



Grossmont Union High School District

Foothills Adult Remodel and West Hills Science Renovation Multi-Prime CN-2447 – CN-2459 Addendum 02

Date: March 19, 2021

The following changes, additions, deletions, or corrections shall become a part of the Contract Documents dated March 1, 2021, for the project named above and all other conditions shall remain the same. The bidders shall be responsible for transmitting this information to all affected subcontractors and suppliers prior to the closing of bids.

BID OPENING REMAINS THE SAME, MARCH 24, 2021 at 2:00 PM.

CHANGES TO CONTRACT DOCUMENTS

- Item 1: **Attachment C:** Scope added to BP 03 Plumbing to cover the Laboratory Equipment and Laboratory Fume Hoods as required. See inclusions 2.3.32 and 2.3.33. Also reference updated Dot Matrix.
- Item 2: **Attachment C:** Scope revised in BP 04 Concrete & Site Furnishings to cover the deleted scope, i.e. truncated domes, parking bumpers, pavement markings, etc. as outlined in specification revisions noted herein. See deleted and revised inclusions 2.4.43, 2.4.44, 2.4.57 and 2.4.60. Also reference updated Dot Matrix.
- Item 3: **Attachment C:** Scope added to BP 10 Specialties to cover the Laboratory Fume Hoods as required. See inclusion 2.10.49. Also reference updated Dot Matrix.
- Item 4: **Attachment C:** Scope added to BP 11 HVAC & Controls to cover Laboratory Fume Hoods as required. See inclusion 2.11.25. Also reference updated Dot Matrix.
- Item 5: **Attachment C:** Scope added to BP 12 Electrical & Low Voltage to cover Laboratory Fume Hoods as required. See inclusion 2.12.38. Also reference updated Dot Matrix.
- Item 6: **Attachment C:** Updated FAEC Dot Matrix to reflect changes, additions, deletions, etc. in the specifications for the FAEC project. Added and/or revised "P" and "S" assignments as noted in red font accordingly.
- Item 7: **Attachment C:** Updated WHHS Dot Matrix to reflect changes, additions, deletions, etc. in the specifications for the WHHS project. Added and/or revised "P" and "S" assignments as noted in red font accordingly.
- Item 8: **Front End Documents:** Please use revised CN-2456 (BP #10) Specialties Bid Form.

CHANGES TO DRAWINGS [SEE ENCLOSED NARRATIVE FROM RUHNAU, SUMMARIZED HERE]

- Item 1: WHHS: Reference Sheet T-1 Title Sheet & Sheet Index: Replace Sheet T-1 in its entirety with attached revised Sheet T-1.
- Item 2: WHHS: Reference Sheet A-1.0 - Building 12 Floor Plan Demo: Replace Sheet A-1.0 in its entirety with attached revised Sheet A-1.0.
- Item 3: WHHS: Reference Sheet A-1.1 - Building 12 Floor Plan Mod Replace Sheet A-1.1 in its entirety with attached revised Sheet A-1.1.
- Item 4: WHHS: Reference Sheet A-7.4 - Building 12 Interior Elevations: Replace Sheet A-7.4 in its entirety with attached revised Sheet A-7.4.
- Item 5: WHHS: Reference Sheet A-7.5 - Building 12 Interior Elevations: Replace Sheet A-7.5 in its entirety with attached revised Sheet A-7.5.
- Item 6: WHHS: Reference Sheet E4.0- Communication Legend & Notes: Replace Sheet E4.0 in its entirety with attached revised Sheet E4.0.
- Item 7: WHHS: Reference Sheet E4.1- Level 1 Floor Plan- Communications: Replace Sheet E4.1 in its entirety with attached revised Sheet E4.1.
- Item 8: WHHS: Reference Sheet E4.5- Communications Details: Replace Sheet E4.5 in its entirety with attached revised Sheet E4.5.
- Item 9: WHHS: Reference Sheet E4.6- Communications Details: Add New Sheet E4.6 in its entirety.
- Item 10: FAEC: Reference Sheet T-1 Title Sheet & Sheet Index: Replace Sheet T-1 in its entirety with attached revised Sheet T-1.
- Item 11: FAEC: Reference Sheet AS-1.1A- Demolition Site Plan: Replace Sheet AS-1.1A in its entirety with attached revised Sheet AS-1.1A.
- Item 12: FAEC: Reference Sheet AS-1.2- Enlarged Site Plan: Replace Sheet AS-1.2 in its entirety with attached revised Sheet AS-1.2.
- Item 13: FAEC: Reference Sheet A1-1.1 – Floor Plan-Demo: Replace Sheet A1-1.1 in its entirety with attached revised Sheet A1-1.1
- Item 14: FAEC: Reference Sheet A1-1.2 – Floor Plan-New: Replace Sheet A1-1.2 in its entirety with attached revised Sheet A1-1.2.
- Item 15: FAEC: Reference Sheet A1-2.1 – Reflected Ceiling Plan- Demo: Replace Sheet A1-2.1 in its entirety with attached revised Sheet A1-2.1.
- Item 16: FAEC: Reference Sheet A1-2.2 – Reflected Ceiling Plan- New: Replace Sheet A1-2.2 in its entirety with attached revised Sheet A1-2.2.
- Item 17: FAEC: Reference Sheet A1-7.5 – Enlarged Plans & Interior Elevations: Reference Sheet A1-7.5 – Enlarged Plans & Interior Elevations.
- Item 18: FAEC: Reference Sheet A8.1 – Door Schedule & Window Types: Reference Sheet A8.1 – Door Schedule & Window Types.
- Item 19: FAEC: Reference Sheet AD6.1 – Door & Window Details: Replace Sheet AD6.1 in its entirety with attached revised Sheet AD6.1.
- Item 20: FAEC: Reference Sheet AD7.1 – Details: Replace Sheet AD7.1 in its entirety with attached revised Sheet AD7.1.
- Item 21: FAEC: Reference Sheet E1.0- Electrical Symbols and Notes: Replace Sheet E1.0 in its entirety with attached revised Sheet E1.0
- Item 22: FAEC: Reference Sheet E1.1- Overall Site Plan: Replace Sheet E1.1 in its entirety with attached revised Sheet E1.1

- Item 23: FAEC: Reference Sheet E3.1- Floor Plan New A Power: Replace Sheet E3.1 in its entirety with attached revised Sheet E3.1.
- Item 24: FAEC: Reference Sheet E3.2- Floor Plan New B Power: Replace Sheet E3.2 in its entirety with attached revised Sheet E3.2.
- Item 25: FAEC: Reference Sheet E4.0- Communication Legend and Notes: Sheet E4.0 in its entirety with attached revised Sheet E4.0.
- Item 26: FAEC: Reference Sheet E4.1- Floor Plan New A Communications: Replace Sheet E4.1 in its entirety with attached revised Sheet E4.1.
- Item 27: FAEC: Reference Sheet E4.2- Floor Plan New B Communications: Replace Sheet E4.2 in its entirety with attached revised Sheet E4.2.
- Item 28: FAEC: Reference Sheet E4.2.1- Enlarged Site Building Communications: new Sheet E4.2.1 in its entirety.
- Item 29: FAEC: Reference Sheet E4.4- Communications Details: Replace Sheet E4.4 in its entirety with attached revised Sheet E4.4.
- Item 30: FAEC: Reference Sheet E4.8- Audio Visual System Details: Add new Sheet E4.8 in its entirety.
- Item 31: FAEC: Reference Sheet E10.1- Floor Plan Demo A: Replace Sheet E10.1 in its entirety with attached revised Sheet E10.1.
- Item 32: FAEC: Reference Sheet E10.2- Floor Plan Demo B: Replace Sheet E10.2 in its entirety with attached revised Sheet E10.2.

CHANGES TO SPECIFICATIONS [SEE ENCLOSED NARRATIVE FROM RUHNAU, SUMMARIZED HERE]

- Item 1: FAEC: Reference Specification Section 00 01 10: Replace Specification Section 00 01 10 – Table of Contents in its entirety with attached, revised section 00 01 10.
- Item 2: FAEC: Reference Specification Section 01 78 01: Add new Specification Section 01 78 01 Warranty Letter Form in its entirety.
- Item 3: FAEC: Reference Specification Section 08 06 71: Replace Specification Section 08 06 71 Door Hardware Schedule in its entirety with revised section 08 06 71.
- Item 4: FAEC: Reference Specification Section 08 43 13: Replace Specification Section 08 43 13 Aluminum-Framed Storefronts in its entirety with revised section 08 43 13.
- Item 5: FAEC: Reference Specification Section 08 80 00: Replace Specification Section 08 80 00 Glazing in its entirety with revised section 08 80 00.
- Item 6: FAEC: Reference Specification Section 10 14 53: Remove Specification Section 10 14 53 – Traffic, Parking & Site Signage in its entirety.
- Item 7: FAEC: Reference Specification Section 27 10 00: Replace Specification Section 27 10 00 Voice Data Infrastructure in its entirety with revised section 27 10 00.
- Item 8: FAEC: Reference Specification Section 27 20 00: Replace Specification Section 27 20 00 Integrated Audio/Visual System in its entirety with revised section 27 20 00.
- Item 9: FAEC: Reference Specification Section 28 13 00: Add new Specification Section 28 13 00 Security System in its entirety.
- Item 10: FAEC: Reference Specification section 32 17 13: Remove Specification Section 32 17 13 Parking Bumpers in its entirety.
- Item 11: FAEC: Reference Specification section 32 17 23.13: Remove Specification Section 32 17 23.13 Painted Pavement Marking in its entirety.

- Item 12: FAEC: Reference Specification section 32 17 26: Remove Specification Section 32 17 26 Tactile Warning Surfacing in its entirety.
- Item 13: WHHS: Reference Specification section 00 01 10: Replace Specification Section 00 01 10 – Table of Contents in its entirety with attached, revised section 00 01 10.
- Item 14: WHHS: Reference Specification Section 05 52 13: Add Specification Section 05 52 13 Pipe and Tube Railings to the Table of Contents.
- Item 15: WHHS: Reference Specification Section 11 53 13: Add new Specification Section 11 53 13 Laboratory Fume Hoods in its entirety.
- Item 16: WHHS: Reference Specification Section 12 61 10: Replace Specification Section 12 61 10 Fixed Lecture Seating in its entirety with attached Specification Section 12 61 00.
- Item 17: WHHS: Reference Specification Section 27 20 00: Replace Specification Section 27 20 00 – Integrated Audio/Visual System in its entirety with attached Specification Section 27 20 00.

CLARIFICATIONS

- Item 1: Pre-Bid RFI Answer Log

Chris Rizzuti

Digitally signed by Chris Rizzuti
DN: C=US,
E=crizzuti@guhds.net,
O="Gafcon, Inc.", OU=GUHSD
Bond Program, CN=Chris
Rizzuti
Date: 2021.03.19
11:58:55-07'00'


Chris Rizzuti, Sr. Project Manager
GUHSD

WHHS & FAEC Multi-Prime
Addendum 02



Updates to Bid Packages

BID PACKAGE #03 – PLUMBING & UNDERGROUND UTILITIES DIVISION OF WORK

- 2.3. **BID PACKAGE #03 – “PLUMBING & UNDERGROUND UTILITIES”** – Prime Contractor is responsible for coordinating and providing all plant, labor, material, equipment, tools, facilities, transportation, applicable taxes, permits, services and coordination necessary for, and incidental to accomplish the work (unless specifically noted otherwise), in accordance with the complete contract documents, and ensure coordination of work between the multiple bid packages for a complete turnkey and operable system at the school sites Foothills Adult Education Center (FAEC) & West Hills HS Science Bldg. (WHHS) Modernization projects, which shall include, but not be limited to the following;

- 2.3.1 FAEC I As-Built Documents I Attachment O
- 2.3.2 FAEC I Titan ES I Technical Specifications I Attachment G
- 2.3.3 FAEC I Titan ES I Hazardous Materials Survey Report & Floor Plan I Attachment H
- 2.3.4 FAEC I Titan ES I Hazardous Materials Abatement Specifications I Attachment I
- 2.3.5 FAEC I Ruhnau Clarke Architects | Drawings I Attachment E
- 2.3.6 FAEC I Ruhnau Clarke Architects | Specifications
- 2.3.7 FAEC I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
- 2.3.8 FAEC I Ruhnau Clarke Architects | 01 00 00 – General Requirements – Complete
- 2.3.9 FAEC I Ruhnau Clarke Architects | 02 41 00 - Demolition
- 2.3.10 FAEC I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants
- 2.3.11 FAEC I Ruhnau Clarke Architects | 08 31 00 - Access Doors and Panels
- 2.3.12 FAEC I Ruhnau Clarke Architects | Division 22 – Plumbing – Complete
- 2.3.13 FAEC I Ruhnau Clarke Architects | 31 23 16.13 – Trenching
- 2.3.14 GUHSD | Front End Bid & Contract Documents
- 2.3.15 WHHS I As-Built Documents I Attachment N
- 2.3.16 WHHS I Group Delta I Hazardous Building Material Abatement Specifications I Attachment J
- 2.3.17 WHHS I Group Delta I Technical Lead-Related Specifications I Attachment F
- 2.3.18 WHHS I Ruhnau Clarke Architects | Drawings I Attachment D
- 2.3.19 WHHS I Ruhnau Clarke Architects | Specifications
- 2.3.20 WHHS I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
- 2.3.21 WHHS I Ruhnau Clarke Architects | 01 00 00 – General Requirements - Complete
- 2.3.22 WHHS I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants
- 2.3.23 WHHS I Ruhnau Clarke Architects | 08 31 00 - Access Doors and Panels
-  **2.3.24 WHHS I Ruhnau Clarke Architects | 11 53 00 – Laboratory Equipment**
- 2.3.25 WHHS I Ruhnau Clarke Architects | 11 53 13 – Laboratory Fume Hoods**
- 2.3.26 WHHS I Ruhnau Clarke Architects | Division 22 – Plumbing – Complete
- 2.3.27 FAEC & WHHS | Temporary Site Water

BID PACKAGE #03 – PLUMBING & UNDERGROUND UTILITIES DIVISION OF WORK

- 2.3.28 This Prime Contractor is responsible for coordinating, laying out, providing and installing all underground utilities and plumbing complete, including but not limited to water utilities, sanitary sewer, condensate piping, sleeves, escutcheons, meters, gages, hangers, supports, vibration and seismic controls, identification, piping insulation, domestic water, piping, pumps, sanitary waste and vent, fixtures, toilets, urinals, lavatories, sinks, roof drains (including reconnection of existing), trap primers, water hammer arresters, hose bibs and all necessary accessories and sundry items required for a complete and operable system, valves, unions, vents, etc. per contract documents.
- 2.3.29 This Prime Contractor is responsible for coordinating, laying out, providing and installing all plumbing fixtures including but not limited to sink assemblies, lavatories, drinking fountains, water heaters (including relocation of existing water heaters), floor sinks, faucets, floor drains, flush valves, hose bibs, overflow drains, recirculating pumps, urinals, water closets and all necessary accessories and sundry items required for a complete and operable system, per contract documents.
- 2.3.30 This Prime Contractor is responsible for **removing, storing & reinstalling** all plumbing fixtures, appliances and equipment shown to remove and *reinstall* after improvements are complete, including but not limited to urinals, water closets, sinks, water heaters, etc. Coordinate this activity to occur before the Demolition Prime Contractor starts their work. This Prime Contractor responsible for keeping items shown to reinstall in a secured, clean and dry storage area located on site.
- 2.3.31 This Prime Contractor responsible for coordinating, laying out, providing and installing all laboratory equipment noted in WHHS keynotes as “22.xxx”, including but not limited to laboratory station sink w/ faucet, glass washer, accessible sink w/ faucet, gas/air turret, accessible eye wash/face wash/shower equipment and reinstallation of existing laboratory equipment if shown to relocate. Ensure all items are fully functioning and complete. **This Prime Contractor responsible for all related railings and/or hand bars, shown as part of ADA compliance for equipment, i.e. railings at accessible eye wash/face wash/shower. Specification 05 52 13 Pipe and Tube Railings added to this Prime Contractor’s scope and to the WHHS Dot Matrix.**
-  **2.3.32 This Prime Contractor is responsible for coordinating, laying out and connecting plumbing, gas and other utility hook ups for all Division 11 Equipment and as shown on the contract drawings. Coordinate with Specialties and Electrical Prime Contractors as required.**
-  **2.3.33 This Prime Contractor is responsible for coordinating, connecting, laying out and providing ducting, duct connections, and other appurtenances as required to accommodate the new Laboratory Fume Hoods referenced in the added specification section 11 53 13. Coordinate with Specialties, HVAC and Electrical Prime Contractors as required for a complete and functional fume hood system. Coordinate wall openings with Finishes Prime Contractor as needed.**
- 2.3.34 This Prime Contractor is responsible to connect to building plumbing systems, equipment requiring water connection. This includes but is not limited to refrigerator, glass washer, ice machine, and other items shown as CFCI, OFCI and existing to relocate, that requires water connection to properly function.
- 2.3.35 This Prime Contractor is responsible for coordinating and protecting all existing utilities scheduled to remain. Take appropriate precautions when performing work in areas of existing utilities. Any damage done to known utilities will be repaired by this Plumbing Prime Contractor, at no cost to the project.
- 2.3.36 This Prime Contractor is obligated to test all existing lines supply, return and waste lines at both projects to confirm fully functional before connecting new pipe and systems to existing. See 2.3.55 and 2.3.57 for additional requirements.

BID PACKAGE #03 – PLUMBING & UNDERGROUND UTILITIES DIVISION OF WORK

- 2.3.37 This Prime Contractor is responsible for coordinating, laying out, engineering, providing and installing all shoring, and bracing necessary to protect existing buildings, stem walls, foundations, streets, walkways, sidewalks, utilities and other improvements and excavation against loss of ground or caving embankments.
- 2.3.38 This Prime Contractor is responsible for providing dewatering measures for duration of underground work. It should be assumed that water will be encountered during even shallow underground activities. Full responsibility to properly divert water, complying with all SWPPP and City Regulations, belongs to this Prime Contractor. All water to be diverted outside of interior spaces. Interior finishes shall all remain protected from water or damage associated with this activity.
- 2.3.39 This Prime Contractor is responsible for coordinating, laying out, providing and installing building water distribution piping, all plumbing fixtures, equipment and all necessary accessories and sundry items required for a complete and operable building plumbing system per the contract documents.
- 2.3.40 This Prime Contractor is responsible for coordinating, laying out, providing, installing, protecting, maintaining construction water for all project phases including but not limited to providing and removing one (1) temporary site water risers at each site for use by all Prime Contractors during construction. This Prime Contractor is responsible to provide, install and maintain one connection to the existing domestic water system, at each site and backflow assembly for use by all Prime Contractors during construction.
- 2.3.41 This Prime Contractor is responsible for coordinating, laying out, providing and installing the domestic water system complete, including but not limited to piping, tracer wire, valves, fittings, thrust blocks, marker tape, valve boxes, junction chambers, back flow preventers and cages, concrete pads and all necessary accessories and sundry items required for a complete and operable system, per contract documents, including but not limited plans, specifications, soils report, etc.
- 2.3.42 This Prime Contractor is responsible for coordinating, providing and installing j-clamps at all sinks, with a sealant between the sink and the countertop.
- 2.3.43 This Prime Contractor is responsible to coordinate and provide chlorination or sterilization of water systems as required, including certification.
- 2.3.44 This Prime Contractor is responsible for coordinating, providing and installing all excavation, dewatering, shoring, bedding material, backfill and compaction for own work, per contract documents. Subgrade final compaction elevation shall be coordinated with Concrete Prime Contractor.
- 2.3.45 This Prime Contractor is responsible to provide insulation of own work.
- 2.3.46 This Prime Contractor is responsible for coordinating, laying out, providing and installing sanitary sewer system complete including but not limited to all waste system, piping, cleanouts, boxes, appurtenances, connecting to existing city system, and all necessary accessories and sundry items required for a complete and operable system, per contract documents, including but not limited to plans, specifications and soils report, etc.
- 2.3.47 This Prime Contractor responsible for all layout, survey and staking as required for own work.
- 2.3.48 This Prime Contractor is responsible for returning all areas previously graded back to its original state after underground utilities have been installed. This Prime Contractor responsible for rock removal, for own work.
- 2.3.49 This Prime Contractor is responsible to provide import backfill material, if required due to unsuitability of onsite materials or not enough material to meet grade.

BID PACKAGE #03 – PLUMBING & UNDERGROUND UTILITIES DIVISION OF WORK

- 2.3.50 This Prime Contractor is responsible for coordinating, laying out, providing and installing all miscellaneous metal and hardware (i.e., grates, frames, covers, ladder rungs, etc.), as required for own work.
- 2.3.51 This Prime Contractor is responsible for immediately removing their own spoils. Stockpiles will not be allowed unless otherwise authorized by the Construction Manager and/or required for follow-on work. This Prime Contractor is responsible for tarp or heavy polyethylene and sandbags covering stockpile spoils while it is being generated, and maintenance of same, as required by SWPPP compliance regulation (if stockpiling indoors is authorized by the Construction Manager) and shall be stored in such a manner that all interior conditions are protected and kept free from dirt, dust, debris, until removal of spoils.
- 2.3.52 This Prime Contractor to remove and immediately dispose of spoils from site, including their tarp, heavy polyethylene, sandbags and hay bales, that was utilized to cover own stockpiled soils, as coordinated and directed by the Construction Manager. Site is tight, stock piles will not be allowed.
- 2.3.53 This Prime Contractor is responsible for coordinating, laying out, providing and installing slurry at underground plumbing utilities that cross under footings per structural details. Coordinate the bottom of footing elevation with Concrete Prime Contractor.
- 2.3.54 This Prime Contractor is responsible for coordinating, laying out, providing and installing all concrete associated with own work, if not shown as new in contract documents (if shown as new concrete, responsibility remains with BP #4 CONCRETE) including but not limited to precast, cast-in-place, reinforcing, manholes, cleanouts, encasements, thrust blocks, etc. Includes patch back for walkways, flatwork, etc.
- 2.3.55 This Prime Contractor is responsible for dust control during own operations.
- 2.3.56 In the event of inclement weather forecasts, this Prime Contractor is responsible for coordinating, providing, installing, maintaining and removing temporary rain protection due to own work, such as visqueen, to protect finishes below. This Prime Contractor shall ensure there is no ponding and water drains off roof.
- 2.3.57 This Prime Contractor is responsible to provide all pressure tests, cross connection tests, purging, analyzing, and test reports of systems as required.
- 2.3.58 All underground utilities shall be installed and tested prior to finish work.
- 2.3.59 This Prime Contractor is responsible to provide all flushing, testing, chlorination, inspection, balancing and maintenance of own work until Owner acceptance.
- 2.3.60 This Prime Contractor is responsible to provide and install joint sealants, fire sealants, sleeves, sleeve seals, escutcheons, beauty rings, flashing, meters and gages, valves, seismic anchorage, bracing, vibration isolation, embeds, inserts, anchors, sleepers, hangers, supports, and backing plates for own work as required.
- 2.3.61 **This Prime Contractor is responsible for jetting of all sewer lines prior to start of work to confirm system is fully functioning before beginning improvements and shall jet all sewer lines again at end of project.** Pressure jetting to be from each input on site to point of connection at street. Jetting of sewer system will also include branch lines from all bathrooms and all main trunk lines inside the building. After jetting is complete, lines are to be videoed with a camera with copy of video turned over to district. The Construction Manager to be notified 48 hours in advance of any jetting and / or video activity.
- 2.3.62 This Prime Contractor is responsible for reconnecting any condensate drain systems disconnected as part of the work and ensuring reconnections are tested and confirmed fully functioning.
- 2.3.63 This Prime Contractor is responsible for connecting laboratory equipment shown as CFCl, under Division 11, and existing or Owner Furnished appliances, to building water supply, as required.

BID PACKAGE #03 – PLUMBING & UNDERGROUND UTILITIES DIVISION OF WORK

- 2.3.64 This Prime Contractor is responsible for coordinating, laying out, providing and installing blocking required to support own work.
- 2.3.65 This Prime Contractor is responsible for coordinating, laying out, providing and installing sealants, caulking, and fire stopping at own penetrations. Provide caulking at all dissimilar materials.
- 2.3.66 This Prime Contractor is responsible for coordinating, laying out, providing and installing fire stopping associated with own work. All Fire Stopping shall be "RED" in color for identification purposes. As a part of the submittal process, this Prime Contractor shall provide UL details for all penetrations, for own work. If a UL detail is not available for a specific penetration related to this Prime Contractor's work, it will be this Prime Contractor's responsibility to have an evaluation and prescription provided for all special penetrations.
- 2.3.67 This Prime Contractor is responsible to provide and install identification of own work as required.
- 2.3.68 This Prime Contractor is responsible for coordinating, laying out, providing and installing own access doors and panels, as required per code whether shown on the contract drawings or not, and is responsible for coordinating and providing other Prime Contractors with coordination drawings, rough-in drawings and detailed working drawing for coordination, layout and rough-in requirements.
- 2.3.69 This Prime Contractor is responsible to provide and install own sleeving and blockouts at wall, and floor penetrations and mechanical sleeve seals for own work. Coordinate with Concrete, Finishes and Rough Carpentry Prime Contractors as required.
- 2.3.70 This Prime Contractor is responsible to provide a competent person onsite during all concrete pours to monitor own work and ensure components in concrete are not disturbed and are at proper elevation and configuration.
- 2.3.71 This Prime Contractor is responsible to provide coring, cutting and drilling for own penetrations in any surface should Prime Contractor fail to install sleeves or block-outs or fail to layout in advance.
- 2.3.72 This Prime Contractor shall excavate, backfill, cap off and remove/demo its respective underground utilities. Removal of above-ground utilities shall be provided by the Demolition Prime Contractor after being capped and safed off by this Prime Contractor.
- 2.3.73 This Prime Contractor shall coordinate with all applicable Prime Contractors, including the Demolition Prime Contractor to expose all Above-Ground Utilities that are required to be safed off, capped off and/or relocated for this plumbing scope of work.
- 2.3.74 This Prime Contractor is responsible to provide and install flashing, caulking and sheet metal associated with own work. This Prime Contractor is responsible to provide and install dissimilar material and corrosion protection.
- 2.3.75 This Prime Contractor is responsible coordinate and provide final water temperature adjustments, prior to completion of work, to ensure equipment is set to specified water temperature requirements. In the absence of a requirement, this Prime Contractor shall submit an RFI.
- 2.3.76 This Prime Contractor is responsible to provide operational testing and instruction to Owner's personnel. Submit certificate of compliance signed by Owner's representative to Construction Manager upon completion of instruction for each site.
- 2.3.77 This Prime Contractor is responsible for providing one qualified laborer for a total of **20 hours for WHHS** and **20 hours for FAEC** for additional clean up while performing work on site per schedule as directed by Construction Manager. Each Prime Contractor still responsible for cleanup of own work. All hours to be directed and documented by Construction Manager. All unused hours will be credited back, via deductive change order.



BID PACKAGE #03 – PLUMBING & UNDERGROUND UTILITIES DIVISION OF WORK

- 2.3.78 This Prime Contractor shall coordinate their Work above ceiling, in chases, under slab, and in wall systems with the Work of other trades to insure proper space utilization and conformance with the requirements of the Contract Documents. Conflicts arising from this Prime Contractor's failure to coordinate will be the responsibility of this Prime Contractor to resolve. All applicable Prime Contractor's shall jointly prepare, with HVAC and Plumbing, Electrical, Framing, and all other pertinent Prime Contractors to overlay drawings indicating the vertical and horizontal routing of pipes, bracing and accessories so as to avoid any conflicts. All applicable Prime Contractor's, including but not limited to Mechanical HVAC, Electrical, Plumbing, will be responsible for attending weekly and or bi-weekly MEP coordination and/or BIM meetings. This Prime Contractor understands that the coordination and/or BIM meetings may begin prior to mobilization on site.



END OF BID PACKAGE

BID PACKAGE #04 – CONCRETE, SITE FURNISHINGS, SITE WORK, STRIPING DIVISION OF WORK

- 2.4. **BID PACKAGE #04 – “CONCRETE AND SITE FURNISHINGS”** – Prime Contractor is responsible for coordinating and providing all plant, labor, material, equipment, tools, facilities, transportation, applicable taxes, permits, services and coordination necessary for, and incidental to accomplish the work (unless specifically noted otherwise), in accordance with the complete contract documents, and ensure coordination of work between the multiple bid packages for a complete turnkey and operable system at the school site Foothills Adult Education Center (FAEC) & West Hills HS Science Bldg. (WHHS) Modernization projects, which shall include, but not be limited to the following;

- 2.4.1. FAEC I As-Built Documents I Attachment O
- 2.4.2. FAEC I Titan ES I Technical Specifications I Attachment G
- 2.4.3. FAEC I Titan ES I Hazardous Materials Survey Report & Floor Plan I Attachment H
- 2.4.4. FAEC I Titan ES I Hazardous Materials Abatement Specifications I Attachment I
- 2.4.5. FAEC I Ruhnau Clarke Architects | Drawings I Attachment E
- 2.4.6. FAEC I Ruhnau Clarke Architects | Specifications
- 2.4.7. FAEC I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
- 2.4.8. FAEC I Ruhnau Clarke Architects | 01 00 00 – General Requirements - Complete
- 2.4.9. FAEC I Ruhnau Clarke Architects | Division 03 – Concrete - Complete
- 2.4.10. FAEC I Ruhnau Clarke Architects | 05 05 19 - Post-Installed Concrete Anchors
- 2.4.11. FAEC I Ruhnau Clarke Architects | 05 50 00 - Metal Fabrications
- 2.4.12. FAEC I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants
-  2.4.13. ~~FAEC I Ruhnau Clarke Architects | 10 14 53 – Traffic, Parking and Site Signage~~
- 2.4.14. FAEC I Ruhnau Clarke Architects | 13 31 33.10 - Single Post Fabric Shade Structure
- 2.4.15. FAEC I Ruhnau Clarke Architects | 31 23 16.13 – Trenching
- 2.4.16. FAEC I Ruhnau Clarke Architects | 32 12 16 – Asphalt Paving
- 2.4.17. FAEC I Ruhnau Clarke Architects | 32 13 13 - Concrete Paving
- 2.4.18. ~~FAEC I Ruhnau Clarke Architects | 32 17 13 – Parking Bumpers~~
-  2.4.19. ~~FAEC I Ruhnau Clarke Architects | 32 17 23.13 – Painted Pavement Markings~~
- 2.4.20. ~~FAEC I Ruhnau Clarke Architects | 32 17 26 – Tactile Warning Surfacing~~
- 2.4.21. FAEC I Ruhnau Clarke Architects | 32 31 19 – Decorative Metal Fence and Gates
- 2.4.22. GUHSD | Front End Bid & Contract Documents
- 2.4.23. WHHS I As-Built Documents I Attachment N
- 2.4.24. WHHS | Group Delta I Hazardous Building Material Abatement Specifications I Attachment J
- 2.4.25. WHHS | Group Delta I Technical Lead-Related Specifications I Attachment F
- 2.4.26. WHHS I Ruhnau Clarke Architects | Drawings I Attachment D
- 2.4.27. WHHS I Ruhnau Clarke Architects | Specifications
- 2.4.28. WHHS I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
- 2.4.29. WHHS I Ruhnau Clarke Architects | 01 00 00 – General Requirements - Complete
- 2.4.30. WHHS I Ruhnau Clarke Architects | Division 03 – Concrete – Complete
- 2.4.31. WHHS I Ruhnau Clarke Architects | 05 05 19 - Post-Installed Concrete Anchors
- 2.4.32. WHHS I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants – As applies
- 2.4.33. WHHS I Ruhnau Clarke Architects | Division 32 – Exterior Improvements – Complete
- 2.4.34. FAEC & WHHS | Temporary Site Fencing & Gates

BID PACKAGE #04 – CONCRETE, SITE FURNISHINGS, SITE WORK, STRIPING DIVISION OF WORK

- 2.4.35. FAEC & WHHS | Site SWPPP BMPs
- 2.4.36. This Prime Contractor is responsible for laying out, providing and installing all concrete and associated accessories, appurtenances and sundry items to meet design and code requirements for all concrete, structural concrete, flatwork, curbs, slab on grade, depressed slabs, site light pole and/or shade structure bases, etc. at both projects, including but not limited to formwork, base, aggregate and granular fill, moisture plastic vapor and other vapor barriers as specified, underlayment, concrete reinforcement, thickened edges, dowels, expansions, control and construction joints, joint fillers, concrete vibration, finishing, curing as specified and grind and application of sealer, etc., as required by contract documents.
- 2.4.37. This Prime Contractor is responsible for replacing existing flatwork along the path of travel where indicated to achieve ADA compliance. Coordinate removal of existing flatwork with the Demolition Prime Contractor.
- 2.4.38. This Prime Contractor to comply with concrete tolerances per Contract Documents. Concrete expansion joints tooled or saw cut that causes “slab curl” will be this Prime Contractor’s responsibility to correct. This Prime Contractor responsible to meet all path of travel requirements, cross slopes, etc. for walkways.
- 2.4.39. This Prime Contractor is responsible for laying out, providing and installing all reinforcing steel, mesh, dowels, pile cap reinforcement, curb dowels, cages, etc., as required for concrete work complete, including welding if required, blocking, etc. Provide certified mill test reports as required for all rebar. Provide certified mill test reports as required for all rebar.
- 2.4.40. This Prime Contractor is responsible for layout, coordination, providing and installing of all permanent chain link fencing and gates, including but not limited to all footings, posts, latches, and other appurtenances as required for a completed, functional and accessible gate and fencing system.
- 2.4.41. This Prime Contractor is responsible for layout, coordination, providing and installing of all permanent decorative metal fence and gates, including but not limited to all footings, posts, latches, and other appurtenances as required for a completed, functional and accessible decorative gate and fencing system.
- 2.4.42. This Prime Contractor is responsible for layout, coordination, providing and installing of all asphalt, including but not limited to excavation, sub grade prep, finish grade, base, compaction, geogrid, asphalt sealer, tack coat, flood test, etc. as required for a complete and compliant installation.
- 2.4.43.  This Prime Contractor is responsible for layout, coordination, providing and installing of all painted pavement markings, including but not limited to all stencils, accessibility symbols, sand, seal and other item as required for a complete installation.
- 2.4.44.  This Prime Contractor is responsible for layout, coordination, providing and installing of all parking bumpers, complete.
- 2.4.45. This Prime Contractor is responsible to layout, coordinate, provide and install the site shade structure system complete. Including footings, screening, posts, anchor bolts, etc. as required for a complete stand-alone installation. See USA-Shade & Fabric Structures DSA P.C. 04-117140 plan sheet in the FAEC DSA Approved set.
- 2.4.46. This Prime Contractor is responsible for dewatering.

BID PACKAGE #04 – CONCRETE, SITE FURNISHINGS, SITE WORK, STRIPING DIVISION OF WORK

- 2.4.47. This Prime Contractor will be responsible for **providing, installing and removing all temporary fencing for the duration of both projects. See Site Logistics Plans for the required quantity of and location of fencing; bidder can assume at least 1,000 LF of temp fencing is required to secure the FAEC project and can assume at least 1,500 LF of temp fencing is required to secure the WHHS project.** Prime Contractor to include 200 LF of additional fencing for each project, to be utilized as directed by the Construction Manager, for either project. See additional requirements outlined in 2.4.75.
- 2.4.48. This Prime Contractor is responsible for concrete tolerance not to exceed 1/8" in 10' in any direction, or per specified tolerance requirements, whichever noted tolerance is stricter. This includes the requirement of this Contractor to meet finish flooring tolerances noted within Contract Documents, which may be more stringent than the tolerance noted here. Repair or replacement of any concrete work that does not meet specified tolerances is the responsibility of this Prime Contractor.
- 2.4.49. This Prime Contractor is responsible for coordinating, providing and installing all finished concrete to elevations required to meet floor level requirements and finish product tolerances as outlined within contract documents and submittals, including but not limited to at doorways, floor drains, flooring, etc. This Prime Contractor is responsible to coordinate with other Prime Contractors, their submittals, etc. as required to ensure final condition meets the most stringent tolerances. Failure to coordinate, and any costs associated with the removal and replacement of said work shall be borne by this Prime Contractor including any leveling, grinding or other methods utilized to achieve required finish flooring level tolerances.
- 2.4.50. This Prime Contractor is responsible for layout, coordination and installation of all items embedded in concrete at all rooms, including but not limited to templates, anchor plates, anchor bolts, hold down bolts, etc. This Prime Contractor shall coordinate with the Rough Carpentry Prime Contractor, Finishes Prime Contractor, Finish Carpentry and all other respective Prime Contractors to ensure placement of all embedded items and plumbing curbs are placed correctly per the provided shop drawings and contract drawings. **Concrete Prime Contractor shall notify each respective Prime Contractor a minimum of (2) two working days prior to needing them on site, and allow time for any needed corrections prior to concrete placement.** Any metal sleeve embedded in concrete shall be hot dipped galvanized whether shown as such or not. This Prime Contractor is responsible to Strip and clean-up of anchor bolts and templates. This Prime Contractor is responsible for wash out, containment and floor protection to existing conditions.
- 2.4.51. This Prime Contractor is responsible for coordinating, receiving unloading on site, storing, laying out, and installing structural embeds that are required to be installed into concrete. Structural Embeds to be provided by all contractors FOB as required for accurate and complete installations to include but limited to plumbing, electrical, rough carpentry, tile etc. and received by this Prime Contractor.
- 2.4.52. This Prime Contractor is responsible for Below-Grade Vapor Retarders including but not limited to, seam tape, pipe collars, pipe boots, etc. as required for a complete system. Above-grade is the responsibility of the Finished Prime Contractor. Remedial Treatments shall be the responsibility of the Flooring Prime Contractor.
- 2.4.53. This Prime Contractor is responsible for all excavation, drilling, export, dewatering, compaction and backfill of own work complete.
- 2.4.54. This Prime Contractor is responsible for coordinating, laying out, engineering and providing all shoring and bracing necessary to protect existing buildings, utilities and other improvements and excavation against failure, loss of ground or caving embankments.

BID PACKAGE #04 – CONCRETE, SITE FURNISHINGS, SITE WORK, STRIPING DIVISION OF WORK

- 2.4.55. This Prime Contractor is responsible for coordinating, laying out, forming and pouring of all depressed slab areas complete, per contract documents. Coordinate with Demolition, Flooring and Finishes Prime Contractors and others, as applicable for all depressed slab areas.
- 2.4.56. This Prime Contractor is responsible for all fine grading from +/- 1" for own work including sand and class II base as required for own work.
- 2.4.57. This Prime Contractor is responsible for laying out, supplying, placing and finishing all site finishes **and furnishings including but not limited to truncated domes, wheel stops (re-install of existing), ADA striping, signage (metal post, sign, core drill and concrete to install sign), traffic entry warning signage, parking stall signage, fire lane signage, fire safety signage, and other site signage** complete as outlined on contract documents.
- 2.4.58. The Concrete Prime Contractor is responsible for coordinating and installing all embedded items into site concrete, including but not limited to site signage and associated post/pole, including coring, etc. Post to be furnished and installed by this Prime Contractor. **There is no miscellaneous Steel Prime Contractor included in this project.**
- 2.4.59. Comply with all applicable ADA standards. If a discrepancy exists with ADA over any elevation given on the contract documents, immediately bring to the Construction Manager's attention before installation proceeds. Failure to do so may require removal and replacement of said work, at no cost to the owner.
- 2.4.60. **This Prime Contractor is responsible for coordinating, laying out, providing and installing detectable warning tiles complete, including but not limited to depressions, saw cutting and/or other preparatory work, per contract documents.**
- 2.4.61. This Prime Contractor is responsible for repairing existing concrete, curbs, etc., damaged by own operations.
- 2.4.62. This Prime Contractor is responsible for providing and installing concrete joint sealants and caulking, including but not limited to sand, protection, removal of cap, clean up, etc., for own work complete.
- 2.4.63. This Prime Contractor is responsible for protecting surrounding finishes from concrete splatter prior to pour. Remove protection after concrete pour is complete and cured.
- 2.4.64. Embedded nailers required for other trades are the responsibility of this Prime Contractor to provide and install.
- 2.4.65. Install flashings and miscellaneous metal items, provided by others, that are integral with concrete systems.
- 2.4.66. This Prime Contractor is responsible for establishing proper elevation for layout of weep screeds, including snapping of lines prior to the installation of all weep screeds. This Prime Contractor to ensure that proper elevation is maintained with relationship to adjoining concrete, asphalt and landscaping. Note: Finishes Bid Package to provide and install weep screeds.
- 2.4.67. This Prime Contractor is responsible for keeping all areas performing work in a broom cleaned condition, all lumber materials will be stacked neatly at all times and in its designated area, all concrete spoils must be removed within 12 hours. Building will be partially occupied by staff and public, including children. Maintaining a clean and dust-free environment is crucial.
- 2.4.68. Structural slabs on grade to receive floor finishes (carpet, VCT, etc.) shall not have water to cement ratio exceeding 0.50 or 5.0lbs/1000 s.f. or as listed in the project specifications, whichever is most stringent. Review and meet water content allowable per finishes specifications in consideration of all flooring tolerances as defined in the contract documents. This Contractor shall assume water content will exceed allowable thresholds and shall assume mitigation measures will be required prior to flooring installations. This applies to both tile and carpet finishes.

BID PACKAGE #04 – CONCRETE, SITE FURNISHINGS, SITE WORK, STRIPING DIVISION OF WORK

- 2.4.69. This Prime Contractor is responsible for furnishing, installing, maintaining, and removing temporary impalement guards on all stakes, anchor bolts and rebar of own work.
- 2.4.70. This Prime Contractor is responsible for the cost of road clean up due to on-site deliveries and parking as pertains to own work.
- 2.4.71. Each Prime Contractor is responsible for dust control during their own scope of work operations. Building will be partially occupied by staff and public, including children. Maintaining a clean and dust-free environment is crucial.
- 2.4.72. This Prime Contractor is responsible to divert and remove water generated from own operations, including all dewatering efforts at areas included as part of own work activities.
- 2.4.73. This Prime Contractor is responsible for providing and maintaining a concrete wash out bin for own work. Coordinate location with the Construction Manager. Washout into a dumpster without adequate leak protection is prohibited and in such case that the concrete washout leaks onto the ground, this Prime Contractor shall be responsible for the cost of remediation. Washout onto the ground is prohibited. This Prime Contractor is responsible for removal of washout debris to a legal dumpsite offsite.
- 2.4.74. This Prime Contractor is responsible for immediately removing their own spoils. Stockpiles will not be allowed unless otherwise authorized by the Construction Manager and/or required for follow-on work. This Prime Contractor is responsible for tarp or heavy polyethylene and sandbags covering stockpile spoils while it is being generated, and maintenance of same, as required by SWPPP compliance regulation and shall (if stockpiling indoors is authorized by the Construction Manager) be stored in such a manner that all interior conditions are protected and kept free from dirt, dust, debris, until removal of spoils.
- 2.4.75. This Prime Contractor is responsible for coordinating, laying out, providing, installing and maintaining per site logistics, at both campuses, temporary perimeter fencing with blue fabric, pedestrian gates, equipment gates, fire lane access and gates, combination locks for every gate and access point, T-Stands secured with gravel bags, and all ancillary items required for temporary fencing needs for the duration of both projects. Assume a combination of post driven and t-stands will be used for temporary fencing. For post driven installation, review of existing conditions, dig alert, and other measures shall be utilized to ensure utility strikes are prevented. Any cost associated with repair of utilities or structures hit during temporary fencing installation is the responsibility of this Prime Contractor. Assume post driven installation will be required for half of the temporary fencing required for the project, t-stands to be assumed for the other half. Figure installation of temporary fence, five (5) days prior to Construction Start Date for each campus. Include 200 LF of additional fencing, **for each campus**, with blue fabric to be used as directed by Construction Manager. Cost of unused LF to be credited back to the Construction Manager. Any additional fencing will be the responsibility of the requesting Prime Contractor for cost, maintenance and repair. Maintenance and repair of damage to fence will be the cost of applicable Prime Contractor.
- 2.4.76. This Prime Contractor is responsible for concrete patch back of post-driven temporary fencing and temporary office foundation ties/anchors for Construction Manager, Program Manager and IOR offices installed in existing and or new concrete and asphalt areas. Review site logistics plan for project layout.

BID PACKAGE #04 – CONCRETE, SITE FURNISHINGS, SITE WORK, STRIPING DIVISION OF WORK


- 2.4.77. This Prime Contractor shall receive from other Prime Contractors items to be installed in own work, as well as approved setting plans. This Prime Contractor will be responsible for all templates, layout, and engineering required for this Prime Contractor's installation in designated locations of other Prime Contractor's embedded items in the work of this Prime Contractor. Includes, but is not limited to, cane bolt receivers, flagpole sleeves, guardrail sleeves, bollards, grate frames, manhole cover fringes, grates, etc.
- 2.4.78. This Prime Contractor is responsible for block outs as required by contract documents, and for the work of other Prime Contractors, as well as the coordination of the same.
- 2.4.79. This Prime Contractor shall provide holes drilled in own formwork for other Prime Contractor's penetrations (sleeves, etc.). Layout to be provided by other Prime Contractor's requiring penetration.
- 2.4.80. This Prime Contractor shall monitor all formwork during concrete placement and provide immediate corrective measures required by form deflection, leakage, etc.
- 2.4.81. This Prime Contractor shall remove any nails, wires, etc., which remain in the concrete after removal of formwork and which may generate rust or stains on exposed concrete surfaces. If necessary, grind out embedded item sufficiently beyond face of exposed concrete and patch with suitable material.
- 2.4.82. This Prime Contractor shall protect all precast and miscellaneous metal embeds, fasteners, drains, etc. prior to concrete placement; include cleaning of items if required after concrete placement. Cost to replace said items if damaged during concrete placement will be the responsibility of this Prime Contractor.
- 2.4.83. This Prime Contractor shall coordinate all finished concrete elevations at doors/openings/entrances with the requirements of each opening's respective threshold requirements.
- 2.4.84. This Prime Contractor shall coordinate, provide and install all grouting required on top of own work.
- 2.4.85. This Prime Contractor is responsible for cleaning as required of any materials scheduled to receive paint or other finishes.
- 2.4.86. This Prime Contractor is responsible for providing one qualified laborer for a total of **24 hours for WHHS and 24 hours for FAEC** for general site and building cleanup, safety maintenance, temporary weather protection or for discretionary use as directed by the Construction Manager. All hours to be directed and documented by Construction Manager, with all unused hours credited back, via a deductive change order.
- 2.4.87. This Prime Contractor is responsible for implementation, maintenance, inspection and monitoring the Storm Water Pollution Prevention Plan (SWPPP) and/or erosion control measures required for the purpose of preventing the discharge of pollutants from both construction sites throughout the duration of each project. There is no SWPPP plan provided by the consultants, so this Prime Contractor is responsible for implementing BMPs where it believes required to achieve the above noted intent. Implementation and maintenance of standard BMPs and SWPPP measures to include weekly street sweeping, sandbags, gravel bags, wattles, swales, silt fence, plastic sheeting, cleaning of catch basins and piping, etc. as required for maintenance and a complete system in compliance with all Federal, State and Local requirements, for both projects.
- 2.4.88. At the end of the project, this Prime Contractor shall be responsible for removal of all temporary SWPPP and BMP measures and cleaning of disturbed areas, per applicable standards.

END OF BID PACKAGE

BID PACKAGE #10 – SPECIALTIES, TOILET ACCESSORIES, PLASTIC TOILET COMPARTMENTS, FIXED SEATINGS & SIGNAGE DIVISION OF WORK


- 2.10. **BID PACKAGE #10 – “SPECIALTIES, TOILET ACCESSORIES, PLASTIC TOILET COMPARTMENTS, FIXED SEATINGS & SIGNAGE”** – Prime Contractor is responsible for coordinating and providing all plant, labor, material, equipment, tools, facilities, transportation, applicable taxes, permits, services and coordination necessary for, and incidental to accomplish the work (unless specifically noted otherwise), in accordance with the complete contract documents, and ensure coordination of work between the multiple bid packages for a complete turnkey and operable system at the school site Foothills Adult Education Center (FAEC) & West Hills HS Science Bldg. (WHHS) Modernization projects, which shall include, but not be limited to the following;
- 2.10.1 FAEC I As-Built Documents I Attachment O
 - 2.10.2 FAEC I Titan ES I Technical Specifications I Attachment G
 - 2.10.3 FAEC I Titan ES I Hazardous Materials Survey Report & Floor Plan I Attachment H
 - 2.10.4 FAEC I Titan ES I Hazardous Materials Abatement Specifications I Attachment I
 - 2.10.5 FAEC I Ruhnau Clarke Architects | Drawings I Attachment E
 - 2.10.6 FAEC I Ruhnau Clarke Architects | Specifications
 - 2.10.7 FAEC I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
 - 2.10.8 FAEC I Ruhnau Clarke Architects | 01 00 00 – General Requirements – Complete
 - 2.10.9 FAEC | Ruhnau Clarke Architects | 05 05 19 – Post-Installed Concrete Anchors
 - 2.10.10 FAEC I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants
 - 2.10.11 FAEC I Ruhnau Clarke Architects | 10 11 00 - Visual Display Units
 - 2.10.12 FAEC I Ruhnau Clarke Architects | 10 14 00 – Signage
 - 2.10.13 FAEC I Ruhnau Clarke Architects | 10 14 53 – Traffic, Parking and Site Signage
 - 2.10.14 FAEC I Ruhnau Clarke Architects | 10 21 13.19 - Plastic Toilet Compartments
 - 2.10.15 FAEC I Ruhnau Clarke Architects | 10 28 00 - Toilet Accessories
 - 2.10.16 FAEC I Ruhnau Clarke Architects | 10 44 00 - Fire Protection Specialties
 - 2.10.17 FAEC I Ruhnau Clarke Architects | 10 51 13 - Metal Lockers
 - 2.10.18 FAEC I Ruhnau Clarke Architects | 12 15 00 - Display System
 - 2.10.19 GUHSD | Front End Bid & Contract Documents
 - 2.10.20 WHHS I As-Built Documents I Attachment N
 - 2.10.21 WHHS | Group Delta I Hazardous Building Material Abatement Specifications I Attachment J
 - 2.10.22 WHHS | Group Delta I Technical Lead-Related Specifications I Attachment F
 - 2.10.23 WHHS I Ruhnau Clarke Architects | Drawings I Attachment D
 - 2.10.24 WHHS I Ruhnau Clarke Architects | Specifications
 - 2.10.25 WHHS I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
 - 2.10.26 WHHS I Ruhnau Clarke Architects | 01 00 00 – General Requirements – Complete
 - 2.10.27 WHHS I Ruhnau Clarke Architects | Division 02 – Existing Conditions - Complete
 - 2.10.28 WHHS I Ruhnau Clarke Architects | 05 05 19 - Post-Installed Concrete Anchors
 - 2.10.29 WHHS I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants
 - 2.10.30 WHHS I Ruhnau Clarke Architects | 10 11 00 - Visual Display Units

BID PACKAGE #10 – SPECIALTIES, TOILET ACCESSORIES, PLASTIC TOILET COMPARTMENTS, FIXED SEATINGS & SIGNAGE DIVISION OF WORK

- 2.10.31 WHHS | Ruhnau Clarke Architects | 10 14 00 - Signage
- 2.10.32 WHHS | Ruhnau Clarke Architects | 10 22 39 - Folding Panel Partitions
- 2.10.33 WHHS | Ruhnau Clarke Architects | 10 44 00 - Fire Protection Specialties
- 2.10.34 WHHS | Ruhnau Clarke Architects | 11 53 00 - Laboratory Equipment
-  **2.10.35 WHHS | Ruhnau Clarke Architects | 11 53 13 – Laboratory Fume Hoods**
- 2.10.36 WHHS | Ruhnau Clarke Architects | 12 61 10 - Fixed Lecture Seating

- 2.10.37 This Prime Contractor shall be responsible to coordinate, layout and provide backing drawings to the Construction Manager, Finishes Prime Contractor and Rough Carpentry Prime Contractor for own scope of work, for each site, complete, prior to the framing sequence noted in the current construction schedule. If these are not identified prior to the commencement of framing, this Prime Contractor shall be responsible for all required backing including all demolition and rework associated.
- 2.10.38 This Prime Contractor is responsible for coordinating, laying out, providing and installing all visual display units complete, including but not limited to markerboards, tackboards, trim, termination and transition strips, trays and accessories, as required per Division 10 Specifications for a complete installation.
- 2.10.39 This Prime Contractor is responsible for coordinating, laying out, providing and install all interior and exterior signage, identification signs, restroom signs, exterior building identification signs, plaque, identification devices, ADA, including but not limited to backing, adhesives, fasteners, caulking, accessories, brackets, cabinets, software, training, aluminum reveal, etc., as required for a complete installation, per contract documents.
- 2.10.40 This Prime Contractor is responsible for coordinating, removing, laying out and re-installing all existing signage, soap dispensers, paper towel dispensers, **and other specialty items shown to remove and replace**. Protect and store on site until time to re-install. Re-install all existing signage and other specialty items where indicated, as though it were new. Ensure all brackets, mounting, caulking, etc. are provided, applied and installed for a complete and like-new appearance. Coordinate with Demolition Prime Contractor as necessary. If the items shown in the plans to remove and reinstall is a Specialties item, it is the responsibility of this Prime Contractor to coordinate the careful removal of said item(s) and secure, clean and dry storage of same. Ensure items are removed in advance of the demolition activities.
- 2.10.41 This Prime Contractor is responsible for coordinating, laying out, providing and installing all joint sealers and firestopping, as required for own work and where own work abuts the work of others to ensure a completed and finished appearance.
- 2.10.42 This Prime Contractor is responsible for coordinating, laying out, providing and installing all floor, ceiling and wall mounted plastic toilet compartments, urinal screens including but not limited to all grab bars, latches, hinges, door pull, wall stops, coat/purse hooks, fasteners, brackets, straps, hardware, anchors, post-installed concrete anchors, fasteners, adhesives, certifications and accessories as required for a complete installation.
- 2.10.43 This Prime Contractor is responsible for coordinating, laying out, providing and installing all equipment and materials necessary to refurbish the existing moveable wall to ensure smooth operation, as noted on WHHS plans, item 02.217 and as outlined in the above noted specification section for Folding Panel Partitions.

BID PACKAGE #10 – SPECIALTIES, TOILET ACCESSORIES, PLASTIC TOILET COMPARTMENTS, FIXED SEATINGS & SIGNAGE DIVISION OF WORK

- 2.10.44 This Prime Contractor is responsible for coordinating, laying out, providing and installing all toilet accessories, including but not limited to mirrors, toilet paper rolls, soap dispensers, seat cover dispensers, coat hooks, sanitary napkin dispensers, folding shower seats, shelving, paper towel dispensers, waste receptacles, grab bars and all supports, fasteners, adhesives and accessories as required for a complete installation, per contract documents. Provide toilet room accessories in style, finish and quantity as specified or shown on plans and specifications.
- 2.10.45 This Prime Contractor is responsible for coordinating, laying out, providing and installing all Fire Protection Specialties complete, including but not limited to recessed & semi-recessed fire extinguisher cabinets, fire extinguishers (all tested, tagged and confirmed operational), door, handles, brackets, caulking, trim, hinges, tempered glass, mounting hardware, etc. as required for a complete and finished installation. Coordinate with Rough Carpentry & Finishes Prime Contractor for all locations to ensure no conflicts with other building elements and to ensure framing is coordinated to properly accommodate recessed and semi-recessed cabinets.
- 2.10.46 This Prime Contractor is responsible for coordinating, laying out, providing and installing all metal lockers and locker benches complete, including but not limited to frames, doors, hinges, ventilation, hooks, number plates, shelves, latching and locking mechanisms, and all other appurtenances required for a complete installation. Ensure ADA requirements are met. Ensure all pedestal supports and attachments to floor are provided and installed for the laminated birch benches, and all other appurtenances required for a complete and compliant bench installation.
- 2.10.47 This Prime Contractor is responsible for coordinating, laying out, providing and installing Division 11 Laboratory Equipment complete, including coordination, layout and installation of all OFCI Laboratory Equipment and equipment shown to relocate or reinstall after improvements are complete. This includes but is not limited to ice machine, UV glasses/google cabinet (OFCI/existing to relocate, assume quantity 4), refrigerator and all appurtenances required to ensure complete and functional equipment installations. Coordinate with Plumbing and Electrical Prime Contractors for items that require power & water.
- 2.10.48 This Prime Contractor is responsible for coordinating, laying out and installing the OFCI television where indicated.
-  **2.10.49 This Prime Contractor is responsible for coordinating, laying out, providing and installing Laboratory Fume Hoods complete, including ADA bench/table/cabinet/stand, work surface, cup sinks, air service indicators, piping, wiring, service fittings and all other appurtenances as required to accommodate the new Laboratory Fume Hoods referenced in the added specification section 11 53 13. Coordinate with Plumbing, HVAC and Electrical Prime Contractors as required for a complete and functional fume hood system. Coordinate ceiling and wall openings/penetrations with Finishes Prime Contractor.**
- 2.10.50 This Prime Contractor is responsible for coordinating, laying out, providing and installing all fixed lecture seating, complete, including but not limited to, floor mounted steel bases, floor fasteners and anchors, seating, pedestal frames, shells, escutcheon covers, tablet with arm, and all other appurtenances required for a complete and compliant installation at the existing sloped auditorium.
- 2.10.51 This Prime Contractor is responsible for coordinating, laying out, providing and installing all display systems complete, including but not limited to wall mounted tracks, ceiling and wall mounted suspended systems, tensioned rods, aluminum rods, track end caps, rod hangers, finishes, hooks, display rail, fasteners, and all other appurtenances for a complete and functional display system.



BID PACKAGE #10 – SPECIALTIES, TOILET ACCESSORIES, PLASTIC TOILET COMPARTMENTS, FIXED SEATINGS & SIGNAGE DIVISION OF WORK

- 2.10.52 This Prime Contractor is responsible for coordinating with each Prime Contractor, Architect, Consultant and Construction Manager, as required for coordination and proper installation of own work, as it pertains to this bid package, including but not limited with Electrical Prime Contractor, Rough Carpentry Prime Contractor, Finishes Prime Contractor, etc. Coordination may include additional site visits, coordination meetings and providing additional copies of submittals, shop drawings and coordination drawings.
- 2.10.53 This Prime Contractor is responsible for coordinating, laying out, providing and installing all labeling for own work with a pre-printed label and unique identifying number at each end of the cable, per contract documents.
- 2.10.54 This Prime Contractor is responsible for initial cleaning of installed work, including removal of tape, labels, protective coatings, smudges, fingerprints, etc.
- 2.10.55 This Prime Contractor is responsible for all final adjustments of own work upon completion of installation.
- 2.10.56 This Prime Contractor is responsible for providing final cleaning of own work.
- 2.10.57 This Prime Contractor is responsible for providing and installing work free of any damage. Damaged material will be rejected and must be replaced without delay to the project, at no additional costs.
- 2.10.58 This Prime Contractor is responsible for providing protection of own work, after installation and until occupancy. This Prime Contractor is responsible for removing and disposing of any protection utilized.
- 2.10.59 This Prime Contractor is responsible to inspect all surfaces, openings, ceilings, fixtures, etc., where own work will be installed. Promptly notify Construction Manager of any coordination issues or unsuitable conditions. Commencement of installation implies acceptance of all conditions.
- 2.10.60 This Prime Contractor is responsible for providing one qualified laborer **16 hours for WHHS and 25 hours for FAEC** for general site and building cleanup, safety maintenance or for discretionary use as directed by the Construction Manager. All hours to be directed and documented by Construction Manager, with all unused hours credited back, via a deductive change order.
- 2.10.61 This Prime Contractor is responsible to coordinate and provide all backing requirements to the Finishes and Rough Carpentry Prime Contractors and Construction Manager. This Prime Contractor will review Master Schedule, and weekly look ahead schedules and will coordinate with framing contractor to provide all backing requirements in advance, to meet the framing contractors' schedule for installation. Failure on the part of this Prime Contractor to provide backing requirements prior to the framing operation, will transfer backing responsibility from the Rough Carpentry and Finishes Prime Contractor to this Prime Contractor.

END OF BID PACKAGE

BID PACKAGE #11 – MECHANICAL HVAC & HVAC CONTROLS DIVISION OF WORK

- 2.11 **BID PACKAGE #11 – “MECHANICAL HVAC & HVAC CONTROLS”** – Prime Contractor is responsible for coordinating and providing all plant, labor, material, equipment, tools, facilities, transportation, applicable taxes, permits, services and coordination necessary for, and incidental to accomplish the work (unless specifically noted otherwise), in accordance with the complete contract documents, and ensure coordination of work between the multiple bid packages for a complete turnkey and operable system at the school site Foothills Adult Education Center (FAEC) & West Hills HS Science Bldg. (WHHS) Modernization projects, which shall include, but not be limited to the following;

- 2.11.1 FAEC I As-Built Documents I Attachment O
- 2.11.2 FAEC I Titan ES I Technical Specifications I Attachment G
- 2.11.3 FAEC I Titan ES I Hazardous Materials Survey Report & Floor Plan I Attachment H
- 2.11.4 FAEC I Titan ES I Hazardous Materials Abatement Specifications I Attachment I
- 2.11.5 FAEC I Ruhnau Clarke Architects | Drawings I Attachment E
- 2.11.6 FAEC I Ruhnau Clarke Architects | Specifications
- 2.11.7 FAEC I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
- 2.11.8 FAEC I Ruhnau Clarke Architects | 01 00 00 – General Requirements - Complete
- 2.11.9 FAEC I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants
- 2.11.10 FAEC I Ruhnau Clarke Architects | 08 31 00 – Access Doors and Frames
- 2.11.11 FAEC I Ruhnau Clarke Architects | Division 23 - Heating, Ventilating, and Air Conditioning - Complete
- 2.11.12 GUHSD | Front End Bid & Contract Documents
- 2.11.13 WHHS I As-Built Documents I Attachment N
- 2.11.14 WHHS | Group Delta I Hazardous Building Material Abatement Specifications I Attachment J
- 2.11.15 WHHS | Group Delta I Technical Lead-Related Specifications I Attachment F
- 2.11.16 WHHS I Ruhnau Clarke Architects | Drawings I Attachment D
- 2.11.17 WHHS I Ruhnau Clarke Architects | Specifications
- 2.11.18 WHHS I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
- 2.11.19 WHHS I Ruhnau Clarke Architects | 01 00 00 – General Requirements – Complete
- 2.11.20 WHHS I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants
-  2.11.21 **WHHS | Ruhnau Clarke Architects | 11 53 13 – Laboratory Fume Hoods**
- 2.11.22 WHHS I Ruhnau Clarke Architects | Division 23 - Heating, Ventilating, and Air Conditioning – Complete
- 2.11.23 This Prime Contractor is responsible for coordinating, laying out, providing and installing heating, ventilation, systems and upgrades complete, including but not limited to all split system heat pump & cooling systems & equipment, VAV boxes, condenser units, air-distribution systems, hangers & supports, piping insulation, refrigerant piping, air diffusers and connections, new ducting & cleaning of existing ducting, insulation, piping, dampers, fire smoke dampers, diffusers, registers, grilles, duct access doors, condensate lines, condensate pumps, finish material, duct splay wires, brackets, etc., as required to meet the performance criteria specified, SMACNA requirements and for a complete and operational system, at both sites, per contract documents.
- 2.11.24 This Prime Contractor is responsible for coordinating and providing all labor and equipment necessary for cleaning of existing ducts.
-  2.11.25 **This Prime Contractor is responsible for coordinating, connecting, laying out and providing ducting, duct connections, including duct connections to existing exhaust to roof, and other appurtenances as required to accommodate the new Laboratory Fume Hoods referenced in the added specification section 11 53 13. Cap and/or safe-off existing ducting if not required for new**

BID PACKAGE #11 – MECHANICAL HVAC & HVAC CONTROLS DIVISION OF WORK



fume hood. Coordinate with Plumbing, Specialties and Electrical Prime Contractors as required for a complete and functional fume hood system. Coordinate ceiling openings for duct with Finishes Prime Contractor.

- 2.11.26 This Prime Contractor is responsible for coordinating, laying out, providing and installing sealants, caulking, fire wrap and fire stopping at own penetrations. Provide caulking at all dissimilar materials.
- 2.11.27 This Prime Contractor is responsible for coordinating, laying out, providing and installing fire stopping associated with own work. All Fire Stopping shall be "RED" in color for identification purposes. As a part of the submittal process, this Prime Contractor shall provide UL details for all penetrations, for own work. If a UL detail is not available for a specific penetration related to this Prime Contractor's work, it will be this Prime Contractor's responsibility to have an evaluation and prescription provided for all special penetrations.
- 2.11.28 This Prime Contractor is responsible for coordinating, laying out, providing and installing all flashing and sheet metal associated with own work, including but not limited to flashing at roof and wall penetrations and lead roof jacks, as required.
- 2.11.29 This Prime Contractor is responsible for coordinating and laying out all required penetrations and openings with the Rough Carpentry and Finishes Prime Contractors.
- 2.11.30 This Prime Contractor is responsible for coordinating, laying out, providing and installing exhaust and ceilings fans and all associated ductwork for HVAC equipment, as required per the contract documents.
- 2.11.31 This Prime Contractor is responsible for coordinating, laying out, providing and installing vibration and seismic controls for own work including but not limited to anchorages, attachments, isolators, riser resilient supports, resilient pipe guides, bracings, cables and accessories, as required.
- 2.11.32 This Prime Contractor is responsible for coordinating, laying out, providing and installing identification of own work.
- 2.11.33 This Prime Contractor is responsible for start-up and commissioning of own equipment.
- 2.11.34 This Prime Contractor is responsible for all testing, adjusting and balancing of HVAC equipment until Owner acceptance, including providing testing and balancing reports.
- 2.11.35 This Prime Contractor is responsible for coordinating, laying out, providing and installing duct insulation as required.
- 2.11.36 This Prime Contractor is responsible for coordinating, laying out, providing and installing the building management and control system complete, including but not limited to wiring, switches, shut offs, relays, equipment, central and remote hardware, software, interconnecting wire and conduit, thermostats, control valves, dampers, operators, indicating devices, interface equipment, exterior lighting controls, apparatus, and accessories required for a functional system, per contract documents. All low voltage wiring and connections for own work shall be the responsibility of this Prime Contractor. Coordinate with Construction Manager and District.
- 2.11.37 This Prime Contractor is responsible to coordinate with Electrical and Plumbing Prime Contractors as required to complete and achieve acceptance of fire detection and alarm system.
- 2.11.38 This Prime Contractor is responsible for coordinating, laying out, providing and installing all duct, including but not limited to fittings, sheet metal duct liner, sealants, gaskets, hangers, connections to existing duct, supports, and seismic restraints, as required.
- 2.11.39 This Prime Contractor is responsible for coordinating, laying out, providing and installing all duct and duct accessories complete, including but not limited to backdraft and pressure relief dampers, barometric relief dampers, manual volume dampers, control dampers, combination fire and smoke dampers, flange connectors, turning vanes, duct-mounted access doors, flexible connectors, flexible ducts, and duct accessory hardware, as required per contract documents.

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- 2.11.40 This Prime Contractor is responsible for coordinating, laying out, providing and installing all fire smoke dampers and associated motors, actuators, vanes, connectors, angles, hardware, diffusers, registers, grilles, duct access doors at all locations where required at rated assemblies.
- 2.11.41 This Prime Contractor is responsible for coordinating, laying out, providing and installing and/or coordinating with and/or reconnecting to existing fume hoods, exhaust fans and power exhaust fans as required for complete and functional systems. This includes but is not limited to new systems and reconnection of existing systems to accommodate laboratory equipment at WHHS and reconnection to existing EFs at FAEC.
- 2.11.42 This Prime Contractor is responsible for coordinating, laying out, providing and installing all diffusers, registers, dampers and grilles for own work.
- 2.11.43 This Prime Contractor is responsible for coordinating, laying out, providing and installing all air filters for own work. This Prime Contractor is responsible for providing and installing temporary air filters until completion/commissioning of work, once work has been fully commissioned, provide and install new air filters.
- 2.11.44 This Prime Contractor is responsible for coordinating, laying out, providing and installing duct support angles, equipment pad caps and pipe penetration flashing, as required for own work.
- 2.11.45 This Prime Contractor is responsible for coordinating, laying out and installing duct detectors provided by others. Note: Electrical Bid Package is responsible for providing duct detectors and for final connection to fire alarm system.
- 2.11.46 This Prime Contractor is responsible for coordinating and providing operational testing and instruction to Owner's personnel. Submit certificate of compliance signed by Owner's representative to Construction Manager, upon completion of instruction.
- 2.11.47 This Prime Contractor is responsible for coordinating, laying out, providing and installing own inserts, embeds, anchors, supports, hangers, reinforcements and backing plates, as required.
- 2.11.48 This Prime Contractor is responsible for coordinating, laying out, providing and installing own access doors and panels, as required, even if not shown, and is responsible for coordinating and providing other Prime Contractors with coordination drawings, roughing in drawings and detailed working drawing for coordination, layout and rough-in requirements. Finishes Prime Contractor is responsible for providing and installing access panels shown on architectural sheets. This Prime Contractor required to provide and install all own access panels required for own work if not shown on architectural sheets.
- 2.11.49 This Prime Contractor is responsible for coordinating with all Bid Packages whose work interfaces with own scope of work, including attending coordination and commissioning meetings.
- 2.11.50 This Prime Contractor is responsible for coordinating and laying out of items located in concrete, or framing prior to installation of concrete, or framing. In the event layout does not occur in a timely manner, this Prime Contractor becomes responsible for all rework, reframing, coring, cutting, patching, etc. required to install own work. Provide cut sheets indicating layout dimensions.
- 2.11.51 This Prime Contractor is responsible for providing a competent person onsite during all concrete pours to monitor own work and ensure components in concrete are not disturbed and are at proper elevation and configuration.
- 2.11.52 This Prime Contractors shall coordinate their Work above ceiling, in chases, under slab, and in wall systems with the Work of other trades to insure proper space utilization and conformance with the requirements of the Contract Documents. Conflicts arising from this Prime Contractor's failure to coordinate will be the responsibility of this Prime Contractor to resolve. All applicable Prime Contractor's shall jointly prepare, with HVAC and Plumbing, Electrical, and Framing, Prime Contractors, overlay drawings indicating the vertical and horizontal routing of pipes, bracing and

BID PACKAGE #11 – MECHANICAL HVAC & HVAC CONTROLS DIVISION OF WORK

accessories so as to avoid any conflicts. All applicable Prime Contractor's, including but not limited to Mechanical HVAC, Electrical, Plumbing will be responsible for attending weekly and or bi- weekly MEP-coordination and/or BIM meetings. This Prime Contractor understands that the coordination and/or BIM meetings may begin prior to mobilization on site.

- 2.11.53 This Prime Contractor is responsible for providing one qualified laborer **10 hours for WHHS** and **10 hours for FAEC** for additional clean up while performing work on site per schedule as directed by Construction Manager. Each Prime Contractor still responsible for cleanup of own work. All hours to be directed and documented by Construction Manager. All unused hours will be credited back, via deductive change order.

END OF BID PACKAGE


BID PACKAGE #12 – ELECTRICAL & LOW VOLTAGE DIVISION OF WORK

- 2.12 **BID PACKAGE #12 – “ELECTRICAL & LOW VOLTAGE”** – Prime Contractor is responsible for coordinating and providing all plant, labor, material, equipment, tools, facilities, transportation, applicable taxes, permits, services and coordination necessary for, and incidental to accomplish the work (unless specifically noted otherwise), in accordance with the complete contract documents, and ensure coordination of work between the multiple bid packages for a complete turnkey and operable system at the school site Foothills Adult Education Center (FAEC) & West Hills HS Science Bldg. (WHHS) Modernization projects, which shall include, but not be limited to the following;
- 2.12.1 FAEC I As-Built Documents I Attachment O
 - 2.12.2 FAEC I Titan ES I Technical Specifications I Attachment G
 - 2.12.3 FAEC I Titan ES I Hazardous Materials Survey Report & Floor Plan I Attachment H
 - 2.12.4 FAEC I Titan ES I Hazardous Materials Abatement Specifications I Attachment I
 - 2.12.5 FAEC I Ruhnau Clarke Architects | Drawings I Attachment E
 - 2.12.6 FAEC I Ruhnau Clarke Architects | Specifications
 - 2.12.7 FAEC I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
 - 2.12.8 FAEC I Ruhnau Clarke Architects | 01 00 00 – General Requirements – Complete
 - 2.12.9 FAEC I Ruhnau Clarke Architects | 02 41 00 – Demolition
 - 2.12.10 FAEC I Ruhnau Clarke Architects | 07 92 00 - Joint Sealants
 - 2.12.11 FAEC I Ruhnau Clarke Architects | 08 31 00 - Access Doors and Panels
 - 2.12.12 FAEC I Ruhnau Clarke Architects | Division 26 – Electrical – Complete
 - 2.12.13 FAEC I Ruhnau Clarke Architects | Division 27 – Communications – Complete
 - 2.12.14 FAEC I Ruhnau Clarke Architects | Division 28 - Electronic Safety and Security – Complete
 - 2.12.15 FAEC I Ruhnau Clarke Architects | 31 23 16.13 - Trenching
 - 2.12.16 GUHSD | Front End Bid & Contract Documents
 - 2.12.17 WHHS I As-Built Documents I Attachment N
 - 2.12.18 WHHS | Group Delta I Hazardous Building Material Abatement Specifications I Attachment J
 - 2.12.19 WHHS | Group Delta I Technical Lead-Related Specifications I Attachment F
 - 2.12.20 WHHS I Ruhnau Clarke Architects | Drawings I Attachment D
 - 2.12.21 WHHS I Ruhnau Clarke Architects | Specifications
 - 2.12.22 WHHS I Ruhnau Clarke Architects | 00 00 00 – Procurement & Contracting Requirements - Complete
 - 2.12.23 WHHS I Ruhnau Clarke Architects | 01 00 00 – General Requirements – Complete
 - 2.12.24 WHHS I Ruhnau Clarke Architects | 07 92 00 – Joint Sealants
 - 2.12.25 WHHS I Ruhnau Clarke Architects | 08 31 00 - Access Doors and Panels
 - 2.12.26 WHHS I Ruhnau Clarke Architects | Division 11 – Equipment - Complete
 - 2.12.27 WHHS I Ruhnau Clarke Architects | Division 26 – Electrical - Complete
 - 2.12.28 WHHS I Ruhnau Clarke Architects | Division 27 – Communications - Complete
 - 2.12.29 FAEC & WHHS | Temporary Site & CM / IOR Office Power & Internet

 - 2.12.30 This Prime Contractor is responsible for coordinating, laying out, providing and installing all electrical work, per contract documents, including but not limited to architectural, mechanical, plumbing and electrical drawings, for complete and operational systems.
 - 2.12.31 This Prime Contractor is responsible for coordinating, laying out, providing, installing, maintaining and removing temporary electrical distribution system and temporary lighting system through the duration of construction and shall accommodate both project sites. Service to be initiated

BID PACKAGE #12 – ELECTRICAL & LOW VOLTAGE DIVISION OF WORK

immediately upon receipt of Notice to Proceed and online no later than seven (7) days after receipt of Notice to Proceed. Installation shall be approved by Construction Manager. **Temporary power to include power, internet, phone and lighting to both sites and to two (2) field office trailers at each site, for Construction Manager and Inspector.** Temporary distribution to include spider boxes to within 100' of any room under construction within the construction limits of work. Use power poles as needed for complete installation. Power poles shall allow for any overhead wire to provide minimum 16' clearance to ground to allow for equipment/deliveries to pass underneath. All wire for temporary power, including providing and installing all safety ribbons on wire ran over poles. Use 4-plex twist locks at power poles. Provide drive-over protection for temp power lines if run on the ground, even if buried. All overhead power lines will remain throughout the duration of the project. **NOTE:** Temporary Power for Construction Manager trailer and IOR trailer will come from most convenient electrical service as designated by the Construction Manager and District Electrical Representative. This Prime Contractor will coordinate with the Construction Manager and District Electrical Representative and will be responsible for disconnection and reconnection of GC and IOR trailer as trailers may be relocated in Phases for construction. This Prime Contractor to provide and install required breakers, conduit, weatherproofing, etc., for a complete turnkey and operational installation.

- 2.12.32 This Prime Contractor to verify source for temporary electrical power prior to bid.
- 2.12.33 This Prime Contractor is responsible for providing GFI tests with the GC and IOR each month on all temporary power provided by this Electrical Prime Contractor, label spider boxes or other service points in the field with the date testing was completed and keep a running test log in the safety binder to be kept in the GC's Trailer.
- 2.12.34 This Prime Contractor is responsible for coordinating, laying out, **providing, installing, maintaining and removing internet service lines to two (2) (Construction Manager and Inspector of Record's) office trailers at each site (assume a total of 4 separate trailers).** Final connection to and distribution within the trailers will be by this Electrical Prime Contractor. Provide and install wire, patch panel, connectors, ports, for wireless access point, phones, etc. The cost of monthly electrical usage and monthly telephone bill will be paid for by the Construction Manager or District. Note: Coordinate with District personnel on connectors, wire type, patch panels, etc.
- 2.12.35 This Prime Contractor is responsible for coordinating, laying out, providing, installing, maintaining and removing string lights for the buildings for the duration of the project. Coordinate with Construction Manager. String lights may need to be relocated during construction as work progresses to allow for installation of other trades work, and as different work areas become closed in and difficult to see. It is this Prime Contractors responsibility to coordinate with the other Prime Contractors in the Forepersons/Superintendent weekly meetings, or during Pull Planning sessions to make most efficient use of string lights.
- 2.12.36 This Prime Contractor is responsible for coordinating, laying out, providing and installing HVAC control conduit in building, as required.
- 2.12.37 This Prime Contractor is responsible for coordinating, laying out and providing power to all appliances and laboratory equipment for both sites. Coordinate with Specialties and Plumbing Prime Contractors as required.
- 2.12.38  **This Prime Contractor is responsible for coordinating, connecting, laying out and providing all electrical and low voltage wiring, connections and other electrical appurtenances as required to accommodate the new Laboratory Fume Hoods referenced in the added specification section 11 53 13. Coordinate with Plumbing, Specialties and HVAC & Controls Prime Contractors as required for a complete and functional fume hood system.**
- 2.12.39 This Prime Contractor is responsible for coordinating, laying out, providing and installing all projection screens and projectors where shown as new and is responsible for removing, storing

BID PACKAGE #12 – ELECTRICAL & LOW VOLTAGE DIVISION OF WORK

and reinstalling all projector and projector screens shown to remove and reinstall after improvements, including but not limited to mounts, extension brackets, patch cables, etc. for a complete and functional final installation. This Prime Contractor is also responsible to protect projectors and screens shown to protect in place to prevent damage during demolition and construction activities. This Prime Contractor is responsible for coordinating, removal and protection in advance of demolition activities and to ensure equipment is protected and stored on site or in place, until time to re-install. Ensure all trim and termination pieces, caulking, etc. are provided, applied and installed for a complete and like-new appearance. Coordinate with Demolition Prime Contractor.

