INTERIOR ALTERATIONS

EASTERN CENTER FOR ARTS AND TECHNOLOGY

LIST OF DRAWINGS

ARCHITECTURAL

- A001 COMPOSITE FLOOR PLAN EXISTING
- A002 COMPOSITE FLOOR PLAN NEW CODE
- A003 DEMOLITION PLAN
- A101 FLOOR PLANS AND ENLARGED FLOOR PLANS
- A102 SCHEDULES AND DETAILS
- A601 REFLECTED CEILING PLANS
- S-1 ROOF REINFORCEMENT DETAILS

PLUMBING

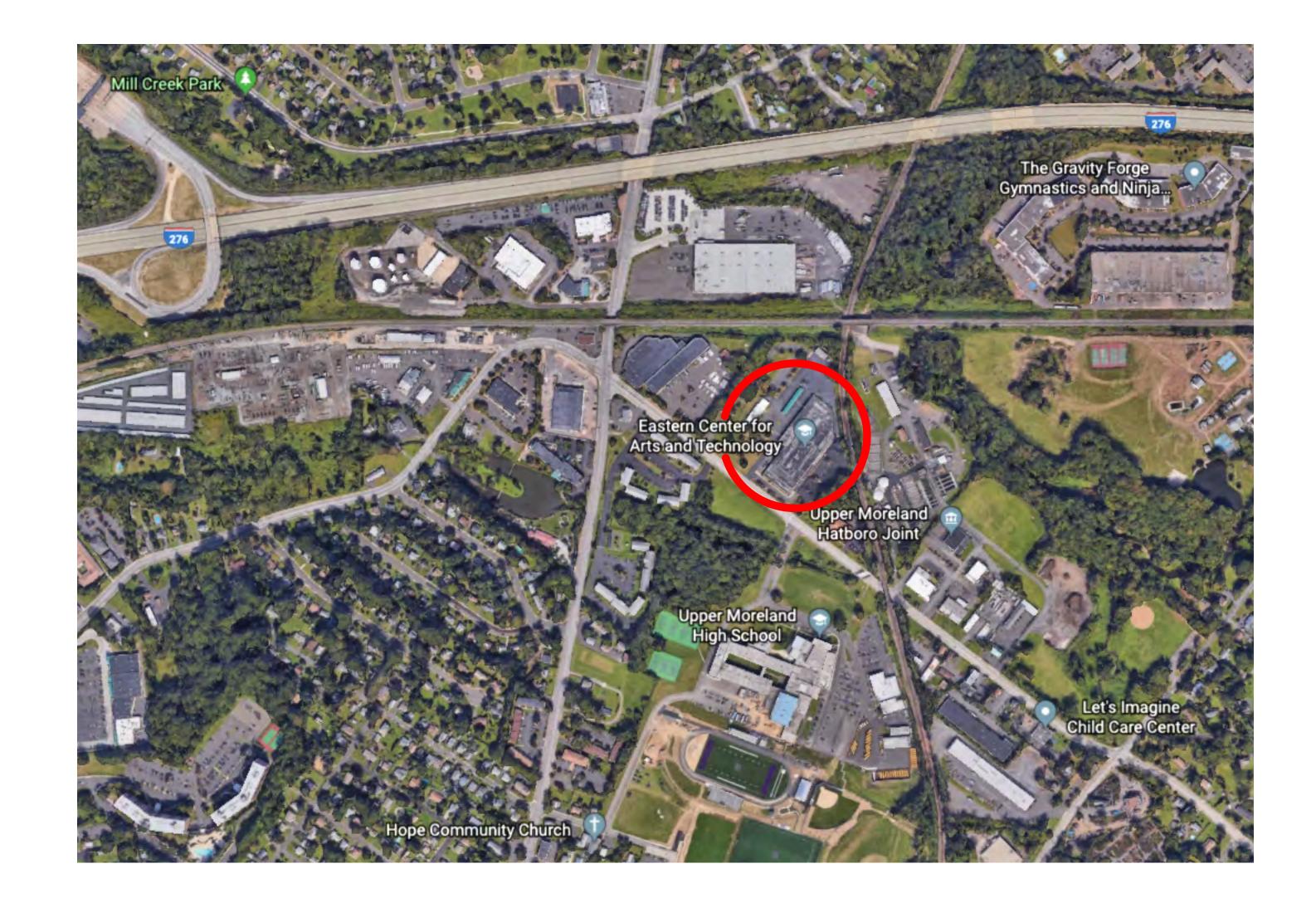
- P0.1 COVER SHEET
- P1.1 PARTIAL DEMOLITION PLANS AREA 'A' & 'B'
- P2.1 PARTIAL DRAINAGE PLANS AREAS 'A' & 'B'
- P3.1 PARTIAL SUPPLY PLANS AREAS 'A' & 'B'
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HVAC

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- H5.1 ENLARGED PLAN NETWORK WELDING TECHNOLOGY AREA
- H6.1 CONTROLS FLOW DIAGRAM
- H7.1 DETAILS
- H7.2 DETAILS
- H8.1 SCHEDULES AND DETAILS

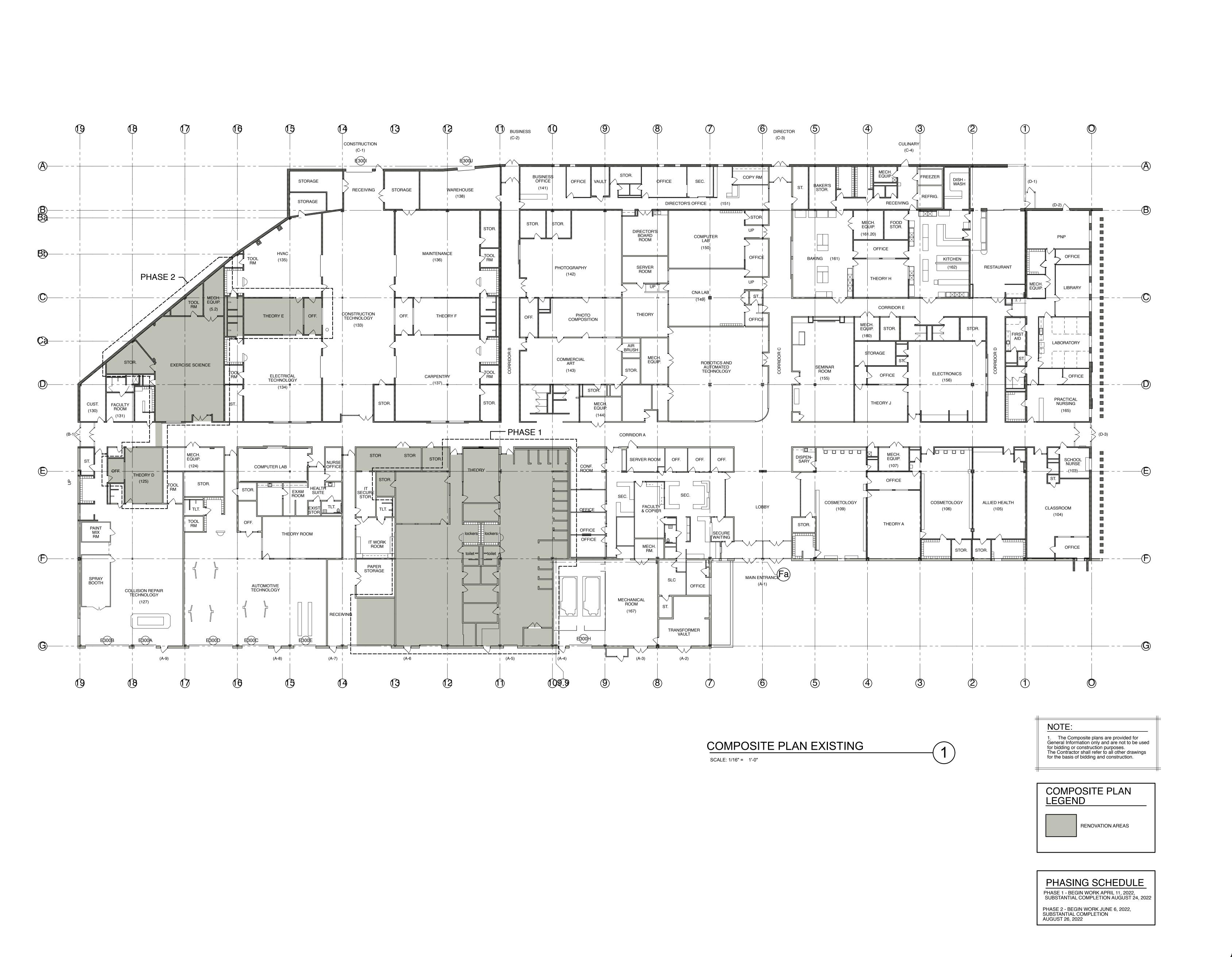
ELECTRICAL

- E0.1 COVER SHEET
- E0.2 ELECTRICAL NOTES
- E0.3 OVERALL FLOOR PLAN
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- E2.1 PARTIAL LIGHTING PLAN AREA 'A'
- E3.1 PARTIAL POWER PLAN AREA 'A'
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- E4.1 PARTIAL LOW VOLTAGE PLAN AREAS 'A' & 'B'
- E5.1 ENLARGED PLAN POWER -WELDING TECHNOLOGY AREA
- E7.1 DETAILS
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- E7.3 DETAILS
- E7.4 DETAILS
- E8.1 SECTIONS
- E8.2 SECTIONS



