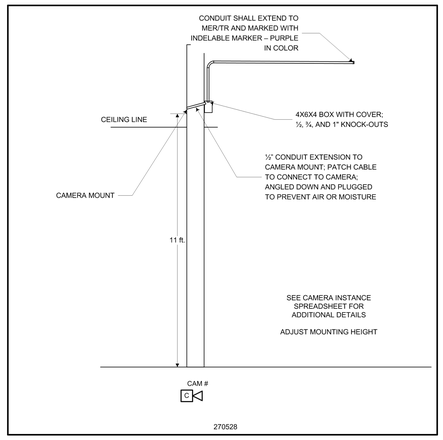

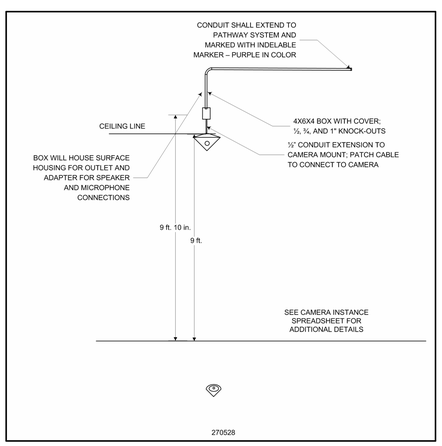

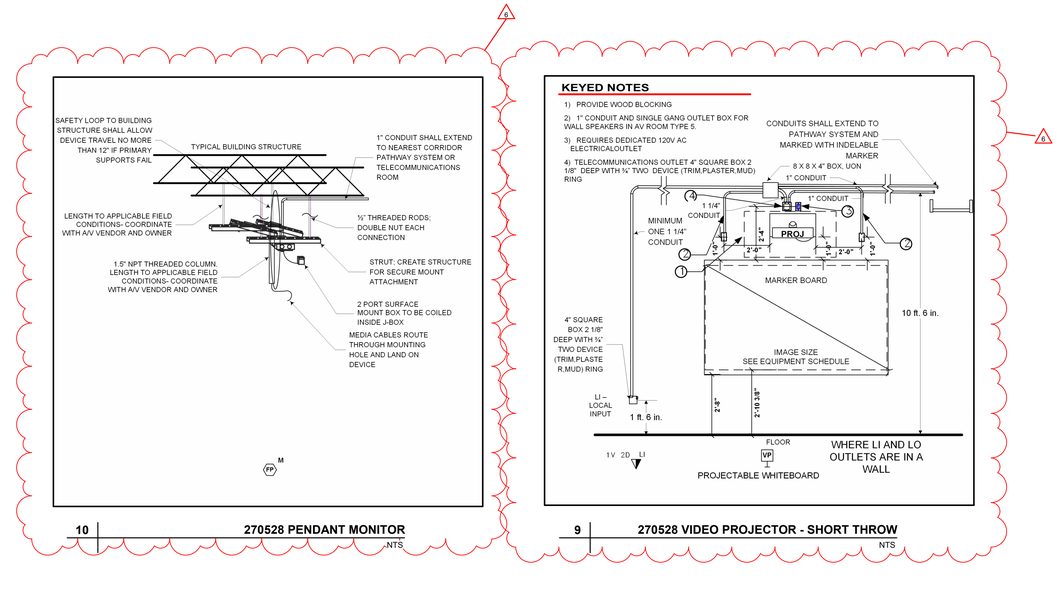

Designer: TKP   Checked: BKS   Approved: BKS   ARCH E1 30"x42"

10 | 270528 PENDANT MONITOR

NTS

KEYED NOTES

1) PROVIDE WOOD BLOCKING
2) 1" CONDUIT AND SINGLE GANG OUTLET BOX FOR WALL SPEAKERS IN AV ROOM TYPE 5.
3) REQUIRES DEDICATED 120V AC ELECTRICALOUTLET
4) TELECOMMUNICATIONS OUTLET 4" SQUARE BOX 2 1/8" DEEP WITH ¾" TWO DEVICE (TRIM,PLASTER,MUD) RING

9 | 270528 VIDEO PROJECTOR - SHORT THROW

NTS

8 | 270528 2 G TIME CLOCK

NTS

7 | 270528 INTERIOR WALL CAMERA

NTS

6 | 270528 EXTERIOR OUTLET ROUGH-IN

NTS

5 | 270528 CEILING CAMERA WIDE ANGLE

NTS

4 | 270528 FLOOR BOX

NTS

3 | 270528 FLOOR POKE-THROUGH

NTS

NOTES:
1. GROUND ANTENNA MAST/ CONDUIT PER NEC REQUIREMENTS.
2. INSTALL LIGHTNING ARRESTOR AND GROUND ANTENNA COAX TO COMMUNICATIONS GROUND PER NEC REQUIREMENTS.

2 | 270528 ROOF TOP ANTENNA

NTS

1 | 270528 SERVICE PANEL ROUGH-IN

NTS

Last Plotted: 7/30/2024 7:00:28 PM
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AECOM

PROJECT

Emergency Medical Services (EMS) Addition
701 N. Kilbourn Avenue, Chicago, IL 60651