- 2.12.40 This Prime Contractor is responsible for coordinating, laying out, providing and installing all electrical, electrical panels, panel boards, emergency lighting inverters, conduit, wiring, receptacles, j-boxes, switches, disconnects, lamps, light fixtures, lighting controls systems, testing, etc. per contract documents, as needed to complete both projects.
- 2.12.41 This Prime Contractor is responsible for coordinating, laying out, providing and installing all communications, voice/data/IP intercom, clock systems, security alarm complete, including but not limited to all equipment racks, main distribution frames, fee cables, MDF equipment, fiber optic patch cords, IDF frames and closets, speaker outlets & speakers, horns, clocks, faceplates, escutcheons, etc. as required for complete and operational communication systems.
- 2.12.42 This Prime Contractor is responsible for coordinating, laying out, providing and installing all audio visual systems complete, including connection to and coordination with existing systems as required, including but not limited to sound systems, AV equipment, integrated AV systems, portable assistive listening systems, HDMI cables, projection screens, projectors, projector & screen mounts, wall plates, stereo cables, extension brackets, patch cables, and all other appurtenances as required for a complete and operation system, at both sites, that are all fully incorporated into existing systems.
- 2.12.43 This Prime Contractor is responsible for coordinating and providing startup, testing, cleaning, inspection, balancing and maintenance of own work, until Owner's acceptance.
- 2.12.44 This Prime Contractor is responsible for coordinating, laying out, providing and installing own access doors and panels, as required by code whether shown on the drawings or not, and is responsible for coordinating and providing other Prime Contractors with coordination drawings, roughing in drawings and detailed working drawing for coordination, layout and rough-in requirements. Finishes Prime Contractor is responsible for providing and installing access panels shown on architectural sheets. This Prime Contractor required to provide and install all own access panels required for own work if not shown on architectural sheets.
- 2.12.45 This Prime Contractor is responsible for coordinating, laying out, providing and installing all labeling, marking, engraving and stenciling of own work, as required.
- 2.12.46 This Prime Contractor is responsible for coordinating, laying out, providing and installing all power connections including but not limited to conduit, wiring, wire mold, receptacles, j-boxes and final connections for all systems requiring power including but not limited to HVAC equipment, electrified plumbing finishes, irrigation controllers, appliances, existing and new laboratory equipment, etc., per contract documents.
- 2.12.47 This Prime Contractor is responsible for coordinating, laying out, providing and installing all light fixtures, diffusers, lit exit signage and light bollards per contract documents.
- 2.12.48 This Prime Contractor will provide all aircraft cabling, channels and any other material required to install pendant or hung lights.
- 2.12.49 When a discrepancy appears between the light fixture quantities when comparing the Architectural and Electrical Drawings, the Electrical Prime Contractor shall provide the greater

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quantity of fixtures and provide allowance per the specification, irrespective on which drawings they may be indicated.

- 2.12.50 This Prime Contractor is responsible for coordinating, laying out and securing seismic wires to light fixtures. Wires to be provided by this Prime Contractor. NOTE: portions of the existing T-bar ceiling at the FAEC are shown to protect in place. Coordinate as required for that site.
- 2.12.51 This Prime Contractor is responsible for coordinating, laying out, providing and installing the lighting control system, including but not limited to all required controls, lighting control panels, occupancy sensors, switches, sensors, network equipment, software, programming, and training per contract documents for a complete and operational system.
- 2.12.52 This Prime Contractor is responsible for coordinating, laying out, providing and installing all cable-trays, panel boards and terminal cabinets, switchboards, transformers, emergency lighting inverters, motor control equipment, fixtures, etc., for a complete and operational system, per contract documents.
- 2.12.53 This Prime Contractor is responsible for coordinating, laying out, providing and installing all seismic anchorage, unistrut, all thread, supports, embeds, inserts, hangers, backing plates, bracing, vibration isolation and insulation for own work as required.
- 2.12.54 This Prime Contractor is responsible for coordinating, laying out, providing and installing all flashing and sheet metal associated with own work including flashing at roof and wall penetrations and lead roof jacks.
- 2.12.55 This Prime Contractor is responsible for coordinating, laying out, providing and installing painting as required by electrical specifications.
- 2.12.56 This Prime Contractor is responsible for coordinating, laying out, providing and installing all cabinets and mounting boards for own work, including fire retardant plywood backboards shown in electric and communication rooms.
- 2.12.57 This Prime Contractor is responsible for coordinating, laying out, providing and installing drilling, sleeving or blocking out for electrical penetrations in any surfaces, including isolation dry-packing and patching. Blocking or heading out in framing to be performed by others during framing activity, as laid out by this Electrical Prime Contractor. In the event that layout does not occur in a timely manner, this Electrical Prime Contractor becomes responsible for all rework, reframing, coring, cutting, blocking, heading, etc., required to install own work.
- 2.12.58 This Prime Contractor is responsible for coordinating and laying out of items located in concrete or framing prior to installation of concrete or framing. In the event layout does not occur in a timely manner, this Electrical Prime Contractor becomes responsible for all rework, reframing, coring, cutting, patching, etc. required to install own work. Provide cut sheets indicating layout dimensions. In the event that coring of concrete or block walls is required, it is this Prime Contractors responsibility to GPR or X-Ray the areas to avoid coring through reinforcing steel.
- 2.12.59 This Prime Contractor is responsible to provide and install own sleeving and block-outs at wall and floors as required for own work. Coordinate with Finishes and Rough Carpentry Prime Contractors as required.
- 2.12.60 This Prime Contractor is responsible for coordinating and providing a competent person onsite during all concrete pours to monitor own work and ensure components in concrete are not disturbed and are at proper elevation and configuration.
- 2.12.61 This Prime Contractor is responsible for coordinating, laying out, providing and installing final electrical connections and all system terminations and wiring to all equipment including but not limited to electrical, plumbing, and HVAC mechanical equipment, and other equipment, etc., requiring electrical connection for complete and operational systems, per contract documents.
- 2.12.62 This Prime Contractor is responsible for coordinating and providing duct detectors to HVAC Prime

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- Contractor. This Prime Contractor is responsible for coordinating and providing final connection to fire alarm system. Note: HVAC Prime Contractor is responsible for installing duct detectors.
- 2.12.63 This Prime Contractor is responsible for coordinating, laying out, providing and installing emergency battery packs complete, per contract documents.
- 2.12.64 This Prime Contractor is responsible for coordinating, and reconnecting to existing fire alarm system as required at both sites.
- 2.12.65 This Prime Contractor is responsible to coordinate with Mechanical, and Plumbing Prime Contractors as required to complete and achieve acceptance of fire detection and alarm system.
- 2.12.66 This Prime Contractor is responsible for coordinating, laying out, providing and installing terminal cabinets for all low voltage including plywood backing, as required.
- 2.12.67 This Prime Contractor is responsible for coordinating and providing own engineering, calculations, testing, adjustments, certifications, and training as required per contract documents, including but not limited to Plans, Specifications, etc.
- 2.12.68 This Prime Contractor is responsible for providing, installing, maintaining and removing all impalement guards on all conduits protruding through slabs, walls and footings, as soon as they are placed. Coordinate with Construction Manager.
- 2.12.69 This Prime Contractor is responsible for coordinating and providing operational testing and instruction to Owner's personnel at each site. Submit certificate of compliance signed by Owner's representative to Construction Manager, upon completion of instruction.
- 2.12.70 This Prime Contractor is responsible for coordinating and providing a certified welder and welding testing, as required for own work.
- 2.12.71 This Prime Contractor is responsible for coordinating, laying out, providing and installing sealants, joint sealants, caulking, fire wrap and fire stopping at own penetrations. Provide caulking at all dissimilar materials.
- 2.12.72 This Prime Contractor is responsible for coordinating, laying out, providing and installing fire stopping associated with own work. All Fire Stopping shall be "RED" in color for identification purposes. As a part of the submittal process, this Prime Contractor shall provide UL details for all penetrations, for own work. If a UL detail is not available for a specific penetration related to this Prime Contractor's work, it will be this Prime Contractor's responsibility to have an evaluation and prescription provided for all special penetrations.
- 2.12.73 In the event of an electrical shutdown scheduled by this Prime Contractor, this Prime Contractor is responsible for providing temporary power as needed to the school and site, while power is unavailable, in order to ensure the operability of all building systems during the course of construction, for the site, all office trailers and all buildings.
- 2.12.74 This Prime Contractor shall coordinate with the Demolition Prime Contractor, and cap and safe off their respective above-ground. Removal of above-ground utilities shall be provided by the Demolition Prime Contractor.
- 2.12.75 This Prime Contractors shall coordinate their Work above ceiling, in chases, under slab, and in wall systems with the Work of other Prime Contractors to insure proper space utilization and conformance with the requirements of the Contract Documents. Conflicts arising from this Prime Contractor's failure to coordinate will be the responsibility of this Prime Contractor to resolve. All applicable Prime Contractor's shall jointly prepare, with HVAC and Plumbing, Electrical, Fire Protection and Framing Prime Contractors, overlay drawings indicating the vertical and horizontal routing of pipes, bracing and accessories so as to avoid any conflicts. All applicable Prime Contractor's, including but not limited to Mechanical HVAC, Electrical, Plumbing will be responsible for attending weekly and or bi- weekly MEP coordination and/or BIM meetings. This Prime Contractor understands that the coordination and/or BIM meetings may begin prior to

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mobilization on site.

- 2.12.76 This Prime Contractor is responsible for providing one qualified laborer **25 hours for WHHS** and **25 hours for FAEC** for additional clean up while performing work on site per schedule as directed by Construction Manager. Each Prime Contractor still responsible for clean-up of own work. All hours to be directed and documented by Construction Manager. All unused hours will be credited back, via a deductive change order.
- 2.12.77 This Prime Contractor is responsible for coordinating with each Prime Contractor, Consultant and Construction Manager, as required for coordination and proper installation of own work, as it pertains to this bid package. Coordination may include additional site visits, coordination meetings and providing additional copies of submittals, shop drawings and coordination drawings.

END OF BID PACKAGE

<p>For Reference, Specification Sections (as shown BELOW) applying to the work of individual Bid Packages are indicated by a letter "P" or "S" occurring in the box or boxes opposite that Bid Package number below. Specification Sections marked with a "P" are the Primary Prime Contractors responsibility. Specification Sections marked with an "S" are related to the Prime Contactor scope of work and may require resources, coordination, equipment and/or material as a supplementary or ancillary task, product or material required to provide a complete and functional system for primary scope included in each respective Bid Package. The Prime Contractor shall be responsible for coordination of all primary and related specifications.</p>		BP #01 DEMOLITION & ABATEMENT	BP #02 LANDSCAPE & IRRIGATION	BP #03 PLUMBING & UTILITIES	BP #04 CONCRETE, SITE FURNISHINGS, SITEWORK	BP #05 ROUGH CARPENTRY	BP #06 FINISH CARPENTRY & COUNTERTOPS	BP #07 GLAZING, STOREFRONT	BP #08 FINISHES, CEILINGS, PLASTER, DOORS	BP #09 FLOORING, TILING	BP #10 SPECIALTIES	BP #11 HVAC & CONTROLS	BP #12 ELECTRICAL & LOW VOLTAGE	BP #13 FIRE SPRINKLER
Division 00	Procurement and Contracting Requirements													
00 01 01	Project Title Page	P	P	P	P	P	P	P	P	P	P	P	P	P
00 01 02	Project Informaton	P	P	P	P	P	P	P	P	P	P	P	P	P
00 01 07	Seals Page - Signed	P	P	P	P	P	P	P	P	P	P	P	P	P
00 01 10	Table of Contents	P	P	P	P	P	P	P	P	P	P	P	P	P
00 40 25	Request for Information	P	P	P	P	P	P	P	P	P	P	P	P	P
00 43 25	Substitution Request Form - During Procurement	P	P	P	P	P	P	P	P	P	P	P	P	P
00 63 25	Substitution Request Form - During Constructon	P	P	P	P	P	P	P	P	P	P	P	P	P
Division 01	General Requirements													
01 10 00	Summary	P	P	P	P	P	P	P	P	P	P	P	P	P
01 20 00	Price and Payment Procedures	P	P	P	P	P	P	P	P	P	P	P	P	P
01 25 00	Substitution Procedures	P	P	P	P	P	P	P	P	P	P	P	P	P
01 30 00	Administrative Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 30 00.01	Request for Interpretation	P	P	P	P	P	P	P	P	P	P	P	P	P
01 30 00.02	Submittal Transmittal	P	P	P	P	P	P	P	P	P	P	P	P	P
01 31 14	Facility Services Coordination	P	P	P	P	P	P	P	P	P	P	P	P	P
01 40 00	Quality Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 41 00	Regulatory Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 42 19	Reference Standards	P	P	P	P	P	P	P	P	P	P	P	P	P
01 45 33	Code-Required Special Inspections	P	P	P	P	P	P	P	P	P	P	P	P	P
01 50 00	Temporary Facilities and Controls	P	P	P	P	P	P	P	P	P	P	P	P	P
01 57 19	Temporary Environmental Controls	P	P	P	P	P	P	P	P	P	P	P	P	P
01 58 13	Temporary Project Signage	P	P	P	P	P	P	P	P	P	P	P	P	P
01 60 00	Product Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 61 16	Volatile Organic Compound (VOC) Content Restrictons	P	P	P	P	P	P	P	P	P	P	P	P	P
01 61 16.01	Accessory Material VOC Content Certification Form	P	P	P	P	P	P	P	P	P	P	P	P	P
01 70 00	Execution and Closeout Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 73 56	Alteration and Modernization Execution Procedures	P	P	P	P	P	P	P	P	P	P	P	P	P
01 74 19	Constructon Waste Management and Disposal	P	P	P	P	P	P	P	P	P	P	P	P	P
01 74 19.01	Form Attachments	P	P	P	P	P	P	P	P	P	P	P	P	P
01 76 10	Temporary Protective Coverings	P	P	P	P	P	P	P	P	P	P	P	P	P
01 78 00	Closeout Submittals	P	P	P	P	P	P	P	P	P	P	P	P	P
01 78 01	Warranty Letter Form	P	P	P	P	P	P	P	P	P	P	P	P	P
01 79 00	Demonstration and Training	P	P	P	P	P	P	P	P	P	P	P	P	P
Division 02	Existing Conditions													
02 41 00	Demolition	P		P									S	
02 84 00	Polychlorinate Biphenyl (PCB) Remediaton	P												
Division 03	Concrete													

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03 01 00	Maintenance of Concrete			P						P				
03 30 00	Cast-in-Place Concrete			P										
03 35 11	Concrete Floor Finishes			P										
Division 05 Metals														
05 05 19	Post-Installed Concrete Anchors			P					P		S			
05 40 00	Cold-Formed Metal Framing								P					
05 50 00	Metal Fabrications			P					P					
Division 06 Wood and Plastics and Composites														
06 10 63	Miscellaneous Rough Carpentry					P								
06 20 00	Finish Carpentry					P								
06 41 00	Architectural Wood Casework					P								
06 83 16	Fiberglass Reinforced Paneling								P					
Division 07 Thermal and Moisture Protection														
07 21 00	Thermal Insulation								P					
07 25 00	Weather Barriers								P					
07 62 00	Sheet Metal Flashing and Trim								P					
07 92 00	Joint Sealants			P	P		P	P	P	P	P	P	P	P
Division 08 Openings														
08 06 71	Door Hardware Schedule							P	P					
08 11 13	Hollow Metal Doors and Frames								P					
08 31 00	Access Doors and Panels			P					P			P	P	P
08 43 13	Aluminum-Framed Storefronts							P	P					
08 71 00	Door Hardware							P	P					
08 80 00	Glazing							P	P					
Division 09 Finishes														
09 05 61	Common Work Results for Flooring Preparation									P				
09 21 16	Gypsum Board Assemblies								P					
09 22 36	Lath								P					
09 24 00	Cement Plastering								P					
09 30 00	Tiling									P				
09 51 00	Acoustical Ceilings								P					
09 65 00	Resilient Flooring									P				
09 68 13	Tile Carpeting									P				
09 72 00	Wall Coverings								P					
09 72 16.26	Architectural Vinyl Graphic Films								P					
09 72 60	Resilient Tackable Wall Covering								P					
09 84 30	Sound-Absorbing Wall and Ceiling Units								P					
09 91 13	Exterior Painting								P					

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09 91 23	Interior Painting								P					
Division 10 Specialties														
10 11 00	Visual Display Units										P			
10 14 00	Signage										P			
10 14 53	Traffic, Parking and Site Signage				P									
10 21 13 19	Plastic Toilet Compartments										P			
10 26 00	Wall and Door Protection								P					
10 28 00	Toilet Accessories										P			
10 44 00	Fire Protection Specialties										P			
10 51 13	Metal Lockers										P			
Division 12 Furnishings														
12 15 00	Display System										P			
12 36 00	Countertops						P							
Division 13 Special Construction														
13 31 33.10	Single Post Fabric Shade Structure				P									
Division 21 Fire Suppression														
21 13 13	Wet-Pipe Sprinkler Systems													P
Division 22 Plumbing														
22 05 17	Sleeves and Sleeve Seals for Plumbing Piping			P										
22 05 18	Escutcheons for Plumbing Piping			P										
22 05 19	Meters and Gauges for Plumbing Piping			P										
22 05 23	General-Duty Valves for Plumbing Piping			P										
22 05 29	Hangers and Supports for Plumbing Piping and Equipment			P										
22 05 48	Vibration and Seismic Controls for Plumbing Piping and Equipment			P										
22 05 53	Identification for Plumbing Piping and Equipment			P										
22 07 19	Plumbing Piping Insulation			P										
22 11 16	Domestic Water Piping			P										
22 11 19	Domestic Water Piping Specialties			P										
22 13 16	Sanitary Waste and Vent Piping			P										
22 13 19	Sanitary Waste Piping Specialties			P										
22 41 00	Residential Plumbing Fixtures			P										
22 42 13.13	Commercial Water Closets			P										
22 42 13.16	Commercial Urinals			P										
22 42 16.13	Commercial Lavatories			P										
22 47 13	Drinking Fountains			P										
Division 23 Heating, Ventilating, and Air Conditioning														
23 00 10	Mechanical General Requirements											P		

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23 00 50	Basic Mechanical Materials and Methods											P		
23 01 30.51	HVAC Air-Distribution System											P		
23 05 29	Hangers and Supports for HVAC											P		
23 05 93	Testing, Adjusting, and Balancing for HVAC											P		
23 07 13	Duct Insulation											P		
23 07 19	HVAC Piping Insulation											P		
23 09 00	Instrumentation and Control for HVAC											P		
23 09 80	Mechanical Commissioning											P		
23 09 93	Sequence of Operations for HVAC Controls											P		
23 23 00	Refrigerant Piping											P		
23 31 13	Metal Ducts											P		
23 33 00	Air Duct Accessories											P		
23 37 13	Diffusers, Registers, and Grilles											P		
23 81 26	Split-System Air-Conditioners											P		
Division 26 Electrical														
26 01 00	General Provisions												P	
26 05 19	Power Conductors												P	
26 05 26	Grounding												P	
26 05 33	Conduit and Fittings												P	
26 05 34	Outlet and Junction Boxes												P	
26 08 00	Commissioning												P	
26 09 23	Digital Lighting Control System												P	
26 24 16	Panelboards												P	
26 27 26	Switches and Receptacles												P	
26 28 16	Disconnects												P	
26 51 14	LED Lighting Fixtures and Lamps												P	
26 90 90	Testing												P	
Division 27 Communications														
27 01 00	General Provisions												P	
27 10 00	Voice Data Infrastructure												P	
27 20 00	Integrated Audio Visual Systems												P	
27 41 19	Portable Assistive Listening System												P	
Division 28 Electronic Safety and Security														
28 01 00	General Provisions												P	
28 13 00	Security System												P	
28 30 00	Fire Alarm System												P	
Division 31 Earthwork														
31 23 16.13	Trenching		P	P	P								P	

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Division 32 Exterior Improvements														
32 12 16	Asphalt Paving				P									
32 18 13	Concrete Paving				P									
32-17-13	Parking Bumpers				P									
32-17-23-13	Painted Pavement Markings				P									
32-17-26	Tactile Warning Surfacing				P									
32 31 19	Decorative Metal Fence and Gates				P									
32 84 23	Irrigation System		P											
32 93 00	Planting		P											
Temporary & General Services														
	Temporary Site Fencing & Gates				P									
	Temporary Site & CM / IOR Office Power & Internet												P	
	Temporary Site Water			P										
	Site SWPPP BMPs (Supply & Maintain)				P									
	Temporary Restroom & Handwash Facilities								P					
	Dumpsters & Site Trash	P							P					
	Construction Fire Extinguishers								P					
	Site Construction Signage								P					
	Final Cleaning								P					
	COVID Temperature & Check-in Station								P					

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Division 00 Procurement and Contracting Requirements														
00 01 01	Project Title Page	P	P	P	P	P	P	P	P	P	P	P	P	P
00 01 02	Project Information	P	P	P	P	P	P	P	P	P	P	P	P	P
00 01 07	Seals Page - Signed	P	P	P	P	P	P	P	P	P	P	P	P	P
00 01 08	Deferred Approvals	P	P	P	P	P	P	P	P	P	P	P	P	P
00 01 10	Table of Contents	P	P	P	P	P	P	P	P	P	P	P	P	P
00 40 25	Request for Information	P	P	P	P	P	P	P	P	P	P	P	P	P
00 43 25	Substitution Request Form - During Procurement	P	P	P	P	P	P	P	P	P	P	P	P	P
00 63 25	Substitution Request Form - During Construction	P	P	P	P	P	P	P	P	P	P	P	P	P
Division 01 General Requirements														
01 10 00	Summary	P	P	P	P	P	P	P	P	P	P	P	P	P
01 20 00	Price and Payment Procedures	P	P	P	P	P	P	P	P	P	P	P	P	P
01 25 00	Substitution Procedures	P	P	P	P	P	P	P	P	P	P	P	P	P
01 30 00	Administrative Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 30 00.01	Request for Interpretation	P	P	P	P	P	P	P	P	P	P	P	P	P
01 30 00.02	Submittal Transmittal Form	P	P	P	P	P	P	P	P	P	P	P	P	P
01 35 50	Requests for Electronic Files	P	P	P	P	P	P	P	P	P	P	P	P	P
01 35 53	Security Procedures	P	P	P	P	P	P	P	P	P	P	P	P	P
01 40 00	Quality Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 41 00	Regulatory Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 42 19	Reference Standards	P	P	P	P	P	P	P	P	P	P	P	P	P
01 45 33	Code-Required Special Inspections	P	P	P	P	P	P	P	P	P	P	P	P	P
01 50 00	Temporary Facilities and Controls	P	P	P	P	P	P	P	P	P	P	P	P	P
01 57 19	Temporary Environmental Controls	P	P	P	P	P	P	P	P	P	P	P	P	P
01 58 13	Temporary Project Signage	P	P	P	P	P	P	P	P	P	P	P	P	P
01 60 00	Product Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 61 16	Volatile Organic Compound (VOC) Content Restrictions	P	P	P	P	P	P	P	P	P	P	P	P	P
01 61 16.01	Accessory Material VOC Content Certification Form	P	P	P	P	P	P	P	P	P	P	P	P	P
01 70 00	Execution and Closeout Requirements	P	P	P	P	P	P	P	P	P	P	P	P	P
01 73 56	Alteration and Modernization Execution Procedures	P	P	P	P	P	P	P	P	P	P	P	P	P
01 74 19	Construction Waste Management and Disposal	P	P	P	P	P	P	P	P	P	P	P	P	P
01 74 19.01	Form Attachment	P	P	P	P	P	P	P	P	P	P	P	P	P
01 76 10	Temporary Protective Coverings	P	P	P	P	P	P	P	P	P	P	P	P	P
01 78 00	Closeout Submittals	P	P	P	P	P	P	P	P	P	P	P	P	P
01 78 00.01	Warranty Form Letter	P	P	P	P	P	P	P	P	P	P	P	P	P
01 79 00	Demonstration and Training	P	P	P	P	P	P	P	P	P	P	P	P	P
Division 02 Existing Conditions														

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02 41 00	Demolition	P					P				P			
Division 03 Concrete														
03 10 00	Concrete Forming and Accessories				P									
03 20 00	Concrete Reinforcing				P									
03 30 00	Cast-in-Place Concrete				P									
Division 05 Metals														
05 05 19	Post-Installed Concrete Anchors				P	P	P		P		P			
05 50 00	Metal Fabrications								P					
05 52 13	Pipe and Tube Railings			P										
Division 06 Wood and Plastics and Composites														
06 05 73	Wood Treatment					P	P							
06 10 00	Rough Carpentry					P								
06 20 00	Finish Carpentry						P							
06 41 00	Architectural Wood Casework						P							
06 83 16	Fiberglass Reinforced Paneling								P					
Division 07 Thermal and Moisture Protection														
07 01 50.20	Roofing Restoration Patch and Repair					P			P					
07 21 00	Thermal Insulation								P					
07 25 00	Weather Barriers								P					
07 62 00	Sheet Metal Flashing and Trim								P					
07 92 00	Joint Sealants			P	P	P	P		P	P	P	P	P	
Division 08 Openings														
08 06 71	Door Hardware Schedule								P					
08 11 13	Hollow Metal Doors and Frames								P					
08 14 16	Flush Wood Doors								P					
08 31 00	Access Doors and Panels			P		P			P				P	
08 71 00	Door Hardware								P					
08 80 00	Glazing								P					
Division 09 Finishes														
09 05 61	Common Work Results for Flooring Preparation									P				
09 21 16	Gypsum Board Assemblies								P					
09 22 36	Lath								P					
09 24 00	Cement Plastering								P					
09 51 00	Acoustical Ceilings								P					
09 65 00	Resilient Flooring									P				
09 68 13	Tile Carpeting									P				
09 91 13	Exterior Painting								P					

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09 91 23	Interior Painting								P					
09 96 00	High-Performance Coatings								P					
Division 10 Specialties														
10 11 00	Visual Display Units										P			
10 14 00	Signage										P			
10 22 39	Folding Panel Partitions										P			
10 26 00	Wall and Door Protection								P					
10 44 00	Fire Protection Specialties										P			
Division 11 Equipment														
11 52 13	Projection Screens												P	
11 53 00	Laboratory Equipment			S							P		S	
11 53 13	Laboratory Fume Hoods			S							P	S	S	
Division 12 Furnishings														
12 35 53.19	Wood Laboratory Casework [OFCL]						P							
12 61 10	Fixed Lecture Seating										P			
Division 22 Plumbing														
22 05 17	Sleeves and Sleeve Seals for Plumbing Piping			P										
22 05 18	Escutcheons for Plumbing Piping			P										
22 05 19	Meters and Gauges for Plumbing Piping			P										
22 05 23	General-Duty Valves for Plumbing Piping			P										
22 05 29	Hangers and Supports for Plumbing Piping and Equipment			P										
22 05 48	Vibration and Seismic Controls for Plumbing Piping and Equipment			P										
22 05 53	Identification for Plumbing Piping and Equipment			P										
22 07 19	Plumbing Piping Insulation			P										
22 11 16	Domestic Water Piping			P										
22 11 19	Domestic Water Piping Specialties			P										
22 13 16	Sanitary Waste and Vent Piping			P										
22 13 19	Sanitary Waste and Vent Piping Specialties			P										
22 42 16.16	Commercial Sinks			P										
22 45 00	Emergency Plumbing Fixtures			P										
22 66 00	Chemical-Waste Systems for Laboratory Facilities			P										
Division 23 Heating, Ventilating, and Air Conditioning														
23 31 13	Duct Cleaning											P		
23 37 13	Diffusers, Registers, and Grilles											P		
Division 26 Electrical														
26 01 00	Electrical General Provisions												P	

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26 05 19	Power Conductors												P	
26 05 26	Grounding												P	
26 05 33	Conduit and Fittings												P	
26 05 34	Outlet and Junction Boxes												P	
26 08 00	Commissioning of Electrical Systems												P	
26 09 23	Digital Lighting Control System												P	
26 24 16	Panelboards												P	
26 27 26	Switches and Receptacles												P	
26 28 16	Disconnects												P	
26 51 14	LED Lighting Fixtures and Lamps												P	
26 90 90	Electrical Closeout												P	
Division 27 Communications														
27 01 00	Communications General Provisions												P	
27 10 00	Voice/Data/IP Intercom-Clock Infrastructure												P	
27 20 00	Integrated Audio/Visual System												P	
Division 32 Exterior Improvements														
32 13 13	Concrete Paving				P									
32 31 13	Chain Link Fence and Gates				P									
Temporary & General Services														
	Temporary Site Fencing & Gates				P									
	Temporary Site & CM / IOR Office Power & Internet												P	
	Temporary Site Water			P										
	Site SWPPP BMPs (Supply & Maintain)				P									
	Temporary Restroom & Handwash Facilities								P					
	Dumpsters & Site Trash	P							P					
	Construction Fire Extinguishers								P					
	Site Construction Signage								P					
	Final Cleaning								P					
	COVID Temperature & Check-in Station								P					

Revised Specialties CN- 2456 Bid Form

(00300)
REVISED BID FORM

COMPANY NAME: _____

TO: Grossmont Union High School District, acting by and through its Governing Board, herein called the "District":

1. Pursuant to and in compliance with your Notice to Contractors Calling for Bids and the other documents relating thereto, the undersigned bidder, having thoroughly examined and familiarized himself with the terms of the contract, the local conditions affecting the performance of the contract and the cost of the work at the place where the work is to be done, and with the drawings and specifications and other contract documents, hereby proposes and agrees to perform, within the time stipulated, the contract, including all of its component parts, and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment, and all utility and transportation services necessary to perform the contract and complete in a workmanlike manner all of the work required in connection with the:

**FOOTHILLS ADULT REMODEL AND
WEST HILLS SCIENCE RENOVATION
MULTI PRIME
SPECIALTIES CN-2456**

all in strict conformity with the drawings and specifications and other contract documents, including addenda nos. _____, _____, _____, and _____, on file at the office of Assistant Superintendent, Business Services of District for the sum of:

BASE BID LINE ITEMS:

Line Item 1 (all work at the Foothills campus)

\$ _____

Line Item 2 (all work at the West Hills campus)

\$ _____

BASE BID TOTAL (Line 1 + Line 2):

_____ Dollars and
_____ Cents.

(\$_____). Said sums includes all applicable taxes and costs.

ALLOWANCE(S):

Allowances for work not included in the plans and specifications: (to be used at the direction of the District or its representative):

Unforeseen Specialty Equipment and Associated Connection to Building Systems	\$	10,000
Total Allowances:		\$ 10,000

TOTAL EXTENDED BID PRICE (BASE BID TOTAL + ALLOWANCE):

_____ Dollars and
_____ Cents.

(\$_____). Said sums includes all applicable taxes and costs. And is the basis for award.

2. It is understood that the District reserves the right to reject this bid and that this bid shall remain open and not be withdrawn for the period specified in the Notice to Contractors Calling for Bids.
3. The following forms are to be submitted with the bid. Failure to submit these forms may render the bid non-responsive:
 - a. Bid Security Form (bid bond) or Bid Guarantee Form (no bid bond) - 00410
 - b. Proposed Subcontractors Form (for listing subcontractors) – 00430
 - c. List Of Proposed Prequalified MEP Or A/B Subcontractors Under ½ of 1% - 00430A
 - d. Non-Collusion Affidavit – 00480
 - e. Information Required of Bidder – 00490
 - f. Iran Contract Form – 00750A
 - g. Certification of Compliance with DVBE Policy (if applicable)- 00751
 - h. Bidder's Acknowledgment of Project Schedule and Phasing - 00752
 - i. Site Visit Certification - 00753
 - j. Acknowledgment of Bidding Practices Regarding Indemnity – 00754
 - k. DVBE and/or GFE – Attachment B
4. It is understood and agreed that bidder shall provide the addresses, telephone numbers, and license numbers of all listed subcontractors within one business day of bid opening or bidder's bid may be rejected as nonresponsive.
5. It is understood and agreed that if written notice of the acceptance of this bid is mailed, telegraphed, or delivered to the undersigned after the opening of the bid, and within the time this bid is required to remain open, or at any time thereafter before this bid is withdrawn, the undersigned will execute and deliver to the District a contract in the form attached hereto in accordance with the bid as accepted. The undersigned will also furnish and deliver to the District the Performance Bond and Payment Bond for Public Works as specified, all within **ten (10)** calendar days after receipt of the Preliminary Notice of Award. The work under the contract shall be commenced by the undersigned bidder, if awarded

the contract, on the date to be stated in the District's Notice to the Contractor to Proceed, and shall be completed by the Contractor in the time specified in the contract documents.

6. Notice of acceptance or requests for additional information should be addressed to the undersigned at the address stated below:

Owner

Grossmont Union High School District
Attn: Rian Pinson
Director, Purchasing
1100 Murray Drive
El Cajon, CA 92020
619-644-8051 Fax 619-460-0963
rpinson@guhsd.net

With Copies to:

Balfour Beatty
Attn: Katy Johnson
Sr. Project Manager

kjohnson@balfourbeattyus.com

7. The names of all persons interested in the foregoing proposal as principals are as follows:

—

—

____ (IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager thereof; if a copartnership, state true name of firm, also names of all individual copartners comprising the firm; if bidder or other interested person is an individual, state first and last names in full.)

8. Bidder certifies that he is licensed in accordance with the law providing for the registration of Contractors, License No. _____, Expiration Date _____, class of license _____. Copy of bidders wallet license is **attached hereto**.

I, _____, the _____ of the bidder, hereby certify under penalty of perjury under the laws of the State of California, that all of the information submitted by the bidder in connection with this bid and all of the representations made herein are true and correct.

Executed on this _____ day of _____, 20__ at _____ County, California.

Proper Name of Bidder _____

By

BF - 3 CN

Signature of Bidder

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the signatures of authorized officers or agents and the document shall bear the corporate seal; if bidder is a partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; and if bidder is an individual, his or her signature shall be placed above.

Company Name: _____

Business Address: _____

Contact Person: _____

Contact E-mail: _____

Telephone: () _____

Facsimile: () _____

DIR Number: _____

Updates to Plans and Specs



March 18, 2021

ADDENDUM NO. 2

TO THE CONTRACT DOCUMENTS

FOR

WEST HILLS SCIENCE BUILDING MODERNIZATION and FOOTHILLS ADULT EDUCATION TENNANT IMPROVEMENT

FOR THE

GROSSMONT UNION HIGH SCHOOL DISTRICT
1100 Murray Drive
El Cajon, CA 92020

DSA #04-119771	FILE #37-H4	RCA Job No. 1-30-50
DSA #04-119728	FILE #37-H4	RCA Job No. 1-30-47

NOTICE TO BIDDERS

This Addendum forms a part of the Contract and modifies the original documents DSA Approved on February 18th, 2021 and March 10th, 2021. It is intended that all work affected by the following modifications shall conform with related provisions and general conditions of the contract of the original drawings and specifications. Modify the following items wherever appearing in any drawing or sections of the specifications. Acknowledge receipt of Addendum No. 2 in the space provided on the Bid Form. Failure to do so may subject bidder to disqualification.

CHANGES TO SPECIFICATIONS - FOOTHILLS ADULT ED:

- | | |
|--------------|--|
| Item No. 2.1 | Reference Specification Section 00 01 10: |
| 2.1.1 | Replace Specification Section 00 01 10 - Table of Contents in its entirety with attached revised Section 00 01 10. |
| Item No. 2.2 | Reference Specification Section 01 78 00.01: |
| 2.2.1 | Add new Specification Section 01 78 00.01 - Warranty Form Letter in its entirety. |
| Item No. 2.3 | Reference Specification Section 08 06 71: |
| 2.3.1 | Replace Specification Section 08 06 71 - Door Hardware Schedule in its entirety with attached revised Section 08 06 71. |
| Item No. 2.4 | Reference Specification Section 08 43 13: |
| 2.4.1 | Replace Specification Section 08 43 13 - Aluminum-Framed Storefronts in its entirety with attached revised Section 08 43 13. |
| Item No. 2.5 | Reference Specification Section 08 80 00: |
| 2.5.1 | Replace Specification Section 08 80 00 - Glazing in its entirety with attached revised Section 08 80 00. |
| Item No. 2.6 | Reference Specification Section 10 14 53: |
| 2.6.1 | Remove Specification Section 10 14 53 - Traffic, Parking, and Site Signage in its entirety. |

- Item No. 2.7 Reference Specification Section 27 10 00:
2.7.1 Replace Specification Section 27 10 00 – Voice Data Infrastructure in its entirety with attached revised Section 27 10 00.
- Item No. 2.8 Reference Specification Section 27 20 00:
2.8.1 Replace Specification Section 27 20 00 – Integrated Audio/Visual System in its entirety with attached revised Section 27 20 00.
- Item No. 2.9 Reference Specification Section 28 13 00:
2.9.1 Add new Specification Section 28 13 00 – Security System in its entirety.
- Item No. 2.10 Reference Specification Section 32 17 13:
2.10.1 Remove Specification Section 32 17 13 Parking Bumpers in its entirety.
- Item No. 2.11 Reference Specification Section 32 17 23.13:
2.11.1 Remove Specification Section 32 17 23.13 Painted Pavement Marking in its entirety.
- Item No. 2.12 Reference Specification Section 32 17 26:
2.12.1 Remove Specification Section 32 17 26 Tactile Warning Surfacing in its entirety.

CHANGES TO DRAWINGS - FOOTHILLS ADULT ED:

- Item No. 2.13 Reference Sheet T-1 Title Sheet & Sheet Index:
2.13.1 Replace Sheet T-1 in its entirety with attached revised Sheet T-1.
- Item No. 2.14 Reference Sheet AS-1.1A- Demolition Site Plan
2.14.1 Replace Sheet AS-1.1A in its entirety with attached revised Sheet AS-1.1A.
- Item No. 2.15 Reference Sheet AS-1.2- Enlarged Site Plans
2.15.1 Replace Sheet AS-1.2 in its entirety with attached revised Sheet AS-1.2
- Item No. 2.16 Reference Sheet A1-1.1 – Floor Plan-Demo
2.16.1 Replace Sheet A1-1.1 in its entirety with attached revised Sheet A1-1.1
- Item No. 2.17 Reference Sheet A1-1.2 – Floor Plan-New
2.17.1 Replace Sheet A1-1.2 in its entirety with attached revised Sheet A1-1.2
- Item No. 2.18 Reference Sheet A1-2.1 – Reflected Ceiling Plan- Demo
2.18.1 Replace Sheet A1-2.1 in its entirety with attached revised Sheet A1-2.1
- Item No. 2.19 Reference Sheet A1-2.2 – Reflected Ceiling Plan- Demo
2.19.1 Replace Sheet A1-2.2 in its entirety with attached revised Sheet A1-2.2
- Item No. 2.20 Reference Sheet A1-7.5 – Enlarged Plans & Interior Elevations
2.20.1 Replace Sheet A1-7.5 in its entirety with attached revised Sheet A1-7.5
- Item No. 2.21 Reference Sheet A8.1 – Door Schedule & Window Types
2.21.1 Replace Sheet A8.1 in its entirety with attached revised Sheet A8.1
- Item No. 2.22 Reference Sheet AD6.1 – Door & Window Details
2.22.1 Replace Sheet AD6.1 in its entirety with attached revised Sheet AD6.1
- Item No. 2.23 Reference Sheet AD7.1 – Details
2.23.1 Replace Sheet AD7.1 in its entirety with attached revised Sheet AD7.1
- Item No. 2.24 Reference Sheet E1.0- Electrical Symbols and Notes:
2.24.1 Replace Sheet E1.0 in its entirety with attached revised Sheet E1.0.
- Item No. 2.25 Reference Sheet E1.1- Overall Site Plan:

- 2.25.1 Replace Sheet E1.1 in its entirety with attached revised Sheet E1.1.
- Item No. 2.26 Reference Sheet E3.1- Floor Plan New A Power:
2.26.1 Replace Sheet E3.1 in its entirety with attached revised Sheet E3.1.
- Item No. 2.27 Reference Sheet E3.2- Floor Plan New B Power:
2.27.1 Replace Sheet E3.2 in its entirety with attached revised Sheet E3.2.
- Item No. 2.28 Reference Sheet E4.0- Communication Legend and Notes:
2.28.1 Replace Sheet E4.0 in its entirety with attached revised Sheet E4.0.
- Item No. 2.29 Reference Sheet E4.1- Floor Plan New A Communications:
2.29.1 Replace Sheet E4.1 in its entirety with attached revised Sheet E4.1.
- Item No. 2.30 Reference Sheet E4.2- Floor Plan New B Communications:
2.30.1 Replace Sheet E4.2 in its entirety with attached revised Sheet E4.2.
- Item No. 2.31 Reference Sheet E4.2.1- Enlarged Site Building Communications:
2.31.1 Add new Sheet E4.2.1 in its entirety.
- Item No. 2.32 Reference Sheet E4.4- Communications Details:
2.32.1 Replace Sheet E4.4 in its entirety with attached revised Sheet E4.4.
- Item No. 2.33 Reference Sheet E4.8- Audio Visual System Details:
2.33.1 Add new Sheet E4.8 in its entirety.
- Item No. 2.34 Reference Sheet E10.1- Floor Plan Demo A:
2.34.1 Replace Sheet E10.1 in its entirety with attached revised Sheet E10.1.
- Item No. 2.35 Reference Sheet E10.2- Floor Plan Demo B:
2.35.1 Replace Sheet E10.2 in its entirety with attached revised Sheet E10.2.

CHANGES TO SPECIFICATIONS - WEST HILLS SCIENCE CLASSROOM:

- Item No. 2.36 Reference Specification Section 00 01 10:
2.36.1 Replace Specification Section 00 01 10 - Table of Contents in its entirety with attached revised Section 00 01 10.
- Item No. 2.37 Reference Specification Section 05 52 13:
2.37.1 Add new Specification Section 05 52 13 – Pipe and Tube Railings to Table of Contents
- Item No. 2.38 Reference Specification Section 11 53 13:
2.38.1 Add new Specification Section 11 52 13 – Laboratory Fume Hoods in its entirety.
- Item No. 2.39 Reference Specification Section 12 61 10:
2.39.1 Replace Specification Section 12 61 10 – Fixed Lecture Seating in its entirety with attached Specification Section 12 61 00.
- Item No. 2.40 Reference Specification Section 27 20 00:
2.40.1 Replace Specification Section 27 20 00– Integrated Audio/ Visual System in its entirety with attached Specification Section 27 20 00

CHANGES TO DRAWINGS - WEST HILLS SCIENCE CLASSROOM:

- Item No. 2.41 Reference Sheet T-1 Title Sheet & Sheet Index:
2.41.1 Replace Sheet T-1 in its entirety with attached revised Sheet T-1.
- Item No. 2.42 Reference Sheet A-1.0 - Building 12 Floor Plan Demo:
2.42.1 Replace Sheet A-1.0 in its entirety with attached revised Sheet A-1.0.

- Item No. 2.43 Reference Sheet A-1.1- Building 12 Floor Plan -Mod.:
2.43.1 Replace Sheet A-1.1 in its entirety with attached revised Sheet A-1.1.
- Item No. 2.44 Reference Sheet A-7.4- Building 12 Interior Elevations:
2.44.1 Replace Sheet A-7.4 in its entirety with attached revised Sheet A-7.4.
- Item No. 2.45 Reference Sheet A-7.5- Building 12 Interior Elevations:
2.45.1 Replace Sheet A-7.5 in its entirety with attached revised Sheet A-7.5.
- Item No. 2.46 Reference Sheet E4.0- Communication Legend & Notes:
2.46.1 Replace Sheet E4.0 in its entirety with attached revised Sheet E4.0.
- Item No. 2.47 Reference Sheet E4.1- Level 1 Floor Plan- Communications:
2.47.1 Replace Sheet E4.1 in its entirety with attached revised Sheet E4.1.
- Item No. 2.48 Reference Sheet E4.5- Communications Details:
2.48.1 Replace Sheet E4.5 in its entirety with attached revised Sheet E4.5.
- Item No. 2.49 Reference Sheet E4.6- Communications Details:
2.49.1 Add New Sheet E4.6 in its entirety.

ATTACHMENTS - FOOTHILLS ADULT ED:

Specifications: 00 01 10, 01 78 00.01, 08 06 71, 08 43 13, 08 80 00, 27 10 00, 27 20 00, 28 13 00

Sketches:

Drawings: T-1, AS-1.1A, AS-1.2, A1-1.1, A1-1.2, A1-2.1, A1-2.2, A1-7.5, A8.1, AD6.1, AD7.1, E1.0, E1.1, E3.1, E3.2, E4.0, E4.1, E4.2, E4.2.1, E4.4, E4.8, E10.1, E10.2

ATTACHMENTS - WESTHILLS SCIENCE CLASSROOM:

Specifications: 00 01 10, 05 52 13, 11 53 13, 12 61 10, 27 20 00

Sketches:

Drawings: T-1, A-1.0, A-1.1, A-7.4, A-7.5, E4.0, E4.1, E4.5, E4.6

END OF ADDENDUM 2

David Ruhnau, Principal
#C-20662



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26 24 16 - Panelboards
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32 12 16 - ~~Asphalt Paving (Deleted)~~

Addendum 2

32 13 13 - Concrete Paving

32 17 13 - ~~Parking Bumpers (Deleted)~~

Addendum 2

32 17 23.13 - ~~Painted Pavement Markings (Deleted)~~

Addendum 2

32 17 26 - ~~Tactile Warning Surfacing(Deleted)~~

Addendum 2

32 31 19 - ~~Decorative Metal Fences and Gates(Deleted)~~

Addendum 2

32 84 23 - Irrigation System

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END OF SECTION

SECTION 01 78 00.01
WARRANTY FORM LETTER

FOR CONTRACTOR'S / SUBCONTRACTOR'S / MANUFACTURER'S WARRANTY

CONTRACTOR'S/SUBCONTRACTOR'S/SUPPLIER'S LETTERHEAD

SPECIAL LIMITED PROJECT WARRANTY FOR _____ WORK.

We, the undersigned, do hereby warrant that the portion of the Work described above which we have provided for Foothills Adult Education Center is in accordance with the Contract Documents and that all such Work as installed will fulfill or exceed all minimum warranty requirements. We agree to repair or replace Work installed by us, together with any adjacent Work which is displaced or damaged by so doing, that proves to be defective in workmanship, material, or function within a period of (years), commencing (date identified in Certificate of Completion, unless otherwise directed) and terminating (date).

The following terms and conditions apply to this warranty (obtain District 's approval before submission):

In the event of our failure to comply with the above-mentioned conditions within a reasonable time period determined by the District , after notification in writing, we, the undersigned, all collectively and separately, hereby authorize the District to have said defective Work repaired or replaced to be made good, and agree to pay to the District upon demand all moneys that the District may expend in making good said defective Work, including all collection costs and reasonable attorney fees.

LOCAL REPRESENTATIVE: FOR WARRANTY MAINTENANCE, REPAIR, OR REPLACEMENT SERVICE, CONTACT:

(Name) _____
(Address) _____
(City) _____ (State) _____ (ZIP) _____
(Phone) _____ / _____
(signed) _____
(Date) _____ (Typed Name) _____
(Title) _____ (Firm) _____

CONTRACTOR:

State License No: _____
(signed) _____
(Date) _____ (Typed Name) _____
(Title) _____ (Firm) _____

FORM LETTER

FORM LETTER

FOR CONTRACTOR'S / MANUFACTURER'S GUARANTEE

CONTRACTOR'S / MANUFACTURER'S LETTERHEAD

SPECIAL LIMITED PROJECT [__ WARRANTY__] [__ GUARANTEE__] FOR _____ WORK.

We, the undersigned, do hereby [__ warrant__] [__ guarantee__] that the portion of the Work described above which [__ we have provided__] [__ was provided by (Installer or Subcontractor's Name)__] for Foothills Adult Education Center in accordance with the Contract Documents and that all such Work as installed will fulfill or exceed all minimum warranty requirements. We agree to repair or replace Work installed by [__ us,__] [__ (Installer or Subcontractor's Name)__] together with any adjacent Work which is displaced or damaged by so doing, that proves to be defective in workmanship, material, or function within a period of (years), commencing (date indicated in Certificate of Completion, unless otherwise directed) and terminating (date).

The following terms and conditions apply to this [__ warranty__] [__ guarantee__] (obtain District's approval before submission):

In the event of our failure to comply with the above-mentioned conditions within a reasonable time period determined by the District, after notification in writing, we, the undersigned, all collectively and separately, hereby authorize the District to have said defective Work repaired or replaced to be made good, and agree to pay to the District upon demand all moneys that the District may expend in making good said defective Work, including all collection costs and reasonable attorney fees.

LOCAL REPRESENTATIVE: FOR WARRANTY MAINTENANCE, REPAIR, OR REPLACEMENT SERVICE, CONTACT:

(Name) _____
(Address) _____
(City) _____ (State) _____ (ZIP) _____
(Phone) _____ / _____
(signed) _____
(Date) _____ (Typed Name) _____
(Title) _____ (Firm) _____

CONTRACTOR:

State License No: _____
(signed) _____
(Date) _____ (Typed Name) _____
(Title) _____ (Firm) _____

FORM LETTER

END OF SECTION

SECTION 08 06 71
DOOR HARDWARE SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preliminary schedule of door hardware sets for swinging as indicated on drawings.

1.02 RELATED REQUIREMENTS

- A. Section 08 71 00 - Door Hardware: Requirements to comply with in coordination with this section.

1.03 REFERENCE STANDARDS

- A. BHMA (CPD) - Certified Products Directory.
- B. BHMA A156.3 - American National Standard for Exit Devices.
- C. BHMA A156.5 - American National Standard for Cylinders and Input Devices for Locks.
- D. BHMA A156.13 - American National Standard for Mortise Locks & Latches Series 1000.
- E. BHMA A156.18 - American National Standard for Materials and Finishes.
- F. DHI (H&S) - Sequence and Format for the Hardware Schedule.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Comply with submittal requirements as indicated in Section 08 71 00.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Only manufacturers listed in Door Hardware Schedule or Section 08 71 00 are considered acceptable, unless noted otherwise.
- B. Obtain each type of door hardware as indicated from a single manufacturer and single supplier.
- C. Products are listed and certified compliant with specified standards by BHMA (CPD).
- D. Manufacturer's Abbreviations: Coordinate with manufacturers listed in Section 08 71 00.
 - 1. GLY - Glynn Johnson, Allegion, PLC.
 - 2. IVE - Ives, Allegion, PLC.
 - 3. KNX/KNO - Knox Company.
 - 4. LCN - LCN Commercial Division, Allegion, PLC.
 - 5. SCE - Schlage Electronic Security, Allegion, PLC
 - 6. SCH/SC - Schlage Lock Company, Allegion, PLC.
 - 7. VON - Von Duprin, Allegion, PLC..

8. ZER - Zero Industries, Inc., Allegion, PLC.
9. TBD - To be determined.
10. BYO/OT - By Others.

2.02 DESCRIPTION

- A. Door hardware sets provided represent the design intent, they are only a guideline and should not be considered a detailed or complete hardware schedule.
 1. Provide door hardware item(s) as required for similar purposes, even when item is not listed for a door in Door Hardware Schedule.
 2. Necessary items that are not included in a Hardware Set should be added and have the appropriate additional hardware as required for proper application and functionality.
 3. Door hardware supplier is responsible for providing proper size and hand of door for products required in accordance with Door Hardware Schedule and as indicated on drawings.
 4. Quantities listed are for each Pair (PR) of doors, or for each Single (SGL) door, as indicated in hardware sets.

2.03 LOCK FUNCTION CODES

- A. Function Codes for Cylindrical Locks: Complying with BHMA A156.5.
- B. Function Codes for Mortise Locks: Complying with BHMA A156.13.
- C. Function Codes for Exit Devices: Complying with BHMA A156.3.

2.04 FINISHES

- A. Finishes: Complying with BHMA A156.18.

PART 3 EXECUTION

3.01 DOOR HARDWARE SCHEDULE

- A. Organize listing of door hardware components within each hardware set in compliance with 10-Part scheduling sequence indicated in DHI (H&S), unless otherwise indicated.
- B. See door schedule in drawings for hardware set assignments.
- C. No hardware shall be ordered until Finished Hardware has been reviewed and approved by Architect's hardware consultant.
- D. Provide Factory order numbers for all products supplied on this project as part of close out documents for District's warranty records.
- E. Any door count quantity shown in the HW set listings is for reference only. Contractor shall verify all door quantities with the Architectural Drawings.
- F. Hardware Sets:

Hardware Group No. SF-01**For use on Door #(s):****158A****Provide each PR door(s) with the following:**

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	224HD	628	IVE
1	EA	REMOVABLE MULLION	KR4954 STAB	689	VON
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-EO-SNB	626	VON
1	EA	MULLION STORAGE KIT	MT54	689	VON
1	EA	RIM CYLINDER	20-057 ICX	626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX 36-083	626	SCH
			(@ MULLION)		
2	EA	MORTISE CYLINDER	20-061 ICX XQ11-948 36-083	626	SCH
			(@ DOGGING)		
4	EA	PRIMUS CORE	20-740-XP EV29 T	626	SCH
1	EA	DOOR PULL	VR910 DT	630	IVE
1	EA	DOOR PULL	VR910 NL	630	IVE
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
			(@ 90 DEGREE LEAF W/ SIGN)		
2	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
2	EA	BLADE STOP SPACER	4040XP-61	689	LCN
2	EA	FLOOR STOP	FS18L	BLK	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
			(OMIT WHERE OVERHANG OCCURS)		
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL	A	ZER
			DETAIL (INCLUDE 103A-223 IF NONE SHOWN)		









DOORS MUST BE WIDE STILE FOR HARDWARE.**SEALS BY ALUM STOREFRONT MANUFACTURER****ADJUST CLOSER BACK CHECK TO HELP STOP DOOR AT 90 DEGREES**

Hardware Group No. SF-02

For use on Door #(s):

105A	117A	118A	118B	119A	130A
131A	138A	140A	155A	156A	

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY		313AN	IVE
1	EA	OFFICE/ENTRY LOCK	L9050T OMEA L583-363		643e	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	4" CARPET SEPARATOR	1684D-223		D	ZER

WIDE STILE DOORS REQUIRED













SEALS BY ALUM STOREFRONT MANUFACTURER

Hardware Group No. SF-03

For use on Door #(s):

128B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY		313AN	IVE
1	EA	PANIC HARDWARE	LD-PA-AX-XP99-L-2SI-16-SNB		643E	VON
2	EA	RIM CYLINDER	20-057 ICX		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP SHCUSH TBWMS		695	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA (IF REQUIRED)		695	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30 (IF REQUIRED)		695	LCN
1	EA	BLADE STOP SPACER	4040XP-61 (IF REQUIRED)		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL DETAIL (INCLUDE 545D-V3-226 IF NONE SHOWN AND ASK FOR CLAIRIFICATION)		D	ZER











ADJUST CLOSER BACK CHECK TO HELP STOP DOOR AT 90 DEGREES
SEALS BY ALUM STOREFRONT MANUFACTURER

Hardware Group No. SF-04

For use on Door #(s):

140C 140D

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	224XY		313AN	IVE
2	EA	AUTO FLUSH BOLT	FB31T		613	IVE
1	EA	CLASSROOM SECURITY	L9071T OMEA L283-711		643e	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	COORDINATOR	COR X FL		315AN	IVE
2	EA	SURFACE CLOSER	4040XPT TBWMS		695	LCN
			(TOP JAMB MOUNTED FOR 180 DEGREE SWING)			
2	EA	TOP JAMB MTG PLATE	4040XPT-18TJ		695	LCN
			(IF REQUIRED)			
2	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
2	EA	DOOR SWEEP	381A		A	ZER
1	EA	ASTRAGAL	383D		D	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL		D	ZER
			DETAIL (INCLUDE 545D-V3-226 IF NONE SHOWN AND ASK FOR CLAIRIFICATION)			









WIDE STILE DOORS REQUIRED
SEALS BY ALUM STOREFRONT MANUFACTURER

Hardware Group No. SF-05

For use on Door #(s):

158B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY		313AN	IVE
1	EA	CLASSROOM SECURITY	L9071T OMEA L283-711		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	4" CARPET SEPARATOR	1684D-223		D	ZER












WIDE STILE DOORS REQUIRED
SEALS BY ALUM STOREFRONT MANUFACTURER

Hardware Group No. SF-06

For use on Door #(s):

135B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY		313AN	IVE
1	EA	CLASSROOM SECURITY	L9071T OMEA L283-711		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP EDA TBWMS		695	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA		695	LCN
			(IF REQUIRED)			
1	EA	CUSH SHOE SUPPORT	4040XP-30		695	LCN
			(IF REQUIRED)			
1	EA	BLADE STOP SPACER	4040XP-61		695	LCN
			(IF REQUIRED)			
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL		A	ZER
			DETAIL (INCLUDE 102A-223 IF			
			NONE SHOWN AND ASK FOR			
			CLAIRIFICATION)			

WIDE STILE DOORS REQUIRED









SEALS BY ALUM STOREFRONT MANUFACTURER

Hardware Group No. SF-06A

For use on Door #(s):

159A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY		313AN	IVE
1	EA	CLASSROOM SECURITY	L9071T OMEA L283-711		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL		A	ZER
DETAIL (INCLUDE 102A-223 IF NONE SHOWN AND ASK FOR CLAIRIFICATION)						








WIDE STILE DOORS REQUIRED
SEALS BY ALUM STOREFRONT MANUFACTURER

Hardware Group No. 02

For use on Door #(s):

102A 133A 137A 139A

Provide each SGL door(s) with the following:








QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	3CB1 4.5 X 4.5		B643E/ 716	IVE
1	EA	OFFICE/ENTRY LOCK	L9050T OMEA L583-363		643e	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOUBLE SEAL	8145SBK PSA		BK	ZER
1	EA	DOOR SWEEP	381A		A	ZER

Hardware Group No. 03A

For use on Door #(s):

114A

Provide each SGL door(s) with the following:










QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	3CB1 4.5 X 4.5 NRP		B643E/ 716	IVE
1	EA	CLASSROOM LOCK	L9070T OMEA		643e	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	ARMOR PLATE	8400 16" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 04

For use on Door #(s):

115A 139D

Provide each SGL door(s) with the following:









QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
4	EA	HINGE	3CB1HW 4.5 X 4.5		B643E/ 716	IVE
1	EA	CLASSROOM SECURITY	L9071T OMEA L283-711		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		BLK	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	SET	GASKETING	326D-S		D	ZER
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL DETAIL (INCLUDE 545D-V3-226 IF NONE SHOWN AND ASK FOR CLAIRIFICATION)		D	ZER

Hardware Group No. 05

For use on Door #(s):

120A

Provide each SGL door(s) with the following:






QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
4	EA	HINGE	3CB1 4.5 X 4.5 NRP		B643E/ 716	IVE
1	EA	CLASSROOM SECURITY	L9071T OMEA L283-711		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP EDA TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		BLK	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOUBLE SEAL	8145SBK PSA		BK	ZER
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL DETAIL (INCLUDE 545D-V3-226 IF NONE SHOWN AND ASK FOR CLAIRIFICATION)		D	ZER

Hardware Group No. 07A

For use on Door #(s):

107A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
4	EA	HINGE	3CB1 4.5 X 4.5		B643E/ 716	IVE
1	EA	PRIVACY LOCK	L9040 OMEA L583-363 L283-722		643e	SCH
1	EA	SURFACE CLOSER	4041 DEL TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP	FS436 OR FS438 AS REQ.		613	IVE
1	EA	DOUBLE SEAL	8145SBK PSA		BK	ZER















RESTROOM SIGNAGE BY OTHERS

Hardware Group No. 15

For use on Door #(s):

101B 103B 153B 154B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY		313AN	IVE
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-NL-OP-110MD-SNB		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
1	EA	MORTISE CYLINDER	20-061 ICX XQ11-948 36-083 (@ DOGGING)		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	DOOR PULL	VR910 NL		630	IVE
1	EA	SURFACE CLOSER	4040XP SHCUSH TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	RAIN DRIP	142D		D	ZER
			(OMIT WHERE OVERHANG OCCURS)			
1	SET	GASKETING	429D-S		D	ZER
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	DOOR SWEEP	39D		D	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL DETAIL (INCLUDE 103D-223 IF NONE SHOWN)		D	ZER
2	EA	VIEWER	698		605	IVE
			(INSTALL VIEWERS AT 43" & 60" A.F.F.)			












ADJUST CLOSER BACK CHECK TO HELP STOP DOOR AT 90 DEGREES

Hardware Group No. 21A

For use on Door #(s):

151A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY		313AN	IVE
1	EA	DBL CYL DEAD LOCK	L9462T L283-711		643E	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	PUSH PLATE	8200 8" X 16" CFC		613	IVE
1	EA	PULL PLATE	8302 10" 4" X 16" CFT F		613	IVE
1	EA	SURFACE CLOSER	4041 DEL TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP	FS18S		BLK	IVE
3	EA	DOUBLE FIN GASKETING	8042SBK PSA		BK	ZER
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL		D	ZER
DETAIL (INCLUDE 103D-223 IF NONE SHOWN)						












RESTROOM SIGNAGE BY OTHERS

Hardware Group No. 21B

For use on Door #(s):

106A 150A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY		313AN	IVE
1	EA	DBL CYL DEAD LOCK	L9462T L283-711		643E	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	PUSH PLATE	8200 8" X 16" CFC		613	IVE
1	EA	PULL PLATE	8302 10" 4" X 16" CFT F		613	IVE
1	EA	SURFACE CLOSER	4041 DEL EDA TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP	FS18S		BLK	IVE
3	EA	DOUBLE FIN GASKETING	8042SBK PSA		BK	ZER
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL		D	ZER
DETAIL (INCLUDE 103D-223 IF NONE SHOWN)						








RESTROOM SIGNAGE BY OTHERS

Hardware Group No. 31A

For use on Door #(s):

104A

Provide each SGL door(s) with the following:








QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	3CB1 4.5 X 4.5		B643E/ 716	IVE
1	EA	CLASSROOM LOCK	L9070T OMEA		643e	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOUBLE SEAL	8145SBK PSA		BK	ZER
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL DETAIL (INCLUDE 545D-V3-226 IF NONE SHOWN AND ASK FOR CLAIRIFICATION)		D	ZER

Hardware Group No. 34

For use on Door #(s):

109A

Provide each SGL door(s) with the following:








QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
4	EA	HINGE	3CB1 4.5 X 4.5		B643E/ 716	IVE
1	EA	CLASSROOM SECURITY	L9071T OMEA L283-711		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		BLK	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOUBLE SEAL	8145SBK PSA		BK	ZER
1	EA	DOOR SWEEP	381A		A	ZER

Hardware Group No. 35

For use on Door #(s):

155C 163A

Provide each SGL door(s) with the following:





QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
4	EA	HINGE	3CB1 4.5 X 4.5		B643E/ 716	IVE
1	EA	CLASSROOM SECURITY	L9071T OMEA L283-711		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		BLK	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOUBLE FIN GASKETING	8042SBK PSA		BK	ZER

Hardware Group No. EX-SF-01

For use on Door #(s):

135A ~~158A~~ 160A 161A

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
1	EA	MORTISE CYLINDER	20-061 ICX 36-083 (@ MULLION)		643e	SCH
1	EA	MORTISE CYLINDER	20-061 ICX 36-083 (@ KEY SWITCH)		643e	SCH
3	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH

EXISTING DOOR, FRAME & HARDWARE TO REMAIN.

MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE











REUSE BALANCE OF EXISTING HARDWARE

Hardware Group No. EXST-01

For use on Door #(s):

101A	103A	103C	112A	124A	125A
125B	126B	127A	128A	143A	147C
148C	149A	153A	154A	157A	

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
4	EA	HINGE	3CB1HW 4.5 X 4.5 NRP (FIELD VERIFY SIZE)		B643E/ 716	IVE
1	EA	PANIC HARDWARE	LD-PA-AX-XP99-L-2SI-16-SNB		643E	VON
2	EA	RIM CYLINDER	20-057 ICX		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP EDA TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES		613	IVE
1	EA	DOUBLE FIN GASKETING	8042SBK PSA		BK	ZER
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL DETAIL (INCLUDE 545D-V3-226 IF NONE SHOWN AND ASK FOR CLAIRIFICATION)		D	ZER
1	EA	EDGE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH
1	EA	STRIKE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH

EXISTING DOOR AND FRAME TO REMAIN.




MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE

Hardware Group No. EXST-02

For use on Door #(s):

108A	123A	165A
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Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	REUSE EXISTING			TBD
1	EA	STOREROOM LOCK	L9080T OMEA		643e	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	DOOR STOP	REUSE EXISTING		UNF	EXI

EXISTING DOOR, FRAME & HARDWARE TO REMAIN.




MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE.

Hardware Group No. EXST-03

For use on Door #(s):

121A 122A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	REUSE EXISTING			TBD
1	EA	CLASSROOM DEAD LOCK	L9463T XB11-720		643E	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4041 DEL SCUSH TBWMS		695	LCN
1	EA	DOOR STOP	REUSE EXISTING		UNF	EXI

EXISTING DOOR, FRAME & HARDWARE TO REMAIN.











MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE.

Hardware Group No. EXST-04

For use on Door #(s):

143B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	3CB1HW 4.5 X 4.5 NRP		B643E/ 716	IVE
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-NL-OP-110MD-SNB		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
1	EA	MORTISE CYLINDER	20-061 ICX XQ11-948 36-083 (@ DOGGING)		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP SHCUSH TBWMS		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	SET	GASKETING	429D-S		D	ZER
1	EA	DOOR SWEEP	381A		A	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL DETAIL (INCLUDE 545D-V3-226 IF NONE SHOWN AND ASK FOR CLAIRIFICATION)		D	ZER
1	EA	EDGE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH
1	EA	STRIKE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH

EXISTING DOOR AND FRAME TO REMAIN.












MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE

Hardware Group No. EXST-04A-AL

For use on Door #(s):

148A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	054XY		313AN	IVE
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-NL-OP-110MD-SNB		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
1	EA	MORTISE CYLINDER	20-061 ICX XQ11-948 36-083 (@ DOGGING)		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP SHCUSH TBWMS		695	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA (IF REQUIRED)		695	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30 (IF REQUIRED)		695	LCN
1	EA	BLADE STOP SPACER	4040XP-61 (IF REQUIRED)		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	DOOR SWEEP	39D		D	ZER
1	EA	THRESHOLD	REUSE EXISTING		UNF	EXI
1	EA	EDGE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH
4	EA	HINGE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH
1	EA	STRIKE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH

EXISTING DOOR AND FRAME TO REMAIN.












MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE

Hardware Group No. EXST-04-AL

For use on Door #(s):

147A 147B 148B 157B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	054XY		313AN	IVE
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-NL-OP-110MD-SNB		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
1	EA	MORTISE CYLINDER	20-061 ICX XQ11-948 36-083 (@ DOGGING)		643e	SCH
2	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP EDA TBWMS		695	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA (IF REQUIRED)		695	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30 (IF REQUIRED)		695	LCN
1	EA	BLADE STOP SPACER	4040XP-61 (IF REQUIRED)		695	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	DOOR STOP	REUSE EXISTING		UNF	EXI
1	EA	DOOR SWEEP	39D		D	ZER
1	EA	THRESHOLD	REUSE EXISTING		UNF	EXI
1	EA	EDGE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH
4	EA	HINGE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH
1	EA	STRIKE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH

EXISTING DOOR AND FRAME TO REMAIN.




MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE

Hardware Group No. EXST-05

For use on Door #(s):

145A 162A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	REUSE EXISTING			TBD
1	EA	STOREROOM LOCK	L9080T OMEA		643e	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP HEDA TBWMS		695	LCN
1	EA	DOOR STOP	REUSE EXISTING		UNF	EXI

EXISTING DOOR, FRAME & HARDWARE TO REMAIN.




MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE.

Hardware Group No. EXST-06

For use on Door #(s):

146A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	REUSE EXISTING			TBD
1	EA	STOREROOM LOCK	L9080T OMEA		643e	SCH
1	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		695	LCN
1	EA	DOOR STOP	REUSE EXISTING		UNF	EXI

EXISTING DOOR, FRAME & HARDWARE TO REMAIN.

MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE.

Hardware Group No. EXST-07-AL

For use on Door #(s):

149B

Provide each UEP door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	054XY		313AN	IVE
1	SET	CONST LATCHING BOLT	FB51/61 AS REQ'D		613	IVE
1	EA	DUST PROOF STRIKE	DP2		613	IVE
1	EA	REMOVABLE MULLION	KR4954 STAB		695	VON
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-NL-OP-110MD-SNB		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
1	EA	MORTISE CYLINDER	20-061 ICX 36-083		643e	SCH
			(@ MULLION)			
1	EA	MORTISE CYLINDER	20-061 ICX XQ11-948 36-083		643e	SCH
			(@ DOGGING)			
3	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
1	EA	SURFACE CLOSER	4040XP EDA TBWMS		695	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA		695	LCN
			(IF REQUIRED)			
1	EA	CUSH SHOE SUPPORT	4040XP-30		695	LCN
			(IF REQUIRED)			
1	EA	BLADE STOP SPACER	4040XP-61		695	LCN
			(IF REQUIRED)			
2	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	DOOR STOP	REUSE EXISTING		UNF	EXI
1	EA	MULLION SEAL	8780NBK PSA		BK	ZER
2	EA	DOOR SWEEP	39D		D	ZER
1	EA	THRESHOLD	AS REQUIRED BY THRESHOLD SILL		D	ZER
			DETAIL (INCLUDE 103D-223 IF			
			NONE SHOWN)			
1	EA	EDGE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH
4	EA	HINGE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH
1	EA	STRIKE FILLER PLATE	VERIFY SIZE IN FIELD		600	SBH

EXISTING DOOR AND FRAME TO REMAIN.









MODIFY EXISTING FRAME & DOOR AS REQUIRED FOR NEW HARDWARE

Hardware Group No. EXST-G-01

For use on Door #(s):

G2

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
8	EA	HINGE	REUSE EXISTING			TBD
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-EO-WH-SNB		643E	VON
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-NL-OP-110MD-WH-SNB		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
2	EA	MORTISE CYLINDER	20-061 ICX XQ11-948 36-083 (@ DOGGING)		643e	SCH
3	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
2	EA	GATE BOX	K-BXED SERIES		600	KEE
1	EA	DOOR PULL	VR910 DT		630	IVE
1	EA	DOOR PULL	VR910 NL		630	IVE
2	EA	GATE CLOSER	4040XPT BUMP SRI X ST3592 AS REQ'D		689	LCN

EXISTING GATE AND FRAME TO REMAIN.









MODIFY EXISTING FRAME & GATE AS REQUIRED FOR NEW HARDWARE

Hardware Group No. G-01

For use on Door #(s):

G1


Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
8	EA	HINGE/PIVOTS	BY GATE SUPPLIER			B/O
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-EO-WH-SNB		643E	VON
1	EA	PANIC HARDWARE	CDSI-PA-AX-XP99-NL-OP-110MD-WH-SNB		643E	VON
1	EA	RIM CYLINDER	20-057 ICX		643e	SCH
2	EA	MORTISE CYLINDER	20-061 ICX XQ11-948 36-083 (@ DOGGING)		643e	SCH
3	EA	PRIMUS CORE	20-740-XP EV29 T		606	SCH
2	EA	GATE BOX	K-BXED SERIES		600	KEE
1	EA	DOOR PULL	VR910 DT		630	IVE
1	EA	DOOR PULL	VR910 NL		630	IVE
2	EA	GATE CLOSER	4040XPT BUMP SRI X ST3592 AS REQ'D		689	LCN

BALANCE OF HARDWARE BY GATE MANUFACTURER / SUPPLIER

MISCELLANIOUS HARDWARE REQUIRED:

Provide the following:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
1	EA	EXTRA PRIMUS CORES	20-740 XP EV29 T		606	SCH
3	EA	CONTROL	KEYS			SCH
3	EA	EMERGENCY	KEYS			SCH
12	EA	CONST. MASTER	KEYS			SCH
3	EA	CONST. CONTROL	KEYS			SCH
4	EA	"O" CUT CHANGE KEYS	PER CYLINDER OR CORE			SCH
5	EA	GRANDMASTER KEYS	PER GRANDMASTER GROUP			SCH
50	EA	EXTRA KEYBLANKS	PER KEYWAY			SCH
5	EA	MASTER KEYS	PER MASTER GROUP			SCH
1	SET	SPECIAL TOOLS	DRIVERS, WRENCHES, ETC			
1	EA	BINDER	INST/MAINT/ADJUSTMENT INFO EA ITEM			
1	EA	BINDER	CATALOG CUTS AND HARDWARE SCHEDULE FOR JOB			
1	EA	LIST OF ORIGINAL	FACTORY ORDER NUMBERS FOR WARRANTY VALIDATION			

END OF SECTION

SECTION 08 43 13
ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aluminum-framed storefront, with vision glass. ALUM-1
- B. Infill panels of glass.
- C. Aluminum doors and frames.**
- D. Weatherstripping.**
- E. Perimeter sealant.**

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Steel attachment devices.
- B. Section 07 92 00 - Joint Sealants: Sealing joints between frames and adjacent construction.
- C. Section 08 71 00 - Door Hardware: Hardware items other than specified in this section.
- D. Section 08 80 00 - Glazing: Glass and glazing accessories.

1.03 REFERENCE STANDARDS

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site.
- BB. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.**
- C. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document).
- CD. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.**
- E. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.**
- F. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.**
- G. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- DH. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).**
- EI. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.**
- FJ. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).**
- GK. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.**
- L. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.**
- M. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with installation of other components that comprise the exterior enclosure.
- B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Structural and Energy design of the system has already been used as a basis of approval by Division of the State Architect and other agencies. If a substitution is proposed, then the Contractor is responsible for the re-approval of the documents in a timely manner within the original project schedule, along with all professional and agency fees related to this substitution. See Section 01 60 00 - Product Requirements.
- C. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details.
 - 1. Include construction details and fabrication methods, profiles and dimensions of individual components, data on hardware, accessories, and finishes.
 - 2. Energy Model Submissions
 - a. Provide a copy of the project ENV-1 form.
 - b. Provide evidence that the proposed products can meet or exceed the energy values listed on the ENV-1 form. Preferred method is an NFRC site certificate, but a simulation report by an independent NFRC certified simulator will be considered. *AAMA test reports and or simulations will not be accepted as they are not allowed under the current code.*
 - c. Provide a statement of who will be the "responsible party" in issuing the NFRC site certificates.
- D. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.
 - 1. Complete, indicating elevation views of all units, attachments to surrounding construction of Project, type of glazing, and all door hardware and weatherstripping. All Shop Drawings shall be prepared by manufacturer and shall include manufacturer's logo.
- E. Samples: Submit two samples 2 x 3 inches in size illustrating finished aluminum surface, glass, glazing materials.
- F. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
- G. Design Data: Provide framing member structural and physical characteristics, engineering calculations, and dimensional limitations.
- HH. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.**
- I. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
- J. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.
- K. Manufacturer's Qualification Statement.

KL. Installer's Qualification Statement.

LM. Warranty: Submit manufacturer warranty and ensure forms have been completed in District's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

AA. Regulatory Requirements: Comply with Code requirements for safety glazing, accessibility and exit devices.

- 1. Conform to applicable requirements of the Americans with Disabilities Act Accessibility Guidelines regarding accessibility requirements for door and entrance hardware.**
- 2. Exit Doors: Openable at all times from the inside without the use of a key or any special knowledge or effort.**
- 3. Exit devices shall comply with CBC Section 1010.1.9.1 and 11B-404.2.7. Lever handle trim shall match locksets.**
- 4. Conform to applicable requirements of Title 24, Part 2, CCR, including Sections 11B-404.2.7, 11B-404.2.9, and 1010.1.9, regarding exiting and accessibility requirements for door and entrance hardware.**
- 5. Exterior doors to have 5 pounds maximum pressure to open and interior doors to have 5 pounds maximum pressure to open. The maximum effort to operate fire doors may be increased to the maximum allowable by the appropriate administrative authority, but in no case shall the pressure exceed 15 pounds. CBC 11B-404.2.9.**

B. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

B1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.

- a. Insulating Glass Certification Council (IGCC).**
- b. Safety Glazing Certification Council (SGCC).**

C. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience and approved by manufacturer.

CD. Single-Source Responsibility: All entrances and storefront framing and doors, including finish, shall be the product of one manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

- 1. Store storefront sections out of contact with the ground and under a weather tight covering. Do not cover storefront sections with polyethylene film or similar coverings that will create a humidity chamber.**
- 2. Protect surfaces during shipping and handling to prevent scratching, gouging or other damage to the finish.**

1.08 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.**

1.09 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. All doors shall carry manufacturer's lifetime warranty on door corner construction, provided in writing.
- C. Correct defective Work within a five year period after Date of Substantial Completion.
- D. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.
- E. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Arcadia, Inc.
- B. Other Acceptable - Aluminum-Framed Storefronts Manufacturers:
 - 1. Substitutions: See Section 01 60 00 - Product Requirements.
 - a. For any product not identified as "Basis of Design", submit information as specified for substitutions.
 - b. Substitution may or may not be accepted after Architect and District review with complete evaluation for content and schedule impact.
 - c. Substitutions shall include all costs for redesign with consequential changes by other trades along with the Architect and related approvals by governing agencies.
 - 1) Revision to shop drawings illustrating changes is not considered adequate for DSA review and approval.
 - d. Substitutions may be acceptable, based on Architect's review and approval, for submittal to DSA.
 - 1) If substituted manufacturer cannot reproduce design and DSA approval in a timely manner, then they shall be subject to a time and material back charge for any delays in the project.
 - 2) Architect approval is required prior to DSA submittal and DSA approval is required prior to installation.

2.02 BASIS OF DESIGN -- FRAMING FOR INSULATING GLAZING

- A. Front-Set Style, Thermally-Broken:**
 - 1. Basis of Design: Arcadia Corp; Offset Glazed System AFG451 Series - Non-Thermal - Shear Block Inside Set: www.arcadiainc.com.**
 - 2. Vertical Mullion Dimensions: 2 inches wide by 4-1/2 inches deep.**

2.03 BASIS OF DESIGN -- FRAMING FOR MONOLITHIC GLAZING

A. Center-Set Style:

1. Basis of Design: Arcadia Corp; Center Glazed System A400 Series - Non-Them - Shear Block Inside Set: www.arcadiainc.com.
2. Vertical Mullion Dimensions: 1-3/4 inches wide by 4 inches deep.

2.032.04 BASIS OF DESIGN -- SWINGING DOORS

A. Wide Stile, Insulating Glazing, Thermally-Broken:

1. Basis of Design: Arcadia Corp; WS512HD Series Heavy Duty Wide Stile: www.arcadiainc.com.

B. Other Manufacturers: Provide either the product identified as "Basis of Design" or an equivalent product of one of the manufacturers listed below:

1. Arcadia, Inc: www.arcadiainc.com/#sle.
2. C.R. Laurence Company, Inc; U.S. Aluminum: www.crl-arch.com/#sle.

C. Substitutions: See Section 01 60 00 - Product Requirements.

1. For any product not identified as "Basis of Design", submit information as specified for substitutions.

2.05 ALUMINUM-FRAMED STOREFRONT

A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.

1. Glazing Rabbet: For 1/4 inch ~~monolithic~~insulating glazing.
22. Glazing Rabbet: For 1/4 inch monolithic glazing.
3. Finish: Class I color anodized.
 - a. Factory finish all surfaces that will be exposed in completed assemblies.
 - b. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
34. Finish Color: As indicated on the drawings.
5. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
46. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
57. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
68. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.

- ~~79.~~ Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
- ~~810.~~ Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
- ~~911.~~ Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glazing and inner sheet of infill panel and heel bead of glazing compound.
- ~~1012.~~ Preparation for Window Treatments: Provide reinforced interior horizontal head rail.

~~2.04B.~~ Performance Requirements

- 1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.**
 - a. Design Wind Loads: Comply with requirements of ASCE 7.**
 - b. Member Deflection: Limit member deflection to flexure limit of glass or 1/175 of span, maximum 3/4 inch (over 11'-0" span), in any direction, with full recovery of glazing materials.**
- 2. Water Penetration Resistance: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 12 psf.**
- 3. Air Leakage: 0.06 cfm/sq ft maximum leakage of storefront wall area when tested in accordance with ASTM E283/E283M at 1.57 psf pressure difference.**
- 4. Condensation Resistance Factor of Framing: 50, minimum, measured in accordance with AAMA 1503.**
- 5. Resistance to Forcible Entry: Jambs adjacent to door locks shall resist a force of 1600 pounds.**

2.06 COMPONENTS

- A. Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.**
 - 1. Framing members for interior applications need not be thermally broken.
 - 2. Glazing Stops: Flush.
 - ~~33.~~ **Cross-Section: As indicated on drawings.**
 - 4. Structurally Reinforced Members: Extruded aluminum with internal reinforcement of structural steel member.
- B. Glazing: As specified in Section 08 80 00.**

~~2.05C.~~ Swing Doors: Glazed aluminum.

- 1. Thickness: 1-3/4 inches.**
- 2. Top Rail: 5-1/8 inches wide, nominal.**
- 3. Vertical Stiles: 5 inches wide, nominal. Coordinate with hardware for a complete installation.**

4. **Bottom Rail: 10 inches high, minimum.**
5. **Glazing Stops: Beveled.**
6. **Finish: Same as storefront.**

2.07 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Sheet Aluminum: ASTM B209 (ASTM B209M).
- C. Fasteners: Stainless steel.
- D. Exposed Flashings: Aluminum sheet, 20 gauge, 0.032 inch minimum thickness; finish to match framing members.
- E. Concealed Flashings: Galvanized steel, 26 gauge, 0.0179 inch minimum base metal thickness.
- F. Sill Flashing Sealant: Elastomeric, silicone or polyurethane, compatible with flashing material.
- G. Sealant for Setting Thresholds: Non-curing butyl type.