BRESLIN RIDYARD FADERO ARCHITECTS

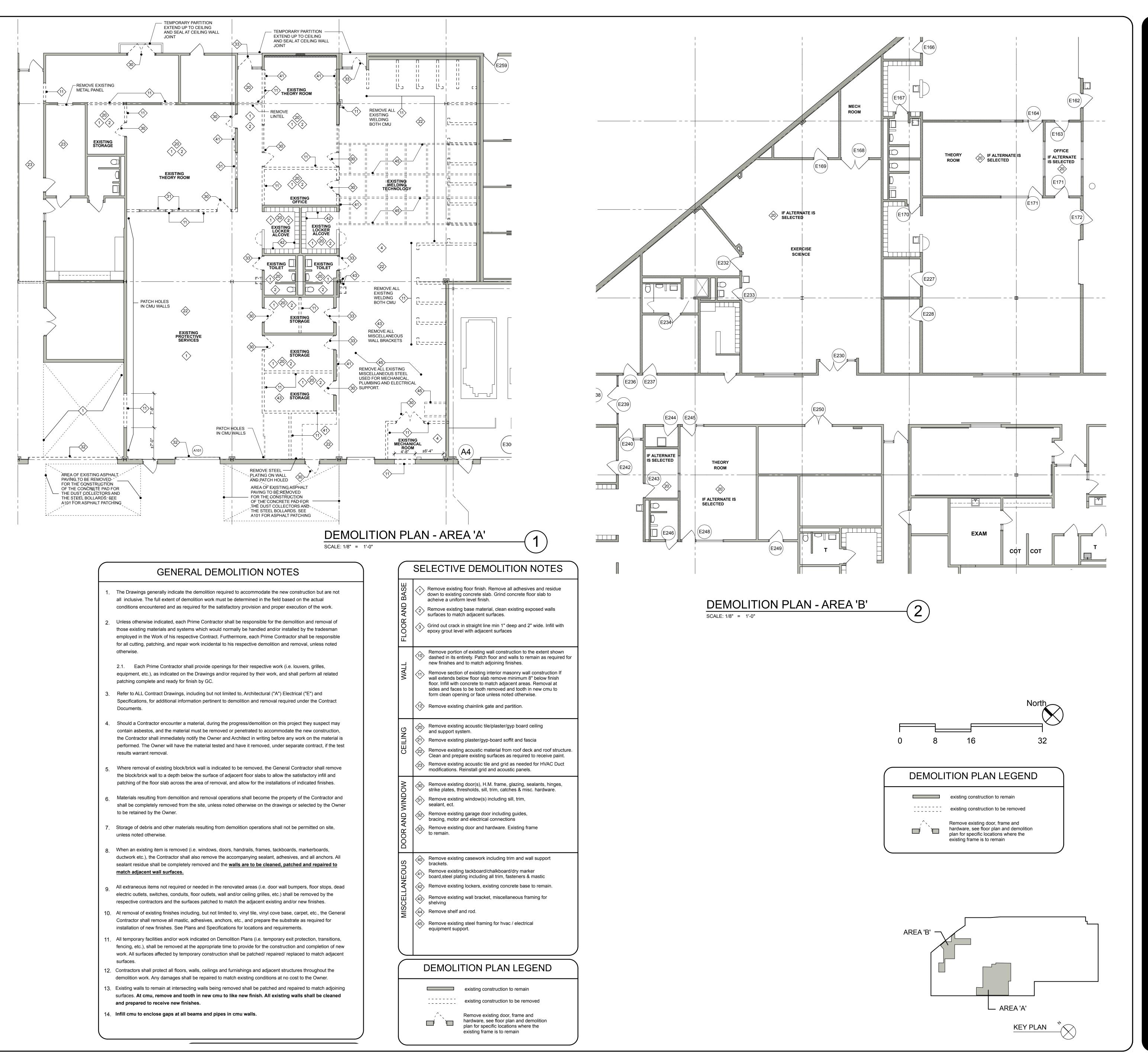
ALLENTOWN, PA

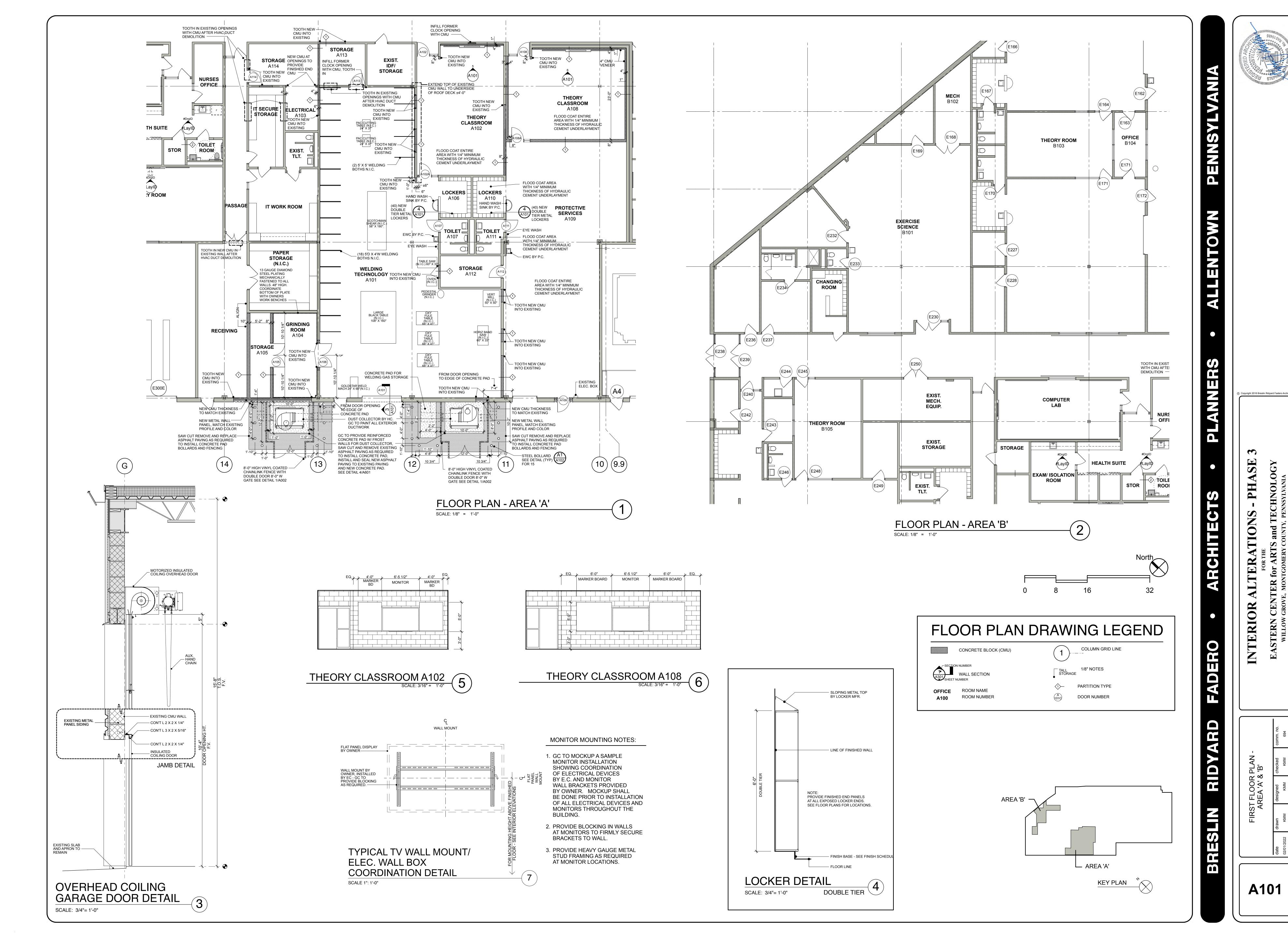


IDYA

A001

A002





ROOM

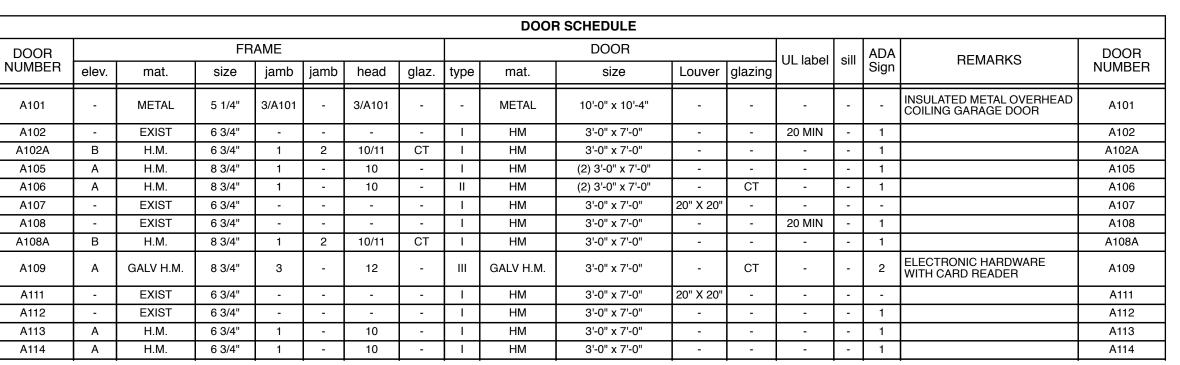
A102

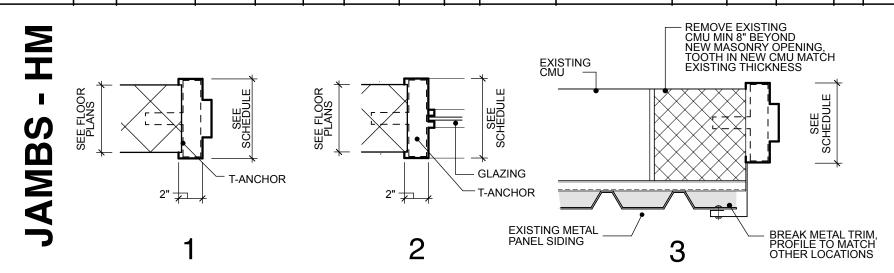
NOTES

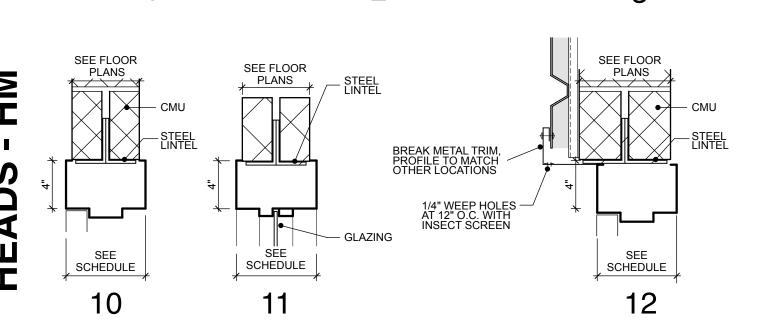
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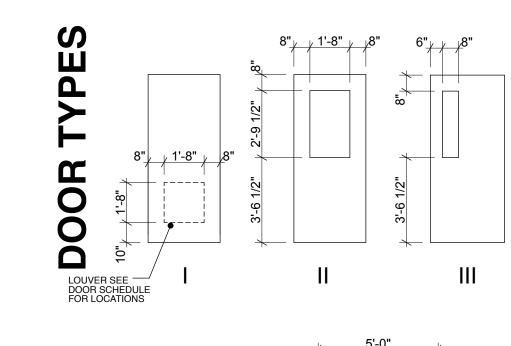
€ BEAM & WALL

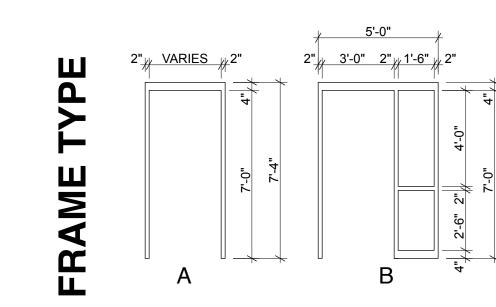
A102











STEEL BEAM

5/8" DIA x 4"

MIN EMBED

EPOXY BOLTS

AT EACH CLIP L

5/16" CLIP L @ 32" o.c. or 48"

o.c. w/ 2" VERT.

NUT ONLY

SLOTTED HOLE

SNUG TIGHTEN

STEEL BEAM

CUT AWAY FOR

5/16" CLIP L x 8"

STAGGERED @

24" o.c. (TYP)

TYP

CLIP L SIZES MAY

VARY WITH BEAM

FLANGE AND WALL

LOCATION

STEEL

FILLE

WELD

NOTCH BLOCK

AT REBAR LOC

AND GROUT

EACH REBAR

BOND