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REGISTRATION

ISSUE/REVISION

6	07/31/2024	ADD 04
2	07/05/2024	ISSUED FOR PERMIT
1	06/26/2024	ISSUED FOR BID
I/R	DATE	DESCRIPTION

PROJECT NUMBER

PBC: #07215   AECOM: 60710711

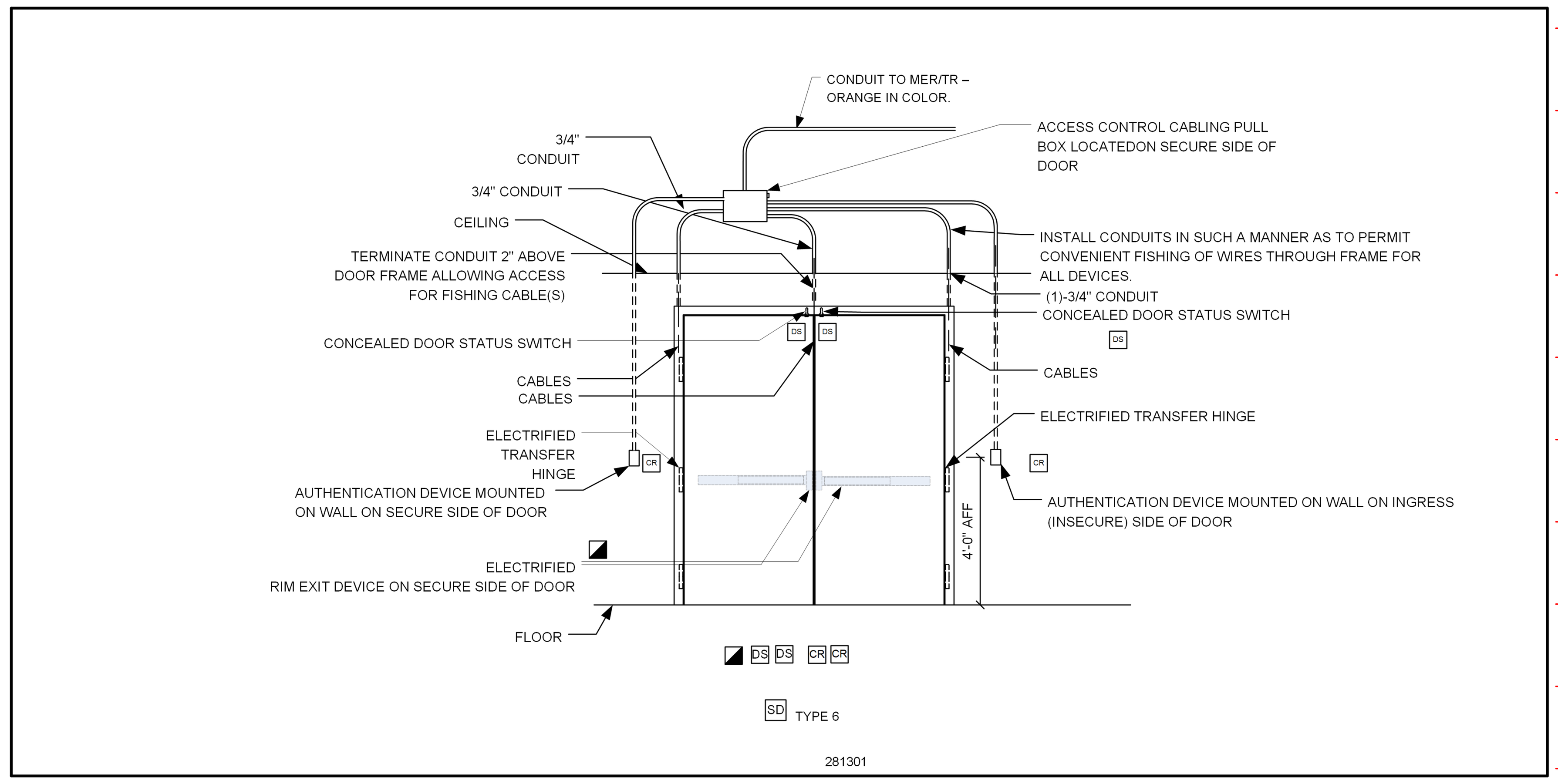
SHEET TITLE

CONDUIT AND PATHWAY DETAILS

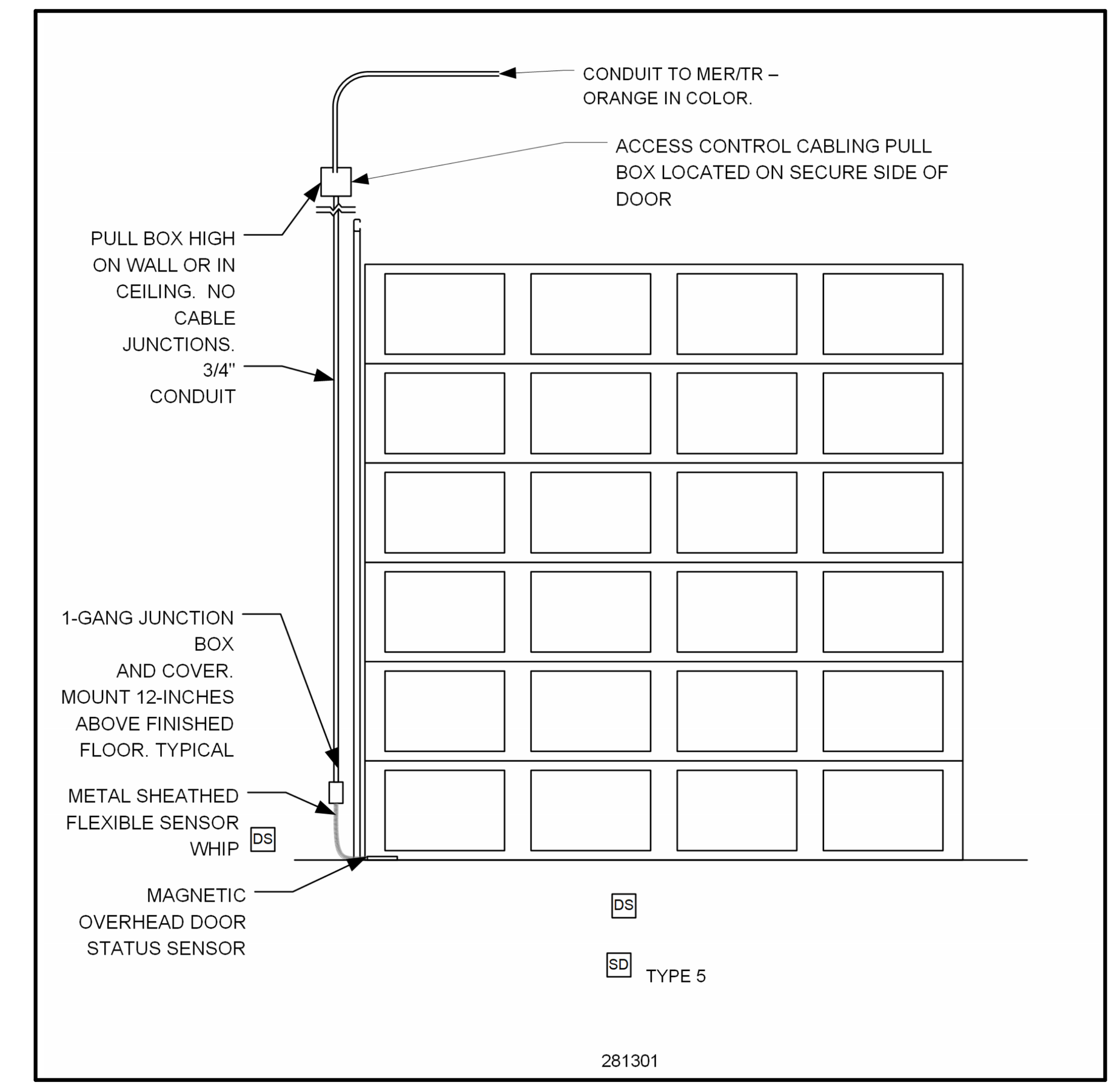
SHEET NUMBER

T702

Designer: TKP   Checked: BKS   Approved: BKS   ARCH E1 30"x42"



