ADD #02

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ISSUE DATE:	July 3, 2018	**RESPONSE TO:**	Contractor Requests for Information
PROJECT:	**NAC Equestrian Center Expansion** 1000 Ability Way Park City, UT 84060	**OWNER'S PROJECT #:**	N/A
		ARCHITECT'S PROJECT #:	17179.00
PAGES:	3 + Attachments		

This Addendum forms a part of the Contract Documents and modifies the original Bid Documents as noted below. Acknowledge receipt of this Addendum in the space identified as Addendum #1 on the Bid Form. Failure to do so may subject the Bidder to disqualification. This Addendum includes all attachments noted, included herein by reference.

RFIs:

#	Question	Response
1.3	Sheet A151A note 06:PW3 calls for a higher-grade plywood to be used at the exposed ceiling areas (interior and exterior). It seems that AC or CDX plywood would be the correct application. CDX plywood would be the lesser cost. Please indicate the structural plywood grade and species that is to be used at the interior/exterior exposed ceilings (see also A151C, A5/A511, and B3/A513).	*In the structural notes, the plywood is specified to be APA Rated Sheathing, Exposure I, with a table showing the exterior glue and panel rating.* *Exposed ('*higher-grade*') plywood is to be:* *Species – Douglas Fir* *Finish - AC grade*
1.7	Sheet A121 shows a 1.5/12 pitch on the lower roof with exposed fasteners. Would it be more appropriate to possibly switch to a standing seam and mechanical seam at this shallow pitch?	*The intent is for this roof to be a corrugated panel with a rusted look. The design team is open to recommendations. Please provide Big-D options if there is cost savings. Please also provide recommendations on how to seal the roof panels on a 1.5/12 pitch.*
2.1	Sheet AI601 and spec section 095113 provide product type and finish for the suspended grid needed for ceiling type CL1. Please also provide the product/finish for the acoustical ceiling tile for ceiling type CL1.	*Basis of design tiles to be:* *MANUFACTURER - ARMSTRONG* *STYLE - ULTIMA HIGH NRC 9/16" BEVELED TEGULAR.* *See revised Sheet AI601*
2.2	D1-A511 calls for 2x8 shaped fire treated joists, but it appears that the fire ratings only apply to select wall assemblies: RW00.11, RW00.31 or RW00.32 show fire ratings. Please confirm that fire treated joists are not required at this or any roof assemblies. If roof assemblies are required to be fire rated please indicate, which assemblies apply.	*There are no fire rated roof assemblies required in the project. The note has been revised on Detail D1/A511. See revised sheet, attached.*
2.3	Sheet C3 indicates, "Confirm w/ owner if new storm drain construction will occur with Equestrian Center Expansion or future project". Please indicate if the storm drain is to be a part of the Equestrian Center Expansion project base bid.	*This work will not be used at part of the Equestrian Center Expansion project.*
2.4	Please provide current soils report for the project.	*See attached soils report, dated 3/29/18*

2.5	Please indicate if door 100c (Overhead Coiling Door) is to be insulated or not insulated. Please also indicate if door 100c is to receive a motorized operator or manual pull chain operation only.	*The door is non insulated. The door is not motorized.*
3.1a	Note T5 sheet ET301 mentions that room scheduling software will be provided by owner. It is assumed that this refers to the Crestron Fusion software and licensing, is this correct?	*Yes, the Crestron Fusion is the room scheduling software for the Crestron Room Schedulers found throughout the building.*
3.1b	There are 50" displays at Check-In 106 and Lobby 120. The plans do not show the functionality of these displays, are they for digital signage and if so is the owner providing the digital signage players? Please clarify what is required.	*Correct, the displays found in the Lobby 120 and Check-In 106 areas are for digital signage and it is the responsibility of the owner to provide the programming and software for these displays.*
3.1c	It is understood that the three meeting rooms are to function independently from each other except when in combined mode. Only one of the rooms has a touch panel, how are the other two rooms to be controlled when in independent mode?	*Please refer to Addendum #2*
3.1d	In the Meeting Room, there is one STP cable shown from the camera to the equipment cabinet but the Polycom extenders are not specified. It is assumed that these are required, please clarify.	*Please refer to Addendum #2*

Building Official Request:

R1	FDC to be located on the north side of the building.	*The design team is currently coordinating the location of the FDC to be on the north side of the building. Please provide pricing to locate the FDC on the north side of the building. We are have asked the Fire Marshall to approve locating the FDC outside Mechanical room 110.*

SPECIFICATION AMENDMENTS:

S1. Specifications:

Item #	Section	Page/Para	Amendment
S1.00	-	TOC	**REVISE** table of contents. See attached.
S1.01	017419	Section	**REVISE** specification section, see highlights for revisions. See attached.
S1.02	044313.16	Section	**REMOVE** section in its entirety.
S1.03	048520	Section	**ADD** section in its entirety. See attached.
S1.04	061516	Section	**REVISE** specification section, see highlights for revisions. See attached.
S1.05	061800	Section	**REVISE** specification section, see highlights for revisions. See attached.
S1.06	062013	Section	**REVISE** specification section, see highlights for revisions. See attached.
S1.07	074113	Section	**REVISE** specification section, see highlights for revisions. See attached.
S1.08	074213	Section	**REVISE** specification section, see highlights for revisions. See attached.
S1.09	076200	Section	**REVISE** specification section in its entirety. See attached.
S1.10	098433	Section	**ADD** section in its entirety. See attached.
S1.11	098436	Section	**ADD** section in its entirety. See attached.
S1.12	274100	Section	**REVISE** specification section, see highlights for revisions. See attached.

DRAWING AMENDMENTS:

D1. General:

Item #	Sheet(s)	Drawing/Detail	Amendment
D1.01	G001	Applicable Codes	**REVISE** energy code. See revised sheet, attached.
D1.02	G101	Exiting and occupancy plan	**REVISE** occupancy and exiting from existing arena based on comment from AHJ. See revised sheet, attached.
D1.03	G501	Assembly Type	**CLARIFY** wall between new expansion and existing arena. See revised sheet, attached.

D2. Civil:

Item #	Sheet(s)	Drawing/Detail	Amendment
D2.01	-		None Noted

D3. Landscape:

Item #	Sheet(s)	Drawing/Detail	Amendment
D3.01	-	-	None Noted

D4. Structural:

Item #	Sheet(s)	Drawing/Detail	Amendment
D4.01	-	-	None Noted

D5. Architectural:

Item #	Sheet(s)	Drawing/Detail	Amendment
D5.01	A101	Overall floor plan	**REVISE** exit doors from existing arena to be double doors. See revised sheet, attached.
D5.02	A511	Section Detail	**CLARIFY** blocking in detail. See revised sheet, attached
D5.03	A521	Storefront Types	**CLARIFY** envelope extents of expansion joint detail. See revised sheet, attached.
D5.04	A601	Door schedule and types	**REVISE** door schedule. **ADD** notes and door type. See revised sheet, attached.
D5.05	AI601	Finish Legend	**CLARIFY** finish CL1. See revised sheet, attached.

D6. Mechanical:

Item #	Sheet(s)	Drawing/Detail	Amendment
D6.01	-	-	See mechanical addendum write up (1 page).

D7. Electrical:

Item #	Sheet(s)	Drawing/Detail	Amendment
D7.01	-	-	See electrical addendum write up (4 pages), and associated revised sheets (13 sheets)

Kelly Holland, AIA, Project Manager Phone 801-924-5089 Email kholland@archnexus.com Date 7/3/18

TABLE OF CONTENTS

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

1.2 DEFINITIONS

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

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

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

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

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

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

~~1.3 ACTION SUBMITTALS~~

~~A. Waste Management Plan: Submit plan within 14 days of date established for.~~

~~1.4 INFORMATIONAL SUBMITTALS~~

~~A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:~~

~~1. Material category.~~
~~2. Generation point of waste.~~
~~3. Total quantity of waste in tons (tonnes).~~

4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

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

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

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

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

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

G. <Double click to insert sustainable design text for construction waste management submittal.>

1.5 QUALITY ASSURANCE

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

1. <Double click to insert sustainable design text for LEED coordinator.>

B. If including refrigerant recovery in this Section, retain first "Refrigerant Recovery Technician Qualifications" Paragraph below and delete second paragraph. Refrigerant Recovery Technician Qualifications: [**Type I**] [**Type II**] [**Type III**] [**Universal**] certified by EPA-approved certification program.

C. Refrigerant Recovery Technician Qualifications: Comply with requirements in [**Section 024116 "Structure Demolition."**] [**Section 024119 "Selective Demolition."**]

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

1.6 WASTE MANAGEMENT PLAN

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

B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and

construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

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

~~1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.~~

~~2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.~~

~~3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.~~

~~4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.~~

~~5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.~~

~~6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.~~

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

A. General: Goal is for Contractor to responsibly manage and dispose of waste to maximize recycling and reuse of products and materials, while minimizing landfill waste in accordance with local best practices. Measuring and tracking is not required.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

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

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

~~C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.~~

~~1. Distribute waste management plan to entities when they first begin work on site. Review plan procedures and locations established for salvage, recycling, and disposal.~~

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Comply with requirements in Section 024119 "Selective Demolition" for salvaging demolition waste.

~~B. Salvaged Items for Reuse in the Work:~~

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

~~C. Salvaged Items for Sale: Not permitted on Project site.~~

~~D. Salvaged Items for Owner's Use:~~

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

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

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

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

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

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until

removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.4 RECYCLING DEMOLITION WASTE

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

B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 4-inch (100-mm) size.

~~C. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.~~

~~1. Pulverize masonry to maximum 4-inch (100-mm) size.~~
~~2. Clean and stack undamaged, whole masonry units on wood pallets.~~

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

E. Metals: Separate metals by type.

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

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

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

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

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

~~J. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.~~

~~1. Store clean, dry carpet and pad in a closed container or trailer provided by carpet reclamation agency or carpet recycler.~~

~~K. Carpet Tile: Remove debris, trash, and adhesive.~~

~~1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by carpet reclamation agency or carpet recycler.~~

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

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

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

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

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

B. Wood Materials:

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

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

D. Paint: Seal containers and store by type.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

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

C. Burning: Do not burn waste materials.

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

~~3.7 ATTACHMENTS~~

END OF SECTION 017419

SECTION 048520 - ADHERED VENEER STONE SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Thin cut veneer masonry construction of natural stone set in cement mortar over a structural wall backing of:

1. Plywood sheathing.

B. Special decorative sawn thin veneer stone shapes for trim.

C. Installation of built-in accessories.

1.2 REFERENCES

A. ASTM C 91 - Standard Specification for Masonry Cement.

B. ASTM C 150 - Standard Specification for Portland Cement.

C. ASTM C 847 - Standard Specification for Metal Lath.

D. ASTM C 1063 - Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.

1.3 DESIGN / PERFORMANCE REQUIREMENTS

A. Design foundations, supporting walls, anchorage, spans, fastening, and joints under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location.

B. Design, fabricate, and install stonework to withstand normal loads from wind, gravity, movement of building structure, and thermally induced movement, as well as to resist deterioration under conditions of normal use including exposure to weather, without failure.

C. Design to include provisions to prevent galvanic and other forms of corrosion by insulating metals and other materials from direct contact with non-compatible materials, or by suitable coating.

1.4 SUBMITTALS

A. Submit under provisions of Section 013000.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

4. Cleaning methods.

C. Design Data: Submit design mix when Property specification of ASTM C 270 is to be used, with required environmental conditions, and admixture limitations.

D. Selection Samples: For each stone product specified, submit two samples, minimum size 48 inches (1216 mm) square, representing actual product, color, and texture.

E. Samples: Submit samples of mortar representing actual mortar color and color range.

F. Quarrier's Certificate: Certify stone properties conform to specified requirements.

G. Manufacturer's Certificates: Certify mortar and accessory products meet or exceed specified requirements.

1.5 MOCKUP

A. Provide twenty (20) square-foot mockup of adhered stone veneer system for approval of stone layout and installation.

1. For each stone type indicated.
2. For each color of mortar required.

1.6 QUALIFICATIONS

A. Stone Quarrier: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Stone Masonry Company: Company specializing in performing Work of this section with minimum five years documented experience.

1.7 QUALITY ASSURANCE

A. Preconstruction Meetings: Conduct preconstruction meetings including the Architect, Contractor, stone masonry subcontractor, and the flashing subcontractor to verify project requirements, substrate conditions, manufacturer's installation instructions and other requirements. Comply with Division 1 requirements.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store products on pallets, under cover and in manufacturer's unopened packaging until ready for installation.

B. Store stone materials on pallets on a dry level surface. Pallets shall not be stacked and shall be covered with tarps.

C. Store mortar under cover and in an area where temperature is maintained between 4 degrees C (40 degrees F) to 43 degrees C (110 degrees F).

1.9 PROJECT CONDITIONS

A. Hot and Cold Weather Requirements: In accordance with ACI 530.1/ASCE 6/TMS 602 Specifications for Masonry Structures.

B. Ambient temperature shall be 40 degrees F (4.4 degrees C) or above during erection of stone masonry. When ambient temperature falls below 50 degrees F, mortar mixing water shall be heated.

PART 2 PRODUCTS

2.1 VENEER STONE

A. Basis of Design: MVS Natural Blend: 50 percent Delta Stone-MVS Natural cleft, 50 percent Delta Stone-MVS Guillotined Builder. Color: Shades of blond, peach, and rusts. Pattern: squares and rectangles

1. Lengths: Random 6 to 18 inches.
2. Heights: 2 to 8 inches.
3. Thickness: 3/4 to 1-1/2 inches (19 mm to 38 mm).
4. Material shall conform to ASTM C 568 with the following properties:

a. Maximum absorption rate of 3.0 percent when tested in accordance with ASTM C 97. 2 to 9 inches (51 to 229 mm) machine cut veneer, 6 to 14 inches (152 to 356 mm) bed face.
b. Minimum density of 150 lbs/cubic ft when tested in accordance with ASTM C 97.
c. Minimum compressive strength of 17,000 average psi when tested in accordance with ASTM C 170.

2.2 SPECIAL SHAPES

A. Provide special sawn veneer shapes as indicated on the Drawings and as follows:

1. Caps.
2. Cornerstones.
3. Sills.

B. Stone shall be furnished in sizes indicated plus or minus 1/2 inch (12.5 mm). Materials shall conform to the properties specified for the materials specified.

C. Color shall be:

1. Match the veneer stone.

D. Finish shall be:

1. Sandblast.

2.3 ACCESSORIES

A. Expanded Metal Lath: ASTM C 847, galvanized, self-furring, minimum 2.5 lb or 18 gauge.

B. Anchorage: Tie wire, nails, screws and other metal supports, galvanized, of type and size to suit application and to rigidly secure materials in place.

C. Setting buttons or shims: Lead or plastic.

D. Building Paper: ASTM D 226, Type 1, No. 15 asphalt saturated felt.

E. Concrete Bonding Agent: Acryl 60 Water-based acrylic bonding and modifying admixture.

2.4 MORTAR

A. Masonry Cement: Complying with ASTM C91:

1. Type S (PL-03).
2. Color, to be selected by architect from full range.

B. Portland Cement: Complying with ASTM C150:

1. Type I.
2. Color, gray.

C. Mortar Aggregate: Complying with ASTM C144, standard masonry type.

D. Hydrated Lime: Complying with ASTM C207:

1. Type S.

E. Water: Clean and potable.

2.5 MIXES

A. Mortar Mixes:

1. Mortar for Structural Masonry: Complying with ASTM C270, using Proportion Specification.

a. Type S.

B. Mortar Mixing:

1. Mix mortar ingredients in accordance with ASTM C270. Mix only in quantities needed for immediate use.
2. Do not use anti-freeze compounds to lower freezing point of mortar.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until backing structure is plumb, bearing surfaces are level and substrates are clean and properly prepared.

B. Verify that built-in items are in proper location, and ready for roughing into stone masonry.

C. Notify Architect of unsatisfactory preparation before proceeding.

3.2 STONE PREPARATION

A. The back of the stone must be wiped clean to remove any dust or debris. For best adhesion, stone should be slightly damp but not wet.

B. Coordinate placement of flashings and other moisture control products supplied by other sections.

C. Clean all built-in items of loose rust, ice, mud, or other foreign matter before incorporating into the wall. All ferrous metal built into the wall shall be primed or galvanized.

3.3 PREPARATION FOR INSTALLATION OVER PLYWOOD SHEATHING

A. Cover sheathing with waterproof building paper with all joints lapped shingle style a minimum of 4 inches (102 mm).

B. Install metal lath in accordance with ASTM C1063. Apply metal lath taut, with long dimension perpendicular to supports. Lap ends minimum 1 inch (25 mm) Secure end laps with tie wire where they occur between supports.

C. Attach metal lath to wood supports using galvanized nails at maximum 6 inches (152 mm) on center vertically and 16 inches (406 mm) on center horizontally. Fasten with a minimum of a 1 inch (25 mm) penetration of the wood studs. Stop lath 1 inch (25 mm) from finished edges.

D. Continuously reinforce internal angles with corner mesh.

E. Place lath vertically above each top corner and each side of door and glazed frames.

3.4 PREPARATION FOR INSTALLATION OVER INSULATED CONCRETE FORMS

A. Clean surface to assure a proper mortar bond. Verify no bituminous, water repellent, or other agents exist on surfaces that are detrimental to mortar bond.

B. Apply bonding agent in accordance with the manufacturers printed instructions.

C. Install metal lath in accordance with ASTM C 1063. Apply metal lath taut, with long dimension perpendicular to supports. Lap ends minimum 1 inch (25 mm) Secure end laps with tie wire where they occur between supports.

D. Attach metal lath to wall using galvanized concrete nails at maximum 6 inches (152 mm) on center vertically and 16 inches (406 mm) on center horizontally. Stop lath 1 inch (25 mm) from finished edges.

E. Continuously reinforce internal angles with corner mesh.

F. Place lath vertically above each top corner and each side of door and glazed frames.

3.5 PREPARATION FOR INSTALLATION OF THIN VENEER STONE

A. The back of the stone must be wiped clean to remove any dust or debris. For best adhesion, stone should be slightly damp but not wet.

B. Coordinate placement of reinforcement, anchors and accessories, flashings and other moisture control products supplied by other sections.

C. Clean all built-in items of loose rust, ice, mud, or other foreign matter before incorporating into the wall. All ferrous metal built into the wall shall be primed or galvanized.

D. If required, provide temporary bracing during installation of masonry work. Maintain bracing in place until building structure provides permanent support.

3.6 INSTALLATION OF THIN VENEER STONE

A. Install thin veneer stone and mortar in accordance with ACI 530.1/ASCE 6/TMS 602 Specifications for Masonry Structures.

B. Maintain masonry courses to uniform dimension(s). Form vertical and horizontal joints of uniform thickness.

C. Pattern Bond:

1. Lay stone with the bedface, splitface or weather edge exposed. If a color blend is being used, take care to avoid a concentration of any one color to any one wall surface.
2. Maintain an approximate 1/4” to 3/8” inch joint, as stone allows.
3. Do not use stacked vertical joints.
4. Lay out work in advance and distribute color range of stone uniformly over total work area.

D. Placing and Bonding:

1. Dampen substrate as required to reduce excessive suction.
2. Apply mortar in accordance with PCA Plaster (Stucco) Manual to a thickness of 1/2 to 3/4 inch (12.5 mm to 19 mm) Do not spread more than a workable area of 5 to 10 SF (.46 to .93 SM) so that mortar will not set before stone is applied.
3. Lay thin veneer stone in a full bed of mortar with full joints.
4. Work from the bottom up laying corner pieces first.
5. Remove excessive mortar as work progresses.
6. Do not shift or tap veneer stone after mortar has achieved initial set. Where adjustment is required, remove mortar and replace.
7. Isolate top of veneer stone from horizontal structural framing members and slabs or decks with compressible joint filler and sealant in accordance with Section 07900.

E. Joining Work: Where fresh masonry joints partially set masonry.

1. Remove loose stone and mortar.
2. Clean and lightly wet surface of set masonry.
3. To avoid a horizontal run of masonry rack back 1/2 the length of stone in each course.
4. Toothing is not permitted.

F. Joints:

1. Lay stone with an approximate 1/4” to 3/8” inch mortar joint, as stone allows.
2. Tool joints when 'thumb-print' hard with a jointer slightly larger than the width of the joint.
3. Trowel-point or concave tool exterior joints below grade.
4. Flush cut joints to be finished with a soft brush only.
5. Retempering of mortar is not permitted.
6. Use non-corrosive stone shims as required to maintain uniform joint thickness.

G. Flashing:

1. Clean surface of masonry smooth and remove any projections, which could damage flashings.
2. Place flashing on a bed of mortar.
3. Cover flashing with mortar.
4. Provide weep vents at head joints placed every 16 inches (406 mm) along the first course immediately above flashing or as recommended by weep vent manufacturer.

H. Control and Expansion Joints: Keep joints open and free of debris. Coordinate control joint in accordance with Section 07900 for sealant performance.

I. Sealant Recesses: Provide open joint 3/4 inch (19 mm) deep and 1/4 inch (6 mm) wide, where masonry meets doors, windows and other exterior openings. Coordinate sealant joints in accordance with Section 07900 for sealant performance.

J. Cutting And Fitting: Cut and fit for chases, pipes, conduit, sleeves, grounds, and other penetrations and adjacent materials. Coordinate with other sections of work to provide correct size, shape, and location.

3.7 FIELD QUALITY CONTROL

A. Test mortar and grout in accordance with Section 01110.

B. Testing of Mortar Mix: In accordance with ASTM C 780, Annex A4, for mortar aggregate ratio and ASTM C 780, Annex A5, for mortar water content.

3.8 PROTECTION

A. Protect installed products until completion of project.

B. Cover the top of unfinished stone masonry work to protect it from the weather.

C. Extend cover a minimum of 24 inches down both sides and hold securely in place.

D. Prevent staining of stone from mortar, grout, sealants, and other sources. Immediately remove such materials from stone without damage to the stonework.

E. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.

F. Protect sills, ledges and projections from droppings of mortar and sealants.

G. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 CLEANING

A. Keep the face of stone free of mortar as the work progresses. If residual mortar is on the face of the stone, allow to dry partially and brush the mortar off the surface and sponge off the residue.

B. When the work is completed and the mortar has set for 2 to 3 days the surface may be cleaned from top to bottom using a mild masonry detergent acceptable to the stone manufacturer. Do not use metal brushes or acids for cleaning.

END OF SECTION 048520

SECTION 061516 - WOOD FLOOR AND ROOF DECKING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes ~~solid-sawn wood~~ plywood floor and roof decking.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Research/Evaluation Reports: For glued-laminated wood floor and roof decking indicated to be of diaphragm design and construction, from ICC-ES.

PART 2 - PRODUCTS

2.1 WOOD DECKING, GENERAL

A. General: Comply with DOC PS 20 and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

~~2.2 SOLID-SAWN WOOD DECKING~~

~~A. Standard for Solid-Sawn Wood Decking: Comply with AITC 112.~~

~~B. Wood Decking Species: Douglas fir-larch or Douglas fir-larch (North).~~

~~C. Wood Decking Nominal Size: 2 by 6.~~

~~D. Wood Decking Grade: Commercial Decking or Commercial Dex.~~

~~E. Grade Stamps: Factory mark each item with grade stamp of grading agency. Apply grade stamp to surfaces that are not exposed to view.~~

~~F. Moisture Content: Provide wood decking with 19 percent maximum moisture content at time of dressing.~~

~~G. Face Surface: Smooth.~~

~~H. Edge Pattern: As indicated in the drawings.~~

~~I. Finish: Per Section 099300 Staining and Transparent Finishing.~~

2.2 PLYWOOD ROOF AND FLOOR DECKING

A. Plywood: AC Grade Fir Veneer, properties as indicated in the structural drawings.

B. Finish: Per Section 099300 Staining and Transparent Finishing.

2.3 ACCESSORY MATERIALS

A. Fastener Material: Hot-dip galvanized steel.

B. Sealants: Latex, complying with applicable requirements in Section 079200 "Joint Sealants" and recommended by sealant manufacturer and manufacturer of substrates for intended application.

PART 3 - EXECUTION

3.1 INSTALLATION

~~A. Install solid-sawn wood decking to comply with AITC 112.~~

~~1. Locate end joints for two-span continuous lay-up.~~

B. Anchor wood decking, where supported on walls, with bolts as indicated.

C. Apply joint sealant to seal wood decking at exterior walls at the following locations:

1. Between wood decking and supports located at exterior walls.
2. Between wood decking and exterior walls that butt against underside of decking.
~~3. Between tongues and grooves of wood decking over exterior walls and supports at exterior walls.~~

3.2 PROTECTION

A. Provide water-resistive barrier over roof decking as the Work progresses to protect roof decking until roofing is applied.

END OF SECTION 061516

SECTION 061800 - GLUED-LAMINATED CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes framing using structural glued-laminated timber.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1.3 INFORMATIONAL SUBMITTALS

A. Certificates of Conformance: Issued by a qualified testing and inspecting agency indicating that structural glued-laminated timber complies with requirements in AITC A190.1.

1.4 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with provisions in AITC 111.

B. Individually wrap members using plastic-coated paper covering with water-resistant seams.

1.5 WARRANTY

A. Manufacturer and Installer shall provide warranties for the interior and exterior glulam beams and columns according to the following. Warranty shall include a minimum of one annual on-site inspection by both parties to thoroughly inspect all glulam products and associated systems to determine the state of the products and create and implement a plan to mitigate any damage or wear.

B. Installer's Warranty: Installer agrees to repair or replace exterior glulam beams and columns within specified warranty period. Installer agrees to repair or replace interior glulam beams within specified warranty period.

1. Warranty Period Exterior Glulam Beams and Columns: Four (4) years from date of Substantial Completion.

2. Warranty Period Interior Glulam Beams: Twenty (20) years from date of Substantial Completion.

C. Manufacturer's Warranty: Manufacturer agrees to repair or replace exterior glulam beams and columns within specified warranty period. Manufacturer agrees to repair or replace interior glulam beams within specified warranty period.

1. Warranty Period Exterior Glulam Beams: Four (4) years from date of Substantial Completion.

2. Warranty Period Interior Glulam Beams: Twenty (20) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 STRUCTURAL GLUED-LAMINATED TIMBER

A. General: Provide structural glued-laminated timber that complies with AITC A190.1 and AITC 117 or research/evaluation reports acceptable to authorities having jurisdiction.

1. Factory mark each piece of structural glued-laminated timber with AITC Quality Mark or APA-EWS trademark. Place mark on surfaces that are not exposed in the completed Work.
2. Provide structural glued-laminated timber made with wet-use adhesive complying with AITC A190.1.

B. Species and Grades for Structural Glued-Laminated Timber: Douglas fir-larch that complies with combination symbols indicated.

C. Species and Grades for Beams and Purlins:

1. Species and Beam Stress Classification: Douglas fir-larch, 24F-1.8E.
2. Lay-up: Either balanced or unbalanced.

~~D. Species and Grades for Columns:~~

~~1. Species and Combination Symbol: Douglas fir-larch, 3.~~

E. Appearance Grade: Architectural, complying with AITC 110.

F. Finish: Per Section 099300 Staining and Transparent Finishing.

2.2 TIMBER CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Simpson Strong-Tie Co., Inc.
2. USP Structural Connectors.
3. Or approved equal.

B. Materials: Unless otherwise indicated, fabricate from the following materials:

1. Structural-steel shapes, plates, and flat bars complying with ASTM A 36/A 36M.
2. Round steel bars complying with ASTM A 575, Grade M 1020.
3. Hot-rolled steel sheet complying with ASTM A 1011/A 1011M, Structural Steel, Type SS, Grade 33.

C. Interior and Exterior Fasteners: Hot-dip galvanize steel assemblies and fasteners after fabrication to comply with ASTM A 123/A 123M or ASTM A 153/A 153M.

2.3 MISCELLANEOUS MATERIALS

A. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.

B. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

2.4 FABRICATION

A. Shop fabricate for connections to greatest extent possible, including cutting to length and drilling bolt holes.

B. Camber: Fabricate horizontal and inclined members of less than 1:1 slope with either circular or parabolic camber equal to 1/500 of span.

C. End-Cut Sealing: Immediately after end cutting each member to final length, apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces flood coated for not less than 10 minutes.

D. Seal Coat: After fabricating, sanding, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Erect structural glued-laminated timber true and plumb and with uniform, close-fitting joints. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.

1. Handle and temporarily support glued-laminated timber to prevent surface damage, compression, and other effects that might interfere with indicated finish.

B. Cutting: Avoid extra cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.

C. Fit structural glued-laminated timber by cutting and restoring exposed surfaces to match specified surfacing.

1. Predrill for fasteners using timber connectors as templates.
2. Finish exposed surfaces to remove planing or surfacing marks.
3. Coat cross cuts with end sealer.

3.2 ADJUSTING

A. Repair damaged surfaces after completing erection. Replace damaged structural glued-laminated timber if repairs are not approved by Architect.

3.3 PROTECTION

A. Do not remove wrappings on individually wrapped members until they no longer serve a useful purpose, including protection from weather, sunlight, soiling, and damage from work of other trades.

1. Slit underside of wrapping to prevent accumulation of moisture inside the wrapping.

END OF SECTION 061800

SECTION 062013 – EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. ~~Lumber soffits.~~ Exposed wood roof deck.
2. Exterior lumber wall finish adjacent to lumber soffits to match soffits.
3. Ship lap wood siding.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

B. Samples: For each type of product involving selection of colors, profiles, or textures.

1.3 INFORMATIONAL SUBMITTALS

A. Compliance Certificates:

1. For lumber that is not marked with grade stamp.
2. For preservative-treated wood that is not marked with treatment-quality mark.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Exposed wood roof deck

1. Location: As indicated in drawings.
2. Finish: Per Section 099300 Staining and Transparent Finishing.

2.2 WOOD VENEER

A. Products: Wood siding:

1. Basis of design: Kebony Clear 90-degree shiplap cladding 1x5.
2. Or approved equal.

2.3 MISCELLANEOUS MATERIALS

A. Fasteners for Exterior Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.

1. For face-fastening siding, provide ringed-shank siding nails or hot-dip galvanized-steel siding nails unless otherwise indicated.
2. For applications not otherwise indicated, provide stainless-steel hot-dip galvanized-steel or aluminum fasteners.

B. Flashing: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim" for flashing materials installed in exterior finish carpentry.

C. Sealants: Sealant at joints to be compatible with Sherwin-Williams SuperDeck.

PART 3 - EXECUTION

3.1 PREPARATION

A. Exterior exposed wood beams and columns to be prepared for Oil based Transparent Stain according to Manufacturer's recommendations.

3.2 INSTALLATION, GENERAL

A. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.

1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
2. Install stairs with no more than 3/16-inch (4.7-mm) variation between adjacent treads and risers and with no more than 3/8-inch (9.5-mm) variation between largest and smallest treads and risers within each flight.

END OF SECTION 062013

SECTION 074113 - CORRUGATED METAL ROOF AND WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes corrugated metal roof panels.

B. The intent for the finish on Corrugated Metal Roof Panel – Type 1 is that it be galvanized steel, unfinished and partially weathered. The Contractor is to test material samples at the project site in coordination with the Architect to determine the best way to remove some of the galvanized finish and allow the exposed steel to weather naturally.

1. This website may provide suggestions for weathering the galvanized steel. https://www.physicsforums.com/threads/how-do-i-get-galvanized-steel-to-rust.124573/
2. Another option for partially weathering the steel might be to sandblast the steel to remove the galvanizing in select areas.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

C. Shop Drawings: Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.

D. Samples: For each type of metal panel indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Warranties: Sample of special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

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

B. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.
3. Deflection Limits: For wind loads, no greater than 1/240 of the span.

B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E 1680 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).

C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).

D. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.

E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: As indicated on the drawings.