HH. Perimeter Sealant: Type as specified in Section 07 92 00 - Joint Sealants.

- I. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.
- J. Glazing Accessories: As specified in Section 08 80 00.
- K. Shop and Touch-Up Primer for Steel Components: Zinc oxide, alkyd, linseed oil primer appropriate for use over hand cleaned steel.
- L. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

2.0608 FINISHES

- A. **Class I Color Anodized Finish: AAMA 611 AA-M12C22A42 Integrally colored anodic coating not less than 0.7 mils thick.**
- B. **Color: As indicated on drawings.**
- C. Touch-Up Materials: As recommended by coating manufacturer for field application.

2.09 HARDWARE

- A. **For each door, include weatherstripping, sill sweep strip, and threshold.**
- B. **Door Hardware for Aluminum Entrances and Storefronts:**
 1. **Install standard door hardware as specified in this Section and custom hardware and door thresholds as specified in Section 08 71 00 - Door Hardware.**
 2. **Hardware shall not require tight gripping, pinching or twisting of the wrist.**
 3. **Mounting heights as indicated on Section 08 71 00 Door Hardware.**
- C. **Other Door Hardware: As specified in Section 08 71 00.**
- D. **Weatherstripping: manufacturer's standard replaceable compressible weatherstripping gaskets of molded neoprene complying with ASTM D2000 or molded PVC complying with ASTM D2287, continuous and replaceable; provide on all exterior doors.**
 1. **Provide manufacturer's optional bottom rail weathering strip.**
 2. **Retainer finish to match door.**

- E. **Sill Sweep Strips:** Resilient seal type, retracting, of neoprene; provide on all doors.
- F. **Threshold:** Extruded aluminum, one piece per door opening, ribbed surface; provide on all doors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.02 INSTALLATION

- A. Install wall system in accordance with manufacturer's instructions.
 - 1. Anchoring: Firmly anchor framing using fasteners as recommended by manufacturer, sized to suit loads and type suitable for substrate, to positively attach members for long life under hard use.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- EE. Provide thermal isolation where components penetrate or disrupt building insulation.**
- F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.**
 - 1. **Comply with requirements specified in Section 07 62 00 - Sheet Metal Flashing and Trim. Set sill flashing in bedding sealant as specified in Section 07 92 00 - Joint Sealants.**
- G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.**
- H. Coordinate attachment and seal of perimeter air and vapor barrier materials.
- FI. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- GJ. Door Installation: Assemble doors in shop with glazing installed.**
 - 1. **Door Joints: Make joints rigid and suitable for heavy use.**
- K. Set thresholds in bed of sealant and secure.
- HL. Install hardware using templates provided.**
 - 1. **See Section 08 71 00 for hardware installation requirements.**
 - 2. **Adjustment: Adjust operating hardware and door operation for smooth movements, without binding and without exceeding allowable forces of accessibility regulations.**
- M. Install glass in accordance with Section 08 80 00, using gasket glazing method.
- HN. Install perimeter sealant in accordance with Section 07 92 00 - Joint Sealants.**

- O. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

- A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.04 FIELD QUALITY CONTROL

- A. Provide services of storefront manufacturer's field representative to observe for proper installation of system and submit report.
- B. See Section 01 40 00 - Quality Requirements, for general testing and inspection requirements.
- CC. **Water-Spray Test: Provide water spray quality test of installed storefront components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.**
 - 1. Perform a minimum of two tests in each designated area as directed by Architect.
 - 2. Conduct tests in each area prior to 10 percent, 35 percent, and 70 percent completion of this work.
 - 3. **Testing: Installing Contractor to water test all storefront and glazing in the presence of the IOR by spraying with hose heavily for 5 minutes. Repair all leaks discovered by testing procedures and repeat test until leak-free performance is achieved.**
 - 4. **Provide written report to Architect and IOR.**
- D. Repair or replace storefront components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 ADJUSTING

- A. **Adjust operating hardware and sash for smooth operation.**

3.06 CLEANING

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.
- C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.0607 PROTECTION

- A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 08 80 00

GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Insulating glass units.
- B. Glazing units.
- ~~BC.~~ Plastic films.
- ~~CD.~~ Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants: Sealants for other than glazing purposes.
- B. Section 08 11 13 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.
- C. Section 08 43 13 - Aluminum-Framed Storefronts: Glazing furnished as part of storefront assembly.
- D. Section 10 28 00 - Toilet Accessories: Mirrors.

1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
- D. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
- E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
- F. ASTM C1036 - Standard Specification for Flat Glass.
- G. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
- H. ASTM C1193 - Standard Guide for Use of Joint Sealants.
- II. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass.**
- J. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings.
- JK. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.**
- L. GANA (GM) - GANA Glazing Manual.
- ~~KM.~~ GANA (SM) - GANA Sealant Manual.
- ~~LN.~~ IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use.
- ~~MO.~~ NFRC 100 - Procedure for Determining Fenestration Product U-factors.
- ~~NP.~~ NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

ΘQ. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
- C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
- D. Samples: Submit two samples 8 by 8 inch in size of glass units.
- E. Samples: Submit 4 inch long bead of glazing sealant, color as selected.
- F. Certificate: Certify that products of this section meet or exceed specified requirements.
- G. Manufacturer's qualification statement.
- H. Installer's qualification statement.
- I. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in District's name and registered with manufacturer.
- J. Maintenance Materials: Furnish the following for District's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA (GM), GANA (SM), and IGMA TM-3000 for glazing installation methods. Maintain one copy on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

1.07 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 40 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.08 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
 - 1. Remedial Provisions: Upon notification of defects, within the warranty period, party providing warranty or guarantee shall replace the glass and glazing at no cost to District.

- B. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A. Comply with the all applicable codes and ordinances, including California Building Code (CBC), Title 24, Part 2, Chapter 24 as amended and adopted by authorities having jurisdiction, and US Consumer Product Safety Commission Standard 16 CFR 1201 CI and CII.
- B. Where safety glass is indicated or required, provide glazing materials that conform to ANSI Z97.1 and CPSC 16 CFR 1201 and are so identified in accordance with CBC Section 2406.3.
- C. Glass Identification:
 - 1. Per CBC Section 2403.1, each light shall bear the manufacturer's label designating the type and thickness of glass.
 - a. When approved by the enforcement agency, labels may be omitted from other than safety glazing materials, provided an affidavit is furnished by the glazing contractor certifying that each light is glazed in accordance with approved plans and specifications.
 - b. Identification of safety glazing material installed in hazardous locations as defined in Section 2406 of this chapter shall be identified by label which will specify the labeler, whether the manufacturer or installer, and state that safety glazing material has been utilized in such installations.
 - c. The label shall be legible and visible from the inside of the building after installation and shall specify that label shall not be removed.
 - d. Tempered glass shall have an etched manufacturer's label.

2.02 MANUFACTURERS

- A. Glass Fabricators:
 - 1. Glasswerks Inc.: www.glasswerks.com.
 - 2. GlasPro, Inc.: www.glas-pro.com
 - 3. Viracon, Inc: www.viracon.com/#sle.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Float Glass Manufacturers:
 - 1. AGC Glass North America, Inc: www.agcglass.com/#sle.
 - 2. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
 - 3. GlasPro, Inc.: www.glas-pro.com
 - 4. Guardian Glass, LLC: www.guardianglass.com/#sle.
 - 5. Pilkington North America Inc: www.pilkington.com/na/#sle.
 - 6. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
 - 7. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

- A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
 - 1. Design Pressure: Calculated in accordance with ASCE 7.
 - a. Where glass thicknesses are not indicated, provide thickness based on the wind pressures required by the California Building Code (CBC), Title 24, Part 2, 2403 and 2404, wind pressure shall be assumed to have a one minute duration.
 - b. Upon first application of design wind load for the specified durations, probability of breakage shall not exceed 8/1000 for vertical glass.
 - c. Probability of breakage relative to glass thermal stress shall not exceed 8/1000 for vertical glass.
 - 2. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
 - 3. Seismic Loads: Design and size glazing components to withstand seismic loads and sway displacement in accordance with the requirements of ASCE 7.
 - 4. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
 - 5. Glass thicknesses listed are minimum.
- B. Vapor Retarder and Air Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier.
 - 1. In conjunction with vapor retarder and joint sealer materials described in other sections.
 - 2. To utilize the inner pane of multiple pane insulating glass units for the continuity of the vapor retarder and air barrier seal.
 - 3. To maintain a continuous vapor retarder and air barrier throughout the glazed assembly from glass pane to heel bead of glazing sealant.
- C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
 - 1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 - 2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 - 3. Solar Optical Properties: Comply with NFRC 300 test method.

2.04 GLASS MATERIALS

- A. Float Glass: Provide float glass based glazing unless otherwise indicated.
 - 1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
 - 2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
 - 3. Kind FT - Fully Tempered Type: Complies with ASTM C1048.

4. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.
5. Impact Resistant Safety Glass: Complies with ANSI Z97.1 - Class B, or 16 CFR 1201 - Category I criteria.
6. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

2.05 INSULATING GLASS UNITS

A. Manufacturers:

1. Any of the manufacturers specified for float glass.
2. Fabricator certified by glass manufacturer for type of glass, coating, and treatment involved and capable of providing specified warranty.
3. AGC Glass North America, Inc: www.agcglass.com/#sle.
4. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
5. Glasswerks: glasswerks.com.
6. Guardian Glass, LLC: www.guardianglass.com/#sle.
7. Pilkington North America Inc: www.pilkington.com/na/#sle.
8. Viracon, Apogee Enterprises, Inc: www.viracon.com/#sle.
9. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
10. Substitutions: See Section 01 60 00 - Product Requirements.

B. Insulating Glass Units: Types as indicated.

1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
3. Metal Edge Spacers: Aluminum, bent and soldered corners.
4. Spacer Color: Black.
5. Edge Seal:
 - a. Single-Sealed System: Provide silicone, polysulfide, or polyurethane sealant as seal applied around perimeter.
 - b. Color: Black.
6. Purge interpane space with dry air, hermetically sealed.

C. Insulating Glass Units: Vision glass, double glazed.

1. Applications: Exterior glazing unless otherwise indicated.
2. Space between lites filled with air.
3. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
 - a. Tint: Clear.
 - b. Coating: Low-E (passive type), on #2 surface.
4. Inboard Lite: Annealed float glass, 1/4 inch thick, minimum.

- a. Tint: Clear.
- 5. Total Thickness: 1 inch.
- 6. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.28, nominal.
- 7. Visible Light Transmittance (VLT): 64 percent, nominal.
- 8. Solar Heat Gain Coefficient (SHGC): 0.27, nominal.
- 9. Visible Light Reflectance, Outside: 12 percent, nominal.
- D. Insulating Glass Units: Safety glazing.
 - 1. Applications:
 - a. Glazed lites in exterior doors.
 - b. Glazed sidelights and panels next to doors.
 - c. Other locations required by applicable federal, state, and local codes and regulations.
 - 2. Space between lites filled with air.
 - 3. Glass Type: Same as other vision glazing except use fully tempered float glass for both outboard and inboard lites.
 - 4. Total Thickness: 1 inch.

2.06 BASIS OF DESIGN - INSULATING GLASS UNITS

- A. Basis of Design - Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
 - 1. Outboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum.
 - a. Low-E Coating: Vitro Architectural Glass (formerly PPG Glass) Solarban 70 on #2 surface.
 - b. Glass: Clear.
 - 2. Inboard Lite: Heat-strengthened float glass, 1/4 inch thick.
 - a. Coating: No coating on inboard lite.
 - b. Glass: Clear.

2.07 GLAZING UNITS

- A. Monolithic Interior Vision Glazing:
 - 1. Applications: Interior glazing unless otherwise indicated.
 - 2. Glass Type: Annealed float glass.
 - 3. Tint: Clear.
 - 4. Thickness: 1/4 inch, nominal.
 - 5. Glazing Method: Dry glazing method, gasket glazing.
- B. Monolithic Safety Glazing: Non-fire-rated.
 - 1. Applications:
 - a. Glazed lites in doors, except fire doors.
 - b. Glazed sidelights to doors, except in fire-rated walls and partitions.

- c. Glazed view windows and panels in partitions enclosing athletic activity rooms, except in fire-rated walls and partitions.
 - d. Other locations required by applicable federal, state, and local codes and regulations.
 - e. Other locations indicated on drawings.
- 2. Glass Type: Fully tempered safety glass as specified.
 - 3. Tint: Clear.
 - 4. Thickness: 1/4 inch, nominal.
 - 5. Glazing Method: Dry glazing method, gasket glazing.

2.0608 PLASTIC FILMS

- A. Type GF-2 - Decorative Plastic Film: Polyester type.
 - 1. Application: Locations as indicated on drawings.
 - 2. Color: Acid Etch.
 - 3. Thickness Without Liner: 0.002 inch.

2.0709 GLAZING COMPOUNDS

- A. Type GC-3 - Polysulfide Sealant: Two component; chemical curing, non-sagging type; ASTM C920, Type M, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.
- B. Type GC-5 - Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920, Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.

2.0810 ACCESSORIES

- A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.
- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
 - 1. Width: As required for application.
 - 2. Thickness: As required for application.
- D. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.
- E. Glazing Clips: Manufacturer's standard type.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

- A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.
- B. Verify that the minimum required face and edge clearances are being provided.
- C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.
- D. Verify that sealing between joints of glass framing members has been completed effectively.
- E. Proceed with glazing system installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

- A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.
- B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.
- C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.
- D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.
- E. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.
- F. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

- A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.
- B. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
- C. Monitor and report installation procedures and unacceptable conditions.

3.06 CLEANING

- A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.
- B. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
- C. Remove non-permanent labels immediately after glazing installation is complete.
- D. Clean glass and adjacent surfaces after sealants are fully cured.
- E. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.07 PROTECTION

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.
- B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

SECTION 27 10 00
VOICE / DATA / IP INTERCOM-CLOCK INFRASTRUCTURE

PART 1 – GENERAL

- 1.1 Include all labor, equipment and materials necessary for providing a complete networking infrastructure system as described herein and/or as indicated on the drawings.
- 1.2 Related specification sections:
 - 1.2.1 Section 26 01 00 - General Provisions
 - 1.2.2 Section 26 05 33 - Conduit and Fittings
 - 1.2.3 Section 26 05 19 - Conductors
 - 1.2.4 Section 26 05 34 – Outlet and Junction Boxes
- 1.3 Approved Products and minimum contractor certifications
 - 1.3.1 All components shall be manufactured by one of approved manufacturers, the installing contractor must have the accompanying certification from the product manufacturer for installation of a “Warranted System” as required by each manufacturer and as indicated in these specifications. **Acceptable manufacturers are:**
 - 1.3.2 **TYCO**
 - 1.3.2.1 Installing contractor must be **Tyco ND&I** certified to install this system.
 - 1.3.2.2 Pursuant to Public Contract Code Section 3400(b), the materials, products, things or services in this Specifications section are designated by specific brand name or trade name for the purposes of matching other products in existing District projects to establish District-wide uniform, complete and compatible systems in order to facilitate the most technologically competitive and feasible education for school children in the District. A copy of the District findings and Resolution in accordance with Public Contract Code Section 3400(b) is available upon written request at the District.
 - 1.3.3 Systems or components as manufactured by any other manufacturers which, are not specifically listed in 1.3.2 are **not** approved for use on this project. Specified system warranties are to be established between the component manufacturers and the owner, warranties between the cable manufacturer or installing contractor and the owner are not considered equal.

- 1.3.4 Installing contractor qualifications: Firms and their personnel must be regularly engaged in the installation of data networking cabling and equipment for systems of similar type and scope. The contractor must have a full service office able to respond to emergency callouts during the warranty period. The contractor must also provide complete installation of all wiring and devices or equipment. Subcontracts with electrical contractors or other warranted or non-warranted contractors for supervised installation of any part of this system are not approved. All conduit and standard back boxes will be furnished and installed by the electrical contractor. Specialty boxes will be furnished by the equipment supplier and installed by the electrical contractor.
- 1.3.5 Equipment qualifications: It is the intent of these specifications that each bidder provides all hardware, components and installation services that are necessary to ensure a fully operational Category-6 wiring system including warranties, proposed in the EIA/TIA Category-6 and the ISO Class E drafts.
- 1.3.6 **Warranty: Warranty shall be a full "Performance Warranty" installed by a "Certified Contractor" as specified by one of the approved manufacturer's A "Component Warranty" will not be considered equal.** All components, labor, and 'Link Performance Criteria' shall be warranted by one of the approved manufacturers. Warranty shall be to the customer for 25-years (some warranty programs may be greater, this is a minimum requirement) after Customer acceptance and sign-off of the completed system. **The contractor must provide documentation from one of the approved manufacturers as indicated in Section 1.3.2 indicating their qualifications for installation of this system in compliance with the manufacturers warranty requirements as a warranted contractor.**
- 1.4 In order to ensure project cohesion, a single point of contact is required to provide a "TURNKEY" solution. The work covered under this section of the specification consists of furnishing all labor; cabling; equipment; supplies; materials, and training. The Contractor will perform all operations necessary for the "TURNKEY" and fully completed installation in accordance with the specifications herein. As such, the successful contractor must be factory trained on all aspects of system hardware. The successful Contractor shall be a California licensed C7 or C10 premise wiring contractor as defined in this specification. Subcontractors may not be utilized in the implementation of the plant wiring installation or certification process. The contractor shall provide a licensed, qualified electrical contractor for installation of all conduits, outlet and junction boxes, trenching and pull box installations.
- 1.5 The drawings indicate a schematic routing of cables above ceilings. The Contractor shall field-verify the most appropriate routing of all above-ceiling cable prior to bid. Where cables penetrate through walls a conduit sleeve shall be provided. **Where cables pass through fire rated walls, the conduit sleeve shall be sealed to maintain the rating of the wall assembly.**

- 1.6 Phase I Submittal shall be made **within (20) working days** after the award of the contract by the District. This submittal shall include the following:
- 1.6.1 Complete bills of quantities, including all materials, components, devices, and equipment required for this work. The bills of quantities shall be tabulated respective of each and every system as specified, and shall contain the following information for each Section listed:
 - 1.6.1.1 Description and quantity of each item.
 - 1.6.1.2 Manufacturer's Name and Model Number.
 - 1.6.1.3 Manufacturer's Specification Sheet.
 - 1.6.2 Include with submittals all warranty information and a description of support and maintenance services to be provided. Also include all licenses and maintenance agreements required for continued operation of the equipment.
- 1.7 Phase II submittal shall be provided **within (20) working days** after the approval of the Phase I submittals and prior to any fabrication or field conduit installations. All shop drawings shall be engineered and drawn on a CAD System. Each submission shall include 'D' or 'E' size print copies to match the contract drawings, and (1) Phase II submittals drawings shall include the following.
- 1.7.1 MDF or IDF equipment or rack elevations will be required to be provided including, cable routing and position of all components.
 - 1.7.2 Provide labeling plan which identifies the proposed scheme for identifying all components including Racks, patch panels (fiber and copper), ports and cables (fiber and copper).
- 1.8 The contractor shall make a **written** request directly to Johnson Consulting Engineers for electronic drawing files. As a part of the written request, please include the following information:
- 1.8.1 Clearly indicate each drawing sheet needed (i.e., E1.1, E2.1, etc.).
 - 1.8.2 Identify the name, phone number, mailing address and e-mail address of the person to receive the files.
 - 1.8.3 Provide written confirmation and agreement with the requirements described for payment of computer files, as described below.
 - 1.8.4 Detail or riser diagram sheets, or any other drawings other than floor plans or site plans, **will not be made available to the contractor.**
 - 1.8.5 Files will only be provided in the AutoCAD format in which they were created (i.e., version 14 or version 2000i).

- 1.8.6 Requests for files will be processed as soon as possible; a minimum of 7 working days should be the normal processing time. The contractor shall be completely responsible for requesting the files in time for their use.
- 1.8.7 CAD files will be made available via e-mail or on disk, depending on the quantity of files requested. The contractor requesting the files will be required to pay \$50.00 per drawing plan, or \$300.00 maximum, whichever is less.

PART 2 - PRODUCTS

- 2.1 Equipment racks have been detailed on the drawings and additional component information requirements have been described in the MDF or IDF products sections. The following is a list of approved manufacturers for each type of rack system.
 - 2.1.1 Alternate equipment manufacturers other than those indicated will not be reviewed or approved for use on this project.
 - 2.1.2 **(Open Frame)** shall be manufactured by B-Line, Chatsworth CPI or Middle Atlantic. Reference drawing details and specifications for complete requirements.
- 2.2 ***Open Frame 4-Post Racks, 19" mounting Width by 84" High by 29" Deep with #12-24 mounting holes as shown in the MDF of IDF Room layouts. Contractor shall be responsible for providing all racks and accessories. Furnish and install with the following:***
 - 2.2.1 ***The racks shall be provided with structural seismic bracing using cable runway to the top of the rack.***
 - 2.2.2 ***Universal 12" cable runway shall be as manufactured by CPI Model 10250-712. The cable runway shall be furnished with the additional adapters, connectors, support components, bends and offsets and extensions as required to fit the room and layout.***
 - 2.2.3 ***Anchor the cable runway to the wall with the appropriate width angle bracket and bolts as manufactured by CPI Model #11421-712.***
 - 2.2.4 ***The cable runway shall also be attached to the top of the rack with the appropriate adapter panel. Cable runway shall be directly attached to the 4-Post racks with J-Hooks.***
 - 2.2.5 ***Cable runway routed along walls, shall be offset from the wall a minimum of 6" and shall be supported with cantilevered wall mount brackets.***
 - 2.2.6 ***Floor mounted racks shall be structurally anchored to the floor with the anchors and bolts.***

- 2.2.7** *Provide full length vertical wire managers, CPI Double-Sided Narrow Vertical Manager, Part #12096-703, on each side of each rack. Vertical managers between racks may be substituted with the CPI #11729-703 6" wide double-sided manager. Single narrow vertical managers shall be provided on each end of the group of racks.*
- 2.2.8** *Provide Middle Atlantic Model #VDC-6-45-DC vertical managers when installing the Middle Atlantic R4 Series racks.*
- 2.2.9** *Provide (1) adjustable full depth vented shelf for each 4-Post equipment rack as manufactured by CPI #12700-719.*
- 2.2.10** *Provide horizontal wire managers between each patch panel or (1) manager per patch panel. Provide (1) spare manager per rack. Provide 2RMU height managers for each 48-Port patch panel and 1RMU height managers for 24-Port patch panels. CPI part #30130-719 and #30139-719.*
- 2.2.11** *Provide (1) minimum or more where detailed on drawings. Rack mounted surge arrest style power distribution unit per rack. 1 rack unit in height. TrippLite Model #PDUMH15NET2 with (8) NEMA 5-15R outlets, built-in SNMP Ethernet interface and NEMA L5-15P input with 5-20P adapter or approved equal by APC. Provide with minimum 10-foot cord for the PDU.*
- 2.2.12** *Contractor shall be responsible for neatly routing, storing and connecting the power cords from the PDUs to the electrical outlet or UPS as directed by the District. Power cords shall be dressed separately from the UTP cables or any other low voltage cable and shall be secured to the back of the rack or cable runway with Velcro ties.*
- 2.2.13** *Furnish grounding to each rack. Each rack shall be provided with a grounding terminal block, #6 Ground wire from the rack to the bus bar and a compression lug on the end of the ground wire at the bus bar. Provide grounding components as manufactured by CPI #40167-001 terminal block and #40162-901 compression lug or approved equal.*
- 2.2.14** *Provide (1) ground bus bar kit per MDF Room. Ground Bus Bar Kit as manufactured by CPI #40158-012 or approved equal. Ground Bus Bar and all bonding conductors to the bus bar shall be labeled. Grounding conductors shall be routed to the equipment racks, cable runway and electrical panel.*
- 2.2.15** *All fiber optic feed cables routed to the MDF Room shall be provided with 20-feet of slack for a service loop mounted on the backboard behind the racks. Contractor shall provide a 24" diameter wall mounted service loop manager for the fiber optic feed cables as manufactured by Leviton #48900-FR. Maximum of (3) fiber feed cables per manager. Provide quantity of managers as required to manage all service loops.*

Main Distribution Frame (Existing)

- 2.1 The Main Distribution Frame shall be the central wiring and equipment location for the infrastructure systems. The contractor shall include the following items at this location.
- 2.1.1 **Data Infrastructure Fiber Optic Feed Cables** - Fiber optic termination equipment (rack mounted), including all associated installation hardware. The equipment must have sufficient number of ports to connect all fibers in every cable terminated at this location. Provide 25% spare capacity for future wiring requirements. All fiber feed cables shall be terminated in a single fiber optic patch panel up to 144 strands. Additional strands shall be terminated in the largest size required to contain the remaining fibers. Data fiber optic feed patch panels shall be terminated separately from the feed cables for the voice switch.
- 2.1.2 ~~MDF equipment mounting rack is existing. Provide all accessories whether shown on drawings or in specifications.~~ ***MDF consists of (5) five new 4-post open frame racks and all other required accessories as shown on the drawings and the specification. The first two racks on the south side of the MDF room will be used for existing networking electronics, fiber patch panels and UPS. These existing equipment are residing in the existing MDF racks which are to be demolished. District will remove all networking electronics and re-install in the new racks mentioned above. All existing fiber and copper shall be protected in place for re-termination after all new racks are installed. Contractor shall terminate all existing incoming and outgoing fiber optical cables and voice feed cables and provide testing as required. The other three racks will be utilized for horizontal cabling distribution for the entire building.***
- 2.1.3 Additional items required for the MDF are as follows:
- 2.1.3.1 ~~Fiber optic patch cord optical fibers shall be 50/125um micron laser-optimized multimode optical glass for dual operation at 850nm and 1300nm wave length. Fiber optic patch cords shall be terminated with duplex SC connectors on both ends with ceramic ferrules. Each IDF closet requires (2) patch cords for connection to the Data Infrastructure MDF Rack. All patch cords shall be Aqua (Lt.Blue) in color. Patch cords shall be 10 feet (3-meters) in length.~~ ***Provide Fiber Optic Feed Cable Patch Panels – Fiber optic termination equipment (rack mounted), including all associated installation hardware. The equipment must have a sufficient number of ports to connect all fibers in every cable terminated at this location. Provide 25% spare capacity for future wiring requirements, including bulkheads in the fiber patch panel. Provide blank fillers for all used portions of the panel. All fiber feed cables shall be terminated in a single fiber optic patch panel up to 144 strands. Additional strands shall be terminated in the largest size required to continue the remaining fibers.***

2.1.3.1.1 *Contractor shall provide a minimum of 6-feet of slack on the fiber feed cable in the fiber optic patch panel. The first 48" of a tight buffered cable or the first 24" of a loose tube cable shall not be stripped back in the patch panel. Each type of cable shall have a minimum of 24" of stripped slack within the patch panel. Total slack within the patch panel shall not be less than 6-feet in length.*

2.1.3.1.2 *All fiber cables shall be secured to the patch panel with the Kevlar strength members at the manufacturer provided anchor point at the rear of the panel.*

2.1.3.2 *Provide Category-6 Modular Patch Panels (rack mounted) with RJ45 style connectors, for terminating all twisted pair cable from each Voice/Data/IP Page outlet, or other devices served from this location. Provide 25% spare capacity for future wiring requirements. All patch panels shall be 24 or 48-ports maximum. Provide cable support bars at the rear of each patch panel. All cable shall be secured to bars with Velcro straps.*

~~2.1.3.3 Provide all other items as detailed on the drawings.~~

Intermediate Distribution Frame

2.2 ~~The Intermediate Distribution Frame shall be a secondary wiring and equipment location for the data networking system. The contractor shall include the following items at this location.~~

2.2.1 Provide 8'-0" high x 3/4" thick, as detailed on drawings, flame resistant plywood mounting backboard, painted with fire resistant paint white or color to match. Contractor shall provide minimum one side finish grade plywood. **Backboard shall be mounted with finish side out, regardless of location of fire rating stamp. Once stamp has been confirmed by the IOR, the stamps can be painted over. Do not leave any portion of the backboard unpainted.**

2.2.2 Fiber optic termination equipment (rack mounted), including all associated installation hardware for fiber feed cables. The equipment must have sufficient number of ports to connect all fibers in every cable terminated at this location. Provide 25% spare capacity for future installation. All fiber optic patch panels shall be provided fully loaded with SC bulkheads. Patch panel shall be 24-port patch panel minimum.

2.2.3 Category-6 TYCO ACO type Patch Panel (rack mounted), with RJ45 style connectors for terminating all twisted pair cable from each Voice/Data/IP Page outlet served from this location. The patch panels shall be installed as a fully loaded kit, complete with edge connectors, housings, panel assembly and

connector faceplates. Provide a minimum of 25% spare capacity for future wiring requirements. All patch panels shall be 16 or 32 port panel assemblies. Provide cable support bars at the rear of each patch panel TYCO #557548-1. Terminate the data cables from the audio-visual systems in the same patch panels.

2.2.4 Provide 24-port, RJ45, single pair per port, voice patch panel for the extension of the voice feed cable from the termination blocks on the backboard to the equipment rack. Provide 25-Pair tail from the punch blocks to the equipment rack. See the drawing details for additional requirements. All pairs shall be tested for continuity and polarity back to the Campus MDF Room.

2.2.5 Provide equipment mounting rack or enclosure as detailed in the drawings. Provide ladder rack bracing at top of rack back to wall and seismic bolting to floor and wall as shown on detail drawings. Provide all accessories whether shown on drawings or in specifications. Rack shall be furnished with the following accessories:

2.2.5.1 Provide (1) adjustable full depth vented shelf for each four post Quadrarack.

2.2.5.2 Provide full length vertical wire managers, CPI Part #30161-703, on each side of each rack section, or between racks for full height four-post Quadraracks.

2.2.5.3 (1) Grounding kit, connect grounding conductor to nearest ground buss bar. CPI Part #41016-001 or equal.

2.2.5.4 Provide horizontal wire managers between each patch panel. Provide (2) spare managers per rack section. Horizontal managers must be a minimum of (2) RMU in height. CPI Part # 12542-x19 or equal.

2.2.5.5 (2) horizontal rack mounted surge arrest style power strips "APC" #NET9RM with guarded master on-off switch where shown on drawings. Provide with minimum 15-foot cord.

~~2.2.5.6 Provide an uninterruptible power supply, 120 volt, rack mounted at the IDF location. UPS shall be provided with backplane configuration containing;~~

~~Output receptacles (minimum)~~

~~2.2.5.7 Backplane total (6) NEMA 5-15R and (2) NEMA 5-20R receptacles, 120 volt non-locking.~~

~~Input receptacle (minimum)~~

~~2.2.5.8 (1) 30 amp, 120 volt, locking, NEMA L5 30P plug installed on 8' 0" power cord.~~

~~2.2.5.9 APC" Smart UPS Model #SMX2200RMLV2U with Optional Network Card Model #AP9631 with environmental monitoring capability~~

2.2.6 Additional items required at each IDF closet **MDF** are as follows:

2.2.6.1 Fiber optic patch cord optical fibers shall be 50/125um micron laser-optimized multimode optical glass for dual operation at 850nm and 1300nm wave length. Fiber optic patch cords shall be terminated with duplex SC connectors on both ends with ceramic ferrules. Each IDF closet requires (2) patch cords for connection to the Data Infrastructure MDF Rack. All patch cords shall be Aqua (Lt.Blue) in color. Patch cords shall be 10 feet (3-meters) in length.

2.2.6.2 Provide (white) Category-6 (patch panel end) patch cords with pre-molded boot, provide quantity equal to 50% of the total voice/data cable drops or ports provided. Verify with Customer all ports which will be activated. All patch cords to be installed by contractor. Allow for 15% of total copper patch cords required to be (7) feet in length, and all remaining patch cords shall be (4) feet in length. Patch cords shall be in compliance with the manufacturer's "Link" warranty requirements.

2.2.6.3 Provide (color per detail drawings and station insert color) Category-6 (patch panel end) patch cords with pre-molded boot, provide quantity equal to 100% of the total IP Clock/Speakers, Wireless Access Points, LCD Projector/Audio-Visual and IP camera cable drops or ports provided. Verify with Customer all ports which will be activated. All patch cords to be installed by contractor. All patch cords shall be (4) feet in length, unless otherwise shown in the drawings or specifications. Patch cords shall be in compliance with the manufacturer's "Link" warranty requirements.

2.2.6.4 Provide (blue) Category-6 (workstation end) patch cords with pre-molded boot, provide quantity equal to 50% of the total voice/data cable drops or ports provided. Verify with Customer all ports which will be activated. All patch cords to be installed by contractor. Provide for 10% of total copper patch cords required to be (15) feet in length and all remaining patch cords shall be (10) feet in length. Patch cords shall be in compliance with the manufacturer's "Link" warranty requirements.

2.2.6.5 Provide (color per detail drawings and station insert color) Category-6 (workstation end) patch cords with pre-molded boot, provide quantity equal to 100% of the total Wireless Access Points, LCD Projector/Audio-

Visual and IP camera cable drops or ports provided. Verify with Customer all ports which will be activated. All patch cords to be installed by Contractor. All patch cords shall be (2) feet in length, unless otherwise shown in the drawings or specifications. Patch cords shall be in compliance with the manufacturer's "Link" warranty requirements. Patch cords for the IP Clock/Speakers is shown in the paging section of this specification.

2.2.6.6 Provide all other items as detailed on the drawings.

~~2.3~~ **Campus Indoor/Outdoor Fiber Optic Feed Cable**

~~2.3.1 Provide one continuous fiber optic cable routed from the Main Distribution Frame fiber patch panel to each Intermediate Distribution Frame fiber patch panel, and/or other locations as shown on the drawings.~~

~~2.3.2 Fiber optic cable shall be rated for indoor/outdoor and riser applications. Construction shall consist of; all dielectric, indoor/outdoor Riser Rated Tight Buffer Style, flame retardant PVC or PE jacket, rated OFNR, Outer and Inner Layer of Dielectric Strength Yarns with central member constructed of Dielectric Strength Yarns, dry water blocking compound, and blank fillers as required. Fiber shall be small form factor type fiber for use in existing conduit and pathways and shall not exceed an Overall Outside Diameter (OD) of .350". Central tube or loose tube type fiber will not be considered equal~~

~~2.3.3 Provide 24-strand multimode fiber feed cable, as shown on the riser diagram, to the IDF location from the existing MDF Room on campus. Feed cables shall be clearly defined and labeled per the detail drawings. Additional labeling on the fiber optic patch panel is required to identify which system the feed cable is servicing.~~

~~2.3.4 Cable shall contain one or all types of fibers listed below:~~

~~2.3.4.1 Provide Multimode 50/125 micron fiber optic glass, (minimum OM4 laser optimized grade) for dual mode operation at 850 nm and 1300 nm wave lengths. Maximum attenuation at 3.0dB/km @ 850nm and 1.0dB/km @ 1310nm. Quantity of fibers as per detail drawings. Minimum gigabit Ethernet distance guarantee of 1100 meters @ 850nm and 600 meters @ 1300nm. Minimum 10 gigabit Ethernet distance guarantee of 550 meters @ 850nm/1300nm. Fiber shall be ISO-TIA Standard OM4 rated.~~

~~2.3.4.2 Refer to drawings for cable types required. Refer to acceptable cables section for additional information and approved manufacturers.~~

~~2.3.5 Each fiber optic cable shall contain the quantity of strands of optical fibers as detailed on the drawings. A pull string shall be placed with all fiber cable at the time of installation. Outdoor rated fiber runs in excess of 150 feet shall be provided with a minimum 1/4" pull rope for future access. All empty and spare site conduits shall be provided with a minimum 1/4" pull rope for future access.~~

~~2.3.6 All fibers in a multi fiber cable shall be fully operational within the required performance characteristics. If any individual fiber does not meet the minimum standards, the entire cable must be replaced, end to end, including connectors, without any additional expense to the customer.~~

~~2.3.7 Acceptable cables shall be:~~

~~TYCO — Cat 6~~

~~Above glass types are an example of product names per manufacturer. Confirm requirements for indoor/outdoor fiber cable with riser drawings and site plans. Part numbers for composite style cable will vary greatly. Confirm part numbers with manufacturer.~~

2.4 Voice/Data/IP Page Station Cable

2.4.1 Provide one Category-6, 4-pair, unshielded twisted pair (UTP) cable from the nearest IDF to each RJ45 data outlet port indicated on the drawings. Dual port outlets will require two such cables. Four port outlets will require four cables. All UTP cable shall be blue in color. Contractor shall be responsible for providing the correct color per the drawings.

2.4.2 Category 6 cables shall be copper wire, individually insulated and color coded.

2.4.3 The cables shall be UL or ETL rated and UL verified in compliance with proposed Category-6.

2.4.4 The cables shall be UL or ETL rated and UL verified in compliance with proposed Category-6.

TYCO —Category-6

~~2.5 IDF to MDF Voice Feed Cables~~

~~2.5.1 Provide multi-pair UTP Category 3 cable from each IDF to the MDF as indicated on drawings. Cable must be 24 AWG, 22 AWG will not be approved as an acceptable equal.~~

- ~~2.5.2 For voice feed cables, terminate all pairs on 66 type termination blocks in the IDF closet and on 110 Type termination blocks at the MDF Room. Follow standard voice color codes for termination.~~
- ~~2.5.3 All voice feed cables will be tagged on the incoming cable with a typed permanent label with information as to its origin, house pair count, and cable destination. All 66 type blocks shall be labeled with type written labels that fit between the termination blocks (e.g., clear snap on covers, adhesive labels and holders). Pairs shall be identified a minimum of every 5 pair on the block.~~
- ~~2.5.4 Provide distribution rings for the 110 type blocks mounted at the MDF location.~~
- ~~2.5.5 In the IDF closet, the voice feed cable shall be spliced through directly to the patch panel in the equipment rack. See the drawing details for additional requirements.~~
- ~~2.5.6 Ground and bond feed cables at one end of cable to aluminum shield with approved "bullet bond" type ground lug and #10 AWG green ground wire. Connect ground wire to closet ground buss bar.~~
- ~~2.5.7 Acceptable manufacturers shall be: General Cable or Essex #ARMM type Series for indoor riser cable applications.~~
- ~~2.5.8 Acceptable manufacturers shall be General Cable #ANMW type or Essex Sealpic series for outdoor cable applications.~~

Maximum cable outside diameters shall be as follows:

25 Pair	.61 in.
50 Pair	.77 in.
100 Pair	.99 in.
200 Pair	1.29 in.

- ~~2.5.9 Data contractor is responsible for providing the telephone equipment vendor with detailed feed cable documentation as well as identifying all of the physical cable in the MDF and IDF locations. **Contractor shall have all installation, termination and documentation of voice feed cable completed, and released to the telephone equipment vendor, a minimum of three weeks prior to the cut-over date set by the District.**~~
- ~~2.5.10 Data contractor is responsible for testing port connectivity from the punch blocks in the IDF closets to the main feed cable blocks in the MDF Room. Test all pairs for continuity and polarity. **All testing must be completed a minimum of three weeks prior to the cut-over date set by the District.**~~

2.6 Voice/Data/IP Speaker Outlets

- 2.6.1 Unshielded twisted pair data outlets shall be an RJ45 Enhanced performance type 8-position / 8 conductor modular jacks, single port, dual port, four port or quantity as indicated on the floor plans. All outlets shall be wired in an EIA/TIA 568B configuration. All "ACO" type outlets shall comply with Category-6 performance requirements and all "110-Connect" type outlet inserts shall comply with Augmented Category-6 performance requirements.
- 2.6.2 Provide "ACO" edge connector type installation kits and inserts for all voice/data locations, with the exception of the wall mount telephone outlets. The data locations that are routed to the IP Cameras, IP Clock/Speakers, Wireless Access Points and LCD/Audio-Visual data locations shall be provided with 110-Connect modular termination inserts and faceplates.
- 2.6.3 All fax/modem locations shall be provided as data outlets. Requirements shall be the same as a single port data outlet as shown on the Technology Legend.
- 2.6.4 For single port voice outlet locations intended for wall telephone connections, a wall telephone type faceplate with attachment studs shall be provided. The wall telephone jack shall be 8-pin, RJ45 type and use IDC wire terminations only. Provide AMP 110 Connect SL Series ~~Category-6A~~ **Category-6** insert, white in color, Part # 1933476-1 within stainless steel wall plate faceplate Part # 1-OE-A5-PHONE-DP. Screw terminal type jacks will not be accepted as an alternative.
- 2.6.5 IP Clock/Speakers - Provide AMP NetConnect 110 SL Series, single port, small surface mounted box Part # 1116697-1, in ivory, for IP Clock/Speaker data outlets. Provide one, gray, 110 SL series ~~Category-6A~~ **Category-6** insert, Part # 1933476-4 with strain relief cap, in faceplate for IP Clock/Speaker data locations. Mount data outlet in back of IP Speaker enclosure.
- 2.6.6 LCD/Audio-Visual - Provide AMP NetConnect 110 SL Series, Dual port faceplate, in ivory, for Audio-Visual data outlets. Provide yellow, 110 SL series ~~Category-6A~~ **Category-6** insert, Part # 1933476-8 with strain relief cap, in faceplate for Audio-Visual data locations. Mount data outlets as shown on the floor plans and details.
- 2.6.7 Wireless Access Points - Provide AMP NetConnect 110 SL Series, Dual port faceplate, in ivory, for Wireless Access Point data outlets. Provide black, 110 SL series ~~Category-6A~~ **Category-6** insert, Part # 1933476-2 with strain relief cap, in faceplate for Wireless data locations. Mount data outlets as shown on the floor plans and details.
- 2.6.8 IP Cameras - Provide AMP NetConnect 110 SL Series, no faceplate, for IP Camera data outlets. Provide Red, 110 SL series ~~Category-6A~~ **Category-6** insert, Part # 1933476-7 with strain relief cap, in faceplate for Wireless data locations. Mount data outlets as shown on the floor plans and details.

- 2.6.9 For single port data outlet locations, the faceplates shall have space for two connections with one port fully operational for connection to all of the specified protocols. The second port shall be covered by a blank plate.
- 2.6.10 For dual port data outlet locations, the faceplates shall have space for two connections with both ports fully operational for connection to all of the specified protocols.
- 2.6.11 For triple port data outlet the faceplates shall have space for four connections with three ports fully operational for connection to all of the specified protocols. The fourth port shall be covered by a blank plate.
- 2.6.12 For quad port data outlet the faceplates shall have space for four connections with all four ports fully operational for connection to all of the specified protocols.
- 2.6.13 All data outlet faceplates shall be electrical ivory in color and shall have a unique sequential identification number applied to faceplate. Hand written labels are not permitted. Faceplates, with the exception of wall telephone outlets and IP Speakers shall include label windows. All color schemes shall be approved by the customer prior to installation.
- 2.6.14 **Colored inserts are required for this project. Refer to the detail drawings for the exact color scheme to be provided. Inserts submitted that do not follow the color and identification requirements will be rejected. Inserts installed that do not follow the color coding as shown in the detail drawings will be replaced at the Contractor's expense.**
- 2.6.15 **All labels will be installed under label windows with the exception of IP Speakers and wall telephone outlets. Labels adhered to the surface of the faceplate will not be accepted unless as shown as an exception above.** Contractor must provide clear laminating type of cover material over the surface mounted labels where used.
- 2.6.16 Reference the drawings for special outlet configurations or plate requirements

2.7 Paging Speakers and Horns

- 2.7.1 The IP-based intercom speakers and horns shall be furnished by the District and installed by the Contractor. All programming of the IP-Based speakers shall be completed by the District.
- 2.7.2 All analog exterior horns shall be furnished and installed by the 27 10 00 Contractor. The Contractor shall also furnish and install the IP Zone Controllers and amplifiers. Install equipment per the detail drawings and specifications.

- 2.7.3 The Contractor shall install the IP based paging speaker/ digital clock combinations in the classrooms and exterior horns where shown on the floor plans.
- 2.7.4 Data Contractor shall be responsible for providing enclosures for all IP based speaker/clocks and analog exterior horns. Contractor shall provide vandal resistant screws with all enclosures for attachment of the speaker/horn baffle. Exterior locations shall be provided with stainless steel vandal resistant screws.
- 2.7.5 Flush mount enclosures shall be furnished by the 27 10 00 Contractor and installed by the Division 26 Electrical Contractor as shown in the floor plans. 27 10 00 Contractor shall deliver enclosures to the Electrical Contractor in a timely fashion so as to not adversely impact the project schedule. Coordinate with Electrical Contractor and Construction Manager as long lead times are typical for this product.
- 2.7.6 Surface mounted enclosures shall be furnished and installed by the 27 10 00 Contractor. All surface mount enclosures shall be provided with vandal resistant screws for attachment of the speaker/horn unit to the enclosure. If enclosure is located on the exterior of the building, the enclosure shall be provided with stainless steel vandal resistant screws. All vandal resistant screws shall be delivered to the District IT Department for use during installation of the IP speaker/horn baffles by the District.
- 2.7.7 Contractor responsible for proper paging coverage and tap settings at the speakers/horns.
- 2.7.8 All exterior loudspeaker circuits shall operate balanced to ground. Bonding shall be provided to assure equal potential measurement between the chassis of all amplifiers, power supplies, etc. Bond to the ground bus bar.
- 2.7.9 Each exterior horn location cable shall be home run to the IDF rack/cabinet. Provide 1-pair, 18 gauge CMR rated speaker cable to each horn location. Terminate speaker cable on terminal strips or punch blocks.
- 2.7.10 Contractor shall run a speaker cable from the amplifier to the page interrupter for the audio-visual system in each room. The connection will serve to cut off the audio from the AV system when the paging system is engaged. Speaker connections to the AV system may be looped, but the Contractor is responsible for insuring that the signal strength is sufficient to allow the interrupter to operate properly.
- 2.7.11 Recessed flush mount IP Speaker/ Clock combination; Provide flush mount enclosure installed in gypboard wall with District furnished IP clock/speaker. Enclosure shall be as manufactured by Atlas Model #EST-I8SC.

- 2.7.12 Surface mount IP Speaker/Clock combination; Provide surface mount enclosure installed on gypboard wall with District furnished IP clock/speaker. Enclosure shall be as manufactured by Atlas Model # EA-I8SC.
- 2.7.13 Surface mount exterior horn; Provide Atlas Sound Part #APF-15T with surface mount vandal resistant enclosure Part # SE161-R6 and Part #VP161-APF baffle grille. Unit must be weather resistant.
- 2.7.14 Provide a (2) foot long, CAT-6, UTP patch cord, gray in color, for each speaker location to connect to the ethernet drop located in the enclosure. Provide patch cords for 100% of IP Speaker/clock locations. Provide (3) spare patch cords, deliver all Patch cords to the District IT Department.
- 2.7.15 IP speakers/clock and horns shall be connected to the powered ethernet switch in the IDF Room or cabinet. Provide 4-foot long, Category-6 UTP patch cords, gray in color. Provide patch cords for 100% of IP Speaker/horn/zone controller locations. Provide (3) spare patch cords, deliver all patch cords to the District IT Department.
- 2.7.16 All speaker/clock connections to be terminated at the data patch panel. Speakers must be patched to a powered switch in the IDF to allow for proper operation.
- 2.7.17 The District shall be responsible for providing licensing requirements and Informacast software to drive speakers and program tones, bell schedules and announcement controls.
- 2.7.18 Programming of speakers/clock for page coverage zones, tones, time schedules, pass class bell and VoIP interface to be completed by the District IT Department and is also responsible for providing IP addressing and identification of individual speakers.
- 2.7.19 Coordinate with the District IT Department for the set up and programming of the IP Zone Controller in the IDF location. The Contractor shall furnish and install (1) IP Paging Zone Controller in the IDF rack. Provide the rack mount adapter bracket. The zone controller shall be connected to the Network Switch and the paging amplifier. Provide Atlas Part #IPS-ZC1 with power supply.
- 2.7.20 Amplifiers shall be rack mounted in the IDF rack. Provide Atlas Sound Part # PA601. Provide rack mount adapter bracket. Provide (1) amplifier to service the exterior paging horns as shown on the drawings. A separate amplifier must be provided for each IP zone controller output. Multiple amplifiers may be required for a single zone depending on quantity of horns requiring amplification. Contractor is responsible for providing sufficient power amplification to service all horns. Contractor is responsible connecting the amplifiers to the IP zone

controllers and insuring proper operation between the zone controller and amplifiers.

- 2.7.21 Contractor shall be responsible for testing all paging speakers and horns and insuring the proper volume levels are set on the paging devices and amplifiers. Provide (4) man hours (not including travel time) for re-adjustment of the paging speakers and horns volume levels per the District's requirements 4 weeks from the final sign-off of the modernization project. Travel time to and from the site shall be included in the service.

PART 3 - INSTALLATION

- 3.1 Upon completion of 10% of the cabling installation, the contractor shall notify the engineer for an inspection of the methods and types of materials used on the project. The contractor shall give a minimum of 72 hours notification to the engineer for the inspection. The contractor will be given a written review of the findings, so if adjustments are required, they can be done before the project proceeds.
- 3.2 Pull strings will be provided with all cable runs including but not limited to; conduit stub ups, conduit sleeves, cable trays, open wiring routes, innerduct, and point-to-point conduits. Pull strings shall be free from cable bundles in open wiring routes. Pull strings shall not be substituted for pull ropes.
- 3.3 Velcro cable management straps are required on all Category-6 cable bundles, the last 20 feet or upon entry into equipment closet, a maximum of 12" apart. Cable bundles shall also be routed through cable management or "D" rings in the equipment closet.
- 3.4 Data contractor shall supply protective bushings or slide on rings at the ends of all exposed conduits used for the data system cabling. This is to include all conduits installed for any future data cabling requirements. Contractor shall submit planned protection bushing prior to installation of cabling for approval.
- 3.5 Velcro cable management straps are required on the rear of the equipment racks and on the patch cords within the vertical cable managers. Straps shall be a maximum of 12" apart.
- 3.6 Every fiber in every fiber optic cable must be terminated at both ends on a fiber patch panel in the IDF closet or on a faceplate in the classroom location. Termination shall be accomplished using Duplex SC type connectors with a long strain relief boot, except for fiber ran to station locations where a short boot shall be used.
- 3.7 All SC connectors shall be of the same manufacture to ensure compatibility. Polarity of fiber strands must be observed at all times.
- 3.8 Labeling

- 3.8.1 Each cable **run shall be permanently labeled at each end** with a unique sequential number which corresponds to a similar number provided for each data outlet and punch down point. A printed label shall be placed at each of the following locations;
 - 3.8.1.1 On the cable at the rear of the patch panel or termination block. Requires the use of a self laminating wrap around label. Brady Label self laminating 1.2" by 1.5" wrap around label Part # 29689 **(NO ACCEPTABLE EQUAL)**.
 - 3.8.1.2 On each cable in the j-box behind the faceplate location. Requires the use of a self laminating wrap around label. Brady Label self laminating 1.2" by 1.5" wrap around label Part # 29689 **(NO ACCEPTABLE EQUAL)**.
 - 3.8.1.3 On the face of the patch panel, provide a 3/4" by 3/4" label with a letter or number identifying the patch panel designation.
 - 3.8.1.4 On the face of the faceplate in the label holder window.
- 3.8.2 Hand written labels are not permitted. Where cable ID includes room number identification the contractor shall obtain written verification of actual room numbers prior to beginning labeling (numbers on plans do not always match actual room numbers). Cable pulling cross reference lists will not be accepted with final documentation.
- 3.8.3 Each patch panel port shall be identified with a unique sequential labeling scheme. Port identification labeling pattern shall be consistent throughout the project.
- 3.8.4 All faceplates shall be identified with permanent printed labels. Labels must not be subject to removal by incidental contact. Contractor shall be responsible for replacing defective labeling for a period of one year from date of final sign-off of project.
- 3.8.5 All fiber optic and UTP feed cables shall be identified with a permanent, water resistant, printed labels. Labeling information shall include closet identifications, quantity of conductors (UTP) or strands (fiber) and house pair designations (UTP). Cables shall be labeled at the following locations in the IDF/MDF; at conduit entrance point and prior to entering either punch blocks or patch panels. See details for additional requirements.
- 3.8.6 Labeling will follow recommended EIA/TIA standards or as requested by the customer. Contractor will confirm labeling pattern prior to final identification or testing. All test results will be identified by the final labeling scheme.

- 3.8.7 All fiber optic cables and/or innerduct shall be tagged with fiber optic warning tags in every manhole or pullbox. Fiber warning tags shall also be placed at each end of the cable in the termination closets in clear view. A minimum of (3) tags are required at each end. Fiber warning tags shall be placed on fiber optic cable and/or innerduct routed through open ceiling environments at increments no less than 15 feet apart.
- 3.8.8 Refer to detail drawings for additional labeling requirements.
- 3.9 Where open wiring cables are run through the ceiling space (only permitted where specifically noted on the drawings), the wire shall be bundled together and supported above the ceiling.
- 3.10 All cables must be fastened to the building structure via “j-hooks” or an approved Category 6A suspension system, and not directly in contact with ceiling system. For “j-hooks” maximum fill capacity is as follows: 1-5/16" hooks – 35 cables; 2" hooks - 60 cables; 4" hooks - 120 cables. For quantities beyond 120 cables use a sling support system such as “Erico Cable Cat” or equal. Maximum fill capacity 200 cables. D-rings, “Caddy #WMX cable hangar”, “Caddy Bridle Rings”, drive rings or any other type of wire ring support is not allowed.
- 3.11 Where cables pass through a fire-resistant portion of the structure, conduit sleeves shall be provided to maintain the rating of the wall penetrated. Sealing of all penetrations with an approved fire barrier is required. Conduits and sleeves must remain accessible for future use. Permanent sealants may not be used to seal sleeves and conduits.
- 3.12 Fiber optic cables connecting to equipment racks shall be installed with not less than 20 feet of slack cable between the rack and the terminal backboard. See drawings for fiber optic service loop requirements.
- 3.13 Provide 6 inches of cable slack at computer data system outlets inside conduit box.
- 3.14 In an accessible ceiling area, provide a 10 foot (circle 8 configuration) service loop above the data/voice outlet locations. Service loop must be tied up off of ceiling tiles or ceiling surface. Neatly coil cable without exceeding minimum bend radius limitations. Do not provide length in excess of 15 feet. May cause improper test results.
- 3.15 The minimum bending radius for all cables and the maximum pulling tension shall not exceed manufacturer's recommendations.
- 3.16 Cables installed in manholes and pullboxes on terminal backboards shall be installed on wall mounted cable support racks.
- 3.17 Provide a full 360 degree loop of cable around manhole and pullbox interiors.
- 3.18 Cable pulling shall use a split mesh grip over the cable jacket. Connection directly to optical fibers and copper wire conductors shall not occur.

- 3.19 When pulled through conduits, cable pulling lubricants shall be continuously applied to all cables and be specifically approved by the manufacturer.
- 3.20 Where cables are pulled through or pulled from a center of run, pull without splices or terminations, lead out the cables at all manholes, pullboxes, and conduits, taking care to feed them in again by hand for the next run.
- 3.21 For each cable pull where a cable direction change is required, flexible feed-in tubes, pullout devices, multi-segmented sheaves, etc., shall be used to ensure proper cable pulling tensions and side wall pressures. Cables shall not be pulled directly around a short right angle bend. Any device or surface the cable comes in contact with when under pull-in tension shall have a minimum radius 50% greater than the final specified minimum installed cable bending radius. The maximum possible size radius sheaves and feed-in tubes, usable in the available working space, shall be provided in all situations, to ensure the minimum possible cable sidewall pulling pressure. Do not use devices with multi-segment "roller" type sheaves.
- 3.22 Cable lengths over 250 feet shall be machine pulled, not hand pulled. Cables shall be pulled in a continuous, smooth operation without jerking or stop-start motion after initiation of pull. Maximum cable pulling speed shall be less than 50 feet per minute. Minimum pulling speed shall be greater than 15 feet per minute.
- 3.23 When pulling cable through conduit, cables shall be pulled straight into or out of the raceway without bends at the raceway entrance or exit. Pull in cable from the end having the sharpest bend (i.e., bend shall be closest to the reel.) Keep pulling tension to minimum by liberal use of lubricant, hand turning of reel, and slack feeding of cable into duct entrance. Employ not less than one man at reel and one at manhole or pullbox during this operation. Cables shall be pulled directly from cable reels.
- 3.24 All cables shall be new and extend continuous from each MDF or IDF backboard or rack to all voice/data outlets or other equipment locations.
- 3.25 Where cables are not installed in a conduit or other raceway system, they shall not be routed parallel with other line voltage equipment or wiring (120 volt and above) within 36" or within 12" of line voltage equipment or wiring where crossing. Where Flooded Enhanced Category-5 cables or outdoor rated fiber optic cables are routed exposed through ceilings for more than 50'-0", install in innerduct or EMT conduit system.

PART 4 - TESTING

- 4.1 All Category-6 cables shall be point to point (link) tested after installation/termination, and verified to operate at minimum 1000Mbps. Performance of installed cables shall satisfy all current addendums to the EIA/TIA 568A standard for Category-6 wiring. In addition, testing shall satisfy all proposed amendments to the existing ISO/IEC requirements. The wiring shall support all specified communication protocols. Testing shall support the Category-6 requirements by the EIA/TIA.

- 4.2 Upon completion of testing cable links, the Contractor shall supply a copy of the original database files downloaded from the tester in original format on disk. Contractor shall provide with database files an original copy of the tester's manufacturer software program (included in original cost) for record management and archiving, in a Windows format (e.g., MicroTest's software program - ScanLink ver.)
- 4.2.1 10 PC for Windows, WaveTek's software program-LTRM ver.1.07, etc). The manufacturer's software program will be used by the engineer to review all test results, and then turned over to the customer to keep as their record copy with the final approved test results. Provide (3) copies of tests on disk.
- 4.3 Contractor will repair or replace cable runs or connecting hardware that do not meet specified criteria.
- 4.4 Multimode fiber optic cables shall be tested bi-directionally at 850nm and 1300nm. Single mode fiber optic cable shall be tested bi-directionally at 1310nm and 1550nm. All fiber strands shall be tested with a power meter and light source as well as an OTDR (Optical Time Domain Reflectometer). OTDR fiber tests for runs under 100 meters are not required. All fiber test results shall contain final source and destination information that matches IDF or MDF labeling shown on drawings. Fiber test results shall be submitted as hard copy and on floppy disk in Microsoft Excel format.
- 4.5 Test procedures shall comply with EIA/TIA 526-14 Method B. Test results shall meet the minimum following criteria:
- 4.5.1 Fiber optic test results shall not exceed 2db attenuation loss in addition to inherent loss published by manufacturer tested at minimum 2000 Mhz for 850nm and 500 Mhz for 1300nm for the fiber optic cable.
- 4.5.2 Test all voice/data cables minimum Category-6 UTP cable to test results for "Link Testing" requirements @ 250 Mhz per current EIA/TIA draft requirements. Any cables which do not meet these minimum requirements shall be replaced or repaired at no cost to the customer.
- 4.6 End to end attenuation termination points measure the power loss between end points from both directions.
- 4.7 End to end attenuation testing shall be performed with a temporary test jumper cable at each end of the installed fiber cable. The test jumper shall be the same size as the installed cable. The measured attenuation of the test jumpers, test connectors, and test interconnection sleeve between the two test jumpers shall be less than 1dB as calibrated at the time of the test at indicated wave lengths and frequencies.
- 4.8 Provide (3) hard bound copies of "E-size" drawings and (1) file copy in AutoCAD format copy of floor plan drawings of each building on a USB flash drive. These drawings shall include all outlet locations, major cable routes and outlet and cable identification

numbers. Provide detailed elevations of each MDF or IDF locating all equipment and connections.

END OF SECTION

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SECTION 27 20 00
INTEGRATED AUDIO/VISUAL SYSTEM

PART 1 – GENERAL

SUMMARY

- 1.1 The Contractor shall furnish all labor, project management, materials, tools, equipment, and resources necessary for the installation, startup, and testing of the system shown on the plans and described in the specifications.
- 1.2 Related Specification Sections:
 - 1.2.1 Section 26 01 00 -General Provisions
 - 1.2.2 Section 26 05 33 -Conduit and Fitting
 - 1.2.3 Section 26 05 19 -Conductors
 - 1.2.4 Section 26 05 34 -Outlet and Junction Boxes
- 1.3 The Contractor shall furnish and install the system as defined by the plans and specifications. The Contractor must demonstrate to the Owner that the system is complete and complies with all operational requirements set forth in the plans and specifications.
- 1.4 The work covered under this section of the specifications consists of furnishing all labor, equipment, supplies and materials, and in performing all operations necessary for the turnkey and fully completed installation of an audio/ video system in accordance with the specifications and accompanying drawings, except as specifically noted otherwise.
- 1.5 Cables for the system shall be pulled through the conduit systems furnished by the building Contractor. The 27 20 00 Contractor shall be responsible for providing all cables required and for coordinating and supervising the cable installation. The 27 20 00 Contractor shall be responsible for ensuring the integrity of the cables before and after installation.
- 1.6 Work Excluded:
 - 1.6.1 Excluded from this work shall be any and all general construction services regarding masonry and general carpentry services. Those services are to be provided and installed by the general Contractor.
 - 1.6.2 Conduit/raceways, sleeves, cable trays, electrical boxes, hand holes, pullboxes, etc. required for the system shall be furnished and installed by the Electrical Contractor. The conduit/raceways and electrical boxes furnished and installed under Electrical Contractor shall conform with the requirements of the drawings and specifications for the system.

- 1.7 In order to ensure project cohesion a single point of contact is required to provide a "TURNKEY" solution. The work covered under this section of the specification consists of furnishing all labor; cabling; equipment; software; supplies; materials and training. The Contractor will perform all operations necessary for the "TURNKEY" and fully completed installation in accordance with the specifications herein. As such, the successful Contractor must be factory trained on all aspects of system hardware. The successful Contractor shall be a California licensed C7 or 10 premise wiring Contractor as defined in this specification. SubContractors may not be utilized in the implementation of the plant wiring installation.
- 1.8 Approval to bid shall not release the Contractor from full specification compliance requirements. Final system acceptance testing shall govern final system acceptance and compliance with the specifications.
- 1.9 Failure to provide a functional equivalent shall result in the removal of the alternate system at the Contractor's expense.
- 1.10 These specifications contain statements which may be more definitive or more restrictive than those contained in the General Conditions. Where these statements occur, they shall take precedence over the General Conditions.
- 1.11 Where the words 'provide' or 'provision' is used, it shall be definitely interpreted as 'furnishing and installing complete in operating condition'. Where the words 'as indicated' or 'as shown' are used, it shall mean as shown on contract drawings.
- 1.12 Where items are specified in the singular, this division shall provide the quantity as shown on drawings plus any spares or extras mentioned on drawings or specifications. All specified and supplied equipment shall be new.

DEFINITIONS

- 1.13 Concealed: Hidden from sight, as in trenches, chases, hollow construction, or above furred spaces, hung ceilings - acoustical or plastic type, or exposed to view only in tunnels, attics, shafts, crawl spaces, unfinished spaces, or other areas solely for maintenance and repair.
- 1.14 Exposed, Non-Concealed, Unfinished Space: A room or space that is ordinarily accessible only to building maintenance personnel, a room noted on the 'finish schedule' with exposed and unpainted construction for walls, floors, or ceilings or specifically mentioned as 'unfinished'.
- 1.15 Finish Space: Any space ordinarily visible, including exterior areas.

Contractor Qualifications

- 1.16 The successful bidder shall be a California licensed C7 or C10 premise wiring Contractor as defined in this specification. Subcontractors may not be utilized in the implementation of the installation or programming.

- 1.17 The successful bidder shall have design staff with a minimum of the following certifications and shall include all certifications with their bid.
 - 1.17.1 (1) BICSI certified (RCDD) Registered Communications Distribution Designer.
 - 1.17.2 CTS Certification
 - 1.17.3 Extron XTP Systems Engineer
 - 1.17.4 Extron TLP programming certifications
 - 1.17.5 Extron Global Configuration Certification
- 1.18 The successful bidder shall have installation staff with a minimum of the following and shall include all certifications with their bid.
 - 1.18.1 CTS-I certification
 - 1.18.2 Extron Advanced A/V Certifications.
 - 1.18.3 Contractor must have a minimum of (8) full time certified installation technicians with Extron Certifications (include certifications with submittals)
- 1.19 All bidders must provide a listing of two similar size projects having the same scope of work using the proposed information delivery equipment. This listing shall be complete with facility names, completion dates, names of contacts, and their telephone numbers. Referenced projects must have been completed in the past 18 months.
- 1.20 The bidder shall have a factory trained service department. The service department shall be on call 24 hours a day, 365 days a year, to arrive and initiate onsite service the specified equipment upon (24) hours notice.
- 1.21 The Contractor shall employ factory-trained technical/service personnel for service and maintenance of the system. Their résumés will be required. The factory-trained technical/service personnel shall have a minimum of two years experience installing the proposed system. The Bidder shall submit the names and copies of the certificates issued by the factory. The bidder shall instruct the Owner's technical personnel in the operation, care, and maintenance of the system.

CODE COMPLIANCE

- 1.22 All material and equipment shall be clearly listed, labeled, or certified by Underwriters Laboratories, Inc. All power supplies and computers shall be clearly UL Listed. Any system which is not UL Listed at time of bid will be rejected.
- 1.23 All acceptable systems shall be approved under Part 15, Subpart B, Section 15.107b of the FCC Rules and Regulations. Bidders must provide the FCC Registration Number of the proposed system. Systems that are not in compliance with the FCC will not be

considered. Any system that is not FCC compliant at time of bid will be rejected. All equipment must be clearly labeled with FCC compliance stickers.

- 1.24 The system shall be installed in accordance with local and national electrical codes.
- 1.25 The manufacturer and Contractor shall provide the Owner with a release for use of all copyright materials, corporate logos, and corporate trademarks at time of bid.

SUBMITTALS

1.26 General Submittal Requirements

- 1.26.1 Phase I Submittal shall be made in electronic format within (20) working days after the award of the contract by the District. This submittal shall include the following:
 - 1.26.2 Complete Bill of Materials in Excel Spreadsheet format with bills of quantities, including all materials, components, devices, and equipment required for the work. The bills of quantities shall be tabulated respective of each and every system as specified, and shall contain the following information for each Section listed:
 - 1.26.3 Description and quantity of each product.
 - 1.26.4 Manufacturer's Name and Model Number.
 - 1.26.5 Manufacturer's Specification Sheet or Cut Sheet. Material Cut Sheets shall provide detailed product information and shall be original manufacturer product bulletins. **Copies of material information from vendor websites shall not be considered equal and will not be excepted.**
 - 1.26.6 Material Cut Sheet part number provided shall be highlighted or provided with an arrow directed at the corresponding part number.
 - 1.26.7 Specification Item Number referenced for each required product or if not shown in the specifications, Drawing Detail Number being referenced. (ie; Spec. 27 10 00 Item 2.1 or DWG E4.15/#1)
 - 1.26.8 Include with submittals all warranty information and a description of support and maintenance services to be provided. Also include all licenses and maintenance agreements required for continued operation of the equipment.
- 1.27 Phase II Submittal shall be provided within (20) working days after the approval of the Phase I submittals and prior to any fabrication or field conduit installations. All shop drawings shall be engineered in a CAD Software. Submission shall include electronic print copies to match the contract drawings, and Phase II submittals drawings shall include the following.

- 1.27.1 MDF and IDF equipment rack or cabinet elevations will be required to be provided including cable routing, grounding, support, UPS, network electronics, etc. and position of all components in the rack or cabinet.
- 1.27.2 Provide labeling plan which identifies the proposed scheme for identifying all components including Racks, patch panels (fiber and copper), site distribution feed cables, horizontal station cables and site conduit systems (handholes, pullboxes, etc.).
- 1.28 Common submittal mistakes which will result in submittals being rejected:
 - 1.28.1 Not including the qualifications of the installing Contractor Company and Contractor's Staff.
 - 1.28.2 Not including all items listed in the above itemized description.
 - 1.28.3 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed (provided for the project) or crossing out the items which are not applicable.
 - 1.28.4 Not including actual manufacturer's cut sheets or catalog information of proposed products.
 - 1.28.5 Do not provide website sales pages instead of Material Cut Sheets. Printing the entire web page with advertising and non-applicable items or information will not be acceptable.
 - 1.28.6 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" or "to be determined later" statements. The products being submitted must be the products installed.
- 1.29 Component Samples and Mock-ups
 - 1.29.1 Provide one full size installation sample mock-up of a normal wall faceplate for approval. All samples are to be fully labeled per these specifications. Samples are to be delivered to the Construction Manager's office on site prior to installation.
 - 1.29.2 All sample mock-ups are intended to represent the components that are to be installed as part of this project. They are to be provided with all associated components and labeling necessary to make up a complete mock-up. Installation shall not proceed until the Owner's Representative has approved the samples. Once samples and other documents have been submitted and inspected by the Owners Representative approved, they shall be retained. Any installation that does not meet this standard shall be replaced or re-worked as approved by the Owners' Representative at no cost to the project.

- 1.30 The Contractor shall make a written request directly to Johnson Consulting Engineers for electronic drawing files (CAD). As a part of the written request, please include the following information:
- 1.30.1 Clearly indicate Project Name and Client, Johnson Consulting Job Number (located in bottom left corner of JCE Engineering Stamp) and each drawing Sheet Number required (i.e., E1.1, E2.1, E4.1 etc.).
 - 1.30.2 Identify the name, Company, Title, phone number, mailing address and e-mail address of the person to receive the files.
 - 1.30.3 Detail or Riser diagram sheets, System Schematic drawings or any other drawings other than floor plans or site plans, will not be made available to the Contractor.
 - 1.30.4 Files will only be provided in the AutoCAD format in which they were created (i.e., version 2015 or version 2016). Files will not be made available in REVIT format.
- 1.31 Requests for files will be processed as soon as possible; a minimum of (7) working days should be the normal processing time. The Contractor shall be completely responsible for requesting the files in time for their use and delays in requesting files will not alleviate the Contractor from submitting required documents within the required timeline.
- 1.32 Contractor shall be responsible for the complete provision and installation of all components as specified herein. The Contractor shall provide all tools, equipment, fixtures, appliances, ancillary piece parts and hardware as necessary to complete the assembly and installation as requested. The Owner's Representative may conduct scheduled or unscheduled inspections of the Contractor's work at any time during construction. All work included in the scope assigned to the Contractor that is associated with this project shall be accomplished in a workmanlike manner, installed and assembled plumb, level and square. The product shall be delivered to the Owner finished complete, and ready to operate according to the manufacturer's specifications.
- 1.33 All installation work shall be completed to the standard of the samples approved by the Owner's Representative during the submittal process. Any products not installed to the quality detailed in these specifications and approved in the submittal process shall be reworked by the Installer to the satisfaction of the Owners Representative at no additional cost to the Owner.
- 1.34 Products as manufactured by "Extron" have been specified to coordinate with an existing facility and other contracts to be issued for this project. Alternate products will not be approved.

SEISMIC ANCHORING

- 1.35 All sound systems, A/V equipment or enclosures shall be anchored to the structure. Where details have not been provided on the drawings, anchorage shall comply with CBC Section 1632A and Table 16-A0. The Contractor shall submit drawings signed by the Contractor's registered structural engineer indicating method of compliance prior installation.

CLEANUP

- 1.36 In addition to cleanup specified under other sections, thoroughly clean all parts of the equipment. Where exposed parts are to be painted, thoroughly clean off any spattered construction materials and remove all oil and grease spots. Wipe the surface carefully and scrape out all cracks and corners.
- 1.37 Use steel brushes on exposed metal work to carefully remove rust, etc., and leave smooth and clean.
- 1.38 During the progress of the work, keep the premises clean and free of debris.

GENERAL COORDINATION

- 1.39 The A/V drawings may reference components by manufacturer which conflict with the written specification requirements, where this occurs the written specifications shall be followed.
- 1.40 The 27 20 00 Contractor shall actively coordinate all power requirements for the Audio-Visual Systems with the Division 26 Electrical Contractor. The 27 20 00 Contractor shall coordinate the placement of the electrical outlets and hard-wired power connections at projectors, AV Systems cabinets and other equipment, with the Division 26 Contractor to determine the exact placement of the power. Outlet placement in many of the applications is critical to the space requirements and power cord length of the equipment or devices being installed.
- 1.41 Warranty: All components and installation, shall be warranted by the Manufacturer to the School District for a period of **2-years** after District acceptance and sign-off of the completed system. With the exception of the following equipment that shall be provided with longer warranties as noted;
- 1.42 Contractor shall provide a spreadsheet for the District provided asset tags for all newly installed AV equipment. Contractor shall provide the populated tag list at the end of the project as part of their turn-over documents.
- 1.43 Contractor shall coordinate assignment of ALL installed IP addressable equipment. The District will provide a list of available IP addresses based on Contractor's device count. Contractor shall provide a spreadsheet containing the IP and MAC addresses as well as each particular device location. This list shall also contain the Switch Port Number, and Label Description.

PART 2 — PRODUCTS

General Audio-Video Requirements:

- 2.1 The Contractor shall refer to the Audio/Video Patch Cable section of this specification for the descriptions of the type and style of patch cable to be furnished for the different Audio-Visual and data patch cable connections. Patch Cable Section includes the different requirements for cable runs based on length and style of connector. HDMI cables shall be furnished as outlined in this section and based on the length of the cable, the model of HDMI cable required will vary. Individual patch cord specifications are not shown in the room system descriptions, only the type of cable required will be shown.
- 2.2 Contractor shall furnish and install all Audio-Visual system components as shown in the A/V system details and these specifications. Refer to the Audio-Visual System Diagram for additional information. The drawing details and specifications shall be considered as one overall document. Contractor shall provide all systems as complete turn-key operational Audio-Visual systems.
- 2.3 Document Camera, Computer and Monitors units shall be furnished by the District and installed by the District.

Flat Panel Monitor System Requirements

- 2.27 LED Flat Panels shall be furnished by the District and installed by the Contractor. Contractor shall install Flat Panel with audio/video components and local wiring for the locations as shown on the floor plans. LED Flat Panels Monitors shall be located per the drawings and specifications. Refer to the drawing details for the Flat Panel mounting requirements and the floor plans for the locations of the panels.
- 2.28 Provide Passive Flat Panel AV System in the Conference Room #110, Collaboration Room #128 and the Lobby Room #158. The flat panel systems shall be furnished with Passive HDMI input wallplate, Passive HDMI output wall plate and Dual Port Flat Panel data outlet connection. Each location shall be controlled using the Flat Panel Monitor's Remote Control unit.
- 2.29 The LED Flat Panel shall serve as support for the Offices and Conference Room in the Administration Building. The flat panel's speakers will be used for all local audio output. Provide (1) Passive HDMI Input wallplate connection to each LED Flat Panel.
 - 2.29.1 Manufacturer and Size of LED Flat Panel may vary. Confirm Flat Panel specifications prior to installation of the Flat Panel Mount with the District IT Department.
 - 2.29.2 Provide Category-6 patch cable for connection from the LED Flat Panel Monitor to the data outlet behind the Flat Panel, length as required. Coordinate IP Addressing with the District IT Department. The Flat Panel shall be programmed for direct Ethernet connection to the local LAN.

- 2.29.3 Provide Active HDMI wallplate for the Laptop PC connection. See Wallplate specifications for requirements.
- 2.29.4 LED Flat panel monitors shall be set-up to limit accessibility to the controls in public areas of the building. Panels shall be capable of public display settings, so the local controls can be locked out. All flat panels shall be mounted with vandal resistant hardware to insure security of the monitors.
- 2.30 Provide Flat Panel with a surface mount, dual arm, articulating, Flat Panel TV Mount. The dual arm mount shall be provided with a universal VESA type bracket and does not require a separate bracket to be ordered.
 - 2.30.1 Provide Flat Panel with a recessed type wall mount by Chief Manufacturing Model #PNRIWUB dual arm support as shown on the drawing details. Refer to the detail drawings for the flat panel mounting outlets and conduit requirements. Contractor shall furnish the adapter plate from Chief to mount to the model of flat panel provided. Confirm all heights of the mounts with the Project Engineer, District Project Manager and Construction Manager prior to installing the mounts. Exact height of the flat panels must be field verified by the 27 20 00 Contractor prior to rough-in
 - 2.30.2 The final location of the Flat Panel Monitor shall be determined by any clearance required to access any controls or connections and clearances required to make adjustments (Pan, Tilt and Extension) to the Flat Panel.
 - 2.30.3 The 27 20 00 Contractor must coordinate with the Division 26 Contractor and the Construction Manager for the proper placement of the junction boxes for the power, data and audio-visual connections at the Flat Panel locations. Coordinate no later than two weeks before the Rough-In date shown in the Construction Schedule for the Division 26 Contractor. Audio-Visual cable connection J-Boxes shall be provided at both the bottom (from the Floor Box) and at the top (from Accessible Ceiling) in all locations shown on the Floor Plans with Floor Boxes.
- 2.31 The 27 10 00 Contractor will provide a 2-Port Category-6 UTP data outlet at the Flat Panel Display and at the Local Origination "LO" HDMI Input Wallplate locations. Coordinate the data outlet location with the 27 10 00 Contractor.
 - 2.31.1 Provide Category-6 patch cable from the data outlet in the Floor Box to the Cable Cubby in the Conference Table, length as required. Install patch cable for the network connection. Patch cable must be provided with slack to allow the User to pull out the Patch Cable for connection to the Computer.
 - 2.31.2 Provide Category-6 Patch Cable from the data outlet behind the Flat Panel Monitor directly to the Ethernet port on the Flat Panel Monitor. All Category-6 UTP data outlets will be furnished by the 27 10 00 Contractor.

- 2.32 Refer to the drawing details and Audio-Visual System Diagrams in the drawings for Classroom Flat Panel installation and for additional requirements.
- 2.33 Provide an Extron WPD-110A Passive HDMI Decora Style Transmitter Input Wallplate for the Local Origination "LO" computer connection to the flat panel. See floor plans for the location of the input wallplate.
- 2.33.1 Input Wallplates installed in floor boxes shall be provided with the proper size Decora-Style faceplate to fit the floor box. Contractor may be required to field modify the faceplate to fit in the Floor Box, depending on the size and type of floor box. Coordinate with the Div. 26 Contractor for Floor Box requirements.
- 2.33.2 Provide HDMI cable from the Transmitter Input wallplate location "LO" to the Receiver Output wallplate location behind the Flat Panel Monitor. Length of cable shall be as required. Provide Hybrid-Fiber Optic HDMI cable in length for the Input Wallplate connection. See the AV Patch Cables Section for requirements.
- 2.33.3 Provide a Swivel Head Type 12-foot HDMI Patch Cable from the HDMI Input wallplate to the Laptop PC or Permanent PC location. Locations with Cable Cubbies and Floor Boxes shall have patch cables plugged into the Floor Box or Other Device. See the AV Patch Cables Section for requirements
- 2.33.4 The Cable Cubby must be provided with enough slack to comfortably connect to the Laptop. Coordinate the Conference Table size (Furnished and Installed by District), location of Cable Cubby, location of Floor Box and required length of patch cable above the table. HDMI Patch Cable length may need to be longer for the connection. Generate an RFI to the Project Engineer for instructions on how to proceed to resolve cable length issue.
- 2.33.5 Provide an HDMI (Female) to DisplayPort (Male) adapter for each of the Laptop PC Wallplate Input locations. The adapter shall be provided with the HDMI patch cable assembly.
- 2.34 Provide an Extron WPD-110A Passive HDMI Decora Style Receiver Wallplate for the connection to the flat panel. Receiver wallplate shall be provided at the Flat Panel location. See floor plans for the location of the Flat Panel.
- 2.34.1 Provide HDMI Patch Cable from the Receiver wallplate location to the flat panel HDMI Input #1 location. Length as required.
- 2.35 Provide an Extron Cable Cubby 100 - 4" Round Insert in the Conference Room Table for the Local Origination "LO" computer connection to the flat panel, via the Floor Box. See floor plans for the location of the Floor Box. Provide Extron Cable Cubby 100 in the Conference Room #110 and the Collaboration Room #128 only.
- 2.35.1 Provide HDMI and Category-6 Patch Cables from the Cable Cubby to the Floor Boxes. Patch Cables shall be provided with cable loom and neatly dressed. Patch

cables also require enough slack to pull up the patch cable and make the connection to the computer. Install patch cables per the manufacturer's instructions.