8 **270528 SECURE DOOR TYPE 6**
NTS



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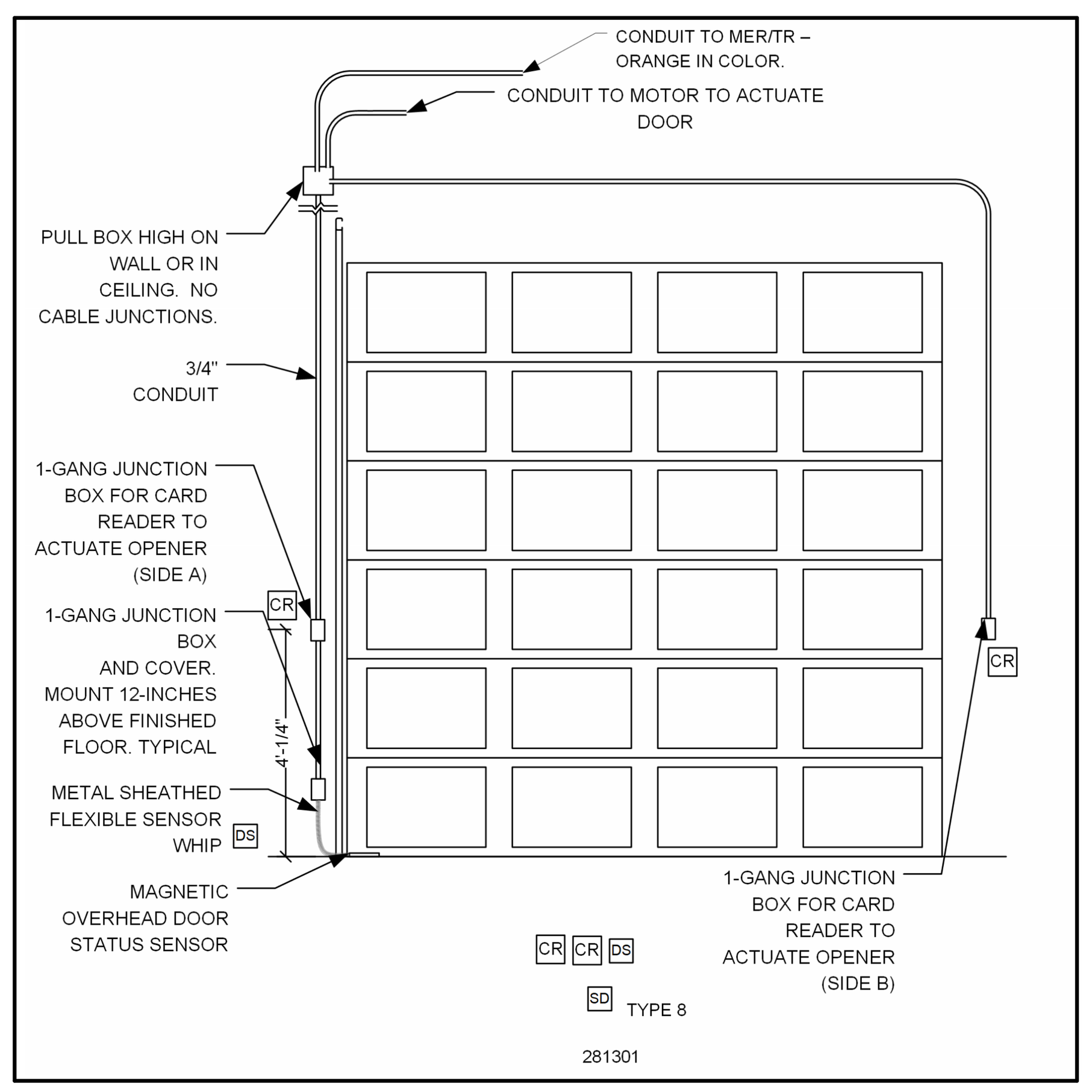

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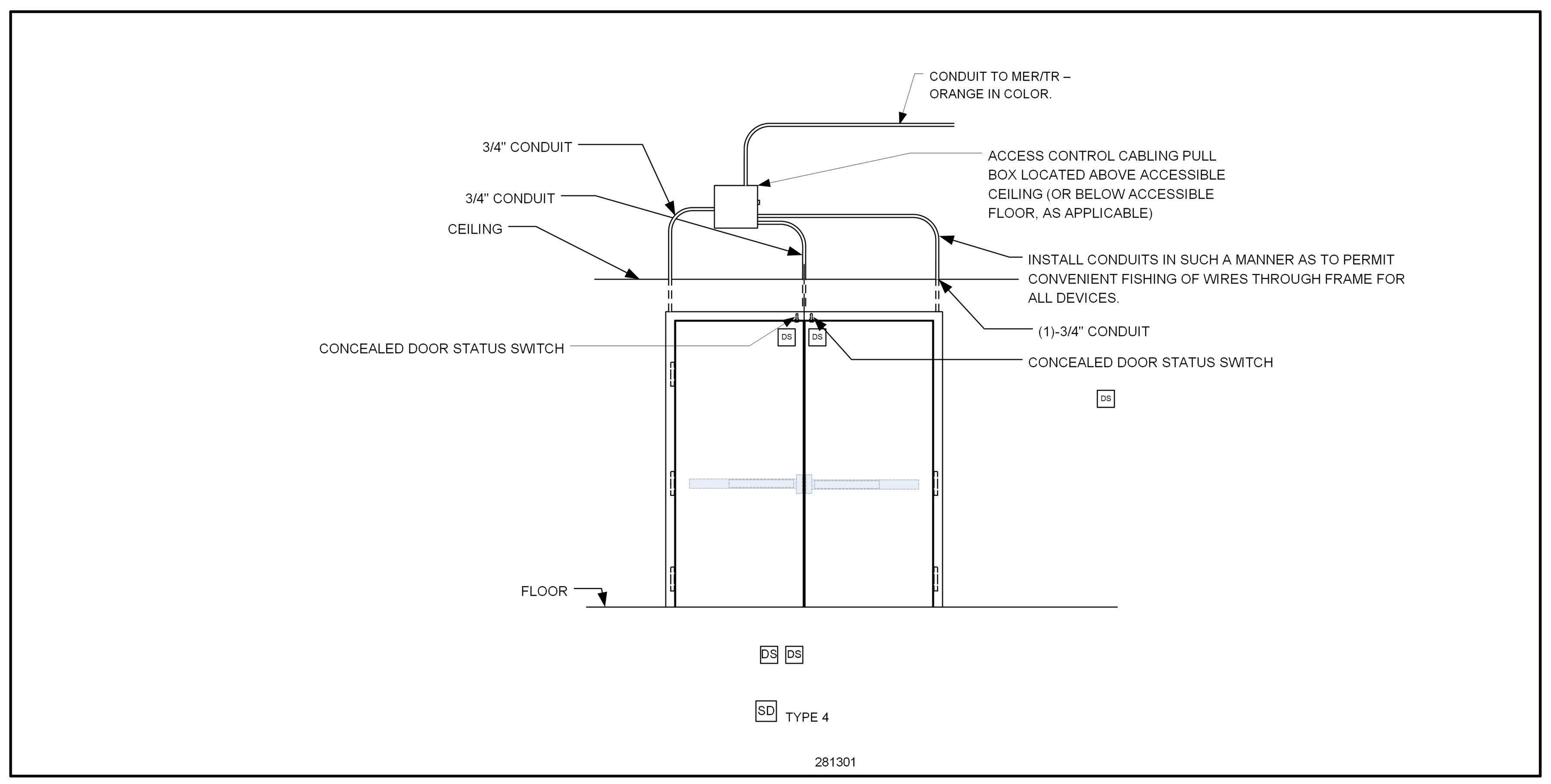