F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 CORRUGATED METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping corrugations and mechanically attaching panels to supports. Include accessories required for weathertight installation. Provide material for roof panels from same manufacturing run. All panels to be of the same color, finish, thickness, grade, and fabrication.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.

B. Corrugated Metal Roof Panels – Type 1 - Formed with corrugated ridges and valleys designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. ABC Metal Roofing.

~~1) Basis of Design: Rustic Trail.~~

b. Metal Sales.
c. Corten Roofing / Western States Metal Roofing
d. Or approved equal.

2. Material: Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation; structural quality.

~~3. Uncoated Steel Sheet:~~

a. Nominal Thickness: 22 gauge steel.
b. Exterior Finish: ~~Unpainted and unfinished, cold rolled steel.~~ See finish notes in Paragraph 1.1 SUMMARY, above.
c. Color: N/A.

4. Attachment: Exposed direct fastened panel.
5. Panel Coverage: 29.33 inches.
6. Panel Height: 7/8”.

C. Corrugated Metal Roof Panels – Type 2 - Formed with corrugated ridges and valleys designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

   a. Metal Sales.

      1) Basis of Design: IC72 Panel – Roof.

   b. ABC Metal Roofing.
   c. Or approved equal.

2. Material: Aluminum-zinc alloy-coated steel sheet, ASTM A 792, AZ50 or zinc-coated steel sheet, ASTM A 653 G90 coating designation, structural quality, Grade 50, 0.0236-inch (0.60-mm) minimum thickness.

   a. Nominal Thickness: 22 gauge
   b. Exterior Finish: PVDF (Kynar 500).
   c. Color: As selected by Architect from manufacturer's full range of colors.

3. Attachment: Exposed direct fastened panel.
4. Panel Coverage: 36 inches (914.4 mm).
5. Panel Height: 1-1/2 inches (38.1 mm).

D. Corrugated Metal Wall Panels - Formed with corrugated ridges and valleys designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

   a. Metal Sales.

      1) Basis of Design: 7/8” Corrugated.

   b. ABC Metal Roofing.
   c. Or approved equal.

2. Material: Aluminum-zinc alloy-coated steel sheet, ASTM A 792, AZ50 or zinc-coated steel sheet, ASTM A 653 G90 coating designation, structural quality, Grade 50, 0.0236-inch (0.60-mm) minimum thickness.

   a. Nominal Thickness: 26 gauge
   b. Color: As selected by Architect from manufacturer's full range of standard colors.

3. Attachment: Exposed direct fastened panel.

4. Panel Coverage: 32 inches (812.8 mm).
5. Panel Height: 7/8 inch (22.2 mm).

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils (0.76 mm) thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D 1970.
2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.
3. Manufacturers: Subject to compliance with requirements, provide products by the following:

    a. GCP Applied Technologies Inc. (formerly Grace Construction Products).
    b. Or approved equal.

B. Felt Underlayment: ASTM D 226/D 22M, Type II (No. 30), asphalt-saturated organic felts.

C. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.

2.4 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C 645; cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 (Z275 hot-dip galvanized) coating designation or ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Roof Curbs: Fabricated from same material as roof panels, 24 gauge nominal thickness; with bottom of skirt profiled to match roof panel profiles and with welded top box and integral full-length cricket. Fabricate curb subframing of 0.060-inch- (1.52-mm-) nominal thickness, angle-, C-, or Z-shaped steel sheet. Fabricate curb and subframing to withstand indicated loads of size and height indicated. Finish roof curbs to match metal roof panels.

E. Panel Fasteners: Self-tapping screws designed to withstand design loads.

F. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing; 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C 920; as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.5 FABRICATION

A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

2.6 FINISHES

A. Panels and Accessories:

1. 25 year Galvalume Finish or approved equal.
2. Concealed Finish: White or light-colored acrylic or polyester backer finish.

3.1 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.2 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Extend underlayment into gutter trough. Roll laps with roller. Cover underlayment within 14 days.

B. Felt Underlayment: Apply at locations indicated on Drawings, in shingle fashion to shed water, and with lapped joints of not less than 2 inches (50 mm).

1. Apply over the entire roof surface.

C. Slip Sheet: Apply slip sheet over underlayment before installing metal roof panels.

D. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

3.3 METAL PANEL INSTALLATION

A. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
4. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
5. Watertight Installation:

    a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
    b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    c. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.

B. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

C. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

3.4 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

END OF SECTION 074113

SECTION 074213 - METAL PANELS

PART 1 −GENERAL

1.1 SUMMARY

A. This Section includes metal wall panels and related work as shown and specified.

1. Weathering Steel Plate ~~Site Planters~~ Wall Panels.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings:

1. Fabrication and installation details.

C. Samples: Submit 2 minimum 6 x 6−inch samples for each material.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Minimum of 3 years of experience on similar work; knowledge and understanding of standards referenced herein; skill necessary to perform in compliance with this specification. Installers failing to demonstrate the required experience, knowledge, or skill shall be removed from the project.

B. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:

1. Deflection Limits: For wind loads, no greater than 1/240 of the span.
2. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test−pressure difference: 6.24 lbf/sq. ft. (300 Pa).
3. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime−sky heat loss.
4. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Provide in required form for a period of 2 years from Date of Substantial Completion.

PART 2 − PRODUCTS

2.1 METAL PANELS

A. A606−4 Weathering Steel Plate Panel System:

1. Bases−of−Design: RustWall Formed Profile Panel; 18 gage; 18 inches wide; unless noted otherwise.
2. Provide concealed fasteners per manufacturer's recommendations.
3. Quality Standard: Meeting ASTM A588 and ASTM A606 Type 4.

PART 3 − EXECUTION

3.1 EXAMINATION

A. Examine conditions of work in place before beginning work; report defects.

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

3.2 PREPARATION

A. Protect panels from contact with lime, cement or chemicals. Do not allow traffic or material storage on completed surface.

3.3 INSTALLATION

A. Install in conformance with referenced standards, manufacturer's written directions, as shown, and as specified.

B. Install metal wall panels plumb, straight, square and level; at proper elevations, locations and in alignment with adjacent work. Attach panels as shown. Lap and seal all joints. Tightly close interlocking seam between panels. Finish panels clean and weathertight. Work showing dents, creases, deformations, weathering or other defects affecting use or appearance will not be accepted.

C. Allow for expansion and contraction over an ambient temperature range up to 150 degrees F; distortions resulting from fastening or expansion and contraction stresses not acceptable

D. Apply sealant at all joints and lap per manufacturer's recommendation.

3.4 CLEANING

A. At completion clean exposed surfaces in a manner that will not damage finish.

END OF SECTION 074213

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Manufactured reglets and counterflashing.
2. Formed roof-drainage sheet metal fabrications.
3. Formed low-slope roof sheet metal fabrications.
4. Formed wall sheet metal fabrications.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Distinguish between shop- and field-assembled work.
3. Include identification of finish for each item.
4. Include pattern of seams and details of termination points, expansion joints and expansion-joint covers, direction of expansion, roof-penetration flashing, and connections to adjoining work.

C. Samples: For each exposed product and for each color and texture specified.

1.4 INFORMATIONAL SUBMITTALS

A. Product certificates.

B. Product test reports.

C. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1. For copings and roof edge flashings that are SPRI ES-1 tested, shop shall be listed as able to fabricate required details as tested and approved. All roof, wall and edge copings and flashings should be provided by the Metal Roof Manufacturer to the greatest extent possible. Where not possible, use pre-finished metal provided by the Metal Roof Manufacturer in the same color and finish as provided for the roof.

1.7 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Where exposed and a part of the roof assembly, the sheet metal flashing and trim shall be fabricated from the same material as used on the Corrugated Metal Roof system. Obtain metal goods from Roofing Manufacturer in shape and configuration desired or break form these items on site from Roofing Manufacturer supplied materials.

D. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressure:

1. Design Pressure: As indicated on Drawings.

E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.

1. Color Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
2. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

3. Color: As selected by Architect from manufacturer's full range.

C. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet according to ASTM A 653/A 653M, G90 (Z275) coating designation or aluminum-zinc alloy-coated steel sheet according to ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation, Grade 40 (Grade 275); prepainted by coil-coating process to comply with ASTM A 755/A 755M.

1. Surface: Manufacturer's standard clear acrylic coating on both sides.
2. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

3. Color: As selected by Architect from manufacturer's full range.

2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.

B. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over 220 deg F (111 deg C); and complying with physical requirements of ASTM D 226/D 226M for Type I and Type II felts.

C. Self-Adhering, High-Temperature Sheet: Minimum 30 mils (0.76 mm) thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.

1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C) or higher.
2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C) or lower.

D. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. (0.16 kg/sq. m) minimum.

2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.

3. Fasteners for Zinc-Coated (Galvanized) and Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.

C. Solder:

1. For Zinc-Coated (Galvanized) Steel: ASTM B 32, with maximum lead content of 0.2 percent.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

H. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.

I. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.5 MANUFACTURED REGLETS

A. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions and with interlocking counterflashing on exterior face, of same metal as reglet.

2.6 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.

1. Obtain field measurements for accurate fit before shop fabrication.
2. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
3. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

C. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.

D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

E. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.

F. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

G. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.

2.7 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Hanging Gutters: Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch- (2400-mm-) long sections. Furnish flat-stock gutter brackets and gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard but with thickness not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters. Shop fabricate interior and exterior corners.

1. Accessories: Continuous, removable leaf screen with sheet metal frame and hardware cloth screen, wire-ball downspout strainer, valley baffles.

B. Built-in Gutters: Fabricate to cross section required, with riveted and soldered joints, complete with end pieces, outlet tubes, and other special accessories as required. Fabricate in minimum 96-inch- (2400-mm-) long sections. Fabricate expansion joints and accessories from same metal as gutters unless otherwise indicated.

1. Accessories: Continuous, removable leaf screen with sheet metal frame and hardware cloth screen, wire-ball downspout strainer.

C. Downspouts: Fabricate downspouts to dimensions indicated, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors. Shop fabricate elbows.

1. Hanger Style: As indicated in the Drawings.

D. Parapet Scuppers: Fabricate scuppers to dimensions required, with closure flange trim to exterior, 4-inch- (100-mm-) wide wall flanges to interior, and base extending 4 inches (100 mm) beyond cant or tapered strip into field of roof. Fabricate from the following materials:

E. Conductor Heads: Fabricate conductor heads with flanged back and stiffened top edge and of dimensions and shape required, complete with outlet tubes.

2.8 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing and Fascia Cap: Fabricate in minimum 96 inch long but not exceeding 12 foot long sections. Furnish with 6inch wide, joint cover plates. Shop fabricate interior and exterior corners.

B. Copings: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 12-foot- (3.6-m-) long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and interior leg. Miter corners, fasten and seal solder or weld watertight. Shop fabricate interior and exterior corners.

C. Base Flashing: Shop fabricate interior and exterior corners.

2.9 WALL SHEET METAL FABRICATIONS

A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96-inch- (2400-mm-) long, but not exceeding 12-foot- (3.6-m-) long, sections, under copings, and at shelf angles. Fabricate discontinuous lintel, sill, and similar flashings to extend 6 inches (150 mm) beyond each side of wall openings; and form with 2-inch- (50-mm-) high, end dams.

B. Opening Flashings in Frame Construction: Fabricate head, sill, jamb, and similar flashings to extend 4 inches (100 mm) beyond wall openings. Form head and sill flashing with 2-inch- (50-mm-) high, end dams.

PART 3 - EXECUTION

3.1 UNDERLAYMENT INSTALLATION

A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches (50 mm).

B. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, according to manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.

C. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps and edges with roller. Cover underlayment within 14 days.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Space cleats not more than 12 inches (300 mm) apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
5. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of uncoated-aluminum sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to width of 1-1/2 inches (38 mm); however, reduce pre-tinning where pre-tinned surface would show in completed Work.

1. Do not solder metallic-coated steel and aluminum sheet.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

H. Rivets: Rivet joints in uncoated aluminum where necessary for strength.

3.3 ROOF-DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof-drainage items to produce complete roof-drainage system according to cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.

B. Hanging Gutters: Join sections with riveted and soldered joints or joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchor them in position. Provide end closures and seal watertight with sealant. Slope to downspouts.

1. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet (15.24 m) apart. Install expansion-joint caps.

2. Install continuous gutter screens on gutters with noncorrosive fasteners, removable or hinged to swing open for cleaning gutters.

C. Built-in Gutters: Join sections with riveted and soldered joints or joints sealed with sealant. Provide for thermal expansion. Slope to downspouts. Provide end closures and seal watertight with sealant.

1. Install underlayment layer in built-in gutter trough and extend to drip edge at eaves and under underlayment on roof sheathing. Lap sides minimum of 2 inches (50 mm) over underlying course. Lap ends minimum of 4 inches (100 mm). Stagger end laps between succeeding courses at least 72 inches (1830 mm). Fasten with roofing nails. Install slip sheet over underlayment.
2. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet (15.24 m) apart. Install expansion-joint caps.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches (1500 mm) o.c.

E. Splash Pans: Install where downspouts discharge on low-slope roofs. Set in asphalt roofing cement or elastomeric sealant compatible with the substrate.

F. Parapet Scuppers: Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.

G. Conductor Heads: Anchor securely to wall, with elevation of conductor head rim at minimum of 1 inch (25 mm) below scupper or gutter discharge.

H. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated. Lap joints minimum of 4 inches (100 mm) in direction of water flow.

3.4 ROOF FLASHING INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in cited sheet metal standard unless otherwise indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate.

C. Copings: Anchor to resist uplift and outward forces according to recommendations in cited sheet metal standard unless otherwise indicated.

D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches (100 mm) over base flashing. Install stainless-steel draw band and tighten.

E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints minimum of 4 inches.

F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric or butyl sealant and clamp flashing to pipes that penetrate roof.

3.5 WALL FLASHING INSTALLATION

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Through-Wall Flashing: Installation of through-wall flashing is specified in Section 044313.16 "Adhered Stone Masonry Veneer."

C. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches (100 mm) beyond wall openings.

3.6 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

END OF SECTION 076200

SECTION 098433 - SOUND-ABSORBING WALL UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes shop-fabricated, sound-absorbing acoustical panel units tested for acoustical performance.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For unit assembly and installation.

C. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

A. Product certificates.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: Units shall comply with "Surface-Burning Characteristics" or "Fire Growth Contribution" Subparagraph below, or both, as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Surface-Burning Characteristics: Comply with ASTM E 84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

    a. Fire Rating: Class C.

2. Fire Growth Contribution: Comply with acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 265 Method B Protocol or NFPA 286.

2.2 SOUND-ABSORBING WALL UNITS

A. Sound-Absorbing Wall Panel: Manufacturer's standard panel construction.

B. Basis-of-Design Product: Kirei EchoPanel Panels.

1. Mounting: Adhered directly to walls.
2. Panel Thickness: 12 mm.
3. Core: As indicated by basis-of-design product.
4. Edge Construction: As indicated by basis-of-design product.
5. Color: As selected from manufacturer’s full range.
6. Edge Profile: Square.
7. Corner Detail in Elevation: Square with continuous edge profile indicated.
8. Reveals between Panels: Butt joint.
9. Facing Material: As indicated by basis-of-design product.
10. Acoustical Performance: Sound absorption NRC of 0.36 to 0.75 according to ASTM C 423.

2.3 FABRICATION

A. Standard Construction: Use manufacturer's standard construction unless otherwise indicated; with facing material applied to face, edges, and back border of dimensionally stable core; and with rigid edges to reinforce panel perimeter against warpage and damage.

B. Core-Face Layer: Evenly stretched over core face and edges and securely attached to core; free from puckers, ripples, wrinkles, or sags.

C. Facing Material: Apply fabric facing fully covering visible surfaces of unit; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.

1. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches in adjacent units.

D. Dimensional Tolerances of Finished Units: Plus or minus 1/16 inch (1.6 mm).

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install units in locations indicated. Unless otherwise indicated, install units with vertical surfaces and edges plumb, top edges level and in alignment with other units, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.

B. Comply with manufacturer's written instructions for installation of units using type of mounting devices indicated. Mount units securely to supporting substrate.

C. Align fabric pattern and grain with adjacent units.

3.2 CLEANING

A. Clip loose threads; remove pills and extraneous materials.

B. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION 098433

SECTION 098436 - SOUND-ABSORBING CEILING UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes shop-fabricated, sound-absorbing acoustical panel units tested for acoustical performance.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For unit assembly and installation.

C. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

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

B. Product certificates.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: Units shall comply with "Surface-Burning Characteristics" or "Fire Growth Contribution" Subparagraph below, or both, as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Surface-Burning Characteristics: Comply with ASTM E 84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

a. Fire Rating: Class C.

2. Fire Growth Contribution: Comply with acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 286.

2.2 SOUND-ABSORBING CEILING UNITS

A. Sound-Absorbing Ceiling Panel: Manufacturer's standard panel construction.

B. Basis-of-Design Product: Kirei EchoPanel H-Baffles.

1. Mounting: Manufacturer's standard suspension system, secured to substrate.
2. Mounting Devices: Concealed on top edge of unit, recommended by manufacturer to support weight of unit.
3. Dimensions: 9 inches high, 3.3 inches overall width, length as indicated in the Drawings.
4. Core: As indicated by basis-of-design product.
5. Edge Construction: As indicated by basis-of-design product.
6. Color: As selected from manufacturer’s full range.
7. Edge Profile: Square.
8. Corner Detail in Elevation: Square with continuous edge profile indicated.
9. Facing Material: As indicated by basis-of-design product.

2.3 MATERIALS

A. Mounting Devices: Concealed on back or top edge of unit, recommended by manufacturer to support weight of unit.

2.4 FABRICATION

A. Standard Construction: Use manufacturer's standard construction unless otherwise indicated, with facing material applied to face, edges, and back border of dimensionally stable core and with rigid edges to reinforce panel perimeter against warpage and damage.

B. Measure each area and establish layout of panels as indicated on Drawings within a given area.

C. Facing Material: Apply fabric facing fully covering visible surfaces of unit; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.

1. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches adjacent units.

D. Dimensional Tolerances of Finished Units: Plus or minus 1/16 inch (1.6 mm).

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install units in locations indicated. Unless otherwise indicated, install units with edges in alignment with walls and other units, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.

B. Comply with manufacturer's written instructions for installation of units using type of mounting devices indicated. Mount units securely to supporting substrate.

C. Align fabric pattern and grain with adjacent units.

3.2 CLEANING

A. Clip loose threads; remove pills and extraneous materials.

B. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION 098436

SECTION 27 4100 - AUDIOVISUAL SYSTEM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
2. Division-26, 27 & 28 basic materials and methods sections apply to work specified in this section.
3. Refer to specification 26 0553 for cabling, conduit and junction box color requirements.
    1. Category cables used for transporting video, audio and controls simultaneously from transmitters to receivers and/or switchers shall follow the Manufacturer's recommend cabling specifications.

1.2 ADMINISTRATIVE REQUIREMENTS:

1. BNA Project Contact:
    1. Joe Morris
        a. Phone: 801-532-2196
        b. Email: jmorris@bnaconsulting.com
    2. Jaime Verhaal, CTS-D
        a. Phone: 801-532-2196
        b. Email: jverhaal@bnaconsulting.com
2. Bid Submittal:
    1. Equipment Costs: Breakout cost of material and labor as different line items.
3. Coordination:
    1. Coordinate final inspection of the systems installed, with Audiovisual (AV) Consultant, three (3) weeks in advance.
    2. Obtain GANTT chart for construction time frame from the General Contractor.
    3. Coordinate with Electrical contractor to meet at least twice with the ceiling installer. Hold first meeting before submittal of shop drawings to coordinate the mounting condition of all ceiling-mounted AV equipment with ceiling type. During second meeting, coordinate the location of all ceiling-mounted AV equipment in each area.
    4. Meet at least once with the mechanical installer prior to fabrication and installation of duct work. Coordinate depth and location of all loudspeaker and duct work in all areas.
    5. Meet with Electrical contractor prior to pathway rough-in to coordinate AV system requirements in each area.
    6. Meet at least once, prior to rough-in, with horizontal cabling installer to verify all AV network requirements. Coordinate cable color according to specification 26 0553.
    7. Meet at least twice with owner to coordinate AV network requirements. Hold the first meeting before submittal of shop drawings to coordinate network protocols, including but not limited to: IP address schedules, MAC address schedules,

patchbay schedules, security requirements, and VLANs. Hold the second meeting prior to AV system deployment.

8. Coordinate color and finish of all AV system components with Architect or Electrical contractor as appropriate.
9. Coordinate all AV system components within millwork/furniture with millwork shop drawings prior to rough-in.
10. Coordinate color (including custom color) and finish of all AV system components with Architect prior to ordering. Architect may require custom color of grills, face plates, etc.. AV contractor shall paint or have devices painted by others. The cost for custom colors shall be within the AV Contractors Bid.
11. Notify AV Consultant when rough-in is complete and ready to inspect. AV Consultant and Electrical Engineer to sign off on rough-in prior to rough-in resuming rough-in for typical rooms.

1.3 DESCRIPTION OF WORK:

1. Provide the specified systems in a complete and operating condition with all necessary materials and labor to fulfill the requirements and the intent of the drawings and specifications. Except as otherwise indicated, provide manufacturer's standard system components. Contractor shall furnish all cables, materials and equipment, whether specifically mentioned herein or not, to ensure a complete and functional system.
2. Master quotes do not relieve contractor from preforming due diligence for equipment type, equipment quantity, and quantity of room types. Any errors, conflicts, or omissions between the drawings and/or specifications and master quotes shall be the responsibility of the contractor to resolve.
3. Bidders wishing to provide equipment other than the equipment specified shall submit proposed substitute equipment to AV Consultant (8) working days prior to bidding. Submittals for prior approval shall include description of equipment, design intent, complete riser diagrams for proposed equipment, equipment specifications, cut sheets of proposed equipment, reason for alternate equipment. AV Consultant may request physical equipment to test and demo. Acceptance of proposed equipment by AV Consultant shall not relieve AV contractor from responsibility to provide audio-visual systems equal to those specified in this Section. Contractor shall be ultimately responsible for providing complete and working audio-visual systems that function, control and operate in the same manner as the specified equipment. AV Consultant has final say if proposed equipment is equal to the specified equipment. Equipment that AV Consultant is not familiar with will require the contractor to provide manufacturer training at manufacturer's facility and have a manufacturer representative present at time of commissioning.
4. Equipment submitted in bid proposal that has not been approved by AV Consultant in writing will not be accepted and shall be replaced by approved equipment at contractor's expense. Equipment not listed within this specification, or contract documents, that are required for a complete and working system, shall be of professional grade and used in the same manner as needed for a complete and working system.
5. Input plates shall match the color and style being used throughout the project.
6. Contractor is responsible for coordinating with all other trades for equipment locations, mounting requirements, supports and plenum space requirements.

7. All control processors and controllers are to be on an unswitched power connection.
8. All cabling shall be installed in a minimum of 1" conduit to accessible ceiling space unless otherwise noted. Provide conduit to accessible ceiling space and then utilize non-continuous open top cable supports every 5'.
9. AV contractor shall participate in a mandatory pre-construction meeting no more than (60) days prior to ordering equipment, and before work can begin. Contractor is responsible for coordinating meeting. The meeting will be held at AV Consultant's office. All submittals, shop drawings, and bill of materials shall be completed and submitted to AV Consultant for review (8) working days prior to this meeting.
10. AV contractor shall attend the electrical pre-construction meeting per specification 26 0500.

1.4 QUALITY ASSURANCE:

1. Installer:
    1. Integrating firm shall have worked satisfactorily for a minimum of (5) years of completing systems equal to this scope, quality, type and complexity.
    2. Key personnel assigned to the project shall each have minimum of (10) years of experience in completing systems equal to this scope, quality, type and complexity.
    3. Contractor shall be a factory authorized distributor of all equipment specified for the geographical area of the project.
    4. Contractor shall maintain complete installation and service facilities for the duration of the project contract.
    5. Contractor shall have current manufacturer certificates for all AV systems and equipment listed within this specification.
    6. Contractor shall be in good standing with owner based on previous projects.
    7. Contractors that do not meet the above requirements cannot bid on this project.
2. Contractor must follow the standards described within:
    1. BICSI/AVIXA AV Design Reference manual.
    2. ANSI/AVIXA 2M-2010 Standard guide for Audiovisual Systems Design and Coordination Processes.
    3. ANSI/AVIXA 10:2013 Audiovisual Systems Performance Verification Guide.
3. All work shall be done by expert technicians qualified in the field with knowledge of specified systems. Workmanship shall comply with industry best practices concerning grounding, shielding, cable dressing, cable termination and equipment mounting.
4. PRE-APPROVED INSTALLERS:
    1. Cache Valley Elec.
    2. Digital Video Networks
    3. GenComm
    4. Marshall Industries.
    5. Performance Audio
    6. Poll Sound.
    7. PST

8. TPI
9. WEBB AV
10. Bids submitted by non-approved installers will not be accepted.
11. Bidders not pre-approved shall submit in writing the following for review at least (8) working days prior to bid:
    a. List of qualifications including:
        i. Industries certifications including manufacturers.
        ii. Approved resale manufacturers.
    b. Past and current projects within the last 5 years similar in scope and size.
    c. (3) Different referrals from the owners of (3) different projects within the last 5 years.

1.5 SUBMITTALS:

1. Refer to specification 26 0500 for shop drawing submittal requirements. The following items shall be included in the shop drawings submittal.
    1. All submittals shall be submitted in a digital format with bookmarks for each section of equipment. Any submittals that are partial or incomplete shall be rejected and count as one submittal against the submittal allowance.
    2. Project manager to provide written proof, signed and dated, that shop drawings and/or brochure has been checked for accuracy prior to submittal. Shop drawings to comply in all respects with the requirements of the contract drawings and specifications for this project.
    3. Provide a complete bill of materials for all components, accessories and hardware to be provided in order to assemble a complete and working system as described within the contract documents.
    4. Submit manufacturer's data and installation details for all devices, plates, cables and similar equipment. Product data showing multiple options, products and/or models shall be clearly marked identifying the specific options, products and/or models being provided.
    5. Submit dimensioned drawings and device wiring layouts for Audio, Video, Control, and power.
    6. Submit equipment rack elevation diagrams.
    7. Submit matrix routing and preset configuration tables, and digital signal processing configuration details.
    8. Submit wireless microphone transmission frequencies.
    9. Submit all manufacturer training, 3rd party and/or organization certificates for each equipment and/or systems required for the implementation of this specification.
2. Provide shop drawings for 27 4100 at the time of original shop drawing submission. Do not order AV equipment from the first submission. 120 days prior to the time of AV equipment installation, provide a second submission of AV equipment only. Provide current equivalent if specified model has been discontinued.
3. Touch Panel Submittals:

1. All touch panel layouts, page logic functions and control system functionality, shall be submitted and approved by the Owner and AV Consultant prior to installation and programming of the control systems. Contractor shall submit the following information at the following stages during the construction of the GUI.
   a. Draft Stage: Draft drawings and/or sketches of; basic layouts, button details, text details and page flip progression. Include control schemes for all applicable devices in system.
   b. Intermediate Stage: Intermediate Touch Panel Menus designed with manufacturer's software. Submit printouts and/or software files for review. Include detailed layouts, extensive control schemes for all controlled components, comprehensive button and text configurations, page flips and pop-up progression. Incorporate any changes or comments from previous stage mentioned above.
   c. Demo Stage: Provide an active Touch Panel and controller to extensively demonstrate the operation of the control system. Demo of system shall be subject for review and considered as a deliverable. Include all revised detailed layouts, extensive control schemes for all controlled components, comprehensive button and text configurations, page flips and pop-up progression. Incorporate any changes or comments from the previous stage mentioned above.
   d. Final Stage: Submit Final Touch Panel Menus designed with manufacturer's software. Submit printouts and software files for review. Include all detailed layouts, all revised control schemes for all controlled components, revised button and text configurations, page flips and pop-up progression. Include final page configurations for control of system from the touch panel. Incorporate any and all changes or comments from the previous stage mentioned above.

1.6 WARRANTY:

1. Systems shall be guaranteed for a period of one (1) year from the date of substantial completion against defective materials, inferior workmanship or improper installation adjustment. Guarantee shall cover all parts and labor.
2. If system failure causes audiovisual system to be inoperative or unusable for its intended purpose, contractor, when notified of the problem, shall repair system so it will be operational and usable within three (3) business days. If defective components cannot be repaired in time, provide temporary equipment as required.
3. Contractor shall supply (1) year warranty on all system programming from the date of substantial completion. During this time period, upon owner request, the contractor shall provide programming changes up to (4) four times free of charge. During this time the programs shall be password protected. At any time during the (1) year, the owner can terminate the warranty and request the programming of each system. At this time the programs are to be turned over to the owner and all passwords are to be removed. The owner shall own all rights to the programming after this time, to be used in this facility. Provide the Owner written proof that all ownership has been relinquished.
4. Contractor shall honor equipment warranties for term established by manufacturer if greater than warranty time frame mentioned above.

PART 2 – PRODUCTS

2.1 GENERAL:

1. All equipment shall be installed as shown on the drawings and in strict accordance with the specifications. Any errors, conflicts, or omissions discovered in the specifications or the drawings shall be submitted in writing to the AV Consultant for clarification.
2. Equipment lists are provided to set equipment expectations and may not be complete. Coordinate with devices shown on drawings, system risers and equipment lists for system intent. Provide a complete and functional system as described within the construction documents.

2.2 MANUFACTURER APPROVED EQUALS:

1. The Manufacturers listed below have the potential to be considered equals, as it relates to the system design intent and the equipment specified herein. Any equipment chosen as equal to what has been specified in section 2.4 will be the responsibilities of the AV Integrator to coordinate all resulting changes and guarantee a complete and functional system e.g. rough-in requirements, programming, etc. Please note that some components have been chosen over others for features and/or size limitations. Equipment listed in section 2.4 with an asterisk have feature and/or size limitations and may not be substituted.
    1. Amplifiers – Ashly, Crown, Lab Gruppen and QSC
    2. Cables – Belden, Gepco/General, Ice, Liberty and Westpenn cables
    3. Displays – LG, NEC, Planar, Samsung and Sharp
    4. DSPs – Biamp, BSS, Extron, QSC and Symetrix
    5. Equipment racks – Atlas Sound, Chief and Middle Atlantic
    6. Loudspeakers – Atlas Sound, Community, JBL and SoundTube
    7. Microphones – AKG, Audio Technica, Sennheiser and Shure
    8. Mounts – Chief and Premier mounts

2.3 GENERAL EQUIPMENT REQUIREMENTS:

1. Loudspeakers:
    1. Provide applicable mounting equipment as needed, including but not limited to; back boxes, mounting hardware, safety equipment, and seismic restraints.
2. Equipment Racks:
    1. All AV equipment racks within this specification shall have the following accessories and/or features, either rack mountable or built into the rack, depending on the model of the rack.
        a. Surge protection for all devices located within the rack. Surge protector shall be: 20 AMPs, rack mountable or mount to a side rail and at least 1,000 joules of protection.
            i. Acceptable manufacturers: Furman, Juice Goose, Middle Atlantic and SurgeX.
        b. Horizontal, vertical, and entry cable management.
        c. Power strips as necessary.

d. Sequencers

i. All equipment racks with the following equipment shall have a sequencer within the equipment rack. AV integrator to follow industry standards when using sequencers.

1. Amplifiers
2. Video processors without control processors

e. Passive Thermal Management

i. Vented rear door with no less than 60% open area.

ii. Solid blank panels on the front of the rack in all unused rack spaces.

iii. Stack power amplifiers without open rack space between.

iv. Top of equipment cabinet to be open or vented.

v. Provide passive thermal management in all racks unless noted above.