2.35.2 Provide 20A-120V outlet in the Cable Cubby for the power connection. Provide the power outlet with a power cord to the power outlet in the Floor Box. Neatly dress the power cord to the floor box.

2.36 Refer to the drawing details and Audio-Visual System Diagrams in the drawings for Classroom Flat Panel installation and for additional requirements.

2.37 ***Typical Classroom AV Installation requirements***

2.37.1 ***The typical classroom will receive (2) new HDMI cables and wallplates from the teachers LO location cabled to the existing ceiling projector, (1) dual RCA wallplate for audio output for the portable ALS kit as well as a new speaker power supply and cabling and the additional of an audio splitter with output plates and to handle the distribution of audio channels to all outputs. The existing projector, mount and extension pole will remain and shall be protected in place.***

2.37.2 ***Provide (1) Active Audio Distribution Sender and (2) two RCA phono jack output modules, with cabling for each projector AV setup. The Audio Sender will be installed in the existing BMS projector mount enclosure. Provide 3.5mm to dual RCA cabling from the audio output of the existing projector to the RDL Sender. The audio signal from the sender shall be sent using (minimum) Cat5e patch cable to the first of the RDL Audio receiver plates installed above the accessible ceiling into a surface mounted extra deep single gang box attached to a 2' grid spanner support. Then from this first receiver plate a second Cat5e cable shall extend to the Teachers LO location and plugged in to the second RDL receiver plate to output stereo audio for the ALS, labeled 'ALS' out.***

2.37.2.1 ***(1) RDL Twisted Pair Format-A - Balanced line inputs-Line Level Distribution Amplifier model TX-TPS3A.***

2.37.2.2 ***(1) RDL 24-volt power supply model PS-24AS . Plugged into the existing quad power supply above the ceiling near the projector. This shall power itself and both connected receiver plates.***

2.37.2.3 ***(2) Cat5e(or better) pre-made patch cables, orange in color.***

2.37.2.4 ***(2) RDL TWISTED PAIR FORMAT-A model D-TPR2A, receivers. These will be powered from the RDL Sender power supply.***

2.37.2.5 ***(1) C2G (or approved equal) stereo dual RCA to 3.5mm audio patch cable, to plug into the ALS transmitter.***

2.37.2.6 (1) Plenum CL3P 3.5mm stereo audio cable male to blunt (installation Grade) model 47324-3PX from Custom Cable Connection (or approved equal), from the audio output of the projector to the input of the RDL Sender.

2.37.2.7 (2) Plenum RCA Audio Cables Male to Male (or bare) Installation Grade Plenum CL3P cables one (white) for left channel from receiver to the existing left speaker and one (red) from the red receiver output to the existing right speaker. Audio System shall retain the existing stereo broadcast qualities with the new plates.

2.37.3 Contractor will provide (2) new HDMI cables from each 'LO' location on the floorplans to the projector location, as well as the audio setup listed in the proceeding section. The teachers 'LO' locations will have (2) single decora wallplates containing a single HDMI running to the existing projector. All decora wall plates shall be white in color.

2.37.3.1 (2) Extron wallplate model # WPD 110 A HDMI w/Audio Captive Screw and Control with HDMI Female to HDMI Female connector on 10" pigtail.

2.37.3.2 (2) Extron 4K HDMI 2.0 cable HD Pro Plenum Series HDMI Premium High Speed Optical Cables – HD Pro P/35 or P/50 lengths. Science Lecture locations will require a 50' + cable, field verify length before acquiring (or approved equal by Vanco).

2.37.4 The existing Valcom AV speakers model V1422 shall be re-purposed in their original location. The contractor shall provide a new audio filtered power supply from the original speaker manufacturer as well as new cabling for power and signal.

2.37.4.1 Provide (1) Valcom Model VP-624B 24 VOLT DC power supply for both speakers. Provide new 18 ga, power wire to each speaker with connectors and a 18" service loop, coiled and suspended above each speaker location indicated on the floorplans. Typical is (2) per room.

2.37.4.2 Power supply shall be plugged into existing outlet above the accessible ceiling near the project.

2.38 ALS Systems

2.38.1 Provide (4) portable complete ALS systems, (2) floating for Standard Classrooms and (2) for the Science/Lecture area. The existing projectors shall be outfitted with an 'audio output' cable consisting of a 3.5 mm audio cable from the projector to a wall plate adjacent to the teachers LO location in each space. The Contractor shall provide a complete portable, compliant ALS system with all necessary hardware, cabling, wall plates, connectors, and wall placards. Each classroom and assembly area shall have an

'Assistive Listening Devices available' wall plate mounted in a conspicuous area, refer to the Architectural details of the drawings for details on this. The Assistive Listening Systems shall be provided in accordance with CBC Section 11B-219 and shall comply with CBC Section 11B-706.

2.38.2 *Per ADA Assistive Listening System CBC Section 11B-706.3 – “The minimum number of receivers to be provided shall be equal to 4% of the total number of seats, but in no case less than two. 25% minimum of receivers provided, but no fewer than two, shall be hearing aid compatible. If the system provided is limited to specific areas or seats, then such areas or seats shall be within a 50-foot viewing distance of, and have a complete view of the stage or playing area per CBC Section 11B-219.4*

2.38.3 *For the Science/Lecture area provide (2) FM ADA KIT 37 complete systems consisting of the following:*

2.38.3.1 *(1) PPA T46 transmitter*

2.38.3.2 *(4) PPA R37 receivers*

2.38.3.3 *(4) HED 027 headphones*

2.38.3.4 *(1) MIC 090 lapel microphone*

2.38.3.5 *(1) MIC 049 desktop conference mic*

2.38.3.6 *(1) CCS 029 system carry case*

2.38.3.7 *(2) NKL 001 neckloops*

2.38.3.8 *(1) BAT KT6 charger kit*

2.38.3.9 *(5) BAT 026-2 AA rechargeable batteries*

2.38.3.10 *(1) CHG 3502 Battery Charger*

2.38.3.11 *(1) IDP 008 ADA wall plaque-permanently mounted on wall-confirm location with Architect.*

2.38.4 *For the Standard Classroom areas there will be (2) complete systems shared for these spaces, so each room will receive a permanent wall placard but share (2) FM ADA KIT 37 ALS kits with the following:*

2.38.4.1 *(1) IDP 008 ADA wall plaque for each Classroom permanently mounted on wall (confirm location with Architect).*

2.38.4.2 *(1) PPA T46 transmitter*

2.38.4.3 *(4) PPA R37 receivers*

2.38.4.4 *(4) HED 027 headphones*

- 2.38.4.5 ***(1) MIC 090 lapel microphone***
- 2.38.4.6 ***(1) MIC 049 desktop conference mic***
- 2.38.4.7 ***(1) CCS 029 system carry case***
- 2.38.4.8 ***(2) NKL 001 neckloops***
- 2.38.4.9 ***(5) BAT 001-2 AA alkaline batteries***

Audio/Video Patch Cables

- 2.39 All patch cables must be factory manufactured. Cables may not be field modified or altered. Length of cable shall be as required by the specification section. If length is not specified, the cables shall be the nearest factory manufactured length above the minimum distance required.
 - 2.39.1 Audio Cable Assemblies 25-feet in length or less; All 3.5mm stereo audio cable assemblies shall be a male-to-male cable fully shielded cable with 3.5mm bayonet style connectors. Extron Mini Audio Cables Series or equal. Provide minimum length of 6 feet.
 - 2.39.2 HDMI Standard Patch Cables 1.5-12-feet in length; All HDMI patch cables must be 4K verified and must conform to the HDMI 4K Premium cable standards. Patch cable shall be Extron HDMI Ultra Series High-Speed, ultra-flexible patch cables. Length of patch cable shall be as required for proper operation.
 - 2.39.3 HDMI Cable Assemblies for HDMI Input Connections from Floor Box or Lobby Counter; All HDMI patch cables must be 4K/30 verified and must conform to the HDMI Premium and High-Speed cable standards. HDMI cable assemblies must be a fiber optic/copper hybrid construction with detachable ends. Cables shall be Hall Research CHD-DE* 4K Javelin™ Active HDMI Cable w/Detachable Ends or Kramer CP-AOCH Series High Speed. Length of patch cable shall be as required for proper operation.
 - 2.39.3.1 HDMI cable assembly must be installed with the manufacturer furnished “cable pulling sock”. Damaged or inoperable cable assemblies due to improper installation procedures shall be replaced by the Contractor at no expense to the District. Please note Manufacturer’s Cautionary Warning on product specification sheet – “DAMAGED DUE TO CONNECTOR BEING PULLED HARDER THAN 20 kg, IS NOT COVERED BY WARRANTY - To pull cable through conduits or tight spaces, never grab the connector, as it is easy to exceed the force limit on the connector, instead, remove the detachable end, protect the connector using a cable pulling

sock and make sure the force is applied directly to the cable jacket.”

- 2.39.4 HDMI Cable Assemblies for the Conference Table Cable Cubby locations - 12 feet in length; All HDMI patch cables must be 4K/30 verified and must conform to the HDMI Premium and High-Speed cable standards. Cables shall be furnished with 180o swivel head design, Vanco Pro Digital High-Speed HDMI Swivel cable, UL and CL3 rated.
- 2.39.5 Category-6 Patch Cables 25-feet or Less; Category-6 UTP patch cables shall be as manufactured by Leviton or Commscope or approved equal. Patch cables shall be provided with standard patch cable material.
- 2.39.6 All patch cables shall be provided for each type of connection required to provide a complete and operational system. All patch cables shall be factory manufactured.

Portable Systems

- 2.40 Portable Equipment shall be furnished, and spares supplied to the designated representative of the Client, along with complete documentation of the materials provided. Where applicable, deliver portable equipment in the original manufacturer's supplied packaging.
- 2.41 Contractor shall furnish (1) Portable ADA Assistive Listening Systems Kits that may be used for Conference Rooms or other small meeting spaces. The portable system is currently designated for use in Room D101 in the New Classroom Building.
 - 2.41.1 Provide for each Kit; A self-contained portable wireless FM transmitter and receivers inside a self-contained carrying case. Portable ADA Assistive Listening system shall be as manufactured by Williams Sound Corporation, Phone 1-800-843-3544. Provide self-contained FM based system Model #FM ADA Kit 37 RCH. System kit shall contain the following items;
 - 2.41.1.1 (1) PPA T46 transmitter, (4) PPA R37 receivers, (4) HED 027 headphones, (1) MIC 090 Mini Lavalier microphone, (1) MIC 049 conference microphone, (1) CCS 029 carrying case, (1) NKL 001 neck loop receiver, (1) ADA wall plaque and (5) BAT 026-2 “AA” batteries.

Classroom AV System Training

- 2.42 Contractor will provide a minimum of 4 clock hours of on-site training for site Administrative/Teaching Staff on the Flat Panel A/V systems. Training for personnel shall be provided by certified technology specialists. The scope of training shall encompass system operation and procedures. Technician training should include an integrated information overview, media retrieval procedures as well as operation procedures for

local control configurations. The Contractor shall provide a detailed written outline clearly describing the proposed plan for all training, for approval by the Engineer and Owner's representative. Contractor shall submit at training schedule to the District to coordinate which District Technical staff shall be trained.

- 2.42.1 Training for Teaching and Administrative Staff shall include basic system concepts. Faculty and staff shall be taught how to power on/off the system, control volume, access inputs, attach microphones, replace batteries, and test system for basic operations and all other operational requirements for daily use of the systems. Training shall include use and operation of audio devices, techniques and troubleshooting tips. Trainers shall incorporate hands-on techniques to maximize staff opportunity to incorporate into their curriculum that is both meaningful and targeted for their student needs. Clearly written support materials should be provided to all training participants. Manual describing operation and use of the system shall also be provided.
- 2.43 Trainers shall provide Site or District Technicians with an in-depth technical overview of sound system equipment. Training should include basic overview of all equipment manuals and troubleshooting concepts. Site and District Technicians will be trained to provide setup, operation and application of sound systems. Technicians shall be instructed in the proper operation to replace all components of the sound systems. Clearly written documentation and support materials must be provided for each system. Provide support materials in a three-ring binder clearly for each system. A training manual describing operation and use of the system shall also be provided.

PART 3 - INSTALLATION AND EXECUTION

- 3.1 Verify that all electrical requirements including junction boxes, empty conduit and power circuits and receptacles are in place as shown on the drawings.
- 3.2 Receive, check, unload, handle, store, and adequately protect equipment and materials to be installed as part of the contract. Store in areas as directed by the owner's representative. Include delivery, unloading, setting in place, fastening to walls, floors, ceilings, or other structures where required, interconnecting wiring of system components, equipment alignment and adjustment, and other related work whether or not expressly defined herein.
- 3.3 Installation practices shall follow "standard broadcast wiring" and installation practices, as excerpted from "Recommended Wiring Practices, "Sound System Engineering", (2nd Edition) D. Davis, and Performed to the highest standards of acknowledged industry practices. Upon request the A/V Contractor shall furnish all equipment and labor to verify the compliance with the following:

Audio System:

- 3.3.1 Signal-to-noise ratio (including crosstalk): 55-dB minimum.
- 3.3.2 Total harmonic distortion: 0.1% maximum from 30 Hz to 15,000 Hz.

- 3.3.3 System frequency response: ± 1.0 dB, 20 Hz to 20,000 Hz.
- 3.3.4 Program reproduction system with point-source loudspeakers: Flat response from 63 Hz to 2.5 kHz ± 2 -dB, decreasing uniformly from a relative level of 0-dB at 2.5 kHz to a relative level of -10 -dB at 10 kHz as measured on axis of loudspeaker.
- 3.3.5 Sound output capability: Program levels of not less than 100 dB without objectionable distortion, rattles, or buzzes.
- 3.3.6 Hum and noise is inaudible (below the background noise level of the space) under normal operation and as observed in normal seat locations.

Video System:

- 3.3.7 Signal-to-noise ratio (peak to RMS, unweighted DC to 4.2 MHz): 55-dB minimum.
- 3.3.8 Crosstalk (unweighted DC to 4.2 MHz): 45-dB minimum.
- 3.3.9 Frequency response: ± 0.5 dB to 4.2 Mhz.
- 3.3.10 Line and field tilt: 2% minimum.
- 3.3.11 Differential gain: 3% maximum.
- 3.3.12 Differential phase: 2° maximum.
- 3.3.13 System timing sync coincidence: within 50 nanoseconds.
- 3.3.14 Color timing: $\pm 2^\circ$ at 3.58 Mhz.

Radio Frequency (RF) System:

- 3.3.15 Visual Carrier level: +0 dBmV minimum and +16 dBmV maximum at system outlets for utilized channels.
- 3.3.16 Adjacent Channel Visual Carrier: 3-dB maximum differential at system outlets.
- 3.3.17 Non-adjacent Channel Visual Carrier: 0-dB maximum differential at system outlets.
- 3.3.18 Carrier-to-Noise Ratio: 42-dB minimum
- 3.3.19 Amplitude Response: Flat ± 1.0 Db
- 3.3.20 Signal-to-Noise Ratio: 45-dB minimum for the maximum level of the signal and the interference resulting from cross modulation from other signals on the system, after demodulation.

- 3.3.21 Outlet-to-Outlet Isolation: 25-dB minimum.
- 3.4 Adhere to manufacturer's published specifications for pulling tension, minimum bend radii, and sidewall pressure when installing cables.
- 3.5 Where manufacturer does not provide bending radius information, minimum bending radius shall be 10 times cable diameter. Arrange and mount equipment and materials in a manner acceptable to the engineer and the owner.
- 3.6 Attach cables to permanent structure with suitable attachments at intervals of 48 to 60 inches. Support cables installed above removable ceilings. Install adequate support structures for 10-foot cable service loops at each TC.
- 3.7 Provide lacing bars for cable management in all of the sound systems cabinets. Contractor shall be responsible for providing neatly dressed cable bundles within the sound cabinet. Cables shall be dressed separately for Microphone and line level cables, speaker and monitor cables, control cables and power cables and video cables. All cables shall be neatly labeled with wrap around type written labels.
- 3.7.1 On the cable at the rear of the patch panel or termination location. Requires the use of a self-laminating wrap around label. Brady Label self-laminating 1.2" by 1.5" wrap around label Part # 29689 (NO ACCEPTABLE EQUAL).
- 3.8 All faceplates shall be labeled with type-written permanent labels securely attached to the faceplates identifying all A/V connections. (ie; Doc Cam, PC, Audio Only, etc.) Cables at the projector and A/V switch shall be also be labeled to match the faceplates.
- 3.9 Group cables according to signals being carried. To reduce signal contamination, form separate groups for the following:
- 3.9.1 Power cables.
- 3.9.2 Control cables.
- 3.9.3 Video cables.
- 3.9.4 Audio cables for signals less than minus 20 dBm.
- 3.9.5 Audio cables for signals between minus 20 dBm and plus 30 dBm.
- 3.9.6 Audio cables for signals above plus 30 dBm.
- 3.10 Run power cables, control cables, and high level cables on the left side of an equipment rack as viewed from the back. Run other cables on the right side of an equipment rack.
- 3.11 Cut cables (except video, camera and RGBS cables, which must be cut to electrical length) to the length required by the run. All wire and cable shall be continuous and

splice-free for the entire length of run. For equipment mounted in drawers or on slides, provide the interconnecting cables with a service loop of appropriate length.

- 3.12 Install no cable with a bend radius less than that recommended by the manufacturer.
- 3.13 Provide strain relief for cables. Provide connectors with metal shell/casings. Provide a minimum of three feet of free cable coiled in a floor pocket. Use spiral wrap to group similar cable types.
- 3.14 All shielded cables shall be insulated. Do not permit shields to contact conduit, raceway, boxes, panels, or equipment enclosures. Tin all terminated shield drain wires and insulate with heat-shrink tubing.
- 3.15 Land all field loudspeaker wiring entering each rack at terminal devices prior to connection to equipment or devices. Land loudspeaker level control cables at screw or tubular clamp type barrier blocks on the left side of the equipment rack as viewed from the rear. Make all connections to screw-type barrier blocks with insulated crimp-on spade lugs. Size all lugs properly to assure low-resistance connections.
- 3.16 Separately dress, route and land microphone and line level cables directly to equipment.
- 3.17 Use only rosin core 60/40 tin/lead solder for all solder connections.
- 3.18 Lace, tie or harness wire or cable in accordance with accepted professional practice. Dress, lace or harness all wire and cable to prevent mechanical stress on electrical connections; no wire or cable shall be supported by a connection point. Provide service loops where harness of different classes cross or where hinged panels are to be interconnected.
- 3.19 Each major component of equipment shall have the manufacturer's name, address, model number, and rating on a plate securely affixed in a conspicuous place. NEMA code ratings, UL label, or other data which is die-stamped into the surface of the equipment shall be stamped in a location easily visible.
- 3.20 Upon completion of the work, remove all refuse and rubbish from and about the premises, and leave the relevant areas and equipment clean and in an operational state.
- 3.21 During the installation, and up to the date of final acceptance, protect finished and unfinished work against damage and loss. In the event of such damage or loss, replace or repair such work at no cost to the owner.
- 3.22 Prior to final acceptance, provide minimum of three complete sets of drawings showing all cable numbers and construction details in accordance with the actual system installation. Revise the device layout drawings to represent actual installation locations and coordinate these with the electrical Contractor. The operation manual shall contain all instructions necessary for the proper operation of the installed system and manufacturer's instructions. The maintenance manual shall contain all information

required for the "proof of performance" as required and all manufacturers' maintenance information.

Inspection and Test upon Completion

- 3.23 Check out and final connections to the system shall be made by the Contractor of the products installed. Technicians shall demonstrate operation of the complete system and each major component to the Owner.
- 3.24 System field wiring diagrams shall be provided to the owner by the system Installer (Contractor) prior to completion of the installation.
- 3.25 All materials and installation shall be guaranteed to be free of defects in material and workmanship for two years after final acceptance of installation and test.
- 3.26 Upon completion of the installation, four (4) copies of complete operational instructions shall be furnished, complete with record drawings. Instructions shall include part numbers and names, addresses, and telephone numbers of parts source. Final payment shall not be made until operational and maintenance manuals have been received.
- 3.27 The Contractor shall be responsible to provide service within 24 hours (or by mutual consent) after notification by the Owner or his representative, within the hours of 8:00 AM to 5:00 PM from Monday through Friday. Service request forms shall be supplied by the Contractor and the faxing or mailing of such a request form shall constitute notification by the Owner of a service request.
- 3.28 The Contractor shall provide two "preventative maintenance" service calls, spaced six months apart, for cleaning of all source devices and overall inspection of the system.

PROJECT CLOSEOUT

- 3.29 Prior to completion of project, compile a complete equipment maintenance manual for all equipment supplied under sections of this division, in accordance with these specifications and as described below.
- 3.30 Equipment Lists and Maintenance Manuals:
 - 3.30.1 Prior to completion of job, Contractor shall compile a complete equipment list and maintenance manuals. The equipment list shall include the following items for every piece of material equipment supplied under this section of the specifications:
 - 3.30.1.1 Name, model, and manufacturer.
 - 3.30.1.2 Complete parts drawings and lists.
 - 3.30.1.3 Local supply for parts and replacement and telephone number.

- 3.30.1.4 All tags, inspection slips, instruction packages, etc., removed from equipment as shipped from the factory, properly identified as to the piece of equipment it was taken from.
- 3.31 Maintenance manuals shall be furnished for each applicable section of the specifications and shall be suitably bound with hard covers and shall include all available manufacturers' operating and maintenance instructions, together with "as-built" drawings to properly operate and maintain the equipment. The equipment lists and maintenance manuals shall be submitted in duplicate to the Architect for approval not less than 10 days prior to the completion of the job. The maintenance manuals shall also include the name, address, and phone numbers of all subContractors involved in any of the work specified herein. Four copies of the maintenance manuals bound in single volumes shall be provided.

RECORD DRAWINGS

- 3.32 The Contractor shall maintain record drawings as specified in accordance with these specifications, and as noted below.
- 3.33 Drawings shall show locations of all concealed and exposed conduit runs, giving the number and size of conduit wires. Underground ducts shall be shown with cross section elevations and shall be dimensioned in relation to permanent structures to indicate their exact location. Drawing changes shall not be identified only with referencing CORs and RFIs, the drawings shall reflect all the actual changes made.
- 3.34 Final As-Built Drawing Submittals - Provide (1) hard bound copy of "E-size" As-Built drawings and (3) copies on USB Flash Drive in AutoCAD (2020 or newer version) format. A Hand marked-up copy of the original construction drawings will not be accepted as the final As-Built drawing submittal. Final As-Built drawings shall include copies of the floor plan drawings of each building, detailed As-built AV Diagrams including wire and connection type, elevations of all AV Cabinets, quantities of mic outlets and speaker locations, locations of all final cable routes, including conduits. In addition, the drawings shall include all outlet locations with cable identification label information.

END OF SECTION

SECTION 28 13 00

SECURITY SYSTEM

PART 1 – GENERAL

- 1.1 Furnish all materials, equipment and labor, and perform all operations in connection with systems work as indicated on the drawing, as specified herein and required to complete the work.
- 1.2 Related Specification Sections:
 - 1.2.1 Division 26 05 33 – Conduit and Fittings
 - 1.2.2 Division 26 05 19 or 26 05 13 – Conductors
 - 1.2.3 Division 26 05 34 – Outlet and Junction Boxes
- 1.3 All security system components shall be manufactured by and wiring shall be furnished and installed by a factory authorized contractor and distributor. The Contractor shall hold a license from the State of California for the purpose of installing security systems.
- 1.4 The contractor shall be regularly engaged in the installation and repair of the type of equipment to be installed.
- 1.5 The conduit, outlets, terminal cabinets, device backboxes, etc., which form a part of the rough-in work, shall be furnished and installed complete by the Contractor. Security system components as listed under products shall be furnished and installed by the authorized subcontractor.
- 1.6 The subcontractor shall furnish all equipment, accessories and material required for the complete installation of a security system in accordance with specifications and as shown on the drawings. Any material and/or equipment necessary for the proper operation of the system not specified or described herein shall be deemed part of this specification. The distributor must also provide complete installation of all wiring and devices or equipment. Supervised installation for the wiring and devices shall be permitted with the following conditions:
 - 1.6.1 A letter will be required from the security system manufacturer's representative certifying that the cable installation was completed in compliance with the manufacturer's recommended installation requirements.
 - 1.6.2 The cables shall be tested in the presence of the manufacturer's representative. These tests will then be submitted to the electrical engineer.
 - 1.6.3 The security system shall be warranted by the manufacturer's representative per the contract agreement.

- 1.7 Phase I Submittal shall be made **within (20) working days** after the award of the contract by the District. This submittal shall include the following:
- 1.7.1 Complete bills of quantities, including all materials, components, devices, and equipment required for this work. The bills of quantities shall be tabulated respective of each and every system as specified, and shall contain the following information for each item listed:
- 1.7.1.1 Description and quantity of each item.
- 1.7.1.2 Manufacturer's Name and Model Number.
- 1.7.1.3 Manufacturer's Specification Sheet.
- 1.7.1.4 Description of any specialty backbox requirements.
- 1.8 Phase II submittal shall be provided **within (20) working days** after the approval of the Phase I submittals and prior to any fabrication or field conduit installations. All shop drawings shall be engineered and drawn on a CAD System. Each submission shall include 'D' or 'E' size print copies to match the contract drawings, and (1) data disc copy with files in a AutoCAD 2000i or 2004 format. Building floor plan CAD files will be made available. Contractor shall make the request for drawings in writing directly to Johnson Consulting Engineers, confirmation of the request and a release form will be forwarded to the contractor to include a signed copy with payment prior to release of files. Detail or riser diagram sheets or any other drawings other than floor or site plans, will not be made available to the contractor. Phase II submittals drawings shall include the following.
- 1.8.1 Provide complete shop drawings to include:
- 1.8.1.1 Complete floor plans showing the locations throughout the project of all receptacles, conduits, wireways, tray, pullboxes, junction boxes, equipment locations, and other devices.
- 1.8.1.2 Typical system riser diagrams, specialty equipment or rack elevations will be required to be provided.
- 1.9 The contractor shall provide as part of this contract additional ceiling motion sensors, wall motion sensors, glass-break sensors, security door and roof hatch contacts to equal 10% of the total quantity of devices shown on the drawings or a minimum of three (3) for each type, whichever is greater. Installation of conduit, boxes and wiring of these devices shall be included, and required locations coordinated with final approved shop drawings. Any deices not required to be included during construction shall be delivered to the District at the completion of the project. The quantities of these devices shall be listed as a part of the Phase 1 submittals.
- 1.10 Common submittal mistakes which will result in submittals being rejected:**

- 1.10.1 Not including the qualifications of the installing contractor.
- 1.10.2 Not including all items listed in the above itemized description.
- 1.10.3 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.
- 1.10.4 Not including actual manufacturer's catalog information of proposed products.
- 1.10.5 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "To be determined later" statements. The products being submitted must be the products installed.

PART 2 – PRODUCTS

2.1 Building Security System

2.2 Control Panel

- 2.2.1 The Control/Communicator panel shall be a multiplex micro processed based system as manufactured by **DMP XR-150**

Systems or components as manufactured by Moose, Napco, Radionics or any other manufacturer's which are not specifically listed in 2.2.1, are **not** approved for use on this project.

- 2.3 Provide a complete and operable supervised intrusion detection system as shown on the plans including, but not limited to, master control panel, key pad stations, motion detectors, door switches, and a digital communicator.

- 2.3.1 Upon detection of an intruder by initiation of any device in the system, the system shall cause alarm information to be sent by digital dialer to central station alarm monitoring agency.
- 2.3.2 System detectors located in areas provided with keypad control shall be programmed to have a 30 second entry delay.
- 2.3.3 The Building shall be provided with a keypad able to arm or disarm as a separate zone.
- 2.3.4 Each remote relocatable classroom shall be wired as a separate zone with all detectors within that zone controlled separately. Provide a Keypad in each Classroom.

- 2.3.5 The Control/Communicator panel shall be with an integral digital communicator and shall be Underwriters Laboratories listed. All external circuit connections shall be UL listed as power limited in accordance with the provisions of Article 725 of the National Electrical Code (NFPA Standard #70).
- 2.3.6 System shall include the following features:
 - 2.3.6.1 128 individual multiplex zones.
 - 2.3.6.2 Battery charging circuit.
 - 2.3.6.3 Accepts 90 personal ID numbers.
 - 2.3.6.4 (15) keypad capacity.
 - 2.3.6.5 (8) system partitioning.
 - 2.3.6.6 Multiplex bus driver.
 - 2.3.6.7 Lightening and RFI protection.
 - 2.3.6.8 Central Station reporting.
 - 2.3.6.9 Two telephone numbers with selective signaling options.
 - 2.3.6.10 Automatic test reports.
 - 2.3.6.11 400 event history buffer.
 - 2.3.6.12 Remote or keypad programmable.
 - 2.3.6.13 Audible alarm output, steady or pulsed.
 - 2.3.6.14 Automatic silencing.
 - 2.3.6.15 Battery backup.
 - 2.3.6.16 Dual phone line module.
 - 2.3.6.17 WDSRP software.
- 2.4 Alarm information shall be sent by digital dialer to a central station alarm monitoring agency.
- 2.5 Systems shall detect the entry and/or the motion of a body taking not more than four steps in an area secured with motion detection equipment where entry doors or windows are possible access.
- 2.6 System shall be zoned with each building controlled separately so that portions of the facility may be secured while others remain unsecured. All zones shall be able to be armed or disarmed from the master keypad in the administration building.
- 2.7 Keypads shall be alphanumeric LCD display series capable of displaying system status and controlling the alarm system. Unit shall receive its operating power from the main control panel. Keypad shall be mounted on a wall where shown on the plans. Keypads shall be DMP #7173-W.
- 2.8 Motion sensors shall be dual passive infrared with microprocessor controlled self test. Sensor coverage patterns shall be as required for optimum coverage at each individual location. Sensor shall be ceiling or wall mounted as shown on the drawings.

- 2.8.1 Ceiling Sensor – Detection Systems # DS938Z.
 - 2.8.2 Wall Sensor – Detection Systems # DS774i Surface Mounted.
 - 2.8.3 Exact Sensor location in each room shall be field determined, per manufacturer's instructions. Occupancy sensor manufacturer shall provide 1/8" scale drawings indicating the required location and quantities for each room or area where sensors are indicated. Drawings shall be included with the Phase II submittals.
- 2.9 Cabling shall be as required for system operation.

PART 3 – EXECUTION

- 3.1 All connections throughout the system shall be soldered, crimped by means of AMP lugs, fastened with screw type terminals, made by spring tension clip "punch block" terminals or made by standard plugs and receptacles. Each wire twisted pair or cable shall be tagged throughout the site with EZ markers with the room number it serves. All conductors in terminal cabinets shall be carefully formed and harnessed in a workmanlike manner.
- 3.2 All security system cabling shall be installed in conduit where indicated on the drawings or where routed exposed and shall be open wiring where routed above accessible ceilings or in walls.
- 3.3 Locate motion sensors on walls to provide optimum coverage of the space and to not conflict with the architectural aesthetics of the building. Locations of motion sensors as shown on the electrical plans are diagrammatic only.
- 3.4 Keypads shall be wired not to exceed 1000 ft cable run from the main control panel and no more than two (2) keypads per 1000-foot cable run. Provide #18AWG minimum. All Cables routed underground shall be suitable for wet location provided with UL listed wet location insulation or flooded type cable construction.
- 3.5 Final System Acceptance
 - 3.5.1 The system will be accepted only after a satisfactory test of the entire system has been accomplished by a Factory-Trained Distributor in the presence of a representative of the authority having jurisdiction and the Owner's representative. This contractor shall provide all personnel, ladders and testing equipment to assist the local authority in completing this test. Actuate each device and verify that the system performs as specified.
 - 3.5.2 Once the system has been tested, the contract shall not be considered complete until after owner training has been completed. The Contractor shall notify in writing their intent to provide the training for the system. This

notification shall be given to the Division 21 Contractor, Architect and the Project engineer a minimum of two weeks prior to the scheduled training session. The Division 21 Contractor and or the architect shall be responsible for notifying the owner to confirm that the appropriate district personnel will be made available for this training session. If the Division 21 Contractor does not receive confirmation that the training session can be performed on the proposed date, than another time shall be provided. The training shall consist of the following:

- 3.5.2.1 Provide a minimum of one (1) two-to-four-hour training period located at the project site, to instruct District personnel in proper operation of all systems.
 - 3.5.2.2 Provide a minimum of three (3) complete owner operation manuals for the district records.
 - 3.5.2.3 Provide a minimum of two (2) complete as built sets of drawings for the district records.
 - 3.5.2.4 Provide all spare parts as described in Part 1 of these specifications
 - 3.5.2.5 Provide written confirmation and proposed scheduled dates for follow up training and one-year complete system test.
 - 3.5.2.6 Provide a proposed cost to the owner to provide additional complete system testing on an annual basis, in addition to the one-year test required as a part of this contract.
- 3.5.3 parts shall be replaced at no cost to the owner.

END OF SECTION

FOOTHILLS ADULT EDUCATION CENTER

GROSSMONT ADULT EDUCATION
1550 MELODY LANE, EL CAJON, CA 92019
GROSSMONT UNION HIGH SCHOOL DISTRICT

RUHNAU CLARKE ARCHITECTS

3775 TENTH STREET, RIVERSIDE CALIFORNIA 92501 (951) 684 4664 / 5751 PALMER WAY, SUITE C, CARLSBAD CALIFORNIA 92010 (760) 438 5899



STAMPS

CONSULTANT BRANDING

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CLARKE
ARCHITECTS

AT AND ANGLE	MACH MAX MECH MECH MIN MINOR MFR MANUFACTURER MNT METAL MS METAL STUD MTD MOUNTED	MACH MAX MECH MECH MIN MINOR MFR MANUFACTURER MNT METAL MS METAL STUD MTD MOUNTED
ACPL ACUSTIC PLASTER	ACT ACUSTIC TILE	ACPL ACUSTIC PLASTER
APF ABOVE FINISHED FLOOR	APF ABOVE FINISHED FLOOR	APF ABOVE FINISHED FLOOR
BLKG BLOCKING BOARD	BLKG BLOCKING BOARD	BLKG BLOCKING BOARD
BD BOTTOM OF STRUCTURE	BD BOTTOM OF STRUCTURE	BD BOTTOM OF STRUCTURE
BS BULLETIN BOARD	BS BULLETIN BOARD	BS BULLETIN BOARD
CAB CABINET	CAB CABINET	CAB CABINET
CPT CASEWORK	CPT CASEWORK	CPT CASEWORK
CSWK CEILING	CSWK CEILING	CSWK CEILING
CEM CEMENT	CEM CEMENT	CEM CEMENT
CL CENTERLINE	CL CENTERLINE	CL CENTERLINE
CT CHAIN LINK FENCE	CT CHAIN LINK FENCE	CT CHAIN LINK FENCE
CLF CLEAR	CLF CLEAR	CLF CLEAR
COL COLUMN	COL COLUMN	COL COLUMN
CONC CONCRETE	CONC CONCRETE	CONC CONCRETE
CMU CONCRETE MASONRY UNIT	CMU CONCRETE MASONRY UNIT	CMU CONCRETE MASONRY UNIT
CJ COLD JOINT	CJ COLD JOINT	CJ COLD JOINT
CONT CONTINUOUS	CONT CONTINUOUS	CONT CONTINUOUS
CF CUBIC FEET	CF CUBIC FEET	CF CUBIC FEET
DP DEMOUNTABLE PARTITION	DP DEMOUNTABLE PARTITION	DP DEMOUNTABLE PARTITION
DET DETAIL	DET DETAIL	DET DETAIL
DIM DIMENSION	DIM DIMENSION	DIM DIMENSION
DR DOOR	DR DOOR	DR DOOR
DRF DOOR FRAME	DRF DOOR FRAME	DRF DOOR FRAME
DL DOOR LOUVER	DL DOOR LOUVER	DL DOOR LOUVER
DN DOWN	DN DOWN	DN DOWN
DS DOWN SPOUT	DS DOWN SPOUT	DS DOWN SPOUT
FF FLOOR FINISH	FF FLOOR FINISH	FF FLOOR FINISH
DSA DIVISION OF STATE	DSA DIVISION OF STATE	DSA DIVISION OF STATE
EA EACH	EA EACH	EA EACH
ELEC ELECTRIC	ELEC ELECTRIC	ELEC ELECTRIC
EW ELECTRIC WATER COOLER	EW ELECTRIC WATER COOLER	EW ELECTRIC WATER COOLER
ELEV ELEVATION	ELEV ELEVATION	ELEV ELEVATION
ENCL ENCLOSURE	ENCL ENCLOSURE	ENCL ENCLOSURE
EQ EQUIPMENT	EQ EQUIPMENT	EQ EQUIPMENT
EQUIP EQUIPMENT	EQUIP EQUIPMENT	EQUIP EQUIPMENT
EXP EXPANSION/EXPOSED	EXP EXPANSION/EXPOSED	EXP EXPANSION/EXPOSED
EJ EXPANSION JOINT	EJ EXPANSION JOINT	EJ EXPANSION JOINT
EW EACH WAY	EW EACH WAY	EW EACH WAY
EXT EXTERIOR	EXT EXTERIOR	EXT EXTERIOR
FS FLOOR SINK	FS FLOOR SINK	FS FLOOR SINK
FF FACE OF FINISH	FF FACE OF FINISH	FF FACE OF FINISH
FOS FACE OF MASONRY	FOS FACE OF MASONRY	FOS FACE OF MASONRY
FOS FACE OF STUD	FOS FACE OF STUD	FOS FACE OF STUD
FIN FINISH	FIN FINISH	FIN FINISH
FC FINISH GRADE	FC FINISH GRADE	FC FINISH GRADE
FE FINISH FLOOR GRADE	FE FINISH FLOOR GRADE	FE FINISH FLOOR GRADE
FEC FIRE EXTINGUISHER CABINET	FEC FIRE EXTINGUISHER CABINET	FEC FIRE EXTINGUISHER CABINET
FHC FIRE HOSE CABINET	FHC FIRE HOSE CABINET	FHC FIRE HOSE CABINET
FRFP FIREPROOF/FIREPROOFING	FRFP FIREPROOF/FIREPROOFING	FRFP FIREPROOF/FIREPROOFING
FD FLOOR DRAIN	FD FLOOR DRAIN	FD FLOOR DRAIN
FLR FLOOR	FLR FLOOR	FLR FLOOR
FURN FURNISH/FURNITURE	FURN FURNISH/FURNITURE	FURN FURNISH/FURNITURE
GA GAUGE	GA GAUGE	GA GAUGE
GLV GLASS	GLV GLASS	GLV GLASS
GLU GLUE LAMINATED	GLU GLUE LAMINATED	GLU GLUE LAMINATED
GB GRAB BAR	GB GRAB BAR	GB GRAB BAR
GPL GYPSUM PLASTER	GPL GYPSUM PLASTER	GPL GYPSUM PLASTER
GWB GYPSUM WALLBOARD	GWB GYPSUM WALLBOARD	GWB GYPSUM WALLBOARD
GWG GYPSUM RESISTANT GWB	GWG GYPSUM RESISTANT GWB	GWG GYPSUM RESISTANT GWB
GC GENERAL CONTRACTOR	GC GENERAL CONTRACTOR	GC GENERAL CONTRACTOR
H HARDWARE	H HARDWARE	H HARDWARE
HORIZ HORIZONTAL	HORIZ HORIZONTAL	HORIZ HORIZONTAL
HR HOUR	HR HOUR	HR HOUR
HT HEIGHT	HT HEIGHT	HT HEIGHT
ID INSIDE DIAMETER	ID INSIDE DIAMETER	ID INSIDE DIAMETER
INSUL INSULATION	INSUL INSULATION	INSUL INSULATION
INT INTERIOR	INT INTERIOR	INT INTERIOR
JH JOIST HANGER	JH JOIST HANGER	JH JOIST HANGER
JT JOINT	JT JOINT	JT JOINT
JST JOIST	JST JOIST	JST JOIST
LAM LAMINATE	LAM LAMINATE	LAM LAMINATE
LT LIGHT	LT LIGHT	LT LIGHT
LVR LOUVER	LVR LOUVER	LVR LOUVER
MACH MAX MECH MECH MIN MINOR MFR MANUFACTURER MNT METAL MS METAL STUD MTD MOUNTED	MACH MAX MECH MECH MIN MINOR MFR MANUFACTURER MNT METAL MS METAL STUD MTD MOUNTED	MACH MAX MECH MECH MIN MINOR MFR MANUFACTURER MNT METAL MS METAL STUD MTD MOUNTED
NIC NOT IN CONTRACT	NIC NOT IN CONTRACT	NIC NOT IN CONTRACT
NTC NOT IN CONTRACT	NTC NOT IN CONTRACT	NTC NOT IN CONTRACT
NTS NOT TO SCALE	NTS NOT TO SCALE	NTS NOT TO SCALE
NO NEW	NO NEW	NO NEW
OC ON CENTER	OC ON CENTER	OC ON CENTER
OD OUTSIDE DIAMETER	OD OUTSIDE DIAMETER	OD OUTSIDE DIAMETER
OFCL OWNER FURNISHED/ CONTRACTOR INSTALLED	OFCL OWNER FURNISHED/ CONTRACTOR INSTALLED	OFCL OWNER FURNISHED/ CONTRACTOR INSTALLED
OFCL OWNER FURNISHED/ CONTRACTOR INSTALLED	OFCL OWNER FURNISHED/ CONTRACTOR INSTALLED	OFCL OWNER FURNISHED/ CONTRACTOR INSTALLED
OH OWNER INSTALLED	OH OWNER INSTALLED	OH OWNER INSTALLED
OPNG OPENING	OPNG OPENING	OPNG OPENING
OPP OPPOSITE	OPP OPPOSITE	OPP OPPOSITE
PA PLANTING AREA	PA PLANTING AREA	PA PLANTING AREA
PFIN PRE FINISHED	PFIN PRE FINISHED	PFIN PRE FINISHED
PL PLATE/PROPERTY LINE	PL PLATE/PROPERTY LINE	PL PLATE/PROPERTY LINE
PLAS PLASTIC	PLAS PLASTIC	PLAS PLASTIC
PLWD PLYWOOD	PLWD PLYWOOD	PLWD PLYWOOD
PTD PAINTED	PTD PAINTED	PTD PAINTED
PTN PARTITION	PTN PARTITION	PTN PARTITION
R RADIUS/RISER	R RADIUS/RISER	R RADIUS/RISER
RD ROOF DRAIN	RD ROOF DRAIN	RD ROOF DRAIN
REF REFERENCE	REF REFERENCE	REF REFERENCE
REIN REINFORCED	REIN REINFORCED	REIN REINFORCED
REQD REQUIRED	REQD REQUIRED	REQD REQUIRED
RO ROUGH OPENING	RO ROUGH OPENING	RO ROUGH OPENING
RQMT REQUIREMENT	RQMT REQUIREMENT	RQMT REQUIREMENT
RSUB RESILIENT BASE	RSUB RESILIENT BASE	RSUB RESILIENT BASE
RT RUBBER TREAD	RT RUBBER TREAD	RT RUBBER TREAD
RWL RAIN WATER LEADER	RWL RAIN WATER LEADER	RWL RAIN WATER LEADER
O ROUND	O ROUND	O ROUND
S SEAMLESS RESILIENT	S SEAMLESS RESILIENT	S SEAMLESS RESILIENT
SS FLOORING	SS FLOORING	SS FLOORING
SS SERVICE SINK/ STAINLESS STEEL	SS SERVICE SINK/ STAINLESS STEEL	SS SERVICE SINK/ STAINLESS STEEL
SHT SHEET	SHT SHEET	SHT SHEET
SHTS SHEATHING	SHTS SHEATHING	SHTS SHEATHING
SC SPRINKLER BLOCK	SC SPRINKLER BLOCK	SC SPRINKLER BLOCK
STN STAIN	STN STAIN	STN STAIN
STD STANDARD	STD STANDARD	STD STANDARD
STL STEEL	STL STEEL	STL STEEL
STR STRUCTURAL/STRUCTURE	STR STRUCTURAL/STRUCTURE	STR STRUCTURAL/STRUCTURE
SUSP SUSPENDED	SUSP SUSPENDED	SUSP SUSPENDED
SM SHEET METAL	SM SHEET METAL	SM SHEET METAL
SIN SIMILAR	SIN SIMILAR	SIN SIMILAR
TB TACK BOARD	TB TACK BOARD	TB TACK BOARD
TJ TOOLED JOINT	TJ TOOLED JOINT	TJ TOOLED JOINT
TC TOP OF CONCRETE CURB	TC TOP OF CONCRETE CURB	TC TOP OF CONCRETE CURB
TUB TUBE STEEL	TUB TUBE STEEL	TUB TUBE STEEL
TW TOP OF WALK	TW TOP OF WALK	TW TOP OF WALK
TYP TYPICAL	TYP TYPICAL	TYP TYPICAL
TEL TELEPHONE	TEL TELEPHONE	TEL TELEPHONE
TEMP TEMPERATURE	TEMP TEMPERATURE	TEMP TEMPERATURE
TOC TOP OF CANOPY	TOC TOP OF CANOPY	TOC TOP OF CANOPY
TOR TOP OF ROOF	TOR TOP OF ROOF	TOR TOP OF ROOF
TOS TOP OF STRUCTURE	TOS TOP OF STRUCTURE	TOS TOP OF STRUCTURE
TOW TOP OF PARAPET	TOW TOP OF PARAPET	TOW TOP OF PARAPET
TEL TELEPHONE	TEL TELEPHONE	TEL TELEPHONE
TEMP TEMPERATURE	TEMP TEMPERATURE	TEMP TEMPERATURE
TOC TOP OF CANOPY	TOC TOP OF CANOPY	TOC TOP OF CANOPY
TOR TOP OF ROOF	TOR TOP OF ROOF	TOR TOP OF ROOF
TOS TOP OF STRUCTURE	TOS TOP OF STRUCTURE	TOS TOP OF STRUCTURE
TOW TOP OF PARAPET	TOW TOP OF PARAPET	TOW TOP OF PARAPET
UC UNDER CUT/ UNDER COUNTER	UC UNDER CUT/ UNDER COUNTER	UC UNDER CUT/ UNDER COUNTER
UNO UNLESS NOTED OTHERWISE	UNO UNLESS NOTED OTHERWISE	UNO UNLESS NOTED OTHERWISE
VERT VERTICAL	VERT VERTICAL	VERT VERTICAL
VCT VINYL COMPOSITION TILE	VCT VINYL COMPOSITION TILE	VCT VINYL COMPOSITION TILE
VCT VINYL TILE	VCT VINYL TILE	VCT VINYL TILE
VSF VINYL SHEET FLOORING	VSF VINYL SHEET FLOORING	VSF VINYL SHEET FLOORING
VWC VERIFIED IN FIELD	VWC VERIFIED IN FIELD	VWC VERIFIED IN FIELD
VIF VENT THROUGH ROOF	VIF VENT THROUGH ROOF	VIF VENT THROUGH ROOF
VTR VENT THROUGH ROOF	VTR VENT THROUGH ROOF	VTR VENT THROUGH ROOF
WVF WELD WIRE FABRIC	WVF WELD WIRE FABRIC	WVF WELD WIRE FABRIC
WI WOODWORKING	WI WOODWORKING	WI WOODWORKING
WIN WINDOW	WIN WINDOW	WIN WINDOW
W/ WITH	W/ WITH	W/ WITH
WO WOOD	WO WOOD	WO WOOD
W/O WITHOUT	W/O WITHOUT	W/O WITHOUT

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2020

2019 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 C.C.R.
2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(2018 INTERNATIONAL BUILDING CODE VOLUMES 1-2 & 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2017 NATIONAL ELECTRICAL CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA MECHANICAL CODE (CMC), PART 5, TITLE 24 C.C.R.
(2018 IMAPD UNIFORM MECHANICAL CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2018 IMAPD UNIFORM PLUMBING CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
(2018 INTERNATIONAL FIRE CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 C.C.R.
(2018 INTERNATIONAL EXISTING BUILDING CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 C.C.R.
2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
2016 ASME A17.1/CSA B44-16 SAFETY CODE FOR ELEVATORS AND ESCALATORS. (PER 2019 CBC PART 2 CH 35)
NOTE: CAL/OSHA ELEVATOR UNIT ENFORCES CCR TITLE 8 AND USES THE 2004 ASME A17.1 BY ADOPTION

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13 STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS (CA AMEND) 2016 EDITION
NFPA 14 STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS (CA AMEND) 2017 EDITION
NFPA 17A STANDARD FOR DRY CHEMICAL EXTINGUISHING SYSTEMS 2017 EDITION
NFPA 20 STANDARD FOR INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION 2017 EDITION
NFPA 22 STANDARD FOR WATER TANKS FOR PRIVATE FIRE PROTECTION 2013 EDITION
NFPA 24 STANDARD FOR THE INSTALLATION OF PRIVATE FIRE MAINS & THEIR APPURTENANCES (CA AMEND) 2013 EDITION
NFPA 25 STANDARD FOR INSPECTION, TESTING AND MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS 2013 EDITION
NFPA 72 NATIONAL FIRE ALARM CODE & SIGNALING CODE (CA AMEND) 2016 EDITION
NFPA 80 STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES 2015 EDITION
NFPA 92 STANDARD FOR SMOKE CONTROL SYSTEMS 2015 EDITION
NFPA 253 CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS 2015 EDITION
NFPA 2001 STANDARD ON CLEAN AGENT FIRE EXTINGUISHING SYSTEMS (CA AMEND) 2015 EDITION
ICC 300 STANDARD FOR FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF COMMERCIAL COOKING EQUIPMENT 2005 EDITION
UL 464 STANDARD FOR HEAT DETECTORS FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES 2003 EDITION
UL 521 STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS 1999 EDITION
UL 1971 STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED 2002 (R2010)
ICC 300 STANDARD FOR BLEACHERS, FOLDING AND TELESCOPIC SEATING AND GRANDSTANDS 2017 (R2012)

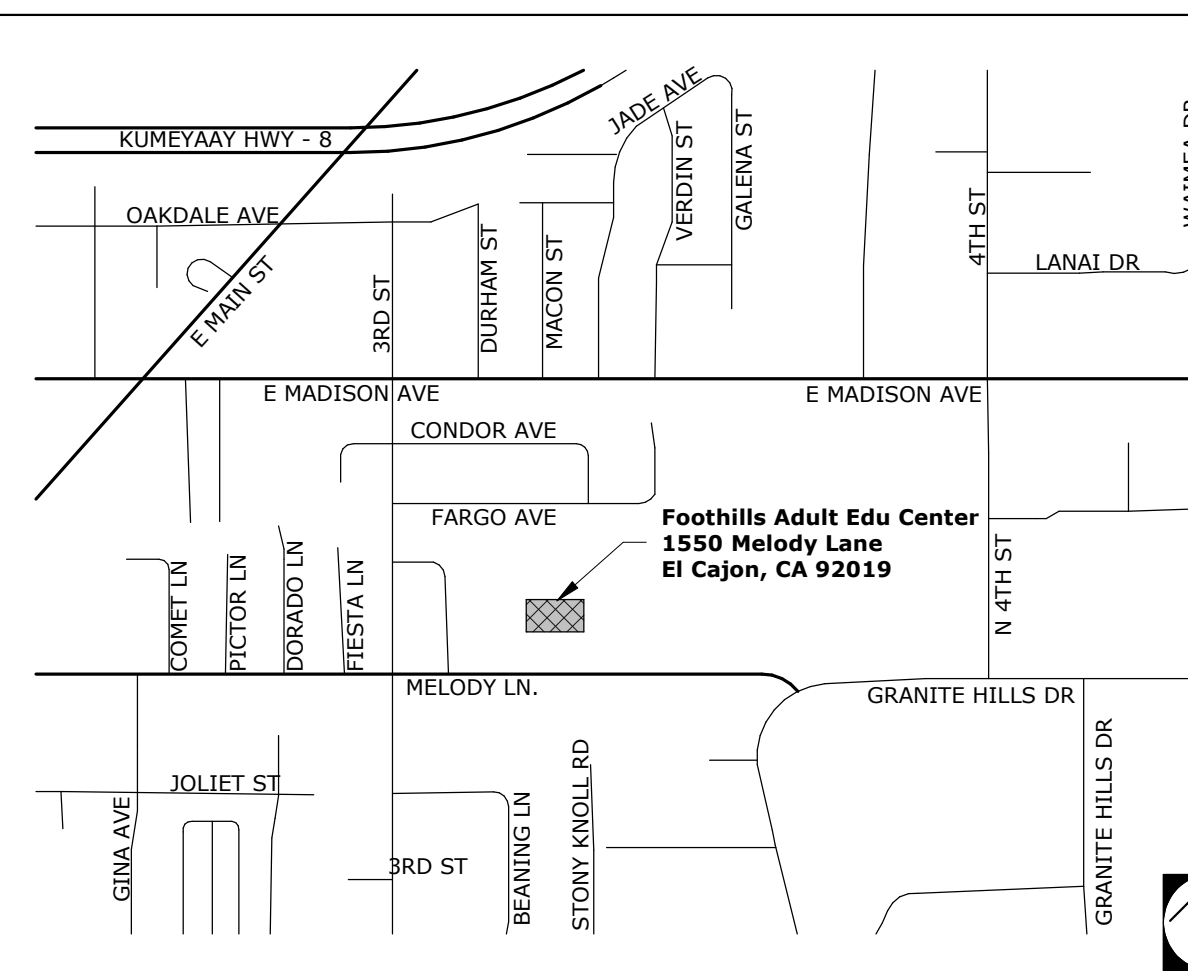
FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS, REFER TO 2019 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIRE CODE CHAPTER 80
SEE CALIFORNIA BUILDING CODE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS

APPLICABLE CODES

STATE OF CALIFORNIA

DEPARTMENT OF GENERAL SERVICES
DIVISION OF THE STATE ARCHITECT
10920 VIA FRONTERA ROAD, STE. 300
SAN DIEGO, CA 92127
TEL: (619) 674-5400

APPLICABLE AGENCIES





AGENCY APPROVAL
FIG. NO. 32-44

STAMPS

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ARCHITECTS

CONSULTANT BRANDING

DEMO SITE LEGEND



EXISTING CONCRETE TO BE REMOVED

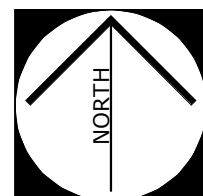
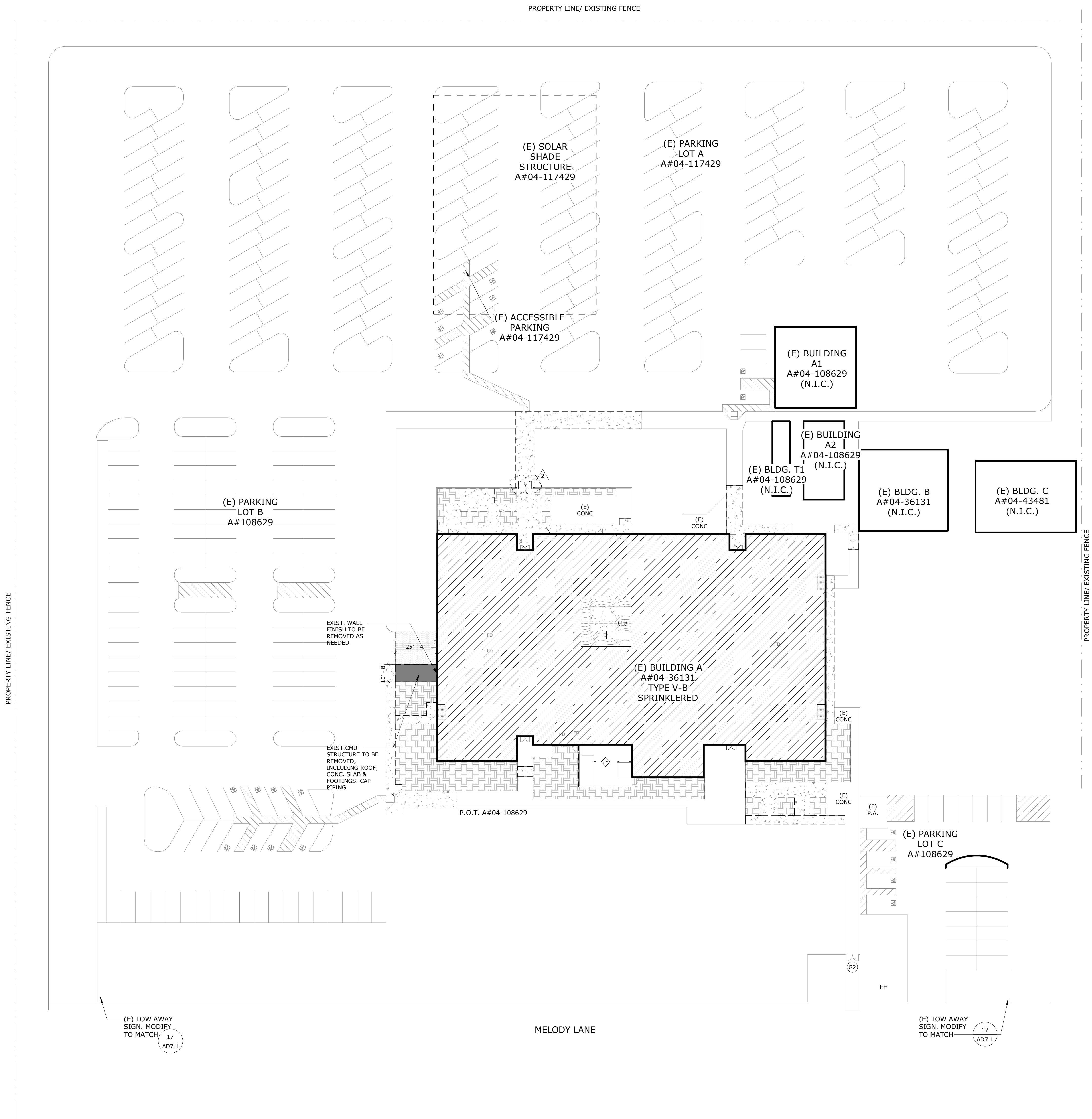


BUILDINGS/ PORTION OF BUILDING TO BE DEMOLISHED



EXISTING LANDSCAPING TO BE REMOVED

CONTRACTOR SHALL REMOVE EXISTING LANDSCAPE FOR ALL AREAS DESIGNATED TO RECEIVE NEW LANDSCAPE. THIS INCLUDES: 1) REMOVAL OF ALL TREES, SHRUBS, GROUND COVER AND TURF INCLUDING TREE ROOTS TO A DEPTH OF 18"; 2) REMOVAL OF ALL GRASS AND THATCH TO A DEPTH OF 6" BELOW THE TOP OF ADJACENT PAVEMENT; 3) REMOVAL OF EXISTING IRRIGATION HEADS AND LATERAL PIPING (SALVAGE MAINLINE PIPING, REMOTE CONTROL WIRES AND REMOTE CONTROL VALVES); 4) REMOVE EXISTING BARK MULCH GROUND COVER AND DO NOT REUSE. CLEAN AND RAKE ALL LANDSCAPE AREAS RECEIVING NEW LANDSCAPE AND BREAK UP ALL CLOUDS LARGER THAN 2" DIAMETER. FINISH GRADE OF PLANTING AREAS AFTER DEMOLITION SHALL BE 6" BELOW TOP OF ADJACENT PAVEMENT PRIOR TO AMENDMENT AND PLANTING OPERATIONS. REFER TO LANDSCAPE DRAWINGS FOR INSTALLATION OF IRRIGATION, PLANT MATERIALS AND WEED BARRIER FABRIC.



OVERALL DEMOLITION SITE PLAN

SCALE: 1" = 30'-0"
DATE: 4/24/23

1

PROJECT No. :1-30-47
3/18/2021 10:31:10 PM

DRAWN BY:

CHECKED BY:

REVISION	DATE	DESCRIPTION
2	3/18/2021	ADDENDUM 2
1		



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FOOTHILLS ADULT EDUCATION CENTER

1550 Melody Lane El Cajon, CA 92019
GROSSMONT UNIFIED HIGH SCHOOL DISTRICT

DEMOLITION SITE
PLAN

AS-1.1A

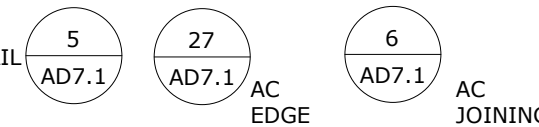
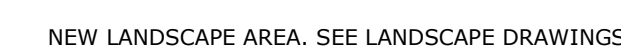
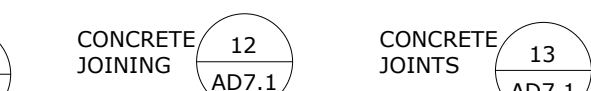
FEBRUARY 17, 2020 - DSA SUBMITTAL



CONSULTANT BRANDIN

KEYNOTES

NEW SITE LEGEND



$$1^{\text{H}} = 10^1 \cdot 0^{\text{H}}$$

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SCALE:	
$1'' = 10'-0''$	4
REF.: 1/AS-1.1	

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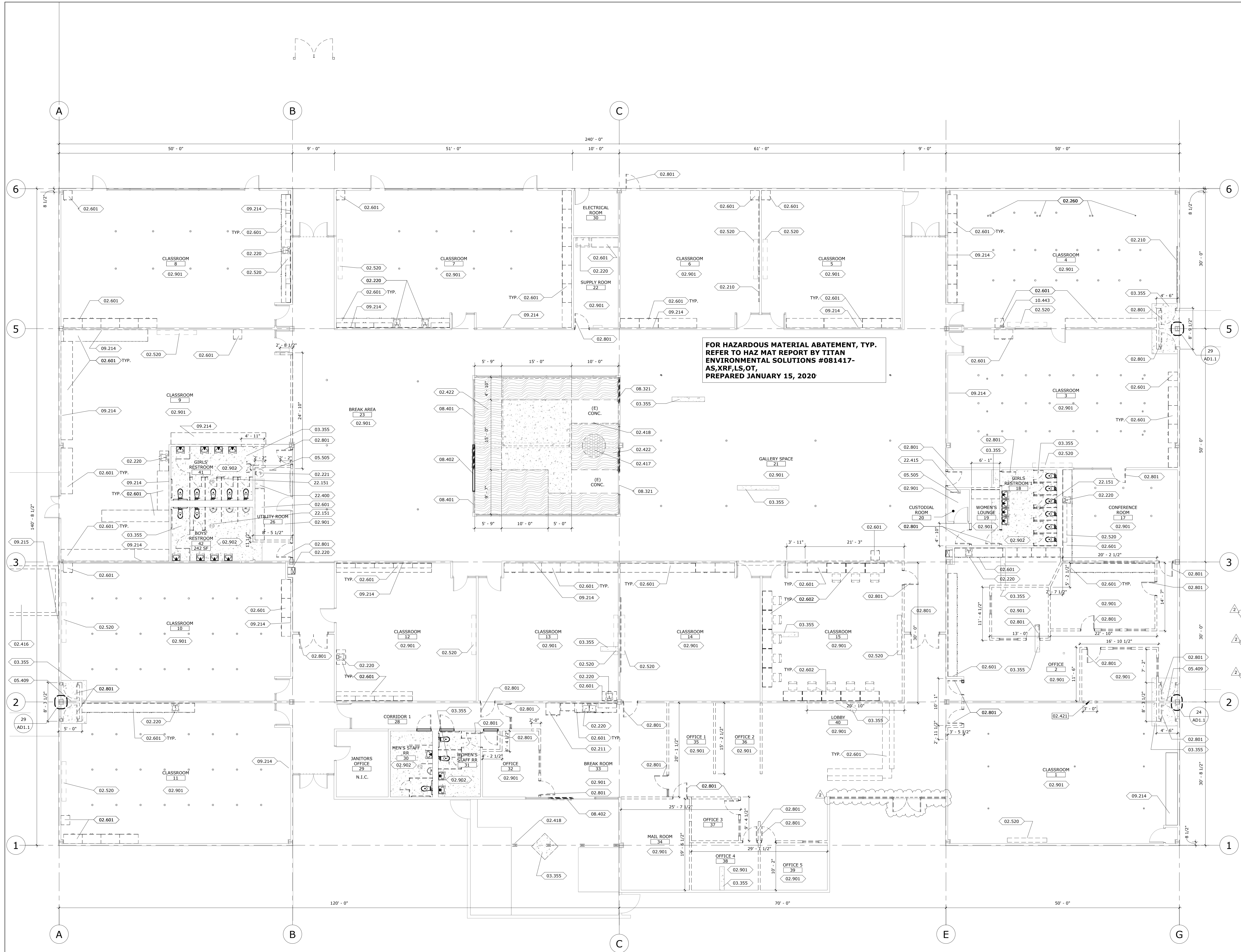
FOOTHILLS ADULT EDUCATION CENTER

1550 Melody Lane El Cajon, CA 92019
GROSSMONT UNIFIED HIGH SCHOOL DISTRICT

ENLARGED SITE PLANS

AS-1.2

FEBRUARY 17, 2020 - DSA SUBMITTAL



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ARCHITECTS

GENERAL DEMO NOTES

- AT LOCATIONS WHERE ANY ITEM IS TO BE REMOVED, PATCH AND REPAIR ALL SURFACES AS NEEDED TO MATCH EXISTING ADJACENT MATERIALS AND FINISHES, UNLESS NOTED OTHERWISE.
- VERIFY WITH ARCHITECT BEFORE ALTERING OR REMOVING ANY STRUCTURAL ITEMS INCLUDING BUT NOT LIMITED TO HOLD DOWNS, SHEAR WALLS, BEARING WALLS UNLESS IDENTIFIED ON THE DRAWINGS AND APPROPRIATE DETAILS ARE APPROVED BY THE DEPARTMENT OF THE STATE ARCHITECT.
- RESTORE ALL SURROUNDING AREAS AFFECTED BY THE WORK.
- PROTECT ITEMS TO REMAIN.
- REMOVE ALL INTERIOR FINISHES TO SUBSTRATE, U.N.O. AND PREPARE AREA TO RECEIVE NEW INTERIOR FINISHES.
- FOR HAZARDOUS MATERIAL ABATEMENT, TYP. REFER TO HAZ MAT REPORT BY TITAN ENVIRONMENTAL SOLUTIONS #081417-AS,XRF,LS,OT, PREPARED JANUARY 15, 2020

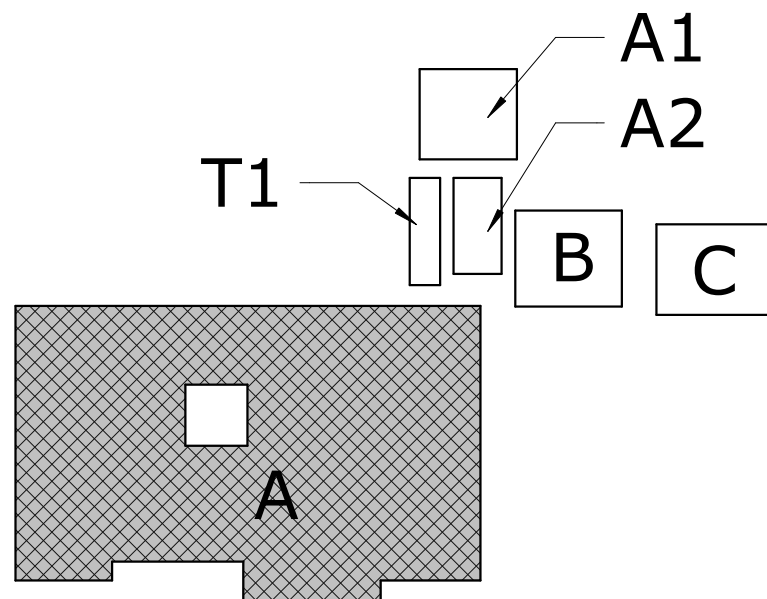
LEGEND

- EXISTING 2x WALL REMOVE ALL EXISTING INTERIOR GYP. BOARD PER RECOMMENDATIONS IN HAZ MAT REPORT. PROTECT IN PLACE 6" WIDE STRIP OF GYP BOARD AT CEILING FRAME ATTACHMENT LOCATIONS. EXTERIOR PLASTER FINISH TO REMAIN, U.N.O.
- DEMOLISH EXISTING WALL/ITEM (AND CONC. CURB WHERE OCCURS). PATCH AND REPAIR SURROUNDING SURFACES
- REMOVE EXISTING DOORS, FRAMES, & HARDWARE U.N.O.
- EXISTING DOORS TO REMAIN, U.N.O.
- EXISTING WINDOW TO REMAIN, U.N.O.
- FLOOR OUTLET TO REMAIN, U.N.O.
- DEMO, & REMOVE (E) CASEWORK
 - EXISTING FLOOR-MOUNTED ELECTRICAL OUTLET. PROTECT IN PLACE, WHERE POSSIBLE
- PORTION OF EXISTING CONCRETE SLAB TO BE SAWCUT AND REMOVED
- EXISTING LANDSCAPE TO BE REMOVED

*ALL DEMOLITION SHALL COMPLY WITH CHAPTER 33 CBC AND CHAPTER 33 CFC. REFER TO HAZ MAT REPORT FOR ADDITIONAL DEMOLITION RECOMMENDATIONS

KEYNOTES

- (E) REMOVE AND REINSTALL MARKERBOARD
- (D) REFRIGERATOR
- (E) PLUMBING FIXTURE. CAP PIPE AT WALL
- (E) WATER HEATER TO BE RELOCATED.
- (E) LIGHT POLE OUTLET TO BE REMOVED.
- (D) BUILDING ENCLOSURE IN ITS ENTIRETY
- (D) PLASTIC WATER FEATURE AND DECORATIVE ROCKS. CAP PIPES AND DRAINS.
- (D) WOOD TRELLIS, POSTS & SUPPORTS. PATCH WALL AT SUPPORT CONNECTION LOCATIONS. MATCH ADJACENT COLORS & FINISHES.
- (D) PORTION OF WALL AS NEEDED FOR INSTALLATION OF NEW DOOR OPENING DOOR FRAME
- (D) LANDSCAPING
- (E) REMOVE AND REINSTALL PROTECTION SCREEN
- (D) CASEWORK
- REMOVE FURNITURE. STORE PER DISTRICT DIRECTION
- (D) DOOR
- (D) FLOORING
- (D) FLOORING, INCLUDING TILE, COVE BASE & MORTAR BED. DEMO WALL FINISHES TO EXPOSE EXISTING METAL STUDS. REMOVE ALL PLUMBING FIXTURES & CARRIERS. CAP PIPES AT WALL. PORTION OF CONCRETE SLAB TO BE TRENCHED/REMOVED. CONTRACTOR IS RESPONSIBLE FOR DETERMINING LIMITS OF TRENCHING TO ACHIEVE DESIGN INTENT
- PORTION OF (E) METAL STUD EXTERIOR WALL TO BE MODIFIED WITH INTERIOR FINISHES
- (E) ROOF ACCESS LADDER
- (E) SLIDING GLASS DOOR TO BE REMOVED. REPLACE STOREFRONT PANELS WITH GLAZING TO MATCH EXISTING ADJACENT GLAZING.
- (E) STOREFRONT/CURTAIN WALL
- (E) STOREFRONT TO BE MODIFIED FOR ACCESSIBLE DOOR
- (D) WALL FINISHES AS NEEDED FOR INSTALLATION OF CASEWORK BACKING
- REMOVE DAMAGED PLASTER AS NEEDED TO APPLY PLASTER PATCH
- (E) FIRE EXTINGUISHER TO BE REMOVED AND REINSTALLED AT THE SAME LOCATION, AFTER WALL FINISHES HAVE BEEN REPLACED. SEE DETAIL 17/AD1.1
- (E) FLOOR DRAIN. SEE PLUMBING DRAWINGS. RECONNECT AT THE SAME LOCATION FOLLOWING SLAB WORK & FLOOR FINISH REPLACEMENT. PROVIDE NEW COVER
- (E) FLOOR SINK TO REMAIN. PROTECT IN PLACE
- (E) FLOOR SINK TO REMAIN. PROTECT IN PLACE



FLOOR PLAN - DEMO

KEY PLAN

FLOOR PLAN- DEMO

A1-1.1

PROJECT No. 1-30-47	REVISION: 2 DATE: 3/18/2021 DESCRIPTION: Addendum 2
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STAMPS

CONSULTANT BRANDING

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GENERAL NOTES

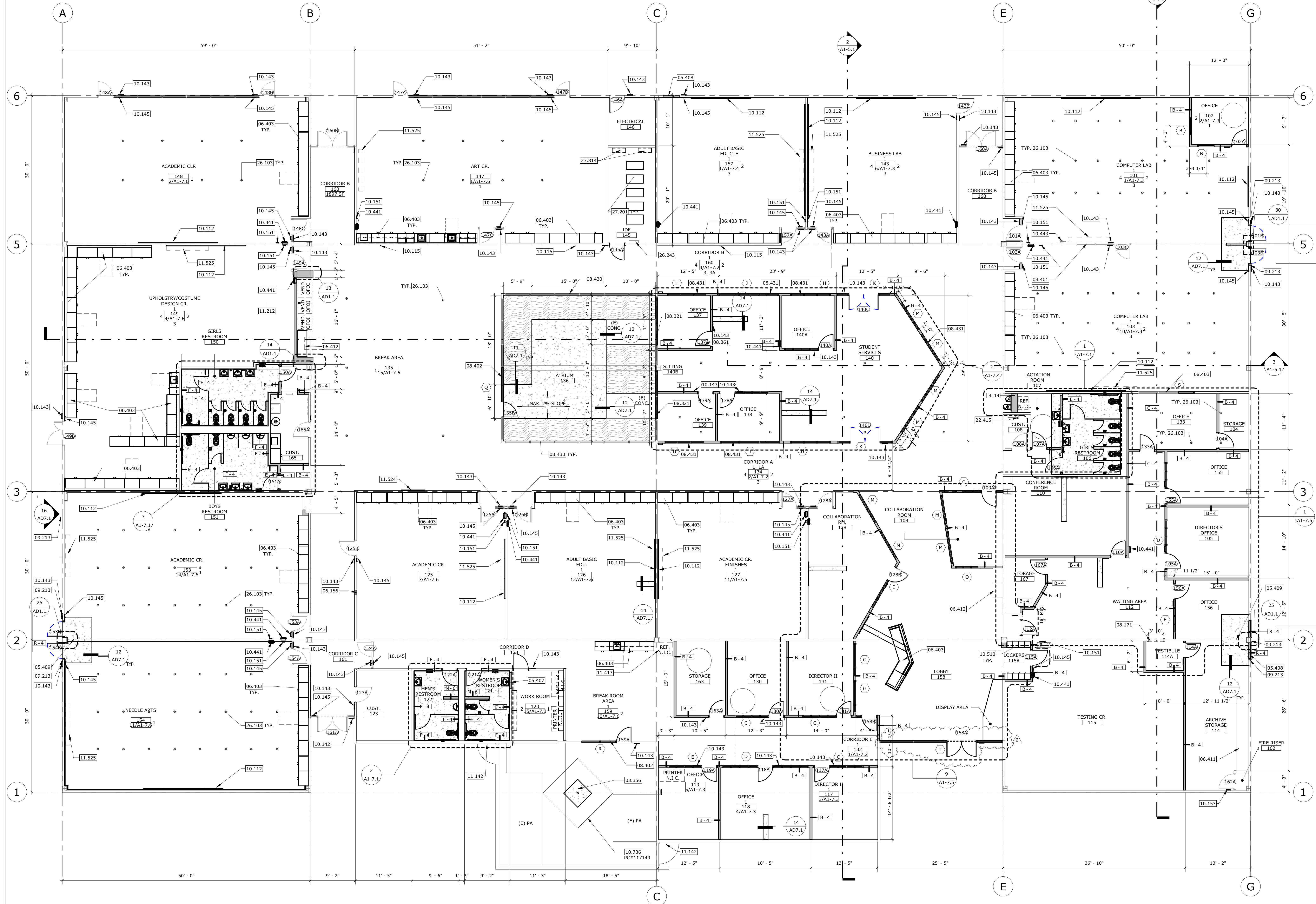
- VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
- ALL DIMENSIONS ARE TO FACE OF STUD, CENTERLINE OF COLUMN OR EDGE OF SLAB, U.N.O.
- SEE SHEET **AD1.1** FOR WALL TYPE INFORMATION.
- GYPSUM BOARD AND INSULATION SHALL EXTEND FULL HEIGHT OF WALL TO UNDERSIDE OF ROOF STRUCTURE.
- PROVIDE STUD BRACING AND SUPPORT FOR ALL WALL MOUNTED FIXTURES AND ACCESSORIES. PER DETAIL **16** **50-2.1**
- SEE SHEET **AB.1** FOR DOOR AND WINDOW INFORMATION
- SET DOORS ADJACENT TO WALLS A MIN. OF 4" AWAY FROM WALL U.N.O.
- ALL BACK TO BACK DEVICES IN WALLS WITH AN STC RATING OF 45 OR GREATER SHALL BE OFFSET BY MIN. 16 INCHES PER DETAIL **2** **AD1.1**

MODERNIZATION LEGEND

- EXISTING MTL STUD WALL TO REMAIN, U.N.O.
- NEW 2X6 MTL STUD @ 16" O.C. W/ BATT SOUND INSULATION. SEE WALL TYPE TAGS ON PLAN FOR FINISHES. REF STRUCT DWGS. METAL STUD WALL FRAMING PER 3/50-2.1, TYP.
- NEW LANDSCAPE. REFER TO LANDSCAPE DRAWINGS.
- NEW CONCRETE FLOOR SLAB AS REQUIRED TO INSTALL NEW WORK
- WALL TYPE STUD WALL TAG. SEE WALL DETAILS ON SHEET AD1.1
- DOOR IDENTIFICATION, SEE DOOR SCHEDULE AB.1 & DETAIL SHEET AD6.1 FOR SIZE, HARDWARE, AND HEADER, JAMB, AND SILL DETAILS
- WINDOW IDENTIFICATION, SEE WINDOW TYPES AB.1

KEYNOTES

- 03.356 SHADE STRUCTURE FOOTING. SEE PC DRAWINGS
- 05.407 METAL STUD INTERIOR WALL INFILL PER DET. 12/AD1.1
- 05.408 METAL STUD EXTERIOR WALL INFILL PER DET. 12/AD1.1
- 05.409 PORTION OF (E) METAL STUD EXTERIOR WALL TO BE MODIFIED WITH INTERIOR FINISHES
- 06.156 PATCH & REPAIR WALL WHERE PLUMBING FIXTURE WAS REMOVED. MATCH ADJACENT FINISHES
- 06.403 (N) CASEWORK. SEE INTERIOR ELEVATIONS FOR TYPES/ DIMENSIONS
- 06.411 COUNTERTOP
- 06.412 PLASTIC LAMINATE COUNTERTOP
- 08.171 3'-0" WIDE 8' HIGH CASING OPENING IN WALL
- 08.321 (E) SLIDING GLASS DOOR TO BE REMOVED. REPLACE STOREFRONT PANELS WITH GLAZING TO MATCH EXISTING ADJACENT GLAZING.
- 08.361 (N) DOOR PER DOOR SCHEDULE
- 08.401 (E) STOREFRONT/CURTAIN WALL
- 08.402 (E) STOREFRONT TO BE MODIFIED FOR ACCESSIBLE DOOR
- 08.403 (E) STOREFRONT TO BE MODIFIED
- 08.430 (E) STOREFRONT. PROTECT IN PLACE
- 08.431 (N) ALUMINUM STOREFRONT
- 09.213 PATCH PLASTER. MATCH (E) ADJACENT COLORS AND FINISHES
- 10.112 (N) MARKERBOARD. SEE MOUNTING DETAIL 19/AD1.1
- 10.115 VISUAL IDENTIFICATION SIGNAGE
- 10.142 BUILDING IDENTIFICATION SIGNAGE
- 10.143 ROOM IDENTIFICATION SIGNAGE. REFER TO DETAIL 3/AD5.1
- 10.145 EXIT SIGNAGE. REFER TO DETAIL 2/AD5.1
- 10.151 ASSISTIVE LISTENING SYSTEM SIGNAGE PER DETAIL 4/AD5.1
- 10.153 FIRE RISER ROOM SIGNAGE PER DETAIL 30/AD5.1
- 10.441 (E) FIRE EXTINGUISHER TO BE REMOVED AND REINSTALLED AT THE SAME LOCATION, AFTER WALL FINISHES HAVE BEEN REPLACED. SEE DETAIL 17/AD1.1
- 10.510 METAL LOCKER. CFCL. SEE DETAIL 20/AD-7.6
- 10.736 FABRIC SHADE STRUCTURE
- 11.142 LANDSCAPE SERVICE GATE TO REMAIN. PROTECT IN PLACE
- 11.212 VENDING EQUIPMENT TO COMPLY WITH CBC SECTION 11B-804.6.2, O.F.O.I.
- 11.413 REFRIGERATOR, N.I.C.
- 11.524 TELEVISION QCL. MOUNT PER 21/AD1.1
- 11.525 (E) PROJECTOR SCREEN TO BE REMOVED AND REINSTALLED AFTER WALL/CEILING FINISHES ARE REPLACED
- 22.415 (E) FLOOR SINK TO REMAIN. PROTECT IN PLACE
- 23.814 (N) WALL MOUNTED SPLIT-SYSTEM FAN COIL UNIT. SEE MECHANICAL
- 26.103 (E) FLOOR MOUNTED ELECTRICAL RECEPTACLE TO REMAIN. PROTECT IN PLACE.
- 26.243 (E) ELECTRICAL PANEL TO REMAIN. PROTECT IN PLACE
- 27.201 (N) SERVER RACK PER ELECTRICAL