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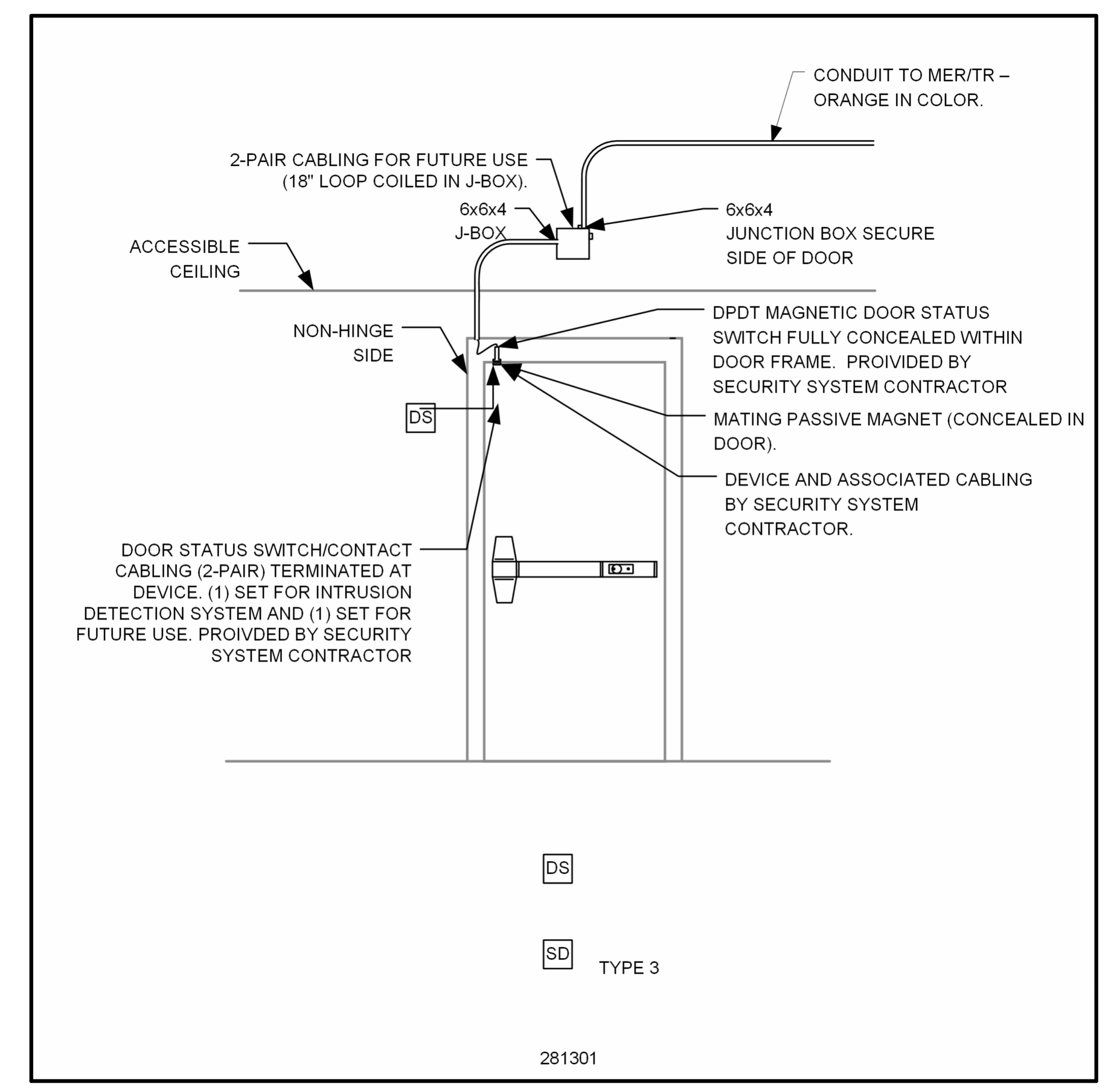