(2) #5

BEAM w/

SOLID AT

CLIP L SIZES MAY

VARY WITH BEAM

THICKNESS

FLANGE AND WALL

1/4" SHOP

FILLET WELD

3/16" SHOP FILLET WELD

STEEL BEAM CUT AWAY FOR

CLIP L x 8" LG.

@ 48" o.c. (TYP)

TRUSS TYPE JOINT

REINF 9 - GA GALV

METAL @ 16" o.c.

VERT.

BOND BEAM w/ (2) —

CLARITY

CONT. HORIZ

TRUSS TYPE JOINT

REINF 9 - GA GALV

STEEL BEAM

5/8" DIA x 4" MIN

EMBED EPOXY

BOLTS AT EACH

CLIP L @ 32" o.c. |

or 48" o.c. w/ 2" VERT. SLOTTED

HOLE SNUG

ONLY

CLIP L SIZES MAY

VARY WITH BEAM

FLANGE AND WALL

THICKNESS

TIGHTEN NUT

METAL @ 16" o.c.

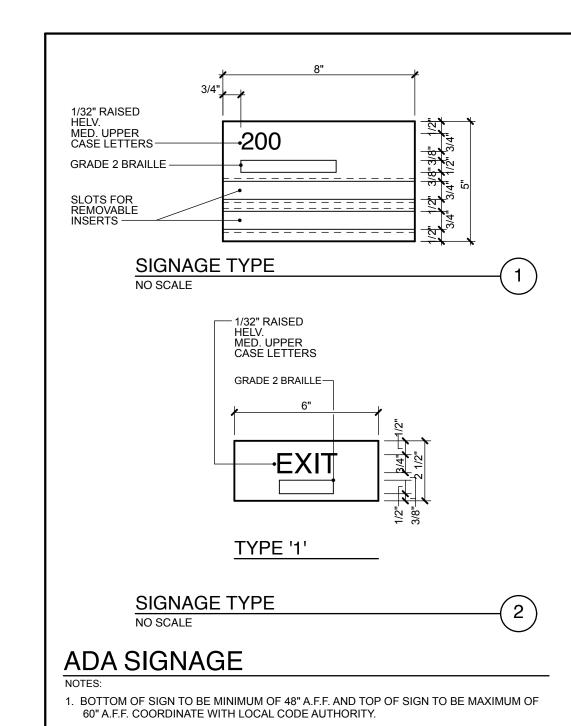
1/4" SHOP

FILLET -

DOOR SCHEDULE LEGEND

GALV H.M. - GALVANIZED HOLLOW METAL CLEAR TEMPERED GLASS

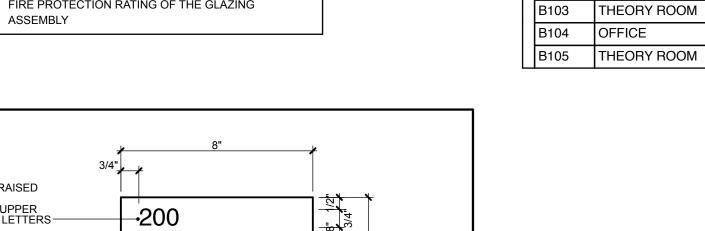
- THE TIME IN MINUTES OF THE FIRE RESISTANCE OR FIRE PROTECTION RATING OF THE GLAZING