FLOOR PLAN - NEW

KEY PLAN

FLOOR PLAN - NEW

A1-1.2

PROJECT No. 1-30-47	REVISION: 2 DATE: 3/18/2021 DESCRIPTION: Addendum 2
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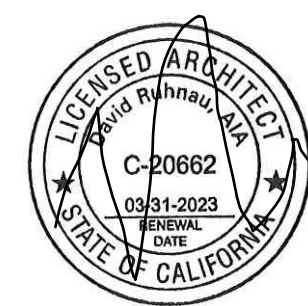
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FEBRUARY 17, 2020 - DSA SUBMITTAL



AGENCY APPROVAL
FIG. NO. 37-44

STAMPS

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GENERAL NOTES

- BEFORE REMOVING CEILING TILES, CONTRACTOR MUST DISCONNECT ALL ELECTRICAL ITEMS IN THE AFFECTED AREA INCLUDING SMOKE DETECTORS, FIRE ALARM COMPONENTS, SECURITY CAMERAS ETC. ALL ITEMS THAT AREN'T BEING REPLACED ARE TO BE REINSTALLED IN THE SAME LOCATIONS ONCE CEILING WORK IS COMPLETE.
- FOR HAZARDOUS MATERIAL ABATEMENT, TYP. REFER TO HAZ MAT REPORT BY TITAN ENVIRONMENTAL SOLUTIONS #081417-AS, XRF, LS, OT, PREPARED JANUARY 15, 2020

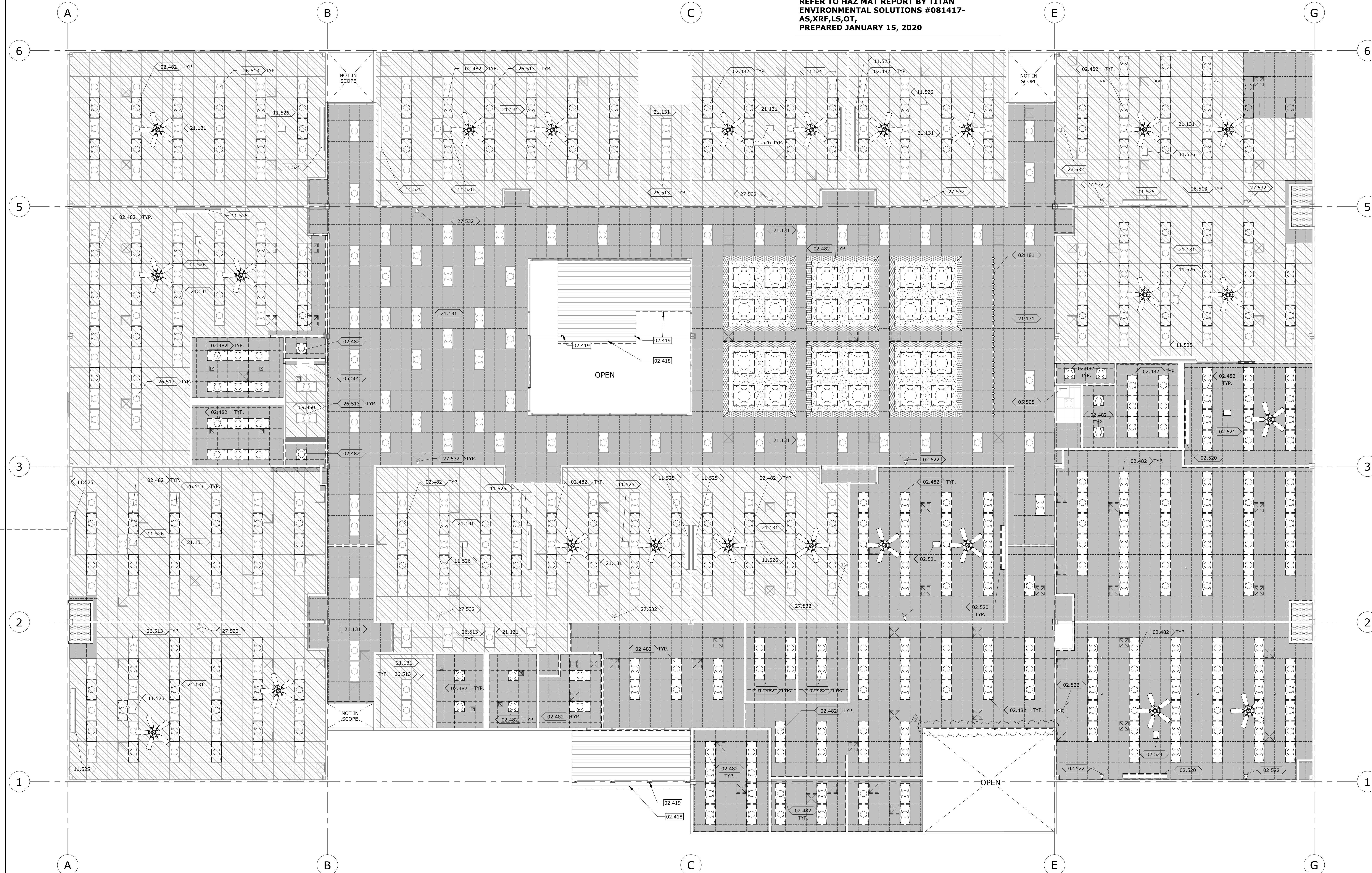
LEGEND

- EXISTING 2X4 CEILING TILES TO BE REMOVED. PROTECT IN PLACE EXISTING CEILING FRAME
- EXISTING 2X4 TROFFER LIGHT TO REMAIN. PROTECT IN PLACE
- EXISTING 2X4 CEILING FRAME & TILES TO BE DEMOLISHED, INCLUDING ALL SUPPORT, BRACING WIRES AND ANCHORAGE DEVICES
- EXISTING 2X4 TROFFER LIGHT TO BE REMOVED, INCLUDING ALL SUPPORT, BRACING WIRES AND ANCHORAGE DEVICES
- EXISTING 2X2 CEILING FRAME & TILES TO BE DEMOLISHED, INCLUDING ALL SUPPORT, BRACING WIRES AND ANCHORAGE DEVICES
- EXISTING 2X2 TROFFER LIGHT TO BE REMOVED, INCLUDING ALL SUPPORT, BRACING WIRES AND ANCHORAGE DEVICES
- EXISTING 2X2 LIGHT TO REMAIN. PROTECT IN PLACE
- EXISTING CEILING FRAME TO REMAIN. PROTECT IN PLACE
- EXISTING 4X4 TROFFER LIGHT TO BE REMOVED
- EXISTING CORK CEILING TO BE REMOVED
- EXISTING GYP. BOARD CEILING TO BE REMOVED
- EXISTING PLASTER AT SOFFIT TO BE REMOVED
- EXISTING CEILING FAN TO BE REMOVED
- EXISTING PROJECTOR SCREEN TO BE REMOVED AND REINSTALLED AFTER WALL/CEILING FINISHES ARE REPLACED
- EXISTING CLOCK/ SPEAKER TO REMAIN. PROTECT IN PLACE
- EXISTING CLOCK/SPEAKER TO BE REMOVED
- EXISTING SUPPLY REGISTER TO REMAIN. PROTECT IN PLACE
- EXISTING SUPPLY REGISTER TO BE REMOVED
- EXISTING RETURN REGISTER TO REMAIN. PROTECT IN PLACE
- EXISTING RETURN REGISTER TO BE REMOVED
- EXISTING CEILING MOUNTED PROJECTOR. PROTECT IN PLACE

KEYNOTES

- 02.418 (D) WOOD TRELLIS, POSTS & SUPPORTS. PATCH WALL AT SUPPORT CONNECTION LOCATIONS. MATCH ADJACENT COLORS & FINISHES.
- 02.419 (D) PORTION OF WALL
- 02.482 (D) TRACK LIGHTING
- 02.521 (D) LIGHT FIXTURE
- 02.522 (E) REMOVE AND REINSTALL PROJECTION SCREEN
- 02.521 (D) PROJECTOR
- 02.522 (D) CLOCK/ SPEAKER
- 05.505 (E) REMOVE AND REINSTALL LADDER
- 09.950 (E) CEILING GRID TO BE ADJUSTED FOR NEW WALLS
- 11.525 (E) PROJECTOR SCREEN TO BE REMOVED AND REINSTALLED AFTER WALL/CEILING FINISHES ARE REPLACED
- 11.526 (E) PROJECTOR TO BE REMOVED AND REINSTALLED AFTER WALL/CEILING FINISHES ARE REPLACED
- 21.131 (E) FIRE SUPPRESSION SPRINKLER SYSTEM. DISCONNECT FIRE SUPPRESSION COMPONENTS AS NEEDED TO PERFORM CEILING WORK. ONCE CEILING WORK IS COMPLETED, REINSTALL ALL COMPONENTS.
- 26.513 (E) LIGHT FIXTURE TO BE REFURBISHED AND REINSTALLED, PER ELECTRICAL
- 27.532 (E) SPEAKER/ CLOCK SYSTEM TO REMAIN. PROTECT IN PLACE

FOR HAZARDOUS MATERIAL ABATEMENT, TYP.
REFER TO HAZ MAT REPORT BY TITAN
ENVIRONMENTAL SOLUTIONS #081417-
AS, XRF, LS, OT,
PREPARED JANUARY 15, 2020



REFLECTED CEILING PLAN - DEMO

SCALE: 1/8" = 1'-0"
DATE: 3/18/2021

1

PROJECT No. :1-30-47

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REVISION: 2 DATE: 3/18/2021 DESCRIPTION: Addendum 2

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REFLECTED CEILING
PLAN - DEMO

A1-2.1

FEBRUARY 17, 2020 - DSA SUBMITTAL



AGENCY APPROVAL
FIG. NO. 37-44

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GENERAL NOTES

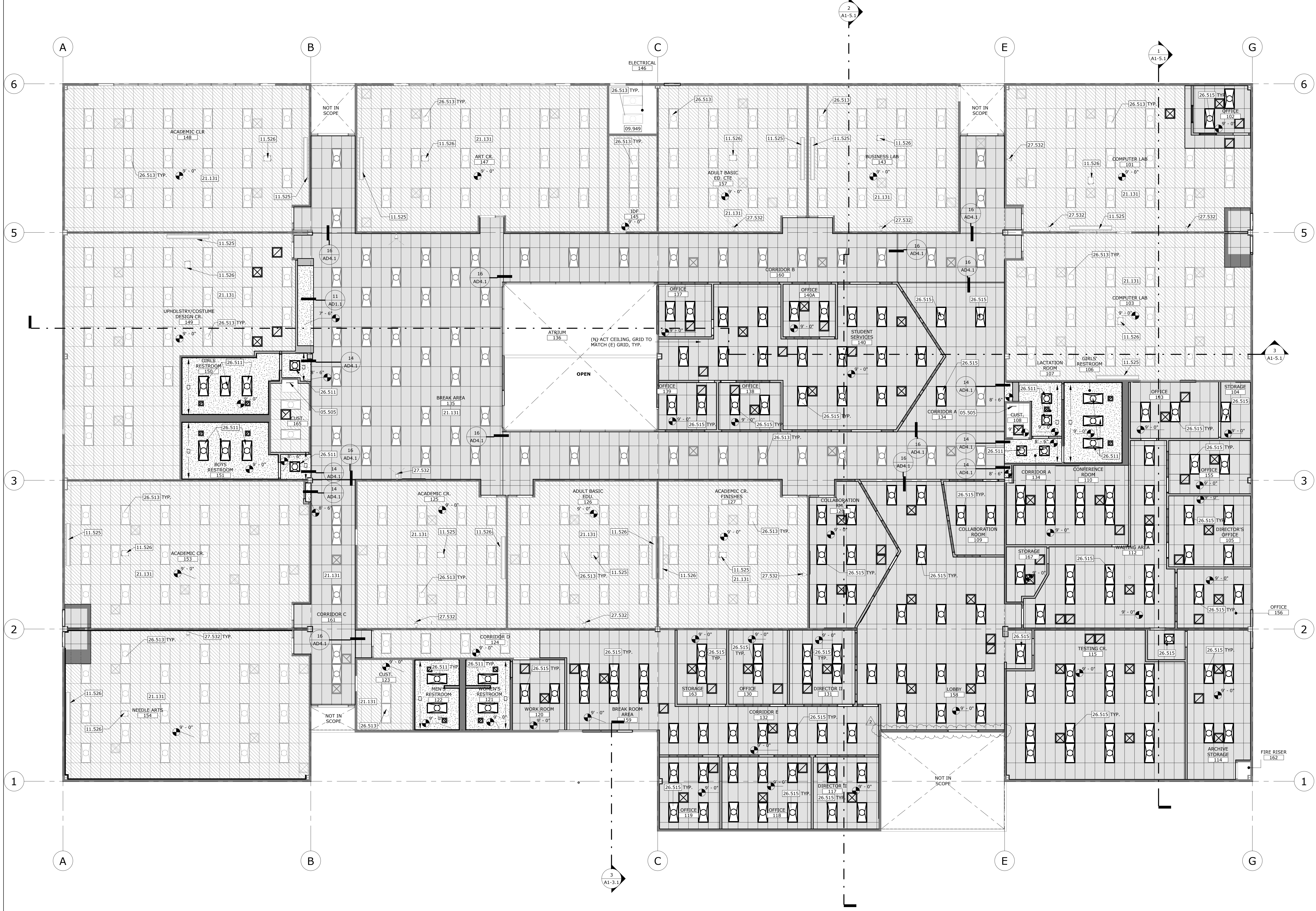
1. ALL LIGHT FIXTURES TO BE CENTERED IN SPACE, U.N.O.
2. ALL CEILING HEIGHTS ARE RELATIVE TO THE FINISH FLOOR DIRECTLY BENEATH.
3. ACOUSTICAL CEILING TILES AND GRID TO BE CENTERED IN ROOM. SEE SHEET AD4.1 FOR SUSPENDED CEILING SEISMIC BRACING DETAILS AND TRAPEZE DETAILS
4. ALL EXPOSED STRUCTURE, INCLUDING MECHANICAL & PLUMBING EQUIPMENT TO BE PAINTED
5. ALL MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT TO BE HELD AS TIGHT AS POSSIBLE TO CEILING STRUCTURE
6. ALL CONDUIT IN EXPOSED AREAS WHERE CEILING STRUCTURE IS EXPOSED CAN ONLY PENETRATE WALLS AT ROOF
7. REFER TO ELECTRICAL & MECHANICAL DRAWINGS FOR CEILING COMPONENT CALLOUTS AND FIXTURE TYPES
8. PAINT ALL SUPPLY & RETURNS OF ALL ACCENT PAINTED CEILING AREAS

MODERNIZATION LEGEND

- (N) 2'-0" x 4'-0" SUSPENDED TEE BAR ACOUSTICAL CEILING GRID & TILES
- (N) 2'-0" x 4'-0" SUSPENDED TEE BAR ACOUSTICAL CEILING TILES IN (E) GRID; (E) GRID TO BE PAINTED TO MATCH (N) GRID
- (E) 2X4 TROFFER LIGHT. REFURBISH PER ELECTRICAL AND REINSTALL AT THE SAME LOCATION.
- (N) 2X4 TROFFER LIGHT. MATCH EXISTING U.N.O.
- (N) 2X2 TROFFER LIGHT. MATCH EXISTING U.N.O.
- (E) LIGHT. REFURBISH PER ELECTRICAL. REINSTALL AT THE SAME LOCATION. PROTECT IN PLACE
- (E) CEILING GRID TO REMAIN. PROTECT IN PLACE
- (N) METAL JOIST FRAMED GYP. BOARD CEILING, PAINT
- (N) PROJECTOR SCREEN

KEYNOTES

- 05.505 (E) ROOF ACCESS LADDER
- 09.949 (E) GYP. BD. CEILING TO REMAIN. PROTECT IN PLACE
- 11.525 (E) PROJECTOR SCREEN TO BE REMOVED AND REINSTALLED AFTER WALL/CEILING FINISHES ARE REPLACED
- 11.526 (E) PROJECTOR TO BE REMOVED AND REINSTALLED AFTER WALL/CEILING FINISHES ARE REPLACED
- 21.131 (E) FIRE-SUPPRESSION SPRINKLER SYSTEM. DISCONNECT FIRE-SUPPRESSION COMPONENTS AS NEEDED TO PERFORM CEILING WORK. ONCE CEILING WORK IS COMPLETED, REINSTALL ALL COMPONENTS.
- 26.511 SURFACE MOUNTED LIGHT PER ELECTRICAL. SEE DETAIL 13/AD4.1
- 26.513 (E) LIGHT FIXTURE TO BE REFURBISHED AND REINSTALLED, PER ELECTRICAL
- 27.532 (N) LIGHT FIXTURE PER ELECTRICAL.
- (E) SPEAKER/CLOCK SYSTEM TO REMAIN. PROTECT IN PLACE



REFLECTED CEILING PLAN - NEW

SCALE: 1/8" = 1'-0"
DATE: 4/26/24

REFLECTED CEILING
PLAN - NEW

A1-2.2

PROJECT No. 1-30-47		REVISION: 2 DATE: 3/18/2021 DESCRIPTION: Addendum 2	
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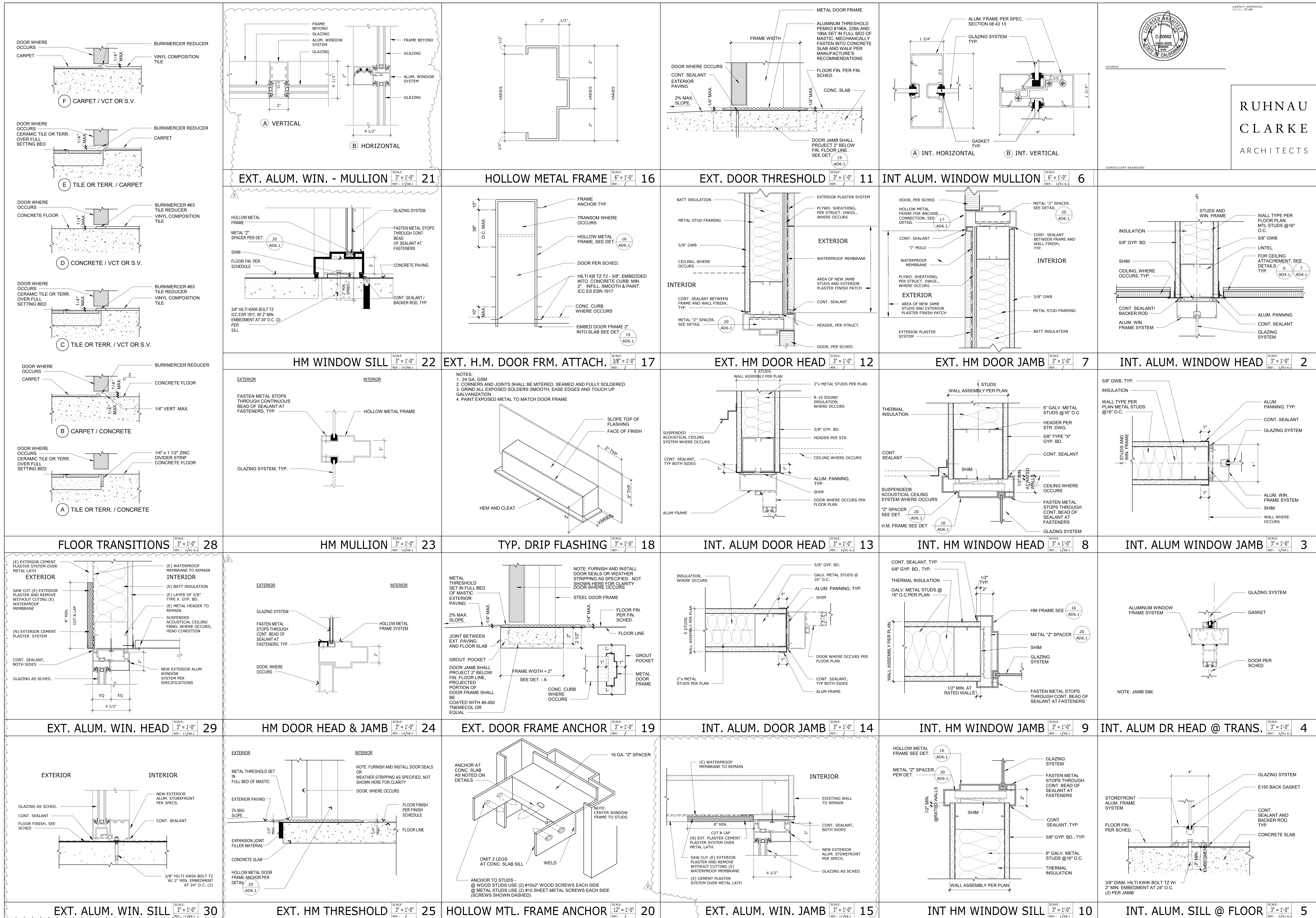
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FEBRUARY 17, 2020 - DSA SUBMITTAL

DOOR SCHEDULE

DOOR No.	(E)/(N)	ROOM No.	ROOM NAME	DOOR TYPE	FRAME TYPE	DOOR MEASUREMENTS			HDMR GROUP	PANIC HDMR	DOOR		MATERIAL	FINISH	COLOR	MATERIAL	FINISH	COLOR	HEAD	DETAILS		FIRE RATING	STC RATING	REMARKS	
						WIDTH	HEIGHT	THICKNESS			DOOR	COLOR								JAMB	SILL				
101B	N	101	COMPUTER LAB	A	1	3'-0"	8'-0"	1 3/4"	15	*	HM	PSG	P-6	HM	PSG	P-6	12/AD6.1	7/AD6.1 & 30/AD1.1	11/AD6.1	-	-	-	-		
102A	N	102	OFFICE	A	1	3'-0"	8'-0"	1 3/4"	02		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
103B	N	103	COMPUTER LAB	A	1	3'-0"	8'-0"	1 3/4"	15	*	HM	PSG	P-6	HM	PSG	P-6	12/AD6.1	7/AD6.1 & 30/AD1.1	11/AD6.1	-	-	-	-		
104A	N	104	STORAGE	A	1	3'-0"	8'-0"	1 3/4"	31A		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
105A	N	105	DIRECTOR'S OFFICE	B	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
106A	N	106	GIRLS RESTROOM	A	1	3'-0"	8'-0"	1 3/4"	21B		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1 SIM.	9/AD6.1	28/AD6.1	-	-	-	-	16'X24" LOUVER	
107A	N	107	LACIATION ROOM	A	1	3'-0"	8'-0"	1 3/4"	07A		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
109A	N	109	COLLABORATION ROOM	B	1	3'-0"	8'-0"	1 3/4"	34		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
110A	N	110	CONFERENCE ROOM	A	1	3'-0"	8'-0"	1 3/4"	04		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
112A	N	112	WAITING AREA	A	1	3'-0"	8'-0"	1 3/4"	EXST-01		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-	EXISTING DOOR @ (E) OPENING. REVERSE SWING. REMOVE CLOSER.	
114A	N	114	ARCHIVE STORAGE	A	1	3'-0"	8'-0"	1 3/4"	02		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
115A	N	115	TESTING CR.	A	1	3'-0"	8'-0"	1 3/4"	04		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
117A	N	117	DIRECTOR II	B	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
118A	N	118	OFFICE	B	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
119A	N	119	OFFICE	B	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
120A	N	120	WORK ROOM	A	1	3'-0"	8'-0"	1 3/4"	05		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
128B	N	128	COLLABORATION RM.	B	1	3'-0"	8'-0"	1 3/4"	SF-03		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
130A	N	130	OFFICE	A	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
131A	N	131	DIRECTOR II	B	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
133A	N	133	OFFICE	A	1	3'-0"	8'-0"	1 3/4"	02		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
135B	N	135	BREAK AREA	B	1	3'-0"	8'-0"	1 3/4"	SF-06		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	24/AD6.1	24/AD6.1	25/AD6.1	-	-	-	-		
137A	N	137	OFFICE	A	1	3'-0"	8'-0"	1 3/4"	02		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
138A	N	138	OFFICE	B	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
139A	N	139	OFFICE	A	1	3'-0"	8'-0"	1 3/4"	02		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
140A	N	140A	OFFICE	B	1	3'-0"	8'-0"	1 3/4"	SF-03		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
140C	N	140	STUDENT SERVICES	C	2	6'-0"	8'-0"	1 3/4"	SF-04		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
140D	N	140	STUDENT SERVICES	C	2	6'-0"	8'-0"	1 3/4"	SF-04		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
150A	N	150	GIRLS RESTROOM	A	1	3'-0"	8'-0"	1 3/4"	21B		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-	16'X24" LOUVER	
151A	N	151	BOYS RESTROOM	A	1	3'-0"	8'-0"	1 3/4"	21A		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-	16'X24" LOUVER	
153B	N	153	ACADEMIC CR.	A	1	3'-0"	8'-0"	1 3/4"	15	*	HM	PSG	P-6	HM	PSG	P-6	12/AD6.1	7/AD6.1 & 30/AD1.1	11/AD6.1	-	-	-	-		
154B	N	154	NEEDLE ARTS	A	1	3'-0"	8'-0"	1 3/4"	15	*	HM	PSG	P-6	HM	PSG	P-6	12/AD6.1	7/AD6.1 & 30/AD1.1	11/AD6.1	-	-	-	-		
155A	N	155	OFFICE	B	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
156A	N	156	OFFICE	B	1	3'-0"	8'-0"	1 3/4"	SF-02		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
158A	N	158	LOBBY	B	1	3'-0"	8'-0"	1 3/4"	SF-01	*	ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
158B	N	158	LOBBY	B	1	3'-0"	8'-0"	1 3/4"	SF-05	*	ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	13/AD6.1	14/AD6.1	28/AD6.1	-	-	-	-		
159A	N	159	BREAK ROOM AREA	B	1	3'-0"	8'-0"	1 3/4"	SF-06A		ALUM	FF	ALUM-1	ALUM	FF	ALUM-1	24/AD6.1	24/AD6.1	25/AD6.1	-	-	-	-		
163A	N	163	STORAGE	A	1	3'-0"	8'-0"	1 3/4"	35		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
167A	N	167	STORAGE	A	1	3'-0"	8'-0"	1 3/4"	35		HM	PSG	P-6	HM	PSG	P-6	8/AD6.1	9/AD6.1	28/AD6.1	-	-	-	-		
101A	E	101	COMPUTER LAB	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
103A	E	103	COMPUTER LAB	B	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
103C	E	103	COMPUTER LAB	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
108A	E	108	CUST.	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-02		(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	(E) 16" x 24" LOUVER
121A	E	121	WOMEN'S RESTROOM	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-03		(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	(E) 20'X20" LOUVER. EXISTING DOOR & FRAME TO BE MODIFIED. REVERSE SWING.
122A	E	122	MEN'S RESTROOM	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-03		(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	(E) 16" x 24" LOUVER. EXISTING DOOR & FRAME TO BE MODIFIED. REVERSE SWING.
123A	E	123	CUST.	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-02		(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
124A	E	124	CORRIDOR D	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
125A	E	125	ACADEMIC CR.	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
125B	E	125	ACADEMIC CR.	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
126B	E	126	ADULT BASIC EDU.	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
127A	E	127	ACADEMIC CR. FINISHES	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
128A	E	128	COLLABORATION RM.	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
143A	E	143	BUSINESS LAB	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-01	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
143B	E	143	BUSINESS LAB	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-04	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
145A	E	145	IDF	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-05	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	NO CLOSER, MODIFY DOOR SWING
146A	E	146	ELECTRICAL	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-06	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
147A	E	147	ART CR.	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-04-AL	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-	-	
147B	E	147	ART CR.	A	(E)	3'-0"	8'-0"	1 3/4"	EXST-04-AL	*	(E)	PSG	P-6	(E)	PSG	P-6	(E)	(E)	(E)	(E)	-	-	-		



ABBREVIATIONS

A	AMPERE (AMPS)
AC	ALTERNATING CURRENT
AF	AMPS-FRAME (RATING)
AF	AMP INTERRUPTING CURRENT
AM	AMMETER
AS	AMP SWITCH (FUSED SWITCH RATING)
AT	AMPS-TRIP (RATING)
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CO	CONDUIT ONLY
CT	CURRENT TRANSFORMER
CU	COPPER
CFI	CONTRACTOR FURNISHED OWNER INSTALLED
CFI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DWG	DRAWING
EX	EXISTING
FLA	FULL LOAD AMPS
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
GFI	GROUND FAULT INTERRUPTER
GRD/GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
KVA	KILOVATT
LCL	LONG CONTINUOUS LOAD
LRA	LOCKED ROTOR AMPS
LTS	LIGHTING
MCC	MOTOR CONTROL CENTER
MCM (KCM)	THOUSAND CIRCULAR MILS
MECH	MECHANICAL
NC	NORMALLY CLOSED
NF	NON-FUSED
NO	NORMALLY OPEN/NUMBER
OFI	OWNER FURNISHED CONTRACTOR INSTALLED
OFI	OWNER FURNISHED OWNER INSTALLED
P	POLE
PH	PHASE
POC	POINT OF CONNECTION
PRS	PVC COATED RIGID STEEL (CONDUIT)
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE DUCT
PZ	PRIMARY DAYLIGHT ZONE
SWBD	SWITCHBOARD
SZ	SECONDARY DAYLIGHT ZONE
TYP	TYPICAL
UG	UNDERGROUND
UGN	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT-AMPERES
VM	VOLTMETER
VL	VERIFY LOCATION
W	WIRE/ Watts
WP	WEATHERPROOF (NEMA TYPE 3R)
WT	WATERTIGHT
XP	EXPLOSION PROOF (RATED FOR AREA HAZARD)

ELECTRICAL SYMBOL LEGEND

LIGHTING

	LIGHTING FIXTURE DESIGNATION
	LIGHTING FIXTURE, CEILING OR WALL MOUNTED AS SHOWN.
	LED LIGHT FIXTURE
	LIGHTING FIXTURE ON EMERGENCY CIRCUIT (LIFE SAFETY BRANCH OR BATTERY PACK).
	EXIT SIGN WITH DIRECTION ARROWS AS INDICATED. SHADED QUADRANT INDICATES FACE.
	EMERGENCY LIGHTING UNIT, WALL MOUNTED 12" BELOW CEILING (U.O.N.) LETTER INDICATES CIRCUIT CONTROLLED, SEE DETAIL
	LED STRIP LIGHT
	S1 SINGLE POLE SWITCH, SUBSCRIPT WHEN SHOWN INDICATES FIXTURES CONTROLLED +48" A.F.F. (U.O.N.) HEIGHT PER DETAILS #1/E1.0.
	S3 THREE-WAY SWITCH +48" A.F.F. (U.O.N.) HEIGHT PER DETAILS #1/E1.0
	S4 FOUR-WAY SWITCH +48" A.F.F. (U.O.N.) HEIGHT PER DETAILS #1/E1.0
	SP SWITCH WITH PILOT LIGHT +48" A.F.F. (U.O.N.) HEIGHT PER DETAILS #1/E1.0
	S2 DOUBLE POLE SWITCH +48" A.F.F. (U.O.N.) HEIGHT PER DETAILS #1/E1.0
	SWP WEATHER PROOF SWITCH +48" A.F.F. (U.O.N.) HEIGHT PER DETAILS #1/E1.0
	SK KEY OPERATED SWITCH +48" A.F.F. (U.O.N.) HEIGHT PER DETAILS #1/E1.0
	SV SURFACE MOUNTED TRACK LIGHTING FIXTURES
	SE EXTERIOR SITE LIGHTING FIXTURE AND POLE
	SED EXTERIOR DECORATIVE SITE LIGHTING FIXTURE AND POLE
	SL LANDSCAPE LIGHTING FIXTURE
	SV SPORTSLIGHTING FIXTURES AND POLES
	ESV CEILING MOUNTED OCCUPANCY SENSOR LIGHTING CONTROL
	SLV LOW VOLTAGE LIGHT SWITCH, HEIGHT PER DETAILS #1/E1.0
	ED DIGITAL LIGHTING CONTROL TYPICAL ROOM REQUIREMENTS.

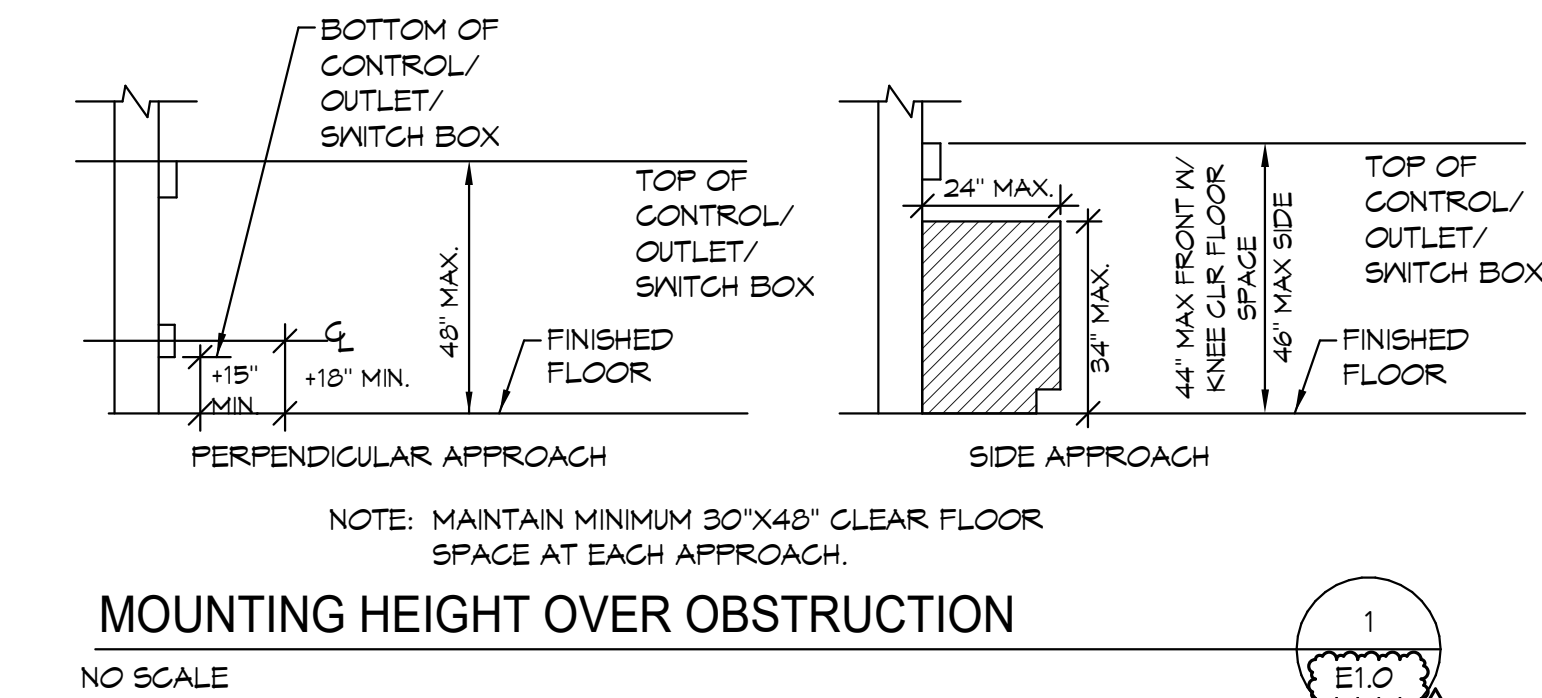
DISTRIBUTION EQUIPMENT

	DE DRAW OUT TYPE EQUIPMENT
	VC VACUUM CIRCUIT BREAKER, RATING AS NOTED.
	AS AIR INTERRUPTER SWITCH AND FUSE
	AI AIR INTERRUPTER
	F FUSE
	PT POWER TRANSFORMER, RATING AS NOTED
	PCB POWER CIRCUIT BREAKER DRAWOUT
	ATS AUTOMATIC TRANSFER SWITCH, SEE SCHEDULE
	A AMMETER
	V VOLTMETER
	CB CIRCUIT BREAKER
	200AF 200AMP FRAME 200AT 200AMP TRIP 3P 3 POLE 10,000AIC 10,000 AMPS INTERRUPTING CURRENT
	FS FUSED SWITCH
	200AS 200AMP SWITCH 200AF 200AMP FUSE 3P 3 POLE
	M UTILITY COMPANY METER

POWER CONTINUED

	DR DUPLEX RECEPTACLE, FLOOR MOUNTED
	DRW DUPLEX RECEPTACLE, WALL MOUNTED, +18" A.F.F. (U.O.N.)
	DRH RECEPTACLE, WALL MOUNTED HORIZONTALLY, +18" A.F.F. (U.O.N.)
	DFR FOURPLEX RECEPTACLE, WALL MOUNTED, +18" A.F.F. (U.O.N.)
	DR6 RECEPTACLE MOUNTED +6" ABOVE COUNTER BACKSPASH SEE ARCHITECTURAL PLANS FOR REQUIRED MOUNTING HEIGHT PRIOR TO ROUGH-IN.
	DRCD PROVIDE (2) DUPLEX RECEPTACLE CEILING MOUNTED LOCATE ADJACENT TO PROJECTOR, FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN. SINGLE RECEPTACLE, WALL MOUNTED +18" A.F.F. (U.O.N.)
	DRCS SINGLE RECEPTACLE (CLOCK HANGER TYPE) WALL MOUNTED +T-0" A.F.F. (U.O.N.)
	DRCC CONTROLLED DUPLEX RECEPTACLE +18" U.O.N. CONTROLLED FOURPLEX RECEPTACLE, WALL MOUNTED, +18" A.F.F. (U.O.N.) (1) DUPLEX, (1) CONTROLLED DUPLEX
	DRGFI DUPLEX GROUND FAULT INTERRUPTING RECEPTACLE +18" A.F.F. (U.O.N.)
	DRCE DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT +18" A.F.F. (U.O.N.)
	DRWP DUPLEX RECEPTACLE IN WEATHERPROOF ENCLOSURE +18" A.F.F. (U.O.N.)
	DRWPE DUPLEX RECEPTACLE IN WEATHERPROOF "LOOKING" ENCLOSURE +18" A.F.F. (U.O.N.) (SEE TYPICAL DETAILS ES SERIES SHEETS AND SPECIFICATIONS FOR REQUIRED TYPE).
	DRIG DUPLEX RECEPTACLE (ORANGE) ISOLATED GROUND WALL MOUNTED +18" A.F.F. (U.O.N.) PROVIDE DEDICATED GROUNDING CONDUCTOR FOR EACH CIRCUIT
	DFRIG FOURPLEX RECEPTACLE (ORANGE) ISOLATED GROUND WALL MOUNTED +18" A.F.F. (U.O.N.) PROVIDE DEDICATED GROUNDING CONDUCTOR FOR EACH CIRCUIT
	DRSTP DUPLEX RECEPTACLE SAFETY TYPE / TAMPER PROOF, WALL MOUNTED +18" A.F.F. (U.O.N.)
	DRCP DUPLEX COMPUTER RECEPTACLE (GREY), WALL MOUNTED +18" A.F.F. (U.O.N.)
	DRCPB DUPLEX COMPUTER RECEPTACLE (BLUE) ISOLATED GROUND, SURGE SUPPRESSION, WALL MOUNTED +18" A.F.F. (U.O.N.)
	DR30 SINGLE RECEPTACLE 30 AMP, 250V, 4W, GROUNDING, WALL MOUNTED +18" A.F.F. (U.O.N.) FIELD VERIFY EXACT OUTLET CONFIGURATION WITH EQUIPMENT PRIOR TO ROUGH-IN.
	DRFP DUPLEX RECEPTACLE, WALL MOUNTED ADJACENT TO FLAT PANEL OUTLET, SEE SIGNAL PLAN FOR EXACT LOCATION.
	JB FLOOR MOUNTED JUNCTION BOX
	JBH CEILING OR WALL MOUNTED JUNCTION BOX
	HDH HAND DRYER CONNECTION, SEE ARCHITECTURAL FOR MOUNTING HEIGHT.
	DS FUSED DISCONNECT SWITCH, WHERE SHOWN NF = NON-FUSED.
	MS MANUAL MOTOR STARTER +48" A.F.F. OR ON EQUIPMENT (U.O.N.)
	M MOTOR CONNECTION, NUMERAL INDICATES HORSEPOWER.
	ME MECHANICAL EQUIPMENT TAG (SEE MECHANICAL DRAWINGS FOR DESCRIPTION)

	CCW CONDUIT AND WIRE, CONCEALED IN CEILING OR WALL
	CCWF CONDUIT AND WIRE, CONCEALED IN OR UNDER FINISHED FLOOR OR UNDER FINISHED GRADE.
	FCF FLEXIBLE CONDUIT CONNECTION
	BR12 BRANCH CIRCUIT HOMERUN TO PANEL, SLASHES INDICATE NUMBER OF CONDUCTORS, EQUIPMENT GROUND WIRE NOT INDICATED U.O.N. #12 CONDUCTORS ARE MINIMUM, NO HASH MARKS = MIN (2) #12
	BR3/4 3/4" CONDUIT STUBBED FROM DEVICE TO ABOVE ACCESSIBLE CEILING
	BR#0 BRANCH CIRCUIT HOMERUN, NUMBER INDICATES INCREASED CONDUCTOR SIZE, CONDUCTORS SHALL REMAIN AS INDICATED FOR SIZE THROUGHOUT THE ENTIRE CIRCUIT.
	PBS PANELBOARD, SURFACE MOUNTED.
	PBR PANELBOARD, RECESSED
	STP STEP-DOWN TRANSFORMER
	DSB DISTRIBUTION SWITCHBOARD



GENERAL PROJECT NOTES:

- UNLESS WHERE OTHERWISE NOTED, ALL WORK INDICATED ON THESE DRAWINGS SHALL BE CONSIDERED NEW WORK.
- UNLESS WHERE OTHERWISE NOTED, ALL DIMENSIONS ARE TO BE CENTERLINE OF THE DEVICE.
- "GENERAL NOTES" SHOWN ON AN INDIVIDUAL DRAWING APPLY TO ALL WORK SHOWN ON THAT SHEET. "KEY NOTES" ONLY APPLY TO SPECIFIC ITEMS WHERE ANNOTATED AT SPECIFIC LOCATIONS. SOME KEY NOTES MAY NOT APPLY TO ANY SPECIFIC ITEMS.
- UNLESS SPECIFICALLY SHOWN ON THESE PLANS, NO STRUCTURAL MEMBER SHALL BE CUT, NEITHER DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT.

GENERAL DEMOLITION NOTES:

- ALL ELECTRICAL EQUIPMENT, EXPOSED RACEWAY AND CONDUIT, OUTLET BOXES AND RINGS, AND DEVICES ARE TO BE REMOVED, EXCEPT WHERE SHOWN TO REMAIN. EXISTING WIRING, WHETHER EXPOSED, IN CONDUIT OR RACEWAY IS TO BE REMOVED TO THE GREATEST EXTENT POSSIBLE.
- THE ELECTRICAL CONTRACTOR IS TO DIRECT THE REMOVAL OF THE ABOVE LISTED WORK

MEP COMPONENT ANCHORAGE NOTE:

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA- APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30.

- ALL PERMANENT EQUIPMENT AND COMPONENTS.
- TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. PERMANENTLY ATTACHED SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
- TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

- COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
- COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

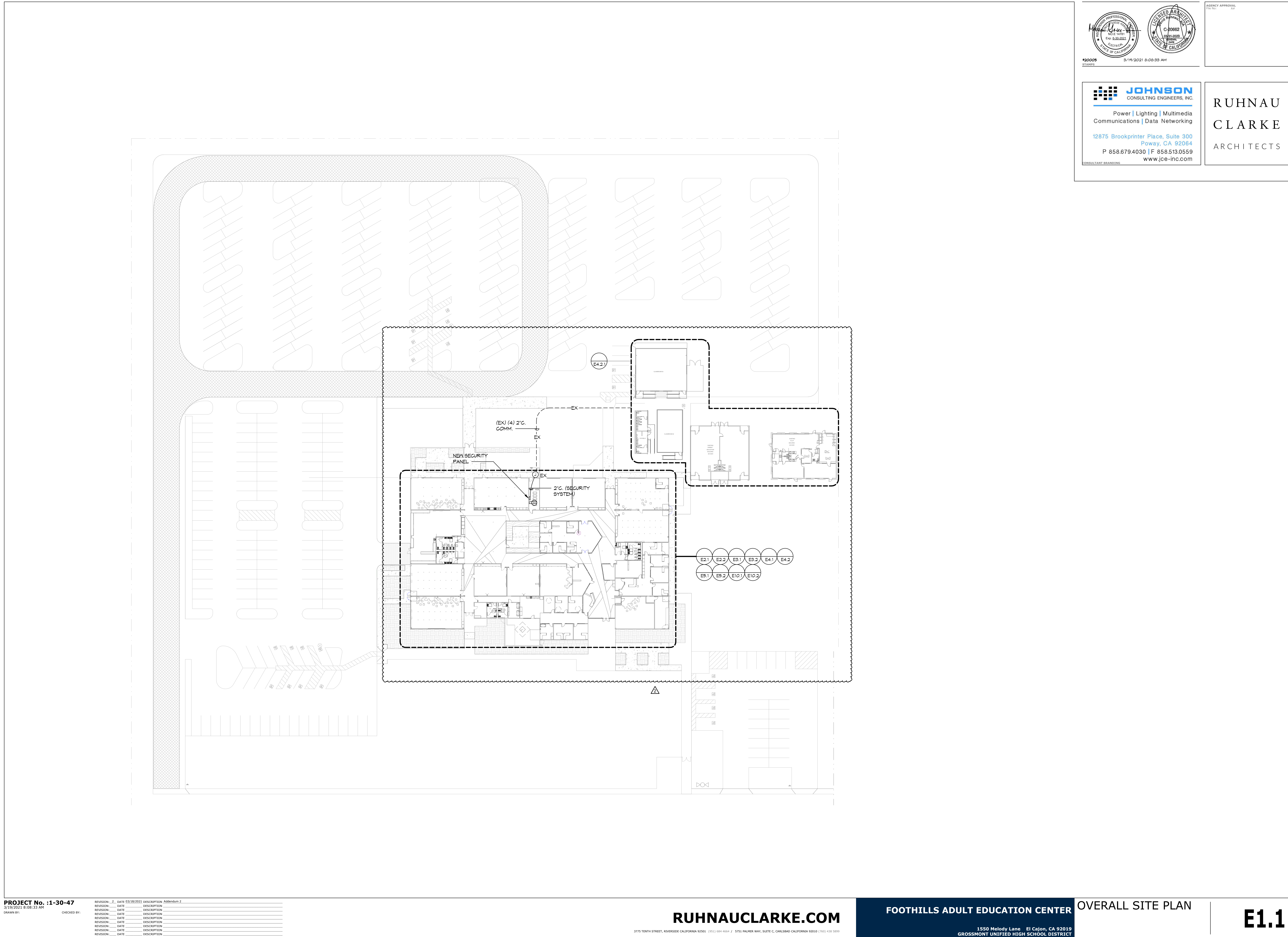
THE METHOD OF SHOWING BRACINGS AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR 2019 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACINGS OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS. MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E).

MP MD PP E - OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP MD PP E - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM) #

FIRE RATED ASSEMBLIES NOTE:

- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DESCRIPTION AND DETAIL OF ALL FIRE RATED ASSEMBLIES.





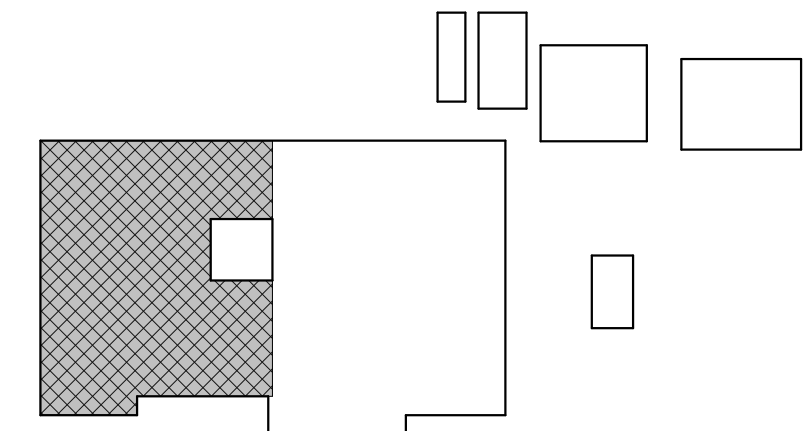
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**RUHNAU
CLARKE**
ARCHITECTS

- GENERAL NOTES:**
- REFERENCE ARCHITECTURAL INTERIOR ELEVATIONS FOR EXACT LOCATION OF ALL WALL MOUNTED POWER DEVICES WHERE INDICATED AT MOUNTING HEIGHTS OTHER THAN 48".
 - REFERENCE E3 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
 - NUMBERS ADJACENT TO EACH POWER DEVICE INDICATES THE CIRCUIT NUMBER TO WHICH THE DEVICE IS TO BE CONNECTED.
 - CIRCUIT HOMERUNS ARE INDICATED TO SHOW THE LOCATION AND NUMBER OF CIRCUITS TO BE GROUPED TOGETHER.
 - PROVIDE MINIMUM 3/4" CONDUIT AND #12 CIRCUIT CONDUCTORS AS REQUIRED TO CONNECT EACH POWER DEVICE TO THEIR INDICATED CIRCUIT (U.O.N.).
 - FIELD VERIFY EXACT ROUTING LOCATION FOR CONCEALED CONDUITS AND RECEPTACLES PRIOR TO ROUGH-IN.

- KEY NOTES:**
- FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
 - 2 #12 (HOT), 1 #10 (NEUTRAL), 1 #12 (GND), 3/4" C.
 - 3 #12 (HOT), 1 #10 (NEUTRAL), 1 #12 (GND), 3/4" C.
 - 4 #12 (HOT), 2 #10 (NEUTRAL), 1 #12 (GND), 3/4" C.
 - NEW RECEPTABLE IN EXISTING LOCATION. EXTEND EXISTING CONDUIT AND CONDUCTORS FROM CEILING SPACE TO THE RECEPTABLE AS REQUIRED.
 - PROVIDE (6) 20A/1P BREAKERS IN EXISTING SPACE #33, #35, #37, #39, #34 AND #36. PATCH, REPAIR AND REPAINT THE WALL TO MATCH EXISTING.
 - PROVIDE (4) 20A/1P BREAKERS IN EXISTING SPACE #39, 40, 41 AND 42.
 - UNIT LOCATED OUTDOOR. SEE MECHANICAL DRAWINGS FOR EXACT LOCATION.
 - 30A/3P/3R DISCONNECT SWITCH WITH 30A FUSES. FIELD VERIFY EXACT LOCATION AND COORDINATE WITH HVAC CONTRACTOR.
 - 1-1/4" C. 3 # 4, 1 #8 GND.
 - PROVIDE (1) 60A/2P BREAKERS IN EXISTING SPACES TO FEED CU-1 AND CU-2 ON ROOF. PROVIDE (1) 20A/2P BREAKER TO FEED FC-1 AND FC-2.
 - EXTEND POWER CONNECTION FROM CEILING PROJECTOR CIRCUIT TO NEW RECEPTABLE AS REQUIRED. FIELD VERIFY EXISTING PROJECTOR POWER CIRCUIT LOCATION.



KEY PLAN

FLOOR PLAN_NEW A -
POWER

E3.1

PROJECT No. :1-30-47	
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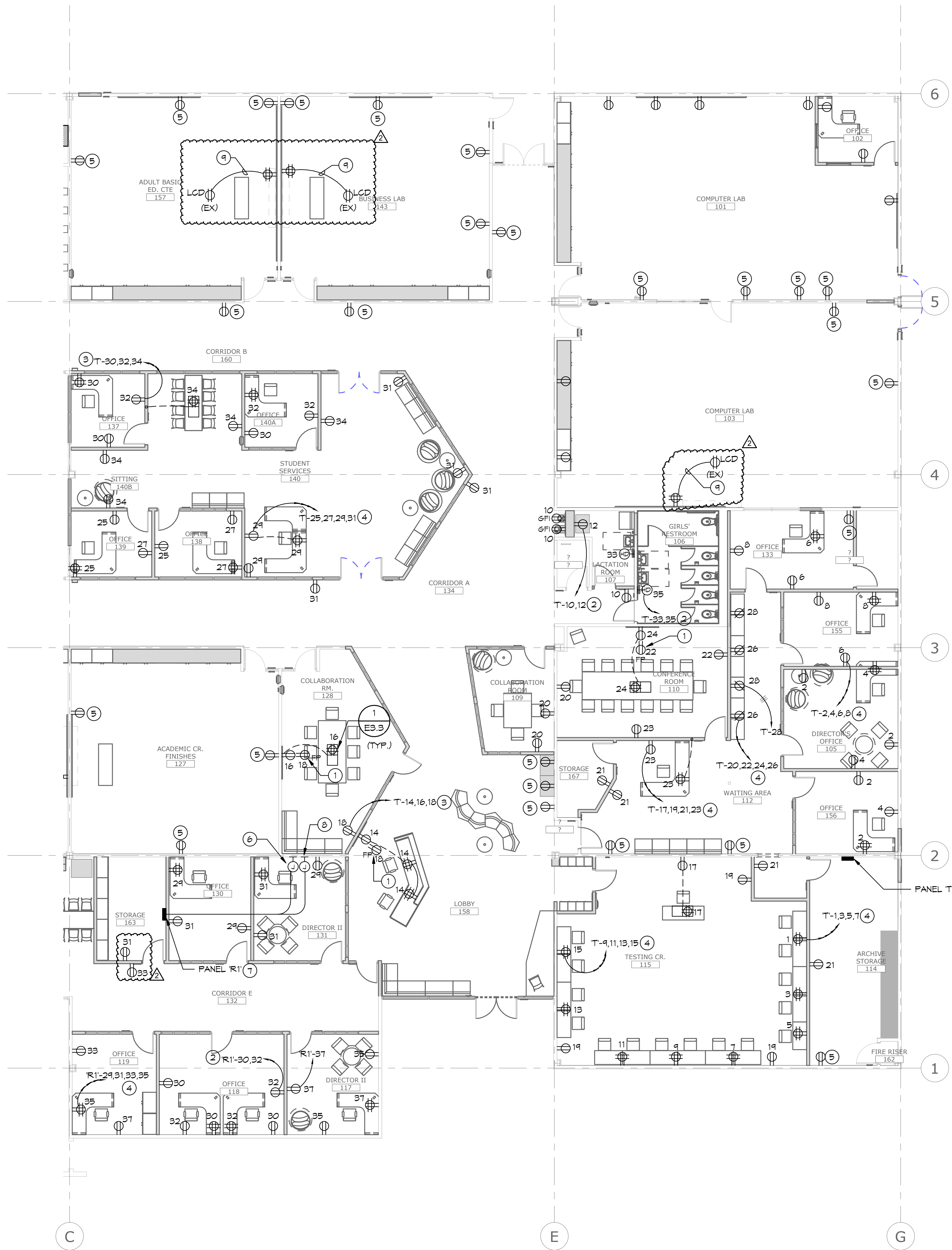


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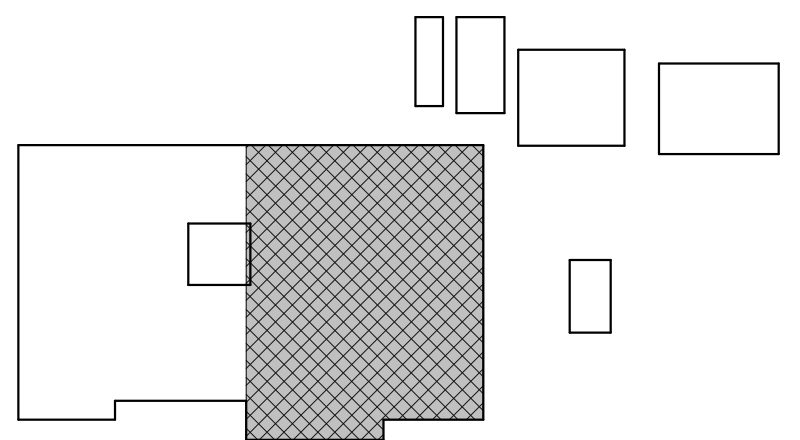
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- GENERAL NOTES:**
- REFERENCE ARCHITECTURAL INTERIOR ELEVATIONS FOR EXACT LOCATION OF ALL WALL MOUNTED POWER DEVICES WHERE INDICATED AT MOUNTING HEIGHTS OTHER THAN 48".
 - REFERENCE E3 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
 - NUMBERS ADJACENT TO EACH POWER DEVICE INDICATES THE CIRCUIT NUMBER TO WHICH THE DEVICE IS TO BE CONNECTED.
 - CIRCUIT HOMERUNS ARE INDICATED TO SHOW THE LOCATION AND NUMBER OF CIRCUITS TO BE GROUPED TOGETHER.
 - PROVIDE MINIMUM 3/4" CONDUIT AND #12 CIRCUIT CONDUCTORS AS REQUIRED TO CONNECT EACH POWER DEVICE TO THEIR INDICATED CIRCUIT (U.O.N.).
 - FIELD VERIFY EXACT ROUTING LOCATION FOR CONCEALED CONDUITS AND RECEPTACLES PRIOR TO ROUGH-IN.

- KEY NOTES:**
- FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
 - 2 #12 (HOT), 1 #10 (NEUTRAL), 1 #12 (GND), 3/4" C.
 - 3 #12 (HOT), 1 #10 (NEUTRAL), 1 #12 (GND), 3/4" C.
 - 4 #12 (HOT), 2 #10 (NEUTRAL), 1 #12 (GND), 3/4" C.
 - NEW RECEPTABLE IN EXISTING LOCATION. EXTEND EXISTING CONDUIT AND CONDUCTORS FROM CEILING SPACE TO THE RECEPTACLE AS REQUIRED.
 - INTERCEPT EXISTING 2" C, 4 # 1, 1 #6 GND. (FROM MAIN SWITCHBOARD MSB) ABOVE CEILING AND EXTEND TO PANEL R1 AS REQUIRED. FIELD VERIFY EXACT LOCATION OF INTERCEPTION.
 - EXISTING PANEL R1 INSTALLED IN NEW LOCATION. PROVIDE (24) 20A/1P BREAKERS IN EXISTING SPACES.
 - INTERCEPT TOTAL OF (24) EXISTING BRANCH CIRCUITS SERVING AUDIO VISUAL EQUIPMENT THROUGHOUT THE BUILDING ABOVE CEILING AND EXTEND TO NEW PANEL R1 LOCATION. FIELD VERIFY EXACT LOCATION OF INTERCEPTION. RECONNECT ALL CONDUCTORS TO ASSOCIATED BREAKERS AS REREQUIRED. MATCH BREAKER AND TAG CONDUCTORS CONDUCTORS PER EXISTING PANEL SCHEDULE.
 - EXTEND POWER CONNECTION FROM CEILING PROJECTOR CIRCUIT TO NEW RECEPTACLE AS REQUIRED. FIELD VERIFY EXISTING PROJECTOR POWER CIRCUIT LOCATION.



KEY PLAN

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**FLOOR PLAN_NEW B -
POWER**

E3.2

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BACKBOX AND RING LEGEND	
TYPE	DESCRIPTION
B1'	4 11/16" square 2 1/8" deep box with single gang ring.
B2'	4 11/16" square 2 1/8" deep box with dual gang ring.
B3'	4" square 1 1/2" deep box with single gang ring.
B4'	Single gang box, 2 1/8" deep.
B5'	4-11/16" Square 3" deep box with dual gang ring.
B6'	SURFACE MOUNT QUICK PORT BOX

C1'	Provided by 27 10 00 contractor.
C3'	Provided by 27 20 00 contractor.

FACEPLATE LEGEND	
TYPE	DESCRIPTION
AR'	As required to accommodate the number of ports designated.
BP'	Blank faceplate.

C1'	Provided by 27 10 00 contractor.
C3'	Provided by 27 20 00 contractor.

CONDUIT / RACEWAY LEGEND	
TYPE	DESCRIPTION
3/4-S'	3/4" conduit stubbed from box into accessible ceiling space, unless detailed otherwise on drawings.
1-S'	1" conduit stubbed from box into accessible ceiling space, unless detailed otherwise on drawings.
1 1/4-S'	1 1/4" conduit stubbed from box into accessible ceiling space, unless detailed otherwise on drawings.

TECHNOLOGY SYMBOL LEGEND				
SYMBOL	DESCRIPTION	BACKBOX & RING	FACE PLATE	CONDUIT / RACEWAY
	Single port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Single port data outlet for classroom style wall phone, +48" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Dual port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Triple port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Quad port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Six port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1 1/4-S'
	Seven port data outlet in Audio-Visual Enclosure	N/A	Type 'AR'	N/A
	Stand Alone Local Origination Input Wall Plate Location @ +18" AFF (U.O.N.)	Type B5'	Type 'C3'	Type '1 1/4-S'
	Local origination with dual port data (D) and single port voice (V) outlet, +18" A.F.F. (U.O.N.)	Type 'B1' (D/V) Type B5' (LO) side by side.	Type 'AR' (D/V) Type 'C3' (LO)	Type '1-S' (D/V) Type '1 1/4-S' (LO)
	Local origination with triple port data (D) and single port voice (V) outlet, +18" A.F.F. (U.O.N.)	Type 'B1' (D/V) Type B5' (LO) side by side.	Type 'AR' (D/V) Type 'C3' (LO)	Type '1-S' (D/V) Type '1 1/4-S' (LO)
	Same device as required on legend, mounted +6" above backsplash (U.O.N.)	Same as required for device indicated on legend.	Same as required for device indicated on legend.	Same as required for device indicated on legend.
	Same device as required on legend, except in floor box.	Floorbox per ES series drawings.	Same as required for device indicated on legend.	Same as required for device indicated on legend.
	Dual port data outlet at wireless access point location mounted in accessible ceiling (U.O.N.)	See detail	Type 'C1'	Not required in accessible ceiling.
	Dual port data outlet at wireless access point wall mounted @+8'-0" AFF (U.O.N.)	See detail	Type 'C1'	Type '3/4-S'
	Flat Panel Location Audio-Visual Connection with Dual Port Data Outlet. Height per details. S = Soundbar. See Specs for information.	Type 'B1' (Data) Type B4' (A/V)	Type 'C1' (Data) Type 'C3' (A/V)	Type '1-S' (Data) Type '1 1/4-S' (A/V)
	Dual port data outlet mounted in ceiling at projector location (U.O.N.)	Type 'B1' Provide Box with Ceiling Grid Hanger	Type 'AR'	Not required in accessible ceiling.

COMMUNICATION / SECURITY SYMBOL LEGEND				
SYMBOL	DESCRIPTION	BACKBOX & RING	FACE PLATE	CONDUIT / RACEWAY
	Direct Phone Trunk outlet, +18" A.F.F. (U.O.N.)	Type 'B3'	Type 'C1'	Type '3/4-S'
	Clock wall mounted at, +8'-0" A.F.F. (U.O.N.). (NS indicates wireguard)	Not required.	Not required.	Not required.
	Security keypad wall mounted at +48" A.F.F. (U.O.N.) Height per detail 1/E1.0	Type 'B2'	Type 'C5'	Type '3/4-S'
	Security motion sensor ceiling mounted.	Type 'B3'	Type 'C5'	Type '3/4-S' Not Required in Accessible Ceiling.
	Security motion sensor wall mounted at 6' below ceiling, or +10'-0" A.F.F. (U.O.N.) whichever is lower.	Type 'B3'	Type 'C5'	Type '3/4-S'
	J-Box for Future Low-Voltage Devices @ +18" AFF (U.O.N.)	Type 'B1'	Blank Plate Color to Match	Type '1-S'
	Conduit sleeve through wall, above accessible ceiling.	Not required.		(1) 3/4" for open low voltage wiring.
	Conduit sleeve through wall, above accessible ceiling.	Not required.		(1) Conduit for open low voltage wiring, size as indicated.
	Conduit sleeve through wall, above accessible ceiling.	Not required.		Multiple Conduits for open low voltage wiring, size and quantity as indicated.
	Conduit stubbed above accessible ceiling.	Not required.	Not required.	1" conduit for open low voltage wiring.
	Conduit stubbed above accessible ceiling.	Not required.	Not required.	(1) conduit for open low voltage wiring, size as indicated.
	Conduit stubbed above accessible ceiling.	Not required.	Not required.	Conduit for open low voltage wiring, size and quantity as indicated.
	Digital clock/speaker combination, provide with one port data outlet, wall mounted at, +8'-0" A.F.F. (U.O.N.).	Type 'C1'	Type 'C1'	Type '3/4-S'
	Existing digital clock/speaker combination removed from wall, stored and re-installed on new wall, provide with one port data outlet, wall mounted at, +8'-0" A.F.F. (U.O.N.).	Type 'C1'	Type 'C1'	Type '3/4-S'

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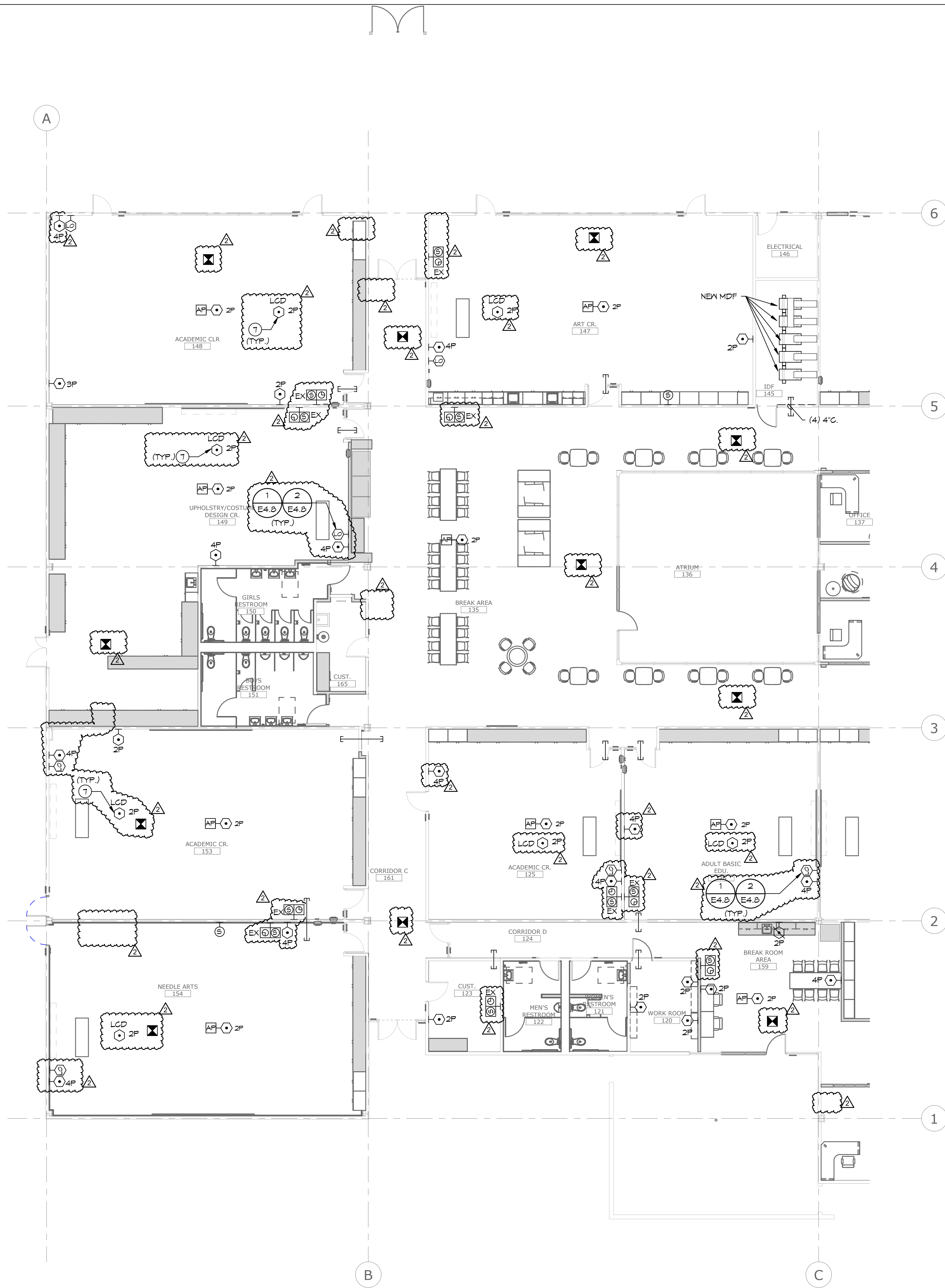
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- GENERAL NOTES:
- ALL CONDUITS WHICH ARE REQUIRED AS A PART OF SYSTEMS SPECIFIED FOR COMMUNICATIONS, TELEPHONE, INTERCOM, CLOCK FIRE ALARM, SECURITY, SOUND SYSTEMS, DATA NETWORKING, OR AUDIO-VISUAL SYSTEMS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
 - THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT REQUIREMENTS WITH EACH SYSTEM SUPPLIER PRIOR TO BID TO DETERMINE SPECIAL CONDUIT SYSTEM REQUIREMENTS.
 - THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT SLEEVES FOR ALL OPEN CABLE INSTALLATIONS THROUGH RATED WALLS, BLOCK WALLS AND WHERE SHOWN ON THE DRAWINGS. PROVIDE CONDUIT FROM EACH BUILDING MAIN TERMINATION CABINET OR BACKBOARD TO THE NEAREST ACCESSIBLE CEILING FOR ACCESS INTO ALL ELECTRICAL OR COMMUNICATIONS ROOMS.
 - ALL CONDUIT, BOXES, AND RINGS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
 - ALL BLANK PLATES SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. (UNLESS OTHERWISE NOTED)
 - ALL CONDUITS SHALL BE FURNISHED WITH PULL STRINGS BY ELECTRICAL CONTRACTOR. COMMUNICATION CONTRACTOR TO PROVIDE POLYARMIUM PULL TAPE WITH NEW CABLES INTO ALL CONDUITS BETWEEN BUILDINGS. SEE SPECIFICATIONS FOR REQUIREMENTS.
 - CONTRACTOR TO REVIEW ARCHITECTURAL CEILING PLANS TO DETERMINE LOCATIONS OF ACCESSIBLE CEILINGS PRIOR TO BID.
 - (271000) NUMBERS INDICATE MATCHING SPECIFICATION SECTION RESPONSIBLE FOR THIS WORK.
 - IN ADDITION TO THE ABOVE REQUIREMENTS, THE FOLLOWING REQUIREMENTS SHALL APPLY TO ALL DATA, VOICE, PAGING, AUDIO-VISUAL, SECURITY AND CLOCK CONDUITS:
 - FLEXIBLE METAL CONDUIT MAY BE USED ONLY WHERE REQUIRED AT BUILDING SEISMIC AND/OR EXPANSION JOINTS.
 - ALL UNDERGROUND CONDUITS SHALL BE PROVIDED WITH MINIMUM 24" RADIUS ELBOWS.
 - NO LENGTH OF CONDUIT SHALL BE INSTALLED TO EXCEED 150 FEET BETWEEN PULL BOXES, OR POINTS OF CONNECTION, UNLESS WHERE SPECIFICALLY DETAILED ON THE DRAWINGS.
 - NO LENGTH OF CONDUIT SHALL BE INSTALLED TO EXCEED TWO 90 DEGREE BENDS BETWEEN PULL BOXES, OR POINTS OF CONNECTION, UNLESS WHERE SPECIFICALLY DETAILED ON THE DRAWINGS.
- KEY NOTES:
- JUNCTION BOXES FOR VOICE/DATA AND AUDIO-VISUAL CONNECTIONS MUST BE SEPARATE. AUDIO-VISUAL JUNCTION BOX OR BOXES SHALL BE FURNISHED AS SHOWN IN THE DRAWING DETAILS. PROVIDE (1) OR (2) TYPE B2 PER DETAILS.
 - DATA CABLING AND FACEPLATE FOR SYMBOL FURNISHED AND INSTALLED BY 271000 CONTRACTOR.
 - FLAT PANEL DETAIL REFERENCED FOR J-BOX HEIGHTS AND LOCATIONS ONLY. DO NOT PROVIDE FLAT PANEL MOUNT.
 - IF ADDRESSABLE SPEAKER BACKBOX AND DEVICE TO BE FURNISHED AND INSTALLED BY 271000 CONTRACTOR.
 - IF ADDRESSABLE SPEAKER OR HORN BACKBOX AND DEVICE TO BE FURNISHED BY 271000 CONTRACTOR. BACKBOX TO BE INSTALLED BY THE DIVISION 26 CONTRACTOR.
 - IF DIGITAL CAMERA LOCATIONS SHALL BE FURNISHED WITH (2) DATA CABLES TERMINATED ON SURFACE MOUNT JACK INSTALLED IN JUNCTION BOX. DATA CONNECTIONS FURNISHED AND INSTALLED BY 271000 CONTRACTOR. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



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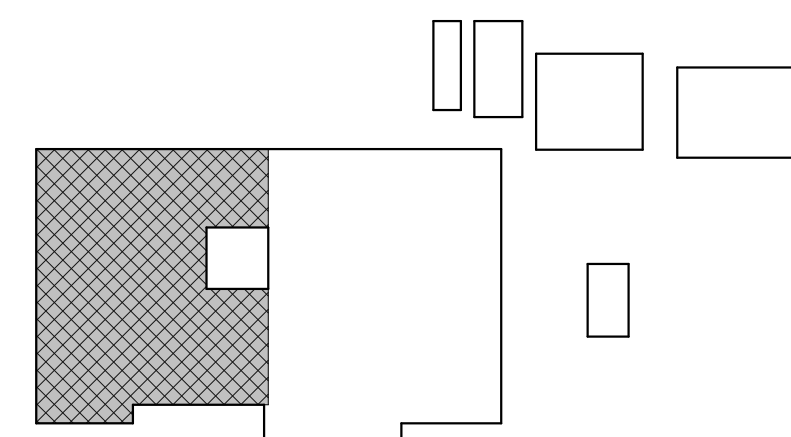
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- GENERAL NOTES:**
- REFERENCE ARCHITECTURAL INTERIOR ELEVATIONS FOR EXACT LOCATION OF ALL WALL MOUNTED DEVICES.
 - REFERENCE E4 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
 - REFERENCE E4 SERIES SHEETS FOR TYPICAL COMMUNICATION SYSTEMS RISER DIAGRAM.
 - REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND ROUTINGS.
 - LOCATION OF PROJECTORS IS DIAGRAMMATICAL. EXACT LOCATION OF PROJECTOR AND PROJECTOR MOUNT IS TO BE COORDINATED WITH LOCATION AND SIZE OF PROJECTOR SCREEN IN EACH ROOM SHOWN WITH AN AUDIO-VISUAL SYSTEM.
 - HEIGHT SHOWN ON DRAWINGS FOR PROJECTOR SCREEN IS TO TOP OF IMAGE ON SCREEN. DO NOT MOUNT CASE AT HEIGHT SHOWN.
 - LOCATIONS OF AUDIO-VISUAL SYSTEMS COMPONENTS MOUNTED IN CEILINGS OR ON WALLS IS DIAGRAMMATICAL. FIELD VERIFY LOCATIONS OF SPEAKERS, IR DEVICES, AV SYSTEMS SWITCH ENCLOSURES AND FLAT PANELS PRIOR TO INSTALLATION.
 - FIELD VERIFY ALL EQUIPMENT AND DEVICES THAT REQUIRE DATA CONNECTION IN THE BUILDING AND ON BUILDING EXTERIOR AND PROVIDE DATA CONNECTION TO THEM VIA THE SHORTEST ROUTE FROM NEX MDF AS REQUIRED.

- KEY NOTES:**
- ① 3/4" C. TO BUILDING COMMUNICATIONS BACKBOARD.
 - ② 1" C. TO BUILDING COMMUNICATIONS BACKBOARD.
 - ③ 1 1/4" C. TO BUILDING COMMUNICATIONS BACKBOARD.
 - ④ 3/4" C. TO BUILDING 'IDF' LOCATION.
 - ⑤ 1" C. TO BUILDING 'IDF' LOCATION.
 - ⑥ 1 1/4" C. TO BUILDING 'IDF' LOCATION.
 - ⑦ FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
 - ⑧ EXISTING SPEAKER INSTALLED IN NEX WALL.