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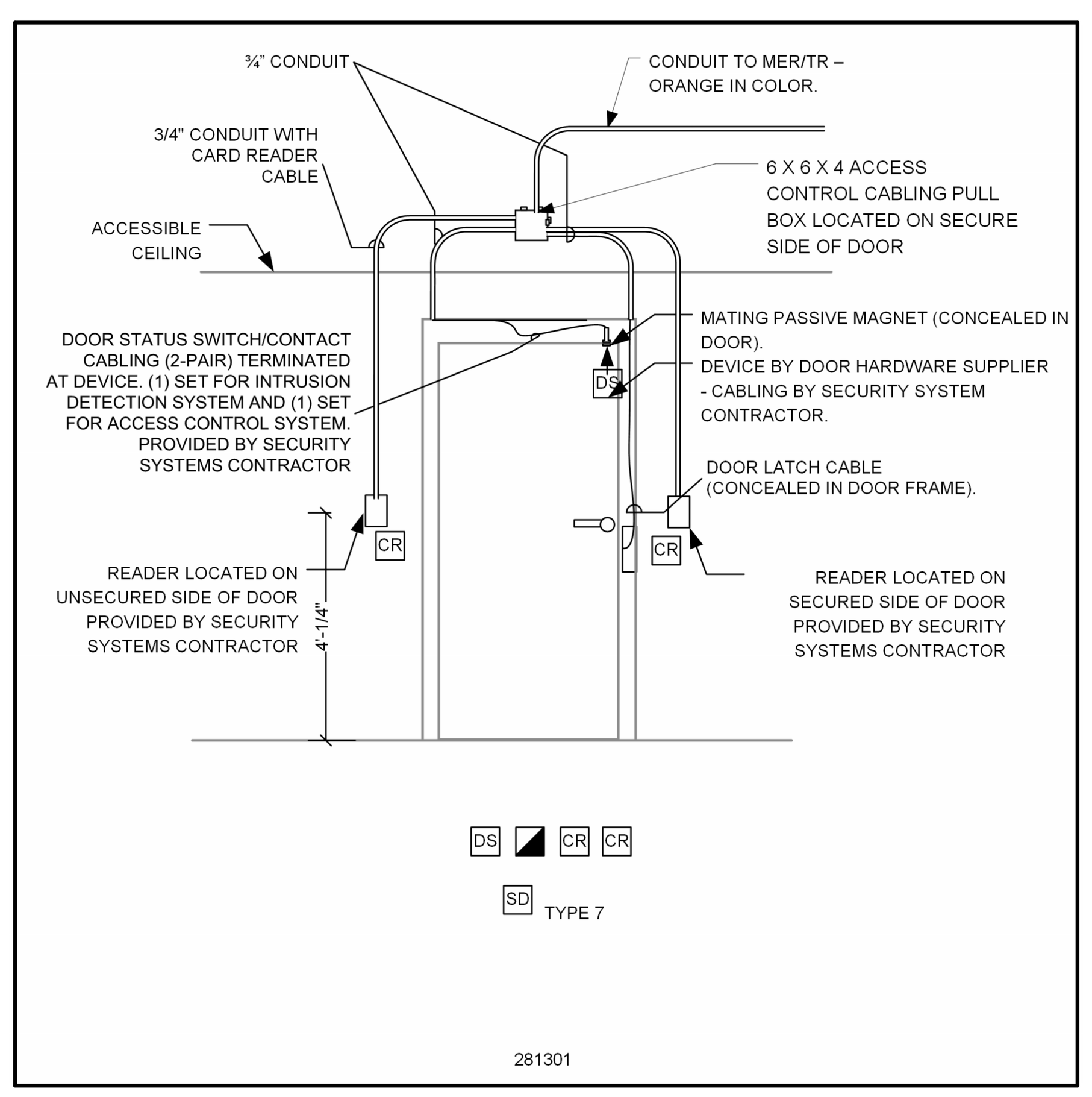
NTS



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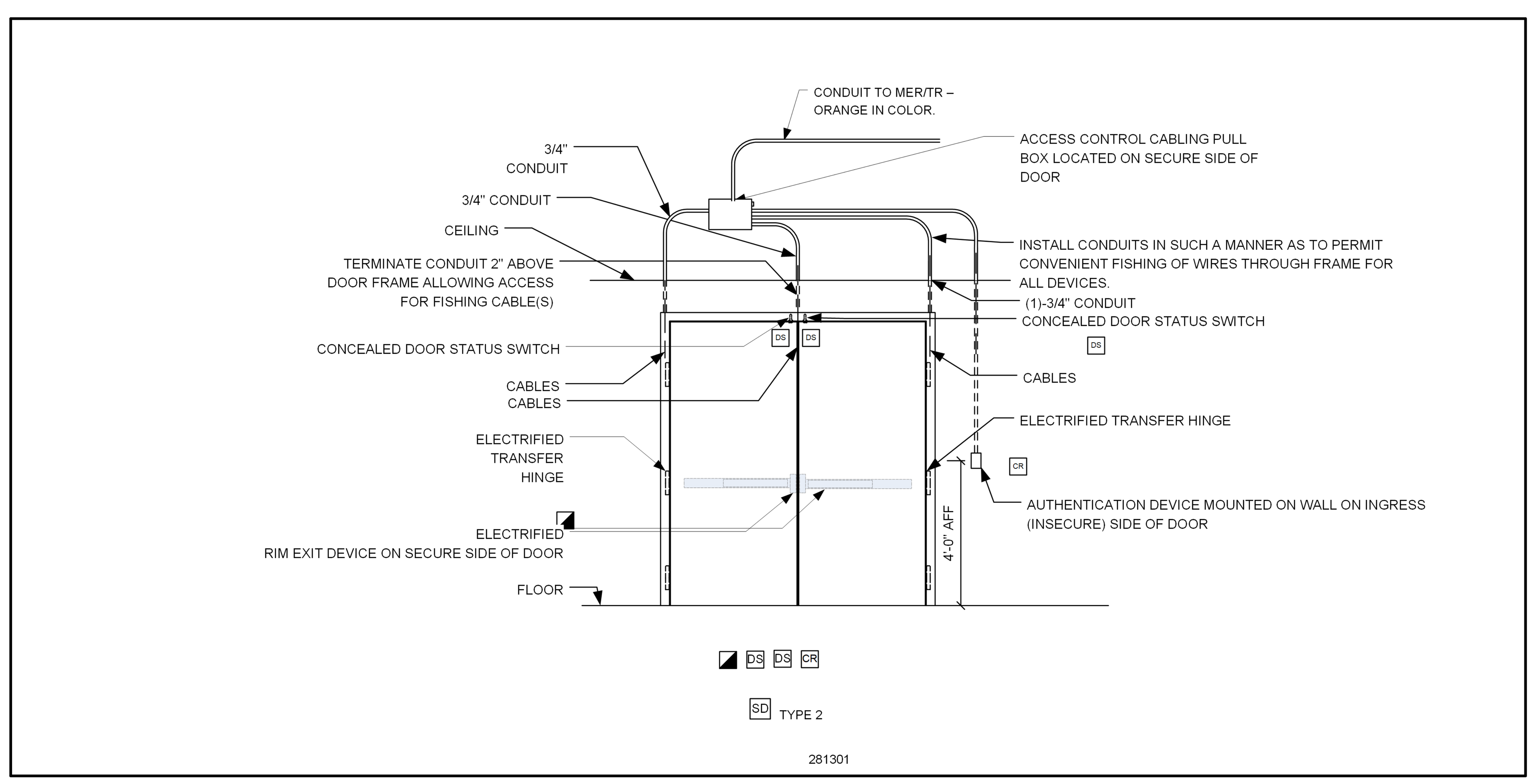
NTS