2. ALL SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL CODE

COUNCIL ICC/ANSI A117.1

HOLLOW METAL



STEEL LINTEL SCHEDULE FOR NON-LOADBEARING MASONRY WALLS

ROOM

A103

A108

A111

ROOM NAME

A101 WELDING TECHNOLOGY

A102 THEORY CLASSROOM

ELECTRICAL

THEORY CLASSROOM

A109 | PROTECTIVE SERVICES

EXERCISE SCIENCE

A104 GRINDING ROOM

A105 STORAGE

A106 LOCKERS

A110 LOCKERS

A112 STORAGE

A113 STORAGE

A114 STORAGE

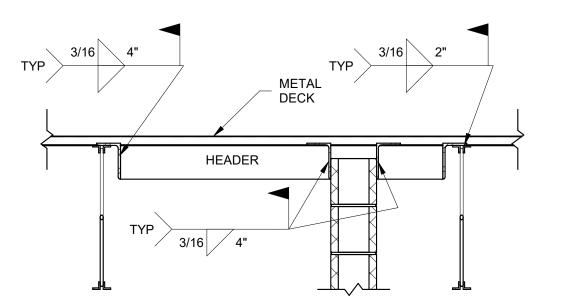
B102 MECH

TOILET

A107 | TOILET

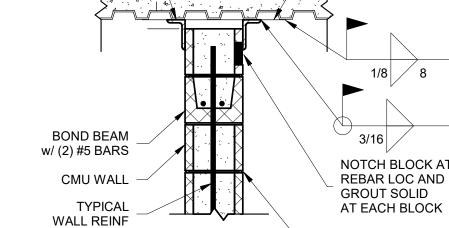
		MASCINICI	ALLO	
WALL		CLEAF	R SPAN	
THICKNESS	4'-0" or Less	4'-1" to 6'-0"	6'-1" to 8'-0"	8'-1" to 10'-0"
4" CMU or Brick	L3 1/2x3 1/2x5/16" -or- L8x6x7/16" (LLH)	L4x3 1/2x5/16" (LLV) -or- L8x6x7/16" (LLH)	L5x3 1/2x5/16" (LLV) -or- L8x6x7/16" (LLH)	L5x3 1/2x5/16" (LLV)- or- L8x6x7/16" (LLH)
6" CMU	(2) L3 1/2x2 1/2x3/8" -or- WT7x11	(2) L3 1/2x2 1/2x3/8" -or- WT7x11	(2) L3 1/2x2 1/2x3/8" -or- WT7x11	WT7x11
8" CMU	(2) L3 1/2x3 1/2x5/16" -or- WT7x15	(2) L3 1/2x3 1/2x5/16" -or- WT7x15	(2) L5x3 1/2x5/16" (LLV) -or- WT7x15	W8x10 w/ 1/4"x0'-7" PL.
10" CMU	W8x10 w/ 1/4"x0'-9" PL.	W8x10 w/ 1/4"x0'-9" PL.	W8x10 w/ 1/4"x0'-9" PL.	W8x10 w/ 1/4"x0'-9" PL.
12" CMU	(3) L4x3 1/2x3/8" (LLV) -or- W8x10 w/ 1/4"x0'-9" PL.	(3) L4x3 1/2x3/8" (LLV) -or- W8x10 w/ 1/4"x0'-9" PL.	(3) L5x3 1/2"x5/16" (LLV) -or- W8x10 w/ 1/4"x0'-11" PL.	W8x10 w/ 1/4"x0'-11" PL.

- 1. THE GENERAL CONTRACTOR SHALL PROVIDE AND INSTALL STEEL LINTELS IN ALL MASONRY WALLS, INCLUDING THE FOLLOWING (REF. CONTRACT DOCUMENTS):
- 2. ABOVE ALL METAL FRAMES IN MASONRY WALLS . ABOVE ALL NEW OPENINGS, PASSAGES, ROLL-UP OR OVERHEAD DOORS IN MASONRY WALLS.
- . ABOVE ALL NEW DUCTWORK PASSING THROUGH MASONRY WALLS. 5. ABOVE ALL BUILT-IN ITEMS (SUCH AS CABINET HEATERS, CONVECTORS, LOUVERS, ACCESS PANELS, BRICK
- GRILLES, WINDOWS, ETC.) 6. AT ALL LOCATIONS WHERE NOTED ON THE PLANS AND/OR WALL SECTIONS. SIZES TO BE AS INDICATED IN THE SCHEDULE ABOVE. LENGTH TO BE FULL OPENING AND A MINIMUM 8" BEARING ON EACH END. 7. ALL LOOSE LINTELS AT OPENINGS 8" OR LESS FROM STEEL COLUMN SHALL BE ATTACHED W/ CLIP ANGLES TO COLUMNS.



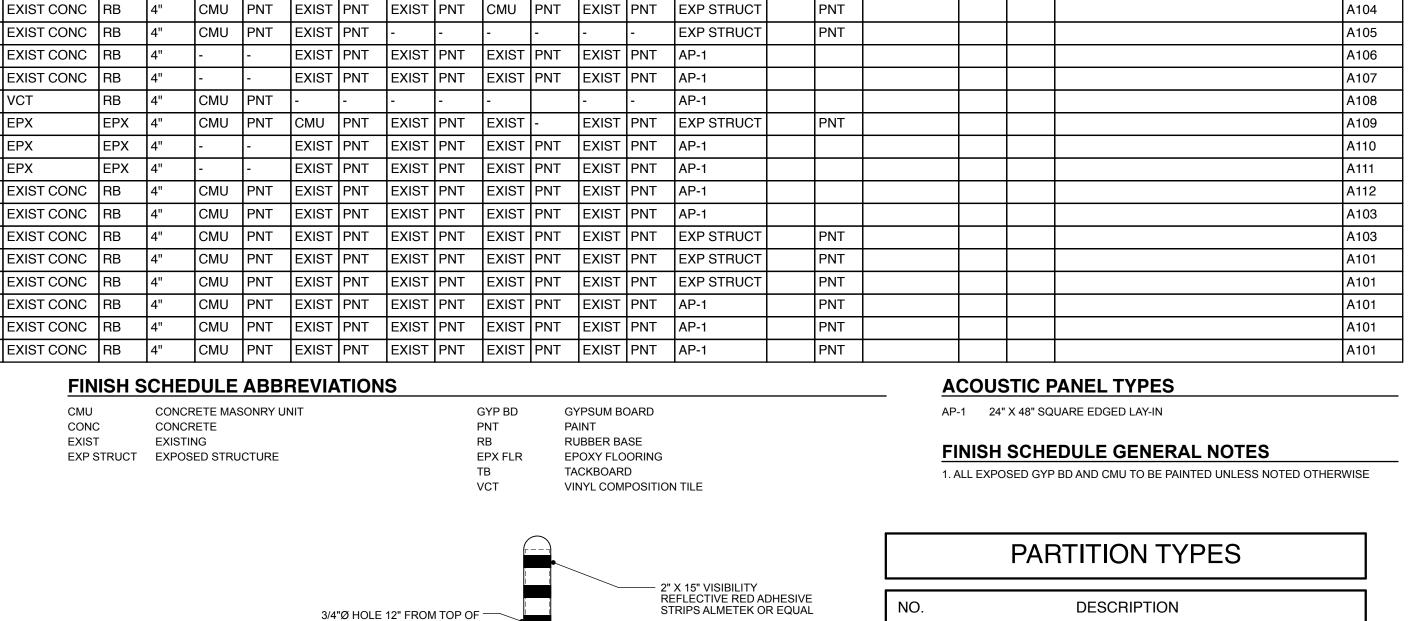
- NOTE:
- 1. L6x4x5/16 ANGLE HEADERS AT 5'-0" o.c. w/ L6x4x3/8x0'-6" CLIP ANGLES (LLV) EACH END OF HEADER.

Typical Masonry Partition Wall Bracing



2. PROVIDE L6x4x5/16 EACH SIDE OF WALL AT EVERY OTHER 5'-0" HEADER SPACING.

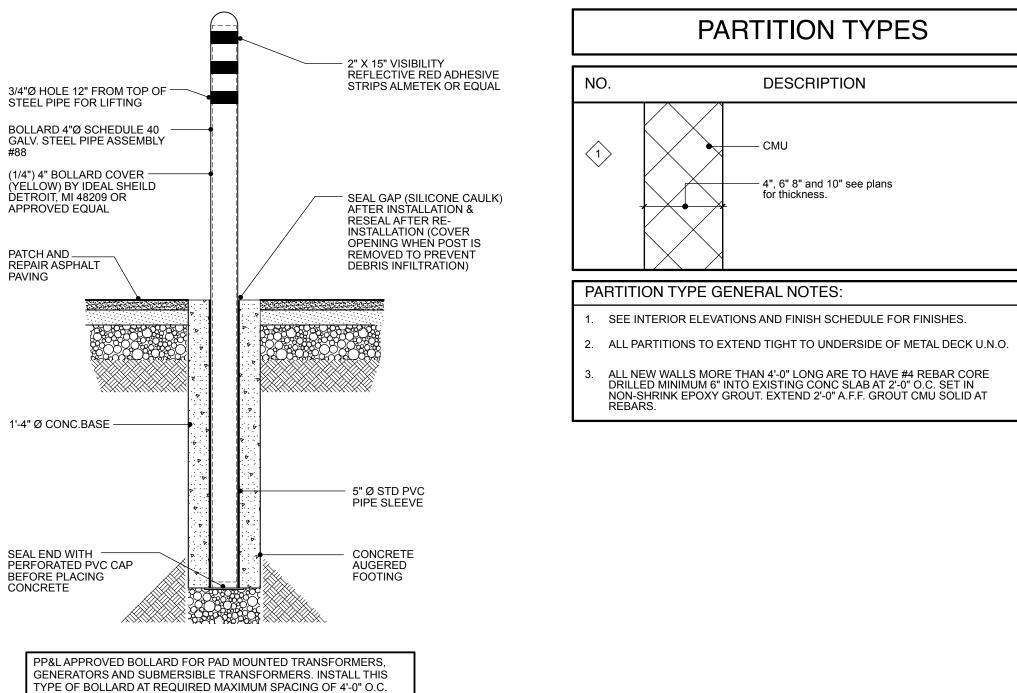
SCALE: 3/4" = 1'-0"



FASCIA / SOFFITS

mat'l.