KEY PLAN

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**FLOOR PLAN_NEW A -
COMMUNICATIONS**

E4.1

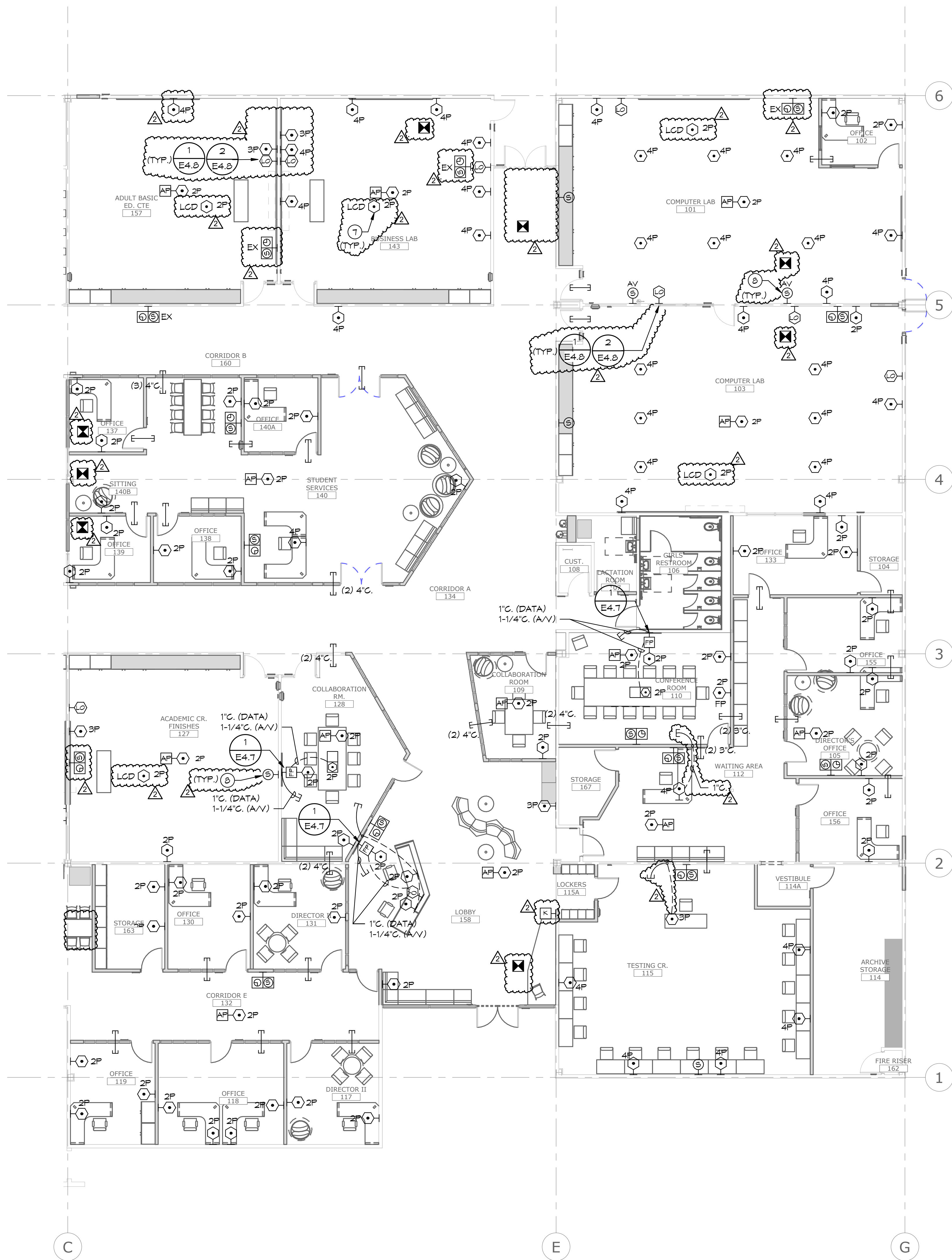
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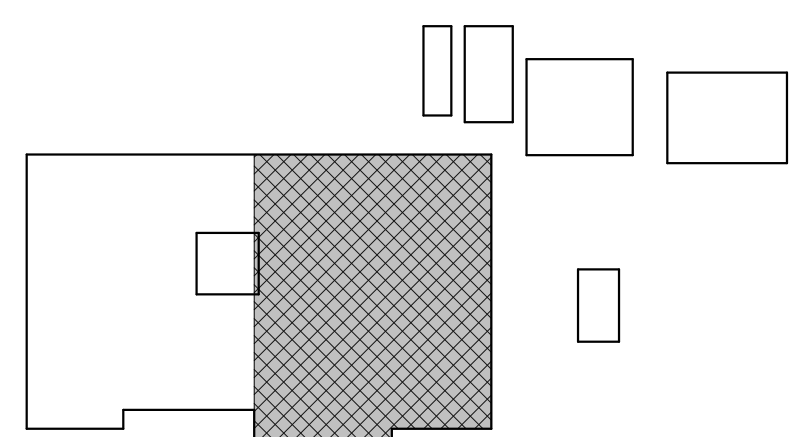
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- GENERAL NOTES:**
- REFERENCE ARCHITECTURAL INTERIOR ELEVATIONS FOR EXACT LOCATION OF ALL WALL MOUNTED DEVICES.
 - REFERENCE E4 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
 - REFERENCE E4 SERIES SHEETS FOR TYPICAL COMMUNICATION SYSTEMS RISER DIAGRAM.
 - REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND ROUTINGS.
 - LOCATION OF PROJECTORS IS DIAGRAMMATICAL. EXACT LOCATION OF PROJECTOR AND PROJECTOR MOUNT IS TO BE COORDINATED WITH LOCATION AND SIZE OF PROJECTOR SCREEN IN EACH ROOM SHOWN WITH AN AUDIO-VISUAL SYSTEM.
 - HEIGHT SHOWN ON DRAWINGS FOR PROJECTOR SCREEN IS TO TOP OF IMAGE ON SCREEN. DO NOT MOUNT CASE AT HEIGHT SHOWN.
 - LOCATIONS OF AUDIO-VISUAL SYSTEMS COMPONENTS MOUNTED IN CEILINGS OR ON WALLS IS DIAGRAMMATICAL. FIELD VERIFY LOCATIONS OF SPEAKERS, IR DEVICES, AV SYSTEMS SWITCH ENCLOSURES AND FLAT PANELS PRIOR TO INSTALLATION.
 - FIELD VERIFY ALL EQUIPMENT AND DEVICES THAT REQUIRE DATA CONNECTION IN THE BUILDING AND ON BUILDING EXTERIOR AND PROVIDE DATA CONNECTION TO THEM VIA THE SHORTEST ROUTE FROM NEAR MDF AS REQUIRED.

- KEY NOTES:**
- 3/4" C. TO BUILDING COMMUNICATIONS BACKBOARD.
 - 1" C. TO BUILDING COMMUNICATIONS BACKBOARD.
 - 1 1/4" C. TO BUILDING COMMUNICATIONS BACKBOARD.
 - 3/4" C. TO BUILDING 'IDF' LOCATION.
 - 1" C. TO BUILDING 'IDF' LOCATION.
 - 1 1/4" C. TO BUILDING 'IDF' LOCATION.
 - FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
 - EXISTING SPEAKER INSTALLED IN NEW WALL.



KEY PLAN

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FLOOR PLAN_NEW B -
COMMUNICATIONS

E4.2



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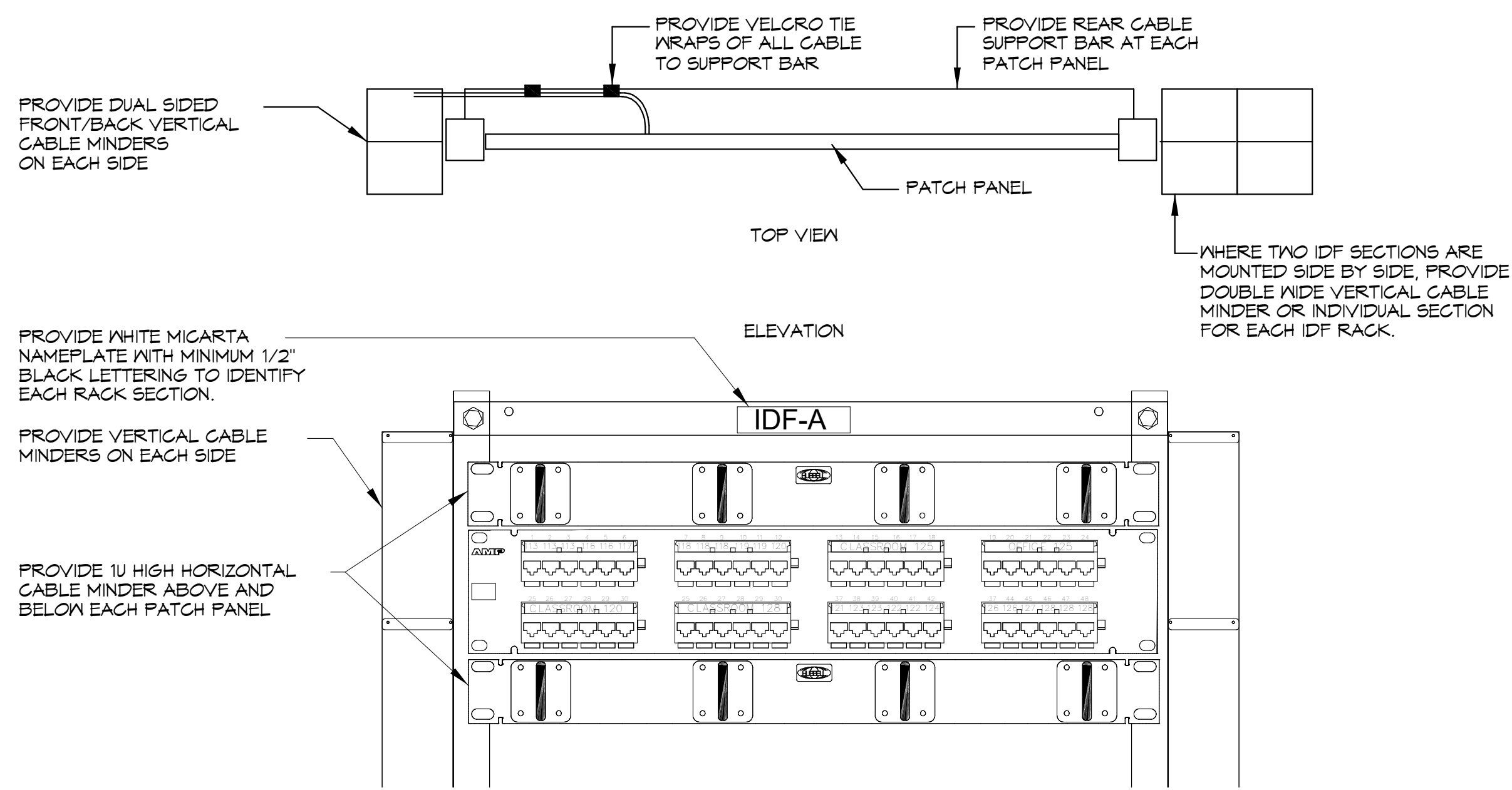
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1. REFERENCE ARCHITECTURAL INTERIOR ELEVATIONS FOR EXACT LOCATION OF ALL WALL MOUNTED DEVICES.
2. REFERENCE E4 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE E4 SERIES SHEETS FOR TYPICAL COMMUNICATION SYSTEMS RISER DIAGRAM.
4. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND ROUTINGS.
5. LOCATION OF PROJECTORS IS DIAGRAMMATICAL. EXACT LOCATION OF PROJECTOR AND PROJECTOR MOUNT IS TO BE COORDINATED WITH LOCATION AND SIZE OF PROJECTOR SCREEN IN EACH ROOM SHOWN WITH AN AUDIO-VISUAL SYSTEM.
6. HEIGHT SHOWN ON DRAWINGS FOR PROJECTOR SCREEN IS TO TOP OF IMAGE ON SCREEN. DO NOT MOUNT CASE AT HEIGHT SHOWN.
7. LOCATIONS OF AUDIO-VISUAL SYSTEMS COMPONENTS MOUNTED IN CEILINGS OR ON WALLS IS DIAGRAMMATICAL. FIELD VERIFY LOCATIONS OF SPEAKERS, IR DEVICES, AV SYSTEMS SWITCH ENCLOSURES AND FLAT PANELS PRIOR TO INSTALLATION.
8. FIELD VERIFY ALL EQUIPMENT AND DEVICES THAT REQUIRE DATA CONNECTION IN THE BUILDING AND ON BUILDING EXTERIORS AND PROVIDE DATA CONNECTION TO THEM VIA THE SHORTEST ROUTE FROM NEXT MDF AS REQUIRED.

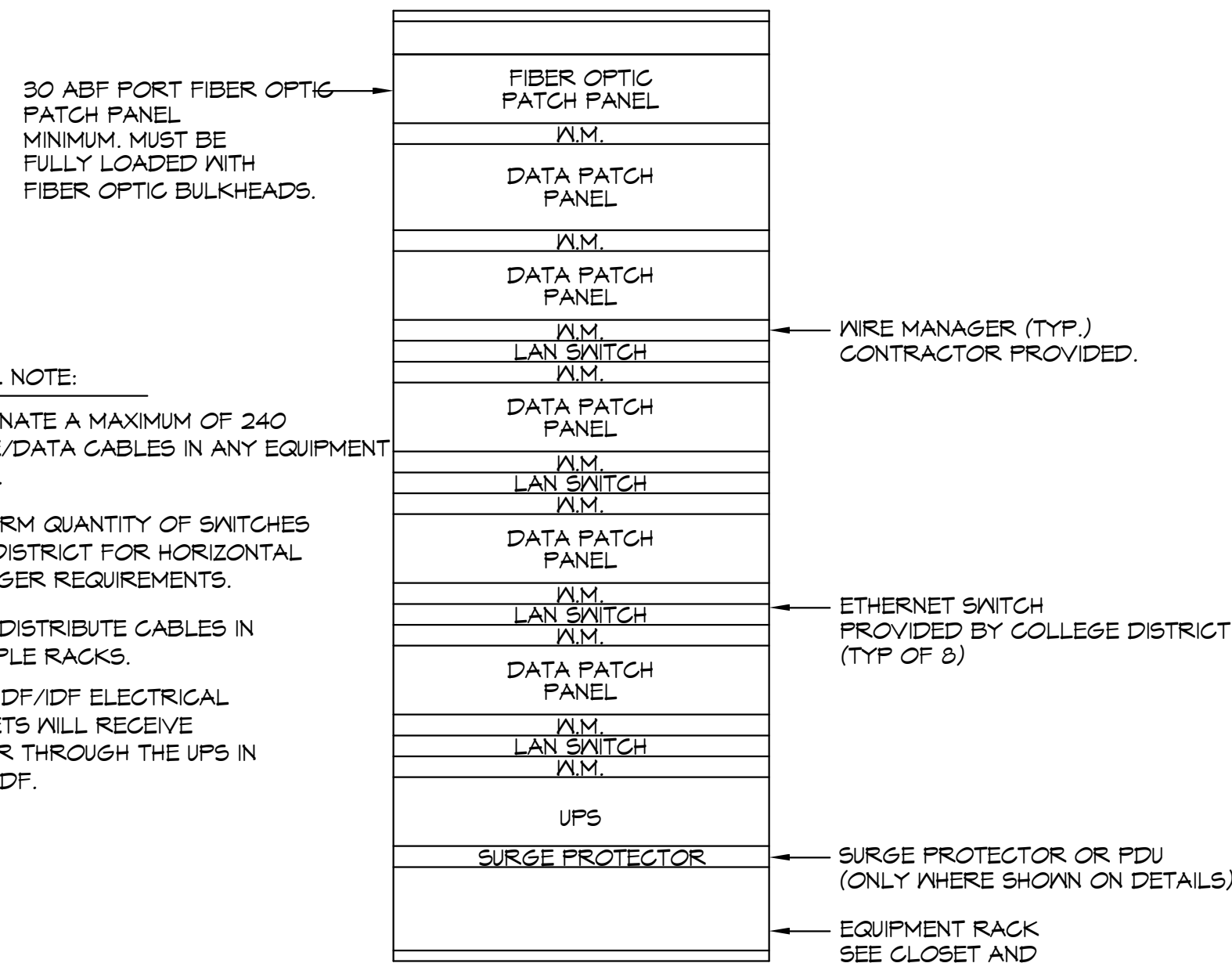
KEY NOTES:

- ① EXISTING SECURITY SYSTEM DEVICES AND ALL ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED BACK TO MDF ROOM. DEVICES SHOWN ON THIS FLOOR PLAN ARE NEW. EXISTING BACKBOX AND CONDUITS MAY BE RE-USED FOR NEW DEVICES AS REQUIRED.



TYPICAL IDF/MDF LABELING AND CABLE SUPPORT DETAIL
NO SCALE

1
E4.4

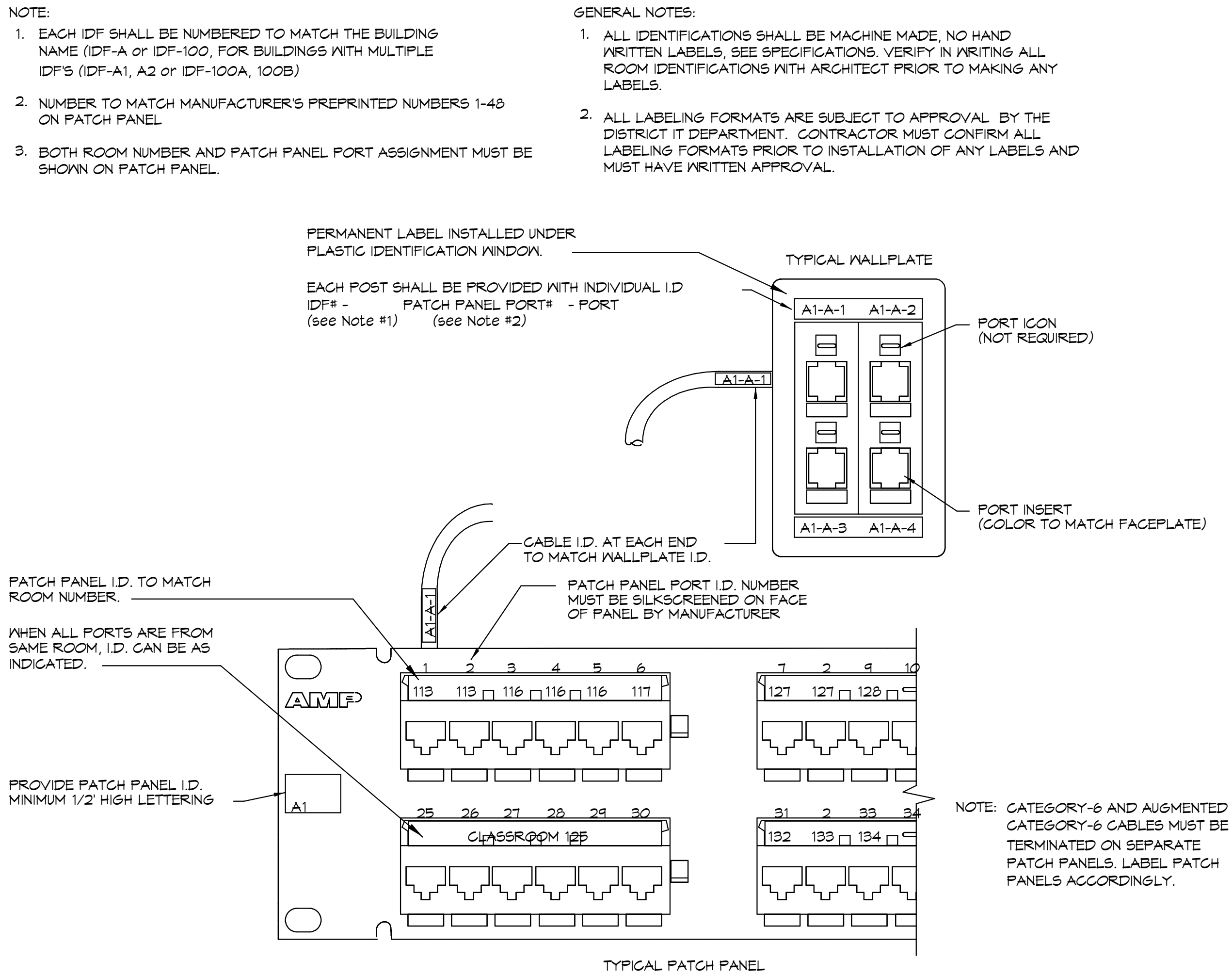


GENERAL NOTE:

1. TERMINATE A MAXIMUM OF 240 VOICE/DATA CABLES IN ANY EQUIPMENT RACK.
2. CONFIRM QUANTITY OF SWITCHES WITH DISTRICT FOR HORIZONTAL MANAGER REQUIREMENTS.
3. EVEN DISTRIBUTE CABLES IN MULTIPLE RACKS.
4. ALL MDF/IDF ELECTRICAL OUTLETS WILL RECEIVE POWER THROUGH THE UPS IN THE MDF.

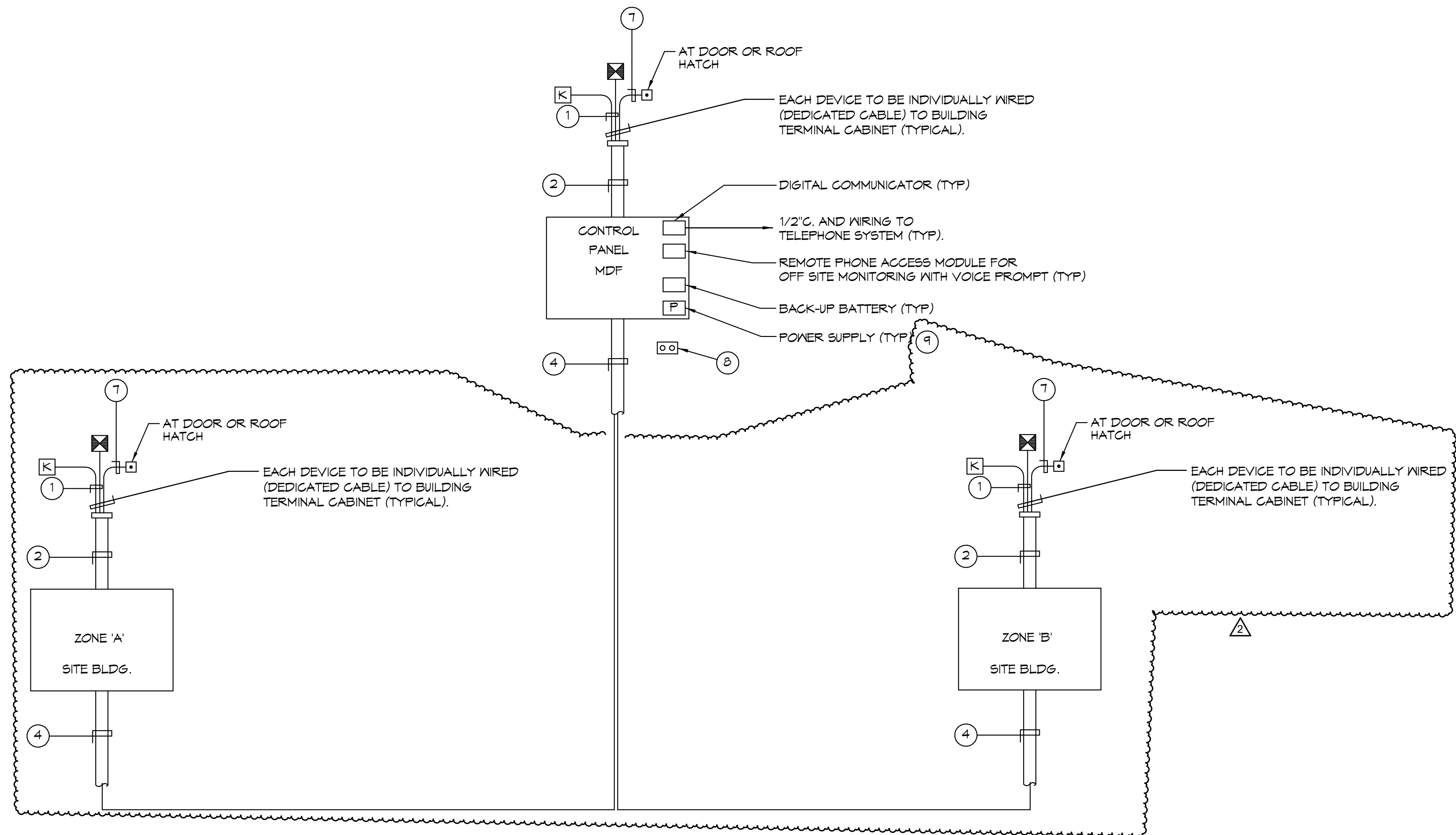
MAXIMUM EQUIPMENT RACK POPULATION DETAIL
NO SCALE

2
E4.4



TYPICAL DATA NETWORKING LABELING REQUIREMENT
NO SCALE

3
E4.4



GENERAL NOTES:

1. ALL CONDUITS, POWER OUTLETS AND GROUNDING CONNECTIONS, BACKBOARDS AND REMOTE BUILDING COMMUNICATIONS CABINETS TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
2. REFERENCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, AND FLOOR PLANS FOR ADDITIONAL EQUIPMENT ITEMS REQUIRED, AND THEIR LOCATIONS.
3. WHERE OPEN CONDUCTORS ARE INSTALLED ABOVE ACCESSIBLE CEILINGS, ALL CONDUCTORS SHALL BE NEATLY BUNDLED TOGETHER AND SUPPORTED FROM ROOF STRUCTURE. WHERE BUNDLED WITH OTHER COMMUNICATION SYSTEMS, IDENTIFYING TAGS SHALL BE PROVIDED TO IDENTIFY THESE CONDUCTORS FROM OTHER SYSTEMS.
4. PROVIDE I.D. LABEL ON EACH END OF EACH CABLE.
5. ALL SECURITY CABLING MUST BE SUPPORTED FROM THE STRUCTURE THE SAME AS REQUIRED FOR VOICE/DATA CABLING. SEE DETAIL FOR REQUIREMENTS.

KEY NOTES:

1. WIRING AS REQUIRED BY MANUFACTURER.
2. PROVIDE MINIMUM (3) 2\"/>

TYPICAL SECURITY/INTRUSION DETECTION SYSTEM DIAGRAM
NO SCALE

4
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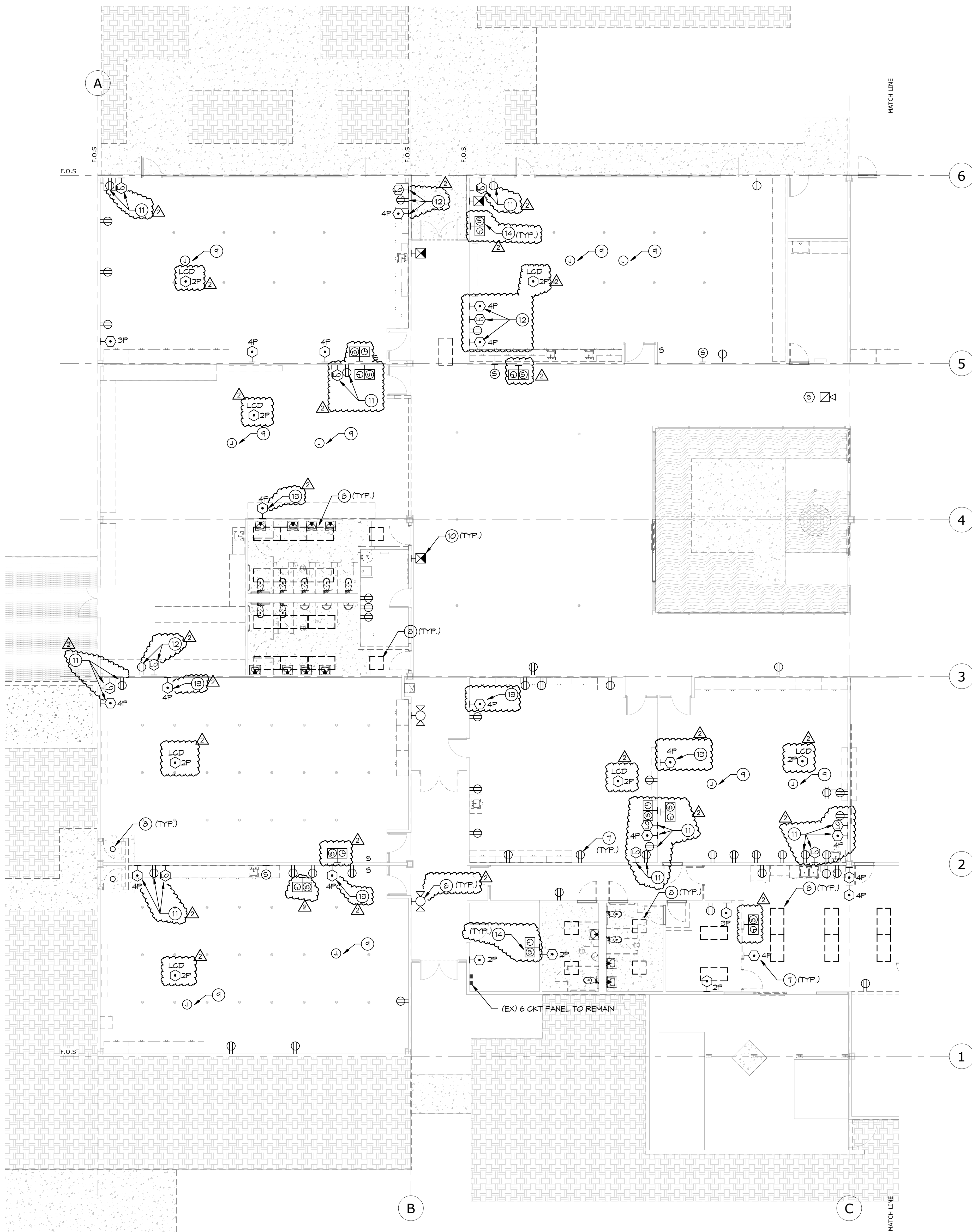
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**COMMUNICATIONS
DETAILS**

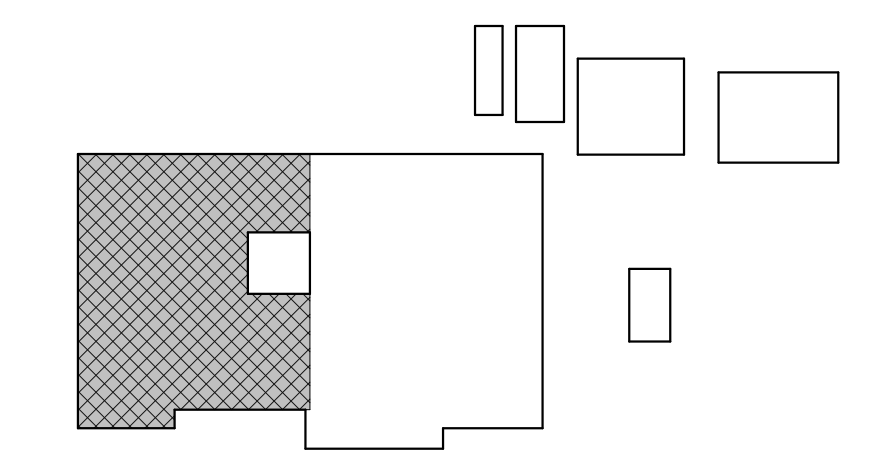
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- KEY NOTES:**
- EXISTING VCR, VCR OUTLET, AUDIO-VISUAL INPUT PLATES, 4-PORT DATA OUTLET, SURFACE RACEWAYS AND ALL ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED. EXISTING POWER OUTLETS IN SURFACE RACEWAY SHALL BE DISCONNECTED AND REMOVED. FIELD VERIFY EXACT LOCATION, EXISTING POWER CIRCUIT SHALL BE SAFE-OFF AND PROTECTED IN PLACE. PULL BACK EXISTING POWER CONDUCTORS BACK TO CEILING SPACE AND EXTEND TO NEW POWER OUTLET RECESSED IN NEW WALL AS REQUIRED. SEE E3 SHEET FLOOR PLAN FOR NEW POWER OUTLET LOCATION AND CIRCUIT DESIGNATION.
 - EXISTING AUDIO-VISUAL INPUT PLATES, 4-PORT DATA OUTLET, SURFACE RACEWAYS AND ALL ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED. FIELD VERIFY EXACT LOCATION. EXISTING POWER OUTLETS IN SURFACE RACEWAY SHALL BE DISCONNECTED AND REMOVED. FIELD VERIFY EXACT LOCATION. EXISTING POWER CIRCUIT SHALL BE SAFE-OFF AND PROTECTED IN PLACE. PULL BACK EXISTING POWER CONDUCTORS BACK TO CEILING SPACE AND EXTEND TO NEW POWER OUTLET RECESSED IN NEW WALL AS REQUIRED. SEE E3 SHEET FLOOR PLAN FOR NEW POWER OUTLET LOCATION AND CIRCUIT DESIGNATION.
 - EXISTING AUDIO-VISUAL INPUT PLATES, 4-PORT DATA OUTLET, SURFACE RACEWAYS AND ALL ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED. FIELD VERIFY EXACT LOCATION.
 - EXISTING DIGITAL SPEAKER/CLOCK COMBINATION TO BE DISCONNECTED, REMOVED AND PROTECTED IN PLACE. RE-INSTALL IN NEW LOCATION SHOWN ON E4 SHEETS AS REQUIRED.

- DEMOLITION GENERAL NOTES:**
- ALL ITEMS SHOWN ON THIS DRAWING ARE EXISTING TO BE REMOVED UNLESS OTHERWISE NOTED. SEE REQUIREMENTS BELOW FOR SCOPE OF WORK. ALL OTHER ELECTRICAL ITEMS IN THIS BUILDING ARE EXISTING TO REMAIN, MAINTAIN POWER CIRCUIT CONTINUITY UNTIL NEW SOURCE IS ENERGIZED AND READY FOR TRANSFER, REFER TO POWER AND LIGHTING PLANS.
 - ALL ELECTRICAL DEMOLITION WORK SHALL BE DIRECTED BY THE ELECTRICAL CONTRACTOR.
- GENERAL DEMOLITION REQUIREMENTS:**
- LIGHTING FIXTURES**
WHERE EXISTING LIGHTING FIXTURES ARE TO BE REMOVED, AND ARE NOT RELOCATED, CONTRACTOR SHALL DISPOSE OF ALL FIXTURES INCLUDING LAMPS AND BALLAST.
 - WIRING DEVICES**
WHERE EXISTING SWITCHES OR RECEPTACLES ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL DEVICES AS REQUIRED.
 - COMMUNICATION DEVICES**
WHERE EXISTING TELEPHONE/INTERCOM AND CLOTH HEAD END EQUIPMENT, PHONES, SPEAKERS AND OTHER ASSOCIATED EQUIPMENT ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL DEVICES AND EQUIPMENT AS REQUIRED.
 - FIRE ALARM**
WHERE EXISTING FIRE ALARM PANELS AND ASSOCIATED SMOKE, HEAT, DUCT DETECTORS, FULL STATIONS AND STROBE OR HORN UNITS ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL DEVICES AND EQUIPMENT AS REQUIRED.
 - INTRUSION ALARM**
EXISTING INTRUSION ALARM SENSORS AND EQUIPMENT SHALL BE REMOVED WHERE INDICATED. RETURN ALL DEVICES TO THE SCHOOL DISTRICT MAINTENANCE FACILITIES.
 - POWER EQUIPMENT**
WHERE EXISTING SWITCHBOARDS, PANELBOARDS, LOAD CENTERS, TRANSFORMERS, DISCONNECT SWITCHES OR OTHER DISTRIBUTION EQUIPMENT ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL DEVICES AND EQUIPMENT AS REQUIRED.
 - ALL BOXES, EXPOSED CONDUIT, WIRE, AND OTHER ITEMS ASSOCIATED WITH ELECTRICAL EQUIPMENT TO BE REMOVED, SHALL BE DISCONNECTED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AS REQUIRED. UNLESS SPECIFICALLY NOTED OTHERWISE, CUT AND GAP CONCEALED CONDUITS, PATCH, SEAL AND REPAIR SURFACE TO MATCH ADJACENT AREA WHERE BOXES ARE REMOVED.

- KEY NOTES:**
- EXISTING ELECTRICAL DEVICE OR EQUIPMENT TO REMAIN.
 - ALL DEVICES AND EQUIPMENT IN THIS ROOM ARE EXISTING TO REMAIN.
 - ALL DEVICES AND EQUIPMENT THIS WALL ARE EXISTING TO REMAIN.
 - EXISTING LIGHT FIXTURE TO REMAIN.
 - ALL LIGHT FIXTURES IN THIS ROOM ARE EXISTING TO REMAIN.
 - EQUIPMENT OR DEVICE TO BE REMOVED, PROTECTED AND RE-INSTALLED AT CONCLUSION OF WORK.
 - EXISTING OUTLET INCLUDING BACKBOX AND SURFACE RACEWAY TO BE DISCONNECTED, AND REMOVED. PROVIDE NEW BACKBOXES, FACEPLATES AND RECESS OUTLETS IN NEW DRYWALLS AS REQUIRED. EXTEND CONDUIT AND WIRING FROM CEILING SPACE TO NEW POWER OUTLETS AS REQUIRED. PROVIDE NEW DATA CABLING FROM NEW IDF TO EACH DATA OUTLET. SEE E3 AND E4 SHEETS FOR OUTLET LOCATIONS.
 - EXISTING LIGHT FIXTURES AND ASSOCIATED WALL SWITCHES TO BE DISCONNECTED AND REMOVED. EXISTING CIRCUIT AND POWER CONNECTION SHALL BE SAFE-OFF AND PROTECTED IN PLACE. EXTEND EXISTING CIRCUIT TO NEW LIGHTING FIXTURES ON E2 SHEETS AS REQUIRED (TYP.).
 - EXISTING CEILING FANS AND ASSOCIATED WALL SWITCHES SHALL BE DISCONNECTED AND REMOVED. DISCONNECT AND REMOVE EXISTING CIRCUIT BACK TO SOURCE. EXISTING CONDUCTOR SHALL BE REMOVED. FIELD VERIFY EXACT LOCATION OF EXISTING PANEL FEEDING THE CEILING FAN PRIOR TO DISCONNECTING AND REMOVING THE FAN.
 - SECURITY SYSTEM DEVICES AND ALL ASSOCIATED BOX, PANELS AND WIRING SHALL BE DISCONNECTED AND REMOVED.



KEY PLAN

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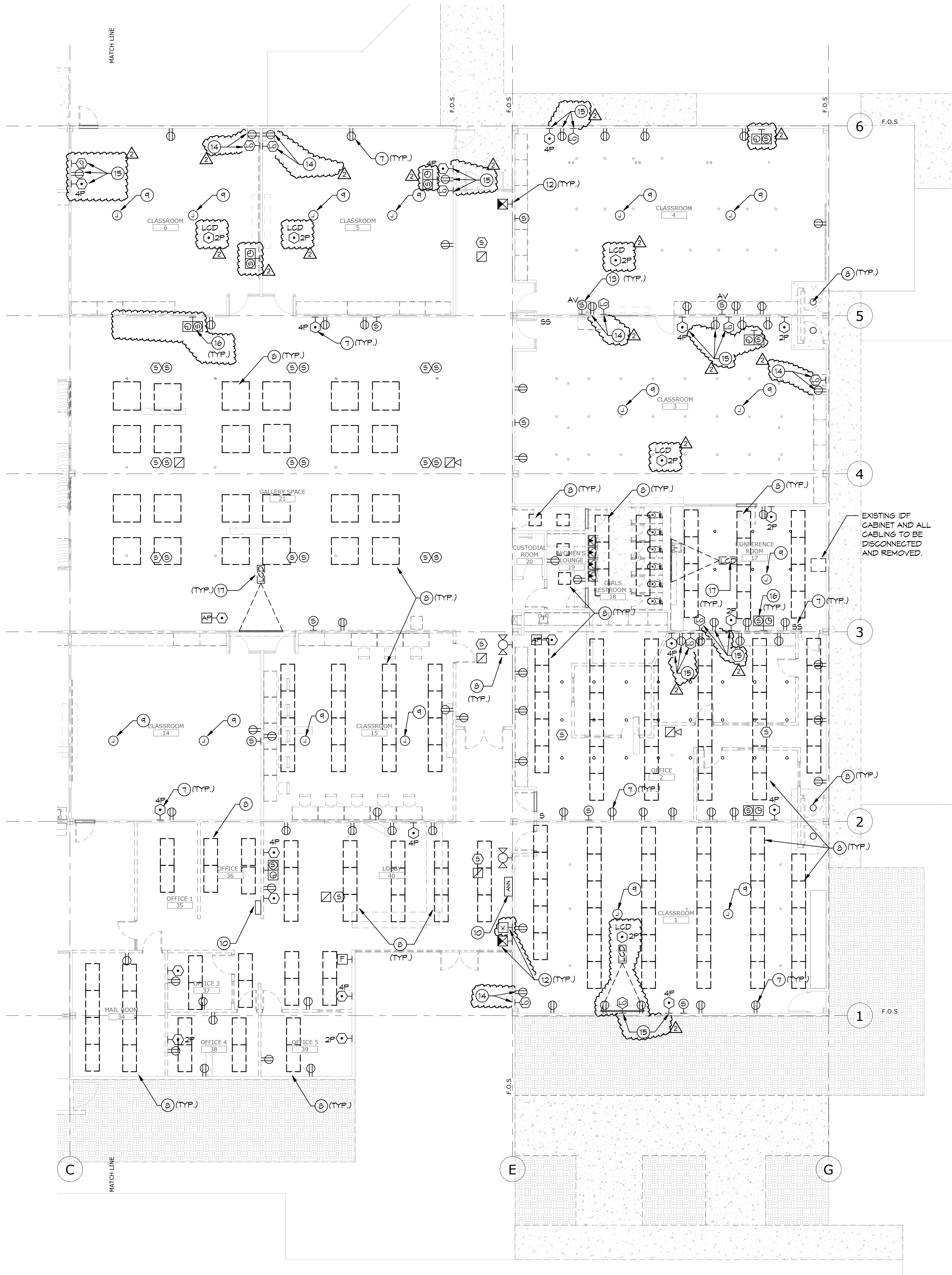
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KEY NOTES (CONTINUED):

- 15 EXISTING WALL SPEAKER TO BE DISCONNECTED, REMOVED, AND PROTECTED IN PLACE. RE-INSTALL IN NEW DRYWALL AS REQUIRED.
- 14 EXISTING VCR, VCR OUTLET, AUDIO-VISUAL INPUT PLATES, 4-PORT DATA OUTLET, SURFACE RACEWAYS AND ALL ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED. FIELD VERIFY EXACT LOCATION.
- 13 EXISTING AUDIO-VISUAL INPUT PLATES, 4-PORT DATA OUTLET, SURFACE RACEWAYS AND ALL ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED. FIELD VERIFY EXACT LOCATION.
- 12 EXISTING DIGITAL SPEAKER/CLOCK COMBINATION TO BE DISCONNECTED, REMOVED AND PROTECTED IN PLACE. RE-INSTALL IN NEW LOCATION SHOWN ON E4 SHEETS AS REQUIRED.
- 11 EXISTING PROJECTOR, PROJECTOR MOUNT AND ALL ASSOCIATED PARTS SHALL BE DISCONNECTED, REMOVED AND RETURNED TO THE DISTRICT.



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www.jce-inc.com

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ARCHITECTS

DEMOLITION GENERAL NOTES:

1. ALL ITEMS SHOWN ON THIS DRAWING ARE EXISTING TO BE REMOVED UNLESS OTHERWISE NOTED. SEE REQUIREMENTS BELOW FOR SCOPE OF WORK. ALL OTHER ELECTRICAL ITEMS IN THIS BUILDING ARE EXISTING TO REMAIN. MAINTAIN POWER CIRCUIT CONTINUITY UNTIL NEW SOURCE IS ENERGIZED AND READY FOR TRANSFER. REFER TO POWER AND LIGHTING PLANS.

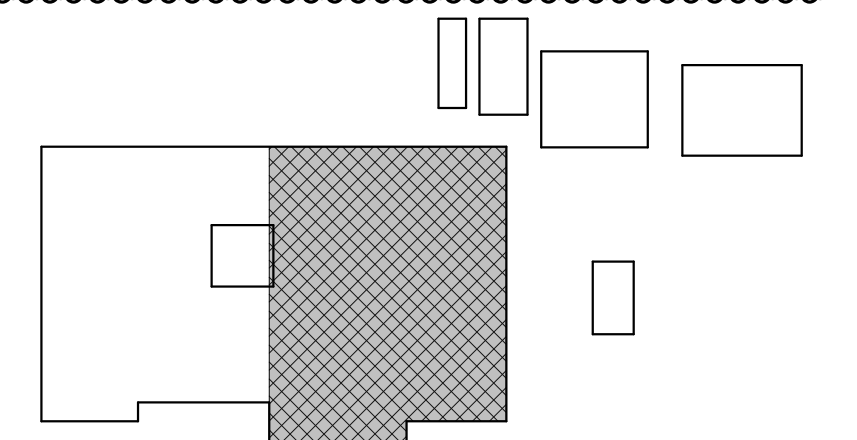
2. ALL ELECTRICAL DEMOLITION WORK SHALL BE DIRECTED BY THE ELECTRICAL CONTRACTOR.

GENERAL DEMOLITION REQUIREMENTS:

1. **LIGHTING FIXTURES**
WHERE EXISTING LIGHTING FIXTURES ARE TO BE REMOVED, AND ARE NOT RELOCATED, CONTRACTOR SHALL DISPOSE OF ALL FIXTURES INCLUDING LAMPS AND BALLAST.
2. **WIRING DEVICES**
WHERE EXISTING SWITCHES OR RECEPTACLES ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL DEVICES AS REQUIRED.
3. **COMMUNICATION DEVICES**
WHERE EXISTING TELEPHONE/INTERCOM AND CLOCK HEAD END EQUIPMENT, PHONES, SPEAKERS AND OTHER ASSOCIATED EQUIPMENT ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL DEVICES AND EQUIPMENT AS REQUIRED.
4. **FIRE ALARM**
WHERE EXISTING FIRE ALARM PANELS AND ASSOCIATED SMOKE, HEAT, DUCT DETECTORS, PULL STATIONS AND STROBE OR HORN UNITS ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL DEVICES AND EQUIPMENT AS REQUIRED.
5. **INTRUSION ALARM**
EXISTING INTRUSION ALARM SENSORS AND EQUIPMENT SHALL BE REMOVED WHERE INDICATED. RETURN ALL DEVICES TO THE SCHOOL DISTRICT MAINTENANCE FACILITIES.
6. **POWER EQUIPMENT**
WHERE EXISTING SWITCHBOARDS, PANELBOARDS, LOAD CENTERS, TRANSFORMERS, DISCONNECT SWITCHES OR OTHER DISTRIBUTION EQUIPMENT ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL DEVICES AND EQUIPMENT AS REQUIRED.
7. ALL BOXES, EXPOSED CONDUIT, WIRE, AND OTHER ITEMS ASSOCIATED WITH ELECTRICAL EQUIPMENT TO BE REMOVED, SHALL BE DISCONNECTED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AS REQUIRED, UNLESS SPECIFICALLY NOTED OTHERWISE. CUT AND CAP CONCEALED CONDUITS. PATCH, SEAL AND REPAIR SURFACE TO MATCH ADJACENT AREA WHERE BOXES ARE REMOVED.

KEY NOTES:

- 1 EXISTING ELECTRICAL DEVICE OR EQUIPMENT TO REMAIN.
- 2 ALL DEVICES AND EQUIPMENT IN THIS ROOM ARE EXISTING TO REMAIN.
- 3 ALL DEVICES AND EQUIPMENT THIS WALL ARE EXISTING TO REMAIN.
- 4 EXISTING LIGHT FIXTURE TO REMAIN.
- 5 ALL LIGHT FIXTURES IN THIS ROOM ARE EXISTING TO REMAIN.
- 6 EQUIPMENT OR DEVICE TO BE REMOVED, PROTECTED AND RE-INSTALLED AT CONCLUSION OF WORK.
- 7 EXISTING OUTLET INCLUDING BACKBOX AND SURFACE RACEWAY TO BE DISCONNECTED, AND REMOVED. PROVIDE NEW BACKBOXES, FACEPLATES AND RECESS OUTLETS IN NEW DRYWALLS AS REQUIRED. EXTEND CONDUIT AND WIRING FROM CEILING SPACE AS REQUIRED. SEE E3 AND E4 SHEETS FOR OUTLET LOCATIONS.
- 8 EXISTING LIGHT FIXTURES AND ASSOCIATED WALL SWITCHES TO BE DISCONNECTED AND REMOVED. EXISTING CIRCUIT AND POWER CONNECTION SHALL BE SAFFED OFF AND PROTECTED IN PLACE. EXTEND EXISTING CIRCUIT TO NEW LIGHTING FIXTURES ON E2 SHEETS AS REQUIRED (TYP.).
- 9 EXISTING CEILING FANS AND ASSOCIATED WALL SWITCHES SHALL BE DISCONNECTED AND REMOVED. DISCONNECT AND REMOVE EXISTING CIRCUIT BACK TO SOURCE. EXISTING CONDUCTOR SHALL BE REMOVED. FIELD VERIFY EXACT LOCATION OF EXISTING PANEL FEEDING THE CEILING FAN PRIOR TO DISCONNECTING AND REMOVING THE FAN.
- 10 EXISTING REMOTE ANNUNCIATOR TO BE CAREFULLY DISCONNECTED AND REMOVED. PROTECT IN PLACE AND RE-INSTALL IN NEW WALL AS REQUIRED. SEE E3 SHEETS FOR NEW LOCATION.
- 11 EXISTING FIRE ALARM EXTENDER PANEL TO BE DISCONNECTED AND REMOVED.
- 12 SECURITY SYSTEM DEVICES AND ALL ASSOCIATED WIRING TO BE DISCONNECTED AND REMOVED.



KEY PLAN

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Addendum 2

END OF SECTION

SECTION 05 52 13
PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Free-standing railings at steps or ramps.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Placement of anchors in concrete.
- B. Section 05 50 00 - Metal Fabrications: Embedded items, welding and shop painting.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- D. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- E. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
- F. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification.
- G. AWS D1.1/D1.1M - Structural Welding Code - Steel.
- H. AWS D1.1/D1.1M - Structural Welding Code - Steel.
- I. NAAMM AMP 521 - Pipe Railing Systems Manual.
- J. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
 - 1. Prepare shop drawings for all railing systems, including attachment.
 - 2. Conform to AISC Standards, except provisions for approval/responsibility for dimensions by Architect and structural engineer shall not apply.
 - 3. Include erection drawings, elevations, and details where applicable.
 - 4. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.
- C. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated within the previous 12 months.
- D. Fabricator's Qualification Statement.

1.05 QUALITY ASSURANCE

- A. Welder Qualifications: Welding processes and welding operators qualified within previous 12 months.
- B. Fabricator Qualifications:
 - 1. A company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.
- C. Coordination: Provide templates and sleeves for incorporation of embedded items into the work specified elsewhere herein.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Delivery, Storage and Handling, General: Protect products from deformation, marring, discoloration, soiling and corrosion.
- B. Storage: Store products in enclosed, well-ventilated spaces, not in contact with soil or vegetation and not subject to inclement weather.

PART 2 PRODUCTS

2.01 RAILINGS - GENERAL REQUIREMENTS

- A. Regulatory Requirements: Conform to California Building Code (CBC), Title 24, Part 2, Section 11B-505 and 11B-405.8 as amended and adopted by authorities having jurisdiction.
 - 1. Top of gripping surfaces of handrails shall be 34 inches minimum and 38 inches maximum vertically above walking surfaces, stair nosings, and ramp surfaces. Handrails shall be at a consistent height above such surfaces.
 - 2. Clearance between handrail gripping surfaces and adjacent surfaces shall be 1-1/2 inches minimum.
 - a. Handrail may be located in a recess if the recess is 3 inches maximum deep and 18 inches minimum clear above the top of the handrail.
 - 3. Handrail gripping surfaces shall be continuous along their length and shall not be obstructed along their tops or sides. The bottoms of handrail gripping surfaces shall not be obstructed for more than 20% of their length.
 - a. Where provided, horizontal projections shall occur 1-1/2 inches minimum below the bottom of the handrail gripping surfaces.
 - 4. Handrail gripping surfaces with a circular cross section shall have an outside diameter of 1-1/4 inch minimum and 2 inches maximum.
 - 5. Handrail gripping surfaces with a non-circular cross section shall have an outside dimension of 4 inches minimum and 6-1/4 inches maximum, and a cross-sectional dimension of 2-1/4 inches maximum.
 - 6. Handrail gripping surfaces and any surfaces adjacent to them shall be free of sharp or abrasive elements and shall have rounded edges.
 - 7. Handrails shall not rotate within their fittings.
 - 8. Handrail gripping surfaces shall extend beyond and in the same direction of stair flights and ramp runs in accordance with CBC Section 11B-505.10.

- a. Such extensions are not required for continuous handrails at the inside turn of switchback or dogleg stairs and ramps.
- 9. A 2 inch minimum high curb or a barrier shall be provided to prevent the passage of a 4 inch diameter sphere rolling off the sides of a ramp surface.
 - a. Such a curb or barrier shall be continuous and uninterrupted along the length of a ramp. CBC Section 11B-405.9.2
- B. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of applicable local code.
- C. Allow for expansion and contraction of members and building movement without damage to connections or members.
- D. Dimensions: See drawings for configurations and heights.
 - 1. Top Rails and Wall Rails: 1-1/2 inches outside diameter, round.
 - 2. Intermediate Rails: 1-1/2 inches diameter, round.
 - 3. Posts: 1-1/2 inches outside diameter, round.
- E. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
 - 1. For anchorage to concrete, provide inserts to be cast into concrete, for welding anchors.
 - 2. For anchorage to stud walls, provide backing plates, for bolting anchors.
- F. Provide welding fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.02 STEEL RAILING SYSTEM

- A. Steel Tube: ASTM A500/A500M, Grade B cold-formed welded or seamless structural tubing.
- B. Steel Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black and galvanized finish, as indicated, seamless or welded.
- C. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.
 - 1. Welding Rods: Series E70, conforming to AWS D1.1/D1.1M.
- D. Exposed Fasteners: No exposed bolts or screws.
- E. Straight Splice Connectors: Steel concealed spigots.
- F. Galvanizing: In accordance with requirements of ASTM A123/A123M.
 - 1. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic.

2.03 FABRICATION

- A. Fabricate railings in accordance with NAAMM AMP 521 and as required for specified design requirements. Provide stock and tubing and manufactured components sized and arranged as indicated on Drawings and specified herein.
- B. Accurately form components to suit specific project conditions and for proper connection to building structure.

1. Prior to fabrication, field verify dimensions and details of construction. Immediately report variances in writing to Architect.
- C. Fit and shop assemble components in largest practical sizes for delivery to site.
- D. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
- E. Welded Joints:
 1. Exterior Components (Type 2): Continuously seal joined pieces by continuous welds. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
 2. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius (1/8 inch).
- F. Weld connections that cannot be shop welded due to size limitations.
 1. Weld in accordance with AWS D1.1/D1.1M.
 2. Match shop welding and bolting.
 3. Clean welds, bolted connections, and abraded areas.
 4. Touch up shop primer and factory-applied finishes.
 5. Repair galvanizing with galvanizing repair paint per ASTM A780/A780M.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Coordination: Coordinate fabrication and installation of steel pipe and tube railings so that related Work accurately and properly join.

3.02 PREPARATION

- A. Obtain Architect's review prior to site cutting or making adjustments not indicated on shop drawings.
- B. Supply items required to be cast into concrete with setting templates, for installation as work of other sections.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- C. Install railings in compliance with CBC 11B and ADA Standards for accessible design at applicable locations.
- D. Anchor railings securely to structure.
- E. Field weld anchors as indicated on drawings. Touch-up welds with primer. Grind welds smooth.

- F. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- G. Guardrails Installation: Install railings plumb and level, accurately fitted, free from distortion or defects.
 - 1. Plumb posts in each direction.
 - 2. Temporarily install sections and align before securing sections together.
 - 3. Fully weld all joints and grind smooth as for shop welding.
 - 4. Perform field welding in accordance with AWS D1.1/D1.1M.
- H. Wall Railings Installation, General: Secure handrails to wall with wall brackets and end return fittings.
 - 1. Provide brackets with 1-1/2 inch clearance from inside face of handrail and finished wall surface.
 - 2. Locate brackets as indicated, or if not indicated, at spacing required to support structural loads.
 - 3. Secure wall brackets to building construction as specified below.
 - a. Secure railing to bracket with pre-drilled hole for exposed bolt anchorage.
 - b. Railing ends: None. Return railings to within 1/4 inch of wall face and provide handrail bracket within 12 inches of end of railing.
 - c. Securing Railings to Metal Stud Framed Walls: Anchor brackets and fittings directly to steel framing or to concealed sheet steel backing or to concealed anchors, using self-tapping screws of size and type necessary to support structural loads.
 - d. Securing Railings to Wood Stud Framed Walls as Applicable: Anchor brackets and fittings directly to minimum 4 x framing, or minimum 2 x solid blocking with wood screws or lag bolts as specified in Section 05 50 00 - Metal Fabrications and Section 06 10 00 - Rough Carpentry.

3.04 TOLERANCES

- A. Code required dimensions indicated on Drawings as minimum or maximum are absolute. No tolerances are allowed less or more than this dimension.
- B. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.
- C. Maximum Offset From True Alignment: 1/4 inch.
- D. Maximum Out-of-Position: 1/4 inch.

3.05 CLEANING AND PROTECTION

- A. Galvanizing Repair Compound:
 - 1. If finish is to be painted or is otherwise not visible, field repair with premixed cold galvanizing compound for field touch-up of galvanized coatings.
 - 2. Where the finish is galvanized, resend to galvanizing for reapplication, if practical (e.g.; bolted components) and accepted by Architect.
- B. Cleaning:

1. Clean and dress all field welds, bolted connections, and abraded areas of galvanizing or shop paint on miscellaneous metal.

END OF SECTION

SECTION 11 53 13

LABORATORY FUME HOODS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Standard laboratory fume hoods. Replace existing to match others in same building.
- B. Fume hood base cabinets and stands.
- C. Work surfaces.
- D. Laboratory cup sinks in fume hoods.
- E. Service fittings and outlets.
- F. Airflow indicators and alarms.
- G. Piping within fume hoods for service fittings.
- H. Wiring within fume hoods for light fixtures and receptacles.

1.02 RELATED REQUIREMENTS

- A. Section 09 21 16 - Gypsum Board Assemblies: Reinforcements in metal-framed partitions for anchoring fume hoods.

1.03 REFERENCE STANDARDS

- A. ASHRAE Std 110 - Methods of Testing Performance of Laboratory Fume Hoods.
- B. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- D. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- E. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
- F. ASTM D4101 - Standard Classification System and Basis for Specification for Polypropylene Injection and Extrusion Materials.
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- H. SEFA 1 - Laboratory Fume Hoods.
- I. SEFA 2 - Installations.
- J. UL 1805 - Standard for Safety Laboratory Fume Hoods and Cabinets.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate installation of fume hoods with laboratory casework and other laboratory equipment.
- B. Preinstallation Meeting: Conduct preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

- C. Sequencing: Ensure that utility connections are achieved in an orderly and expeditious manner.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide fume hood exterior and interior dimensions and construction, utility and service requirements and locations.
- C. Shop Drawings: Indicate locations, large scale plans, elevations, cross sections, rough-in and anchor placement dimensions and tolerances, clearances required, locations and types of service fittings.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements. Provide documentation of successful Factory Acceptance Testing.
- E. Test Reports: Indicate that each type of fume hood has been factory-tested and meets specified ASHRAE Std 110 (AM) requirements.
- F. Manufacturer's Installation Instructions: Indicate special installation requirements.
- G. Operation Data: Include description of equipment operation and required adjusting and testing.
- H. Maintenance Data: Identify system maintenance requirements, servicing cycles, lubrication types required and local spare part sources.
- I. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in District's name and registered with manufacturer.
- J. Project Record Documents: Record actual locations of concealed utility connections.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with minimum three years of documented experience.
- C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
- D. Preconstruction Testing: Factory-test each type of hood as per referenced standard.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect finished surfaces during handling and installation with protective covering of polyethylene film or another suitable material.

1.08 FIELD CONDITIONS

- A. Ambient Conditions: Maintain temperature and relative humidity at occupancy levels during and after installation of fume hoods.

1.09 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.

- C. Provide one year manufacturer warranty for manufacturer's standard items (listed by part number in manufacturer's official publication).

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Laboratory Fume Hoods:
 - 1. Basis of Design Product: Supreme Air Fume Hood ADA Bench Hood with Vertical Rising Sash H08G5448G-C-H-M-8 as manufactured by Kewaunee Scientific Corp, or approved equal.
 - 2. Kewaunee Scientific Corp: www.kewaunee.com.
 - 3. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Provide laboratory fume hoods from single manufacturer.

2.02 CONSTANT AIR VOLUME (CAV) FUME HOODS

- A. Bypass Fume Hoods:
 - 1. Include a built-in compensating bypass arrangement to maintain constant exhaust volume regardless of sash position.

2.03 PERFORMANCE REQUIREMENTS

- A. Fume hoods complying with the following when tested in accordance with ASHRAE Std 110:
 - 1. As-Manufactured (AM) Rating: AM 0.01 (0.01 ppm).
 - 2. As-Installed (AI) Rating: AI 0.10 (0.10 ppm).
 - 3. Average Face Velocity: 100 FPM (0.51 m/s) plus or minus 10 percent with sashes fully open.
 - 4. Face-Velocity Variation: Not more than 10 percent of average face velocity across the face opening with sash(es) fully open.
 - a. Test hoods with combination sashes fully raised, with maximum opening on one side, with maximum opening in the center, and with one opening at each side equal to half of maximum opening.
 - 5. Release Rate: 4.0 L/min.
 - 6. Static-Pressure Loss: Not more than 1/2-inch w.g. (124 Pa) at 100 FPM (0.51 m/s) face velocity with sash fully open when measured at four locations 90 degrees apart around the exhaust duct and at least three duct diameters downstream from duct collar.
 - 7. Seismic Performance: Design fume hoods, including attachments to other work, to withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - a. See drawings for Design earthquake spectral response acceleration, short period (Sds) for Project.
 - b. Component Importance Factor: 1.0.

2.04 FUME HOODS

- A. General Requirements:

1. Comply with SEFA 1.
 - a. Provide fume hoods UL listed and labeled for compliance with UL 1805.
 2. Pre-pipe fume hoods for service fittings.
 3. Pre-wire fume hoods for light fixtures and receptacles.
 - a. Terminate all wiring in a junction box on top of hood.
- B. Fume Hood:
1. Ventilation: Constant Air Volume (CAV).
 2. Configuration: ADA-compliant.
 3. Nominal Interior Height: 48 inches.
 4. Sash Type: Vertical rising.
 - a. Configuration: As indicated on drawings.
 - b. Leak-free enclosure box, manufacturer's standard construction, for vertical rising sash.
 - c. Glazing: Laminated safety glass.
 - d. Sash Guides: Corrosion-resistant polyvinyl chloride (PVC) track.
 - e. Vertical Sash mechanism: Designed to prevent sash drop in case of mechanism failure.
 - 1) Cable: Minimum 3/32 inch (2 mm) thick stainless steel of construction standard with the manufacturer.
 - f. Vertical Sash Pull: Type 316 stainless steel, with No.4 finish.
 5. Top Front Panel: Standard integral grille stamped into panel of same materials as fume hood exterior.
 6. Exterior: Sheet steel.
 - a. Color/Finish: Match existing units in other rooms.
 7. Interior Lining: Kemglass.
 8. Service Fittings and Fixtures:
 - a. Cup Sink : Drop-in Epoxy, complete with removable stainer and waste fitting.
 - 1) Shape: Oval.
 - 2) Size: 3 inches by 6 inches (75 by 150 mm).
 - b. All laboratory service fittings and fixtures shall be as manufactured by the Water Saver Fixture Company or accepted equal. Fixtures, including handles, shall be color coded to indicate the proper service. Color code requirements for indexing service fixtures shall be as follows:

<u>Service</u>	<u>Index Color</u>
Gas	Blue
Air	Orange
Cold Water	Green
Other Services	On Application

 - 1) NOTE: Provide fittings to match existing.
 - c. Escutcheons: Stainless steel.

9. Access Panels: Provide removable panels on both sides hood exterior and interior lining panels.
10. Work Surface:
 - a. Work Top for Fume Hoods Other Than Floor-mounted Type: Epoxy resin.
 - 1) Edge: Raised rim with rounded edges and corners.
- C. Fume Hood Base Stands:
 1. Construction: Welded steel tubing legs, not less than 2 inch square.
 - a. Color/Finish: As indicated on drawings.
 2. Leg Levelers: Manufacturer's standard.
 3. Leg Shoes: Manufacturer's standard.
 4. Structural Performance: Capable of withstanding 50 pounds per foot work top, 75 pounds per foot on work top, plus weight of hood, without permanent deformation or excessive deflection.
 5. Structural Performance of Fume Hood Base Stands for Radioisotope Hoods: Capable of withstanding 50 pounds per foot work top, 200 pounds per foot on work top, plus weight of hood, without permanent deformation or excessive deflection.
 6. Knee Space: Clear floor space not less than 36 inches wide by 25 inches front-to-back by 27 inches high, unless otherwise indicated.
- D. Light Fixtures: UL labeled, vaporproof, one-tube, T-5 fluorescent light fixtures. Number and length of fixtures as necessary for fume hood width. Mounted above sealed safety glass panel. White baked-enamel finish on fixture interior.
 1. Average Interior Illumination Level: 80 footcandles.
 2. Coordinate access to light fixture with ceiling extension configuration and construction.

2.05 FABRICATION

- A. General: Assemble fume hoods in factory to greatest extent possible. Disassemble fume hoods only as necessary for shipping and handling limitations, or as necessary to permit movement through a 35 inches by 79 inches clear door opening.
- B. Steel Exterior: Fabricated from steel sheet, 0.048 inch thick, with component parts screwed together to allow removal of end panels, front fascia, and airfoil and to allow access to plumbing lines and service fittings. Chemical-resistant finish applied to interior and exterior surfaces of component parts before assembly.
- C. Ends: Fabricated with double-wall end panels. Close area between double walls at front of fume hood and as needed to house sash counterbalance weights, utility lines, and remote-control valves.
- D. Front Double-Wall Posts: Pre-punched to accept up to five (5) plumbing fixtures per side; two (2) duplex electrical receptacles; light switch; airflow indicator and alarm.
- E. Lining Assembly: Unless otherwise indicated, assembled with stainless-steel fasteners or epoxy adhesive, concealed where possible. Joints sealed by filling with chemical-resistant sealant during assembly.
 1. Lining components fastened to a rigid frame assembly fabricated from galvanized-steel and to which exterior panels are attached.

2. Punched fume hood lining side panels for service fittings and remote controls.
Removable plug buttons for holes not used for indicated fittings.
- F. Molded Glass-Fiber-Reinforced Polyester Lining: Molded unit consisting of end panels, back panel, preset rear baffle, and top bonded together into a single piece; reinforced to form a rigid assembly to which exterior is attached.
- G. Rear Baffle: Same material as fume hood lining, unless otherwise indicated, at rear of hood with openings at top and bottom, with corrosion-resistant fasteners. Fabricated for removal to facilitate cleaning behind baffle.
 1. Adjustable baffles with control adjustment strips at top and bottom with plastic or stainless-steel knobs,.
- H. Exhaust Plenum: Full width of fume hood, sized and configured to provide uniform airflow, of same material as hood lining, and with duct stub for exhaust connection.
 1. Duct-Stub Material: Epoxy-coated steel, unless otherwise indicated.
- I. Airfoil: At bottom of fume hood face opening, with 1 inch gap between bottom of airfoil and work top. Sash to close on top of airfoil. Designed to direct airflow across work.
 1. Fabricated from 14 gauge, 0.0781 inch stainless steel with No.4 finish.
- J. Filler Strips: As needed to close spaces between fume hoods and adjacent building construction. Fabricated from same material and with same finish as fume hoods or fume hood base cabinets, as applicable. Flange, notch, and reinforce filler strips. Fabricate to form well-fitting closures, free from oil-canning.
- K. Ceiling Extensions: Filler panels matching fume hood exterior to enclose space above fume hoods at front and sides of fume hoods, and extending from tops of fume hoods to approximately 4 inches (102 mm) above ceiling. Flange, notch, and reinforce ceiling extensions as required for rigidity. Fabricate to form well-fitting closures, free from oil-canning.
 1. Provide bottom-hinged access panels within the front ceiling extension filler panel to facilitate access to light fixture and other fume hood components at top of hood not readily accessible by other means.
- L. Comply with requirements of other sections for factory installation of water and laboratory gas service fittings, piping, electrical devices, and wiring. Securely anchor fittings, piping, and conduit to fume hoods, unless otherwise indicated.

2.06 MATERIALS

- A. Steel Sheet: Cold-rolled, commercial steel (CS) sheet, complying with ASTM A1008/A1008M; matte finish; suitable for exposed applications.
- B. Stainless-Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.
- C. Epoxy: Factory molded, modified epoxy-resin formulation with smooth, nonspecular finish.
 1. Physical Properties:
 - a. Flexural Strength: Not less than 10,000 pounds per square inch.
 - b. Modulus of Elasticity: Not less than 2,000,000 pounds per square inch.
 - c. Hardness (Rockwell M): Not less than 100.

- d. Water Absorption (24 Hours): Not more than 0.02 percent.
 - e. Heat Distortion Point: Not less than 260 degrees F.
 - f. Flame-Spread Index: 25 or less according to ASTM E84.
2. Chemical Resistance: As follows when tested with indicated reagents according to NEMA LD 3, Test Procedure 3.4.5:
- a. No Effect:
 - 1) Acetic acid (98 percent).
 - 2) Acetone.
 - 3) Ammonium hydroxide (28 percent).
 - 4) Benzene.
 - 5) Carbon tetrachloride.
 - 6) Dimethyl formamide.
 - 7) Ethyl acetate.
 - 8) Ethyl alcohol.
 - 9) Ethyl ether.
 - 10) Methyl alcohol.
 - 11) Nitric acid (70 percent).
 - 12) Phenol.
 - 13) Sulfuric acid (60 percent).
 - 14) Toluene.
 - b. Slight Effect:
 - 1) Chromic acid (60 percent).
3. Color: Black.
- D. Polypropylene: Unreinforced polypropylene complying with ASTM D4101, Group 01, Class 1, Grade 2.
- E. Laminated Safety Glass: ASTM C1172.
- F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- G. Fasteners: Stainless-steel, where exposed to fumes.

2.07 ACCESSORIES

- A. Airflow Monitors/Indicators and Alarms: Provide each fume hood with a airflow monitor/indicator complete with an audible and visual alarm that activates when airflow sensor reading is outside of preset range.
- 1. Source: Fume hood manufacturer.
 - 2. Airflow Monitor/Indicator Functionality:
 - a. Type: A sensor module that monitors fume hood face airflow velocity, and a display module that indicates whether velocity it is below normal, normal, or above normal.
 - 1) Input power: 9 to 30 V AC/DC. Include power supply module or functionality.
 - 2) Alarm Range: 50 to 250 FPM.
 - 3) Alarm Setpoints: Low.
 - 4) Mounting: Flush.
 - 5) Readings: Remote sensor inserted in airflow stream.

- 6) Accuracy: Maximum plus or minus 5 percent of set point.
 - 7) Visual Status Display: Green, yellow, and red LEDs.
 - 8) Operating Temperature: 55 to 86 degrees F .
- 3. Airflow Alarm functionality: Audible (85 dB @ 4 inch distance), and visual alarm that activates when airflow sensor reading is outside of preset range.
 - a. Reset and test mode.
 - b. Programmable Switch: Designed to silence audible alarm and automatically reset when airflow returns to within preset range. Warning light to stay on when alarm is silenced.
 - c. Capability for integration with BAS (Building Automation System) via BACnet.
 - B. Sash Alarms: Audible and visual alarm that activates when sash is opened beyond preset position.
 - 1. Programmable silence and test switches.
 - 2. Sash Alarm integrated with Airflow Alarm.
 - C. Sash Stops: Spring-loaded stops to limit hood opening to 18 inches height. Manually releasable to open sash fully, and to reset automatically when sash is lowered below set level.

2.08 SOURCE QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.
- B. Factory testing of each type of fume hood.
- C. Non-Complying Work: See Section 01 40 00.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Locate concealed framing, blocking, and reinforcements that support fume hoods by field measurements before being enclosed, and indicate measurements on Shop Drawings.
- B. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of fume hoods.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Install fume hoods according to manufacturer's written instructions. Install level, plumb, and true; shim as required, using concealed shims, and securely anchor to building and adjacent laboratory casework. Securely attach access panels but provide for easy removal and secure reattachment. Where fume hoods abut other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.
- B. Large Components: Ensure that large components can be moved into final position without damage to other construction.
- C. Comply with indicated requirements for installing water and laboratory gas service fittings, and electrical and telecommunications devices.
 - 1. Install fittings in accordance with shop drawings, installation requirements in SEFA 2, and manufacturer's written instructions. Set bases and flanges of sink and work top-mounted

fittings in sealant recommended by manufacturer of sink or work-top material. Securely anchor fittings to fume hoods.

3.03 FIELD QUALITY CONTROL

- A. Field test fume hoods as specified below.
 - 1. General: Test fume hoods as installed to assess airflow velocity. Perform tests with static mode (set sash position) conditions. Conduct testing as outlined below for 100% of the hoods provided in the Project.
 - 2. Preparation:
 - a. Inspect each fume hood to confirm its installation complies with drawings and specifications.
 - b. Inspect laboratory space to verify that construction complies with drawings and specified requirements.
 - c. Do not proceed with fume hood testing until an acceptable TAB report has been received.
 - d. Verify that proper temperature and pressurization of the lab space can be maintained, with door(s) to the space in closed and open positions.
 - e. Adjust non-complying physical and control systems until conditions favorable to testing fume hoods are present.
 - 3. Operating Conditions Tests:
 - a. Conduct face velocity tests to confirm that target velocities are being achieved within acceptable tolerances.
 - b. Conduct airflow indicator/monitor tests to confirm acceptable variation from corresponding measured value. Calibrate and adjust device to function within specified accuracy parameters.
 - c. Conduct exhaust flow and static pressure tests of the HVAC system and its controls to confirm flow volume and static pressures are within acceptable tolerances.
 - d. In projects with VAV lab ventilation systems, conduct response time and stability tests to confirm how the HVAC supply and exhaust systems respond to different sash opening positions.
 - e. Conduct tests of alarm device by shutting off the fume hood exhaust and verify that the individual fume hood alarm activates and operates in specified manner.
 - f. Conduct tests of individual controls provided at the fume hood (such as unoccupied cycle override, alarm override, etc.) to verify they operate in specified manner.
 - 4. Containment Performance Tests:
 - a. Conduct airflow visualization tests (local smoke challenges) to provide a visual indication of fume hood's capture performance.
 - 1) Coordinate disabling of local fire alarm system when performing this test.
 - 2) Compensate for smoke discharge velocity and exposure outside of the fume hood.
 - 3) If required to be performed, do not proceed with the large volume challenge test if the hood has failed the local challenge test.
 - 4) Record a video of the test(s).

- b. Conduct tracer gas containment tests, using mannequins to confirm gas concentrations meet (are below) specified criteria.
 - 1) Use tracer gas agreed-upon with District.
- B. Reporting Requirements: Comply with Section 5 of NEBB Fume Hood Testing (FHT) Standard, current edition. Organize and include, at a minimum, the following information:
 - 1. Report title.
 - 2. Report certification.
 - 3. Table of contents.
 - 4. Report summary/ remarks.
 - 5. Appropriate forms.
 - 6. Instrument calibration.
 - 7. List of abbreviations used.
 - 8. A room layout drawing for each tested item. Identify: walls; doors; fume hood(s); other present environmental enclosures (e.g. biological safety cabinet(s), laminar flow hood(s), canopy hood(s), etc.); location and airflow pattern of all air supply, return, and exhaust grilles, registers and diffusers.

3.04 ADJUSTING

- A. Adjust moving parts for smooth, near silent, accurate sash operation with one hand only. Adjust sashes for uniform contact of rubber bumpers. Verify that counterbalances operate without interference.

3.05 CLEANING

- A. Clean finished surfaces, including both sides of glass; touch up as required; and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.

3.06 DEMONSTRATION

- A. Demonstrate proper operation of fume hoods and their accessories to District's designated representative.

END OF SECTION

SECTION 12 61 10

FIXED LECTURE SEATING

PART 1 GENERAL

1.01 SUMMARY

- A. Work Included in this section: Provision of cushioned floor-mounted fixed Jury Base seating including attachment, or other work required for installation unless otherwise noted.

1.02 SUBMITTALS

- A. Field Verification - Shop drawings incorporate building information compiled from various sources associated with this project and deemed as reliable. Conditions directly affecting the product or its installation must be field verified.
- B. Drawing Review - Shop drawings are produced to assure compliance with the contract. Drawings must be reviewed by the Owner/Architect/Contractor, or other appropriate owner's representative. If drawings are correct, mark them as such; if incorrect, note corrections to be made and return to KI for corrections. Any deviations from the contract included in the shop drawing must be approved in writing from the Owner/Architect/Contractor. Drawing must be signed by authorized personnel including title, company or affiliation, and date. Manufacture of product shown is not scheduled until drawing review is complete and an authorized signature is received.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Store delivered in clean, safe, dry area.

1.04 SCHEDULING

- A. Schedule installation of items to occur after application of exposed finishes wherever installation will not damage exposed finish surfaces and completion of finishes will not impede installation.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: KI, **or approved equal.**
- B. Product: Jury Base Seating.
- C. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DESCRIPTION

- A. "Jury Base Seating" is manufactured by KI, Green Bay, WI.
 - 1. Seating is floor-mounted on flat or sloped floors. Seat shells swivel for ease in entry and exit and have an automatic memory return.
- B. Floor-mounted steel bases with 360 degree swivel and automatic memory return including but not limited to:
 - 1. Square (Basic) column bases for mounting to flat or sloped floors.

2. Powder-coated steel frames provide maximum durability.

2.03 CONSTRUCTION

A. Frames

1. Standard Square Column (Basic) Jury Base pedestal frames are available for Apply, Grazie, Strive, Torsion, Torsion Air, and Wave shells (without provision for a writing surface). The column is a three-piece construction and consists of an 11-gauge round steel housing welded to a 14-gauge square column and welded to an 11-gauge 6" x 8" rectangular floor plate. The die-formed steel floor plate fastens to the floor through 1/2" holes pierced in each corner to accommodate four floor anchors. The seat swivels on a 3/4" diameter carbon steel shaft welded to the 11-gauge steel support bell and the formed steel seat spider. The shaft is inserted into the cam operated return mechanism, which springs compressed between molded engineering plastics. The contact between the top cam and the bottom cam controls the rotation. Standard rotation is 360 degrees. A plastic molded escutcheon cover will cover the floor plate.
2. Standard rotation is 360 degrees. A plastic molded escutcheon cover will cover the floor plate.
3. Standard rotation is 360 degrees and height adjustment 3.6". A plastic molded escutcheon cover will cover the floor plate.

B. Shells:

1. Intellect Wave®
 - a. One-piece contoured shell is constructed of high-impact polypropylene. Colorfastness is ensured through complete color impregnation throughout the molded part. Strength and durability are ensured through an engineered internal structural cavity which eliminates the need for unsightly ribs on the back of the shell. Rolled edges provide comfort and strength. Front and back are textured. Wide, ergonomic handle is molded into the chair back for ease of mobility. The shell fastens to the 12-gauge steel seat spider with six
 - b. 1/4 -20 x 5/8" screws. Intellect Wave is available with an upholstered seat or an upholstered seat and back. Upholstered chairs have partially exposed polypropylene surfaces. Fabric is upholstered over 9/16" foam on the back and seat and fasted to an inner shell with screws. Back upholstery covers handle.

2.04 ACCESSORIES

- ### **A. Tablet with Arm: K2 Oversize.**

2.05 FINISHES

- ### **A. Shell Color: As selected by Architect.**
- ### **B. Frame Finishes – Baked-on electrostatically-applied powder-coat paint is standard on all frames. All finishes and colors to be selected by architect. Refer to KI Color Addendum for standard finishes. Custom colors and finishes available; contact factory.**

2.06 COMPLIANCE

- A. "Jury Base Seating" is designed and manufactured in compliance with the intent of ANSI/BIFMA X5.4-2012. Seating exceeds all applicable BIFMA performance test criteria. Jury Base seating is SCS Indoor Air Quality certified.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coordination details with other work supporting, adjoining, or otherwise contracting items as required to insure proper installation.
- B. Examine construction to verify that:
- C. Dimensions are correct to manufacturer's specifications.
- D. Do not install items until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install items in strict accordance to manufacturer's Assembly Instructions and approved Shop Drawings.

3.03 FLOOR MOUNTING REQUIREMENTS

- A. Minimum Floor Construction Required for Upright Installation:
 - 1. Concrete Floors
 - a. 3000 psi concrete compressive strength
 - b. 3" thick free of obstructions for 1-1/2"
 - c. 4" thick free of obstructions for 2-1/2" for riser mount
 - d. Riser to be plumb within 1/8 degree
 - e. Minimum anchor embedment 1-1/2"
- B. Floor Fastener Requirements
 - 1. Concrete Floors
 - a. 1/4" x 2-5/8" Hilti KH-EZ
 - b. Max. torque: 18 ft lb
 - c. Four anchor assemblies required per base

END OF SECTION

SECTION 27 20 00

Addendum #02

03-19-21

INTEGRATED AUDIO/VISUAL SYSTEM

PART 1 – GENERAL

SUMMARY

- 1.1 The Contractor shall furnish all labor, project management, materials, tools, equipment, and resources necessary for the installation, startup, and testing of the system shown on the plans and described in the specifications.
- 1.2 Related Specification Sections:
 - 1.2.1 Section 26 01 00 -General Provisions
 - 1.2.2 Section 26 05 33 -Conduit and Fitting
 - 1.2.3 Section 26 05 19 -Conductors
 - 1.2.4 Section 26 05 34 -Outlet and Junction Boxes
- 1.3 The Contractor shall furnish and install the system as defined by the plans and specifications. The Contractor must demonstrate to the Owner that the system is complete and complies with all operational requirements set forth in the plans and specifications.
- 1.4 The work covered under this section of the specifications consists of furnishing all labor, equipment, supplies and materials, and in performing all operations necessary for the turnkey and fully completed installation of an audio/ video system in accordance with the specifications and accompanying drawings, except as specifically noted otherwise.
- 1.5 Cables for the system shall be pulled through the conduit systems furnished by the building contractor. The 27 20 00 Contractor shall be responsible for providing all cables required and for coordinating and supervising the cable installation. The 27 20 00 Contractor shall be responsible for ensuring the integrity of the cables before and after installation.
- 1.6 Work Excluded:
 - 1.6.1 Excluded from this work shall be any and all general construction services regarding masonry and general carpentry services. Those services are to be provided and installed by the general contractor.
 - 1.6.2 Conduit/raceways, sleeves, cable trays, electrical boxes, hand holes, pullboxes, etc. required for the system shall be furnished and installed by the Electrical Contractor. The conduit/raceways and electrical boxes furnished and installed

under Electrical Contractor shall conform with the requirements of the drawings and specifications for the system.