2.4 EQUIPMENT REQUIRED PER ROOM TYPE

1. Section # 2.4 EQUIPMENT REQUIRED PER ROOM TYPE

i. MULTI-PURPOSE ROOM (2/2)

1. Change the Network Switch from CISCO SG300-10PP to CISCO SG300-28PP

ii. MEETING ROOM

1. Add (1) SHELF, PULL OUT, RACK MOUNT LATCHING – MIDDLE ATLANCTIC - SS

MULTIPURPOSE ROOMS (1/2) EQUIPMENT SCHEDULE			
TYPE	**DESCRIPTION**	**MANFR.**	**MODEL NO.**
R1	EQUIPMENT RACK, SLIDE OUT, ROTATING 24" TALL, 23" DEEP, 24 RU	MIDDLE ATLANTIC	SRSR-X-24
	SURGE PROTECTOR	MIDDLE ATLANTIC	PD-920R-SP
	SHELF, PULL OUT, RACK MOUNT LATCHING, 1 RU	MIDDLE ATLANTIC	SS
	DRAWER, PULL OUT, RACK MOUNT LATCHING, 2 RU	MIDDLE ATLANTIC	D2
M	MICROPHONE INPUT, WALL PLATE WITH TRANSFORMER	RDL	D-J1
MD	DUAL MICROPHONE INPUT, WALL PLATE WITH SOLDER CONNECTIONS	RDL	D-XLR2F
AX	AUXILIARY INPUT, WALL PLATE 3.5 MM & DUAL RCA STEREO	RDL	D-CIJ3D
HD	HDMI INPUT, WALL PLATE W/ STEREO AUDIO & CONTROL	EXTRON	WPD 110 A
TxH	HDMI INPUT, WALL PLATE WITH DTP TRANSMITTER	EXTRON	DTP T HWP 4K 231 D
Rx	VIDEO RECEIVER, DTP	EXTRON	DTP HDMI 4K 230 RX
IR	INFRARED SENSOR, WALL/CEILING	EMTECH	BLU-IR
WMH	WIRELESS HANDHELD MICROPHONE, WIRELESS RECEIVER KIT	SHURE	QLXD24/SM58 QTY: REFER TO PLANS
WMB	MICROPHONE, WIRELESS RECEIVER AND LAVALIER CHARGER AND LI-ON BATTERY	SHURE	QLXD14/83 W/ SB900 AND SBC100 QTY: REFER TO PLANS
AT	ANTENNA DISTRIBUTION SYSTEM OMNI DIRECTIONAL ANTENNA (2) TOTAL	SHURE	UA860SWB (ANTENNA) UA844SWB
END OF SCHEDULE			

MULTIPURPOSE ROOMS (2/2) EQUIPMENT SCHEDULE			
TYPE	**DESCRIPTION**	**MANFR.**	**MODEL NO.**
ALS	ALS RF	LISTEN	LS-55-072 PROVIDE (8) RECEIVERS PROVIDE (8) EAR SPEAKERS PROVIDE (2) NECK LOOPS
	NETWORK SWITCH, 28 PORT, 24 PORT POE+	CISCO	SG300-28PP
TP7	TOUCH PANEL, 7" DIAGONAL WALL MOUNT	EXTRON	TLP PRO 720M BB 710M (BACK BOX)
	VIDEO SWITCHER, MATRIX 8 INPUT, 4 OUTPUT W/ CONTROL PROCESSOR & AMP	EXTRON	DTP CROSSPOINT 84 IPCP SA
	DIGITAL SIGNAL PROCESSOR 12 INPUTS X 8 OUTPUTS	BSS	BLU - 100
	NETWORKED I/O EXPANDER 8 INPUTS	BSS	BLU-BIB
	POWER AMPLIFIER 4 CHANNELS X 300 WATTS	CROWN	DCi 4|300
C6	LOUDSPEAKER, 6", CEILING 110 DEGREE COVERAGE	JBL	CONTROL 26CT
P2	LCD, 4,000 lm, WUXGA, 1920x1200 COLOR BY ARCHITECT	EPSON	PowerLite 700U PROVIDE MFG MOUNT
P1	LCD, 3,300 lm, WXGA, 1280x800 ULTRA-SHORT-THROW PROJECTOR	EPSON	BrightLink 595Wi PROVIDE MFG MOUNT
	MICROPHONE, HANDHELD	SHURE	(2) BETA 58A
	MICROPHONE, CABLES	WHIRLWIND	(2) 25' CABLES
	MICROPHONE, CABLES	WHIRLWIND	(2) 50' CABLES
	MICROPHONE STAND	ATLAS IED	(2) MS20E
END OF SCHEDULE			

MEETING ROOM EQUIPMENT SCHEDULE			
TYPE	**DESCRIPTION**	**MANFR.**	**MODEL NO.**
R2	EQUIPMENT RACK, WALL MOUNT 28" TALL, 22" DEEP, 16 RU WITH PLEXI FRONT DOOR	MIDDLE ATLANTIC	DWR-16-22PD
	SHELF, PULL OUT, RACK MOUNT LATCHING, 1 RU	MIDDLE ATLANTIC	SS
	DRAWER, PULL OUT, RACK MOUNT LATCHING, 2 RU	MIDDLE ATLANTIC	D2
HD	HDMI & VGA INPUT, MAAP PLATE W/ STEREO AUDIO (INSTALL IN FLOOR BOX)	EXTRON	70-617-12
Tx	HDMI INPUT WITH DTP TRANSMITTER	EXTRON	DTP HDMI 4K 230 Tx
Rx	VIDEO RECEIVER, DTP	EXTRON	DTP HDMI 4K 230 RX
FB1	FURNITURE BOX 1 SEE DRAWINGS FOR CONNECTIONS	EXTRON	CABLE CUBBY 1200 (BLACK)
	NETWORK SWITCH, 28 PORT, 24 PORT POE+	CISCO	SG300-28PP
TPT	TOUCH PANEL, 7" DIAGONAL TABLETOP	EXTRON	TLP PRO 725T
	VIDEO SWITCHER, MATRIX 8 INPUT, 4 OUTPUT W/ CONTROL PROCESSOR & AMP	EXTRON	DTP CROSSPOINT 84 IPCP SA
	DIGITAL SIGNAL PROCESSOR 12 INPUTS X 8 OUTPUTS	BSS	BLU - 100
	NETWORKED I/O EXPANDER 8 INPUTS	BSS	BLU-BIB
	POWER AMPLIFIER 2 CHANNELS X 300 WATTS	CROWN	DCi 2|300
C6	LOUDSPEAKER, 6", CEILING 110 DEGREE COVERAGE	JBL	CONTROL 26CT
	FLAT PANEL TILT MOUNT X-LARGE	CHIEF	XTM1U
D80	FLAT PANEL DISPLAY, 80" DIAGONAL, 1080P	SHARP	PN-LE801
M	MICROPHONE, TABLE-TOP BOUNDARY	SHURE	MX396
	VIDEO CONFERENCING SYSTEM PTZ CAMERA, POE, HDMI OUTPUT, RS-232	POLYCOM	RealPresence GROUP 500 (1) CODEC (1) EagleEyeIV-12X CAMERA (1) UNIV. REMOVTE
END OF SCHEDULE			

BUILDING EQUIPMENT SCHEDULE			
TYPE	**DESCRIPTION**	**MANFR.**	**MODEL NO.**
RS7	ROOM SCHEDULING TOUCH PANEL, 7" DIAGONAL	CRESTRON	TSS-752
	FLAT PANEL TILT MOUNT LARGE	CHIEF	LTM1U
D55	FLAT PANEL, 50" DIAGONAL, 1080P	NEC	E506
END OF SCHEDULE			

PART 3 – EXECUTION

3.1 INSTALLATION OF AV SYSTEMS:

1. Provide AV systems and ancillary equipment as indicated on drawings and in accordance with equipment manufacturer's written instructions, the NEC, and with industry best

practices.

2. Coordinate all work performed by other contractors pertaining to the AV system, including raceways, electrical boxes and fittings.

3. Video systems.

    1. HDCP:

        a. All equipment within the signal path must be capable of processing HDCP-compliant material.

        b. All switcher, scalers, transmitters, and receivers shall reflect the HDCP compliance of the endpoint/display(s).

        c. HDCP shall be disabled in the switcher/scaler when a non-HDCP-compliant endpoint/display is used.

    2. EDID Strategy:

        a. Permanent video sources shall be set manually within the equipment to output their native resolution. Video properties shall not rely on EDID.

        b. Portable video sources and wall plates shall use EDID tables within the switcher/scaler for preferred video properties. The EDID table shall be set with the following settings:

            i. Most common resolutions within the display's aspect ratio.

                1. 1920 x 1080 recommended resolution.

                2. 1920 x 1200

            ii. 60 and/or 30 frames per second

            iii. RGB color space

            iv. Stereo audio, 44,100 Hz, 16 bit

4. Pathway Requirements:

    1. General:

        a. All pathways shall be designed, constructed, grounded and installed in accordance with all recommendations delineated within TIA 569-B and Standard TIA 942.

        b. Prior to placing any cable pathways or cable, the contractor shall survey the site to determine job conditions will not impose any obstructions that would interfere with the safe and satisfactory placement of the cables. Arrangements to remove any major obstructions not identified on plans need to be determined at that time with the Engineer.

    2. Conduits:

        a. Achieve the best direct route parallel with building lines with no single bend greater than 90 degrees or an aggregate of bends in excess of 180 degrees between pull points or pull boxes.

        b. Provide large radius elbows on all bends.

c. Conduit runs shall not have continuous sections longer than 100 feet without a pull box. Refer to rough-in schedule for conduit fill capacity.

d. AV conduits should not be routed over or adjacent to heat sources such as boilers, hot water lines, or steam lines. Neither should they be routed near large motors, generators, photocopy equipment, or electrical power cabling and transformers.

e. After installation, conduits shall be clean, dry, unobstructed, capped for protection, labeled for identification, reamed and fitted with bushings.

f. A 200lb pull cord (nylon, 1/8" minimum) shall be installed in any empty conduit.

3. Open Top Cable Support Requirements:

a. Non-continuous cable supports shall provide a bearing surface of sufficient width to comply with required bend radii of high-performance cables

b. Non-continuous cable supports shall have flared edges to prevent damage while installing cables.

4. Pull Box Requirements:

a. NEC sized pull boxes are not acceptable. Follow BICSI and EIA/TIA 569-B guidelines for pull box sizing.

b. Provide pull boxes in sections of conduit that are 100 feet or longer, contain more than two 90 degree bends, or contain a reverse bend.

c. Conduits that enter a pull box from opposite ends should be aligned.

d. Pull boxes shall have a length 12 times the diameter of the largest conduit.

e. All pull boxes must be accessible.

5. Cabling System:

1. Follow T568B scheme for copper category cabling terminations.

2. Follow TIA/EIA-568A for commercial buildings cabling.

3. Provide a minimum 6" service loop in each AV system junction box. Cables shall be coiled in the in-wall boxes if adequate space is present to house the cable coil without exceeding manufacturers bend radius.

4. In a false ceiling environment, a minimum of 3 inches shall be maintained between cable supports and false ceiling. At no point shall cable(s) rest on lay-in ceiling grids or panels.

5. Cable shall be installed above fire-sprinkler systems and shall not be attached to the system or any ancillary equipment or hardware. The cable system and support hardware shall be installed so that it does not obscure any valves, fire alarm conduit, boxes, or other control devices.

6. Cables shall not be attached to ceiling grid seismic support wires or lighting fixture seismic support wires. Where support for AV cable is required, the contractor shall install appropriate carriers to support the cabling.

7. Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to the Owner.
8. Pulling tension for balanced twisted pair shall not exceed 25lbf and for optical fiber shall not exceed 50lbf.
9. Pair untwist at the termination shall not exceed 0.125". The cable jacket shall be maintained as close as possible to the termination point.
10. Cable shall not be draped on, tied or otherwise secured to electrical conduit, plumbing, ventilation ductwork or any other equipment. Cable shall be secured to building supports or hangers or to additional blocks or anchors specifically installed for this purpose.

6. Grounding System:
   1. All grounding and bonding shall be done according to ANSI J-STD-607-A, TIA 942, and NEC.
   2. All cabinets/racks shall utilize paint piercing grounding washers, to be used where rack sections bolt together, on both sides, under the head of the bolt and between the nut and rack.
   3. All racks shall further utilize a full-length rack ground strip attached to the rear of the side rail with the thread-forming screws provided to ensure metal-to-metal contact. Similar to Panduit RGS.
   4. All active equipment shall be bonded to ground. If the equipment manufacturer provides a location for mounting a grounding connection, that connection shall be utilized. All active equipment shall be bonded using the appropriate jumper for the equipment being installed using the thread-forming screws. Similar to Panduit RG.
   5. Racks shall have individual, appropriately sized conductors bonded to the grounding backbone. Do not bond racks or cabinets serially – daisy-chained rack grounds will not be accepted.
   6. Refer to electrical diagrams for additional ground connection requirements.
7. Cabling groups and conduit separation:
   1. Refer to "CABLING GROUPS AND CONDUIT SEPARATION SCHEDULE".
8. Firmly secure all equipment in place that is not intended for portability.
9. Mount projectors permanently and provide mechanical index ensuring precise alignment of the projected image.
10. Provide adequate structural support for AV system components. Provide fastenings and supports with a safety load factor of at least five.
11. Coordinate with lighting control system installer for programming and interface of AV user interfaces with lighting control system.
    1. Coordinate with the lighting control supplier for type of connection required to communicate with the lighting system. Note that lighting controls may not be selected until after bid.
    2. Refer to diagrams, plans and/or lighting control specifications for lighting control requirements within the AV system.

3. Controls shall trigger presets determined by the owner prior to final walk through Presets may be changed within the programing warranty period at owner's request and covered under the warranty.
4. The following system types will require lighting integration:
    a. Meeting Room
    b. Multi-Purpose room

3.2 LABELING

A. The contractor shall develop and submit for approval a labeling system for the cable installation. The Owner will negotiate an appropriate labeling scheme with the contractor. At a minimum, the labeling system shall clearly identify all components of the system: racks, cables, panels and wall plates. The labeling system shall designate the cables origin and destination and a unique identifier for the cable within the system. All labeling information shall be recorded on the as-built drawings and all test documents shall reflect the appropriate labeling scheme.

B. All labels shall meet UL 969 requirements for legibility, defacement and adhesion requirements. Handwritten labels are not allowed. All labels shall maintain consistent typeface, size and color.

C. Provide laminated plans (minimum size 11x17) of all AV as-built plans (including riser diagrams) in each and every AV Rack.

3.3 CONTROL SYSTEM FUNCTIONALITY:

1. GENERAL:
    1. Touch panels shall have a "Tech" button that is hidden from general users, and password protected. "Tech" pages/windows will allow Full control over the devices that the touch panel usually controls.
    2. Touch panels shall have a help button visible at all times that will display a menu of the most common problems, and quick fixes or items to check. The help menu shall allow the owner to send a message to the help desk for assistance with their specific problem.
    3. Touch panel shall have a back button to get to the previous page/window
    4. All programming shall be turned over to owner after 1 year and all final changes have been made to the system. Passwords shall be removed from the program at this time.
    5. All common and most used functions shall be accessible with no more than 3 button presses. All GUIs for each type of space shall have a consistent look, feel and ease of use.
2. ROOM FUNCTIONS:
    1. LIGHTING CONTROLS:
        a. Rooms indicated on the drawings or within the risers shall have control of the lighting system. Control shall be limited to copying commands from the lighting control system unless otherwise noted within this section. The following is an example of some of the typical controls.
            i. On / Off

ii. Dimmable ability

iii. Zone control

2. All room controls are required to have the similar looks and functionality.

3. Multi-Purpose Room Controls

a. All inputs and outputs shall be coordinated with AV riser diagram.

b. Inputs assigned for the north area shall be mixed in that area unless the rooms are combined.

c. Inputs assigned to the south area shall be mixed in that area unless the rooms are combined.

4. Boardroom Controls

a. All inputs and outputs shall be coordinated with AV riser diagram.

3. Amplifiers shall be set to go to stand by after 30 minutes of no audio detection.

3.4 FIELD QUALITY CONTROL:

1. TESTING:

1. Refer to Appendix A, "INTEGRATOR VERIFICATION CHECKLIST", for system verification requirements. Verification checklist shall be complete prior to final commissioning.

2. Upon completion of installation of each system and after electrical circuitry has been energized, demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units on site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with testing.

3. Before inspection by owner and AV Consultant, and after completion of the installation, conduct system tests and make necessary corrections for proper system operation.

4. Adjust, balance and align equipment for optimum quality and to meet the manufacturer's published specifications.

5. All limiters and/or compressors shall be set to prevent operators from over-adjusting sound levels and damaging system components, while maintaining the highest amount of gain possible.

6. System shall have no audible hum, noise, RFI, or distortion when operating under normal conditions. System shall reproduce material at the loudspeakers rated output level without audible distortion. All input levels shall be pre-set so system may be operated without causing unstable feedback under normal use.

7. System shall have no image distortion, hum bars, color shift, or any other picture distortion while operating under normal conditions. Provide cable equalizers, located near displays, on all cables that are more than 30 feet in length and/or have more than 4 connection points.

8. Adjust gain controls for optimum signal-to-noise with 0 dBu at a line-level input.

9. Perform polarity checks of loudspeaker lines by means of a polarity tester or use DC source at one end of each line and a voltmeter at the other end. Loudspeaker lines shall be identically polarized with respect to color coding.

10. Loose parts and poor workmanship or soldering shall be replaced.

11. Sweep Loudspeaker systems with high-level sine wave or 1/3 octave pink noise source. Correct causes of buzzes or rattles related to Loudspeakers or enclosures. Notify owner of external causes of buzzes or rattles.
12. Equalize the loudspeakers to produce less than 6 dB total variation between 500 Hz and 8000 Hz (+/- 3 dB).
13. Contractor shall provide system testing as described herein using up-to-date and industry accepted test equipment appropriate to the types of links being tested and in accordance with the latest edition of IEC 61935-1. AV Contractor shall own and have access to a handheld Quantum Data 780C tester to allow for on-site verification testing and troubleshooting of HDMI and digital video networks and analog video displays. All test equipment used shall be factory calibrated within one year of use with references set daily prior to testing.
14. Contractor shall provide HDCP compliant device with digital cables, and digital HDCP content for testing of routing and HDCP compliant distribution and switching. Also provide analog VGA output equipment for testing of video switching, scaling, and distribution if analog is included with this project.
15. Horizontal cabling contractor shall test all twisted pair cabling used within the AV system following the standards in specification 27 1500 under the testing section. Provide documentation of testing to AV Consultant prior to final walk through.

2. At the time of final commissioning, if the AV consultant determines that the systems are not sufficiently complete to do a final punch list, and was not notified at least 3 days prior to the visit, then a return visit will be required. The AV Consultant's return visit will be paid for in advance by the AV integrator at a flat rate of $500 per person, at no cost to the owner.

3.5 OPERATING AND MAINTENANCE MANUALS:

1. Operating and maintenance manuals shall be submitted prior to testing of system. Total of two (2) manuals, shall be delivered to the Company. Manuals shall include all model numbers, service, installation, and programming information.
2. Include all the following information:
    1. Warranty
    2. Network settings
    3. Riser diagrams from Shop drawings
    4. Training videos
    5. USB Flash drive with programing source code and software editing programs

3.6 TRAINING:

1. Provide two (2) sessions of two (2) hours each of training on the operation of each system, at job site, at no cost to owner.
2. Training shall be video recorded. Two (2) DVD copies shall be given to the owner.
3. The second training shall take place within a month of the first training and all questions shall be answered.
4. Contractor shall be present at the first performance using the system within rooms listed below. Owner will coordinate with contractor 3 weeks in advance for personal trained on

the system to help with the show and be onsite in case there are any problems. AV Contractor to provide this within their bid.

1. Multipurpose Room
2. Meeting Room

3.7 RECORD DRAWINGS:

1. The Owner shall provide electronic (DWG) format of AV System system drawings that as-built construction information can be added to. These documents will be modified by the AV contractor to denote as-built information as defined above and returned to the Owner.
2. Provide a complete set of "as built" drawings in paper and electronic (DWG and PDF) formats showing cabinets, racks, patch panels, wiring, specific interconnections between all equipment and internal wiring of equipment. Drawings are to include all labeling information used in denoting equipment used in the installation. Labeling, icons, and drawing conventions used shall be consistent throughout all documentation provided.

END OF SECTION 27 4100

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DESIGN CRITERIA

APPLICABLE CODES

ACCESSIBILITY CODE	ICC/ANSI A117.1-2009
INTERNATIONAL EXISTING BUILDING CODE	2015 EDITION
INTERNATIONAL BUILDING CODE	2015 EDITION
2 ANSI/ASHRAE/IES Standard 90.1	2016 EDITION
INTERNATIONAL FIRE CODE	2015 EDITION
INTERNATIONAL MECHANICAL CODE	2015 EDITION
INTERNATIONAL PLUMBING CODE	2015 EDITION
NATIONAL ELECTRICAL CODE	2014 EDITION
ZONING ORDINANCE: PARK CITY MUNICIPAL CODE	CURRENT EDITION

OTHER CRITERIA

DEFERRED SUBMITTALS

FIRE SPRINKLERS

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PHONE: 801.532.2196 INTERNET:

NATIONAL ABILITY CENTER

EQUESTRIAN CENTER EXPANSION

1000 ABILITY WAY
PARK CITY, UTAH 84060

VINCINITY MAP

Nexus Project #: 17179

06.08.18

Owner Project #:

CONSTRUCTION DOCUMENTS

ARCH | NEXUS

OCCUPANT LOAD/SPACE SCHEDULE - LEVEL 1				
Number	Room Name	Floor Area	S.F.PerPerson	Occupant Load
LEVEL 01				
102A	CLOSET	12 SF	300	1
103	HK	51 SF	300	1
106	CHECK-IN	105 SF	100	2
107	VOLUNTEER	77 SF	100	1
108	PRIVATE	61 SF	300	1
109	ELECTRICAL	51 SF	300	1
110	MECHANICAL	130 SF	300	1
111	VIEWING / LOUNGE	791 SF	15	53
112	PHYSICAL THERAPY	544 SF	100	6
113	MECHANICAL	253 SF	300	1
118	MEETING ROOM	711 SF	15	48
119	WARMING KITCHEN	236 SF	100	3
123	STUDENT CUBBIES	12 SF	50	1
124	MULTI-PURPOSE	1,908 SF	7	273
125	TABLE STORAGE	143 SF	300	1
127	ELECTRICAL	49 SF	300	1
128	FIRE RISER	34 SF	300	1
LEVEL 01: 17				396

SYMBOL LEGEND

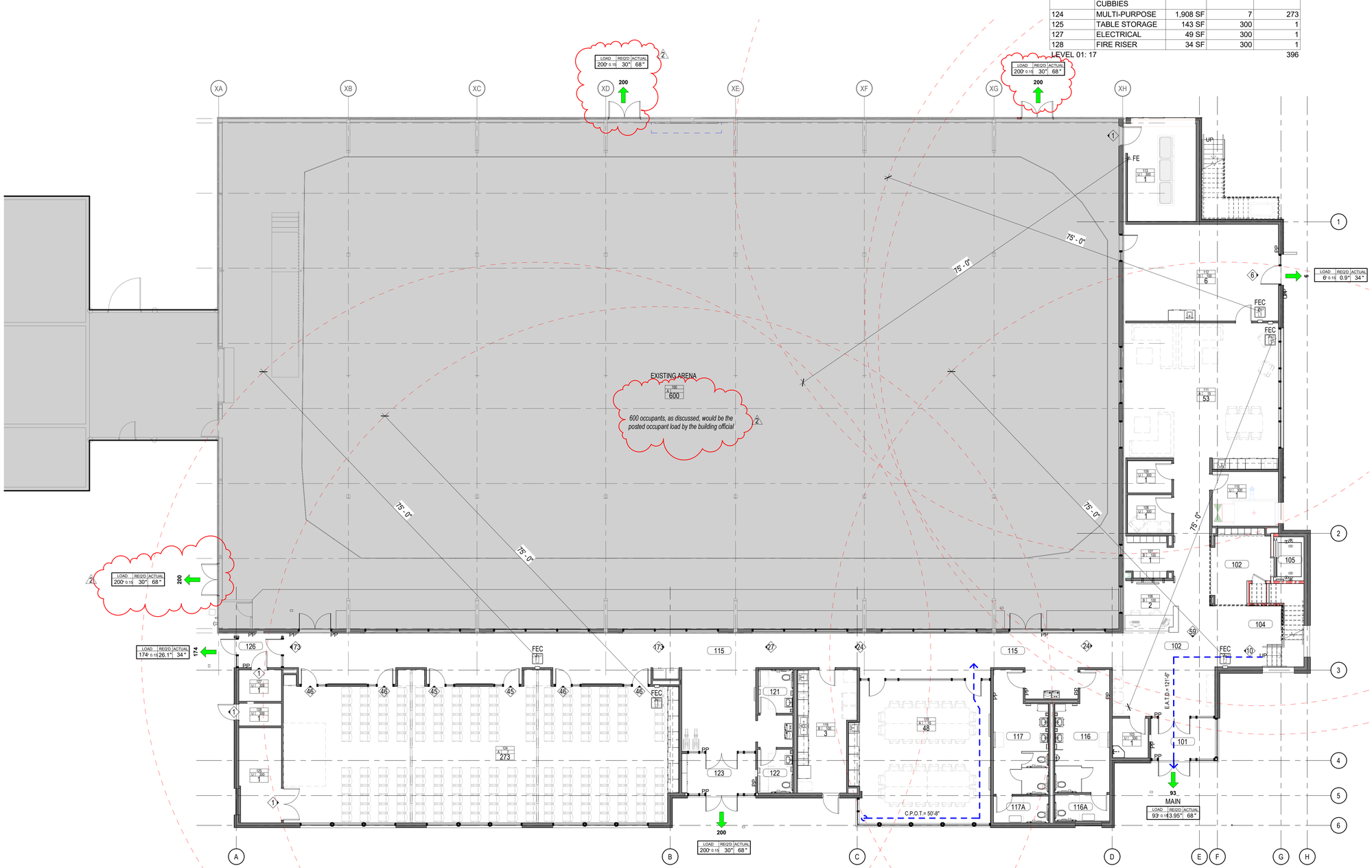
- EXIT
- EXIT SIGN. SEE ELECTRICAL PLANS
- FIRE EXTINGUSHER & CABINET
- FIRE EXTINGUSHER
- OCCUPANT LOAD PER ROOM
- OCCUPANT LOAD, EGRESS DIRECTION
- OCCUPANT LOAD, EGRESS WIDTH
- C.P.O.T.= 50'-8" — COMMON PATH OF TRAVEL LENGTH
- E.A.T.D.= 121'-6" — EXIT ACCESS TRAVEL DISTANCE

FIRE RATED ASSEMBLY LEGEND

FLOOR
- NO FIRE RATING

ROOF
- NO FIRE RATING

WALL
- NO FIRE RATING
- 1 HOUR RATING



A1 / G101 LEVEL 01 - EXITING AND OCCUPANCY
1/8" = 1'-0"

7/3/2018 6:43:53 PM

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http://www.archnexus.com

NATIONAL ABILITY CENTER EQUESTRIAN CENTER EXPANSION

1000 ABILITY WAY
PARK CITY, UTAH 84060

#	Date	Revision
2	07/03/18	Addendum 2

CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 17179
CHECKED BY: KH
DRAWN BY: KH
DATE: 06.08.18