CEILING





THE BOLLARDS AT OTHER LOCATIONS DO NOT NEED TO BE

FINISH SCHEDULE

SPECIAL FINISHES

NORTH WALL | EAST WALL | SOUTH WALL | WEST WALL

|CMU |PNT |EXIST|PNT |EXIST|PNT |EXIST|PNT |EXP STRUCT|

CMU PNT EXIST PNT EXIST PNT EXIST PNT EXIST PNT EXP STRUCT

WALLS

CMU PNT

CONCRETE MASONRY UNIT

CONCRETE

EXISTING

EXP STRUCT EXPOSED STRUCTURE

FLOOR FIN.

EXIST CONC

EXIST CONC RB

EXIST CONC

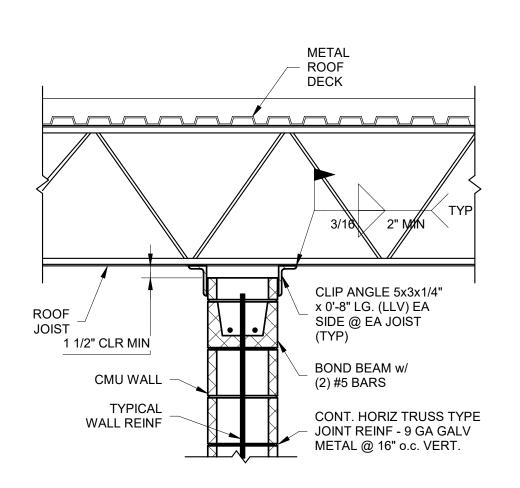
EXIST CONC

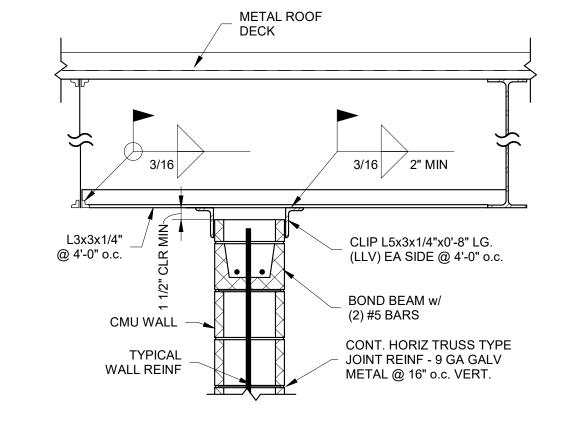
EXIST CONC

EXIST CONC RB

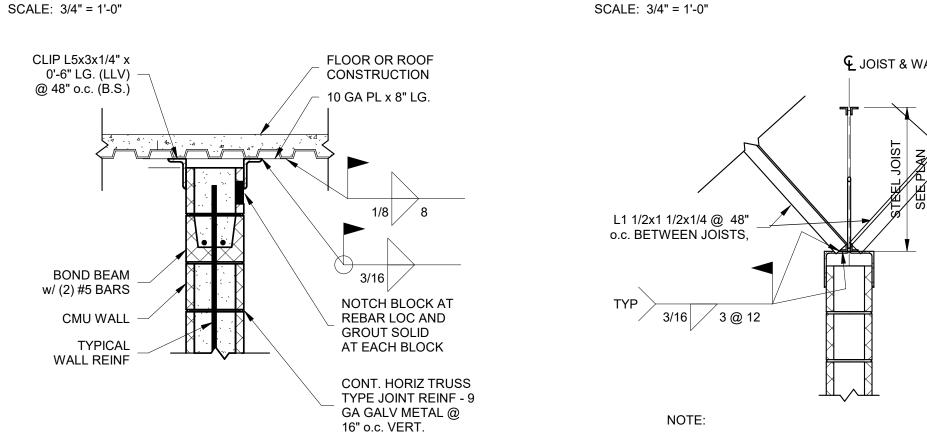
EXIST CONC RB

CONC





Typical Top Of Masonry Wall Bracing At Bar Joist Typical Top of Masonry Wall Bracing