- 1.7 In order to ensure project cohesion a single point of contact is required to provide a "TURNKEY" solution. The work covered under this section of the specification consists of furnishing all labor; cabling; equipment; software; supplies; materials and training. The contractor will perform all operations necessary for the "TURNKEY" and fully completed installation in accordance with the specifications herein. As such, the successful contractor must be factory trained on all aspects of system hardware. The successful contractor shall be a California licensed C7 or 10 premise wiring contractor as defined in this specification. Subcontractors may not be utilized in the implementation of the plant wiring installation.
- 1.8 Approval to bid shall not release the Contractor from full specification compliance requirements. Final system acceptance testing shall govern final system acceptance and compliance with the specifications.
- 1.9 Failure to provide a functional equivalent shall result in the removal of the alternate system at the contractor's expense.
- 1.10 These specifications contain statements which may be more definitive or more restrictive than those contained in the General Conditions. Where these statements occur, they shall take precedence over the General Conditions.
- 1.11 Where the words 'provide' or 'provision' is used, it shall be definitely interpreted as 'furnishing and installing complete in operating condition'. Where the words 'as indicated' or 'as shown' are used, it shall mean as shown on contract drawings.
- 1.12 Where items are specified in the singular, this division shall provide the quantity as shown on drawings plus any spares or extras mentioned on drawings or specifications. All specified and supplied equipment shall be new.

DEFINITIONS

- 1.13 Concealed: Hidden from sight, as in trenches, chases, hollow construction, or above furred spaces, hung ceilings - acoustical or plastic type, or exposed to view only in tunnels, attics, shafts, crawl spaces, unfinished spaces, or other areas solely for maintenance and repair.
- 1.14 Exposed, Non-Concealed, Unfinished Space: A room or space that is ordinarily accessible only to building maintenance personnel, a room noted on the 'finish schedule' with exposed and unpainted construction for walls, floors, or ceilings or specifically mentioned as 'unfinished'.
- 1.15 Finish Space: Any space ordinarily visible, including exterior areas.

Contractor Qualifications

- 1.16 The successful bidder shall be a California licensed C7 or C10 premise wiring contractor as defined in this specification. Subcontractors may not be utilized in the implementation of the installation or programming.
- 1.17 The successful bidder shall have design staff with CTS certification and Extron Advanced A/V Certifications.
- 1.18 The successful bidder shall have installation staff with CTS certification and Extron Advanced A/V Certifications.
- 1.19 All bidders must provide a listing of two similar size projects having the same scope of work using the proposed information delivery equipment. This listing shall be complete with facility names, completion dates, names of contacts, and their telephone numbers. Referenced projects must have been completed in the past 18 months.
- 1.20 The bidder shall have a factory trained service department the service department shall be on call 24 hours a day, 365 days a year, to arrive and initiate onsite service the specified equipment upon (24) hours notice.
- 1.21 The Contractor shall employ factory-trained technical/service personnel for service and maintenance of the system. Their résumés will be required. The factory-trained technical/service personnel shall have a minimum of two years experience installing the proposed system. The Bidder shall submit the names and copies of the certificates issued by the factory. The bidder shall instruct the Owner's technical personnel in the operation, care, and maintenance of the system.

CODE COMPLIANCE

- 1.22 All material and equipment shall be clearly listed, labeled, or certified by Underwriters Laboratories, Inc. All power supplies and computers shall be clearly UL Listed. Any system which is not UL Listed at time of bid will be rejected.
- 1.23 All acceptable systems shall be approved under Part 15, Subpart B, Section 15.107b of the FCC Rules and Regulations. Bidders must provide the FCC Registration Number of the proposed system. Systems that are not in compliance with the FCC will not be considered. Any system that is not FCC compliant at time of bid will be rejected. All equipment must be clearly labeled with FCC compliance stickers.
- 1.24 The system shall be installed in accordance with local and national electrical codes.
- 1.25 The manufacturer and contractor shall provide the Owner with a release for use of all copyright materials, corporate logos, and corporate trademarks at time of bid.

SUBMITTALS

- 1.26 Index all submittals and reference to these specifications. All submittal items shall be assembled and submitted in a single complete binder per submittal group. Partial submittals will not be reviewed. Submit items in groups as indicated below: All submittals, warranty information, close - out documents, and as built documents must be

submitted independently for owner, in order to provide record documentation for the project owner.

- 1.27 Group # 1 Submittal shall be made within (20) working days after the award of the contract. This submittal shall include the following:

1.27.1 Complete bills of quantities, including all materials, components, devices, and equipment required for this work. The bills of quantities shall be tabulated respective of each and every system as specified, and shall contain the following information for each item listed:

- 1.27.1.1 Quantity of each type of equipment item
- 1.27.1.2 Description of each item
- 1.27.1.3 Manufacturer's Name and Model Number
- 1.27.1.4 Manufacturer's Specification Sheet
- 1.27.1.5 Equipment items which have individual components will require that all component parts be listed individually.
- 1.27.1.6 Description of any specialty backbox requirements
- 1.27.1.7 All wiring types required for installation of this system
- 1.27.1.8 Copy of equipment warranty
- 1.27.1.9 Spare parts shall be listed individually to verify proposed quantity

- 1.28 Group # 2 Submittal shall be provided within (20) working days after the approval of the Group # 1 submittals and prior to any fabrication or field conduit installations. All shop drawings shall be engineered and drawn on a CAD System. Contractor shall make the request for drawings in writing directly to Johnson Consulting Engineers, confirmation of the request and a release form will be forwarded to the contractor to include a signed copy with payment prior to release of files. Detail or riser diagram sheets or any other drawings other than floor or site plans, will not be made available to the contractor. Phase II Submittals drawings shall include the following:

- 1.28.1 Furnish complete shop drawings for all systems specified. Each drawing shall have a descriptive title and all sub parts of each drawing shall be completely described. All drawings shall have the name of the project, architect, consultant, and electronics contractor in the title block.
- 1.28.2 Furnish complete scaled drawings of all equipment racks, consoles, special assemblies, etc. Each drawing shall show all equipment with its manufacturer and model number.
- 1.28.3 Furnish complete scaled installation drawings detailing locations of all equipment such as control panels, plug panels, video monitors, video projectors, equipment racks, speakers, etc. All conduits with cable quantities and types and all terminal block locations shall be shown also.
- 1.28.4 Provide single line riser diagrams of all racks, consoles, control panels, speaker assemblies, etc. Each drawing shall delineate circuit numbers for all cables and terminal connections. Provide typical wiring termination for all devices.

- 1.29 All equipment items referenced by manufacturer name and model number shall be the only approved product to be furnished for use on this project. Where alternate items are acceptable (or approved alternate) will be noted with the product description.
- 1.30 Products as manufactured by “Extron” have been specified to coordinate with an existing facility and other contracts to be issued for this project. Alternate products will not be approved.

SEISMIC ANCHORING

- 1.31 All sound systems, A/V equipment or enclosures shall be anchored to the structure. Where details have not been provided on the drawings, anchorage shall comply with CBC Section 1632A and Table 16-A0. The contractor shall submit drawings signed by the contractor’s registered structural engineer indicating method of compliance prior installation.

CLEANUP

- 1.32 In addition to cleanup specified under other sections, thoroughly clean all parts of the equipment. Where exposed parts are to be painted, thoroughly clean off any spattered construction materials and remove all oil and grease spots. Wipe the surface carefully and scrape out all cracks and corners.
- 1.33 Use steel brushes on exposed metal work to carefully remove rust, etc., and leave smooth and clean.
- 1.34 During the progress of the work, keep the premises clean and free of debris.

GENERAL COORDINATION

- 1.35 The A/V drawings may reference components by manufacturer which conflict with the written specification requirements, where this occurs the written specifications shall be followed.

DEMO

- 1.36 Contractor is required to remove all existing AV cabling extending to the projector from the AV cabinet and teaching island in each room. There are existing HDMI, VGA, S-Video, and composite video cabling. Protect projector, mount assembly and the ceiling mounted audio speaker with power supply in place after removing cabling and before the wall construction begins.

PART 2 — PRODUCTS

2.1 Science Building AV Classrooms and Science Lecture

- 2.1.1 ~~The typical classroom will be getting (1) new projection screen for each projector and (2) new HDMI faceplates and HDMI cabling from the teachers LO location to the existing ceiling projector. Contractor will provide an audio return from the projector audio output feeding into a new RDL ST-DA3.~~ ***The typical classroom will receive (1) new projection screen and (1) pair of 6" screen mount brackets for each projector, (2) new HDMI cables and wallplates from the teachers LO location cabled to the existing ceiling projector, (1) dual RCA wallplate for audio output for the portable ALS kit as well as a new speaker power supply and cabling and the additional of an audio splitter with output plates and to handle the distribution of audio channels to all outputs. The existing projector, mount and extension pole will remain and shall be protected in place.***
- 2.1.2 ~~Line Level Distribution Amplifier 1x3. This will split the line level output to (2) channels, one to the existing ceiling speaker and the second channel shall feed the 3.5 mm wallplate for the ALS. The existing projector mount and extension pole will remain.~~ ***Provide (1) Active Audio Distribution Sender and (2) two RCA phono jack output modules, with cabling for each projector AV setup. The Audio Sender will be installed in the existing BMS projector mount enclosure. Provide 3.5mm to dual RCA cabling from the audio output of the existing projector to the RDL Sender. The audio signal from the sender shall be sent using (minimum) Cat5e patch cable to the first of the RDL Audio receiver plates installed above the accessible ceiling into a surface mounted extra deep single gang box attached to a 2' grid spanner support. Then from this first receiver plate a second Cat5e cable shall extend to the Teachers LO location and plugged in to the second RDL receiver plate to output stereo audio for the ALS, labeled 'ALS' out.***
- 2.1.2.1 (1) ***RDL Twisted Pair Format-A - Balanced line inputs-Line Level Distribution Amplifier model TX-TPS3A.***
- 2.1.2.2 (1) ***RDL 24-volt power supply model PS-24AS . Plugged into the existing quad power supply above the ceiling near the projector. This shall power itself and both connected receiver plates.***
- 2.1.2.3 (2) ***Cat5e(or better) pre-made patch cables, orange in color.***
- 2.1.2.4 (2) ***RDL TWISTED PAIR FORMAT-A model D-TPR2A, receivers. These will be powered from the RDL Sender power supply.***
- 2.1.2.5 (1) ***C2G (or approved equal) stereo dual RCA to 3.5mm audio patch cable, to plug into the ALS transmitter.***
- 2.1.2.6 (1) ***Plenum CL3P 3.5mm stereo audio cable male to blunt (installation Grade) model 47324-3PX from Custom Cable Connection (or approved equal), from the audio output of the projector to the input of the RDL Sender.***

2.1.2.7 (2) **Plenum RCA Audio Cables Male to Male (or bare) Installation**
Grade Plenum CL3P cables one (white) for left channel from receiver to the existing left speaker and one (red) from the red receiver output to the existing right speaker. Audio System shall retain the existing stereo broadcast qualities with the new plates.

2.1.3 Contractor will provide (2) new HDMI cables from each LO location on the floorplans to the projector location. The LO locations will have (2) single decora wallplates containing a single HDMI and (1) 3.5mm audio pass-through plate for return audio for the ALS. All decora plates and covers shall be white in color. **Contractor will provide (2) new HDMI cables from each 'LO' location on the floorplans to the projector location, as well as the audio setup listed in the proceeding section. The teachers 'LO' locations will have (2) single decora wallplates containing a single HDMI running to the existing projector. All decora wall plates shall be white in color.**

2.1.3.1 ~~Extron wallplate model # WPD 110 A HDMI w/Audio Captive Screw and Control with HDMI Female to HDMI Female connector on 10" pigtail.~~ **(2) Extron wallplate model # WPD 110 A HDMI w/Audio Captive Screw and Control with HDMI Female to HDMI Female connector on 10" pigtail.**

2.1.3.2 ~~(2) Extron 4K HDMI 2.0 cable HD Pro Plenum Series HDMI Premium High Speed Optical Cables — HD Pro P/35 or P/50 lengths. Science Lecture locations will require a 50' + cable, field verify length before acquiring (or approved equal by Vanco).~~ **(2) Extron 4K HDMI 2.0 cable HD Pro Plenum Series HDMI Premium High Speed Optical Cables – HD Pro P/35 or P/50 lengths. Science Lecture locations will require a 50' + cable, field verify length before acquiring (or approved equal by Vanco).**

2.1.3.3 ~~(1) 3.5 mm Male to Male Stereo Audio Cable 35' or 50' by C2G (or approved equal by Kramer) length will be determined off of actual field condition necessities . This will be connected to the "audio-out" from the projector feeding the wallplate.~~

2.1.3.4 ~~(1) 3.5mm decora wallplate (pass-through) by Extron model # WPD 101 3.5 mm labeled 'ALS feed'.~~

2.1.3.5 ~~(1) RDL ST-DA3 stick-on distribution amplifier, this will be installed inside the existing locking projector mount assembly with the power cable feeding up the projector pole and plugged into the existing power feed above ceiling. Contractor must balance the audio inputs and outputs for proper volume levels.~~

2.1.3.6 ~~(1) RDL PS-24AS 24 Vdc Switching Power Supply, North American AC Plug, 500 mA, dc Plug~~

- 2.1.4 Contractor will provide a new wall mounted manual projection screen in each classroom location shown on the plans. Science lecture will have two one for each projector. This will include wall mounting brackets, 'S' hooks and all necessary hardware. Anchors will be installed into backing furnished by others. Contractor must coordinate the proper layout for backing with the framing contractor. Screen must be installed to align image from existing projector.
- 2.1.4.1 Provide (1) Da-Lite Model 'C' with CSR projection screen in each classroom space. Wide (16:10) format; 60' x 90" or 113" diagonal size; Matte White screen surface.
- 2.1.4.2 Provide (1) pair of Da-Lite screen mounting and extension brackets Da-Lite model # 40932 for each screen installed.
- 2.1.5 The image from the projector must align with the projection screen and fill the new screen image area completely with no keystone correction or quick cornering.
- 2.1.6 ***The existing Valcom AV speakers model V1422 shall be re-purposed in their original location. The contractor shall provide a new audio filtered power supply from the original speaker manufacturer as well as new cabling for power and signal.***
- 2.1.6.1 ***Provide (1) Valcom Model VP-624B 24 VOLT DC power supply for both speakers. Provide new 18 ga, power wire to each speaker with connectors and a 18" service loop, coiled and suspended above each speaker location indicated on the floorplans. Typical is (2) per room.***
- 2.1.6.2 ***Power supply shall be plugged into existing outlet above the accessible ceiling near the project.***

2.2 ALS Systems

- 2.2.1 Provide (4) portable complete ALS systems, (2) floating for Standard Classrooms and (2) for the Science/Lecture area. The existing projectors shall be outfitted with an 'audio output' cable consisting of a 3.5 mm audio cable from the projector to a wall plate adjacent to the teachers LO location in each space. The Contractor shall provide a complete portable, compliant ALS system with all necessary hardware, cabling, wall plates, connectors, and wall placards. Each classroom and assembly area shall have an 'Assistive Listening Devices available' wall plate mounted in a conspicuous area, refer to the Architectural details of the drawings for details on this. The Assistive Listening Systems shall be provided in accordance with CBC Section 11B-219 and shall comply with CBC Section 11B-706.
- 2.2.2 Per ADA Assistive Listening System CBC Section 11B-706.3 – "The minimum number of receivers to be provided shall be equal to 4% of the total number of seats, but in no case less than two. 25% minimum of receivers provided, but no fewer than two, shall be hearing aid compatible. If the system provided is

limited to specific areas or seats, then such areas or seats shall be within a 50-foot viewing distance of, and have a complete view of the stage or playing area per CBC Section 11B-219.4

- 2.2.3 For the Science/Lecture area provide (2) FM ADA KIT 37 complete systems consisting of the following:

2.2.3.1 (1) PPA T46 transmitter

2.2.3.2 (4) PPA R37 receivers

2.2.3.3 (4) HED 027 headphones

2.2.3.4 (1) MIC 090 lapel microphone

2.2.3.5 (1) MIC 049 desktop conference mic

2.2.3.6 (1) CCS 029 system carry case

2.2.3.7 (2) NKL 001 neckloops

2.2.3.8 (1) BAT KT6 charger kit

2.2.3.9 (5) BAT 026-2 AA rechargeable batteries

2.2.3.10 (1) CHG 3502 Battery Charger

2.2.3.11 (1) IDP 008 ADA wall plaque-permanently mounted on wall-confirm location with Architect.

- 2.2.4 For the Standard Classroom areas there will be (2) complete systems shared for these spaces, so each room will receive a permanent wall placard but share (2) FM ADA KIT 37 ALS kits with the following:

2.2.4.1 (1) **IDP 008 ADA wall plaque for each Classroom** permanently mounted on wall (confirm location with Architect).

2.2.4.2 (1) PPA T46 transmitter

2.2.4.3 (4) PPA R37 receivers

2.2.4.4 (4) HED 027 headphones

2.2.4.5 (1) MIC 090 lapel microphone

2.2.4.6 (1) MIC 049 desktop conference mic

2.2.4.7 (1) CCS 029 system carry case

2.2.4.8 (2) NKL 001 neckloops

2.2.4.9 (5) BAT 001-2 AA alkaline batteries

2.3 Audio/Video Patch Cables

2.3.1 All patch cables must be factory manufactured. Do not substitute cable assemblies with a different manufacturer than shown in the specifications.

2.3.2 All HDMI cables must be

2.3.2.1 48 Gbps bandwidth

2.3.2.2 Supports resolutions up to 8K@60Hz, 4:4:4 Chroma and 4K@120Hz

2.3.2.3 Enables transmission of High Dynamic Range (HDR) video

2.3.2.4 EMI tested to ensure cables minimize interference with wireless signals

2.3.2.5 Up to 32 audio channels

2.3.2.6 Features Enhanced Audio Return Channel (eARC) for simplified connectivity, greater ease of use and support for the most advanced audio formats and highest audio quality

2.3.2.7 HD Audio Formats such as DTS Master, DTS:X, Dolby TrueHD, Dolby Atmos and more

2.3.2.8 Support for the wide-angle theatrical 21:9 video aspect ratio.

2.3.3 All DisplayPort cables must be:

2.3.3.1 DisplayPort 1.2 compliant

2.3.3.2 4K Verified

2.3.3.3 Supports resolutions to 4096x2160 @ 60 Hz for cable lengths up to 12 feet (3.6m)

2.3.3.4 25 feet (7.6 m) cable supports resolutions to 4096x2160 @ 30 Hz

2.3.3.5 Support video and audio bandwidth up to 21.6 Gbps

2.3.3.6 28 AWG copper wire construction

2.3.4 All stereo audio cables shall be length as required and terminated with the proper connectors to interface with the equipment. Provide Extron "Mini Audio Cables Series", Model A/Mini/XX (XX=length required).

2.3.5 All patch cables shall be provided for each type of connection required to provide a complete and operational system. All patch cables shall be factory manufactured.

Training

- 2.4 Portable Equipment shall be furnished and spares supplied to the designated representative of the Client, along with complete documentation of the materials provided. Where applicable, deliver portable equipment in the original manufacturer's supplied packaging.
- 2.5 **Contractor will provide a minimum of 4 clock hours of on-site training for site staff on the Classroom A/V systems.** Training for personnel shall be provided by certified technology specialists. The scope of training shall encompass system operation and procedures. Technician training should include an integrated information overview, media retrieval procedures as well as operation procedures for local control configurations. The contractor shall provide a detailed written outline clearly describing the proposed plan for all training, for approval by the Engineer and Owner's representative.
 - 2.5.1 Training for staff will include basic system concepts. Faculty and staff will need to know how to power on/off the system, and how to access one or more media resources via remote control. Training should include use and operation of audio/video devices and techniques and trouble-shooting tips. Trainers should incorporate hands-on techniques to maximize staff opportunity to incorporate and develop curriculum that is both meaningful and targeted for their student needs. Clearly written support materials should be provided to all training participants. Manual describing operation and use of the system shall also be provided.

PART 3 - INSTALLATION AND EXECUTION

- 3.1 Verify that all electrical requirements including junction boxes, empty conduit and power circuits and receptacles are in place as shown on the drawings.
- 3.2 Receive, check, unload, handle, store, and adequately protect equipment and materials to be installed as part of the contract. Store in areas as directed by the owner's representative. Include delivery, unloading, setting in place, fastening to walls, floors, ceilings, or other structures where required, interconnecting wiring of system components, equipment alignment and adjustment, and other related work whether or not expressly defined herein.
- 3.3 Installation practices shall follow "standard broadcast wiring" and installation practices, as excerpted from "Recommended Wiring Practices, "Sound System Engineering", (2nd Edition) D. Davis, and Performed to the highest standards of acknowledged industry practices. Upon request the A/V contractor shall furnish all equipment and labor to verify the compliance with the following:
 - Optical:
 - 3.3.1 Center to corner light fall off shall be less than 50% for video/data projectors.
 - 3.3.2 Center to corner light fall off shall be less than 35% for optical projectors.

3.3.3 Images shall be level and square with the appropriate aspect ratio.

3.3.4 Image shall be free from visible vibration.

Audio System:

3.3.5 Signal-to-noise ratio (including crosstalk): 55-dB minimum.

3.3.6 Total harmonic distortion: 0.1% maximum from 30 Hz to 15,000 Hz.

3.3.7 System frequency response: ± 1.0 dB, 20 Hz to 20,000 Hz.

3.3.8 Program reproduction system with point-source loudspeakers: Flat response from 63 Hz to 2.5 kHz ± 2 -dB, decreasing uniformly from a relative level of 0-dB at 2.5 kHz to a relative level of -10 -dB at 10 kHz as measured on axis of loudspeaker.

3.3.9 Sound output capability: Program levels of not less than 100 dB without objectionable distortion, rattles, or buzzes.

3.3.10 Hum and noise is inaudible (below the background noise level of the space) under normal operation and as observed in normal seat locations.

Video System:

3.3.11 Signal-to-noise ratio (peak to RMS, unweighted DC to 4.2 MHz): 55-dB minimum.

3.3.12 Crosstalk (unweighted DC to 4.2 MHz): 45-dB minimum.

3.3.13 Frequency response: ± 0.5 dB to 4.2 Mhz.

3.3.14 Line and field tilt: 2% minimum.

3.3.15 Differential gain: 3% maximum.

3.3.16 Differential phase: 2° maximum.

3.3.17 System timing sync coincidence: within 50 nanoseconds.

3.3.18 Color timing: $\pm 2^\circ$ at 3.58 Mhz.

Radio Frequency (RF) System:

3.3.19 Visual Carrier level: +0 dBmV minimum and +16 dBmV maximum at system outlets for utilized channels.

3.3.20 Adjacent Channel Visual Carrier: 3-dB maximum differential at system outlets.

- 3.3.21 Non-adjacent Channel Visual Carrier: 0-dB maximum differential at system outlets.
- 3.3.22 Carrier-to-Noise Ratio: 42-dB minimum
- 3.3.23 Amplitude Response: Flat ± 1.0 Db
- 3.3.24 Signal-to-Noise Ratio: 45-dB minimum for the maximum level of the signal and the interference resulting from cross modulation from other signals on the system, after demodulation.
- 3.3.25 Outlet-to-Outlet Isolation: 25-dB minimum.
- 3.4 Adhere to manufacturer's published specifications for pulling tension, minimum bend radii, and sidewall pressure when installing cables.
- 3.5 Where manufacturer does not provide bending radius information, minimum bending radius shall be 10 times cable diameter. Arrange and mount equipment and materials in a manner acceptable to the engineer and the owner.
- 3.6 Attach cables to permanent structure with suitable attachments at intervals of 48 to 60 inches. Support cables installed above removable ceilings. Install adequate support structures for 10 foot cable service loops at each TC.
- 3.7 Mark all cables and patch cords or jumpers with permanent, non-handwritten number or letter cable markers within six inches of both ends. All cables shall be marked. Cable marking codes shall correspond to run sheets.
- 3.8 All faceplates shall be labeled with type-written permanent labels securely attached to the faceplates identifying all A/V connections. (ie; Doc Cam, PC, DVD, etc.) Cables at the projector and A/V switch shall be also be labeled to match the faceplates.
- 3.9 Furnish screw-type terminal blocks, boards, strips or connectors for cables that interface with racks, cabinets, consoles or equipment modules. Attach wires terminating at screw-type terminals with crimp-on lugs. "Telephone-style" punch down blocks are not acceptable for signal or data wiring.
- 3.10 Group cables according to signals being carried. To reduce signal contamination, form separate groups for the following:
 - 3.10.1 Power cables.
 - 3.10.2 Control cables.
 - 3.10.3 Video cables.
 - 3.10.4 Camera cables.
 - 3.10.5 Audio cables for signals less than minus 20 dBm.
 - 3.10.6 Audio cables for signals between minus 20 dBm and plus 30 dBm.
 - 3.10.7 Audio cables for signals above plus 30 dBm.
 - 3.10.8 Broadband RF cables.

- 3.11 Run power cables, control cables, and high level cables on the left side of an equipment rack as viewed from the back. Run other cables on the right side of an equipment rack.
- 3.12 Cut cables (except video, camera and RGBS cables, which must be cut to electrical length) to the length required by the run. All wire and cable shall be continuous and splice-free for the entire length of run. For equipment mounted in drawers or on slides, provide the interconnecting cables with a service loop of appropriate length.
- 3.13 Install no cable with a bend radius less than that recommended by the manufacturer.
- 3.14 Provide strain relief for cables. Provide connectors with metal shell/casings. Provide a minimum of three feet of free cable coiled in a floor pocket. Use spiral wrap to group similar cable types.
- 3.15 All shielded cables shall be insulated. Do not permit shields to contact conduit, raceway, boxes, panels, or equipment enclosures. Tin all terminated shield drain wires and insulate with heat-shrink tubing.
- 3.16 Land all field loudspeaker wiring entering each rack at terminal devices prior to connection to equipment or devices. Land loudspeaker level control cables at screw or tubular clamp type barrier blocks on the left side of the equipment rack as viewed from the rear. Make all connections to screw-type barrier blocks with insulated crimp-on spade lugs. Size all lugs properly to assure low-resistance connections.
- 3.17 Separately dress, route and land microphone and line level cables directly to equipment.
- 3.18 Use only rosin core 60/40 tin/lead solder for all solder connections.
- 3.19 All cables shall be neatly labeled with wrap around type written labels.
 - 3.19.1 On the cable at the rear of the faceplate or termination location at the control location. Requires the use of a self laminating wrap around label. Brady Label self laminating 1.2" by 1.5" wrap around label Part # 29689 (NO ACCEPTABLE EQUAL)
- 3.20 Lace, tie or harness wire or cable in accordance with accepted professional practice. Dress, lace or harness all wire and cable to prevent mechanical stress on electrical connections; no wire or cable shall be supported by a connection point. Provide service loops where harness of different classes cross or where hinged panels are to be interconnected.
- 3.21 Upon completion of the work, remove all refuse and rubbish from and about the premises, and leave the relevant areas and equipment clean and in an operational state.
- 3.22 During the installation, and up to the date of final acceptance, protect finished and unfinished work against damage and loss. In the event of such damage or loss, replace or repair such work at no cost to the owner.

- 3.23 Prior to final acceptance, provide minimum of three complete sets of drawings showing all cable numbers and construction details in accordance with the actual system installation. Revise the device layout drawings to represent actual installation locations and coordinate these with the electrical contractor. The operation manual shall contain all instructions necessary for the proper operation of the installed system and manufacturer's instructions. The maintenance manual shall contain all information required for the "proof of performance" as required and all manufacturers' maintenance information.

Inspection and Test upon Completion

- 3.24 Check out and final connections to the system shall be made by the Contractor of the products installed. Technicians shall demonstrate operation of the complete system and each major component to the Owner.
- 3.25 System field wiring diagrams shall be provided to the owner by the system Installer (Contractor) prior to completion of the installation.
- 3.26 All materials and installation shall be guaranteed to be free of defects in material and workmanship for two years after final acceptance of installation and test.
- 3.27 Upon completion of the installation, four (4) copies of complete operational instructions shall be furnished, complete with record drawings. Instructions shall include part numbers and names, addresses, and telephone numbers of parts source. Final payment shall not be made until operational and maintenance manuals have been received.
- 3.28 The Contractor shall be responsible to provide service within 24 hours (or by mutual consent) after notification by the Owner or his representative, within the hours of 8:00 AM to 5:00 PM from Monday through Friday. Service request forms shall be supplied by the Contractor and the faxing or mailing of such a request form shall constitute notification by the Owner of a service request.
- 3.29 The Contractor shall provide two "preventative maintenance" service calls, spaced six months apart, for cleaning of all source devices and overall inspection of the system.

PROJECT CLOSEOUT

- 3.30 Prior to completion of project, compile a complete equipment maintenance manual for all equipment supplied under sections of this division, in accordance with these specifications and as described below.
- 3.31 Equipment Lists and Maintenance Manuals:
- 3.31.1 Prior to completion of job, contractor shall compile a complete equipment list and maintenance manuals. The equipment list shall include the following items for every piece of material equipment supplied under this section of the specifications:
- 3.31.1.1 Name, model, and manufacturer.

- 3.31.1.2 Complete parts drawings and lists.
 - 3.31.1.3 Local supply for parts and replacement and telephone number.
 - 3.31.1.4 All tags, inspection slips, instruction packages, etc., removed from equipment as shipped from the factory, properly identified as to the piece of equipment it was taken from.
- 3.32 Maintenance manuals shall be furnished for each applicable section of the specifications and shall be suitably bound with hard covers and shall include all available manufacturers' operating and maintenance instructions, together with "as-built" drawings to properly operate and maintain the equipment. The equipment lists and maintenance manuals shall be submitted in duplicate to the Architect for approval not less than 10 days prior to the completion of the job. The maintenance manuals shall also include the name, address, and phone numbers of all subcontractors involved in any of the work specified herein. Four copies of the maintenance manuals bound in single volumes shall be provided.

RECORD DRAWINGS

- 3.33 The contractor shall maintain record drawings as specified in accordance with these specifications, and as noted below.
- 3.34 Drawings shall show locations of all concealed and exposed conduit runs, giving the number and size of conduit wires. Underground ducts shall be shown with cross section elevations and shall be dimensioned in relation to permanent structures to indicate their exact location. Drawing changes shall not be identified only with referencing CORs and RFIs, the drawings shall reflect all the actual changes made.
- 3.35 One set of record drawings shall be delivered to the Engineer in accordance with these specifications.

END OF SECTION

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SCIENCE BLDG. MODERNIZATION

8756 MAST BOULEVARD, SANTEE, CA 92071
GROSSMONT UNION HIGH SCHOOL DISTRICT

RUHNAU CLARKE ARCHITECTS

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STAMPS

AGENCY APPROVAL
File No. 37-M 10/04-119771

RUHNAU
CLARKE
ARCHITECTS

CONSULTANT BRANDING

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Contact: Larry Kaprielian, S.E.
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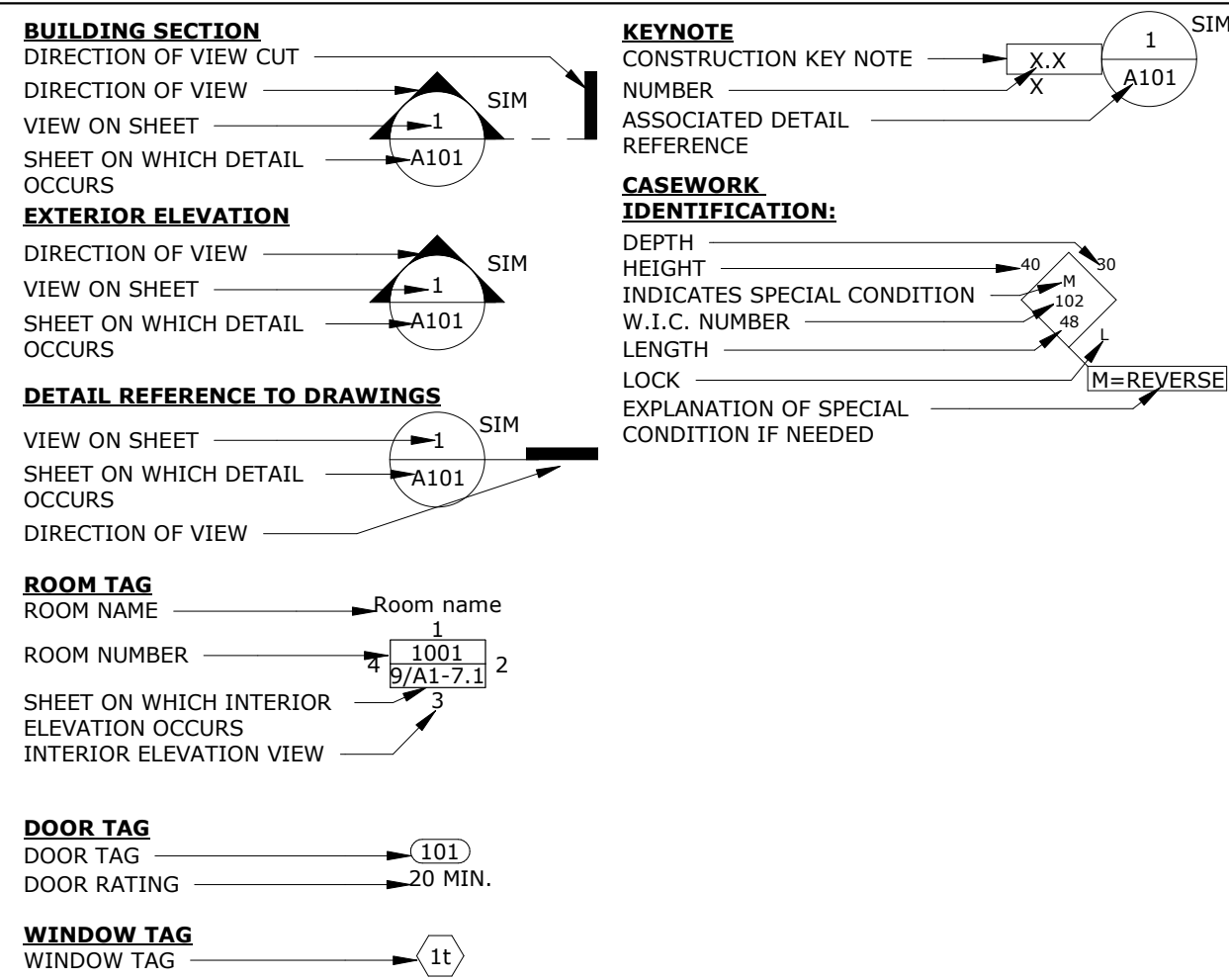
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Contact: Jeffrey Koch
jeffrey.koch@alliegion.com



TYPICAL ABBREVIATIONS	GENERAL NOTES	REGIONAL MAP	SHEET INDEX	SCOPE OF WORK
<p>@ AT & < ANGLE</p> <p>ACPL ACOUSTIC PLASTER</p> <p>ACT ACOUSTIC TILE</p> <p>AFF ABOVE FINISHED FLOOR</p> <p>BLKG BLOCKING</p> <p>BOS BOTTOM OF STRUCTURE</p> <p>BB BUTT JETTIN BOARD</p> <p>CAB CABINET</p> <p>CPT CARPET</p> <p>CSWK CASEWORK</p> <p>CLG CEILING</p> <p>CEM CEMENT</p> <p>CPL CEMENT PLASTER</p> <p>CL CENTERLINE</p> <p>CT CERAMIC TILE</p> <p>CLF CHAIN LINK FENCE</p> <p>CLR CLEAR</p> <p>COL COLUMN</p> <p>CONC CONCRETE</p> <p>CMU CONCRETE MASONRY UNIT</p> <p>CJ COLD JOINT</p> <p>CONT CONTINUOUS</p> <p>CF CUBIC FEET</p> <p>DP DEMOUNTABLE PARTITION</p> <p>DET DETAIL</p> <p>DN DIMENSION</p> <p>DR DOOR</p> <p>DRF DOOR FRAME</p> <p>DL DOOR LOUVER</p> <p>DN DOWN</p> <p>DS DOWN SPOUT</p> <p>DF DRINKING FOUNTAIN</p> <p>DSA DIVISION OF STATE ARCHITECT</p> <p>DWGS DRAWINGS</p> <p>EA EACH</p> <p>ELEC ELECTRIC</p> <p>EWEC ELECTRIC WATER COOLER</p> <p>ELEV ELEVATION</p> <p>ENCL ENCLOSURE</p> <p>EQ EQUAL</p> <p>EQUIP EQUIPMENT</p> <p>EX EXISTING</p> <p>EXP EXPANSION/EXPOSED</p> <p>EJ EXPANSION JOINT</p> <p>EW EACH WAY</p> <p>EXT EXTERIOR</p> <p>FS FINISH FLOOR SINK</p> <p>FFP FACE OF FINISH</p> <p>FOM FACE OF MASONRY</p> <p>FOS FACE OF STUD</p> <p>FIN FINISH</p> <p>FC FINISH CEILING</p> <p>FG FINISH GRADE</p> <p>FEE FINISH FLOOR GRADE</p> <p>FEC FIRE EXTINGUISHER CABINET</p> <p>FHC FIRE HOSE CABINET</p> <p>FRFP FIREPROOF/FIREPROOFING</p> <p>FD FLOOR DRAIN</p> <p>FLR FLOOR</p> <p>FURN FURNISH/FURNITURE</p> <p>GA GALV</p> <p>GL GLASS</p> <p>GLU LAM GLUE LAMINATED</p> <p>GB GRAB BAR</p> <p>GPL GYPSUM PLASTER</p> <p>GWB GYPSUM WALLBOARD</p> <p>GW WATER RESISTANT GWB</p> <p>GC GENERAL CONTRACTOR</p> <p>H HIGH</p> <p>HDW HARDWARE</p> <p>HORIZ HORIZONTAL</p> <p>HR HOUR</p> <p>HT HEIGHT</p> <p>ID INSIDE DIAMETER</p> <p>INS INSULATION</p> <p>INT INTERIOR</p> <p>JH JOIST HANGER</p> <p>JT JOINT</p> <p>JST JOIST</p> <p>LAM LAMINATE</p> <p>LT LIGHT</p> <p>LVR LOUVER</p> <p>LVL LEVEL</p> <p>MACH MACHINE</p> <p>MECH MECHANICAL</p> <p>MIN MINIMUM</p> <p>MN MANHOLE</p> <p>MFR MANUFACTURER</p> <p>MO MASONRY OPENING</p> <p>MTL METAL</p> <p>ML METAL LATHE</p> <p>MS METAL STUD</p> <p>MTD MOUNTED</p> <p>NIC NOT IN CONTRACT</p> <p>NTC NOT IN CONTRACT</p> <p>NTS NOT TO SCALE</p> <p>NO NUMBER</p> <p>OC ON CENTER</p> <p>OD OUTSIDE DIAMETER</p> <p>OFCI OWNER FURNISHED/ CONTRACTOR INSTALLED</p> <p>OFOW OWNER FURNISHED/ OWNER INSTALLED</p> <p>OH OPPOSITE HAND/OVERHEAD</p> <p>OPNG OPENING</p> <p>OPP OPPOSITE</p> <p>PA PLANTING AREA</p> <p>PF PRE FINISHED</p> <p>PL PLATE/PROPERTY LINE</p> <p>PLAS PLASTIC</p> <p>PLYWOOD PLYWOOD</p> <p>PTD PAINTED</p> <p>PTN PARTITION</p> <p>RADIUS/RISER</p> <p>RD ROOF DRAIN</p> <p>REF REFERENCE</p> <p>REFR REINFORCED</p> <p>REQ REQUIRED</p> <p>RO ROUGH OPENING</p> <p>RQMT REQUIREMENT</p> <p>RSLB RESILIENT BASE</p> <p>RT RUBBER TREAD</p> <p>RWL RAIN WATER LEADER</p> <p>O ROUND</p> <p>SF SEAMLESS RESILIENT FLOORING</p> <p>SS SERVICE SINK</p> <p>SC SOLID CORE</p> <p>SB SPLASH BLOCK</p> <p>STN STAIN</p> <p>STD STANDARD</p> <p>STL STEEL</p> <p>STR STRUCTURAL/STRUCTURE</p> <p>SUSP SUSPENDED</p> <p>SHMT SHEET METAL</p> <p>SIM SIMILAR</p> <p>TB TACK BOARD</p> <p>TJ TOOLED JOINT</p> <p>TU TUBE STEEL</p> <p>TS TOP OF WALK</p> <p>TYP TYPICAL</p> <p>TEL TELEPHONE</p> <p>TEMP TEMPERATURE</p> <p>TOC TOP OF CANOPY</p> <p>TOR TOP OF ROOF</p> <p>TOS TOP OF STRUCTURE</p> <p>TOW TOP OF PARAPET</p> <p>TOW TOP OF WALL</p> <p>UC UNDER CUT/ UNDER COUNTER</p> <p>UNO UNLESS NOTED OTHERWISE</p> <p>VERT VERTICAL</p> <p>VC VINYL COATED</p> <p>VCT VINYL COMPOSITION TILE</p> <p>VT VINYL TILE</p> <p>VSF VINYL SHEET FLOORING</p> <p>VWC VINYL WALL COVERING</p> <p>VIF VERIFIED IN FIELD</p> <p>VIF VENT THROUGH ROOF</p> <p>WELD WIRE FABRIC WOODWORKING</p> <p>WI WINDOW</p> <p>WJ WITH</p> <p>WO WOOD</p> <p>W/O WITHOUT</p>	<p>1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES.</p> <p>2. THE CONTRACTOR SHALL COMPLY WITH CALIFORNIA FIRE CODE, CHAPTER 33 FOR FIRE SAFETY DURING CONSTRUCTION.</p> <p>3. CONTRACTOR WILL BE REQUIRED TO PROVIDE AND INSTALL ALL EQUIPMENT AND RELATED ITEMS AS SHOWN IN THESE DOCUMENTS AND AS SPECIFIED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS IN THE FIELD PRIOR TO BID AND TO DETERMINE THE WORK NECESSARY TO COMPLETE THE PROJECT.</p> <p>4. ALL WORK SHALL CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS (C.C.R.) AND SECTION 4-333.</p> <p>5. STRUCTURAL MODIFICATIONS SHALL BE MADE BY ADDENDUM OR CONSTRUCTION CHANGE DOCUMENT (C.C.D.) APPROVED BY DSA PER SECTION 4-338, PART 1, TITLE 24.</p> <p>6. A PROJECT INSPECTOR, EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT, SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR IS DEFINED IN SECTION 4-342, PART 1, TITLE 24, C.C.R. THE INSPECTOR SHALL BE ESPECIALLY QUALIFIED IN MECHANICAL AND ELECTRICAL WORK AND HAVE SUCCESSFULLY COMPLETED THE REQUIRED DSA CERTIFICATION PROCESS FOR CLASS 2 INSPECTOR OF RECORD AND A R.B.I.P.</p> <p>7. THE ARCHITECT OF RECORD SHALL HAVE THE RIGHT TO MAKE FINAL JUDGMENTS RELATIVE TO SUBMITTAL DRAWING REVISIONS IN ORDER TO ENSURE COMPLIANCE WITH ENGINEERING STANDARDS, APPLICABLE CODES, AND ARCHITECTURAL INTENT.</p> <p>8. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LOCATIONS OF EXISTING CONDITIONS ON THE JOB SITE PRIOR TO THE START OF ANY WORK. NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND CONSTRUCTION DOCUMENTS. EXISTING CONDITIONS ARE INDICATED AS A RESULT OF INFORMATION SHOWN ON AVAILABLE DOCUMENTS. ANY DAMAGE TO EXISTING CONDITIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.</p> <p>9. THE EXISTENCE OR LOCATION OF ANY UNDERGROUND UTILITIES, PIPES, OR STRUCTURE SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, EXISTING UTILITIES ARE AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON.</p> <p>10. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ADEQUACY AND SAFETY OF THE DESIGN/ERECTION OF BRACING, SHORING, TEMPORARY SUPPORTS AND SCAFFOLDING.</p> <p>11. UNDER NO CIRCUMSTANCE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THE DRAWINGS.</p> <p>12. ALL STANDARDS, MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE STATE BUILDING CODES, ORDINANCES, REGULATIONS, AND LAWS.</p> <p>13. WHERE ANY CONFLICT OCCURS BETWEEN THE REQUIREMENTS OF FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS, THE MOST STRINGENT SHALL GOVERN.</p> <p>14. ITEMS MARKED "TYP." OR "TYPICAL" SHALL APPLY IN ALL CASES UNLESS SPECIFICALLY INDICATED OTHERWISE.</p> <p>15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF REQUIREMENTS BETWEEN THE DISCIPLINES (ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL, ETC.) AND BETWEEN DRAWING AND SPECIFICATION IN ORDER TO ENSURE THAT ALL ITEMS SHOWN IN RELATIONSHIP TO ONE ANOTHER OR SHOWN IN MULTIPLE LOCATIONS ARE IN AGREEMENT. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT REGARDING ANY DISCREPANCIES, ERRORS, OMISSIONS OR INCONSISTENCIES AND SHALL NOT PROCEED WITH THE WORK UNTIL CLARIFICATION HAS BEEN ISSUED BY THE ARCHITECT.</p> <p>16. ALL WORK SHALL BE DONE IN ACCORDANCE WITH TITLE 24 CALIFORNIA CODE OF REGULATIONS (CCR)</p> <p>17. GRADING PLANS DRAINAGE IMPROVEMENTS, ROAD & ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES. INSPECTOR OF RECORD (IOR CLASSIFICATION 1).</p>	<p>Project Name: West Hills High School Project Address: 8756 Mast Blvd., Santee, CA 92071</p> <p>SITE MAP</p> <p>Project Name: West Hills High School Project Address: 8756 Mast Blvd., Santee, CA 92071</p>	<p>A-11.7.1 FLOOR PLAN - 57 CLASSROOM</p> <p>SHEET INDEX</p> <p>T-1 TITLE SHEET & SHEET INDEX</p> <p>GENERAL SHEET</p> <p>G-1 OVERALL SITE PLAN FIRE ACCESS PLAN</p> <p>G-2 EGRESS & SIGNAGE PLANS</p> <p>ARCHITECTURAL SITE PLANS</p> <p>AS-1.1 OVERALL SITE PLAN</p> <p>AS-1.2 ENLARGED SITE PLANS</p> <p>AS-1.3 ENLARGED SITE PLANS</p> <p>ASD-1.1 SITE DETAILS</p> <p>ARCHITECTURE</p> <p>A-1.0 FLOOR PLAN - DEMO.</p> <p>A-1.1 FLOOR PLAN - MOD.</p> <p>A-2.1 REFLECTED CEILING PLAN - DEMO.</p> <p>A-2.2 REFLECTED CEILING PLAN - MOD.</p> <p>A-4.1 EXTERIOR ELEVATIONS</p> <p>A-4.2 EXTERIOR ELEVATIONS</p> <p>A-7.1 ENLARGED PLANS & INTERIOR ELEVATIONS</p> <p>A-7.2 INTERIOR ELEVATIONS</p> <p>A-7.3 INTERIOR ELEVATIONS</p> <p>A-7.4 INTERIOR ELEVATIONS</p> <p>A-7.5 INTERIOR ELEVATIONS</p> <p>A-8.1 DOOR & WINDOW SCHEDULE</p> <p>AD-1.1 ACCESSIBILITY & SIGNAGE DETAILS</p> <p>AD-1.2 CASEWORK DETAILS</p> <p>AD-2.1 WALL TYPES & DETAILS</p> <p>AD-4.1 CEILING DETAILS</p> <p>AD-6.1 DOOR DETAILS</p> <p>INTERIOR DESIGN</p> <p>ID-1.0 FINISH SCHEDULE & CMF LEGEND</p> <p>STRUCTURAL</p> <p>S0-1.1 GENERAL NOTES</p> <p>S0-1.2 GENERAL NOTES</p> <p>S0-2.1 TYPICAL DETAILS</p> <p>S1-1.1 FOUNDATION PLAN</p> <p>MECHANICAL</p> <p>M1-1.1 MECHANICAL FLOOR PLAN</p> <p>M1-1.2 MECHANICAL REFERENCE PLAN</p> <p>PLUMBING</p> <p>P1-0.1 LEGEND & NOTES</p> <p>P1-0.2 PLUMBING SCHEDULES</p> <p>P1-1.1 PLUMBING FLOOR PLAN - DEMO</p> <p>P1-1.2 PLUMBING FLOOR PLAN - MOD.</p> <p>P1-3.0 PLUMBING ENLARGED PLANS</p> <p>P1-3.1 PLUMBING ENLARGED PLANS</p> <p>ELECTRICAL</p> <p>E1.0 ELECTRICAL LEGEND AND NOTES</p> <p>E2.0.0 TITLE 24</p> <p>E2.1 LEVEL 1 FLOOR PLAN - LIGHTING</p> <p>E2.2 LIGHTING FIXTURE SCHEDULE</p> <p>E2.3 LIGHTING DETAILS</p> <p>E2.4 LIGHTING CONTROL DIAGRAMS</p> <p>E3.1 LEVEL 1 FLOOR PLAN - POWER</p> <p>E4.0 COMMUNICATION LEGEND & NOTES</p> <p>E4.1 LEVEL 1 FLOOR PLAN - COMMUNICATIONS</p> <p>E4.2 COMMUNICATION DETAILS</p> <p>E4.3 COMMUNICATION DETAILS</p> <p>E4.4 GROUNDING SCHEMATIC DIAGRAM</p> <p>E4.5 COMMUNICATION DETAILS</p> <p>E4.6 COMMUNICATION DETAILS</p> <p>E7.1 ONE-LINE DIAGRAM</p> <p>E9.1 PANEL SCHEDULE</p> <p>E10.1 LEVEL 1 FLOOR PLAN - DEMOLITION</p> <p>E10.2 REFLECTED CEILING PLAN - DEMOLITION</p> <p>TOTAL SHEET COUNT: 56</p>	<p>INTERIOR REMODEL OF AN EXISTING SCIENCE BUILDING INCLUDING ACCESSIBILITY UPGRADES AND FINISH UPDATES, REPLACEMENT OF EXISTING DOORS, AND REMOVAL OF EXISTING ATTACHED GREENHOUSE.</p>

ARCHITECTURAL SYMBOLS



APPLICABLE AGENCIES

STATE OF CALIFORNIA

DEPARTMENT OF GENERAL SERVICES
DIVISION OF THE STATE ARCHITECT
10920 VIA FRONTERA ROAD, STE. 300
SAN DIEGO, CA 92127
TEL: (619) 574-5400

APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2020

2019 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(2018 INTERNATIONAL BUILDING CODE VOLUMES 1-2 & 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2017 NATIONAL ELECTRICAL CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
(2018 INTERNATIONAL MECHANICAL CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2018 INTERNATIONAL PLUMBING CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.
2019 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
(2018 INTERNATIONAL FIRE CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 C.C.R.
2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
2019 ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13 AUTOMATIC FIRE SPRINKLER SYSTEMS 2016 EDITION
NFPA 14 STANDPIPE AND HOSE SYSTEMS 2016 EDITION
NFPA 17 DRY CHEMICAL EXTINGUISHING SYSTEMS 2017 EDITION
NFPA 17A WET CHEMICAL EXTINGUISHING SYSTEMS 2017 EDITION
NFPA 20 STATIONARY PUMPS FOR FIRE PROTECTION 2016 EDITION
NFPA 22 WATER TANKS FOR PRIVATE FIRE PROTECTION 2013 EDITION
NFPA 24 PRIVATE FIRE MAINS & THEIR APPURTENANCES 2016 EDITION
NFPA 25 STANDARD FOR INSPECTION, TESTING AND MAINTENANCE OF 2013 EDITION
NFPA 72 NATIONAL FIRE ALARM CODE & SIGNALING CODE 2016 EDITION
NFPA 80 FIRE DOORS AND OTHER OPENING PROTECTIVES 2016 EDITION
NFPA 82 STANDARD FOR SMOKE CONTROL SYSTEMS 2015 EDITION
NFPA 253 CRITICAL RADIANT FLOW OF FLOOR COVERING SYSTEMS 2015 EDITION
NFPA 2001 CLEAN AGENT FIRE EXTINGUISHING SYSTEMS 2015 EDITION
ICC-300 ICC STANDARDS ON BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRAND STANDS 2017 EDITION
UL 300 FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF RESTAURANT COOKING AREAS 2005 EDITION
UL 464 AUDIBLE SIGNAL APPLIANCES 2003 EDITION
UL 521 HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS 1999 EDITION

REFERENCE CODE SECTION FOR NFPA STANDARDS - 2019 CBC (SPM) CHAPTER 35.
SEE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

PROJECT No. 1-30-50
3/18/2021 11:28:29 PM

ISSUE No.	DATE	DESCRIPTION	REVISION No.	DATE	DESCRIPTION
1	03/18/21	ADDENDUM 2	1	03/18/21	ADDENDUM 2
2	03/18/21	ADDENDUM 2	2	03/18/21	ADDENDUM 2
3	03/18/21	ADDENDUM 2	3	03/18/21	ADDENDUM 2

RUHNAUCLARKE.COM

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SCIENCE BLDG. MODERNIZATION

8756 MAST BOULEVARD, SANTEE, CA 92071
GROSSMONT UNION HIGH SCHOOL DISTRICT

TITLE SHEET & SHEET
INDEX

SCIENCE BLDG. MODERNIZATION: DSA SUBMITTAL - CD SET - 12-29-2020

T-1



AGENCY APPROVAL
FOR NO. 37-46 10-04-119771

RUHNAU
CLARKE
ARCHITECTS

STAMPS

CONSULTANT BRANDING

KEYNOTES

DEMOLITION KEYNOTE LEGEND

- 02.204 (E) CASEWORK TO REMAIN, PROTECT IN PLACE
02.205 (E) CEILING MOUNTED PROJECTOR PER A#04-109178 TO REMAIN, PROTECT IN PLACE
02.206 (E) FUME HOOD TO BE REMOVED AND REPLACED WITH NEW ACCESSIBLE COMPLIANT FUME HOOD IN EXISTING LOCATION, CONTRACTOR TO COORDINATE WITH EXISTING HOOD CONNECTIONS, ELECTRICAL/MECHANICAL DRAWINGS, ETC.
02.208 (E) MARKERBOARD TO REMAIN, PROTECT IN PLACE
02.209 (E) 1-1/2" DIA. HANDRAIL TO REMAIN, PROTECT IN PLACE
02.210 (E) CONCRETE STAIRS TO REMAIN, PROTECT IN PLACE
02.211 (E) GUARDRAIL TO REMAIN, PROTECT IN PLACE
02.212 (E) CONCRETE WALL TO REMAIN, PROTECT IN PLACE
02.215 (E) FIRE EXTINGUISHER CABINET TO REMAIN, PROTECT IN PLACE
02.216 REFURBISH (E) REMAINING LAB UPPER CASEWORK, LOWER CASEWORK, CABINETS, ETC. TO LIKE NEW CONDITION, TYPICAL.
02.217 REFURBISH (E) MOVABLE WALL, PATCH & REPAIR PARTITION TO ENSURE SMOOTH OPERATION, REMOVE & REPLACE ALL FABRIC AND ALL SEAL GASKETS REMOVE & REPLACE EXISTING HARDWARE AS REQUIRED IN ORDER FOR PARTITION TO FULLY FUNCTION, NEW FABRIC TO BE SELECTED BY ARCHITECT.
02.218 (E) SHEERWALL AND HOLDOWNS TO REMAIN, PROTECT IN PLACE, REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION
02.238 DEMOLISH (GREEN HOUSE) PORTION OF (E) BUILDING IN ITS ENTIRETY, INCLUDING BUT NOT LIMITED TO LOW CONCRETE WALLS, CONCRETE PAVING, ETC. PATCH & REPAIR EXISTING LANDSCAPE AND HARDSCAPE.
02.416 REMOVE AND REPLACE (E) EPOXY COUNTER TOP AND BACK SPLASH, REFURBISH (E) BASE CABINETS TO LIKE NEW CONDITION, TYPICAL. PATCH/REPAIR WALL AS REQUIRED BEFORE INSTALLATION OF NEW COUNTER TOP AND BACKSPLASH.
02.418 REMOVE (E) STUDENT PENINSULA IN ITS ENTIRETY INCLUDING BUT NOT LIMITED TO SINK, PLUMBING LINES, ELECTRICAL SYSTEM, SEE PLUMBING AND ELECTRICAL DWG. FOR MORE INFO
02.419 REMOVE AND REPLACE (E) TEACHER STATION COUNTER TOP, SINK, FAUCET AND GAS TUBERET, REFURBISH (E) BASE CABINETS, TYPICAL. SEE PLUMBING & ELECTRICAL DWG. FOR MORE INFO
02.420 REMOVE AND REPLACE (E) SINK
02.421 REMOVE AND REPLACE (E) DISH WASHER
02.422 REMOVE AND REPLACE (E) EYEWASH W/NEW ADA COMPLIANT EYE WASH
02.423 REMOVE AND REPLACE (E) FIXED SEATING PER NEW CONFIGURATION
02.424 REMOVE AND REPLACE (E) CARPET AND BASE BOARD, SEE DEMO FLR. PLAN GENERAL NOTE#1 FOR ADDITIONAL INFORMATION
02.425 REMOVE AND REPLACE (E) VCT FLOOR FINISH AND WALL BASE BOARD, SEE DEMO FLR. PLAN GENERAL NOTE#1 FOR ADDITIONAL INFORMATION
02.426 REMOVE (E) CONCRETE PAVING
02.429 REMOVE (E) CONCRETE PAVING
02.430 REMOVE (E) CASEWORK, PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
02.432 REMOVE (E) PORTION OF WALL
02.433 REMOVE AND REPLACE (E) REFRIGERATOR
02.434 PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH. ANY RATED WALL SHALL BE REPAIRED TO KEEP EXISTING RATING FOR THAT WALL
02.435 REMOVE ALL (E) CASEWORK, CAP ALL SINKS AND UTILITIES. PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
02.436 REMOVE ALL (E) SHELVING, PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
02.437 REMOVE AND REPLACE (E) FRP WALL FINISH, PATCH/REPAIR WALL PRIOR TO PLACING NEW FRP WALL FINISH.
02.439 RELOCATE ITEM TO ACCESSIBLE HEIGHT, PATCH/REPAIR/PAINT WALL PRIOR TO PLACING ITEM IN NEW HEIGHT LOCATION, MATCH (E) ADJACENT WALL MATERIAL AND FINISH.
02.441 REMOVE (E) TECHNOLOGY BASE CABINET, PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
02.442 REMOVE (E) DOOR/FRAME
02.443 REMOVE AND REPLACE (E) COUNTER TOP, SINK, FAUCET, BASE CABINET, TYPICAL. PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
02.444 REMOVE (E) DOOR/FRAME/GLAZING TRANSOM
02.454 REMOVE AND REPLACE (E) PLASTIC LAMINATE COUNTER TOP AND BACK SPLASH, REFURBISH (E) BASE CABINETS TO LIKE NEW CONDITION, TYPICAL. PATCH/REPAIR WALL AS REQUIRED BEFORE INSTALLATION OF NEW COUNTER TOP AND BACKSPLASH.
02.469 REMOVE AND RELOCATE (E) RECESSED FIRE EXTINGUISHER CABINET, PATCH/REPAIR/PAINT (E) RATED WALL TO MATCH ADJACENT MATERIAL AND FINISH
02.470 REMOVE AND REPLACE (E) MARKERBOARD, PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH

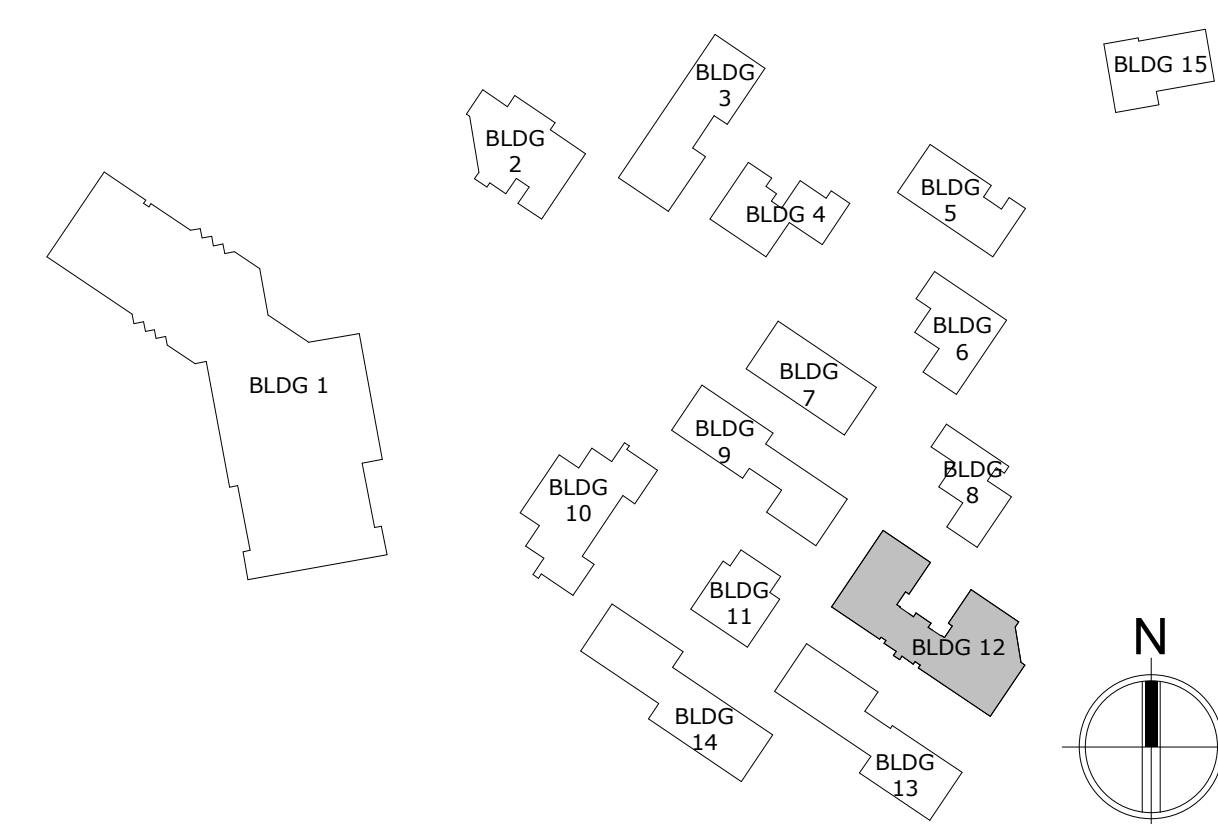
LEGEND

- DEMO (E) PENINSULA'S W/SINKS, GAS TUBERETS, EPOXY COUNTER TOPS, FIXED SEATING & SHELVING
DEMO (E) CONCRETE PAVING
DEMO (E) BASE CASEWORK - SEE GENERAL NOTE-DEMO FLR. PLAN #6 BELOW
FEC (E) FIRE EXTINGUISHER CABINET TO REMAIN
FE (E) SURFACE-MOUNTED FIRE EXTINGUISHER TO REMAIN
DEMO (E) DOOR
DEMO (E) FLOORING & CONCRETE PAVING FOR NEW TRENCHING, SEE PLUMBING & STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION

GENERAL NOTES-DEMO FLR. PLAN

- WHERE EXISTING FLOOR FINISHES ARE SHOWN TO BE REMOVED, CONTRACTOR TO SCRAPE ALL ADHESIVES FROM FLOOR SUBSTRATE TO BE READY TO ACCEPT NEW FLOOR FINISH MATERIAL.
- CONTRACTOR TO REMOVE WALL BASE MATERIAL WHERE EXISTING FLOOR FINISHES ARE SHOWN TO BE REMOVED.
- WHERE EXISTING WALL FRAMING OR PARTITIONS ARE SHOWN TO BE REMOVED, CONTRACTOR TO REMOVE/SAFE-OFF/CAP ALL CONCEALED UTILITIES OCCURRING WITHIN THE WALL CAVITY IN PREPARATION OF NEW CONSTRUCTION IN CONDITIONS WHERE EXISTING POWER/DATA/LOW VOLTAGE UTILITIES WITHIN THE WALLS CAN BE SALVAGED AND INCORPORATED INTO THE NEW CONSTRUCTION WORK. CONTRACTOR TO UTILIZE CARE AND PROTECT (E) ITEMS INTENDED FOR RE-USE. IF RE-USED ITEMS SHOW DAMAGE, DISTRICT RESERVES THE RIGHT TO HAVE THESE ITEMS BE OF NEW CONSTRUCTION.
- WHERE DEMOLITION WORK HAS OCCURRED AT EXISTING WALL CONSTRUCTION AND THE EXISTING WALL FINISHES HAVE BEEN DAMAGED AS A RESULT OF THE DEMOLITION WORK CONTRACTOR SHALL REPLACE DAMAGED WALL FRAMING MEMBERS AND WALL FINISHES WITH NEW SIMILAR MATERIALS, PATCH AND PREPARE WALLS FOR NEW PAINTED FINISH.
- PROTECT ALL EXISTING WALLS, WINDOWS, DOORS AND CASEWORK IN PLACE U.N.O.
- REMOVE AND RELOCATE ALL UPPER CASEWORK IN ALL CLASSROOMS AND FACULTY ROOM (SPACES S1, S2, S3, S4, S5, S6, S7, S9, S10, S12), PROVIDE NEW BACKING FOR ALL UPPER AND LOWER CASEWORK, TYPICAL.

KEYPLAN



FLOOR PLAN - DEMO, SCALE: 1/8" = 1'-0" 1

SCIENCE BLDG. MODERNIZATION

BUILDING 12
FLOOR PLAN - DEMO.

A-1.0

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REVISION No. 1 DATE 02/08/21 DESCRIPTION DSA1-RLP
REVISION No. DATE DESCRIPTION

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GROSSMONT UNION HIGH SCHOOL DISTRICT

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STAMPS

AGENCY APPROVAL
FIG. NO. 37-46 10-04-119771

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ARCHITECTS

CONSULTANT BRANDING

KEYNOTES

NEW CONSTRUCTION PLAN KEYNOTE

- 02.202 (E) DOOR TO REMAIN, PROTECT IN PLACE
02.204 (E) CASEWORK TO REMAIN, PROTECT IN PLACE
02.205 (E) CEILING MOUNTED PROTECTOR PER APM-109178 TO REMAIN, PROTECT IN PLACE
02.208 (E) MARKERBOARD TO REMAIN, PROTECT IN PLACE
02.209 (E) 1-1/2" DIA. HANDRAIL TO REMAIN, PROTECT IN PLACE
02.211 (E) GUARDRAIL TO REMAIN, PROTECT IN PLACE
02.212 (E) CONCRETE WALL TO REMAIN, PROTECT IN PLACE
02.213 (E) TACK BOARD TO REMAIN, PROTECT IN PLACE
02.434 PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
ANY RATED WALL SHALL BE REPAIRED TO KEEP EXISTING RATING FOR THAT WALL
RELOCATE (E) CASEWORK. REPAIR/REFINISH AS REQUIRED. (E) UPPER CABINETES TO BE REINSTALLED PER DEMO GENERAL NOTE #6
02.462 (N) WALL INFILL TO MATCH (E) ADJACENT STUD AND FINISHES.
06.116 RELOCATED UPPER CASEWORK, PROVIDE NEW BLOCKING AS NEEDED, TYPICAL, SEE DETAIL 13/AD-1.2
06.404 (N) EPOXY COUNTERTOP WITH 4" BACKSPLASH
06.415 (N) TEACHERS STATION COUNTERTOP WITH SINK, FAUCET & GAS TURRET
06.417 (N) CASEWORK PER INTERIOR ELEVATION
06.419 (N) PLASTIC LAMINATE COUNTERTOP WITH 4" BACKSPLASH
06.421 (N) DOOR PER SCHEDULE.
08.111 (N) DOOR, FRAME AND TRANSOM GLAZING, SEE DOOR SCHEDULE
08.112 (N) FLOOR FINISH, SEE ROOM FINISH SCHEDULE.
09.613 RELOCATED MARKERBOARD
10.112 RELOCATED SOAP/SANITIZER DISPENSER
10.287 PAPER TOWEL DISPENSER
11.413 (N) REFRIGERATOR, OTCI, MODEL#F830RGA BY FISHER SCIENTIFIC
11.470 (N) ICE MACHINE, OTCI, MODEL#UN324-KUPM24 BY SCOTSMAN
11.521 (N) 16"9 PROTECTION SCREEN
12.530 (N) FIXED SEATING
22.405 (N) SINK/FAUCET PER PLUMBING DWG.
22.415 (N) GLASS WASHER, OTCI, MODEL#401001000 BY LABCONCO
22.416 (N) ACCESSIBLE SINK W/FAUCET PER PLUMBING DWG.
22.417 (N) GAS/AIR TURRET, TYPICAL, REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION
22.452 (N) ACCESSIBLE EYE/FACE WASH EQUIPMENT W/RAILS, SEE DETAIL 17/AD-1.1
23.380 (N) ACCESSIBLE COMPLIANT FUME HOOD WITH ADA BENCH, CONTRACTOR TO COORDINATE WITH EXISTING HOOD CONNECTIONS, ELECTRICAL/MECHANICAL DRAWINGS, ETC

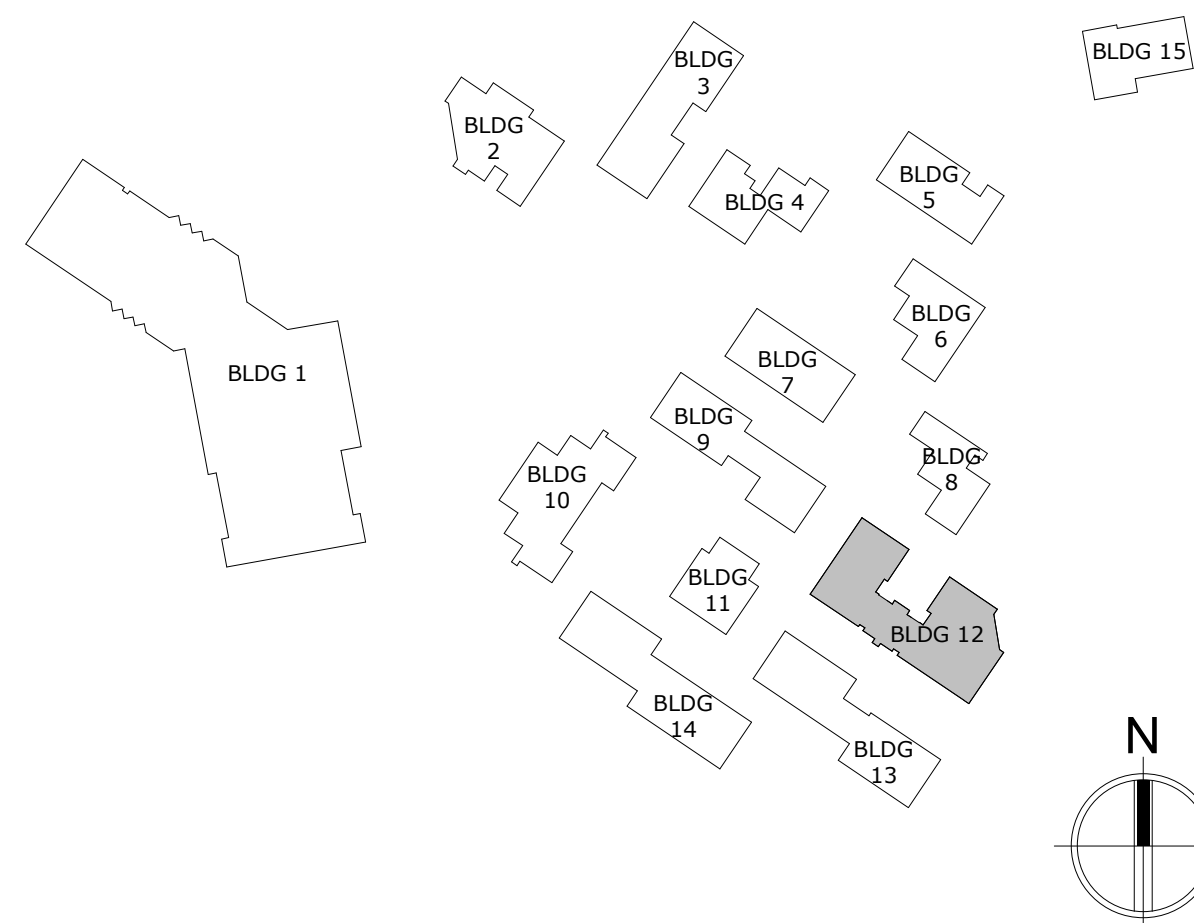
LEGEND

- WALL TAG**
- WALL TYPE, REFER TO AD-2.1
- WALL WIDTH
- FIRE RATING BY HOUR
- (E) 2x WOOD STUD WALL TO REMAIN
- (E) 2x WOOD STUD WALL TO REMAIN
- (E) DOOR TO REMAIN, U.N.O.
- (E) WINDOW TO REMAIN, U.N.O.
- (N) 2x WOOD STUDS @16" O.C., MATCH TO ADJACENT (E) WALL STUD SIZE AND INTERIOR/EXTERIOR FINISHES
- (N) DOOR, SEE DOOR SCHEDULE
- (E) FIRE EXTINGUISHER CABINET
- RELOCATED (E) FIRE EXTINGUISHER CABINET, SEE DETAIL 13/AD-1.1
- (E) SURFACE-MOUNTED FIRE EXTINGUISHER, RELOCATED TO ACCESSIBLE HEIGHT
- EXISTING 1-HOUR FIRE-RATED WALL TO REMAIN, PROTECT IN PLACE

GENERAL NOTES

- VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
- ALL DIMENSIONS ARE TO FACE OF STUD, CENTERLINE OF COLUMN OR EDGE OF SLAB, U.N.O.
- SEE DETAILS 2 & 3 FOR WALL TYPE INFORMATION.
- PROVIDE R-19 BATT INSULATION AT ALL EXTERIOR WALLS, U.N.O. GYPSUM BOARD AND INSULATION SHALL EXTEND FULL HEIGHT OF WALL TO UNDERSIDE OF ROOF STRUCTURE.
- PROVIDE STUD BRACING AND SUPPORT FOR ALL WALL MOUNTED FIXTURES AND ACCESSORIES. PER DETAIL 5/AD-1.2
- SEE SHEET AD-6.1 FOR DOOR AND WINDOW INFORMATION
- SET DOORS ADJACENT TO WALLS A MIN. OF 4" AWAY FROM WALL U.N.O.
- ADD LOCKING CAPABILITIES TO EXISTING UPPER CABINETRY

KEYPLAN



FLOOR PLAN - MOD. 1

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BUILDING 12
FLOOR PLAN - MOD.