LEVEL 01 EXITING AND OCCUPANCY PLAN

G101

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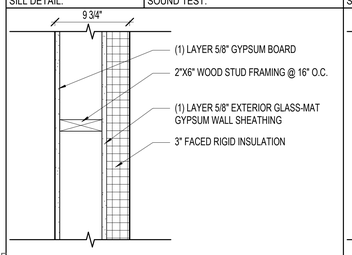	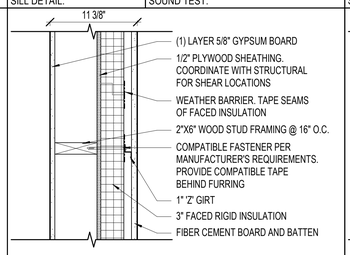	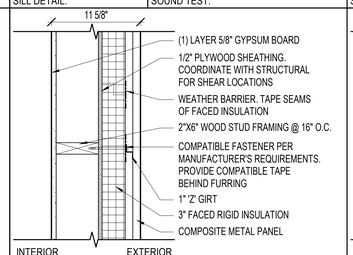	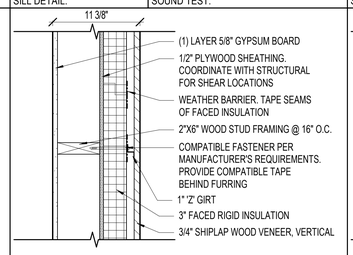	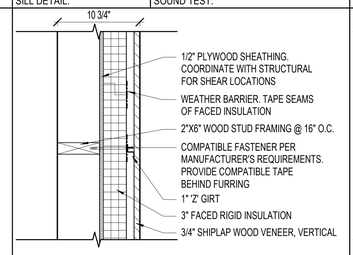	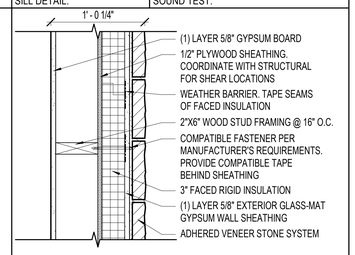
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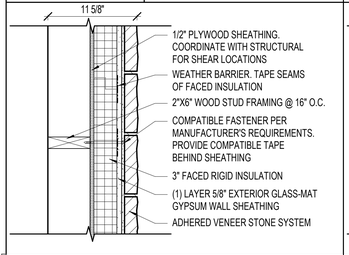	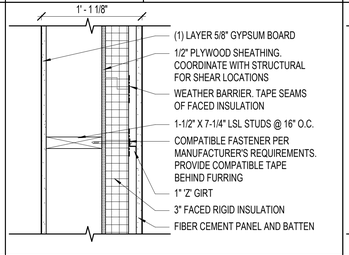	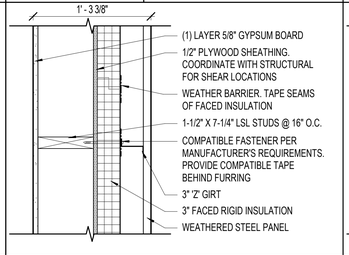	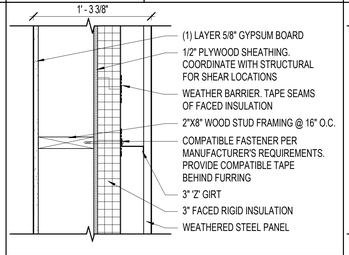	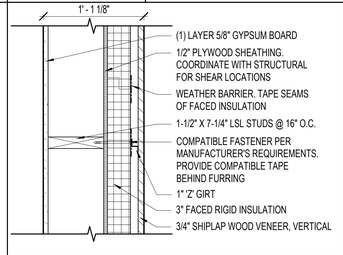	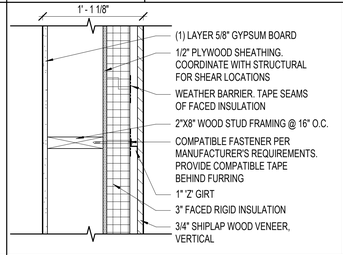
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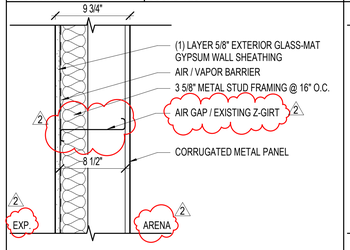	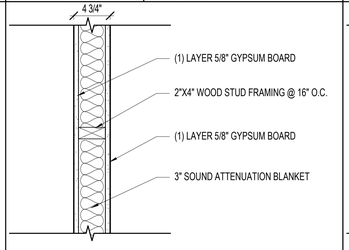	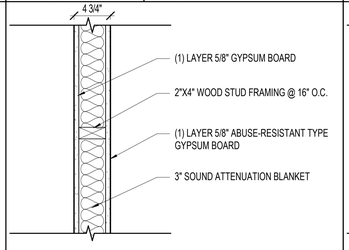	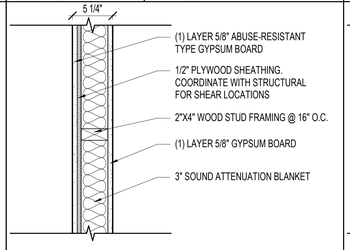	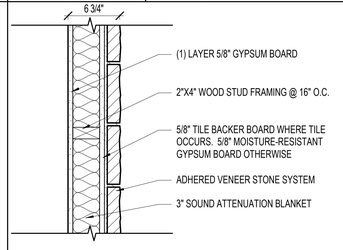	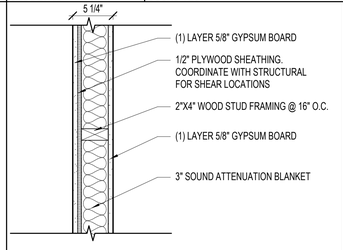
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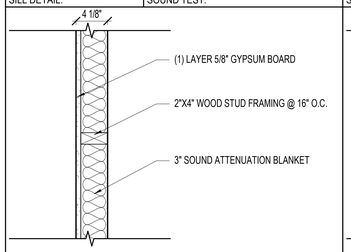	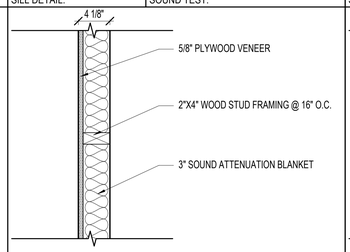	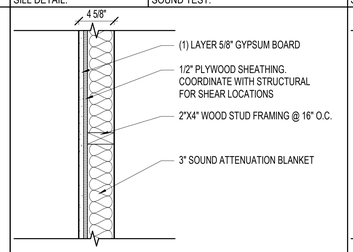	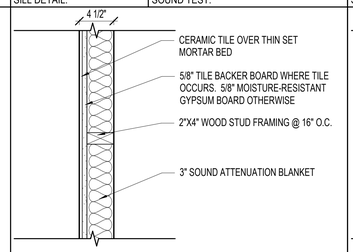	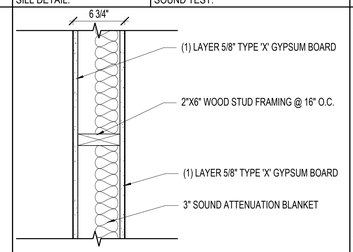	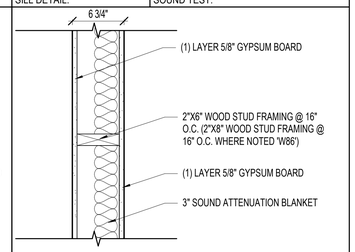
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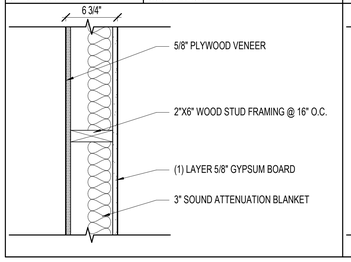	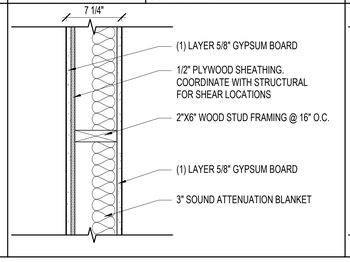	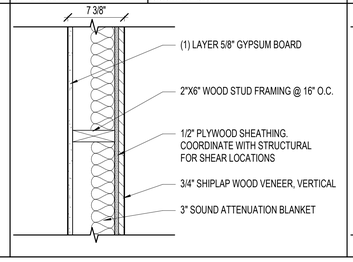	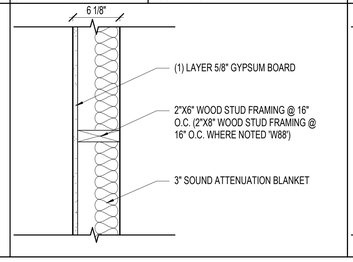	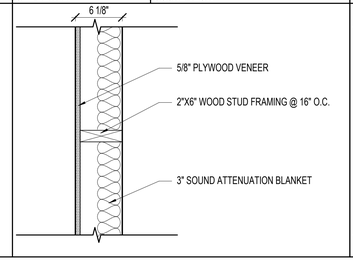	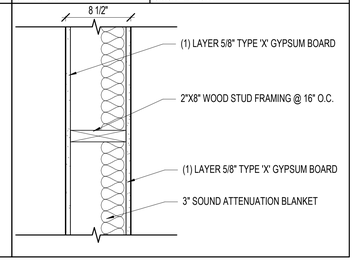

GENERAL NOTE - ASSEMBLY TYPES

A. WALL TYPES DESCRIBED ON THIS SHEET DO NOT ACCOUNT FOR REQUIRED BACKING AND/OR SUPPORT FOR WALL MOUNTED FIXTURES, EQUIPMENT, CASEWORK AND/OR SYSTEMS FURNITURE. COORDINATE WITH FLOOR PLANS, INTERIOR ELEVATIONS AND EQUIPMENT PLANS PRIOR TO COVERING OF STUD FRAMING. REFER TO MANUFACTURER'S RECOMMENDATIONS AND DETAILS ON SHEET G503 WHERE APPLICABLE

B. ASSEMBLY THICKNESS DESCRIBED ON THIS SHEET ARE SHOWN AT ACTUAL SIZE IN PLAN/SECTION REPRESENTATIONS. DIMENSIONS ARE TO FACE OF STUD/STRUCTURE OR GRID. "CLEAR" DIMENSIONS ARE TO FACE OF FINISH

C. BATT INSULATION IS SHOWN WHERE REQUIRED FOR ACOUSTIC SEPARATION AND/OR FOR REQUIRED UL RATING. DO NOT PROVIDE BATT INSULATION IN WALL TYPES THAT ARE PART OF THE EXTERIOR ENVELOPE

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2	07/03/18	Addendum 2

CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 17179
CHECKED BY: KH
DRAWN BY: JPA
DATE: 06.08.18

ASSEMBLY TYPES

G501

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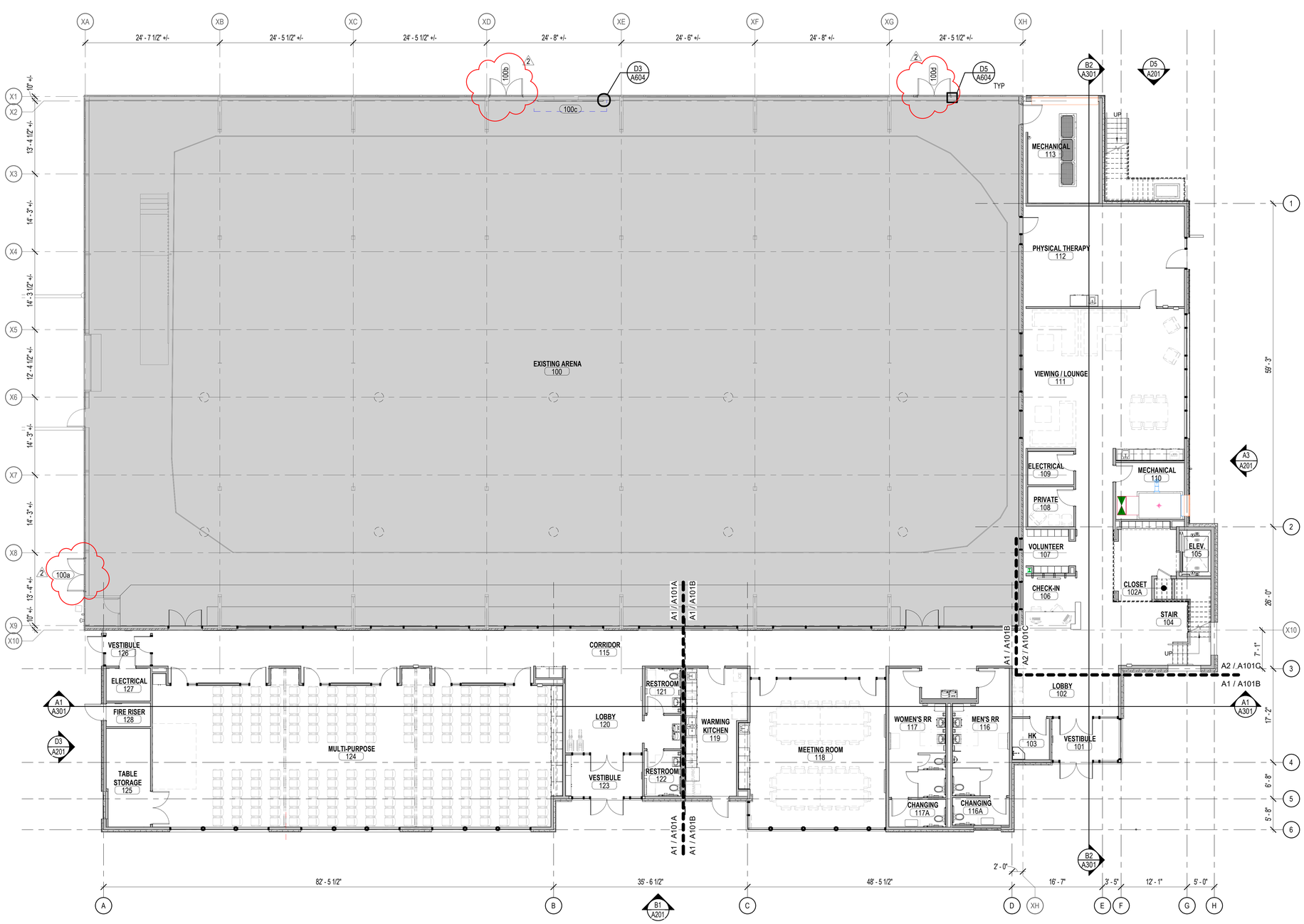

N

A1 / A101 **LEVEL 01 - OVERALL FLOOR PLAN**
1/8" = 1'-0"

GRAPHIC SCALE
0' 8' 16' 24'

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GENERAL NOTE - FLOOR PLAN

A. DIMENSIONS ARE TO FACE OF EXISTING FINISH, NEW SUBSTRATE OR GRIDLINE. "CLEAR" DIMENSIONS ARE TO FACE OF FINISH
B. FIELD VERIFY ALL EXISTING CONDITIONS AND THEIR COMPATIBILITY WITH NEW CONSTRUCTION PRIOR TO THE COMMENCEMENT OF WORK. COORDINATE DISCREPANCIES WITH ARCHITECT
C. DO NOT SCALE DRAWINGS
D. SEE CIVIL, LANDSCAPE, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION
E. PROVIDE BACKING BEHIND ALL SURFACE MOUNTED EQUIPMENT AND/OR FIXTURES
F. CONTRACTOR TO COORDINATE WITH OWNER/TENANT PROVIDED EQUIPMENT AND FURNISHINGS
G. REFER TO INTERIOR ELEVATIONS FOR MILLWORK TYPES AND DIMENSIONS
H. DOORS SHALL HAVE AN 18" MIN CLEAR SPACE ON PULL SIDE OF DOOR FROM WALLS, MILLWORK, EQUIPMENT, LAVATORIES, ETC. COORDINATE ANY DISCREPANCIES WITH ARCHITECT PRIOR TO INSTALLATION
I. HINGE SIDE OF DOOR ROUGH OPENINGS SHALL BE LOCATED 4" FROM THE ADJACENT PERPENDICULAR WALL (U.N.O.), SUBJECT TO MAINTENANCE OF REQUIRED ADA CLEARANCES
J. CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING WALL CONDITIONS, INCLUDING FIRE RATED ASSEMBLIES. PATCH AND REPAIR AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION
K. COORDINATE SCHEDULE OF ALL WORK TO ENSURE MINIMAL IMPACT ON OCCUPIED FACILITIES AND OPERATIONS
L. REFER TO SHEET A521 FOR EXPANSION JOINT SCHEDULE AND DETAILS
M. EXISTING GRIDLINE 'XH' AND 'X10' ALIGN WITH EXTERIOR FACE OF EXISTING ARENA STRUCTURE

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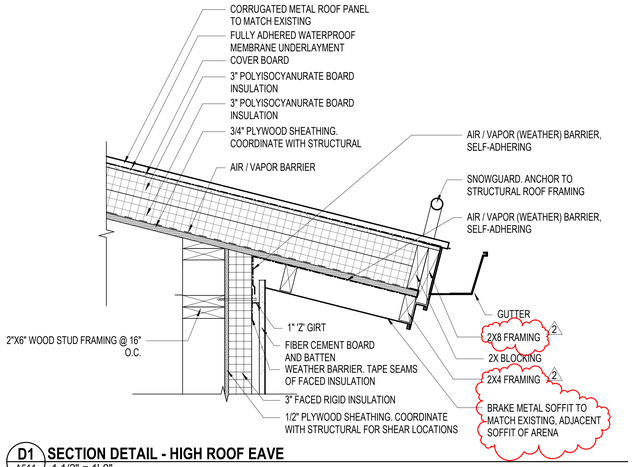
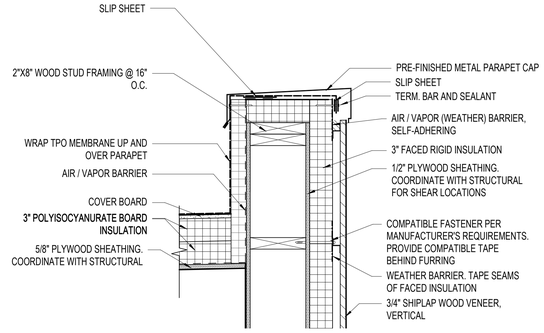
LEVEL 01 - OVERALL FLOOR PLAN

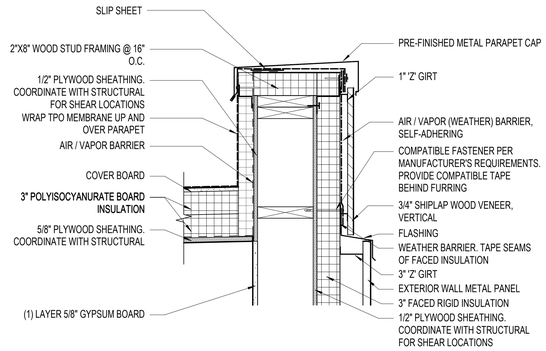
A101



D1 / A511 SECTION DETAIL - HIGH ROOF EAVE
1 1/2" = 1'-0"



D3 / A511 SECTION DETAIL - PARAPET @ WOOD
1 1/2" = 1'-0"

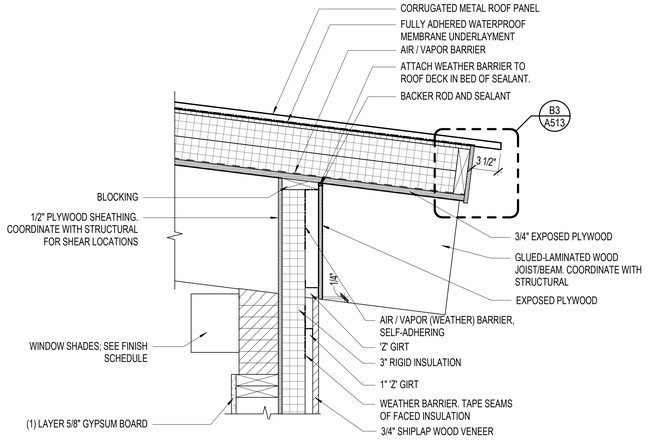


D5 / A511 SECTION DETAIL - PARAPET @ METAL PANEL
1 1/2" = 1'-0"

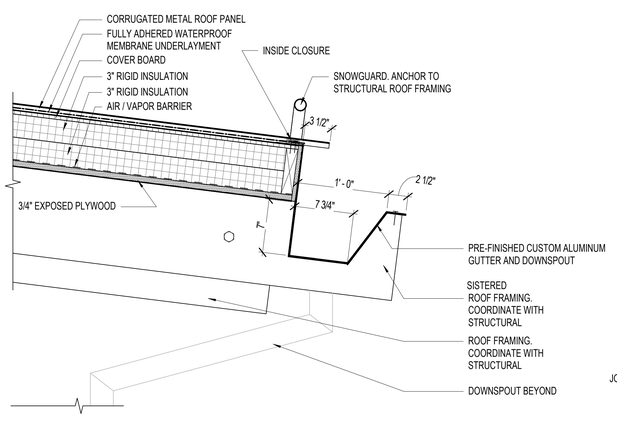
B2 / A511 SECTION DETAIL - HIGH ROOF EAVE (PERPENDICULAR)
1 1/2" = 1'-0"

B4 / A511 SECTION DETAIL - LOW ROOF @ WINDOW
1 1/2" = 1'-0"

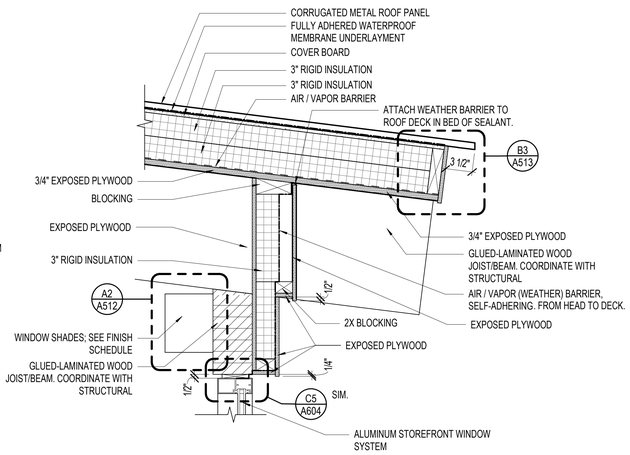
B5 / A511 SECTION DETAIL - LOW ROOF EAVE
1 1/2" = 1'-0"



A1 / A511 SECTION DETAIL - LOW ROOF FASCIA @ WALL
1 1/2" = 1'-0"



A3 / A511 SECTION DETAIL - LOW ROOF @ GUTTER
1 1/2" = 1'-0"



A5 / A511 SECTION DETAIL - LOW ROOF FASCIA @ WINDOW
1 1/2" = 1'-0"

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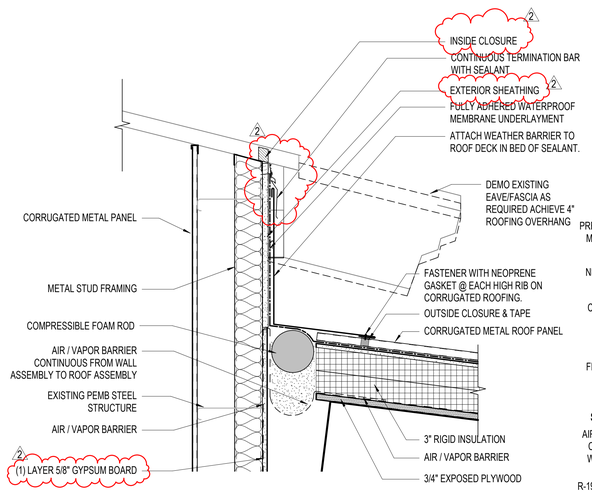
DRAWN BY: JPA
DATE: 06.08.18

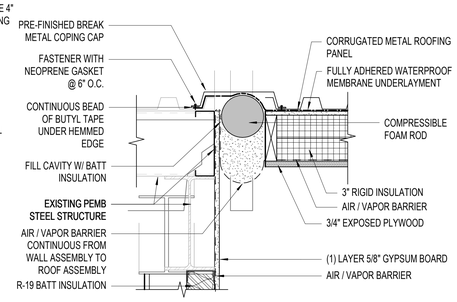
SECTION DETAILS

A511

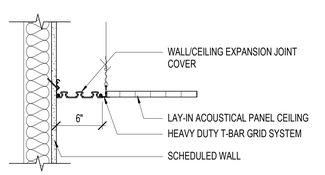
EXPANSION JOINT SCHEDULE	
TYPE	REFERENCE
FLOOR	
FEJ-1	A6 / A521
WALL	
WEJ-1	B1 / A521
WEJ-2	B3 / A521
WEJ-3	B4 / A521
WEJ-4	B5 / A521
WEJ-5	
CEILING	
CEJ-1	C5 / A521
CEJ-2	C6 / A521
ROOF	
REJ-1	D4 / A521
REJ-2	D6 / A521



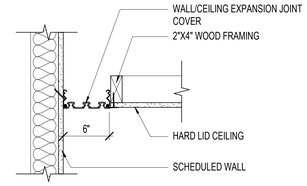
D4 SECTION DETAIL - REJ-1
A521 1 1/2" = 1'-0"



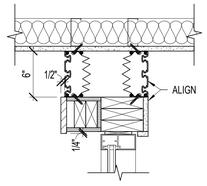
D6 SECTION DETAIL - REJ-2
A521 1 1/2" = 1'-0"



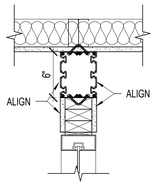
C5 SECTION DETAIL - CEJ-1
A521 1 1/2" = 1'-0"



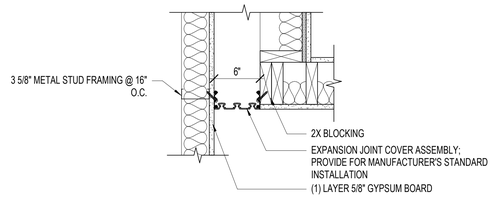
C6 SECTION DETAIL - CEJ-2
A521 1 1/2" = 1'-0"



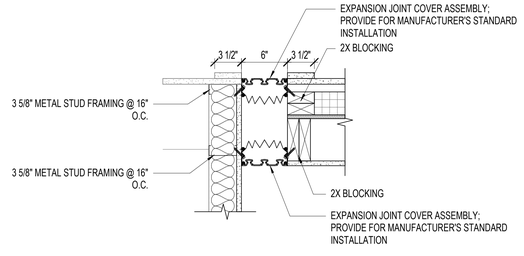
B1 PLAN DETAIL - WEJ-1
A521 1 1/2" = 1'-0"



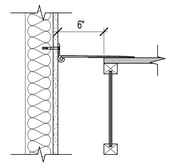
B3 PLAN DETAIL - WEJ-2
A521 1 1/2" = 1'-0"



B4 PLAN DETAIL - WEJ-3
A521 1 1/2" = 1'-0"



B5 PLAN DETAIL - WEJ-4
A521 1 1/2" = 1'-0"



A6 SECTION DETAIL - FEJ-1
A521 1 1/2" = 1'-0"

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EXPANSION JOINT DETAILS

A521

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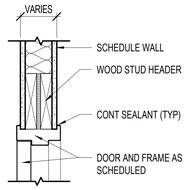
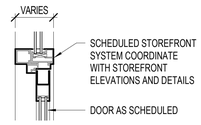
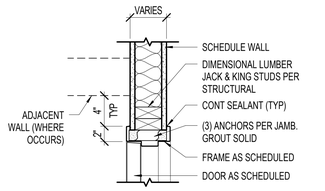


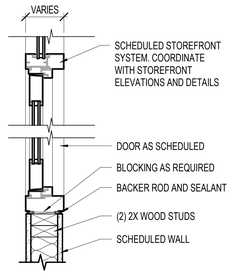
E1 HEAD DETAIL
A601 1 1/2" = 1'-0"



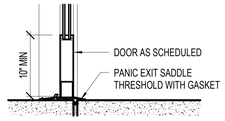
E2 HEAD DETAIL - STOREFRONT DOOR
A601 1 1/2" = 1'-0"



D1 JAMB DETAIL
A601 1 1/2" = 1'-0"



D2 JAMB DETAIL - STOREFRONT DOOR
A601 1 1/2" = 1'-0"



C2 SILL DETAIL - STOREFRONT DOOR
A601 1 1/2" = 1'-0"

DOOR SCHEDULE

DOOR #	SIZE WIDTH	SIZE HEIGHT	DOOR TYPE	DOOR FINISH	FRAME DETAIL HEAD	FRAME DETAIL JAMB	FRAME DETAIL THRESH	FRAME TYPE	FRAME FINISH	FIRE RATING	GLAZING	HARDWARE GROUP	NOTES	NUMBER
100a	6' - 0"	7' - 0"	HP01	PX1	-	D5/A604	-	HM01	PX1	-	-	104	5	100a
100b	6' - 0"	7' - 0"	HP01	PX1	-	D5/A604	-	HM01	PX1	-	-	104	5	100b
100c	12' - 0"	14' - 0"	OH01	PF	-	D3/A604	-	-	-	-	-	OHD-100	1	100c
100d	6' - 0"	7' - 0"	HP01	PX1	-	D5/A604	-	HM01	PX1	-	-	104	5	100d
101a	6' - 0"	7' - 8"	AP01	AL	C5/A604 SIM	D2/A601 SIM	B2/A601	F	AL	-	G2	AS-101	3,4	101a
101b	6' - 0"	7' - 8"	AP01	AL	E2/A601	D2/A601	-	IG	AL	-	G6	AS-102	4	101b
102a	2' - 6"	6' - 8"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	45 MIN	-	205	-	102a
103	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	206	-	103
108	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	210	-	108
109	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	204	-	109
110	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	204	-	110
112a	3' - 6"	7' - 8"	AS01	AL	C5/A604 SIM	B5/A604 SIM	B2/A601	K	AL	-	G2	AS-201	3,4	112a
112b	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	208	-	112b
112c	3' - 0"	7' - 8"	AS01	AL	D1/A604 SIM	C1/A604 SIM	-	IL	AL	-	G4	AS-105	-	112c
113	3' - 6"	7' - 8"	HS01	PX1	-	D2/A604	-	HM01	PX1	-	-	102	-	113
115a	6' - 0"	7' - 8"	AP01	AL	D1/A604 SIM	C1/A604 SIM	-	IC	AL	-	G4	AS-101	4, 8, 9, 2	115a
115b	6' - 0"	7' - 8"	AP01	AL	D1/A604 SIM	C1/A604 SIM	-	IA	AL	-	G4	AS-101	4, 8, 9	115b
116	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	201	4	116
116a	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	210	-	116a
117	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	201	4	117
117a	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	210	-	117a
118a	3' - 0"	7' - 8"	WS02	WD	E2/A601	D2/A601	-	IF	AL	-	G6	209	-	118a
118b	3' - 0"	7' - 8"	WS02	WD	E2/A601	D2/A601	-	IF	AL	-	G6	209	-	118b
119a	3' - 0"	7' - 8"	HS03	PX2	-	C4/A604	-	HM01	PX2	-	-	103	-	119a
119b	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	207	-	119b
121	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	210	-	121
122	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	210	-	122
123a	6' - 0"	7' - 8"	AP01	AL	C5/A604 SIM	D2/A601	B2/A601	C	AL	-	G2	AS-101	3,4	123a
123b	6' - 0"	7' - 8"	AP01	AL	E2/A601	D2/A601	-	IE	AL	-	G6	AS-102	4	123b
124a	3' - 0"	7' - 8"	WS02	WD	E2/A601	D2/A601	-	ID	AL	-	G6	202	-	124a
124b	3' - 0"	7' - 8"	WS02	WD	E2/A601	D2/A601	-	ID	AL	-	G6	202	-	124b
124c	3' - 0"	7' - 8"	WS02	WD	E2/A601	D2/A601	-	ID	AL	-	G6	202	-	124c
124d	3' - 0"	7' - 8"	WS02	WD	E2/A601	D2/A601	-	ID	AL	-	G6	202	-	124d
124e	3' - 0"	7' - 8"	WS02	WD	E2/A601	D2/A601	-	ID	AL	-	G6	202	-	124e
124f	3' - 0"	7' - 8"	WS02	WD	E2/A601	D2/A601	-	ID	AL	-	G6	202	-	124f
124g	29' - 1"	8' - 4"	OP01	-	A4/A512	-	-	-	-	-	-	FLD-200	2	124g
124h	29' - 1"	8' - 4"	OP01	-	A4/A512	-	-	-	-	-	-	FLD-200	2	124h
125	6' - 0"	7' - 0"	WP01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	203	-	125
126a	3' - 0"	7' - 8"	AS01	AL	C5/A604 SIM	B5/A604 SIM	B2/A601	A	AL	-	G2	AS-103	3,4	126a
126b	3' - 0"	7' - 8"	AS01	AL	E2/A601	D2/A601	-	IR	AL	-	G6	AS-104	4	126b
127	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	204	-	127
128	3' - 0"	7' - 8"	HS01	PX2	-	C4/A604 SIM	-	HM01	PX2	-	-	101	7, 2	128
204	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	210	-	204
205	3' - 0"	7' - 0"	WS01	WD	E1/A601	D1/A601	-	HM01	PT2	-	-	210	-	205
206	3' - 0"	7' - 0"	WS02	WD	E1/A601	D1/A601	-	HM01	PT2	-	G6	100	-	206
206a	3' - 6"	7' - 5"	HS02	PX2	-	C4/A604 SIM	-	HM01	PX2	-	-	212	3,6	206a
207	3' - 0"	7' - 0"	WS02	WD	E1/A601	D1/A601	-	HM01	PT2	-	G6	211	-	207
208	3' - 0"	7' - 0"	WS02	WD	E1/A601	D1/A601	-	HM01	PT2	-	G6	211	-	208
209	3' - 0"	7' - 0"	HS01	PX1	-	D2/A604	-	HM01	PX1	-	-	204	-	209

DOOR SCHEDULE NOTES

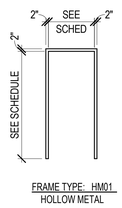
1	OVERHEAD COILING DOOR. BASIS OF DESIGN: CORNELL; ROLLING DOOR, SERVICE DOOR ESD10. FRAME AND HARDWARE BY MANUFACTURER
2	OPERABLE PARTITION. BASIS OF DESIGN: MODERNFOLD; ACOUSTI-SEAL, ENCORE - PAIRED PANEL; STC 52; FINISH TO BE SELECTED
3	PROVIDE ACCESS CONTROL
4	PROVIDE DOOR ACTUATOR AND AUTO OPENER
5	NEW HOLLOW METAL DOOR AND FRAME TO MATCH EXISTING ARENA DOOR AND PANEL SYSTEM. OPENING SIZE TO FIT WITHIN EXISTING PANEL. FIELD VERIFY
6	DOOR HEIGHT TO ALIGN WITH EXTERIOR FIBER CEMENT BATTEN. FIELD VERIFY
7	PROVIDE SIGNAGE INDICATING FIRE RISER ROOM - SIGNAGE TO BE APPROVED BY FIRE MARSHAL
8	PROVIDE SIGNAGE INDICATING THIS DOOR IS NOT AN EMERGENCY EXIT - SIGNAGE TO BE APPROVED BY FIRE MARSHAL
9	PROVIDE STATIC ARM HOLD OPEN

DOOR FINISH LEGEND

AL	ALUMINUM, ANODIZED, COLOR TO BE SELECTED
PT	PAINT, REFER TO FINISH DRAWINGS
PX	PAINT, EXTERIOR, COLOR TO BE SELECTED
PF	PRE-FINISHED BY MANUFACTURER
WD	WOOD, STAINED, COLOR TO BE SELECTED
-	