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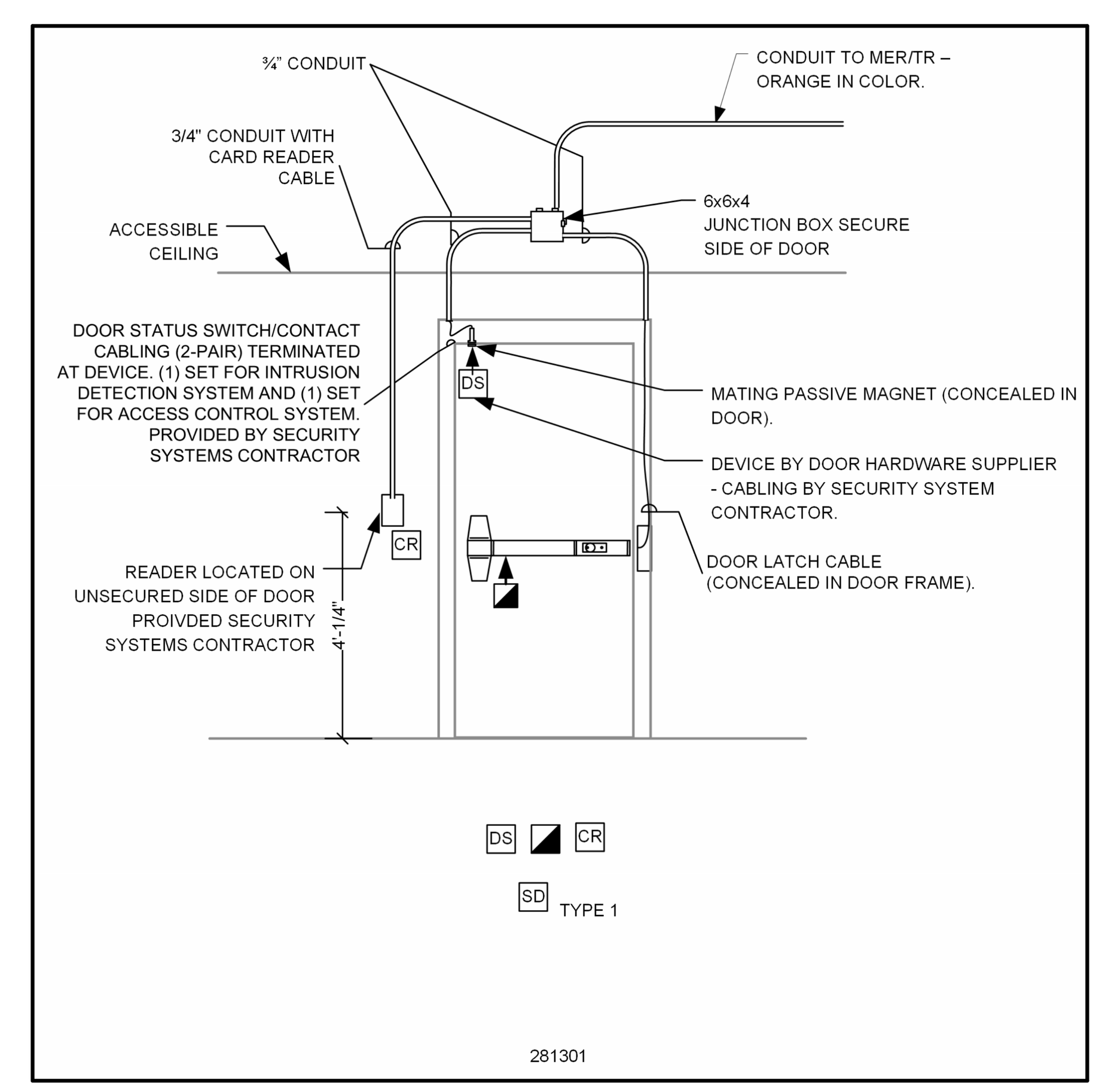

1 **270528 SECURE DOOR TYPE 1**
NTS

AECOM

PROJECT

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PROJECT NUMBER

PBC: #07215   AECOM: 60710711

SHEET TITLE

SECURITY CONDUIT AND PATHWAY DETAILS

SHEET NUMBER

T771

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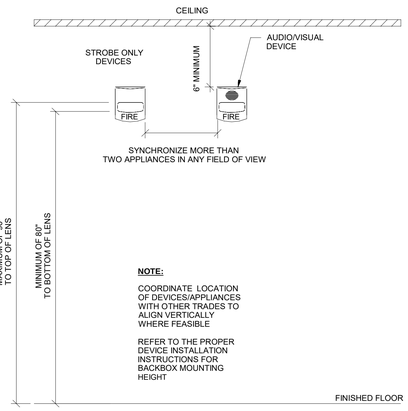
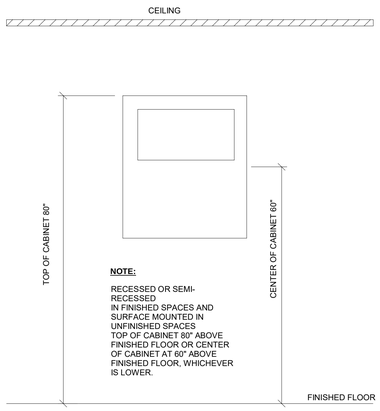
FIRE ALARM INPUT/OUTPUT MATRIX

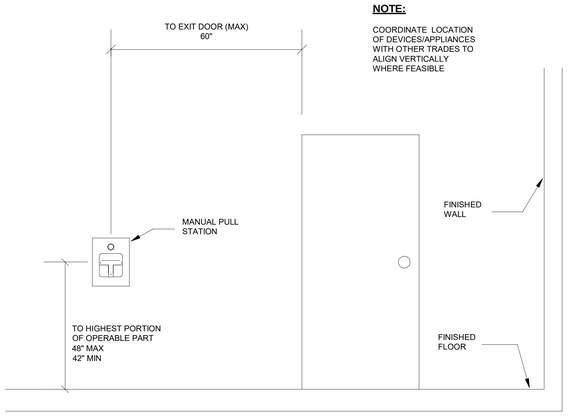
				SYSTEM OUTPUTS												
				FACU & FAAP				NOTIFICATION					SAFETY CONTROL			
								EMERGENCY COMMUNICATIONS		REMOTE SIGNAL TRANSMITTAL			ELEVATORS			
				ACTIVATE COMMON ALARM SIGNAL INDICATOR & AUDIBLE ALARM SIGNAL	ACTIVATE COMMON SUPERVISORY SIGNAL INDICATOR & AUDIBLE SUPERVISORY SIGNAL	ACTIVATE COMMON TROUBLE SIGNAL INDICATOR & AUDIBLE TROUBLE SIGNAL	DISPLAY LCD CHANGE OF STATUS AND PRINT OUTPUT	ACTIVATE FIRE ALARM STROBES AND HORNS	ACTIVATE ASSOCIATED REMOTE INDICATOR FOR ACCESS TO FIRE SYSTEMS	SEND ALARM SIGNAL TO RECEIVING STATION	SEND SUPERVISORY SIGNAL TO RECEIVING STATION	SEND TROUBLE SIGNAL TO RECEIVING STATION	RECALL ASSOCIATED ELEVATORS TO PRIMARY RECALL FLOOR (LEVEL 1)	RECALL ASSOCIATED ELEVATORS TO ALTERNATE RECALL FLOOR (LEVEL 2)	SHUT DOWN ASSOCIATED HVAC UNIT AND/OR DAMPER
				A	B	C	D	E	F	G	H	I	J	K	L
SYSTEM INPUTS	ALARM INITIATING DEVICES	1	SPRINKLER WATER FLOW SWITCH	●			●	●		●					
		2	MANUAL PULL STATION	●			●	●		●					
		3	SMOKE DETECTOR (AREA)	●			●	●		●					
		4	SMOKE DETECTOR (ELEVATOR LOBBY, LEVEL 1)	●			●	●		●				●	
		5	SMOKE DETECTOR (ELEVATOR LOBBY, NOT LEVEL 1)	●			●	●		●			●		
	SUPERVISORY INITIATING DEVICES	6	SPRINKLER SUPERVISORY (TAMPER) SWITCH		●		●				●				
		7	DUCT SMOKE DETECTOR		●		●		●		●				●
	TROUBLE CONDITIONS	8	FIRE ALARM SYSTEM LOW BATTERY			●	●					●			
		9	FIRE ALARM OPEN CIRCUIT			●	●					●			
		10	FIRE ALARM GROUND FAULT			●	●					●			
		11	FIRE ALARM SHORT			●	●					●			
		12	FIRE ALARM SYSTEM BATTERY CHARGER FAILURE			●	●					●			
		13	FIRE ALARM SYSTEM DEVICE COMMINICATION FAILURE			●	●					●			
		14	FIRE ALARM SYSTEM INITIATING DEVICE FAILURE			●	●					●			
		15	FIRE ALARM SYSTEM AMPLIFIER FAILURE			●	●					●			
		16	FIRE ALARM AC POWER FAILURE			●	●					●			
		17	FIRE ALARM CONTROL UNIT PROCESSOR FAILURE			●	●					●			