A-1.1

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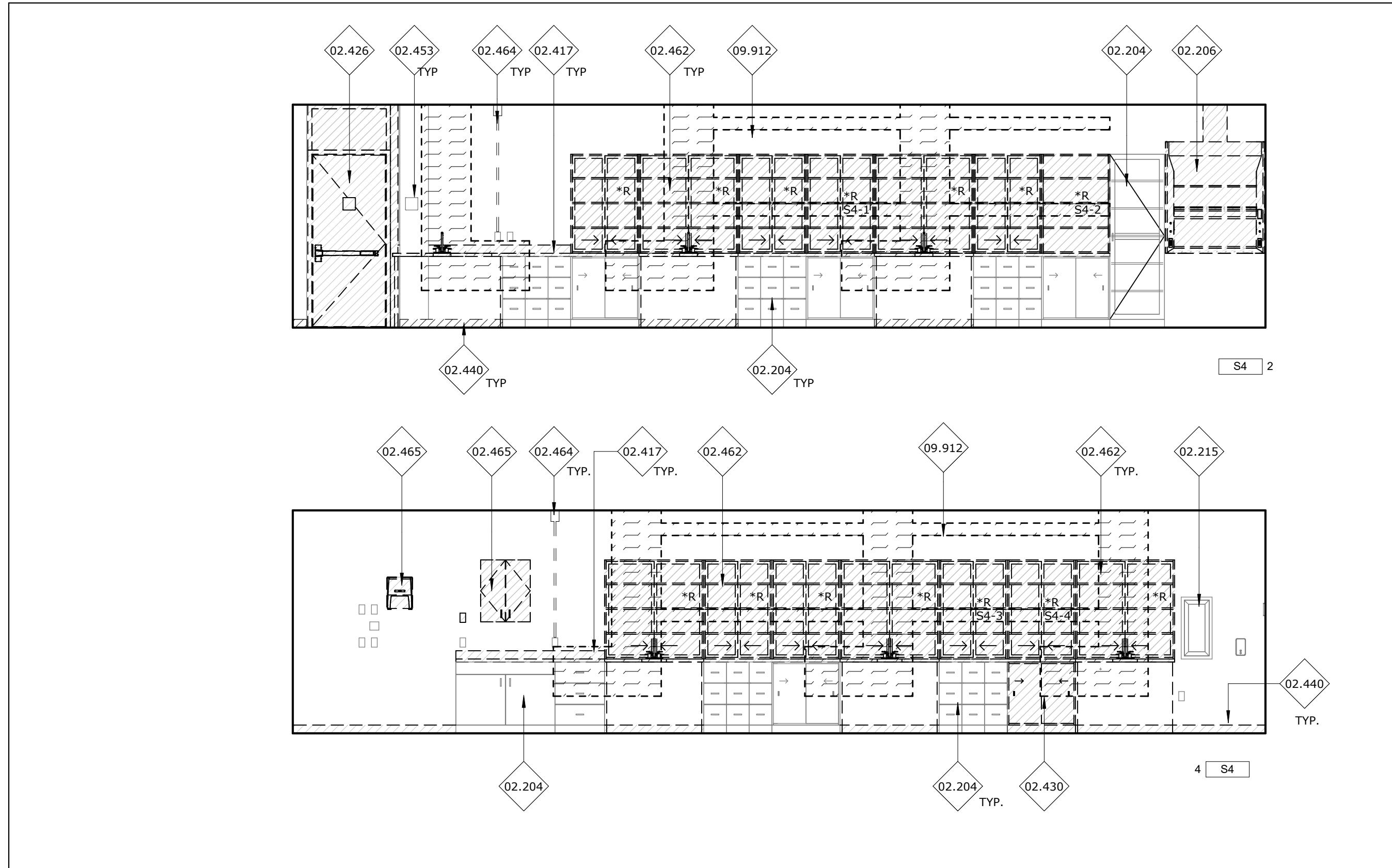
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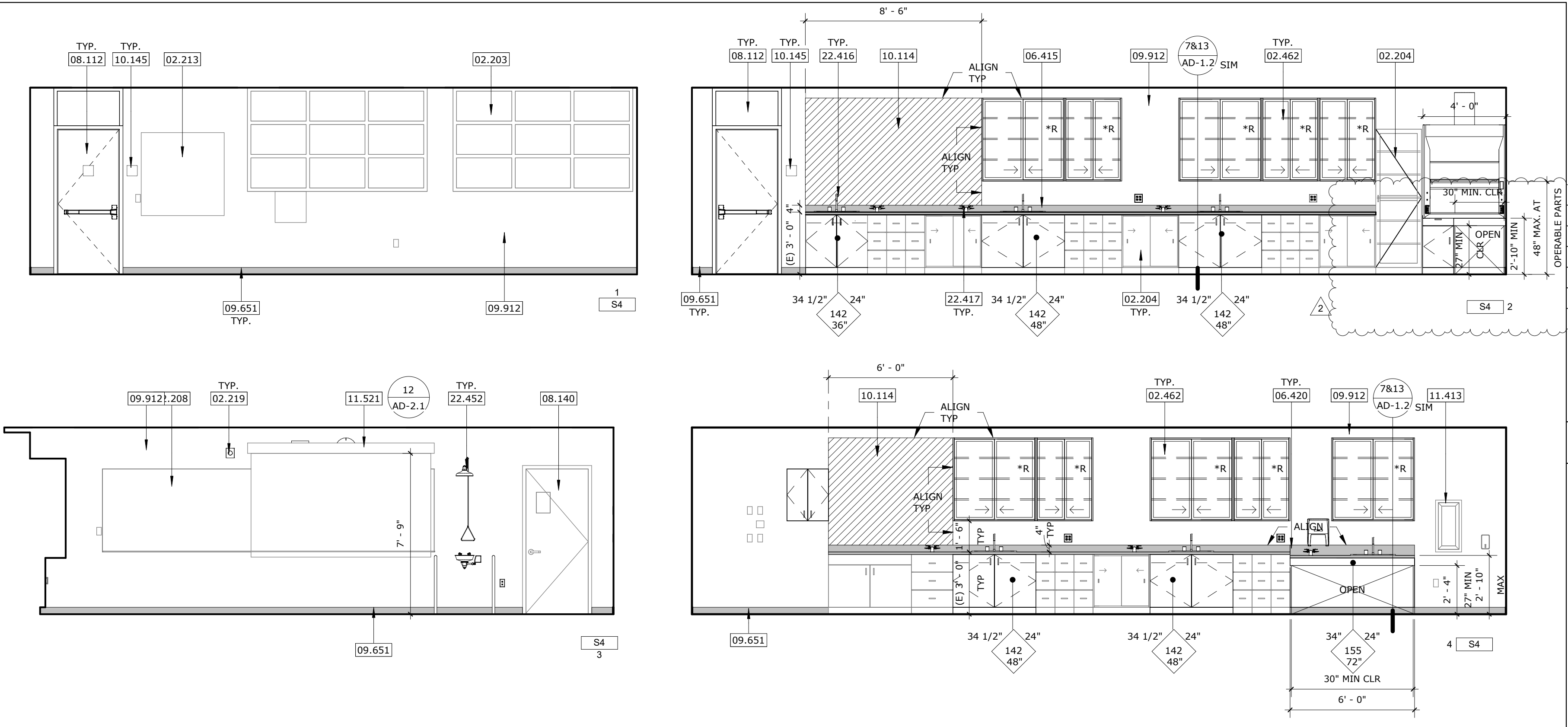
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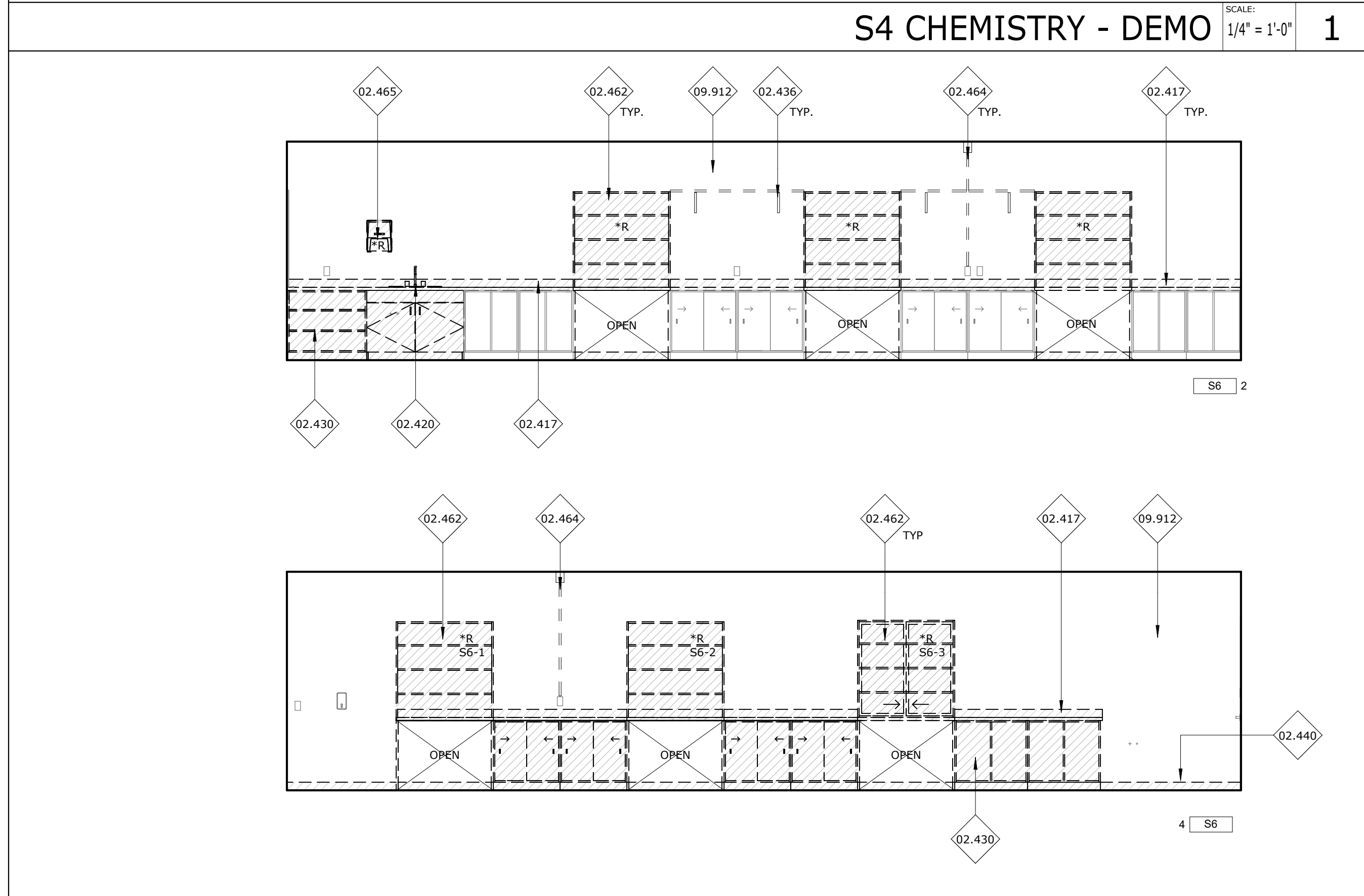
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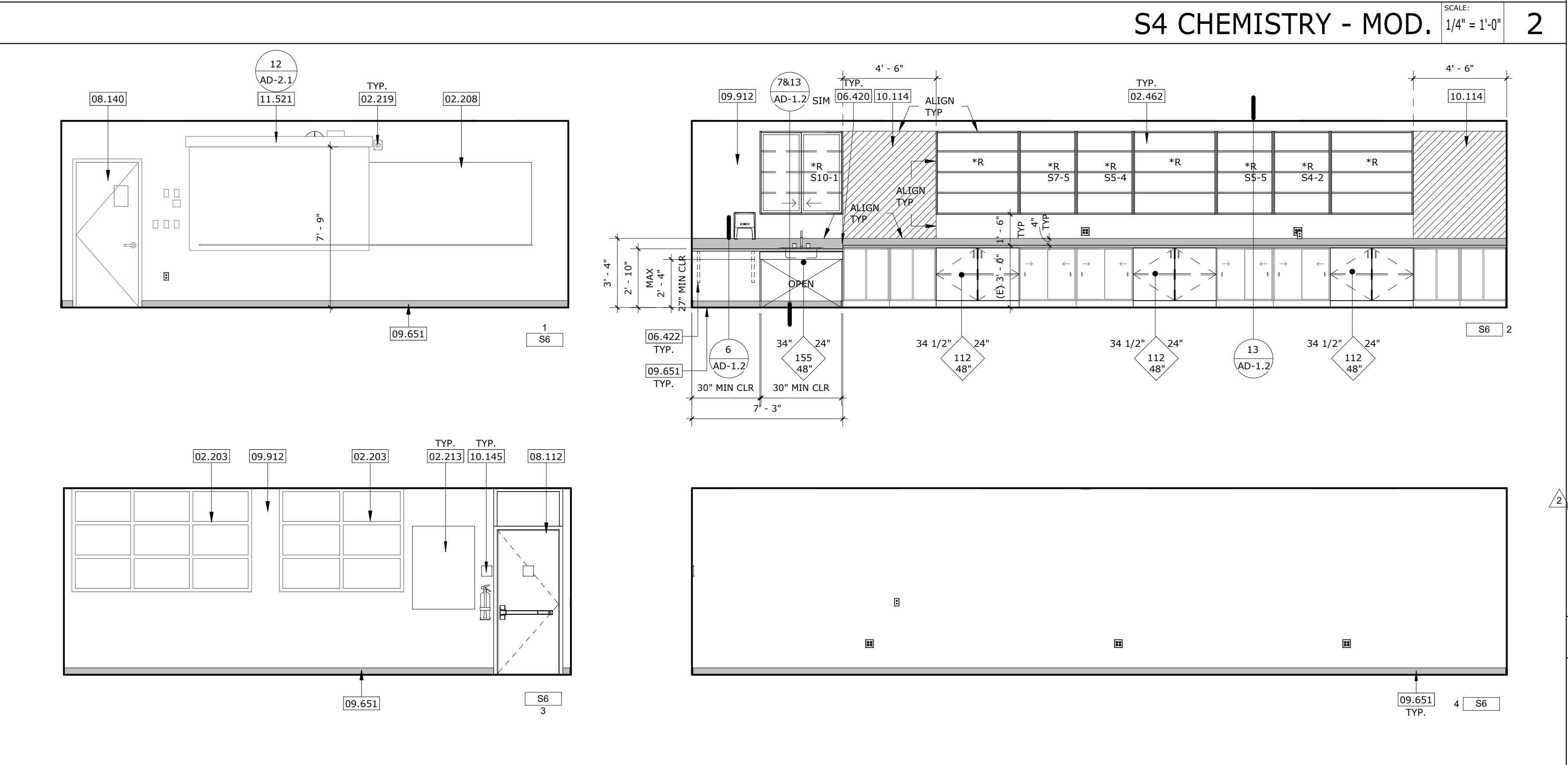
S4 CHEMISTRY - DEMO SCALE: 1/4" = 1'-0" 1



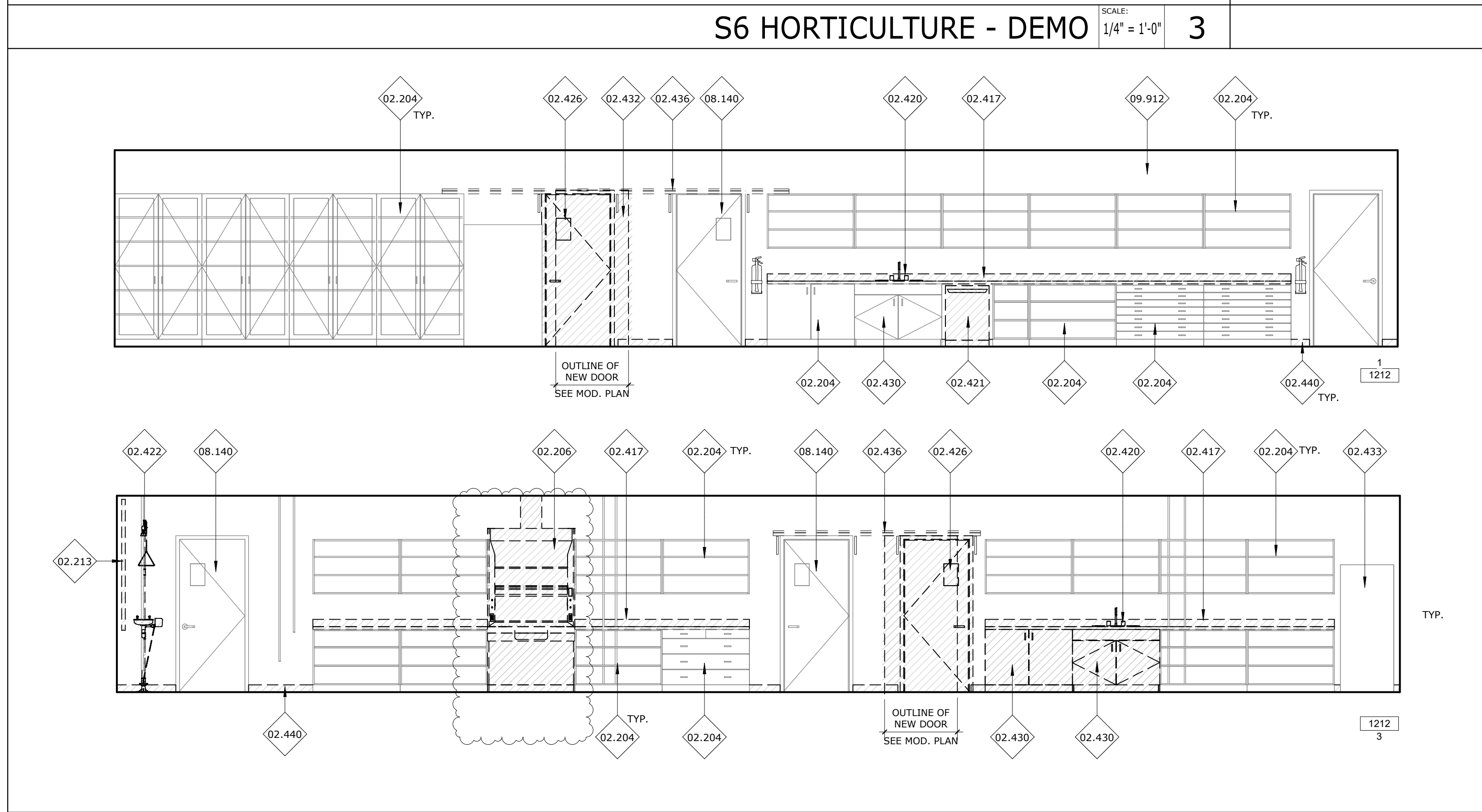
S4 CHEMISTRY - MOD. SCALE: 1/4" = 1'-0" 2



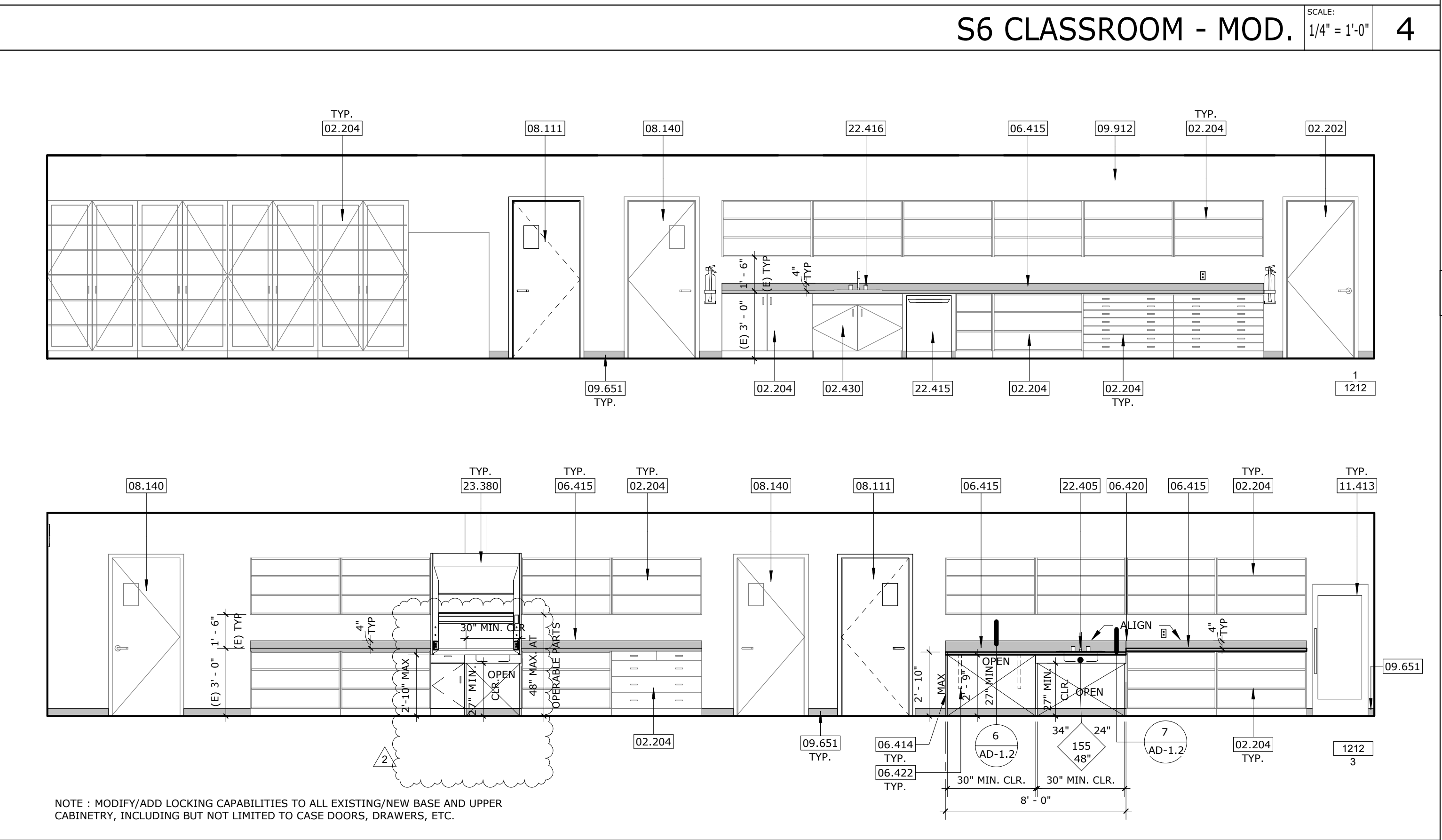
S6 HORTICULTURE - DEMO SCALE: 1/4" = 1'-0" 3



S6 CLASSROOM - MOD. SCALE: 1/4" = 1'-0" 4



1212- CHEMISTRY/ BIOLOGY - DEMO. SCALE: 1/4" = 1'-0" 5



1212- CHEMISTRY/ BIOLOGY - MOD. SCALE: 1/4" = 1'-0" 6

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BUILDING 12
INTERIOR ELEVATIONS

A-7.4

AGENCY APPROVAL
FIG. No. 37-46 10-04-119771

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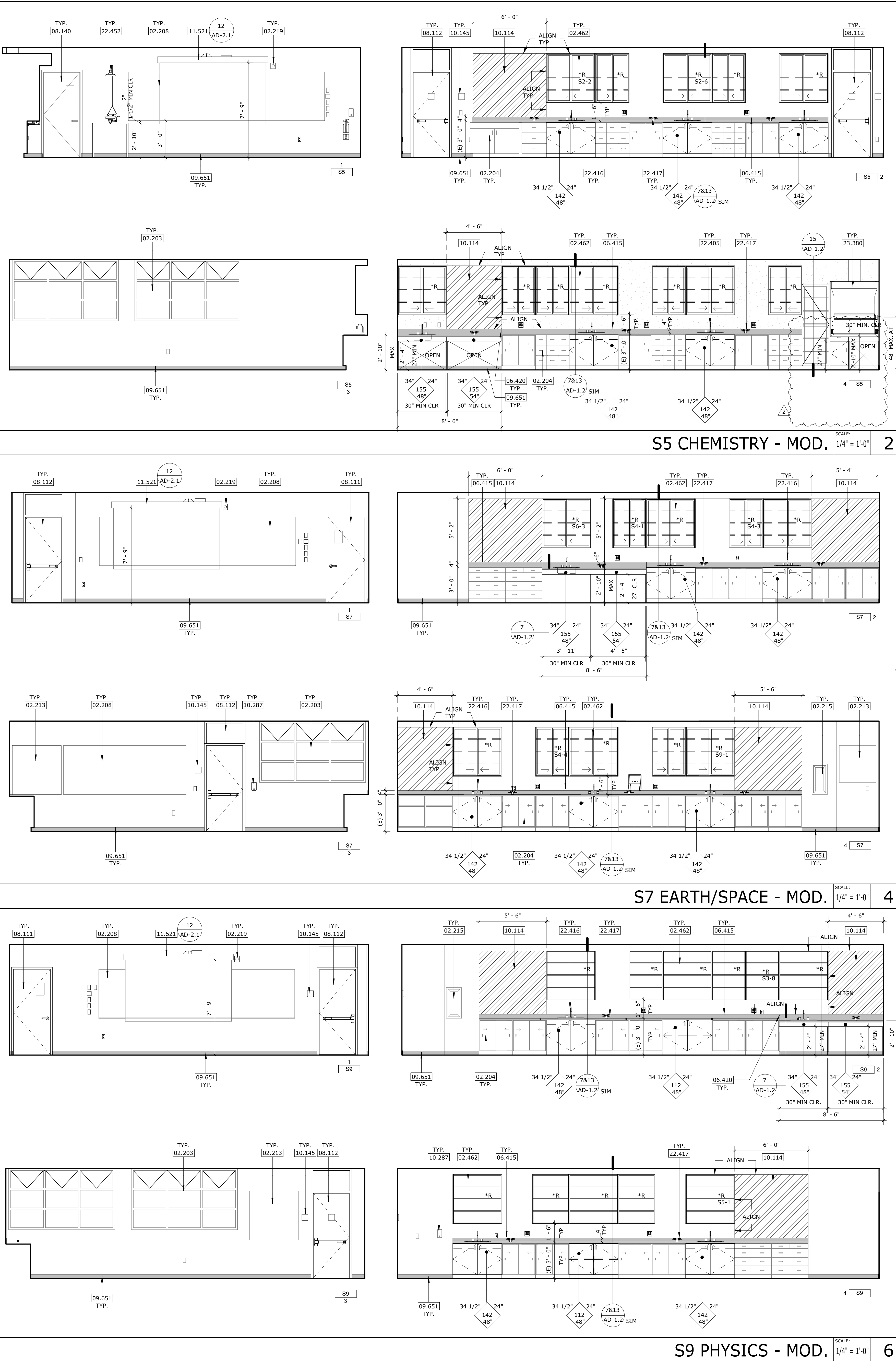
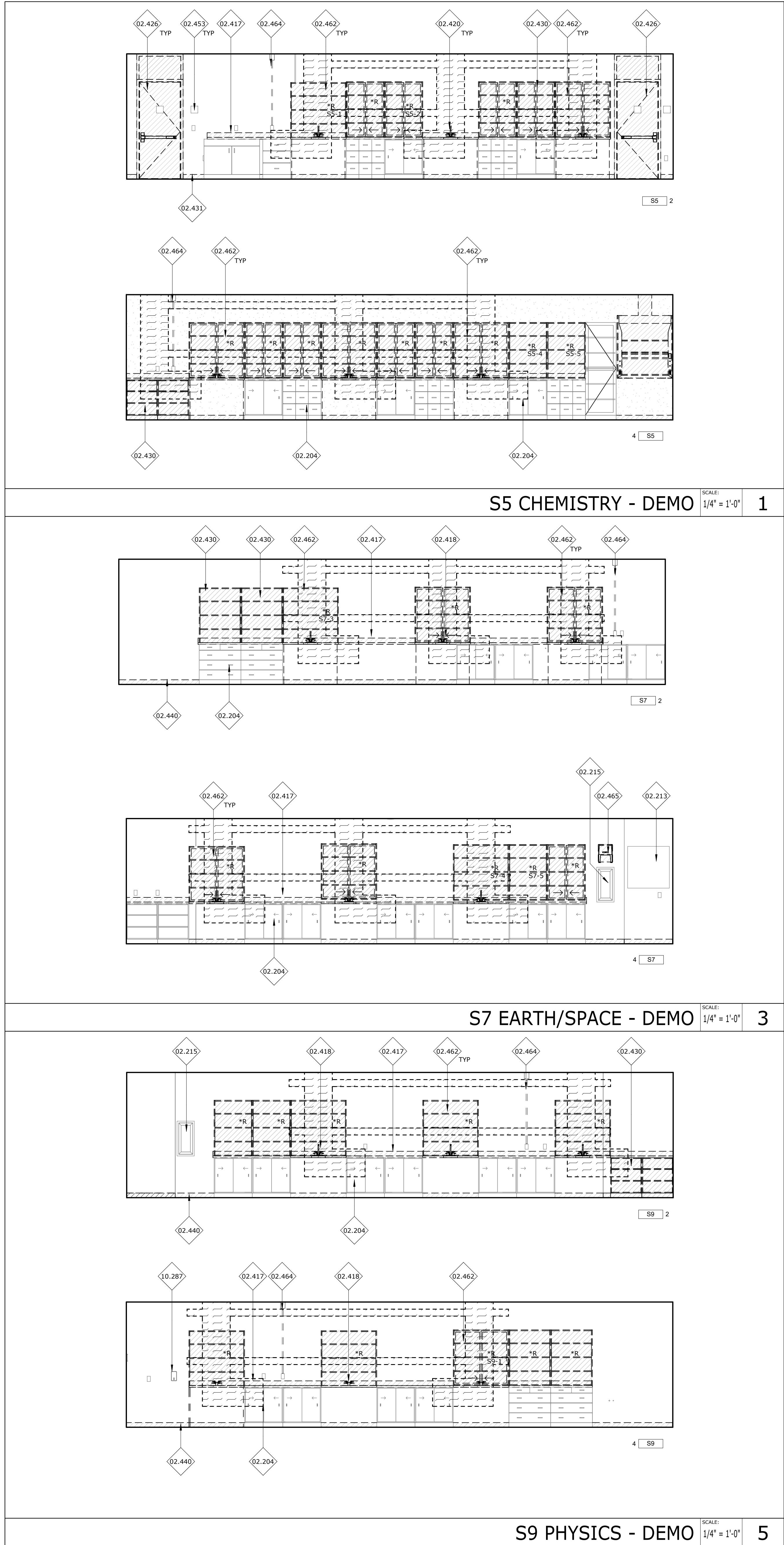
- ### KEYNOTES
- DEMOLITION KEYNOTE LEGEND
- 02.202 (E) DOOR TO REMAIN, PROTECT IN PLACE
 - 02.203 (E) WINDOW TO REMAIN, PROTECT IN PLACE
 - 02.204 (E) CASEWORK TO REMAIN, PROTECT IN PLACE
 - 02.206 (E) FUME HOOD TO BE REMOVED AND REPLACED WITH NEW ACCESSIBLE COMPLIANT FUME HOOD IN EXISTING LOCATION, CONTRACTOR TO COORDINATE WITH EXISTING HOOD CONNECTIONS, ELECTRICAL/MECHANICAL DRAWINGS, ETC.
 - 02.208 (E) MARKERBOARD TO REMAIN, PROTECT IN PLACE
 - 02.213 (E) TACK BOARD TO REMAIN, PROTECT IN PLACE
 - 02.215 (E) FIRE EXTINGUISHER CABINET TO REMAIN, PROTECT IN PLACE
 - 02.219 (E) SPEAKER/HORN STROBE PER ADA-1091.78 TO REMAIN, PROTECT IN PLACE
 - 02.417 REMOVE AND REPLACE (E) EPOXY COUNTER TOP AND BACK SPLASH, REFURBISH (E) BASE CABINETS TO LIKE NEW CONDITION, TYPICAL. PATCH/REPAIR WALL AS REQUIRED BEFORE INSTALLATION OF NEW COUNTER TOP AND BACKSPLASH.
 - 02.420 REMOVE AND REPLACE (E) SINK
 - 02.421 REMOVE AND REPLACE (E) DISH WASHER
 - 02.422 REMOVE AND REPLACE (E) EYEWASH W/NEW ADA COMPLIANT EYE WASH
 - 02.426 REMOVE (E) DOOR/FRAME/GLAZING TRANSOM
 - 02.430 REMOVE (E) CASEWORK, PATCH/REPAIR/PAIN (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
 - 02.432 REMOVE (E) PORTION OF WALL
 - 02.433 REMOVE AND REPLACE (E) REFRIGERATOR
 - 02.436 REMOVE ALL (E) SHELVING, PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
 - 02.440 REMOVE AND REPLACE (E) WALL BASE, SEE SHEET A1-1.1 DEMO FLR. PLAN GENERAL NOTE#1 FOR ADDITIONAL INFORMATION
 - 02.453 REMOVE AND REPLACE (E) SIGN, TYPICAL. PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH. SEE SHEET G-2 FOR NEW SIGNAGE PLANS
 - 02.462 REMOVE (E) CASEWORK, REPAIR/REFINISH AS REQUIRED. (E) UPPER CABINETS TO BE REINSTALLED PER DEMO GENERAL NOTE #6
 - 02.464 RELOCATE ALL SURFACE MOUNTED ELECTRICAL AND DATA CONDUITS WITHIN WALL, TYPICAL THROUGH OUT PROJECT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND LOCATIONS OF THESE ITEMS.
 - 02.465 RELOCATE ITEM, PATCH/REPAIR/PAINT WALL PRIOR TO PLACING ITEM IN NEW HEIGHT LOCATION. MATCH (E) ADJACENT WALL MATERIAL AND FINISH.
- NEW CONSTRUCTION KEYNOTE
- 06.414 PLASTIC LAMINATE END FILLER PANEL, MATCH EXISTING CASEWORK FINISH, TYP
 - 06.415 (N) EPOXY COUNTERTOP WITH 4" BACKSPLASH
 - 06.420 (N) CONTINUOUS COUNTERTOP
 - 06.422 (N) COUNTERTOP BRACKET, SEE DETAIL 3/AD-1.2 FOR ADDITIONAL INFORMATION
 - 08.111 (N) DOOR PER SCHEDULE.
 - 08.112 (N) DOOR, FRAME AND TRANSOM GLAZING, SEE DOOR SCHEDULE
 - 08.140 WOOD DOOR
 - 09.651 (N) RESILIENT BASE PER FINISH SCHEDULE.
 - 09.912 PAINT (E) WALL PER FINISH SCHEDULE
 - 10.114 TACKABLE WALL PANEL SYSTEM
 - 10.145 EXIT SIGNAGE
 - 11.413 (N) REFRIGERATOR, OFCL, MODEL#FBG30RGA BY FISCHER SCIENTIFIC
 - 11.521 (N) 16:9 PROTECTION SCREEN
 - 22.405 (N) SINK/FAUCET PER PLUMBING DWG.
 - 22.415 (N) GLASS WASHER, OFCL, MODEL#ADJ01000 BY LASCONCO
 - 22.416 (N) ACCESSIBLE SINK W/FAUCET PER PLUMBING DWG.
 - 22.417 (N) GAS/AIR TURRET, TYPICAL. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION
 - 22.452 (N) ACCESSIBLE EYE/FACE WASH EQUIPMENT W/RAILS, SEE DETAIL 17/AD-1.1
 - 23.380 (N) ACCESSIBLE COMPLIANT FUME HOOD WITH ADA BENCH, CONTRACTOR TO COORDINATE WITH EXISTING HOOD CONNECTIONS, ELECTRICAL/MECHANICAL DRAWINGS, ETC.

- ### GENERAL NOTES
- VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
 - ALL DIMENSIONS ARE TO FACE OF STUD, CENTERLINE OF COLUMN OR EDGE OF SLAB, U.N.O.
 - PROVIDE STUD BRACING AND SUPPORT FOR ALL WALL MOUNTED FIXTURES AND ACCESSORIES.
- PER DETAIL 5/AD-1.2

- ### LEGEND
- TWP-1 TACKABLE WALL PANEL
 - *R ← RELOCATE/RELOCATED CASEWORK FROM/TO LOCATION
 - DEMOLISH (E) GYPSUMBOARD AND REPLACE IN KIND

NOTE:
SEE COLOR, MATERIAL AND FINISHES
LEGEND (CMP) ON SHEET ID-1.0 FOR
ADDITIONAL INFORMATION

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RUHNAU CLARKE ARCHITECTS

KEYNOTES

DEMOLITION KEYNOTE LEGEND

02.203 (E) WINDOW TO REMAIN, PROTECT IN PLACE
02.204 (E) CASEWORK TO REMAIN, PROTECT IN PLACE
02.208 (E) MARKERBOARD TO REMAIN, PROTECT IN PLACE
02.213 (E) FIRE EXTINGUISHER CABINET TO REMAIN, PROTECT IN PLACE
02.215 (E) SPEAKER/HORN STROBE PER A-04-109178 TO REMAIN, PROTECT IN PLACE
02.219 REMOVE AND REPLACE (E) EPOXY COUNTERTOP TOP AND BACK SPLASH. REFURBISH (E) BASE CABINETS TO LIKE NEW CONDITION. TYPICAL. PATCH/REPAIR WALL AS REQUIRED BEFORE INSTALLATION OF NEW COUNTERTOP AND BACKSPLASH.
02.418 REMOVE (E) STUDENT PENINSULA IN ITS ENTIRETY INCLUDING BUT NOT LIMITED TO SINK, PLUMBING LINES, ELECTRICAL SYSTEM. SEE PLUMBING AND ELECTRICAL DWGS. FOR MORE INFO
02.420 REMOVE AND REPLACE (E) SINK
02.426 REMOVE (E) DOOR/FRAME/GLAZING TRANSOM
02.430 REMOVE (E) CASEWORK, PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH.
02.431 REMOVE/REPLACE (E) BASE
02.440 REMOVE AND REPLACE (E) WALL BASE, SEE SHEET A1-1.1 DEMO FLR. PLAN GENERAL NOTE #1 FOR ADDITIONAL INFORMATION
02.453 REMOVE AND REPLACE (E) SIGN, TYPICAL. PATCH/REPAIR/PAINT (E) WALLS AS REQUIRED TO MATCH ADJACENT MATERIAL AND FINISH. SEE SHEET G-2 FOR NEW SIGNAGE PLANS
02.462 RELOCATE (E) CASEWORK. REPAIR/REFINISH AS REQUIRED. (E) UPPER CABINETS TO BE REINSTALLED PER DEMO GENERAL NOTE #6
02.464 RELOCATE ALL SURFACE MOUNTED ELECTRICAL AND DATA CONDUITS WITHIN WALL, TYPICAL THROUGHOUT PROJECT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND LOCATIONS OF THESE ITEMS.
02.465 RELOCATE ITEM. PATCH/REPAIR/PAINT WALL PRIOR TO PLACING ITEM IN NEW HEIGHT LOCATION. MATCH (E) ADJACENT WALL MATERIAL AND FINISH.

NEW CONSTRUCTION KEYNOTE

06.415 (N) EPOXY COUNTERTOP WITH 4" BACKSPLASH
06.420 (N) CONTINUOUS COUNTERTOP
08.111 (N) DOOR PER SCHEDULE
08.112 (N) DOOR, FRAME AND TRANSOM GLAZING, SEE DOOR SCHEDULE
08.140 WOOD DOOR
09.651 (N) RESILIENT BASE PER FINISH SCHEDULE
10.114 TACKABLE WALL PANEL SYSTEM
10.145 EXIT SIGNAGE
10.287 RELOCATED SOAP/SANITIZER DISPENSER
11.521 (N) 16/9 PROJECTION SCREEN
22.405 (N) SINK/FAUCET PER PLUMBING DWG.
22.416 (N) ACCESSIBLE SINK W/FAUCET PER PLUMBING DWG.
22.417 (N) GAS/AIR TURRET, TYPICAL. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION
22.452 (N) ACCESSIBLE EYE/FACE WASH EQUIPMENT W/RAILS, SEE DETAIL 17/AD-1.1
23.380 (N) ACCESSIBLE COMPLIANT FUME HOOD WITH ADA BENCH, CONTRACTOR TO COORDINATE WITH EXISTING HOOD CONNECTIONS, ELECTRICAL/MECHANICAL DRAWINGS, ETC.

GENERAL NOTES

1. VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FACE OF STUD, CENTERLINE OF COLUMN OR EDGE OF SLAB, U.N.O.
3. PROVIDE STUD BRACING AND SUPPORT FOR ALL WALL MOUNTED FIXTURES AND ACCESSORIES.
PER DETAIL 5
AD-1.2

LEGEND

TWP-1 TACKABLE WALL PANEL

*R ← RELOCATE/RELOCATED CASEWORK
SX-X ← FROM/TO LOCATION

DEMOLISH (E) GYPSUMBOARD AND REPLACE IN KIND

NOTE:
SEE COLOR, MATERIAL AND FINISHES LEGEND (CMP) ON SHEET ID-1.0 FOR ADDITIONAL INFORMATION

BACKBOX AND RING LEGEND	
TYPE	DESCRIPTION
'B1'	4 11/16" square 2 1/8" deep box with single gang ring.
'B2'	4 11/16" square 2 1/8" deep box with dual gang ring.
'B3'	4" square 1 1/2" deep box with single gang ring.
'B4'	Single gang box, 2 1/8" deep.
'B5'	4-11/16" Square 3" deep box with dual gang ring.

'C1'	Provided by 21 10 00 contractor.
'C2'	Provided by 21 21 00 contractor.
'C3'	Provided by 21 20 00 contractor.
'C4'	Provided by 21 51 16 contractor.
'C5'	Provided by 28 13 00 contractor.
'C6'	Provided by 28 23 00 contractor.
'C7'	Provided by xx xx xx contractor.

FACEPLATE LEGEND	
TYPE	DESCRIPTION
'AR'	As required to accommodate the number of ports designated.
'BP'	Blank faceplate.

'C1'	Provided by 21 10 00 contractor.
'C2'	Provided by 21 21 00 contractor.
'C3'	Provided by 21 20 00 contractor.
'C4'	Provided by 21 51 16 contractor.
'C5'	Provided by 28 13 00 contractor.
'C6'	Provided by 28 23 00 contractor.
'C7'	Provided by xx xx xx contractor.

CONDUIT / RACEWAY LEGEND	
TYPE	DESCRIPTION
'3/4-S'	3/4" conduit stubbed from box into accessible ceiling space, unless detailed otherwise on drawings.
'1-S'	1" conduit stubbed from box into accessible ceiling space, unless detailed otherwise on drawings.
'1 1/4-S'	1 1/4" conduit stubbed from box into accessible ceiling space, unless detailed otherwise on drawings.

TECHNOLOGY SYMBOL LEGEND				
SYMBOL	DESCRIPTION	BACKBOX & RING	FACE PLATE	CONDUIT / RACEWAY
	Single port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Dual port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Triple port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Quad port data outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Single port data outlet with single port voice outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Dual port data outlet with single port voice outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Dual port data outlet with dual port voice outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Triple port data outlet with single port voice outlet, +18" A.F.F. (U.O.N.)	Type 'B1'	Type 'AR'	Type '1-S'
	Local origination with dual port data (D) and single port voice (V) outlet, +18" A.F.F. (U.O.N.)	Type 'B1' (D/V) Type 'B5' (LO) side by side	Type 'AR' (D/V) Type 'C3' (LO)	Type '1-S' (D/V) Type '1 1/4-S' (LO)
	Local origination with triple port data (D) and single port voice (V) outlet, +18" A.F.F. (U.O.N.)	Type 'B1' (D/V) Type 'B5' (LO) side by side	Type 'AR' (D/V) Type 'C3' (LO)	Type '1-S' (D/V) Type '1 1/4-S' (LO)
	Same device as required on legend, mounted +6" above backslash (U.O.N.)	Same as required for device indicated on legend.	Same as required for device indicated on legend.	Same as required for device indicated on legend.
	Same device as required on legend, except surface mounted box.	Same as required for device indicated on legend.	Same as required for device indicated on legend.	Same as required for device indicated on legend.
	Same device as required on legend, except in floor box.	Floorbox per E3 series drawings.	Same as required for device indicated on legend.	Same as required for device indicated on legend.
	Dual port data outlet, ceiling at projector location.	Type 'B1' Provide Box with Ceiling Grid Hanger.	Type 'AR'	Type '1-S' Not required in accessible ceiling.
	Dual port data outlet, wall mounted at projector location, next to projector. See floor plans.	Type 'B1'	Type 'C2' or 'C3'	Type '1-S'
	Dual port data outlet for Audio-Visual equipment in accessible ceiling.	Type 'B1' Provide Box with Ceiling Grid Hanger.	Type 'C1'	Type '3/4-S'
	Dual port data outlet for Audio-Visual Equipment, wall mounted. See AV Details for outlet location.	Type 'B1'	Type 'C1'	Type '3/4-S'
	Existing Ceiling Mounted Projectors.	Not Required	Not Required	Not Required
	Single port data outlet stubbed into access point location mounted in accessible ceiling (U.O.N.).	See detail	Type 'C1'	Not required in accessible ceiling.
	Audio-Visual Control Panel with single port data outlet @+48" AFF (U.O.N.). Refer to Drawing Details.	See Detail	Type 'C2' or 'C3'	Type '1-S'
	Card reader for single door @+48" AFF (U.O.N.)	See Details	Type 'C6'	See Details
	Card reader for double door @+48" AFF (U.O.N.)	See Details	Type 'C6'	See Details

COMMUNICATION / SECURITY SYMBOL LEGEND				
SYMBOL	DESCRIPTION	BACKBOX & RING	FACE PLATE	CONDUIT / RACEWAY
	Telephone outlet with staff type phone, +18" A.F.F. (U.O.N.) (N indicates wall mount at +48" A.F.F.) Height per detail 1/E1.0	Type 'B3'	Type 'C1'	Type '3/4-S'
	Telephone outlet with classroom type phone, +18" A.F.F. (U.O.N.) (N indicates wall mount at +48" A.F.F.) Height per detail 1/E1.0	Type 'B3'	Type 'C1'	Type '3/4-S'
	Direct Phone Trunk outlet, +18" A.F.F. (U.O.N.) (N indicates wall mount at +48" A.F.F.)	Type 'B3'	Type 'C1'	Type '3/4-S'
	Telephone outlet in floorbox.	Floorbox per E3 series drawings	Type 'C1'	Type '3/4-S'
	Analog intercom speaker recessed in ceiling.	Type 'C4'	Type 'C4'	Type '3/4-S'
	Analog intercom speaker, recessed in wall, +8'-0" A.F.F. (U.O.N.)	Type 'C4', installed by electrical contractor.	Type 'C4' IF=Type 'C1'	Type '3/4-S'
	Analog intercom speaker, surface mount on interior wall, +8'-0" A.F.F. (U.O.N.)	Type 'B3'	Type 'C4' IF=Type 'C1'	Type '3/4-S'
	Analog intercom horn recessed in exterior wall @ +8'-0" AFF (U.O.N.) A=Page Zone	Type 'C4', installed by electrical contractor.	Type 'C4' IF=Type 'C1'	Type '3/4-S'
	Volume control for intercom system, mounted at +48" A.F.F. (U.O.N.) Height per detail 1/E1.0	Type 'B3'	Type 'C4' IF Speakers=C1'	Type '3/4-S'
	Existing IP clock speaker combo	Not required.	Not required.	Not required.
	Sound system speaker, recessed in wall, +10'-0" A.F.F. (U.O.N.) A= speaker type, see specifications for complete descriptions.	Type 'C3', installed by electrical contractor.	Type 'C3'	Type '1-S'
	Sound system speaker wall mounted, height per plans (U.O.N.). (A= equals speaker type, see specifications for complete descriptions)	Type 'B1'	Type 'C3'	Type '1-S'
	Existing ceiling mounted AV speaker.	Not required	Not required	Not required
	Microphone outlet wall mounted at +18" A.F.F. (U.O.N.). Number indicates quantity of outlets. 'WP' indicates weatherproof enclosure.	Type 'B1'	Type 'C3'	Type '1-S'
	Same device as required on legend, except in floor box. Number indicates quantity of outlets.	Floorbox per E3 series drawings.	Same as required for device indicated on legend.	Same as required for device indicated on legend.
	Same device as required on legend, except mounted in ceiling. Number indicates quantity of outlets.	Same as required for device indicated on legend.	Same as required for device indicated on legend.	Same as required for device indicated on legend.
	Security keypad wall mounted at +48" A.F.F. (U.O.N.) Height per detail 1/E1.0	Type 'B2'	Type 'C5'	Type '3/4-S'
	Security motion sensor ceiling mounted.	Type 'B3'	Type 'C5'	Type '3/4-S'
	Security motion sensor wall mounted at 8" below ceiling, or +10'-0" A.F.F. (U.O.N. whichever is lower).	Type 'B3'	Type 'C5'	Type '3/4-S'
	Security door contact.	Type 'B3'	Type 'C5'	Type '3/4-S'
	Surveillance camera, exterior type. Height as shown on floor plans	Type 'B1'	Type 'C6' (weathertight)	Type '1-S'
	Access control card reader. Refer to details on E4 series sheets for additional information.	See details on E4 Series Sheets	See details on E4 Series Sheets	See details on E4 Series Sheets
	Junction Box in ceiling for access controls at door. Refer to details on E4 Series sheets for additional information.	See details on E4 Series Sheets	See details on E4 Series Sheets	See details for conduit requirements for all door types.
	Camera Schedule Designator. See detail sheets for camera schedule.	N/A	N/A	N/A
	J-Box for Future Low-Voltage Devices @+18" AFF (U.O.N.)	Type 'B1'	Blank Plate Color to Match	Type '1-S'
	Conduit sleeve through wall, above accessible ceiling.	Not required.	Not required.	(1) 3"C, for open low voltage wiring.
	Conduit sleeve through wall, above accessible ceiling.	Not required.	Not required.	(1) Conduit for open low voltage wiring, size as indicated.
	Conduit sleeve through wall, above accessible ceiling.	Not required.	Not required.	Multiple Conduits for open low voltage wiring, size and quantity as indicated.
	Conduit stubbed above accessible ceiling.	Not required.	Not required.	Conduit for open low voltage wiring. Refer to legend for size.
	Conduit stubbed above accessible ceiling.	Not required.	Not required.	(1) conduit for open low voltage wiring, size as indicated.
	Conduit stubbed above accessible ceiling.	Not required.	Not required.	Conduit for open low voltage wiring, size and quantity as indicated.



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- GENERAL NOTES:
- ALL CONDUITS WHICH ARE REQUIRED AS A PART OF SYSTEMS SPECIFIED FOR COMMUNICATIONS, TELEPHONE, INTERCOM, CLOCK FIRE ALARM, SECURITY, SOUND SYSTEMS, DATA NETWORKING, OR AUDIO-VISUAL SYSTEMS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
 - THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT REQUIREMENTS WITH EACH SYSTEM SUPPLIER PRIOR TO BID TO DETERMINE SPECIAL CONDUIT SYSTEM REQUIREMENTS.
 - THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT SLEEVES FOR ALL OPEN CABLE INSTALLATIONS THROUGH RATED WALLS, BLOCK WALLS AND WHERE SHOWN ON THE DRAWINGS. PROVIDE CONDUIT FROM EACH BUILDING MAIN TERMINATION CABINET OR BACKBOARD TO THE NEAREST ACCESSIBLE CEILING FOR ACCESS INTO ALL ELECTRICAL OR COMMUNICATIONS ROOMS.
 - ALL CONDUIT, BOXES, AND RINGS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
 - ALL BLANK PLATES SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. (UNLESS OTHERWISE NOTED)
 - ALL CONDUITS SHALL BE FURNISHED WITH PULL STRINGS BY ELECTRICAL CONTRACTOR. COMMUNICATION CONTRACTOR TO PROVIDE POLYARIMIO PULL TAPE WITH NEB CABLEING INTO ALL CONDUITS BETWEEN BUILDINGS. SEE SPECIFICATIONS FOR REQUIREMENTS.
 - CONTRACTOR TO REVIEW ARCHITECTURAL CEILING PLANS TO DETERMINE LOCATIONS OF ACCESSIBLE CEILINGS PRIOR TO BID.
 - (21000) NUMBERS INDICATE MATCHING SPECIFICATION SECTION RESPONSIBLE FOR THIS WORK.
 - IN ADDITION TO THE ABOVE REQUIREMENTS, THE FOLLOWING REQUIREMENTS SHALL APPLY TO ALL DATA/VOICE, FAGING, AUDIO-VISUAL, SECURITY AND CLOCK CONDUITS:
 - FLEXIBLE METAL CONDUIT MAY BE USED ONLY WHERE REQUIRED AT BUILDING SEISMIC AND/OR EXPANSION JOINTS.
 - ALL UNDERGROUND CONDUITS SHALL BE PROVIDED WITH MINIMUM 24" RADIUS ELBOWS.
 - NO LENGTH OF CONDUIT SHALL BE INSTALLED TO EXCEED 150 FEET BETWEEN PULL BOXES, OR POINTS OF CONNECTION, UNLESS WHERE SPECIFICALLY DETAILED ON THE DRAWINGS.
 - NO LENGTH OF CONDUIT SHALL BE INSTALLED TO EXCEED TWO 90 DEGREE BENDS BETWEEN PULL BOXES, OR POINTS OF CONNECTION, UNLESS WHERE SPECIFICALLY DETAILED ON THE DRAWINGS.
- KEY NOTES:
- JUNCTION BOXES FOR VOICE/DATA AND AUDIO-VISUAL CONNECTIONS MUST BE SEPARATE. AUDIO-VISUAL JUNCTION BOX OR BOXES SHALL BE FURNISHED AS SHOWN IN THE DRAWING DETAILS. PROVIDE (1) OR (2) TYPE B2 PER DETAILS.
 - DATA CABLEING AND FACEPLATE FOR SYMBOL FURNISHED AND INSTALLED BY 210000 CONTRACTOR.
 - BACKBOX AND DEVICE TO BE FURNISHED AND INSTALLED BY 210000 CONTRACTOR.
 - SPEAKER OR HORN BACKBOX AND DEVICE TO BE FURNISHED BY 210000 CONTRACTOR. BACKBOX TO BE INSTALLED BY THE DIVISION 26 CONTRACTOR.
 - IF DIGITAL CAMERA LOCATIONS SHALL BE FURNISHED WITH (3) DATA CAT6A CABLES TERMINATED ON SURFACE MOUNT JACK. INSTALLED IN JUNCTION BOX. DATA CONNECTIONS FURNISHED AND INSTALLED BY 210000 CONTRACTOR. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



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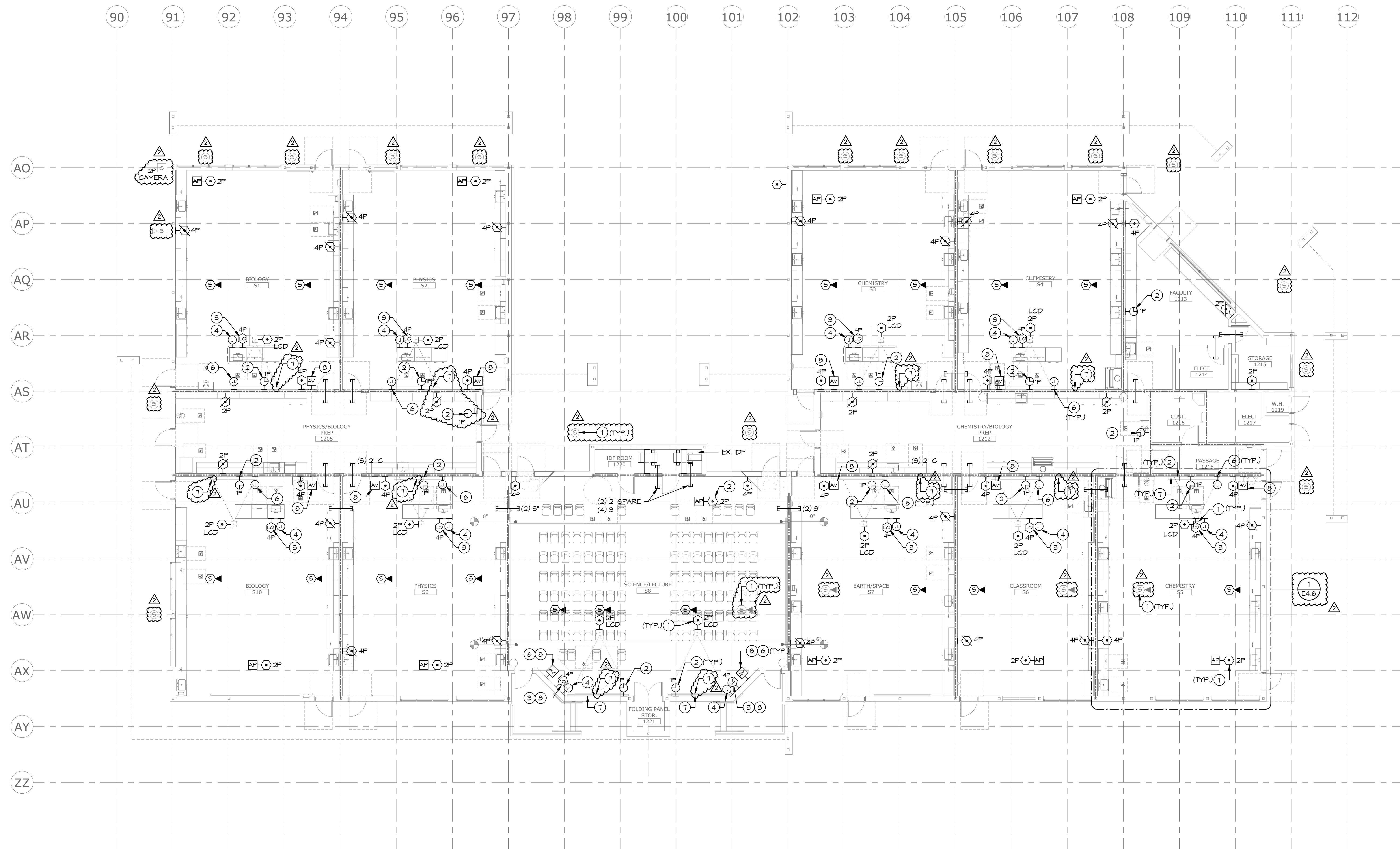
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GENERAL NOTES:

- REFERENCE ARCHITECTURAL INTERIOR ELEVATIONS FOR EXACT LOCATION OF ALL WALL MOUNTED DEVICES.
- REFERENCE E4 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
- REFERENCE E4 SERIES SHEETS FOR TYPICAL COMMUNICATION SYSTEMS RISER DIAGRAM.
- REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND ROUTINGS.
- LOCATION OF PROJECTOR AND OTHER AUDIO-VISUAL EQUIPMENT IS DIAGRAMMATICAL. EXACT LOCATION OF EQUIPMENT TO BE FIELD VERIFIED PRIOR TO INSTALLATION. LOCATION OF PROJECTOR AND PROJECTOR MOUNT TO BE COORDINATED WITH LOCATION OF SCREEN.
- REFER TO AUDIO-VISUAL SYSTEM DIAGRAMS FOR ADDITIONAL REQUIREMENTS, FOR JUNCTION BOX LOCATIONS, TYPES AND SIZES.

KEY NOTES:

- CEILING MOUNTED AV/IT DEVICE TO REMAIN, PROTECT IN PLACE.
- EXISTING IP CLOCK/SPEAKER COMBO PROTECT IN PLACE. REPLACE SINGLE DATA DROP ONLY.
- EXISTING TEACHING ISLAND LO, CIA 111. REMOVE EXISTING AV INPUTS. PROVIDE (2) NEW DUAL GANG RECESSED BACK BOXES WITH SINGLE GANG MUDRINGS ON EACH. PROVIDE (1) EACH NEW SINGLE GANG DECORA HDMI PASS-THROUGH WALLPLATE AND HDMI CABLES INSTALLED TO THE EXISTING CEILING MOUNTED PROJECTOR.
- PROVIDE ALS OUTPUT AT TEACHING LOCATION. (1) 3 MM CABLE EXTENDING FROM THE AUDIO OUTPUT OF THE PROJECTOR TO A WALLPLATE ADJACENT TO THE LO INPUTS. AT THE LO LOCATION PROVIDE (1) DUAL RCA PASS-THROUGH WALL-PLATE. SEE DIAGRAM ON E4.5 AND THE SPECIFICATIONS FOR DETAILS.
- ROOF/SOFFIT MOUNTED AV/IT DEVICE TO REMAIN, PROTECT IN PLACE.
- EXISTING INTERCOM CALL STATION. REMOVE PLATE AND CABLES. BLANK OFF BOX.
- REPLACE EXISTING PROJECTION SCREEN AND BRACKETS. SEE SPECIFICATIONS FOR DETAILS.
- REMOVE ALL EXISTING AV CABLES TO PROJECTOR IN ADDITION TO THE WALL PLATE FROM THIS LOCATION.



LEVEL 1 FLOOR PLAN - COMMUNICATIONS

SCALE: 1/8" = 1'-0"

1

PROJECT No. :Project Number

REVISION	DATE	DESCRIPTION	ADDENDUM
1	03/18/2021	ISSUE NO. 1	
2	03/18/2021	ISSUE NO. 2	
3	03/18/2021	ISSUE NO. 3	
4	03/18/2021	ISSUE NO. 4	
5	03/18/2021	ISSUE NO. 5	
6	03/18/2021	ISSUE NO. 6	
7	03/18/2021	ISSUE NO. 7	
8	03/18/2021	ISSUE NO. 8	
9	03/18/2021	ISSUE NO. 9	
10	03/18/2021	ISSUE NO. 10	
11	03/18/2021	ISSUE NO. 11	
12	03/18/2021	ISSUE NO. 12	
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14	03/18/2021	ISSUE NO. 14	
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111	03/18/2021	ISSUE NO. 111	
112	03/18/2021	ISSUE NO. 112	

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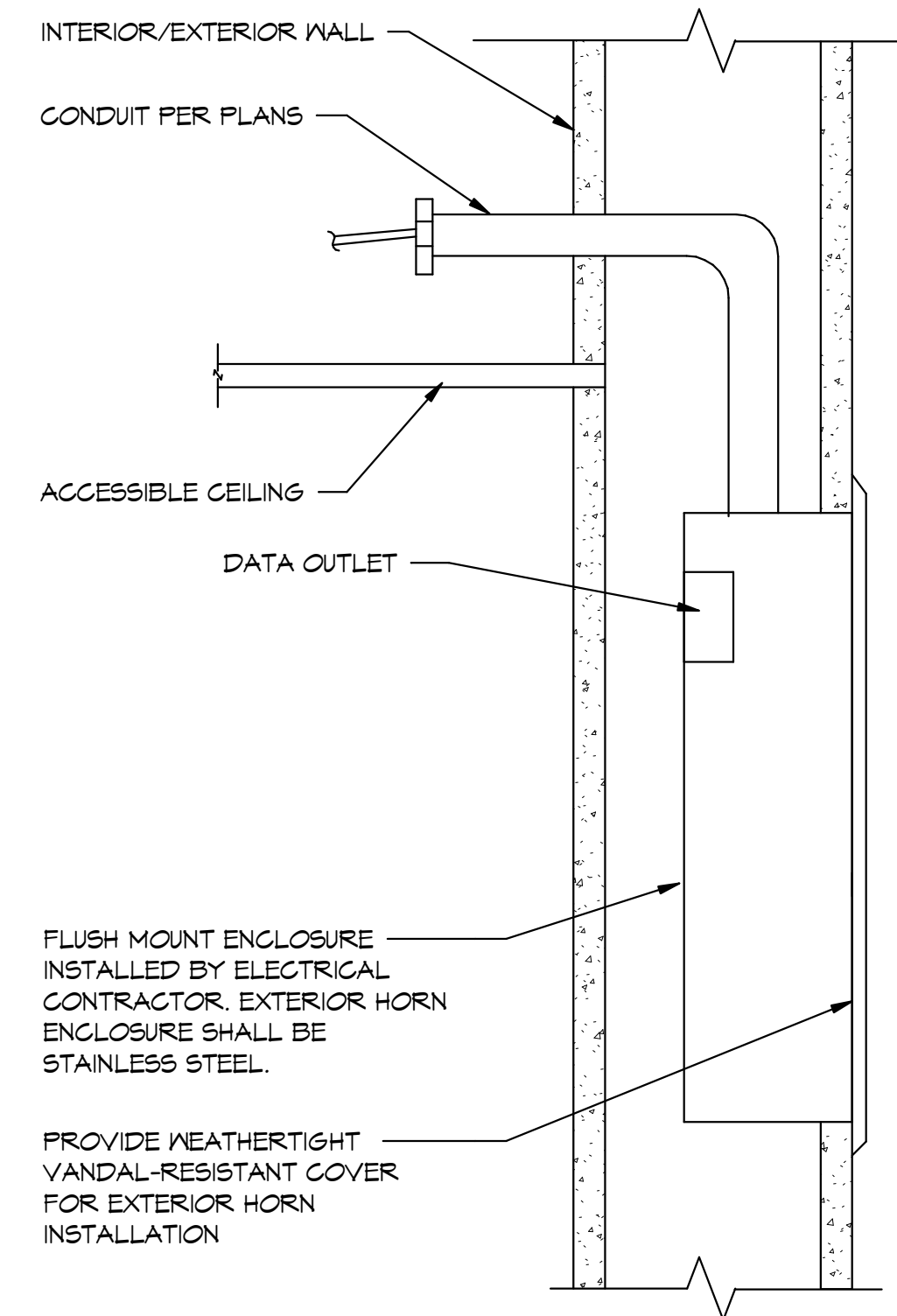
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LEVEL 1 FLOOR PLAN -
COMMUNICATIONS

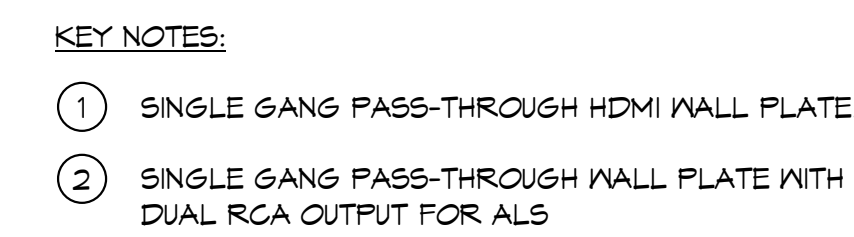
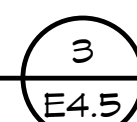
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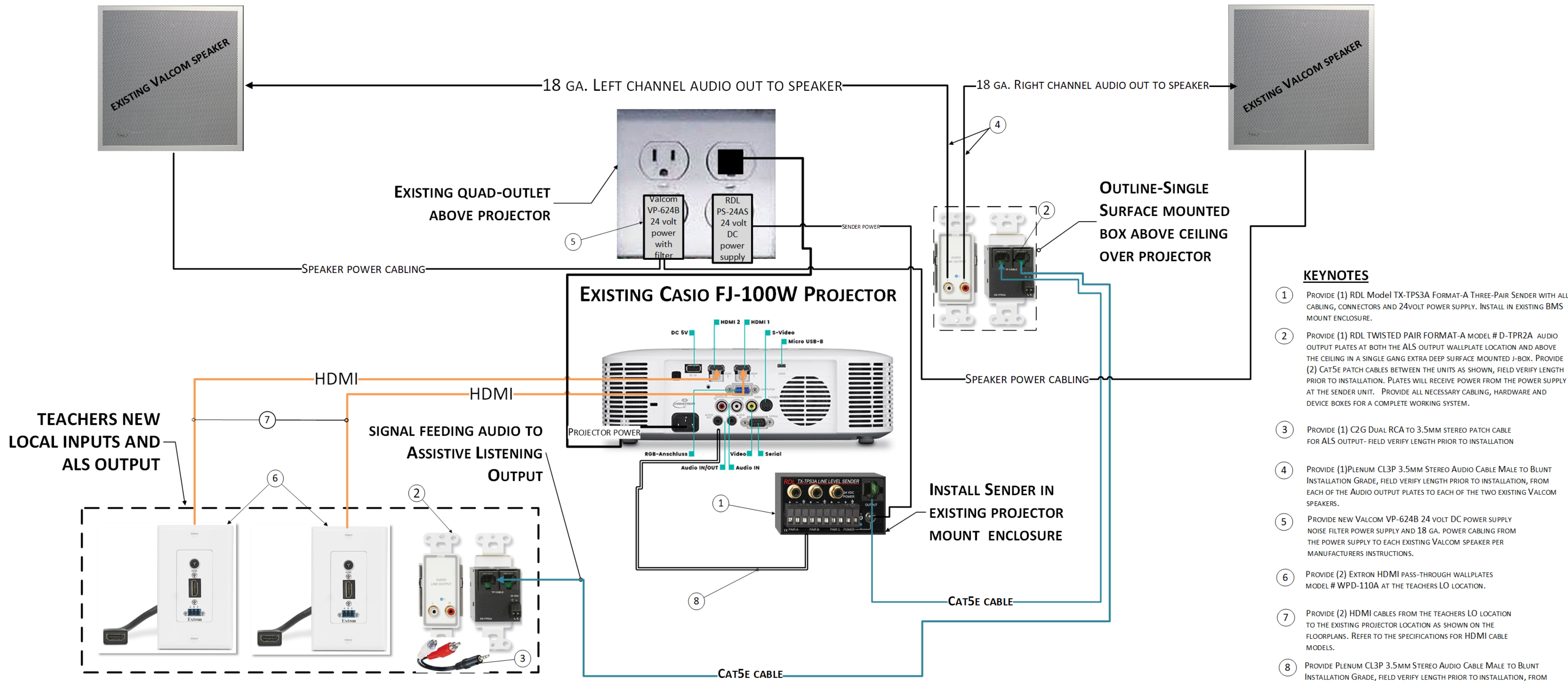


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FIG. NO. 14

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KEYNOTES

1. PROVIDE (1) RDL Model TX-TPS3A Format-A Three-Pair Sender WITH ALL CABLING, CONNECTORS AND 24VOLT POWER SUPPLY. INSTALL IN EXISTING BMS MOUNT ENCLOSURE.
2. PROVIDE (1) RDL TWISTED PAIR FORMAT-A MODEL # D-TPR2A AUDIO OUTPUT PLATES AT BOTH THE ALS OUTPUT WALLPLATE LOCATION AND ABOVE THE CEILING IN A SINGLE GANG EXTRA DEEP SURFACE MOUNTED J-BOX. PROVIDE (2) CAT5e PATCH CABLES BETWEEN THE UNITS AS SHOWN, FIELD VERIFY LENGTH PRIOR TO INSTALLATION. PLATES WILL RECEIVE POWER FROM THE POWER SUPPLY AT THE SENDER UNIT. PROVIDE ALL NECESSARY CABLING, HARDWARE AND DEVICE BOXES FOR A COMPLETE WORKING SYSTEM.
3. PROVIDE (1) C2G DUAL RCA TO 3.5MM STEREO PATCH CABLE FOR ALS OUTPUT- FIELD VERIFY LENGTH PRIOR TO INSTALLATION
4. PROVIDE (1) PLENUM CL3P 3.5MM STEREO AUDIO CABLE MALE TO BLUNT INSTALLATION GRADE, FIELD VERIFY LENGTH PRIOR TO INSTALLATION, FROM EACH OF THE AUDIO OUTPUT PLATES TO EACH OF THE TWO EXISTING VALCOM SPEAKERS.
5. PROVIDE NEW Valcom VP-624B 24 VOLT DC POWER SUPPLY NOISE FILTER POWER SUPPLY AND 18 GA. POWER CABLING FROM THE POWER SUPPLY TO EACH EXISTING VALCOM SPEAKER PER MANUFACTURERS INSTRUCTIONS.
6. PROVIDE (2) Extron HDMI PASS-THROUGH WALLPLATES MODEL # WPD-110A AT THE TEACHERS LO LOCATION.
7. PROVIDE (2) HDMI CABLES FROM THE TEACHERS LO LOCATION TO THE EXISTING PROJECTOR LOCATION AS SHOWN ON THE FLOORPLANS. REFER TO THE SPECIFICATIONS FOR HDMI CABLE MODELS.
8. PROVIDE PLENUM CL3P 3.5MM STEREO AUDIO CABLE MALE TO BLUNT INSTALLATION GRADE, FIELD VERIFY LENGTH PRIOR TO INSTALLATION, FROM THE PROJECTOR AUDIO OUTPUT TO THE RDL AUDIO SENDER.

TYPICAL CLASSROOM AV DIAGRAM
NO SCALE

1
E4.6

PROJECT No. :Project Number
3/18/2021 4:21:42 PM

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8756 MAST BOULEVARD, SANTEE, CA 92071
GROSSMONT UNION HIGH SCHOOL DISTRICT

**COMMUNICATION
DETAILS**

E4.6

Project Number

Pre-Bid RFI Log

Bid RFI #	Date	Sheet/Spec	Issue/Question	Answer	Add.
5	3/12/2021	10 22 39	WHHS: STC rating not indicated in the specification. Please advise STC rating to bid.	This is an existing folding partition to be reburished on WHHS . Reference keynote 02.217 on sheet A1-0 and spec. section 10 22 39	2
6	3/12/2021		FAEC: What devices get Cat6 A?	see voice data spec 27 10 00	2
7	3/12/2021		FAEC: 1 or 2 cables for WAP?	(2) Two.	2
8	3/12/2021		FAEC: Size, color and quantity of patch cables?	see E4.5 for color scheme and voice data spec 27 10 00-2.2.6	2
9	3/12/2021		FAEC: What surge protection is needed?	see voice data spec 27 10 00-2.2.5.4.	2
10	3/12/2021		FAEC: Are data cabinets open or closed?	all (5) new MDF data racks are open rack type. see sheet E4.6	2
11	3/12/2021		FAEC: What width vertical wire manager?	see voice data spec 27 10 00 - 2.2.5.2	2
12	3/12/2021		FAEC: What is the schools preferred vendor (brand) for low volt - data	see voice data spec 27 10 00-1.3.2.	2
13	3/12/2021		FAEC: Do the clocks get data?	yes. they are IP clock speaker.	2
14	3/12/2021		FAEC: Does the School district provide the speaker clocks?	JCE:Existing clock speakers to remain, protect in place. New data drop will be required at clock speaker.	2
15	3/12/2021		FAEC: Power configuration for DATA racks?	Refer to Sheet E3.1	2
16	3/12/2021		FAEC: Are there new projectors going back up? Need spec sheet, if yes.	Johnson Response : There are no new projectors BB: See BP 12 ELECTRICAL DOW inclusion 2.12.38 and 2.12.41.	2
17	3/12/2021		FAEC: WAP's are they provided by district?	yes.	2
18	3/12/2021		Are block-wall penetrations part of the electrical contractor's scope or another contractors?	BB: All Prime Contractors are responsible to locate, coordinate, cut and patch back all openings and penetrations required for own work, including fire caulking and/or sealants as required. Note original Bid and Addendum 01 DOW inclusions 2.0.114, 2.0.115, 2.3.61, 2.3.62, 2.3.65, 2.3.67, 2.4.79, 2.5.51, 2.8.63, 2.8.82, 2.8.86, 2.8.97, 2.11.24, 2.11.25, 2.11.26, 2.11.27, 2.11.42, 2.12.53, 2.12.56, 2.12.70, 2.12.71, 2.13.18, 2.13.25, 2.13.26, etc. This list of inclusions is not meant to be comprehensive. It is the obligation of each bidder to have read, in full, the entire Division of Work and other information included in Attachment C.	2
19	3/12/2021		Are the lighting support wires part of the electrical scope or the contractor that's going to do the grid?	BB: See original Bid and Addendum 01 DOW inclusions 2.0.139, 2.8.120 and 2.12.52. This list of inclusions is not meant to be comprehensive. It is the obligation of each bidder to have read, in full, the entire Division of Work and other information included in Attachment C. NOTE some acoustical ceiling systems are shown to remain in place, and new work must be incorporated in the existing grid system. Electrical Prime Contractor and Finishes Prime Contractor to coordinate.	2

20	3/12/2021		All the concrete work and patching is covered in a different contract not in electrical scope, correct?	BB: See original Bid and Addendum 01 DOW inclusions 2.0.15, 2.0.147, 2.3.50, etc. This list of inclusions is not meant to be comprehensive. It is the obligation of each bidder to have read, in full, the entire Division of Work and other information included in Attachment C. Prime Contractors are expected to provide and install concrete work, including patch back, required as part of or in association with own work, unless specifically shown on the plans as new cast in place concrete and specifically identified as work to be provided by others.	2
21	3/15/2021		Has the District considered splitting the bid into two separate bids (one for each location) to increase the small business opportunities?	Each Bid Form includes a line for each project, then a total. BASE BID LINE ITEMS: Line Item 1 (all work at the Foothills campus) \$ _____ Line Item 2 (all work at the West Hills campus) \$ _____ BASE BID TOTAL (Line 1 + Line 2): _____ Dollars and _____ Cents. (\$ _____). Said sums includes all applicable taxes and costs. And is the basis for award.	2
22	3/15/2021		Please confirm what moisture mitigation measures are required. The finishes contractor is responsible for providing and installing moisture vapor emission control system & seal, for all areas regardless of finish flooring type and regardless of moisture and alkalinity testing results. This is confirmed with language of BP #4 which states that Finishes prime contractor is responsible for vapor emission control above-grade. The cast-in-place concrete specification section is calling for a moisture vapor reducing admixture. If the finishes contractor is required to install a moisture vapor emission control system and seal, regardless of the flooring type, is the additive required?	BB: Per the DOW, Finishes BP is responsible for above grade vapor retarders and Flooring BP is responsible for the remedial treatments, moisture vapor emission control system & seal, etc.	2
23	3/16/2021		FAEC & WHHS: When we attended the job walk someone mentioned to make sure we had a current ORI# ?? I wanted to confirm if he meant a current DIR#, can you confirm?	An ORI is needed for badging. DIR is needed for bidding. If you are awarded the contract you will need an ORI.	2
24	3/16/2021		FAEC & WHHS: Per the structural drawings please confirm that the Concrete in the Buildings 4" thick with no base.	On both projects we are patching areas and will match existing thickness. Per the as built drawings the FAEC slab is 4" thick refer to Legend on S1-1.2 and WHHS slab is 5" thick refer to Legend on S1-1.1 & Detail 7/S0-2.1	2
25	3/16/2021	32 93 00	1. FAEC: Per Specification section 329300, part 2.05A, DG mulch shall be stabilized DG from KRC Rock Inc. or approved equal. However, stabilized DG shown on sheet LP-2 is Mojave gold fines from Southwest Boulder and Stone. Please clarify which one shall be used for this project.	Use the Southwest Boulder and Stone D.G. specified on the drawings.	2
26	3/16/2021	92 93 00	2. FAEC: Per Spec 3293000, part 2.08, length of root barrier for 36" box trees needs to be at 14'/each (7 panels). However, per detail F on sheet LP-2, 16'/each is shown. Please clarify.	Use the 16' lineal footage specified on Detail F.	2
27	3/16/2021		3. FAEC: Confirm that all clearing and Grubbing and removals to be performing by others and not the landscape contractors.	Demolition will be performed as shown in the contract documents by BP 01 Demolition & Abatement. If additional clear and grub is required to accommodate the Landscape & Irrigation improvements / new work, it will be the responsibility of the BP 02 Landscape & Irrigation Prime Contractor to perform.	2
28	3/16/2021		4. FAEC: Clarify the location of requires planting and irrigation inside the existing building A.	The area in questions is a central atrium that is open to air. The area for both Irrigation and Landscaping are shown on sheets LI-1, LP-2	2

29	3/16/2021		1. WHHS: Please confirm that site will be received by landscape contractor at +/- 0.10' of finish grade	BB: There is no grading contractor. Site will be received as it exists currently.	2
30	3/16/2021		2. WHHS: confirm that all trades are responsible for restoration of disturbed landscape and irrigation areas damaged by their and landscape contractor is not responsible for restoration of the areas destroyed or damaged by other contractors.	All Prime Contractors are responsible to repair or correct damage caused by own crews. See DOW inclusions 2.0.108, 2.0.117, 2.0.120, 2.0.121, 2.0.148, etc. This list of inclusions is not meant to be comprehensive. It is the obligation of each bidder to have read, in full, the entire Division of Work and other information included in Attachment C.	2
31	3/16/2021		3. WHHS: Confirm that there is no work related to BP#2 at WHHS	There is no landscaping in this project scope	2
32	3/16/2021		4. Confirm that boulders are not part of the landscape bid package contractor responsibilities.	The boulders are included as new landscape items being provided per Sheet LP-1	2
33	3/16/2021	27 20 00	West Hills 27 20 00 2 Products: Where is the amplifier located for the existing speakers? Will cabling for existing speakers need to be replaced?	JCE: no existing amplifier, refer to project 27 20 00 specifications for new amplifier and cabling requirements.	2
34	3/16/2021		I had a question regarding the bid package numbers regarding the project referenced above. I've seen the bid packages listed at #1-13 and #CN-2447-CN2459. Our bid bond uses the #1-13 numbers, and we would like to know if this is something that needs to be corrected.	Bid Bond needs to note the specific bid package you are bidding on. One bid bond does not cover all packages you may choose to bid on as a company.	2
35	3/16/2021		WHHS: 1. What is the existing Gear make (square D, Cuttler hammer, Eaton)?	Existing gear is Westinghouse	2
36	3/16/2021	E3.1	WHHS: 2. On sheet E3.1 no new power or any power details about the science/lecture room?	Correct, the existing power devices shall remain as connected	2
37	3/16/2021	E3.1	WHHS: 3. On sheet E3.1 where we have quad recepts marked as GFCI can we use one GFCI and the second regular plug still protected by the first GFCI.	Provide GFCI receptacles for all that are marked GFI on plans.	2
38	3/16/2021	E4.0	WHHS: 4. Print E4.0 "Local origin data" do they go back to the IDF room?	New Data drops will go to the new IDF racks shown on E4.1.	2
39	3/16/2021		WHHS: 5. Who is responsible for the A/V cabling?	BP 12 Electrical & Low Voltage.	2
40	3/16/2021	E4.2	WHHS: 6. Per print E4.2 detail 1, are we installing new fiber back to Administration Main MDF room or is this 12 strand fiber existing? Pathway existing? If so what kind of fiber and copper?	Installing new fiber and copper from the MDF to the new IDF room. Pathways are existing from MDF to IDF. refer to DIV 27 10 0 specifications for cable requirements.	2
41	3/16/2021	E4.1	WHHS: 7. Per print E4.1 it shows LCD which is a ceiling monitor, was that supposed to be projectors? See legend E4.0.	LCD projector shown is existing and will remain.	2
42	3/16/2021	E4.1	WHHS: 8. Are AV cables staying in place? E4.1.	27 20 00 Contractor will provide all new AV cabling to the existing projector and speakers. Existing AV cabling will be removed.	2
43	3/16/2021	E4.0 & E4.1	WHHS: 9. There is one camera outside on print E4.1 which shows 2 port, but on legend E4.0 it states 3 Cat 6 A. 2 port or 3 port cat 6 A?	Cameras will receive (2) Cat6a cables.	2
44	3/16/2021		WHHS: 10. Are AP locations 2 cat 6 or 1. And is it Cat6 or Cat6 A.	AP locations will receive (2) Cat6a cables.	2

45	3/16/2021	ID-1.0	<p>FAEC: Plan sheet ID-1.0 refs to Conc 1 thru 4 finishes</p> <p>The Conc 1 thru 4 areas are not new concrete they are existing areas.</p> <p>Please confirm that this work is not part of Bid Package 4 Concrete.</p>	<p>CONC-1 thru CONC-4 is part of bid package- reference spec section 03 35 11 Concrete Floor Finishes. Penetrating concrete hardener/ densifier with specified color concentrate is applied to interior concrete then sealed after existing slab is refined/ patched with burnishing system and cleaned with pre-densifier.</p>	2
46	3/16/2021	AD7.1	<p>FAEC: Detail 11/AD7.1 calls for 5" thick sidewalk.</p> <p>The specs call for the sidewalks to be 4".</p> <p>Which is correct? Please advise.</p>	<p>Detail 11/AD7.1 updated to match spec. for 4" thickness</p>	2
47	3/16/2021	S1-1.1	<p>WHHS: Plan S1-1.1 shows 2 small areas of concrete Patching. There is a note on this page that states "Patch slab in areas where existing Peninsulas and Sink Plumbing are being removed and locations where new utilities are running below slab". 1. The peninsulas take up about half of the entire building slab. do all these areas get new concrete? 2. Also, not being a Plumber , our company can not determine which Plumbing lines are underground and require patching. Can Architect issue a drawing that shows all the Concrete patching inside the building?</p>	<p>Please refer to the A-1.0 Demo. floor plan for extent of concrete patching. This item will need to be verified in the field. Also reference Structural detail 8/SO-2.1</p>	2