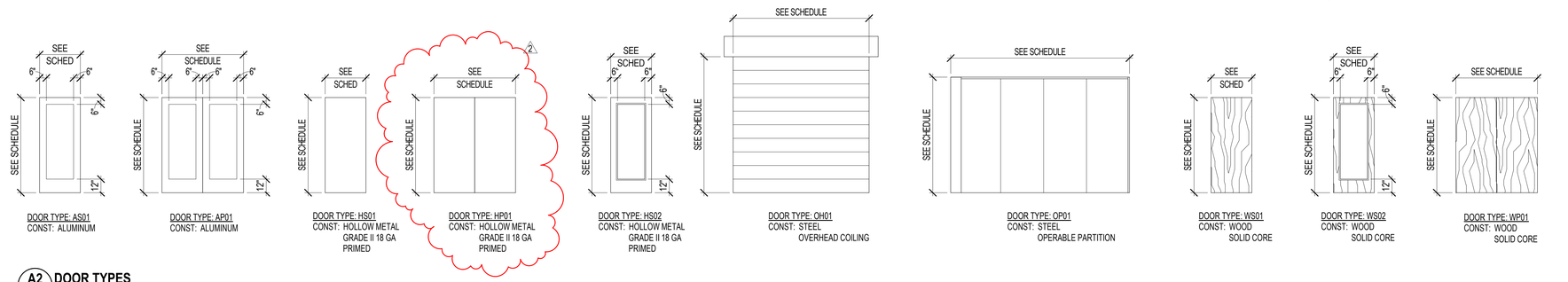
GLAZING SCHEDULE XX

G1	1" INSULATED, CLEAR
G2	1" INSULATED, TEMPERED, CLEAR
G3	1" INSULATED, ONE-WAY MIRROR GLASS
G4	1" INSULATED, TEMPERED, ONE-WAY MIRROR GLASS
G5	1/4" CLEAR
G6	1/4" TEMPERED, CLEAR
-	



FRAME TYPE: HM01
HOLLOW METAL

B6 FRAME TYPES - HOLLOW METAL
A601 1/4" = 1'-0"



A2 DOOR TYPES
A601 1/4" = 1'-0"

GENERAL NOTE - DOOR & WINDOW

A. FIELD VERIFY ALL DIMENSIONS PRIOR TO SHOP DRAWING SUBMITTAL & SUBSEQUENT FABRICATION OF ALL DOOR AND WINDOW FRAMES
B. PROVIDE CLEARANCE REQUIRED BY ACCESSIBILITY CODES ANSI A117.1 AND ADAAG AT ALL DOORS
C. DOOR LITE DIMENSIONS SHOWN REPRESENT THE FINISHED CLEAR GLAZED OPENING BETWEEN TRIM KIT ELEMENTS

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#	Date	Revision
1	06/25/18	Addendum 1
2	07/03/18	Addendum 2

CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 17179
CHECKED BY: KH
DRAWN BY: JPA
DATE: 06.08.18

DOOR SCHEDULE AND TYPES

A601

7/3/2018 6:43:34 PM

EQUIPMENT AND ACCESSORY SCHEDULE

NUMBER	ITEM	BASIS OF DESIGN	NOTES	FLOOR	WALL	CEILING	COUNTER	PORTABLE	FURNISH	INSTALL
ACCESSORIES										
CS-01	BABY CHANGING STATION	KOALA KARE; MATCH EXISTING CAMPUS STANDARD			X				C	C
CS-02	BABY CHANGING STATION, CHILD PROTECTION SEAT	KOALA KARE; KB102			X				C	C
FS-01	FOLD DOWN SEAT	ASI; 8203-28			X				C	C
FS-02	FOLD DOWN STEP	STEP 'N WASH; SNW-SS 975B		X					C	C
GB-01	GRAB BAR, 24"	ASI; 3401-24			X				C	C
GB-02	GRAB BAR, 36"	ASI; 3401-36			X				C	C
GB-03	GRAB BAR, 42"	ASI; 3401-42			X				C	C
GB-04	GRAB BAR, VERTICAL, 18"	ASI; 3401-18			X				C	C
MR-01	MIRROR, FRAMED, 24" X 36"	ASI; 0600-T2436			X				C	C
PT-01	DISPENSER, PAPER TOWEL	KIMBERLY CLARK; TO BE DETERMINED			X				V	V
SN-01	SANITARY NAPKIN DISPOSAL	TO BE DETERMINED			X				V	V
SP-01	DISPENSER, SOAP	BRADY; TO BE DETERMINED			X				V	V
TC-01	DISPENSER, TOILET SEAT COVER	TO BE DETERMINED			X				V	V
TP-01	TOILET PAPER ROLL DISPENSER	KIMBERLY CLARK; TO BE DETERMINED			X				V	V
EQUIPMENT										
CF-01	COFFEE MAKER	TO BE DETERMINED					X		O	O
IC-01	ICE MACHINE	MANITOWOC; NEO UDF-0240A		X					O	O
LK-01	LOCKER	'Z' TIER, 12" X 12"		X					C	C
MS-01	MECHOSHADE, DOUBLE (WITH BLACKOUT)	MECHOSYSTEMS; MECHO/5 DOUBLE SHADE			X				C	C
MW-01	MICROWAVE	TO BE DETERMINED					X		O	O
MW-02	MICROWAVE, TURBOCHEF	TURBOCHEF; i5					X		O	O
RF-01	REFRIGERATOR, UNDERCOUNTER	TO BE DETERMINED		X					O	O
RF-02	REFRIGERATOR / FREEZER	TO BE DETERMINED		X					O	O
ST-01	STAGE, MOVEABLE	TO BE DETERMINED		X				X	O	O
WC-01	WARMING CABINET	AVANTCO; HPI1836		X					O	O
TECHNOLOGY										
CM-01	COMPUTER	TO BE DETERMINED					X		O	O
PJ-01	PROJECTOR, SHORT THROW	REFER TO A/V SPECS				X			C	C
TV-01	TELEVISION, 55" (WITH MOUNTING BRACKET)	REFER TO A/V SPECS			X				C	C
TV-02	TELEVISION, 32" (WITH MOUNTING BRACKET)	REFER TO A/V SPECS			X				C	C

ROOM FINISH SCHEDULE

ROOM	NAME	FLOOR	BASE	WALLS				CEILING	NOTES
				N	E	S	W		
100	EXISTING ARENA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
101	VESTIBULE	CPT 2	BS 2	PT 1	PT 1	PT 1	PT 1	CL 4	
102	LOBBY	CN 2	BS 2	PT 1	PT 1	PT 1	PT 1	WD 1	
102A	CLOSET	CN 1	BS 1	PT 1	PT 1	PT 1	PT 1	CL 4	
103	HK	TL 2	TL 2	PT 2	PT 2 / TL 2	PT 2 / TL 2	PT 2	CL 2	REFER TO ELEVATIONS
104	STAIR	RB 2	BS 2	PT 1	PT 1	PT 1	PT 1	CL 4	
106	CHECK-IN	CN 2	BS 2	N/A	N/A	PT 1	WD 1	WD 1	
107	VOLUNTEER	CN 2	BS 2	PT 1/ WD 4	PT 1	PT 1	PT 1	CL 4	REFER TO ELEVATIONS
108	PRIVATE	CPT 1	BS 2	PT 1	PT 1	PT 1	PT 1	CL 1	NO TRIM AT CEILING
109	ELECTRICAL	CN 1	BS 1	PT 1	PT 1	PT 1	PT 1	CL 2	
110	MECHANICAL	CN 1	BS 1	PT 1	PT 1	PT 1	PT 1	CL 2	
111	VIEWING / LOUNGE	CPT 1	BS 2	PT 1	PT 1	PT 1	PT 1	WD 3	
112	PHYSICAL THERAPY	RB 1	BS 2	PT 1	PT 1	PT 1	PT 1	CL 1	NO TRIM AT CEILING
113	MECHANICAL	CN 1	BS 1	PT 1	PT 1	PT 1	PT 1	CL 2	
115	CORRIDOR	CN 2	BS 2	PT 1	PT 1/ FL 1	PT 1	PT 1 / FL 1	FL 2	REFER TO ELEV AND RCP
116	MEN'S RR	TL 1	BS 3	PT 2	PT 2 / TL 2	TL 3/PT 2	PT 2	CL 5	
116A	CHANGING	TL 1	BS 3	PT 2	PT 2	TL 3/PT 2	PT 2	CL 5	
117	WOMEN'S RR	TL 1	BS 3	TL 3/PT 2	PT 2	PT 2	PT 2	CL 5	
117A	CHANGING	TL 1	BS 3	TL 3/PT 2	PT 2	PT 2	PT 2	CL 5	
118	MEETING ROOM	CPT 1	BS 2	WD 2	PT 1	VS 1 / PT 1	PT 1	WD 1 / CL 1	REFER TO RCP
119	WARMING KITCHEN	CN 2	BS 1	PT 2	PT 2	PT 2	PT 2	CL 5	
120	LOBBY	CN 2	BS 2	PT 1	PT 1	PT 1	PT 1	WD 1	
121	RESTROOM	TL 1	BS 3	TL 3	PT 2	PT 2	PT 2	CL 4	
122	RESTROOM	TL 1	BS 3	TL 3	PT 2	PT 2	PT 2	CL 4	
123	VESTIBULE	CPT 2	BS 2	PT 1	PT 1	PT 1	PT 1	CL 5	
124	MULTI-PURPOSE	CPT 1	BS 2	PT 1	PT 1	PT 3	PT 1 / PT 3	WD 1/ CL 1	REFER TO ELEV AND RCP
125	TABLE STORAGE	CN 1	BS 1	PT 1	PT 1	PT 1	PT 1	CL 2	
126	VESTIBULE	CPT 2	BS 2	PT 1	PT 1	PT 1	PT 1	CL 4	
127	ELECTRICAL	CN 1	BS 1	PT 1	PT 1	PT 1	PT 1	CL 2	
128	FIRE RISER	CN 1	BS 1	PT 1	PT 1	PT 1	PT 1	CL 2	
201	LOBBY	CPT 1	BS 2	PT 1	PT 1	PT 1	PT 1	CL 4/ FL 3	REFER TO RCP
202	BREAK	CPT 1	BS 2	PT 1	PT 1	PT 1	PT 1	CL 4	
203	STAFF LOCKERS	CPT 1	BS 2	PT 1	PT 1	PT 1	PT 1	CL 4	
204	RESTROOM	TL 1	BS 3	PT 2	TL 3	PT 2	PT 2	CL 5	
205	RESTROOM	TL 1	BS 3	PT 2	TL 3	PT 2	PT 2	CL 5	
206	OPEN OFFICE	CPT 1	BS 2	PT 1	PT 1	PT 1	PT 1	CL 1	NO TRIM AT CEILING
206A	VESTIBULE	CPT 2	BS 2	PT 1	PT 1	PT 1	PT 1	CL 4	
207	CONFERENCE ROOM	CPT 1	BS 2	PT 1	PT 1	PT 1	PT 1	CL 1	NO TRIM AT CEILING
208	CONFERENCE ROOM	CPT 1	BS 2	PT 1	PT 1	PT 1	PT 1	CL 1	NO TRIM AT CEILING
209	MECHANICAL	EXP	-	-	-	-	-	CL 2	

FINISH LEGEND

CODE	DESCRIPTION	REMARKS
BASE FINISHES		
BS 1	6" RUBBER BASE, JOHNSONITE, TRADITIONAL TOELESS 6", COLOR: TBD	
BS 2	6" RUBBER BASE, JOHNSONITE MILLWORK, PROFILE: MANDALAY 6", COLOR: TBD	
BS 3	DALTILE, INDUSTRIAL PARK, 6" X 12" COVE BASE,COLOR: LIGHT GRAY, IP07	
CEILING FINISHES		
CL1	2' x 2' ACOUSTICAL CEILING PANEL - ARMSTRONG ULTIMA HIGH NRC 9/16" BEVELED TEGULAR WITH 4" AXIOM TRIM AT PERIMETER EDGE U.N.O., ARMSTRONG AXIOM CLASSIC, COLOR: AXIOM CLASSIC IN WHITE	
CL 2	UNFINISHED SURFACE	
CL 3	EXPOSED PAINTED STRUCTURE, COLOR: PT 1	
CL 4	PAINTED GYPSUM BOARD, FLAT FINISH, USE PT 1 U.N.O.	
CL 5	PAINTED GYP BOARD, SEMI GLOSS FINISH, COLOR: PT 1	
FL 2	FELT ACOUSTIC CEILING PANEL, MANUFACTURER: KIREI, ECHOPANEL, 12 MM, COLOR: 295	REFER TO RCP FOR SIZE AND LAYOUT
FL 3	FELT ACOUSTIC BAFFLE, MANUFACTURER: KIREI, H BAFFLE, COLOR: 442	REFER TO RCP FOR SIZE AND LAYOUT
WD 1	EXPOSED GLU-LAM BEAMS AND PLYWOOD. PROVIDE HIGHER GRADE PLYWOOD AT THIS LOCATION	
WD 3	EXPOSED STRUCTURE AND PLYWOOD. PROVIDE HIGHER GRADE PLYWOOD AT THIS LOCATION	
WD 4	PLYWOOD VENEER, TRANSPARENT MATTE FINISH, PROVIDE HIGHER GRADE PLYWOOD AT THIS LOCATION	
FLOOR FINISHES		
CPT 1	INTERFACE, PROGRESSION II, COLLECTION: GLOBAL CHANGE, STYLE: 142670AK00, COLOR: 105507 MORNING MIST, 25CM X 1M	
CPT 2	WALKOFF MAT, INTERFACE FLOOR, SUPER FLOR, COLOR: MOUSE GREY, 609009	
CN 1	CONCRETE WITH PENETRATING SEALANT	
CN 2	POLISHED SEALED CONCRETE WITH SLIP RESISTANT FINISH, COLOR: TBD (LIGHT COLOR)	
TL 1	DALTILE, INDUSTRIAL PARK, 12" X 24" WITH MATCHING, COVE BASE,COLOR: CHARCOAL BLACK, IP09	
TL 2	DALTILE, KEYSTONES, 1" X 1" PORCELAIN MOSAIC TILES, W/ MIN 4" BASE AT WALLS, COLOR: SUEDE GRAY D182	JANITORIAL
RB 1	MONDO, NATURA, COLOR: 80% LAGUNA BLUE, N 13, 20% TAHOE BLUE, N 10	LAYOUT TO BE PROVIDED BY ARCHITECT
RB 2	ROPPE, RAISED DESIGN RUBBER TREAD, #40 ABRASIVE STRIP DESIGN, COLOR: TBD	
EXP	EXPOSED PLYWOOD SHEATHING	LEVEL 02 MECHANICAL FLOOR
MILLWORK FINISHES		
PL 1	NEVAMAR, ARMORED PROTECTION, COLOR: CAFE SIENNA SO3300T	
PL 2	WILSONART, STANDARD LAMINATE, COLOR: STEEL MESH, 4879-38 FINE VELVET FINISH	
QZ 1	CAESARSTONE, COLOR: RAW CONCRETE, 4004	
WV 1	FIR PLYWOOD VENEER, GRADE A, TRANSPARENT MATTE FINISH, PROVIDE HIGHER GRADE PLYWOOD AT THIS LOCATION	
WALL FINISHES		
PT 1	DUNN EDWARDS, COLOR: DOLPHIN TALES, DET600 SHEEN: EGGSHELL	
PT 2	DUNN EDWARDS, COLOR: DOLPHIN TALES, DET600 SHEEN: SEMI-GLOSS	
PT 3	BENJAMIN MOORE, NOTABLE DRY ERASE PAINT, TWO PART SYSTEM, COLOR: WHITE	WHITEBOARD. REFER TO ELEVATIONS
TL 3	DALTILE, INDUSTRIAL PARK, 12" X 24" WITH MATCHING, COVE BASE,COLOR: LIGHT GRAY, IP07	
VS 1	AHDERED VENEER STONE SYSTEM TO MATCH EXTERIOR WALL	
FL 1	FELT ACOUSTIC WALL PANEL, MANUFACTURER: KIREI, ECHOPANEL, 12 MM, COLOR: 295	REFER TO ELEVATIONS FOR SIZE AND LAYOUT
W 1	UNFINISHED SURFACE	
WD 1	EXPOSED GLU-LAM BEAMS AND PLYWOOD TO MATCH CEILING, TRANSPARENT MATTE FINISH, PROVIDE HIGHER GRADE PLYWOOD AT THIS LOCATION	
WD 2	3/4" SHIPLAP WOOD VENEER TO MATCH EXTERIOR WALL	

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#	Date	Revision
2	07/03/18	Addendum 2

CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 17179
CHECKED BY: KH
DRAWN BY: JPA
DATE: 06.08.18

FINISH AND EQUIPMENT SCHEDULES

AI601

7/3/2018 6:43:38 PM

COLVIN ENGINEERING ASSOCIATES

MECHANICAL ADDENDUM NO. 2

Job Name: NAC Equestrian Center

CEA PROJECT NO. 2018-017.00

Date: 3 July 2018

All contractors submitting proposals for this project shall be governed by the following addendum, changes, and explanations to the bidding documents. Bids shall be submitted in accordance with the following:

Item No.	Add, Delete or Clarify	Specification Section or Drawing No.	Reference / Description:
1	Clarify	ComCheck	Revised Mechanical ComCheck to reflect ASHRAE 90.1 (2013) for Energy Code.

PRODUCT SUBSTITUTIONS / PRIOR APPROVALS

Item No.	Specification Section	Product Type	Alternate Manufacturers
1	233713	Linear Slot Diffuser	Titus
2	236500	VRF Systems	Daikin
3	237400	Makeup Air Unit	Greenheck, Daikin Applied
4	-	Louvers	Greenheck
5	233300	Motorized Dampers	Greenheck
6	233300	Airflow Regulator	Young Regulator
7	224450	Instant Water Heater	EEMax
8	224440	Urinal	American Standard
9	224440	Piston Type Flush Valve	American Standard
10	224440	Toilet Seat	American Standard

The above named alternate equipment manufacturers stand approved in name only. Approval here in no way relieves the supplier from complying with all other engineering, weight spatial, and quality requirements of equipment indicated in the contract documents. Contractors using products from the above named alternate manufacturers shall refer to Specification Section 230500 for detailed contractor responsibilities related to the use of alternate brands not used as the Basis of Design.

END OF ADDENDUM NO. 2

HVAC | Electrical | Energy Efficient Solutions | Building Simulation
244 West 300 North, Suite 200 | Salt Lake City, Utah 84103-1147 | 801.322.2400

18045 NAC EQUESTRIAN CENTER

Electrical Addendum #2 **Issue Date: 07/03/2018**

GENERAL NOTES:

1. Floor plan scale on level 2 for power and lighting sheets has been scaled to 3/16” = 1’-0” for clarity on the drawings. Carefully review the scale for each floor plan when measuring off the drawings.

CHANGES TO THE SPECIFICATIONS:

SPECIFICATION # 27 4100 AUDIOVISUAL SYSTEMS

1. Section # 2.4 EQUIPMENT REQUIRED PER ROOM TYPE
    i. MULTI-PURPOSE ROOM (2/2)
        1. Change the Network Switch from CISCO SG300-10PP to CISCO SG300-28PP
    ii. MEETING ROOM
        1. Add (1) SHELF, PULL OUT, RACK MOUNT LATCHING – MIDDLE ATLANTIC - SS

CHANGES TO THE DRAWINGS:

SHEET E002

1. Added a fan coil to the equipment schedule.
2. Review drawings for all changes.

SHEET E101

1. Added key-notes to the sheet and more information to the sheet-key note.
2. Review drawings for all changes.

SHEET E201

1. Added exterior lighting to the exterior walls.
2. Added exit signage.
3. Added key-notes to the sheet key-nots.
4. Added day light zoning.
5. Added a day light sensor.
6. Replaced 2X2 lighting fixtures with linear pendants fixtures.
7. Review drawings for all changes.

SHEET E202

1. Added exterior lighting to the exterior walls.
2. Added key-notes to the sheet key-nots.
3. Added day light zoning.
4. Review drawings for all changes.

Electrical Addendum #2 **Issue Date: 07/03/2018**

SHEET E301

1. Added wireless access point connections.
2. Added floor boxes to the meeting room.
3. Added control receptacles in the meeting room.
4. Review drawings for all changes.

SHEET E302

1. Added wireless access point connections.
2. Added control receptacles in the conference rooms.
3. Added control receptacles in the open office.
4. Review drawings for all changes.

SHEET E303

1. Moved the fuse disconnect to the fire riser room.
2. Review drawings for all changes.

SHEET E304

1. Added a thermal magnetic switch to the mechanical equipment that's on top of the lobby area.
2. Review drawings for all changes.

SHEET E401

1. Relocated some of the horn strobes.
2. Added strobes where necessary.
3. Added horn strobes where necessary.
4. Removed some horn strobes where needed.
5. Added a fire alarm annunciator panel.
6. Review drawings for all changes.

SHEET E401

1. Relocated a horn strobe.
2. Added water proof horn strobe where necessary.
3. Removed some horn strobes where needed.
4. Review drawings for all changes.

SHEET E501

1. Added more information to the sheet key-notes.
2. Review drawings for all changes.

SHEET E703

1. Added a lighting and control diagram.
2. Review drawings for all changes.

SHEET ET301

3. MULTI-PURPOSE ROOM
    a. Add (1) 'TP7' device to the "front" wall of both the mid and rear sections. Mount them above the 'TxH device at height indicated on SHEET ET001.
    b. Use STP cable for newly added 'TP7' devices and homerun to 'R1'.
4. MEETING ROOM
    a. Change the 'STP' cable from the camera to 'HDCI' as specified for the Polycom camera.

SHEET ET701

1. V201 MULTI-PURPOSE ROOM AV RISER
    a. Extend the Network Switch ports to '12'.
    b. Add (2) 'TP7' symbols to port 9 and 11 on the Network Switch.
    c. Add 'OWNERS LAN' to port 10 on the Network Switch.

PRIOR APPROVAL OF MANUFACTURERS OF ELECTRICAL EQUIPMENT

The following items, trade names, products and manufacturers are approved for bidding. Approval does not relieve the bidder from satisfying the intent of the requirements of drawings, specifications and addenda in every respect. Failure to conform to the design quality and standards specified, established and required may result in later disapproval. If equipment must be disapproved after bidding, supplier shall supply specified equipment at no extra cost to the Owner.

Items are listed generally and specific model number, etc. shall be as submitted. Items submitted but not approved, either did not satisfy the requirements, or showed insufficient data, or arrived after the 8-day deadline established for submittals.]

TYPE	SPECIFIED	SSCo APPROVED
A1	PHILIPS DAY-BRITE	PHILIPS DAY-BRITE
A1E	PHILIPS DAY-BRITE	PHILIPS DAY-BRITE
A2	FOCAL POINT	PRO-LITE
A2a	FOCAL POINT	PRO-LITE
A2E	FOCAL POINT	PRO-LITE
A2Ea	FOCAL POINT	PRO-LITE
A3	PHILIPS DAY-BRITE	PHILIPS DAY-BRITE
A3E	PHILIPS DAY-BRITE	PHILIPS DAY-BRITE
D1	CONTECH LIGHTING	PHILIPS LIGHTOLIER
D1E	CONTECH LIGHTING	PHILIPS LIGHTOLIER
D2	CONTECH LIGHTING	PHILIPS LIGHTOLIER
D3	PHILIPS CALCULITE	PHILIPS CALCULITE
D3E	PHILIPS CALCULITE	PHILIPS CALCULITE
F1E	COOPER METALUX	PHILIPS DAY-BRITE
L1Es	PINNACLE	PINNACLE
L1Ew	PINNACLE	PINNACLE
L1s	PINNACLE	PINNACLE
L1w	PNNACLE	PNNACLE
OD1	CONTECH LIGHTING	PHILIPS LIGHTOLIER

OD1E	CONTECH LIGHTING	PHILIPS LIGHTOLIER
P1	TECH LIGHTING	-
P2	MODERN FORMS	-
P3	MODERN FORMS	-
S1Es	PHILIPS DAY-BRITE	PHILIPS DAY-BRITE
S1s	PHILIPS DAY-BRITE	PHILIPS DAY-BRITE
S2s	PHILIPS DAY-BRITE	PHILIPS DAY-BRITE
W1	PRUDENTIAL LIGHTING	BIRCHWOOD LIGHTING
X1	LITHONIA	PHILIPS CHLORIDE

JRC is approved to substitute Selux fixtures for types L1s and L1Es.

END OF ELECTRICAL ADDENDUM

EQUIPMENT SCHEDULE

UNIT	#	DESCRIPTION	LOAD				VOLT	PHASE	FULL LOAD AMPS	CONDUIT SIZE	WIRES				OCPD		REFERENCE NOTES			REMARKS
			HP	FLA	MCA	VA					SETS	QTY	SIZE	EQUIP. GND.	TYPE	AMPS	STARTER	DISCONNECT	OTHER	
EF	1	EXHAUST FAN	0.14				120 V	1	4.4 A	3/4"	1	2	12	12	CB	15 A		4A		
EF	2	EXHAUST FAN	0.04				120 V	1	4.4 A	3/4"	1	2	12	12	CB	15 A		4A		
EH	1	ELECTRIC HEATER		0 A	0 A	4000 VA	208 V	1	19.2 A	3/4"	1	2	10	10	CB	25 A		2A		
EH	1	ELECTRIC HEATER		0 A	0 A	4000 VA	208 V	1	19.2 A	3/4"	1	2	10	10	CB	25 A		2A		
EH	1	ELECTRIC HEATER		0 A	0 A	4000 VA	208 V	1	19.2 A	3/4"	1	2	10	10	CB	25 A		2A		
EH	2	ELECTRIC HEATER		0 A	0 A	2000 VA	208 V	1	9.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	2	ELECTRIC HEATER		0 A	0 A	2000 VA	208 V	1	9.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	3	ELECTRIC HEATER		0 A	8 A	0 VA	120 V	1	6.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	3	ELECTRIC HEATER		0 A	8 A	0 VA	120 V	1	6.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	3	ELECTRIC HEATER		0 A	8 A	0 VA	120 V	1	6.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	3	ELECTRIC HEATER		0 A	8 A	0 VA	120 V	1	6.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	3	ELECTRIC HEATER		0 A	8 A	0 VA	120 V	1	6.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	3	ELECTRIC HEATER		0 A	8 A	0 VA	120 V	1	6.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	3	ELECTRIC HEATER		0 A	8 A	0 VA	120 V	1	6.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EH	3	ELECTRIC HEATER		0 A	8 A	0 VA	120 V	1	6.6 A	3/4"	1	2	12	12	CB	20 A		2A		
EWH	1	ELECTRIC WATER HEATER		20 A	0 A	0 VA	208 V	1	20.0 A	3/4"	1	2	10	10	CB	25 A		2A		
EWH	1	ELECTRIC WATER HEATER		20 A	0 A	0 VA	208 V	1	20.0 A	3/4"	1	2	10	10	CB	25 A		2A		
EWH	2	ELECTRIC WATER HEATER		40 A	0 A	0 VA	208 V	1	40.0 A	3/4"	1	2	6	10	CB	50 A		2A		
EWH	2	ELECTRIC WATER HEATER		40 A	0 A	0 VA	208 V	1	40.0 A	3/4"	1	2	6	10	CB	50 A		2A		
EWH	2	ELECTRIC WATER HEATER		40 A	0 A	0 VA	208 V	1	40.0 A	3/4"	1	2	6	10	CB	50 A		2A		
EWH	2	ELECTRIC WATER HEATER		40 A	0 A	0 VA	208 V	1	40.0 A	3/4"	1	2	6	10	CB	50 A		2A		
EWH	2	ELECTRIC WATER HEATER		40 A	0 A	0 VA	208 V	1	40.0 A	3/4"	1	2	6	10	CB	50 A		2A		
EWH	2	ELECTRIC WATER HEATER		40 A	0 A	0 VA	208 V	1	40.0 A	3/4"	1	2	6	10	CB	50 A		2A		
EWH	2	ELECTRIC WATER HEATER		40 A	0 A	0 VA	208 V	1	40.0 A	3/4"	1	2	6	10	CB	50 A		2A		
EWH	2	ELECTRIC WATER HEATER		40 A	0 A	0 VA	208 V	1	40.0 A	3/4"	1	2	6	10	CB	50 A		2A		
EWH	3	ELECTRIC WATER HEATER		12 A	0 A	0 VA	208 V	1	12.0 A	3/4"	1	2	12	12	CB	20 A		2A		
EWH	3	ELECTRIC WATER HEATER		12 A	0 A	0 VA	208 V	1	12.0 A	3/4"	1	2	12	12	CB	20 A		2A		
FC	1.1	FAN COIL		0 A	5 A	0 VA	208 V	1	4.2 A	3/4"	1	2	12	12	CB	20 A		4A		
FC	1.2	FAN COIL		0 A	5 A	0 VA	208 V	1	4.2 A	3/4"	1	2	12	12	CB	20 A		4A		
FC	1.3	FAN COIL		0 A	1 A	0 VA	208 V	1	0.4 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.4	FAN COIL		0 A	1 A	0 VA	208 V	1	0.4 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.5	FAN COIL		0 A	5 A	0 VA	208 V	1	4.2 A	3/4"	1	2	12	12	CB	20 A		4A		
FC	1.6	FAN COIL		0 A	1 A	0 VA	208 V	1	1.0 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.7	FAN COIL		0 A	1 A	0 VA	208 V	1	0.4 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.8	FAN COIL		0 A	5 A	0 VA	208 V	1	4.2 A	3/4"	1	2	12	12	CB	20 A		4A		
FC	1.9	FAN COIL		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.10	FAN COIL		0 A	1 A	0 VA	208 V	1	0.4 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.10	FAN COIL		0 A	1 A	0 VA	208 V	1	0.4 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.11	FAN COIL		0 A	1 A	0 VA	208 V	1	0.4 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.12	FAN COIL		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	1.14	FAN COIL		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	2.1	FAN COIL		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A				
FC	2.2	FAN COIL		0 A	1 A	0 VA	208 V	1	1.0 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	2.3	FAN COIL		0 A	1 A	0 VA	208 V	1	0.4 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	2.4	FAN COIL		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
FC	2.5	FAN COIL		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
HP	1	HEATER PUMP		0 A	114 A	0 VA	208 V	3	91.1 A	1 1/4"	1	3	1/0	6	CB	150 A		7A		
HP	2	HEATER PUMP		0 A	58 A	0 VA	208 V	3	46.3 A	3/4"	1	3	4	8	CB	70 A		7A		
HR	1.1	HR BOXES		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
HR	1.2	HR BOXES		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
HR	1.3	HR BOXES		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
HR	1.4	HR BOXES		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
HR	1.5	HR BOXES		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
HR	2.1	HR BOXES		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
HR	2.2	HR BOXES		0 A	1 A	0 VA	208 V	1	0.8 A	3/4"	1	2	12	12	CB	15 A		4A		
MUA	1	MAKE UP AIR UNIT SCHEDULE	3.00				208 V	3	10.6 A	3/4"	1	3	12	12	CB	20 A		9B		
UH	1	UNIT HEATER	0.50				120 V	1	9.8 A	3/4"	1	2	12	12	CB	20 A		4A		
UH	1	UNIT HEATER	0.50				120 V	1	9.8 A	3/4"	1	2	12	12	CB	20 A		4A		

NOTES:
1. NON-FUSED DISCONNECT SWITCH
2. FUSED DISCONNECT SWITCH
3. BREAKER IN ENCLOSURE
4. MANUAL STARTER W/THERMAL OVERLOAD
5. MAGNETIC STARTER
6. MAGNETIC STARTER/NON-FUSED DISCONNECT COMBINATION
7. MAGNETIC STARTER/FUSED DISCONNECT COMBINATION
8. MAGNETIC STARTER/BREAKER COMBINATION
9. VARIABLE FREQUENCY DRIVE
10. REDUCED VOLTAGE STARTER
11. DIRECT CONNECTION
12. RECEPTACLE/SPECIAL PURPOSE OUTLET/ETC.
13. TWO-SPEED STARTER, COORDINATE W/MOTOR TYPE
14. SOLID STATE SOFT STARTER

A. FURNISHED, INSTALLED, AND CONNECTED UNDER DIVISION 26(16).
B. FURNISHED AND INSTALLED UNDER ANOTHER DIVISION REQUIRING CONNECTION UNDER DIVISION 26(16).
C. FURNISHED UNDER ANOTHER DIVISION BUT INSTALLED AND CONNECTED UNDER DIVISION 26(16).
D. FURNISHED, INSTALLED AND CONNECTED UNDER ANOTHER DIVISION.