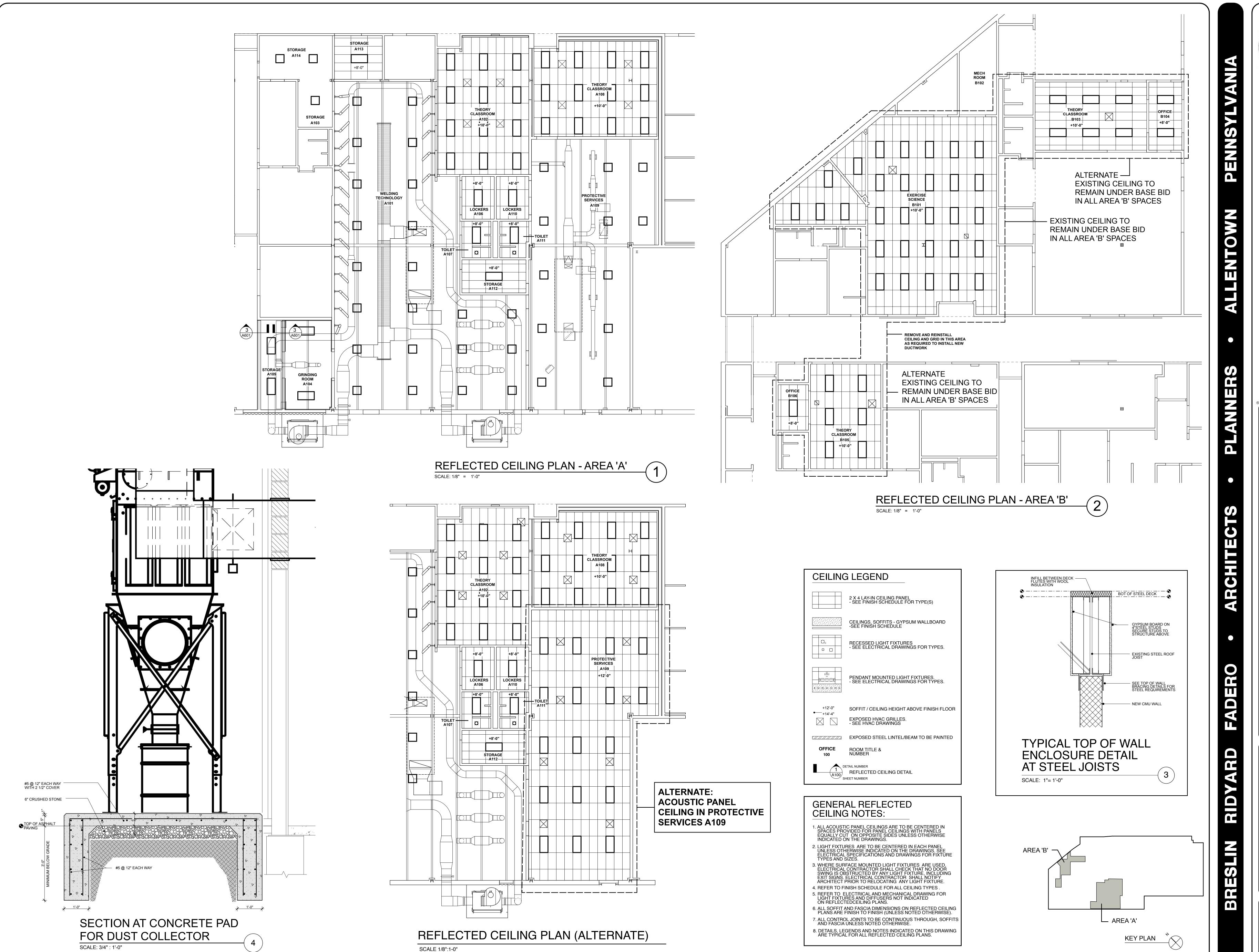


Typical Top Of Masonry Wall Bracing At Metal Deck



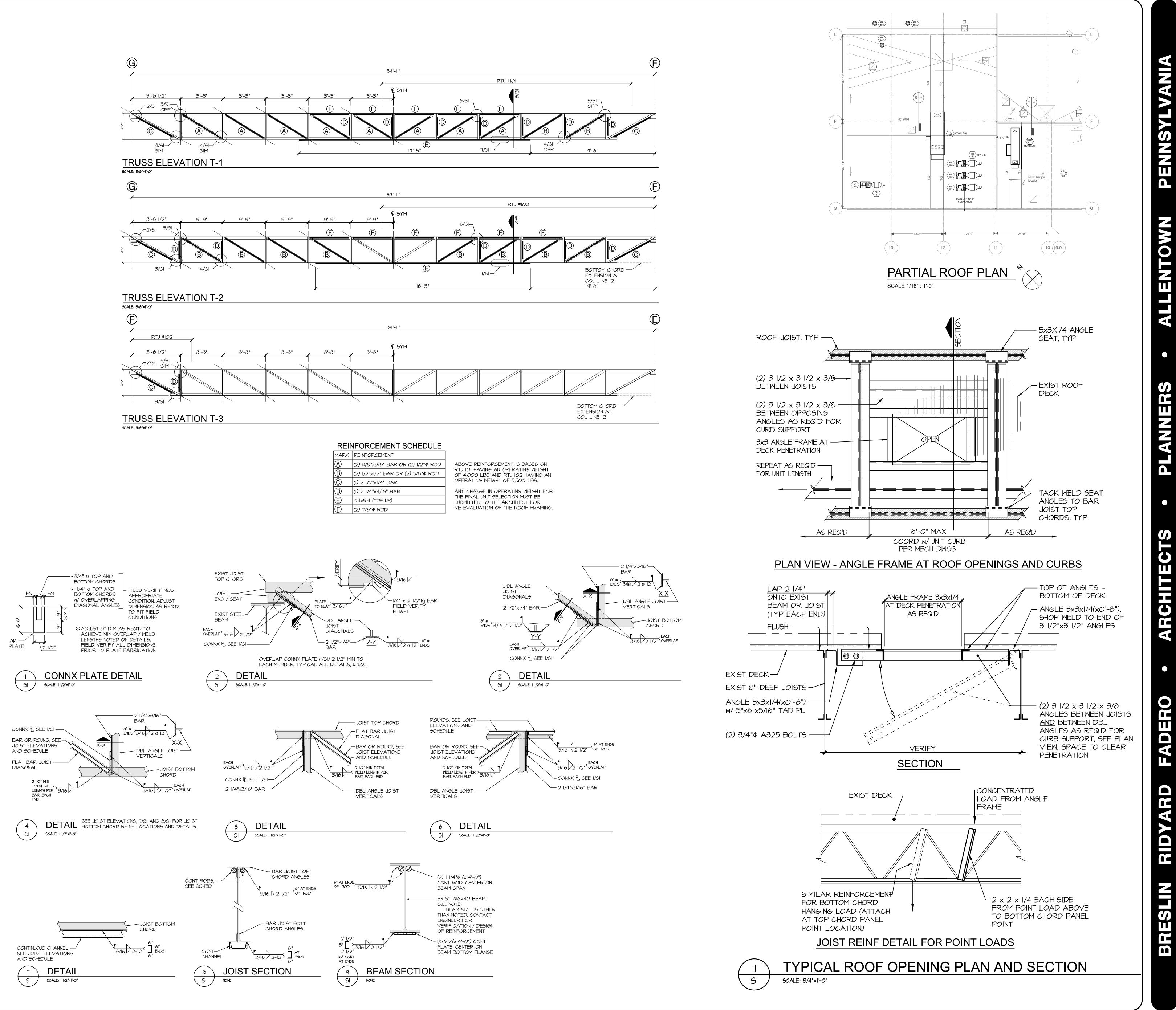
1. CLIP L6x4x5/16x0'-8" (LLV) EACH SIDE OF WALL AT 48" o.c.







A601



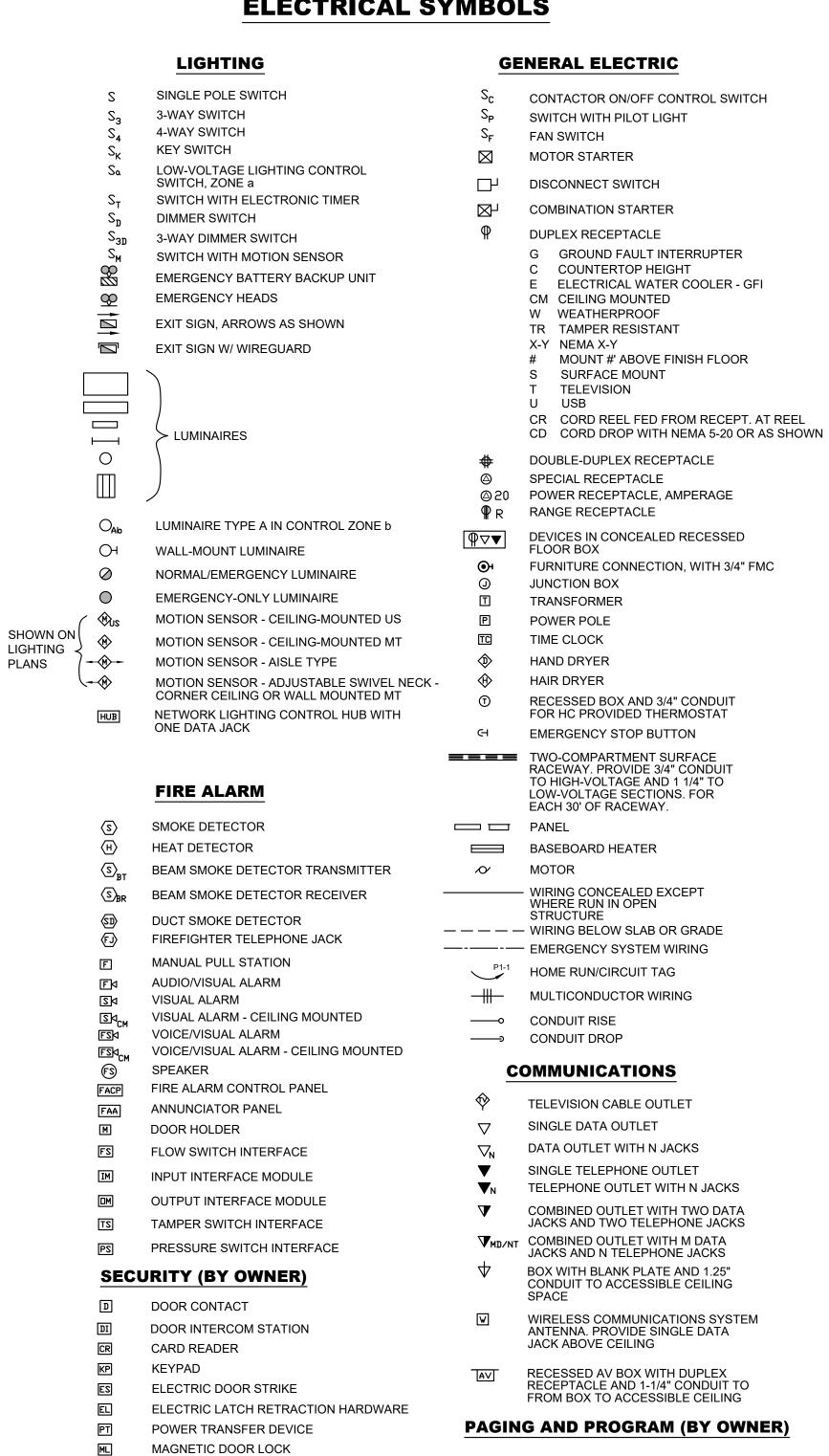
NTERIOR

S-1

EQUIPMENT TYPES

```
AUTOMATIC TRANSFER SWITCH
             BUSWAY
             CONTACTOR
             DISCONNECT SWITCH
ECB
             ENCLOSED CIRCUIT BREAKER
IDF
             INTERMEDIATE DISTRIBUTION FRAME
LCP
             LIGHTING CONTROL PANEL
MCC
             MOTOR CONTROL CENTER
             MOTOR STARTER
             POWER DISTRIBUTION UNIT
PNL
             ELECTRICAL PANEL
SWBD
             SWITCHBOARD
             SWITCHGEAR
T OR TRAN
             TRANSFORMER
             UNINTERRUPTIBLE POWER SUPPLY
```

ELECTRICAL SYMBOLS



MASTER DOOR INTERCOM STATION

MASTER DOOR INTERCOM STATION

MOTION SENSOR - AISLE TYPE

VIDEO SURVEILLANCE CAMERA

SHOWN ON

LOW-VOLTAGE

POWER OR

PLANS

MOTION SENSOR - CEILING-MOUNTED US

MOTION SENSOR - CEILNG-MOUNTED MT

MOTION SENSOR - CEILING-MOUNTED IR

MOTION SENSOR - REQUEST TO EXIT

SINGLE DATA OUTLET DATA OUTLET WITH N JACKS SINGLE TELEPHONE OUTLET TELEPHONE OUTLET WITH N JACKS COMBINED OUTLET WITH TWO DATA JACKS AND TWO TELEPHONE JACKS **▼**MD/NT COMBINED OUTLET WITH M DATA

BOX WITH BLANK PLATE AND 1.25" CONDUIT TO ACCESSIBLE CEILING WIRELESS COMMUNICATIONS SYSTEM ANTENNA. PROVIDE SINGLE DATA

RECESSED AV BOX WITH DUPLEX RECEPTACLE AND 1-1/4" CONDUIT TO FROM BOX TO ACCESSIBLE CEILING

PAGING AND PROGRAM (BY OWNER)

CEILING MOUNTED SPEAKER ADDRESSABLE SPEAKER HORN SPEAKER ADDRESSABLE SPEAKER WALL MOUNTED BELL ©H WALL MOUNTED CLOCK ©S CLOCK/SPEAKER UNIT VOLUME CONTROL

GAS DETECTION

HIII GAS DETECTION INDICATOR

GAS DETECTOR

⊬ጬ

-SHEET NO. WHERE EL. IS DRAWN -ELEVATION ID KEYNOTE

1 🛈 DETAIL ID H1.1 SHEET NO. WHERE DETAIL IS ROOM/SPACE NO.