AUDIO/VISUAL DEVICE INSTALLATION HEIGHT 1
Scale: N.T.S.



RCP AND FAA MOUNTING HEIGHT 2
Scale: N.T.S.



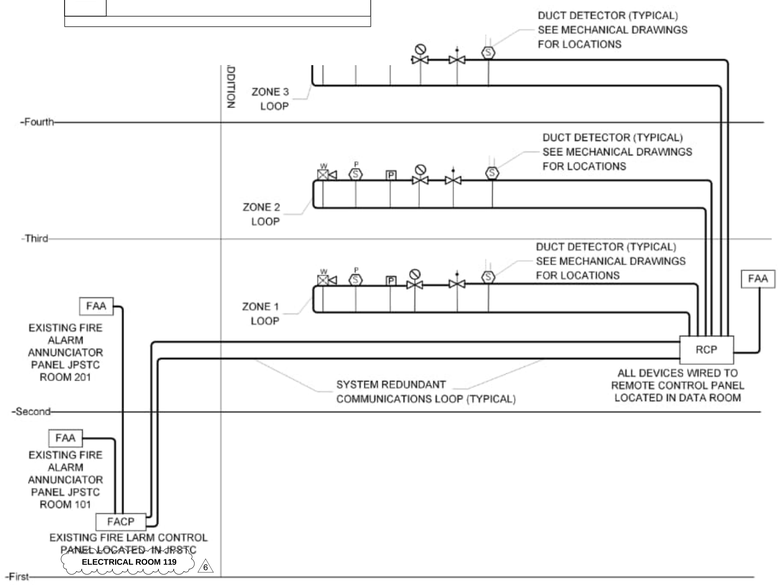
MANUAL PULL STATION INSTALLATION HEIGHT 3
Scale: N.T.S.

FIRE ALARM SYMBOLS

	MANUAL PULL STATION
	FIRE SERVICE OR EMERGENCY TELEPHONE J – JACK P – PHONE A – ACCESSIBLE FTS – FIRE FIGHTER S TELEPHONE SYSTEM
	HEAT DETECTOR R/F – RATE OF RISE AND FIXED TEMPERATURE R/C – RATE OF COMPENSATION F – FIXED TEMPERATURE R – RATE OF RISE ONLY
	SMOKE DETECTOR P – PHOTOELECTRIC I - IONIZATION BR – BEAM RECIEVER ASD – AIR SAMPLING BT – BEAM TRANSMITTER R – ELEVATOR RECALL
	SMOKE DETECTOR FOR DUCT
	SMOKE/HEAT DETECTOR
	FLOW DETECTOR/SWITCH
	PRESSURE DETECTOR/SWITCH W – WATER LA – LOW AIR HA – HIGH AIR
	TAMPER DETECTOR/SWITCH
	COMBINATION WATER FLOW AND TAMPER DETECTOR/SWITCH
	TAMPER SWITCH
	AUTOMATIC NOTIFICATION DIALER
	RELAY
	AUDIO DEVICE (WALL MOUNTED)
	AUDIO DEVICE (CEILING MOUNTED)
	TROUBLE BELLS
	WALL MOUNTED STROBE
	STROBE (CEILING MOUNTED)
	AUDIO/VISUAL COMBINATION (WALL MOUNTED)
	AUDIO/VISUAL COMBINATION (CEILING MOUNTED)
RTS	**REMOTE TEST SWITCH**
	MAGNETIC DOOR HOLDER FLOOR/DOOR
FACP	**FIRE ALARM CONTROL PANEL**
FAA	**FIRE ALARM GRAPHIC ANNUNCIATOR PANEL**
RCP	**REMOTE COMMUNICATIONS PANEL**
RA	**REMOTE INDICATOR**