CB = CIRCUIT BREAKER - THERMAL MAGNETIC
CKW = CHILLER KILOWATTS

NOTE 1: PER 250.122(A), EQUIPMENT GROUND IS NOT REQUIRED TO BE LARGER THAN PHASE CONDUCTOR.

ACCESS CONTROL SCHEDULE

LEGEND:

EL = ELECTRIC LOCK
ES = ELECTRIC STRIKE
ECB = ELECTRIC CRASH BAR
REX = REQUEST TO EXIT
FA = FIRE ALARM
PTE = PUSH TO ENTER (ACTUATOR)
EH = ELECTRIC HINGE
MAG = MAGNETIC LOCK
DPS = DOOR POSITION SWITCH

TYPE	DIAGRAM	DESCRIPTION	EL	ES	ECB	MAG	DPS	REX	PTE	EH	FA RELEASE	NOTES
A	EY246	DOUBLE DOOR, ADA	-	-	1	-	2	Yes	2	1	Yes	ADA OPERATOR, CR AND ACTUATOR LOCATED ON PEDESTAL
B	EY009	SINGLE DOOR, ADA	-	1	-	-	1	Yes	2	-	Yes	ELECTRIC STRIKE POWERED BY POWER TRANSFORMER ON BOARD AUTOMATIC OPERATOR. B) KEYSWITCH ENABLES/DISABLES BOTH ACTUATORS.
C	EY002	SINGLE DOOR	1	-	-	-	1	Yes	-	1	Yes	VERIFY WITH OWNER/ARCHITECT IF LOCKSET REQUIRES ROUGH-IN

ELECTRICAL FLOOR BOX SCHEDULE

TYPE	DESCRIPTION	MFGR.	CATALOG NUMBER
FB1	FURNITURE FEED FLOOR BOX ASSEMBLY. COORDINATE WITH ARCHITECT FOR COVER STYLE. REFER TO FLOOR PLANS FOR AMOUNT OF HOME-RUNS AND CAT-6 CABLES REQUIRED. REFER TO A/V DRAWINGS FOR A/V NEEDS.	LEGRAND	BFBFF-OG
FB2	4-GANG MULTI USE FLOOR BOX WITH POWER AND DATA. PROVIDE (1) LOW VOLTAGE GANG WITH (3) DATA DROPS, (2) POWER GANGS WITH DUPLEX RECEPTACLES AND (1) EMPTY GANG WITH A COVER. COORDINATE WITH ARCHITECT FOR SURFACE STYLE.	LEGRAND	EFB45S-EFB8-MB
PT1	6" RECESSED PREWIRE SURFACE MULTIUSE POKE-THRU WITH POWER AND DATA. REFER TO DRAWINGS FOR NUMBER OF CATEGORY CABLES NEEDED PER DEVICE LOCATED ON THE DRAWING	LEGRAND	6ATC2P-6DEC

LIGHT FIXTURE ABBREVIATION SCHEDULE

NOTE: NOT ALL ABBREVIATIONS WILL NECESSARILY BE USED.

A.F.F.	ABOVE FINISH FLOOR
WALL@CLG	WALL MOUNT AT CORNER OF WALL AND CEILING
CCBA	CUSTOM PAINTED COLOR AS SELECTED BY THE ARCHITECT
SCBA	STANDARD PAINTED COLOR AS SELECTED BY THE ARCHITECT
CFBA	CUSTOM FINISH AS SELECTED BY THE ARCHITECT
SFBA	STANDARD FINISH AS SELECTED BY THE ARCHITECT
MOD	MODIFY STANDARD LIGHT FIXTURE AS INDICATED

LIGHT FIXTURE GENERAL NOTES

1. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF LIGHT FIXTURES. BRING ALL DISCREPANCIES OF LOCATIONS AND QUANTITIES TO THE ATTENTION OF THE ARCHITECT AND ELECTRICAL ENGINEER PRIOR TO BIDDING.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHTS AND LOCATIONS OF LIGHT FIXTURES. BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT PRIOR TO BIDDING.
3. REFER TO THE SPECIFICATIONS FOR OTHER LIGHT FIXTURE, FUSING, BALLAST, AND LAMP REQUIREMENTS AND ACCEPTABLE MANUFACTURERS.
4. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR LOUVER REQUIREMENTS AS REQUIRED.
5. CONFIRM AVAILABLE MOUNTING DEPTHS OF ALL LIGHT FIXTURES AND COMPARE WITH DEPTHS SHOWN ON SHOP DRAWINGS. BRING ALL POTENTIAL CONFLICT AREAS TO THE ATTENTION OF THE ARCHITECT AND ELECTRICAL ENGINEER PRIOR TO RELEASE.

BIDDING REQUIREMENTS

1. BID ONLY PRODUCTS THAT ARE SPECIFIED OR APPROVED BY ADDENDUM.
2. PACKAGING OF LIGHT FIXTURES WITH OTHER SYSTEMS IS NOT ALLOWED.
3. WHEN ONLY ONE PRODUCT IS APPROVED FOR BIDDING, THE PRICE FOR THAT ITEM SHALL BE BROKEN OUT SEPARATELY WHEN SUBMITTING PRICING TO VARIOUS DISTRIBUTORS AND/OR CONTRACTORS.
4. WHEN A CONTRADICTION EXISTS BETWEEN A SPECIFIC MODEL NUMBER AND THE DESCRIPTION, THE DESCRIPTION SHALL GOVERN.

PRIOR APPROVAL REQUIREMENTS

1. PRIOR APPROVAL IS REQUIRED BEFORE BIDDING THIS PROJECT.
2. PRIOR APPROVALS SHALL BE SUBMITTED TO THE ELECTRICAL ENGINEER'S OFFICE AT LEAST (8) EIGHT WORKING DAYS BEFORE THE BID. PRIOR APPROVALS RECEIVED AFTER THIS TIME PERIOD SHALL BE REJECTED.
3. PRIOR APPROVALS SHALL BE SIGNED BY A PRINCIPAL OF THE SUBMITTING ORGANIZATION STATING THAT THEY HAVE PREPARED AND/OR REVIEWED THE SUBMITTAL AND THAT THE PRODUCTS PROPOSED ARE EQUIVALENT TO THOSE SPECIFIED. ANY EXCEPTIONS SHALL BE SO NOTED.
4. ITEMS THAT ARE SUBMITTED AND HAVE BEEN APPROVED WILL BE LISTED IN THE ADDENDUM(S). VERBAL APPROVAL WILL NOT BE GIVEN ON ANY ITEM.
5. IT IS NOT THE RESPONSIBILITY OF THE ELECTRICAL ENGINEER TO NOTIFY THE SUBMITTING PARTY OF ERRORS IN THE SUBMITTAL. NOTIFICATION OF ERRORS BY THE ELECTRICAL ENGINEER PRIOR TO ISSUANCE OF THE ADDENDUM(S) MAY NOT BE GIVEN.
6. PRIOR APPROVALS SHALL CONSIST OF TWO SETS OF CUT SHEETS DESCRIBING THE PRODUCTS BEING SUBMITTED AS EQUIVALENTS. FAXES ARE NOT ACCEPTABLE. ALL SPECIFICATION INFORMATION SHALL BE CLEARLY MARKED, WITH NON-APPLICABLE INFORMATION CROSSED OUT. COMPLETE PHOTOMETRIC DATA SHALL BE PROVIDED. PRODUCTS WITHOUT PHOTOMETRIC DATA WILL NOT BE APPROVED.
7. SUPPLY POINT-BY-POINTS AS REQUIRED BY THE ELECTRICAL ENGINEER AND/OR LIGHTING DESIGNER.
8. SAMPLE FIXTURES MUST BE SUPPLIED WITH A CORD, PLUG AND 120V BALLAST.

LIGHTING SHOP DRAWING REQUIREMENTS

1. REFER TO SPECIFICATIONS 260500, 265100 & 265600 (16001, 16510 & 16551).
2. MUST INCLUDE BALLAST AND LAMP CUT SHEETS.
3. LINEAR LIGHTING MUST INCLUDE DETAILED DRAWINGS WITH SUPPORT DETAILS, STEM LOCATIONS AND HAVE ALL LENGTHS IDENTIFIED WITH STEM LOCATIONS.
4. COLOR SAMPLES MUST BE INCLUDED IN FIRST SUBMITTAL.
5. CUT SHEETS MUST BE STAMPED WITH THE FACTORY REPRESENTATIVE'S COMPANY NAME.
6. VALUE ENGINEERING CONDUCTED WITHOUT THE DESIGN TEAM IE; ARCHITECT, OWNER, ENGINEER & LIGHTING CONSULTANT/DESIGNER WILL NOT BE ALLOWED, REVIEWED OR APPROVED.
7. PROVIDE A LIST OF SPARE PARTS, EQUIPMENT & LAMPS.

Project Manager: Michelle Gutknecht

FIXTURE SCHEDULE

TYPE	DESCRIPTION	MFR.	CATALOG NUMBER	VOLTS	WATTS	LAMP
A1	1' x 4' RECESSED LED BASKET FIXTURE; CURVED OPAL CENTER DIFFUSER; SFBA AND SCBA; 0-10 DIMMING; 80,000 HOURS (L70); 5 YEAR WARRANTY.	PHILIPS DAY-BRITE	1EVG38L830-4-D-UNV-DIM + FMA14	120 V	29.5	3,800 LUMEN LED; 3000K CCT; 80+ CRI
A1E	1' x 4' RECESSED LED BASKET FIXTURE; CURVED OPAL CENTER DIFFUSER; SFBA AND SCBA; 0-10 DIMMING; 80,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 1100 LUMENS OVER 90 MINUTES MINIMUM.	PHILIPS DAY-BRITE	1EVG38L830-4-D-UNV-DIM-EMLED + FMA14	120 V	29.5	3,800 LUMEN LED; 3000K CCT; 80+ CRI
A2	2' x 2' RECESSED LED FLAT PANEL; SOLID FRAME AND FROSTED ACRYLIC LENS; SFBA AND SCBA; 0-10V DIMMING; 60,000 HOURS (L70); 5 YEAR WARRANTY.	FOCAL POINT	FTEL-22-ACS-2500L-30K-1C-UNV-LD1	120 V	27	2,500 LUMEN LED; 3000K CCT; 80+ CRI
A2a	2' x 2' RECESSED LED FLAT PANEL; HIGH OUTPUT; SOLID FRAME AND FROSTED ACRYLIC LENS; SFBA AND SCBA; 0-10V DIMMING; 60,000 HOURS (L70); 5 YEAR WARRANTY.	FOCAL POINT	FTEL-22-ACS-4000L-30K-1C-UNV-LD1	120 V	45	4,000 LUMEN LED; 3000K CCT; 80+ CRI
A2E	2' x 2' RECESSED LED FLAT PANEL; SOLID FRAME AND FROSTED ACRYLIC LENS; SFBA AND SCBA; 0-10V DIMMING; 60,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 1000 LUMENS OVER 90 MINUTES MINIMUM.	FOCAL POINT	FTEL-22-ACS-2500L-30K-1C-UNV-LD1-EM	120 V	27	2,500 LUMEN LED; 3000K CCT; 80+ CRI
A2Ea	2' x 2' RECESSED LED FLAT PANEL; HIGH OUTPUT; SOLID FRAME AND FROSTED ACRYLIC LENS; SFBA AND SCBA; 0-10V DIMMING; 60,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 1000 LUMENS OVER 90 MINUTES MINIMUM.	FOCAL POINT	FTEL-22-ACS-4000L-30K-1C-UNV-LD1-EM	120 V	45	4,000 LUMEN LED; 3000K CCT; 80+ CRI
A3	2' x 4' RECESSED LED BASKET FIXTURE; CURVED OPAL CENTER DIFFUSER; SFBA AND SCBA; 0-10 DIMMING; 80,000 HOURS (L70); 5 YEAR WARRANTY.	PHILIPS DAY-BRITE	2EVG54LH830-4-D-UNV-DIM	120 V	39.4	5,400 LUMEN LED; 3000K CCT; 80+ CRI
A3E	2' x 4' RECESSED LED BASKET FIXTURE; CURVED OPAL CENTER DIFFUSER; SFBA AND SCBA; 0-10 DIMMING; 80,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 1100 LUMENS OVER 90 MINUTES MINIMUM.	PHILIPS DAY-BRITE	2EVG54LH830-4-D-UNV-DIM-EMLED	120 V	39.4	5,400 LUMEN LED; 3000K CCT; 80+ CRI
D1	4" RECESSED LED DOWNLIGHT WITH TRIM AND FLANGE KIT; 54DEG MEDIUM BEAM; CLEAR REFLECTOR; SFBA AND SCBA; 0-10V DIMMING; 50,00 HOURS (L70); 5 YEAR WARRANTY.	CONTECH LIGHTING	R4NC230K12D-C4322M-CLR	120 V	14	1,400 LUMEN LED; 3000K CCT; 80+ CRI
D1E	4" RECESSED LED DOWNLIGHT WITH TRIM AND FLANGE KIT; 54DEG MEDIUM BEAM; CLEAR REFLECTOR; SFBA AND SCBA; 0-10V DIMMING; 50,00 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 700 LUMENS OVER 90 MINUTES MINIMUM.	CONTECH LIGHTING	R4NC230K12D-ER-C4322M-CLR	120 V	14	1,400 LUMEN LED; 3000K CCT; 80+ CRI
D2	4" RECESSED LED DOWNLIGHT WITH TRIM AND FLANGE KIT; LENSED WALL WASH TRIM; CLEAR REFLECTOR; SFBA AND SCBA; 0-10V DIMMING; 50,00 HOURS (L70); 5 YEAR WARRANTY.	CONTECH LIGHTING	R4NC230K12D-C4323-CLR	120 V	14	1,400 LUMEN LED; 3000K CCT; 80+ CRI
D3	7" RECESSED LED DOWNLIGHT WITH TRIM AND FLANGE KIT; 55DEG MEDIUM BEAM; COMFORT CLEAR REFLECTOR; SFBA AND SCBA; 0-10V DIMMING; 60,00 HOURS (L90); 5 YEAR WARRANTY.	PHILIPS CALCULITE	C7RN + C6L35830MU + C7RDLNMCC	120 V	36	3,500 LUMEN LED; 3000K CCT; 80+ CRI
D3E	7" RECESSED LED DOWNLIGHT WITH TRIM AND FLANGE KIT; 55DEG MEDIUM BEAM; COMFORT CLEAR REFLECTOR; SFBA AND SCBA; 0-10V DIMMING; 60,00 HOURS (L90); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 1000 LUMENS OVER 90 MINUTES MINIMUM.	PHILIPS CALCULITE	C7RN + C6L35830MU + C7RDLNMCC + CAEM	120 V	36	3,500 LUMEN LED; 3000K CCT; 80+ CRI
F1E	4' LED ELEVATOR PIT LIGHT; SURFACE MOUNT; VAPORTIGHT; SFBA AND SCBA; WET LOCATION LISTED; 0-10V DIMMING; 50,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 450 LUMENS OVER 90 MINUTES MINIMUM.	COOPER METALUX	VT-LD2-58DR-EL400-120V-L835-CD2-WL	120 V	71	5,800 LUMEN LED; 3500K CCT; 80+ CRI
L1Es	2" SUSPENDED DIRECT LINEAR LED; ALUMINUM HOUSING AND WHITE PAINTED REFLECTOR; PROVIDE IN LENGTHS AS REQUIRED TO RUN CONTINUOUS PER PLAN; SFBA AND SCBA; 4' ADJUSTABLE AIRCRAFT CABLE AND JUNCTION BOX MOUNTING; 0-10V DIMMING; 125,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 1000 LUMENS OVER 90 MINUTES MINIMUM.	PINNACLE ARCHITECTURAL LIGHTING	EX1-BW-830HO-##-AC48JB-U-OL1-1-BS	120 V	9.3 W/FT	604 LUMEN/FT LED; 3500K CCT; 80+ CRI
L1Ew	2" DIRECT LINEAR LED; ALUMINUM HOUSING AND WHITE PAINTED REFLECTOR; PROVIDE IN LENGTHS AS REQUIRED TO RUN CONTINUOUS PER PLAN; SFBA AND SCBA; WALL MOUNT; 0-10V DIMMING; 125,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 1000 LUMENS OVER 90 MINUTES MINIMUM.	PINNACLE ARCHITECTURAL LIGHTING	EX1-WHE-830HO-##-WA-U-OL1-1-BS	120 V	9.3 W/FT	676 LUMEN/FT LED; 3500K CCT; 80+ CRI
L1s	2" SUSPENDED DIRECT LINEAR LED; ALUMINUM HOUSING AND WHITE PAINTED REFLECTOR; PROVIDE IN LENGTHS AS REQUIRED TO RUN CONTINUOUS PER PLAN; SFBA AND SCBA; 4' ADJUSTABLE AIRCRAFT CABLE AND JUNCTION BOX MOUNTING; 0-10V DIMMING; 125,000 HOURS (L70); 5 YEAR WARRANTY.	PINNACLE ARCHITECTURAL LIGHTING	EX1-BW-830HO-##-AC48JB-U-OL1-1-0	120 V	9.3 W/FT	604 LUMEN/FT LED; 3500K CCT; 80+ CRI
L1w	2" DIRECT LINEAR LED; ALUMINUM HOUSING AND WHITE PAINTED REFLECTOR; PROVIDE IN LENGTHS AS REQUIRED TO RUN CONTINUOUS PER PLAN; SFBA AND SCBA; WALL MOUNT; 0-10V DIMMING; 125,000 HOURS (L70); 5 YEAR WARRANTY.	PINNACLE ARCHITECTURAL LIGHTING	EX1-WHE-830HO-##-WA-U-OL1-1-0	120 V	9.3 W/FT	676 LUMEN/FT LED; 3500K CCT; 80+ CRI
OD1	4" RECESSEDLENSED LED DOWNLIGHT WITH TRIM AND FLANGE KIT; CLEAR REFLECTOR AND CLEAR LOWER CONE; SFBA AND SCBA; WET LOCATION LISTED; 0-10V DIMMING; 50,00 HOURS (L70); 5 YEAR WARRANTY.	CONTECH LIGHTING	R4NC230K12D-C4327-CLR-CLR	120 V	14	1,400 LUMEN LED; 3000K CCT; 80+ CRI
OD1E	4" RECESSEDLENSED LED DOWNLIGHT WITH TRIM AND FLANGE KIT; CLEAR REFLECTOR AND CLEAR LOWER CONE; SFBA AND SCBA; WET LOCATION LISTED; 0-10V DIMMING; 50,00 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 700 LUMENS OVER 90 MINUTES MINIMUM.	CONTECH LIGHTING	R4NC230K12D-ER-C4327-CLR-CLR	120 V	14	1,400 LUMEN LED; 3000K CCT; 80+ CRI
OW1		SHAPER		120 V	13	LED
P1	DECORATIVE PENDANT; ANTIQUE BRONZE FINISH; INTEGRAL TRANSFORMER TO 12V. MLV OR ELV DIMMABLE PER TRANSFORMER.	TECH LIGHTING	600MCRGS-FJ-Z-LED930	120 V	8	310 LUMEN LED; 3000K CCT; 90+ CRI
P2	DECORATIVE PENDANT; 360DEG LED EDGE-LIT ALUMINIUM PANELS WITH SILICA GEL DIFFUSERS; ADJUSTABLE RINGS FOR CUSTOMIZABLE FORM; 28" DIAMETER; BLACK FINSIH; 0-10V DIMMING; 84,000 HOURS.	MODERN FORMS	PD-61728-BK	120 V	110	3,328 LUMEN LED; 3000K CCT; 80+ CRI
P3	DECORATIVE PENDANT; 360DEG LED EDGE-LIT ALUMINIUM PANELS WITH SILICA GEL DIFFUSERS; ADJUSTABLE RINGS FOR CUSTOMIZABLE FORM; 38" DIAMETER; BLACK FINSIH; 0-10V DIMMING; 84,000 HOURS.	MODERN FORMS	PD-61738-BK	120 V	202	4,374 LUMEN LED; 3000K CCT; 80+ CRI
S1Es	4' SUSPENDED LED STRIP; SYMMETRIC REFLECTOR; DROP LENS DIFFUSER; SFBA AND SCBA; 0-10V DIMMING; 100,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH CHAIN HANGER SET. PROVIDE WITH EMERGENCY BATTERY CAPABLE OF PRODUCING 1100 LUMENS OVER 90 MINUTES MINIMUM.	PHILIPS DAY-BRITE	FSS440L830-UNV-DIM-EMLED + FKR-136	120 V	31	4,000 LUMEN LED; 3000K CCT; 80+ CRI
S1s	4' SUSPENDED LED STRIP; SYMMETRIC REFLECTOR; DROP LENS DIFFUSER; SFBA AND SCBA; 0-10V DIMMING; 100,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH CHAIN HANGER SET.	PHILIPS DAY-BRITE	FSS440L830-UNV-DIM + FKR-136	120 V	31	4,000 LUMEN LED; 3000K CCT; 80+ CRI
S2s	2' SUSPENDED LED STRIP; SYMMETRIC REFLECTOR; DROP LENS DIFFUSER; SFBA AND SCBA; 0-10V DIMMING; 100,000 HOURS (L70); 5 YEAR WARRANTY. PROVIDE WITH CHAIN HANGER SET.	PHILIPS DAY-BRITE	FSS220L830-UNV-DIM + FKR-136	120 V	17	2,000 LUMEN LED; 3000K CCT; 80+ CRI
W1	NARROW PROFILE WRAP RESTROOM VANITY FIXTURE; STEEL HOUSING AND ACRYLIC LENS; WALL MOUNTED; SFBA AND SCBA; 0-10V DIMMING; 150,000 HOURS (L70); 5 YEAR WARRANTY.	PRUDENTIAL LIGHTING	HSS-LED3-MO-3-SAL-YGW-SC-UNV-SUR-D M10	120 V	16.5	1,875 LUMEN LED; 3000K CCT; 80+ CRI
X1				120 V		

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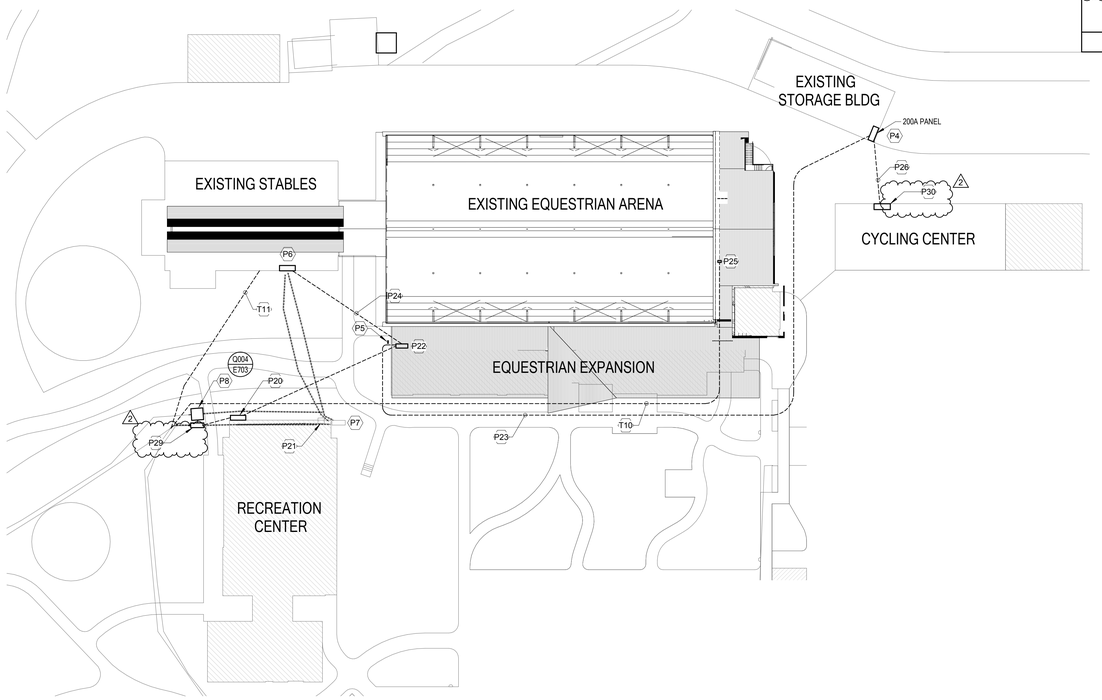
SCHEDULES

E002

SHEET KEYNOTES	
P4	REPLACE EXISTING PANEL IN THE STORAGE BUILDING WITH NEW 120/208V PANEL. DEMOLISH ANY ASSOCIATED RACEWAY AND WIRE WITH EXISTING PANEL SERVICE TO THIS LOCATION AND PROVIDE NEW SERVICE AS SHOWN IN THE SITE PLAN. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROTECT ANY WIRING AND RACEWAY THAT WILL REMAIN OR BE RELOCATED DURING CONSTRUCTION AND WILL BE RESPONSIBLE TO REPLACE IF IT BECOMES DAMAGED WITHOUT ADDITIONAL COST TO THE OWNER. ENSURE CIRCUIT CONTINUITY FOR OTHER DEVICES OR EQUIPMENT ON THE SAME BRANCH CIRCUIT.
P5	PROVIDE (2) 2" STUB UP CONDUIT FROM MAIN SERVICE IN EQUESTRIAN CENTER TO THIS LOCATION FOR FUTURE USE. COORDINATE EXACT LOCATION OF STUB UPS WITH ARCHITECT PRIOR TO ROUGH-IN. CAP AND MARK ALL CONDUITS WITH A 6" ROUND BOX.
P6	RE-FEED SERVICE PANEL IN STABLE FROM NEW MAIN SERVICE IN EQUESTRIAN CENTER. PROVIDE A STEP-UP TRANSFORMER AS NEEDED TO STEP UP THE VOLTAGE FROM 208V TO 240V FOR EXISTING DISTRIBUTION. DEMOLISH ALL RELATED EQUIPMENT WITH PREVIOUS SERVICE INTO STABLE BUILDING INCLUDING BUT NOT LIMITED TO ALL RELATED CONDUCTORS, RACEWAY, JUNCTION AND SPLICE BOXES UP TO THE PANELBOARD/SWITCHBOARD.
P7	EXISTING UTILITY GROUND SLEEVE TO BE RELOCATED. COORDINATE WITH UTILITY FOR EXACT LOCATION.
P8	LOCATION OF NEW 120/208V 3-PHASE SERVICE TRANSFORMER. COORDINATE WITH ROCKY MOUNTAIN POWER FOR EXACT LOCATION OF PAD TO INTERCEPT THE EXISTING TRENCHING AND COORDINATE WITH UTILITY TO PROVIDE MINIMUM DOWNTIME OF OTHER BUILDINGS AT THE TIME OF THE RELOCATION OF THE TRANSFORMER. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE PAD FOR NEW SERVICE TRANSFORMER. REFER TO DETAIL INDICATED ON THE DRAWINGS.
P20	NEW CT ENCLOSURE WITH UTILITY METER FOR EQUESTRIAN ADDITION. PROVIDE A NEMA 3R ENCLOSURE FOR CT METER. REFER TO ONELINE ON SHEET E501 FOR ADDITIONAL INFORMATION
P21	EXISTING 240V SINGLE PHASE TRANSFORMER TO BE DEMOLISHED. COORDINATE WITH UTILITY AND REMOVE ALL CONDUIT TO THIS LOCATION.
P22	NEW SERVICE SWITCHBOARD IN EQUESTRIAN CENTER EXPANSION.
P23	PROVIDE 3" CONDUIT TO BACK FEED EXISTING PANEL IN STORAGE BUILDING. REFER TO ONE-LINE ON SHEET E501 FOR ADDITIONAL INFORMATION ON WIRE SIZE.
P24	FIELD COORDINATE SIZE OF PANEL IN STABLE THAT NEEDS TO BE BACKFED AND PROVIDE NECESSARY CONDUIT FROM EQUESTRIAN CENTER TO EXISTING ELECTRICAL ROOM. REFER TO ONE-LINE IN SHEET E501 FOR ADDITIONAL INFORMATION.
P25	DATA RACK IN ELECTRICAL ROOM. REFER TO SHEET E301 FOR ADDITIONAL INFORMATION ON DEMARCATION LOCATION.
P26	PROVIDE 2" CONDUIT TO FEED EXISTING 100A PANEL IN THE CYCLING CENTER. REFER TO ONE-LINE ON SHEET E501 FOR ADDITIONAL INFORMATION ON WIRE SIZE.
P29	Relocate existing ground-sleeve noted in keynote P7 to this area near the utility transformer. Coordinate exact location of ground-sleeve with utility prior to rough-in.
P30	EXISTING 100A PANEL IN CYCLING CENTER. EXISTING PANEL TO BE RE-FED FROM NEW 120/208V PANEL IN THE STORAGE BUILDING AS SHOWN IN THE SITE PLAN. REMOVE ANY ASSOCIATED RACEWAY AND WIRES RELATED TO THE SERVICE FEED.
T10	PROVIDE (1) 4" CONDUIT FROM ALLWEST PEDESTAL BOX TO DEMARCATION POINT INSIDE THE EQUESTRIAN CENTER BUILDING. COORDINATE WITH UTILITY FOR EXACT SIZE OF CONDUIT FOR SERVICE PRIOR TO ROUGH-IN.
T11	PROVIDE (1) 4" CONDUIT BETWEEN EXISTING PEDESTAL TO EXISTING DEMARCATION LOCATION IN EXISTING EQUESTRIAN BUILDING. COORDINATE WITH SERVICE PROVIDER.