EQUIPMENT TAG SHOWING TYPE AND ID. SEE EQUIPMENT SCHEDULES FOR DETAILS PROVIDE NEW EXISTING TO REMAIN

REMOVE EXISTING CONNECT TO EXISTING EXISTING TO BE REMOVED

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E4.1 Partial Low-Voltage Plan - Areas 'A' & 'B' E5.1 Enlarged Plan - Power - Welding Technology Area E7.1 Details E7.2 Details E7.3 Details

E8.1 Schedules E8.2 Schedules

E0.1

4. The electrical drawings are diagrammatic and are intended to show the approximate locations of equipment, devices, raceways, and associated systems. Drawings are not to be scaled for the accurate cutting or its exact placement, but they shall be followed as closely as actual building construction and the work of other trades will permit. The contractor shall verify all dimensions and coordinate the installation of electrical systems with actual conditions in the field.

5. General work practices for electrical construction shall be in accordance with NECA 1, Good Workmanship in Electrical Construction, published by the National Electrical Contractors Association

6. All material and equipment shall be listed and labelled for the application by Underwriters Laboratories or other NRTL, and installed according to its listing. 7. Unless otherwise indicated, this contractor shall perform all cutting and patching of the existing facility for their respective work. Patching shall match existing materials, finishes, and methods of construction.

8. Submit shop drawings to the Architect/Engineer for all materials and equipment.

9. Provide protection and storage for equipment and materials during construction. 10. All material and equipment shall be turned over in a new, clean condition.

11. Coordinate work with other trades. Where electrical devices are depicted on Architectural drawings, install as depicted.

12. Provide circuits and final connection to mechanical equipment, furniture and equipment supplied by others. Where electrical drawings and equipment rough-in drawings or

equipment submittals are in conflict, consult with Architect for resolution. 13. Coordinate equipment clearances and work space with manufacturer's service

14. The contractor shall coordinate the shutdown and removal of existing systems and equipment and the installation and startup of new systems and equipment with the project construction phasing schedule.

15. Maintain as-built plans during construction. Turn over to Architect/Engineer at completion of construction. Provide electronic version and at least two paper copies, more if required elsewhere.

17. Provide at least 12-month warranty on all materials, equipment, and workmanship from

16. Provide operating and maintenance manuals for all equipment. Provide electronic version and at least two paper copies, more if required elsewhere.

date of substantial completion. B. Demolition and Connections to Existing Equipment

1. Owner reserves the right to claim any salvageable materials and equipment. Prior to beginning demolition work, identify items Owner chooses to claim. Remove and store claimed items. Remove and dispose of all unclaimed materials and equipment.

2. Maintain devices and equipment not shown to be demolished, and circuits feeding them. 3. Where new equipment replaces existing, extend wiring to the new equipment. Provide additional supports, grounding and fittings as required to comply with NEC.

4. Where existing equipment is relocated, extend wiring to the new location. Provide additional supports, grounding and fittings as required to comply with NEC. 5. When reusing raceways or junction boxes, provide additional grounding and support to

comply with NEC. Do not reuse cables. Where reusing conduits and boxes creates

conflicts with new work, relocate conduits and junction boxes to make way for new 6. Disconnect and remove devices and equipment shown to be demolished. Provide blank plate to cover any boxes which remain

7. Where wire or cable is subsequently no longer used, remove it back to its source. 8. Where conduit is subsequently empty and accessible, remove it back to its source. Where abandoned conduit drops underground, under slab, or in other inaccessible

location, undercut below surface and patch. 9. Once a device or luminaire has been removed, patch and paint to match existing

10. Where existing devices and equipment are shown in existing walls to be provided with new finishes or new surfaces, relocate existing devices and equipment to sit flush with nsions to allow the device or equipment to sit flush with the new finish or new surface.

11. Where ceilings are replaced provide temporary means of securing existing devices in the ceiling space until new ceiling is installed. Once new ceiling is installed place existing devices in new ceiling, extend cables as required to install existing devices in new ceiling; refer to architectural drawing to see where ceiling will be removed and replaced. All devices to remain shall be temporarily hung in a means that allows complete function of device.

12. Where ceilings are replaced, secure existing cables and conduits lying on the ceiling from building structure above.

13. Where adding to circuits with existing loads, measure the full load with an ammeter before and after the additions are made to confirm code compliance. Maintain record of loads on as-built plans.

14. Where demolition or new work will affect electrical phase rotation of existing equipment, measure existing electrical phase rotation. New work shall match existing electrical phase rotation.

C. Basic Materials and Methods 1. Wire shall be copper THHW, THWN or XHHW. Ampacity shall be based on 75C

2. Minimum wire size shall be 12AWG. For emergency and outdoor circuits, minimum wire size shall be 10AWG. For branch circuits longer than 75' one-way circuit distance,

minimum wire size shall be 10AWG 3. Provide a dedicated 100% rated neutral conductor in each circuit which rely on the neutral conductor to complete the circuit (example: 120V, 277V or multiphase circuits with a neutral).

4. Where oversized conductors are indicated or otherwise required for voltage drop or derating, provide junction boxes and other means required to transition back to standard conductor sizes for connection to standard lugs at equipment.

Minimum conduit size shall be 3/4". 6. Where branch circuit wiring is spliced, use wirenuts, PVC coated mechanical lug terminals or other Engineer approved means that allows access to cable ends. Do not use spring tension splices to connect wiring.

7. Use wire in conduit except in accessible indoor ceiling spaces, attics and in hollow gypsum-board partitions, where MC cable may be used, unless prohibited by code. Use MC cable connectors with threaded lock nuts to box and screw down cable grips. 8. The use of MC cable shall have limited use as follows:

a. MC cable shall not extend beyond a single room, pass through a floor slab, feed through a wall into another space, feed through more than one ceiling space or cavity or be used as homeruns. Exception, wiring between corridor and classroom luminaires can be extended up to 15', where cable is secured to building structure above at multiple locations between each luminaire.

b. Within a space, MC cable shall not extend beyond a conduit, box, device, luminaire or enclosure more than 20'.

c. MC cable shall have mechanical or threaded type support means to building d. MC cable shall be supported in the ceiling space with independent trapeze supports

or conduit clamps spaced at intervals not greater than 6' apart, grouped less than 6 cables together and support allows for 50% future growth of cables. Cables shall be secured within 6" of a connection to a junction box or luminaire or device. Support system shall be secured to building structure and not to ceiling supports or other equipment and device support systems. e. Where MC cable is used in spaces with 0-10V dimming, provide UL listed cable

f. Where MC cables are bundled, stacked or grouped together, the combined current

carrying conductors (including neutrals) in the group of cables shall not exceed 18 conductors, and each cable shall be rated for 20A or less. Where cables exceed the parameters above, replace cables with conductors in conduit. 9. Provide flexible connections for final connection to motors or other vibrating

with integral power and 0-10V control wiring or separate cables for power and

equipment. 10. Provide flexible connections for final connection to motors or other vibrating 11. Provide plastic bushings wherever conductors would otherwise be exposed to threaded

metal fittings. 12. Conduit types:

a. Outdoor, buried: Schedule 40 PVC, Solvent fused PVC fitting. b. Outdoor, exposed: Threaded RMC, matching threaded fittings.

c. Outdoor, flexible final connections to vibrating equipment: LFMC, malleable iron type fittings, listed for outdoors.

d. Indoor, subject to physical damage: Threaded RMC, matching threaded fittings. e. Indoor, dry, not subject to physical damage: EMT, set screw or compression fittings. f. Indoor, dry, flexible final connections to vibrating equipment: FMC, malleable iron

a. 600V VFD shielded cable downstream of VFD, thru equipment disconnect to motor b. Cable, connectors and termination kits shall be by Service Wire Co.

13. For connections to motors fed from variable frequency drivers (VFD) Provide:

c. Use Tray Cable type: ServiceDrive ASD/VFD cable, with 3 stranded, insulated crosslinked polyethylene (type XHHW-2) conductors, 3 symmetrical bare coper ground conductors, UL 1277. Cables shall have 5-mil helical copper tape shield, and overall PVC jacket for use in wet or dry location. See drawings and schedules

d. Cable shall be located in RGS or LFMC at all time, provide VFD terminating connectors listed for use with raceways and cable. e. At terminations provide VFD cable termination kit sized for the cable being

terminated (typical for drive, equipment disconnect and equipment connection. f. Installation of cable, connectors shall comply with manufacturer's recommendations.

g. Testing and closeout documentation showing acceptable or no common-mode transient current, corona discharge and crosstalk between cables. 14. Coordinate conduit installation with other trades. Where conduit is in the vicinity of equipment, coordinate conduit locations to ensure access and clearances about

equipment are maintained

15. Exposed raceways and boxes not in finished spaces shall be custom painted to match adjacent surfaces and surface colors. Where surfaces have more than one color, provide color scheme to match existing.