GENERAL NOTES

1. EXPAND EXISTING ADDRESSABLE FIRE ALARM SYSTEM AS SHOWN ON THESE DRAWING. ALL MODIFIED OR NEW WORK SHALL COMPLY WITH 2019 CHICAGO BUILDING CODE, NFPA 70 (2017), NFPA 72 (2016), AND OWNER REQUIREMENTS.
2. DRAWINGS ARE SCHEMATIC IN NATURE AND ARE INTENDED TO SPECIFY BASIC DESIGN PARAMETERS. DRAWINGS SHOW APPROXIMATE LOCATIONS OF DEVICES AND FIRE ALARM EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR FINAL DEVICE LAYOUT IN ACCORDANCE WITH NFPA 72. VOLTAGE DROP CALCULATIONS, WIRING DIAGRAMS, BATTERY CALCULATIONS AND ANY NAC EXPANDERS THAT ARE NECESSARY.
3. AUDIBLE ALARM SHALL SOUND A MINIMUM OF 70 DBA, OR 15 DBA ABOVE AMBIENT SOUND LEVEL THROUGHOUT AREAS IN THE BUILDING SCOPE OF WORK. CONTRACTOR SHALL ADJUST POWER TAPS AND/OR INSTALL ADDITIONAL DEVICES AS NECESSARY TO MEET THIS REQUIREMENT. SOUND PRESSURE MUST NOT EXCEED 110 DBA.
4. ALL VISUAL NOTIFICATION APPLIANCES SHALL BE FIELD SELECTED IN ACCORDANCE WITH NFPA 72 SPACING AND ROOM SIZE REQUIREMENTS. ALL VISUAL NOTIFICATION APPLIANCES SHALL BE SYNCHRONIZED WITHIN THE FIELD OF VIEW. CEILING MOUNTED DEVICES SHALL BE MOUNTED CENTER OF TILE.
5. LOCATE ALL SMOKE DETECTORS A MINIMUM OF 3 FEET FROM RETURN AIR OPENINGS OR AIR SUPPLY DIFFUSERS.
6. ALL NOTIFICATION DEVICES SHALL BE FIELD SELECTABLE FOR CANDELA AND/OR WATTAGE.
7. CONTRACTOR SHALL PERFORM BATTERY CALCULATIONS AND VOLTAGE DROP CALCULATIONS IN ACCORDANCE WITH NFPA 72. NOTIFICATION APPLIANCE CIRCUITS SHALL HAVE A MINIMUM OF 25 PERCENT SHARE CAPACITY.
8. FIRESTOP PENETRATIONS THROUGH RATED ASSEMBLIES WITH APPROVED MATERIALS IN ACCORDANCE WITH ASTM E-814.
9. ALL FIRE ALARM EQUIPMENT SHALL BE UL LISTED FOR FIRE ALARM SYSTEM USE.
10. WIRE SHALL BE LOOPED THROUGH DEVICES. BUT MUST BE CUT FOR EACH INCOMING AND OUTGOING WIRE. DO NOT "T" TAP INITIATION OR NOTIFICATION CIRCUITS.
11. PROVIDE POWER EXTENDER PANELS AS REQUIRED PER SYSTEM MANUFACTURER TO SUPPORT THE NUMBER OF DEVICES RECOMMENDED BY THE SYSTEM MANUFACTURER. FIRE ALARM CONTRACTOR SHALL CARRY AN ALLOWANCE FOR A MINIMUM OF ONE POWER SUPPLY PANEL PER FLOOR AND SHALL COORDINATE REQUIRED CIRCUIT WITH ELECTRICAL CONTRACTOR.
12. QUANTITY OF END OF LINE RESISTORS TO BE DETERMINED BY FIRE ALARM CONTRACTOR. END OF LINE RESISTORS SHALL BE LOCATED INSIDE ELECTRICAL OR MECHANICAL ROOMS IN ACCESSIBLE LOCATIONS.
13. SEE FLOOR PLAN FOR LOCATION AND NUMBER OF FIRE ALARM INITIATING DEVICES AND NOTIFICATION APPLIANCES.
14. ALL FIRE ALARM DEVICES SHALL BE NEW.
15. FIRE ALARM RISER DIAGRAM SHOWN IS FOR GENERAL ARRANGMENT AND SHALL BE USED FOR ESTIMATING ONLY. FIRE ALARM CONTRACTOR SHALL VERIFY FIELD CONDITIONS AND OBTAIN POINT TO POINT WIRING DIAGRAM PRIOR TO INSTALLATION THAT IS CONSISTENT WITH LOCAL FIRE DEPARTMENT REQUIREMENTS.
16. FIRE ALARM CONTRACTOR SHALL SUBMIT FLOOR PLAN SHOW DRAWINGS INDICATING LOCATION OF ALL DEVICES, WIRING OF DEVICES, BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS FOR WIRING RUNS DEMOSTRATING A WORST CASE SCENARIO, AND ALL CIRCUITS ON FLOOR. SHOP DRAWINGS SHALL ALSO INDICATE LOCATION OF END OF LINE RESISTORS. FIRE ALARM CONTRACTOR SHALL SUBMIT ALL PRODUCT DATA SHEETS AS PART OF THEIR SUBMITTAL PACKAGE.
17. PROVIDE A MINIMUM OF:
    A) TWO (2) CIRCUITS PER FLOOR FOR FIRE ALARM SYSTEM AUDIBLE DEVICES.
    B) TWO (2) CIRCUITS PER FLOOR FOR FIRE ALARM STROBES.
    C) CONNECT AUDIBLE DEVICES AND STROBES ON ALTERNATING CIRCUITS SO THAT THE FAILURE OF ONE CIRCUIT WILL NOT DISABLE TOTAL ALARM AUDIBILITY THOUGHT THE FLOOR. DEVICES SHALL BE ALTERNATELY WIRE THROUGHOUT THE FLOOR SO THAT NO TWO DEVICES, ADJACENT TO EACH OTHER IN A GIVEN FIELD OF VIEW SHALL BE ON THE SAME CIRCUIT.
18. STROBES SHALL BE WIRED SO THEY REMAIN ACTIVE AFTER SILENCE FUNTIONS IS PERFORMED.
19. DO NOT RUN FIRE ALARM CABLE IN SAME RACEWAY AS NON FIRE ALARM CABLE.
20. INSTALL CONDUIT AS HIGH AS PRACTICABLE TO MAINTAIN ADEQUATE HEAD ROOM SHOWN OR REQUIRED. COORDINATE WITH WORK OF OTHER TRADES TO ACHIEVE PROPER HEADROOM.
21. ALL FIRE ALARM PANELS, JUNCITON BOX COVERS, ETC. SHALL BE PAINTED "FIRE DEPARTMENT RED".
22. ALL DUCT DETECTROS INSTALLED CONCEALED ABOVE CEILING, ETC, SHALL BE PROVIDED WITH A REMOTE LED TO PROVIDE RAPID VISIBLE INDICATION OF DETECTOR LOCATION AND STATUS FROM THE OCCUPIED SPACE.
23. SHUTDOWN OF ANY MECHANICAL EQUIPMENT ON FLOOR SHALL BE PERFORMED VIA RELAY INTERFACE WITH THE FIRE ALARM SYSTEM.
24. AFTER ALARM INDICATION MECHANICAL EQUIPMENT SHALL BE MANUALLY RESSET INDEPENDENT OF FACP RESET.
25. WATER FLOW AND TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED BY SPRINKLER CONTRACTOR. DEVICES SHALL BE WIRED AND PROGRAMMED BY FIRE ALARM CONTRACTOR.
26. COORDINATE DUCT SMOKE DETECTOR WITH MECHANICAL CONTRACTOR. FIRE ALARM CONTRACTOR TO PROVIDE, INSTALL, WIRE AND PROGRAM DUCT SMOKE DETECTOR.



FIRE ALARM RISER
Scale: N.T.S.

AECOM

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2FM Fleet and Facility Management

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6-25-2024
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NORTH ARROW

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SHEET TITLE

FIRE ALARM GENERAL NOTES AND SYMBOLS

SHEET NUMBER

FA001