ELECTRICAL SITE PLAN
SCALE = 1/32" = 1'-0"

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NEXUS PROJ. #: 17179
CHECKED BY: AL
DRAWN BY: BHH
DATE: 04/14/18

ELECTRICAL SITE PLAN

E101

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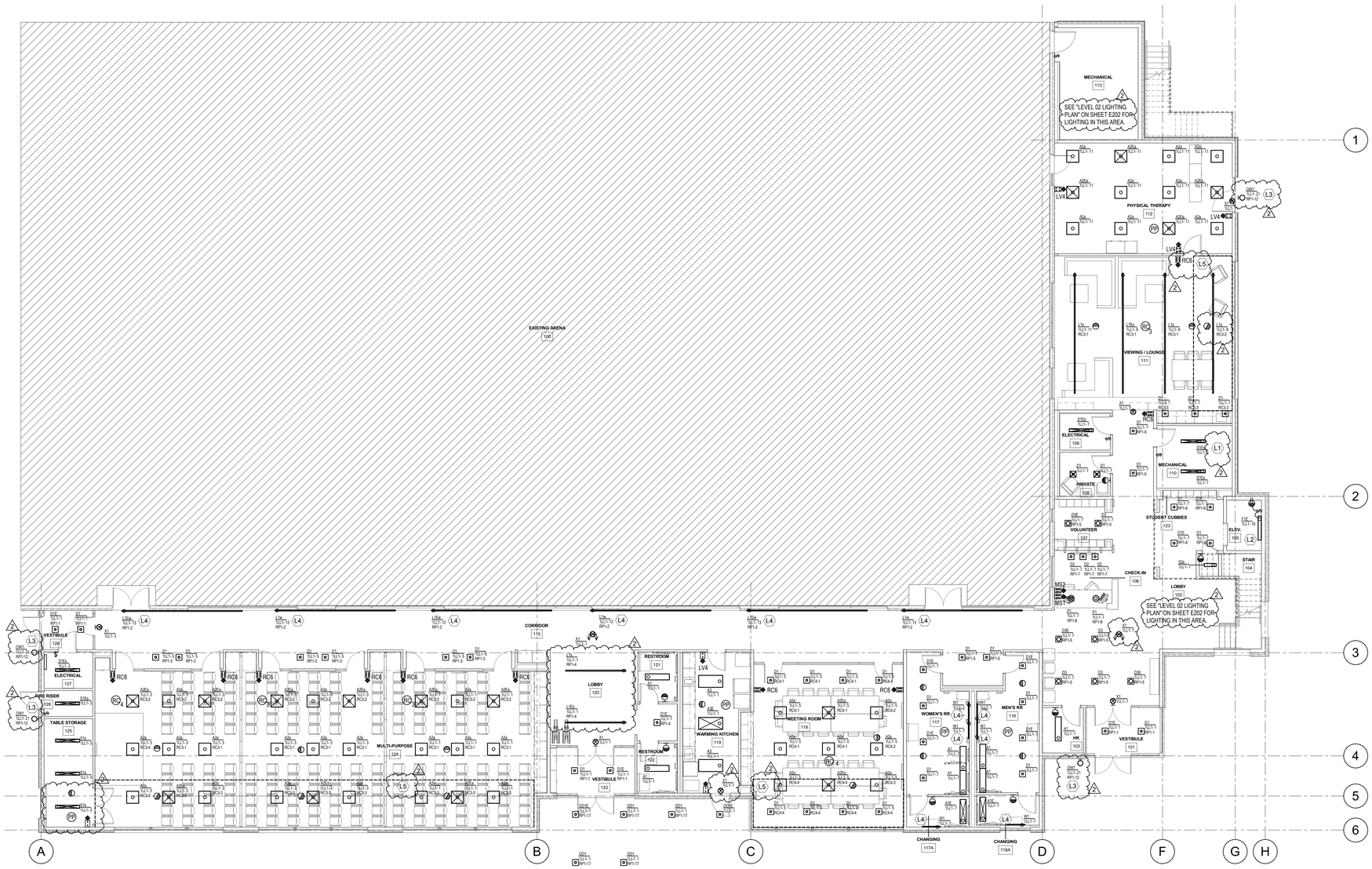
GENERAL NOTES

1. PROVIDE UNSWITCHED HOT TO ALL EMERGENCY LIGHTS AND LIGHT FIXTURES WITH BATTERY PACKS FOR EMERGENCY POWER.
2. SEE LIGHTING LIGHTING CONTROL SWITCH CONFIGURATION DIAGRAMS ON SHEET E703 FOR ADDITIONAL LIGHTING CONTROL INFORMATION.

SHEET KEYNOTES

L1	FIXTURE LAYOUT FOR REFERENCE ONLY. ADJUST LOCATION TO PROVIDE EVEN ILLUMINATION AND TO AVOID OBSTRUCTION OF ILLUMINATION BY PIPES, DUCTS, EQUIPMENT, ETC. SUSPEND FISTURES ON CHAINS OR SURFACE MOUNT TO UNISTRUT AS REQUIRED.
L2	COORDINATE LOCATOIN OF ELEVATOR PIT FIXTURES WITH ELEVATOR SHOP DRAWINGS FOR PROPER ILLUMINATION OF THE PIT. LOCATION OF SWITCH AT ACCESS DOOR.
L3	CONFIRM FINAL LOCATION AND MOUNTING HEIGHTS WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
L4	CONFIRM FINAL LOCATION AND MOUNTING HEIGHT OF WALL MOUNTED LIGHTING FIXTURES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
L5	DAY-LIGHT ZONING IN THIS REGION.



LEVEL 01 LIGHTING PLAN
SCALE = 1/8" = 1'-0"

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LEVEL 01 LIGHTING PLAN

E201

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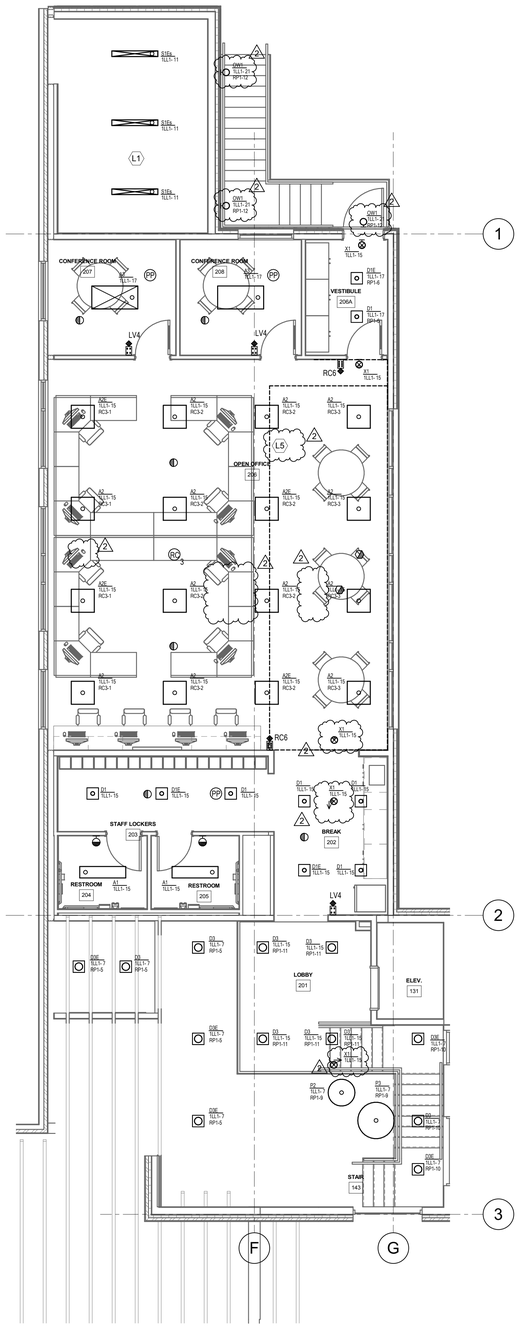
GENERAL NOTES

1. PROVIDE UNSWITCHED HOT TO ALL EMERGENCY LIGHTS AND LIGHT FIXTURES WITH BATTERY BASED EMERGENCY POWER.
2. SEE LIGHTING LIGHTING CONTROL SWITCH CONFIGURATION DIAGRAMS ON SHEET E703 FOR ADDITIONAL LIGHTING CONTROL INFORMATION.

SHEET KEYNOTES

L1	FIXTURE LAYOUT FOR REFERENCE ONLY. ADJUST LOCATION TO PROVIDE EVEN ILLUMINATION AND TO AVOID OBSTRUCTION OF ILLUMINATION BY PIPES, DUCTS, EQUIPMENT, ETC. SUSPEND FISTURES ON CHAINS OR SURFACE MOUNT TO UNISTRUT AS REQUIRED.
L5	DAY-LIGHT ZONING IN THIS REGION.



LEVEL 02 LIGHTING PLAN
SCALE = 3/16" = 1'-0"

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LEVEL 02 LIGHTING PLAN

E202

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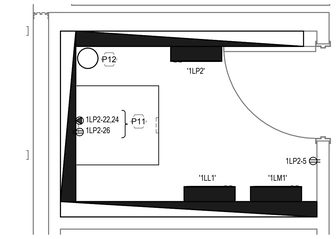
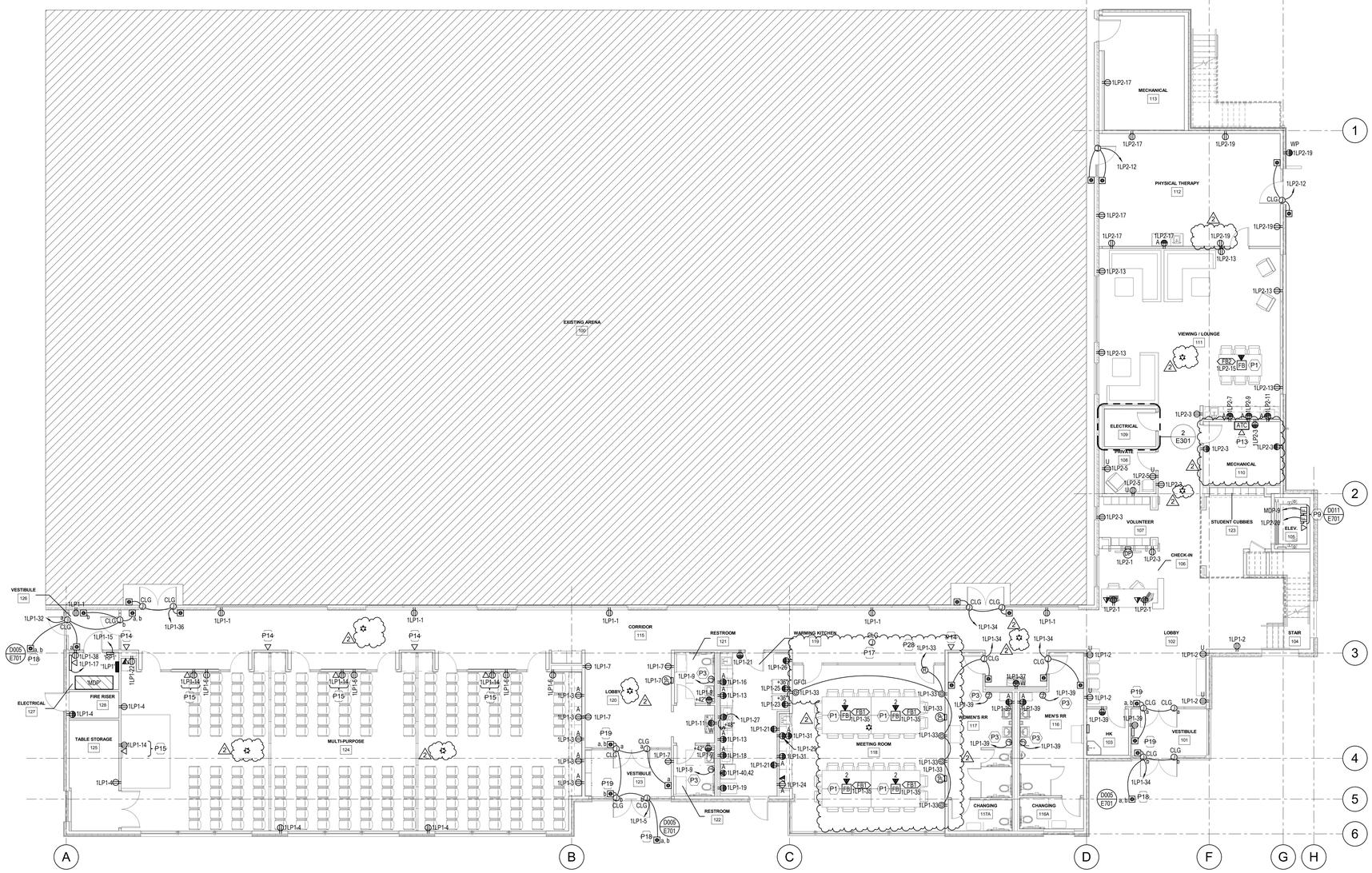


2 ELECTRICAL ROOM 109 ENLARGED
SCALE = 1/2" = 1'-0"

SHEET KEYNOTES

P1	COORDINATE EXACT LOCATION OF INDICATED DEVICES WITH WITH ARCHITECT AND FURNITURE SHOP DRAWINGS PRIOR TO ROUGH-IN.
P3	PROVIDE POWER CONNECTION TO AUTOMATIC PAPER TOWEL DISPENSER. CONFIRM FINAL LOCATION WITH ARCHITECT AND ALL REQUIREMENTS WITH MANUFACTURER PRIOR TO ROUGH-IN.
P9	COORDINATE EXACT ELECTRICAL REQUIREMENTS WITH ELEVATOR MANUFACTURER AND SHOP DRAWINGS PRIOR TO ROUGH-IN.
P11	PROVIDE (1) NEMA L6-30R, 208V TWIST LOCK RECEPTACLE. FIELD DETERMINE EXACT LOCATION OF RECEPTACLES WITH EQUIPMENT RACK.
P12	PROVIDE (1) 4" CONDUIT IN TELECOM ROOM FROM UTILITY PEDESTAL ON SITE. REFER TO SHEET E101 FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
P13	PROVIDE 120V AND A SINGLE DATA CABLE FOR ATC PANEL. COORDINATE EXACT LOCATION OF CONTROL PANEL WITH CONTROLS CONTRACTOR TO ROUGH-IN.
P14	DEVICE INDICATED IS FOR ROOM SCHEDULING SOFTWARE THAT IS PROVIDED BY OWNER. COORDINATE EXACT HEIGHT OF DEVICE WITH A/V DRAWINGS PRIOR TO ROUGH-IN.REFER TO SHEET ET301 FOR ADDITIONAL INFORMATION.
P15	POWER AND DATA FOR WALL MOUNTED PROJECTOR. REFER TO AUDIOVISUAL DRAWINGS ON SHEET ET301 FOR INFORMATION ON LOCATION PRIOR TO ROUGH-IN.
P17	PROVIDE 120V 1 PHASE CIRCUIT TO VAV BOX ABOVE THE CEILLING. COORDINATE EXACT LOCATION OF THE JUNCTION BOX WITH MICHANINCAL ENGINEER PRIOR TO ROUGH-IN.
P18	PROVIDE PEDESTAL FOR ADA AND ACCESS CONTROL DEVICES. MOUNT ADA PUSH BUTTON TO PEDESTAL. COORDINATE MOUNTING REQUREMENTS WITH SHOP DRAWINGS PRIOR TO ROUH-IN.
P19	MULLION MOUNTED ADA PUSH BUTTON. COORDINATE WITH ARCHITECT PRIOR TO ROUGH-IN. REFER TO SHEET E701 FOR DETAILS.
P28	INDICATED CIRCUIT AT ROOM CONTROLLER IS TO CONTROL RECEPTACLES THAT IS WIRED TO CONTROLLED RECEPTACLES SHALL BE ROUTED THROUGH RECEPTACLE SWITCH PACK. SWITCH PACK SHALL BE CONTROLLED BY ROOM CONTROLLER. SEE DIAGRAM 3 ON SHEET E703 FOR ADDITIONAL INFORMATION.



LEVEL 01 POWER PLAN
SCALE = 1/8" = 1'-0"

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CHECKED BY: AL
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LEVEL 01 POWER PLAN

E301

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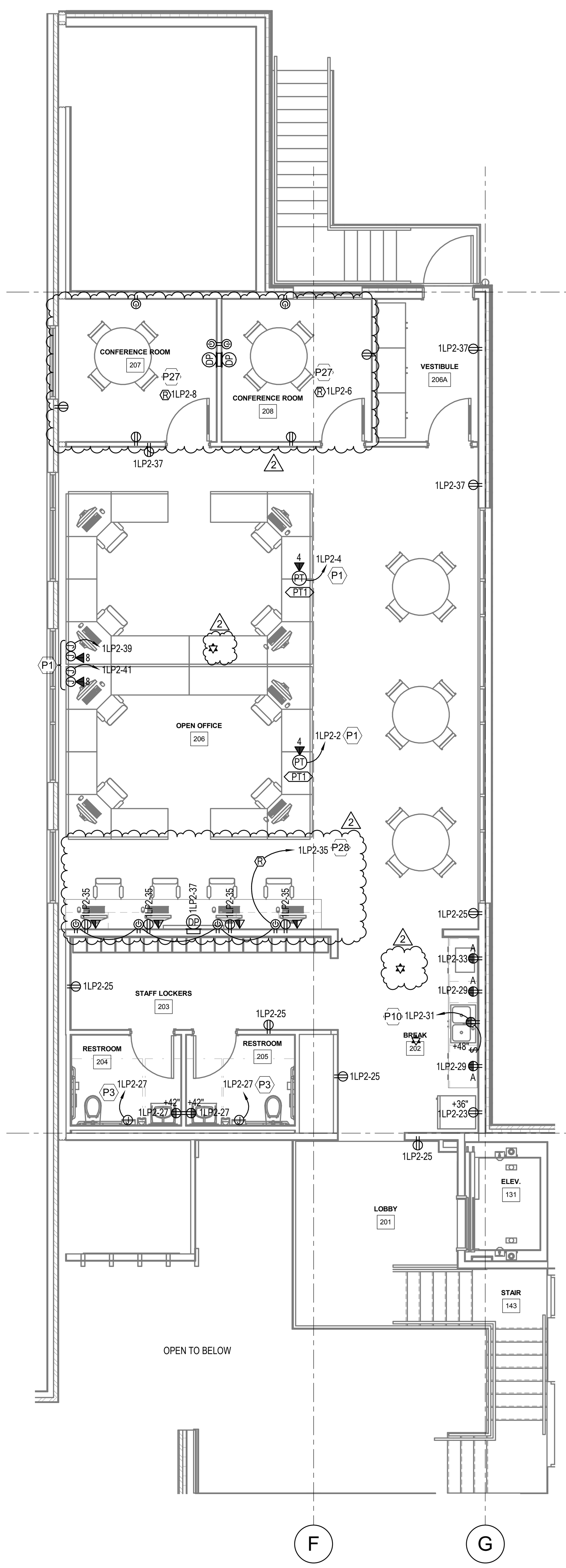
SHEET KEYNOTES

P1	COORDINATE EXACT LOCATION OF INDICATED DEVICES WITH WITH ARCHITECT AND FURNITURE SHOP DRAWINGS PRIOR TO ROUGH-IN.
P3	PROVIDE POWER CONNECTION TO AUTOMATIC PAPER TOWEL DISPENSER. CONFIRM FINAL LOCATION WITH ARCHITECT AND ALL REQUIREMENTS WITH MANUFACTURER PRIOR TO ROUGH-IN.
P10	PROVIDE GFCI RECEPTACLE FOR GARBAGE DISPOSAL.
P27	CIRCUIT INDICATED IS FOR ALL DEVICES IN ROOM. CONTROLLED RECEPTACLE SHALL BE ROUTED THROUGH RECEPTACLE SWITCH PACK. SWITCH PACK SHALL BE CONTROLLED BY ROOM CONTROLLER IN ROOM.
P28	INDICATED CIRCUIT AT ROOM CONTROLLER IS TO CONTROL RECEPTACLES THAT IS WIRED TO CONTROLLED RECEPTACLES SHALL BE ROUTED THROUGH RECEPTACLE SWITCH PACK. SWITCH PACK SHALL BE CONTROLLED BY ROOM CONTROLLER. SEE DIAGRAM 3 ON SHEET E703 FOR ADDITIONAL INFORMATION.



LEVEL 02 POWER PLAN
SCALE = 3/16" = 1'-0"

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LEVEL 02 POWER PLAN

E302

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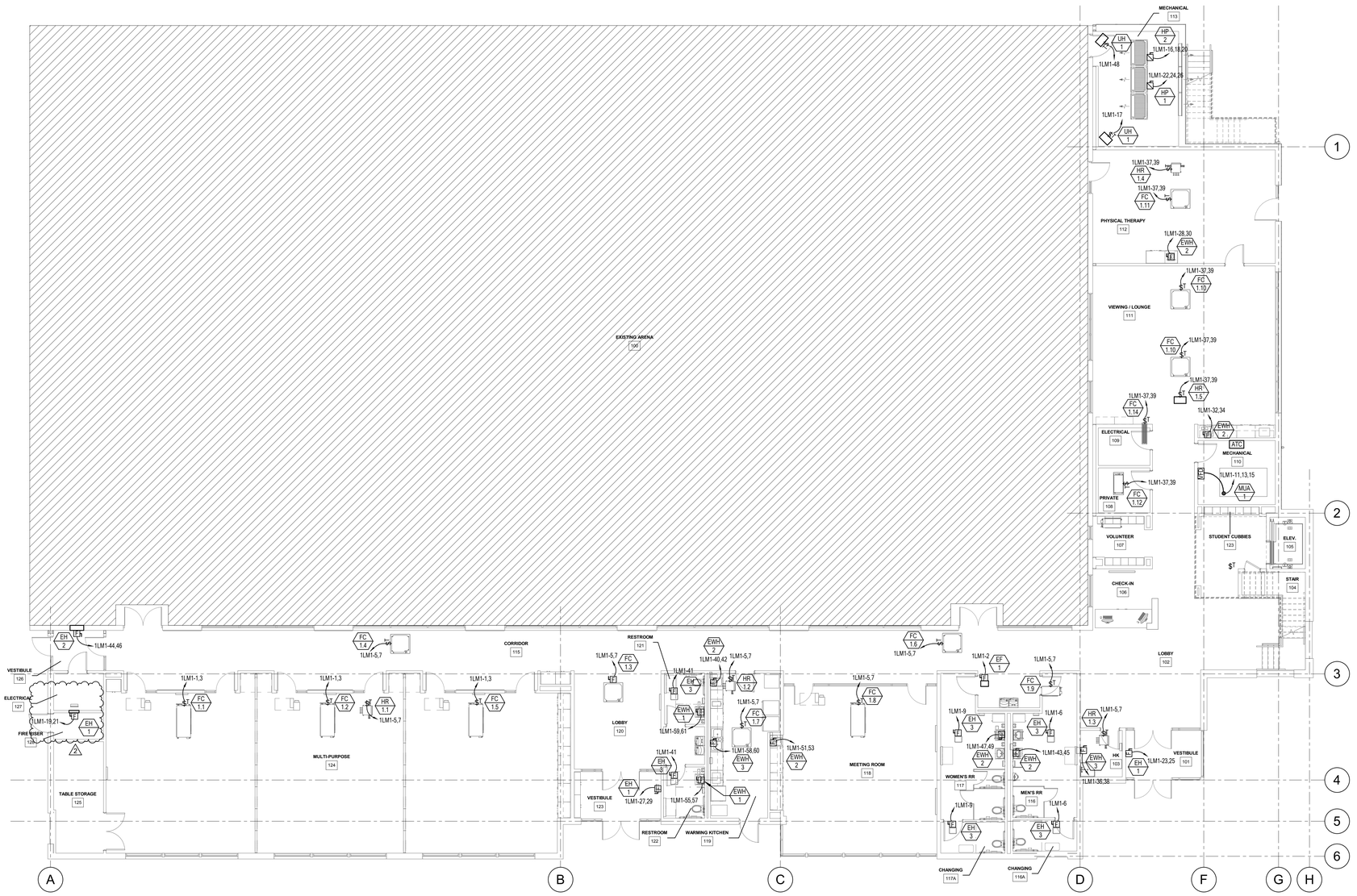

LEVEL 01 MECHANICAL POWER PLAN

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

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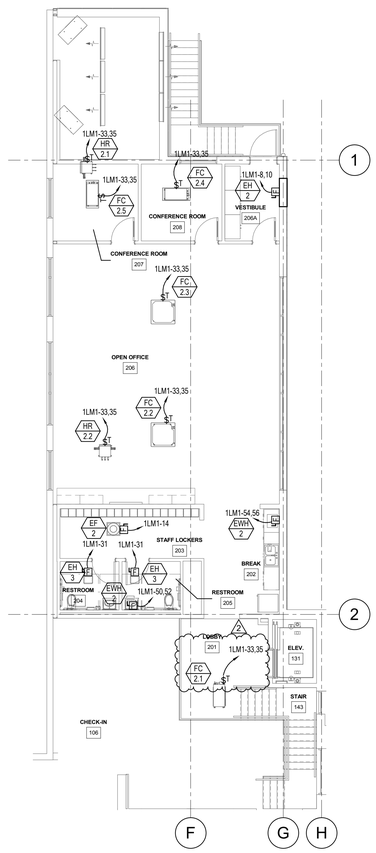
LEVEL 01 MECHANICAL POWER PLAN

E303



LEVEL 02 MECHANICAL POWER PLAN
SCALE = 1/8" = 1'-0"

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#	Date	Revision
1	06/25/18	Addendum 1
2	06/29/18	Addendum 2

CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 17179
CHECKED BY: Checker
DRAWN BY: Author
DATE: 04/14/18

LEVEL 02 MECHANICAL POWER PLAN

E304

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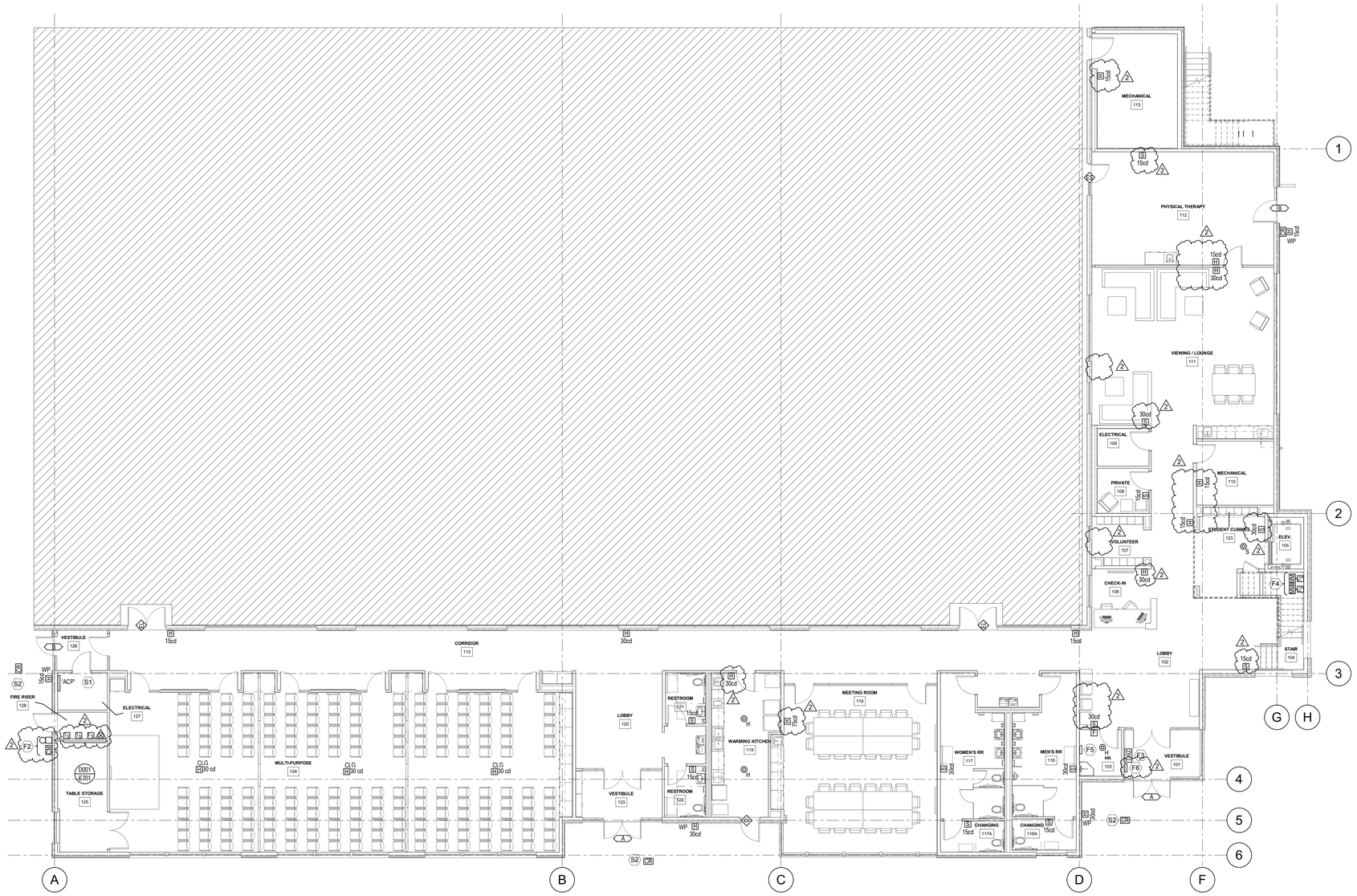

LEVEL 01 SYSTEMS PLAN
SCALE = 1/8" = 1'-0"

GENERAL NOTES

1. PROVIDE RACEWAY, CONDUIT, AND WIRING FOR SECURITY DEVICES INDICATED.
2. PROVIDE CONCEALED 3/4" C TYPICAL FOR LINES SHOWN TO SECURITY DEVICES. COORDINATE ALL JUNCTION BOX ROUGH-IN LOCATIONS WITH THE OWNER AND ACCESS SYSTEM CONTROL SYSTEM SUPPLIER PRIOR TO ANY ROUGH-IN.
3. DIVISION 8 AND DIVISION 28 CONTRACTORS SHALL COORDINATE WITH ELECTRICAL CONTRACTORS TO OUTLINE POWER AND WIRING FOR DEVICES AND EXACT DEVICE LOCATION.
4. ALL CABLING TO DEVICES THAT ARE INSTALLED WITHIN DOOR OR ON MULLIONS SHALL BE ROUTED THROUGH THE MULLIONS. COORDINATE INSTALLATION WITH THE WINDOW SYSTEM INSTALLER PRIOR TO ANY ROUGH-IN.
5. ELECTRONIC LOCKING HARDWARE (MAG LOCKS, ELECTRIC STRIKES, CRASH BARS, ETC.) BY DIV 8. REVIEW DOOR HARDWARE SCHEDULE FURNISHED AND VERIFY LOCK VOLTAGES AND OPERATIONAL FUNCTIONALITY OF LOCKS MATCH DOOR.
6. POWER SUPPLIES FOR ELECTRONIC LOCKS AND ACCESS CONTROL DEVICES PROVIDED BY DIVISION 28 CONTRACTOR. COORDINATE WITH DIVISION 8 FOR EXACT POWER REQUIREMENTS
7. ACCESS CONTROL SYSTEM SHALL INCLUDE ANY RELAYS, EXTERNAL POWER SUPPLIES, AUXILIARY DEVICES OR INPUT/OUTPUT MODULES REQUIRED TO SUPPORT DOOR TYPE INDICATED FOR COMPLETE AND FUNCTIONING SYSTEM.
8. REQUEST TO EXIT AND DOOR CONTACT INDICATOR CIRCUITS SHALL BE SUPERVISED FOR OPEN CIRCUIT OR SHORT CIRCUIT FAULTS BETWEEN THE DEVICE CONTACTS AND ACCESS CONTROLLER.
9. PROVIDE 120V EMERGENCY CIRCUIT TO ALL FIRE/SMOKE DAMPERS RELAYS. NUMBER OF DEVICES PER CIRCUIT TO SHALL NOT EXCEED EIGHT. PROVIDE FIRE ALARM MODULES AND RELAYS AS NECESSARY FOR ALL FIRE/SMOKE DAMPERS SHOWN ON DIVISION 23 DRAWINGS. ALL FIRE/SMOKE DAMPERS SHALL HAVE A MANUAL OVERRIDE SWITCH. PROVIDE DUCT DETECTOR WITHIN 5'-0" OF EACH FIRE/SMOKE DAMPER. REFER TO DIAGRAM D012 IN SHEET E701 FOR ADDITIONAL INFORMATION.

SHEET KEYNOTES

F2	FIRE SPRINKLER BELL WITH CONTROL MODULE FOR RISER. COORDINATE WITH SPRINKLER CONTRACTOR FOR EXACT LOCATION OF HOSE CONNECTION IN THE OUTSIDE OF THE BUILDING PRIOR TO ROUGH-IN. PROVIDE BATTERY TO BELL.
F3	PROVIDE TWO-WAY COMMUNICATIONS SYSTEMS HEAD-END UNIT FOR NEW FIRE ALARM SYSTEM. PROVIDE A 120V DEDICATED CIRCUIT FROM 1LP1 AND ONE CATEGORY-6 CABLE AT THIS LOCATION. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
F4	PROVIDE MONITOR MODULE FOR EACH TAMPER SWITCH AND FLOW SWITCH ON EVERY LEVEL FOR MONITORING THE FIRE SPRINKLER RISER. COORDINATE WITH SPRINKLER CONTRACTOR TO VERIFY ALL ELECTRICAL NEEDS AND DEVICES PRIOR TO ROUGH-IN. REFER TO DIAGRAM D001 ON SHEET E701 FOR ADDITIONAL INFORMATION.
F5	PROVIDE (2) 120V SINGLE PHASE DEDICATED CIRCUITS AND (2) CATEGORY CABLE AT THIS LOCATION FOR FIRE ALARM CONTROL PANEL. COORDINATE EXACT LOCATION OF PANEL WITH ARCHITECT PRIOR TO ROUGH-IN.
F6	REMOTE FIRE ALARM ANNOUNCIATOR PANEL. REFER TO DIAGRAM D002 ON SHEET E701 FOR ADDITIONAL INFORMATION.
S1	PROVIDE DEDICATED 20AMP CIRCUIT FOR EACH ACCESS CONTROL PANEL.
S2	CARD READER AND ADA ACTUATOR ARE MOUNTED ON THE PEDASTAL.

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LEVEL 01 SYSTEMS PLAN

E401

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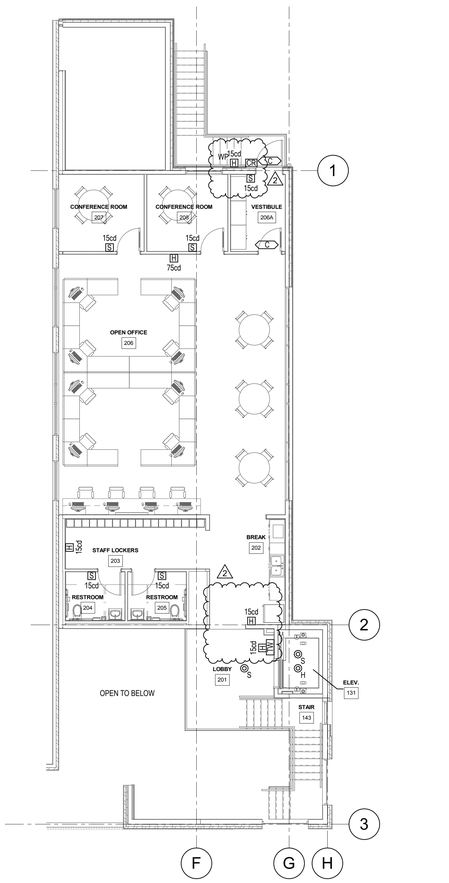

LEVEL 02 SYSTEM PLAN
SCALE = 1/8" = 1'-0"

GENERAL NOTES

1. PROVIDE RACEWAY, CONDUIT, AND WIRING FOR SECURITY DEVICES INDICATED.
2. PROVIDE CONCEALED 3/4" C TYPICAL FOR LINES SHOWN TO SECURITY DEVICES. COORDINATE ALL JUNCTION BOX ROUGH-IN LOCATIONS WITH THE OWNER AND ACCESS SYSTEM CONTROL SYSTEM SUPPLIER PRIOR TO ANY ROUGH-IN.
3. DIVISION 8 AND DIVISION 28 CONTRACTORS SHALL COORDINATE WITH ELECTRICAL CONTRACTORS TO OUTLINE POWER AND WIRING FOR DEVICES AND EXACT DEVICE LOCATION.
4. ALL CABLING TO DEVICES THAT ARE INSTALLED WITHIN DOOR OR ON MULLIONS SHALL BE ROUTED THROUGH THE MULLIONS. COORDINATE INSTALLATION WITH THE WINDOW SYSTEM INSTALLER PRIOR TO ANY ROUGH-IN.
5. ELECTRONIC LOCKING HARDWARE (MAG LOCKS, ELECTRIC STRIKES, CRASH BARS, ETC.) BY DIV 8. REVIEW DOOR HARDWARE SCHEDULE FURNISHED AND VERIFY LOCK VOLTAGES AND OPERATIONAL FUNCTIONALITY OF LOCKS MATCH DOOR.
6. POWER SUPPLIES FOR ELECTRONIC LOCKS AND ACCESS CONTROL DEVICES PROVIDED BY DIVISION 28 CONTRACTOR. COORDINATE WITH DIVISION 8 FOR EXACT POWER REQUIREMENTS
7. ACCESS CONTROL SYSTEM SHALL INCLUDE ANY RELAYS, EXTERNAL POWER SUPPLIES, AUXILIARY DEVICES OR INPUT/OUTPUT MODULES REQUIRED TO SUPPORT DOOR TYPE INDICATED FOR COMPLETE AND FUNCTIONING SYSTEM.
8. REQUEST TO EXIT AND DOOR CONTACT INDICATOR CIRCUITS SHALL BE SUPERVISED FOR OPEN CIRCUIT OR SHORT CIRCUIT FAULTS BETWEEN THE DEVICE CONTACTS AND ACCESS CONTROLLER.
9. PROVIDE 120V EMERGENCY CIRCUIT TO ALL FIRE/SMOKE DAMPERS RELAYS. NUMBER OF DEVICES PER CIRCUIT TO SHALL NOT EXCEED EIGHT. PROVIDE FIRE ALARM MODUELS AND RELAYS AS NECESSARY FOR ALL FIRE/SMOKE DAMPERS SHOWN ON DIVISION 23 DRAWINGS. ALL FIRE/SMOKE DAMPERS SHALL HAVE A MANUAL OVERRIDE SWITCH. PROVIDE DUCT DETECTOR WITHIN 5'-0" OF EACH FIRE/SMOKE DAMPER. REFER TO DIAGRAM D012 IN SHEET E701 FOR ADDITIONAL INFORMATION.

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LEVEL 02 SYSTEMS PLAN

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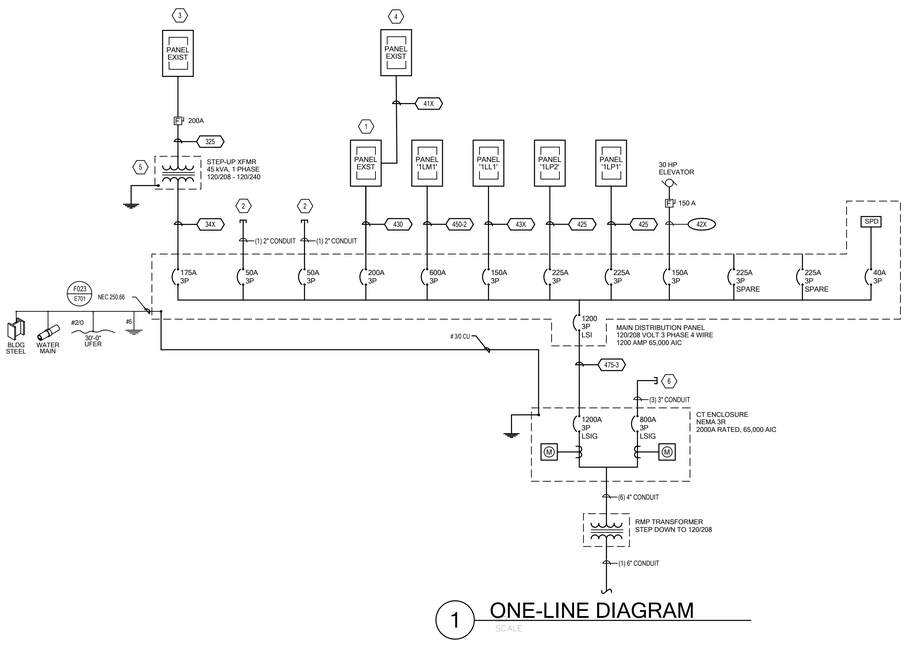

1 ONE-LINE DIAGRAM

SCALE

ONE-LINE GENERAL NOTES

1. PROVIDE PROTECTION DEVICE STUDY AS OUTLINED ON 26 0573 FOR THE NORMAL ELECTRICAL BRANCHES PRIOR TO SUBMITTAL OF PANELS.
2. PROVIDE DOOR-IN-DOOR COVERS FOR ALL PANELBOARDS.
3. SEE PLANS LOCATIONS OF PANELBOARDS, SWITCHBOARDS, TRANSFER SWITCHES, BUSWAY, TRANSFORMS,DISCONNECTS, ETC. PROVIDE NEMA 1(INDOOR) OR NEMA 3R(OUTDOOR) ENCLOSURES AS REQUIRED.
4. SUBMIT DIMENSIONED DRAWINGS OF ALL ELECTRICAL ROOMS WITH PANELBOARDS, SWITHCBOARDS, TRANSFER SWITCHES, SURGE PROTECTION, BUSWAY TRANSFORMERS, DISCONNECTS ETC. CLEARLY IDENTIFIED. DIMENSIONED DRAWINGS SHALL BE BASED UPON ACTUAL EQUIPMENT SIZED FROM SHOP DRAWINGS.
5. PROVIDE ARC FAULT REDUCTION SWITCH FOR ALL CIRCUIT BREAKERS RATED 1200 AMPS AND LESS.
6. PROVIDE ELECTRONIC TRIP CIRCUIT BREAKER FOR ALL CIRCUIT BREAKERS 600A AND ABOVE. REFER TO THE OVERCURRENT PROTECTION SPECIFICATION SECTION FOR ADDITIONAL REQUIREMENTS.

SHEET KEYNOTES

1. EXISTING PANEL IN BARN TO BE REPLACED WITH NEW 200A 42-CKT PANEL WITH 10,000 AIC RATING.
2. STUB-UPS LOCATED IN THE EXTERIOR OF THE BUILDING. PROVIDE 50A BREAKER FROM SWITCHBOARD AND NECESSARY RACEWAY TO LOCATION SHOWN IN SITE PLAN. FOR ADDITIONAL INFORMATION REFER TO SHEET E101.
3. EXISTING PANEL IN THE BARN TO BE RE-FED FROM NEW EQUESTRIAN CENTER BUILDING SERVICE. PROVIDE A BUCK-BOOST TRANSFORMER AS NEEDED IN ORDER TO PROVIDE NECESSARY VOLTAGE DISTRIBUTION TO BUILDING. REFER TO SHEET E101 FOR ADDITIONAL INFORMATION.
4. EXISTING PANEL IN BIKE SHOP TO BE RE-FED FROM PANEL IN THE BARN.
5. COORDINATE EXACT LOCATION OF NEW STEP-UP TRANSFORMER IN EXISTING STABLE WITH OWNER PRIOR TO ROUGH-IN. REFER TO ONE-LINE FOR ADDITIONAL INFORMATION ON LOCATION.
6. PROVIDE (3) 3" STUB UP CONDUIT FROM CT FOR FUTURE REC CENTER. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. MARK AND CAP CONDUITS WITH 6" ROUND BOX.

ALUMINUM CONDUCTOR & CONDUIT SCHEDULE

TYPE	AMP.	COND. SIZE	CONDUCTOR QUAN.		CONDUCTOR SIZE	INSUL-ATION	EQ. GND. COND.(AL)
31X	120	2"	3		1/0	XHHW-2	4
41X	120	2"	4		1/0	XHHW-2	4
51X	120	2"	5	*	1/0	XHHW-2	4
32X	135	2"	3		2/0	XHHW-2	4
42X	135	2"	4		2/0	XHHW-2	4
52X	135	2"	5	*	2/0	XHHW-2	4
33X	155	2"	3		3/0	XHHW-2	4
43X	155	2"	4		3/0	XHHW-2	4
53X	155	3"	5	*	3/0	XHHW-2	4
34X	180	2"	3		4/0	XHHW-2	4
44X	180	3"	4		4/0	XHHW-2	4
54X	180	3"	5	*	4/0	XHHW-2	2
325	205	2"	3		250	XHHW-2	2
425	205	3"	4		250	XHHW-2	2
525	205	3"	5	*	250	XHHW-2	2
330	230	3"	3		300	XHHW-2	2
430	230	3"	4		300	XHHW-2	2
530	230	3"	5	*	300	XHHW-2	2
335	250	3"	3		350	XHHW-2	2
435	250	3"	4		350	XHHW-2	2
535	250	3"	5	*	350	XHHW-2	2
340	270	3"	3		400	XHHW-2	2
440	270	3"	4		400	XHHW-2	2
540	270	3"	5	*	400	XHHW-2	2
350	310	4"	3		500	XHHW-2	1
450	310	4"	4		500	XHHW-2	1
550	310	4"	5	*	500	XHHW-2	1
375	385	4"	3		750	XHHW-2	1
475	385	4"	4		750	XHHW-2	1
575	385	4"	5	*	750	XHHW-2	1

ALUMINUM CONDUCTOR & CONDUIT SCHEDULE FOR PARALLEL RUNS

TYPE	MAX. O.C. PROT.	COND. AMPS	SETS	CONDUCTOR QUAN.	CONDUCTOR SIZE	CONDUIT SIZE	EQ. GND. COND.(AL)
325-2	400	410	2	3	250	2.5"	2/0
425-2	400	410	2	4	250	2.5"	2/0
525-2	400	410	2	5 *	250	2.5"	2/0
350-2	600	620	2	3	500	3"	2/0
450-2	600	620	2	4	500	3"	2/0
550-2	600	620	2	5 *	500	4"	2/0
375-2	800	770	2	3	750	3"	3/0
475-2	800	770	2	4	750	4"	3/0
575-2	800	770	2	5 *	750	4"	3/0
340-3	800	810	3	3	400	2.5"	3/0
440-3	800	810	3	4	400	3"	3/0
540-3	800	810	3	5 *	400	3"	3/0
375-3	1000	1155	3	3	750	4"	4/0
475-3	1000	1155	3	4	750	4"	4/0
575-3	1000	1155	3	5 *	750	4"	4/0
350-4	1200	1240	4	3	500	4"	250
450-4	1200	1240	4	4	500	4"	250
550-4	1200	1240	4	5 *	500	4"	250
340-6	1600	1620	6	3	400	4"	350
440-6	1600	1620	6	4	400	4"	350
540-6	1600	1620	6	5 *	400	4"	350
475-6	2000	2310	6	4	750	4"	400
475-7	2500	2695	7	4	750	5"	600
475-8	3000	3080	8	4	750	5"	600
475-11	4000	4235	11	4	750	5"	750

NOTES
IN PARALLEL RUNS SIZE GND. COND. IN ACCORDANCE WITH NEC PARA. 250-122.

GND. CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS

* 200% NEUTRAL
** COPPER CONDUCTOR (XHHW)

PROVIDE COMPACT STRANDED ALUMINUM ASSOCIATION 8000 SERIES ALLOY CONDUCTORS.

PROVIDE TERMINATION FOR ALUMINUM-ALLOY CONDUCTORS OF HYDRAULIC COMPRESSION TYPE ONLY LISTED UNDER UL 486-B MARKED "AL/CU" FOR 75° RATED CIRCUITS.

PROVIDE ALL ELECTRICAL EQUIPMENT WITH PROPER SIZING TO ACCOMMODATE ALUMINUM CONDUCTORS, COORDINATE WITH EQUIPMENT SUPPLIER.

ALUMINUM CONDUCTOR & O.C. PROT. FOR TRANSFORMER PRIMARY					ALUMINUM XHHW-2 CONDUCTOR & O.C. PROT. FOR TRANSFORMER SECONDARY △ 480-208/120 Y						
TRANS KVA	O.C. PROT.	TYPE COND.*	GND. COND.**	MIN. Z%	O.C. PROT.	TYPE COND.	COND. AMPS	SETS	CONDUCTOR QUAN.	CONDUCTOR SIZE	CONDUIT SIZE	EQ. GND. COND.
30	50	3E	8	3	100	T41X-1	120	1	4	1/0	1-1/2"	6
45	70	3A	4	3	175	T44X-1	180	1	4	4/0	3"	4
75	125	32X	2	3	225	T43S-1	250	1	4	350	3"	2
112.5	175	34X	2	4	400	T42S-2	410	2	4	250	3"	1
150	300	350	2/0	4	600	T45S-2	610	2	4	500	4"	2/0
225	400	375	3/0	4	800	T44S-3	810	3	4	400	4"	3/0
300	600	350-2	3/0	5	1200	T45S-4	1240	4	4	500	4"	250
500	800	340-3	3/0	5	1600	T44S-6	1620	6	4	400	4"	350
750	1200	350-4	3/0	5	3000	T45S-10	3100	10	4	500	4"	400***

ALUMINUM CONDUCTOR & O.C. PROT. FOR TRANSFORMER PRIMARY					ALUMINUM XHHW-2 CONDUCTOR & O.C. PROT. FOR TRANSFORMER SECONDARY (200% NEUTRAL △480-208/120 Y						
TRANS KVA	O.C. PROT.	TYPE COND.*	GND. COND.**	MIN. Z%	O.C. PROT.	TYPE COND.	COND. AMPS	SETS	CONDUCTOR QUAN.	CONDUCTOR SIZE	CONDUIT SIZE	EQ. GND. COND.
30	50	3E	8	3	100	T51X-1	120	1	5	1/0	2"	6
45	70	3A	4	3	175	T54S-1	180	1	5	4/0	3"	4
75	125	32X	2	3	225	T53S-2	250	1	5	350	3"	2
112.5	175	34X	2	4	400	T52S-2	410	2	5	250	3"	1
150	300	350	2/0	4	600	T55S-2	610	2	5	500	4"	2/0
225	400	375	3/0	4	800	T54S-3	810	3	5	400	4"	3/0
300	600	350-2	3/0	5	1200	T55S-4	1240	4	5	500	4"	250
500	800	340-3	3/0	5	1600	T54S-6	1620	6	5	400	4"	350
750	1200	350-4	3/0	5	3000	T55S-10	3100	10	5	500	4"	400***

* SEE SCHEDULE FOR CONDUIT AND WIRE SIZE ** COPPER GROUNDING ELECRODE *** CU GROUND

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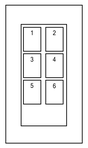
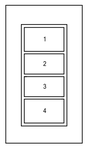
ONE-LINE DIAGRAM

E501

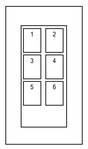
7/3/2018 5:07:34 PM



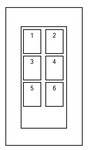
WALLSTATION 'RC6' CONFIGURATION		
BUTTON	**ENGRAVING**	**PROGRAMMING**
1	ALL ON	BUTTON SHALL TURN ALL LIGHTS ON; ALL DIMMING ZONES TO 100%.
2	ALL OFF	BUTTON SHALL TURN ALL LIGHTS OFF.
3	RAISE	PRESS AND HOLD - BUTTON SHALL INCREASE ALL DIMMING ZONE LEVELS.
4	LOWER	PRESS AND HOLD - BUTTON SHALL DECREASE ALL DIMMING ZONES LEVELS.
5	SCENE 1	COORDINATE SPECIFIC PROGRAMMING REQUIREMENTS WITH OWNER.
6	SCENE 2	COORDINATE SPECIFIC PROGRAMMING REQUIREMENTS WITH OWNER.
CONTROL SEQUENCE		
UPON ENTERING THE SPACE, THE OCCUPANCY SENSOR SHALL TURN LIGHTING ON TO 50% OUTPUT. OCCUPANT MAY THEN CONTROL THE LIGHTING MANUALLY. OCCUPANCY SENSOR SHALL TURN LIGHTS OFF AFTER VACANCY / TIME-OUT.		



WALLSTATION 'LV4' CONFIGURATION		
BUTTON	**ENGRAVING**	**PROGRAMMING**
1	ALL ON	BUTTON SHALL TURN ALL LIGHTS ON; ALL DIMMING ZONES TO 100%.
2	RAISE	PRESS AND HOLD - BUTTON SHALL INCREASE ALL DIMMING ZONE LEVELS.
3	LOWER	PRESS AND HOLD - BUTTON SHALL DECREASE ALL DIMMING ZONES LEVELS.
4	ALL OFF	BUTTON SHALL TURN ALL LIGHTS OFF.
CONTROL SEQUENCE		
UPON ENTERING THE SPACE, THE OCCUPANCY SENSOR SHALL TURN LIGHTING ON TO 50% OUTPUT. OCCUPANT MAY THEN CONTROL THE LIGHTING MANUALLY. OCCUPANCY SENSOR SHALL TURN LIGHTS OFF AFTER VACANCY / TIME-OUT.		



WALLSTATION 'MS' CONFIGURATION		
BUTTON	**ENGRAVING**	**PROGRAMMING**
1	ALL ON	BUTTON SHALL TURN ALL LIGHTS ON; ALL DIMMING ZONES TO 100%.
2	ALL OFF	BUTTON SHALL TURN ALL LIGHTS OFF.
3	*	*
4	*	*
5	*	*
6	*	*
CONTROL SEQUENCE		
* COORDINATE ENGRAVING AND PROGRAMMING WITH OWNER.		

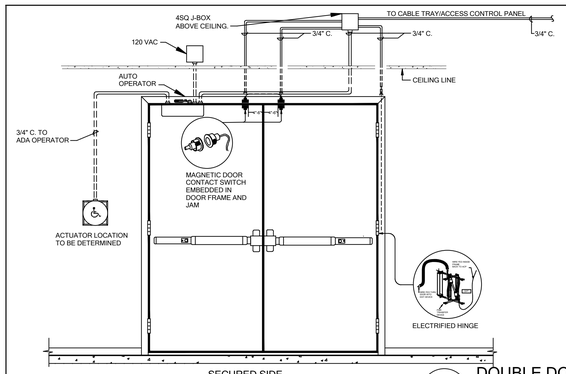


WALLSTATION 'MS' CONFIGURATION		
BUTTON	**ENGRAVING**	**PROGRAMMING**
1	*	*
2	*	*
3	*	*
4	*	*
5	*	*
6	*	*
CONTROL SEQUENCE		
* COORDINATE ENGRAVING AND PROGRAMMING WITH OWNER.		

GENERAL DIAGRAM NOTES:

1. ALL PROGRAMING SHALL MEET THE REQUIREMENTS OF THE IECC 2015 OR CURRENT ENERGY CODE APPLIED TO THE PROJECT. DAYLIGHT ZONE CONTROL SHALL BE PROVIDED PER THE REQUIREMENTS OF C405.2.2.3.
2. THE LIGHTING CONTROLS AS SHOWN ARE BASED UPON EATON LIGHTING CONTROLS. PRIOR APPROVAL IS REQUIRED BEFORE BIDDING THIS PROJECT. SEE PRIOR APPROVAL NOTES.
3. COORDINATE ALL INSTALLATION REQUIREMENTS, CONNECTIONS AND CABLE TYPE WITH THE SUPPLIER PRIOR TO ANY INSTALLATION.
4. PROVIDE INTUITIVE BUTTON LABELING TO MATCH APPLICATION AND LOAD/RELAY CONTROLS. PROVIDE FACTORY ENGRAVED LABELING FOR ALL INDIVIDUAL PUSH-BUTTONS. DEVICE AND COVERPLATE COLORS AS SELECTED BY ARCHITECT.
5. PROGRAM OF ALL LIGHTING CONTROL SYSTEMS AS INDICATED AND/OR AS DIRECTED BY THE ELECTRICAL ENGINEER AND/OR OWNER. MEET WITH THE ELECTRICAL ENGINEER AT THEIR OFFICE PRIOR TO PREPARATION OF SHOP DRAWINGS TO DISCUSS SPECIFIC PROGRAMMING AND ZONING REQUIREMENTS OF SYSTEM(S). EACH NETWORKED OR STANDALONE SYSTEM SHALL BE PROGRAMMED TO REVERT BACK TO ITS NORMAL "ON" POSITION ONE HOUR AFTER SELECTING A SCENE OR RAISING OR LOWERING A LIGHTING ZONE.

DIAGRAM L001 LIGHTING CONTROL SWITCH CONFIGURATIONS
NTS



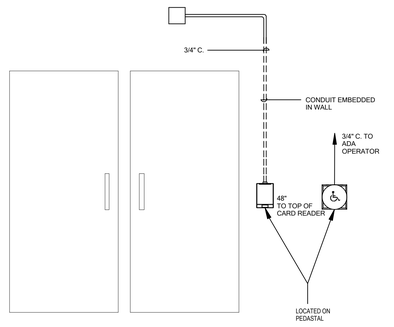


DIAGRAM EY246 DOUBLE DOOR WITH SINGLE ELECTRIFIED CRASH BAR AND ADA OPERATOR
NTS

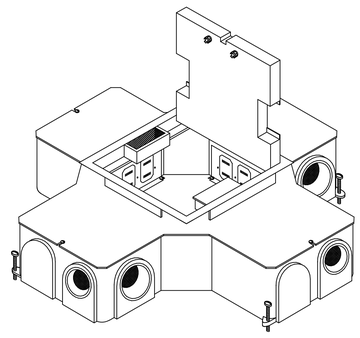
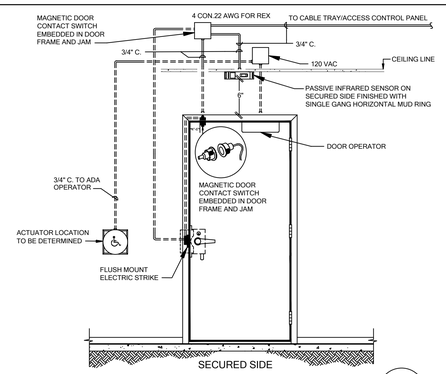


DIAGRAM L001 RECESSED FLOOR BOX
NTS



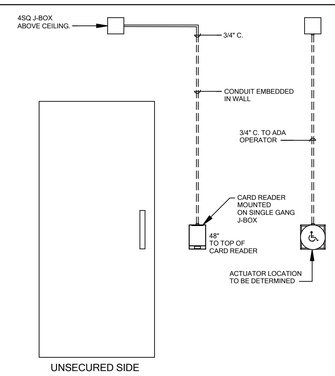


DIAGRAM EY009 SINGLE DOOR WITH ELECTRIC STRIKE AND AUTO OPERATOR
NTS

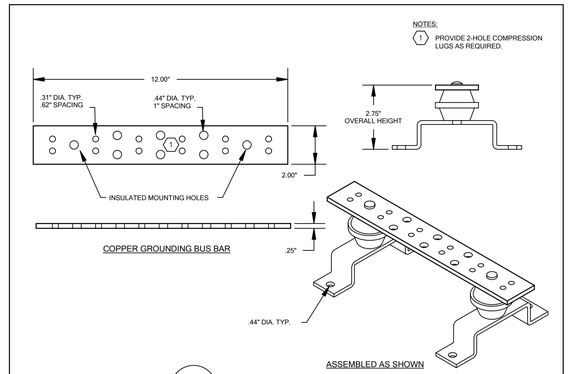
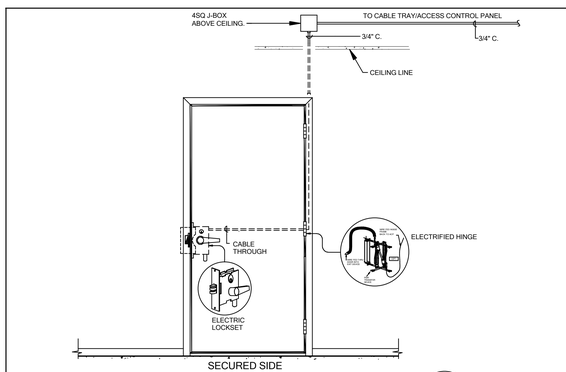


DIAGRAM F019 GROUNDING BUS BAR "IBT"
NTS



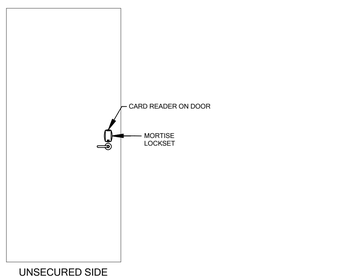


DIAGRAM EY002 SINGLE DOOR WITH ELECTRIC LOCK AND READER ON DOOR
NTS

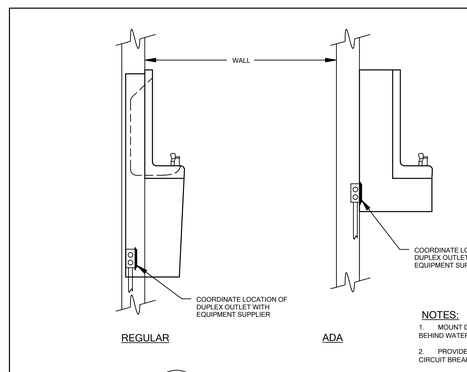
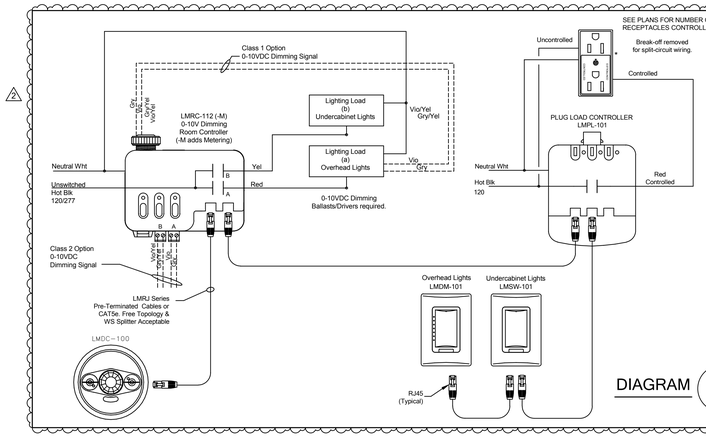


DIAGRAM R002 ELECTRIC WATER COOLER (EWC)
NTS



Notes:
- LMRC-11x units provide both a Class 1 and a Class 2 dimming signal for 0-10VDC Ballasts/Drivers. Either or both the Class 1 and Class 2 wires can be used at the same time.
- Class 1 is preferred in new installations when the violet & grey dimming signal wires are included in the fixture power cable.
- Class 2 is used for new or existing installation when it's easier to run the violet & grey dimming signal wires outside the fixture cable.
- Class 1 and Class 2 wiring should be maintained thoughout the installation and cannot be swapped - appropriate wiring practices should be used. Class 1 and Class 2 circuitry in the LMRC units are galvanically isolated.
- A "-M" suffix identifies units have an internal Voltage and Current monitoring capability.

DIAGRAM 3 LIGHTING AND RECEPTACLE CONTROL
NTS

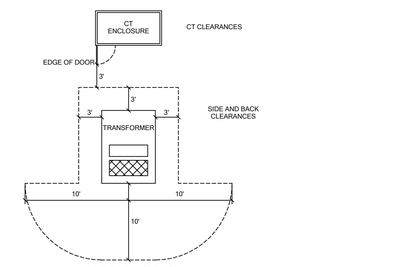


DIAGRAM Q014 TRANSFORMER/CT ENCLOSURE LAYOUT (RMP)
NTS

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SALT LAKE ST GEORGE

#	Date	Revision
1	06/25/18	Addendum 1
2	06/29/18	Addendum 2

CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 17179
CHECKED BY: Checker
DRAWN BY: Author
DATE: 04/14/18

ELECTRICAL DIAGRAMS

E703

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SHEET KEYNOTES

T1	COORDINATE WITH OWNER ON EXACT LOCATION OF DEVICES.
T2	LOCATE EQUIPMENT CABINET ON SOUTH WALL. COORDINATE WITH OWNER ON EXACT LOCATION.
T4	MOUNT DEVICES AT 24" A.F.F.
T5	ROOM SCHEDULING SOFTWARE PROVIDED BY OWNER.
T6	REFER TO V104 FOR TABLE TOP DEVICES AND CONNECTIONS. HOMERUN (2) HDMI AND (2) DATA CABLES TO THE EQUIPMENT CABINET 'R2'.
T7	COORDINATE WITH OWNER ON PLACEMENT AND ALIGNMENT OF PROJECTOR AND WHITE BOARD PAINT.
T8	ADD 'AT' DEVICE TO THIS LOCATION AT 96" A.F.F. AND CABLE WITH (1) 'AT' TO THE EQUIPMENT RACK 'R1'. SEPARATE THE WIRELESS MICROPHONES ANTENNAS BY A MINIMUM OF 12'-0". PLACE THE ALS ANTENNA IN THE MIDDLE OF THE WIRELESS MICROPHONE ANTENNAS.

LEVEL 01 AV PLAN
SCALE = 1/8" = 1'-0"

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LEVEL 01 AV PLAN

ET301

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