16. Exposed raceway systems, enclosures, trays, boxes and covers in unfinished ceilings shall be custom painted to match existing. 17. Except where code requires otherwise, use steel boxes of the proper type, not less than 4" square. Secure firmly, true, square, and, where mounted in a finished wall, flush with the finished surface. Where outdoors, provide cast metal NEMA 4X boxes custom

painted to match adjacent surface. 18. Where drawings note or show surface mount devices in finished or unfinished spaces, iunction boxes or device back boxes that are exposed, in finished spaces and below 7' shall be cast metal box custom painted to match adjacent surface with wiring fed from

ceiling space above. 19. Low-voltage cable may be installed open in accessible indoor ceiling spaces, attics and in hollow gypsum-board partitions; otherwise, provide raceway. Support low-voltage at

maximum 60" intervals with J-hooks or other devices listed for low-voltage cable 20. Support cables, conduits, and junction boxes rigidly and securely with heavy duty clamps and anchors listed for the application and installed according to their listing.

21. The use of spring tension cable or conduit support clips is not acceptable. Connectors to be threaded type with locking washer. 22. In finished spaces, all wiring shall be concealed under floors, in walls, or above

ceilings, unless drawings indicate otherwise. 23. In unfinished spaces, all wiring shall be concealed under floors, in walls. Exposed raceway systems, enclosures, boxes and supports is acceptable where located snug to the upper cord of roof structure or where approved in the field by the Engineer.

24. Where new devices are located in existing walls such as, but not limited to, block, drywall, and plaster, channel or fish, cut, patch and paint wall to match existing surface. 25. Identify each wire and device on the project with a circuit number. Use wrap-around tape at the ends of wires.

26. Where circuits penetrate an interior or exterior masonry wall seal annular space between conduit and surface to maintain fire, smoke or sound rating. 27. Seal all wall and floor penetrations. For fire-rated walls or floors, provide listed penetration sealant or other assembly to maintain rating.

28. Outdoor branch circuits shall have minimum 24" cover and shall be provided with a continuous warning tape.

29. Outdoor feeders shall have minimum 24" cover, shall be concrete-encased (3"), and shall be provided with a continuous warning tape. 30. For 208Y/120V systems, use black (phase A), red (phase B) and blue (phase C) color

31. For 480Y/277V systems, use brown (phase A), orange (phase B) and yellow (phase C) 32. Megger each feeder circuit. Conduct test with 1000V DC for 1 minute. Test phase to phase, phase to neutral and phase to ground for each conductor. Provide electronic test report showing each test outcome. Where resistance values are under 25 megohm,

D. Grounding and Bonding 1. Provide grounding and bonding as below, in addition to requirements of NEC.

2. Provide insulated copper equipment grounding conductors in all circuits. 3. Where ground bars are indicated, provide Erico or equal copper bar, minimum 1/4" thick x 4" wide x 18" (minimum) length with manufacturer's mounting kit including

E. Additional Grounding and Bonding for Welding Shop

correct deficiency and retest. Turnover test report to Engineer.

1. To reduce high frequency interference from welding equipment, provide a #8 copper wire around the perimeter of the welding shop in the ceiling space bonded to structure every 15' maximum and in the corners of the room. Conductors shall be an uncut soft-drawn bare copper wire bonded to a ground rod in each of the 4 corners of the room and to the electrical service entrance ground bus.

The following items within 50' of a welding booth or welding receptacle shall be bonded to the perimeter copper conductor with a bare dedicated solid #8 conductor, do

a. A 10'x.5" diameter ground rods in each of the four corners of the welding shop. b. Steel door frames.

c. Steel roll-up door frames. d. Steel window frames. e. Electrical bus ducts, raceways and steel conduits.

f. Steel exterior panels every 30'. g. Steel interior panels every 30'.

h. Steel supply and return air ducts for each piece of mechanical equipment providing cooling, heating or exhaust in the space. i. Exhaust fan duct work.

j. Indoor and roof mounted mechanical equipment. k. Air pipes entering the space. 1. Gas pipes entering the space.

m. Water and drain pipes entering the space. n. The frame of grinding area booths. o. Steel roof structure, each cross bream in shop and in the adjacent shops.

 p. Local panel ground bars. q. Service entrance switchboard ground bar. r. Outdoor fence around dust collector (use exothermic welded connection) at opposite

s. Metal cabinets or metal storage cabinets.

t. Motor starters and disconnects. u. Free standing tables. v. Ground bar in each booth, from ground bar.

Provide a ground bar in each welding booth with a dedicated #8 bonding conductor to the perimeter ground electrode in the ceiling. From the ground bar provide dedicated #8 copper conductor to each of the following associated with the booth: a. Pipe support structure. b. Welding booth structure.

c. Welding fume arm. d. Welding machine. e. Electrical steel boxes and conduits at the booth. f. Welding table.

type, with 1' of slack at each end.

g. Luminaire support structure. 4. Where bonding conductor is exposed below 12' provide bonding conductor in steel conduit with ground bushing at each end of the conduit connected to the bonding

5. Bonding connections shall be UL listed for the application, mechanical or welded type when connecting to equipment or steel. 6. Bonding connection to ground bar shall be compression type with double crimp, double

drawings. Provide legend indicating "Contactor Reset" and "Contactor Off." Use of hole each hole bolted to the ground bar. 7. Bonding connections to perimeter ground electrode and equipment shall be mechanical

F. Welding Equipment

1. Coordinate lighting and equipment layout in welding booths with existing conditions, fume arm, welding equipment, gas pipping and new electrical equipment. Provide mock-up of booth as noted.

2. Each welding booth shall be provided with one NEMA L15-60R special receptacle located in angled backbox and fed from local bus duct above with 3 #6 and #10 conductors in 1" RGS conduit, unless noted otherwise on the drawings.

3. Each welding booth shall be provided with one NEMA 5-20R receptacle fed from local panel with 3 #10 in 1" RGS conduit, unless noted otherwise on the drawings. 4. Back boxes and covers shall be cast iron type.

5. Location of receptacles as shown on the drawings and coordinated in mock-up.

6. Control of receptacles shall be through contactor fed bus ducts and panels with control of contactors from emergency stop buttons shown on the drawings. 7. Receptacles shall be surface mounted in cast iron boxes, matching cast iron hinged covers, with RGS conduit from box to accessible ceiling space. Special receptacles shall

have angled outlet facing towards the floor. 8. Each welding booth will be furnished with a 480V welding machine with a cord. Replace existing plug with new. NEMA L15-60P plug, type to match special receptacle being provided at each booth.

9. Where furnished welding machines are 480V, 1-phase, provide plug that minimize overload on a single phase. For example, if there are 3 welding 408V 1-phase machines, terminate the first machine to phases A and B, machine 2 to phases B and C and machine 3 to phases C and A. Repeat this pattern as required.

10. cord connection between welding equipment and local disconnect, type SOJW 3-#6 and

11. Provide ground bar in each booth mounted beside 120V receptacle. Comply with requirements in the sections above. 12. Where bonding conductor is exposed below 10', provide conductor in ³/₄" EMT, or RGS

where subject to physical damage. Conduit shall have grounding bushings at each end

connected to the bonding conductor. 13. Seal all wall penetrations through welding shop walls to prevent dust and sound migration, use silicone or mortar mix.

G. Surface Raceway

1. Use Wiremold 5400-series or equal, ivory/white, large, non-metallic, two-channel system. New raceway shall match existing Wiremold used elsewhere. Use 5400-series

unless noted otherwise on the drawings 1. Use Wiremold 5500 Non-metallic Wiremold 3 channel with single cover where extra-large raceway, ivory/white, as indicated on the drawings. Use data bracket CM-EPLA with keystone inserts.

2. Provide all fittings for a complete installation where shown on the drawings. Provide corners, end caps, rises/drops, etc., as required. 3. Provide recessed conduit drops and recessed boxes for feeds in wall behind raceway Provide 0.75" conduit for power channel and 1.25" conduit for low-voltage channel. Provide at least one set of drops for each 20' of raceway.

4. Provide brackets for in-line device mounting. 5. Coordinate mounting height of raceway with millwork and furniture, and obtain Owner approval for height selected before installation.

H. Wiring Devices 1. Standard switches shall be ivory or as directed, extra heavy-duty spec grade, 277V, 20A, manufactured by Leviton, Hubbell or Pass & Seymour. Where keyed switches are shown provide barrel key locking type. Where pilot-lighted switches and other types are noted, provide those types of the same quality by the same manufacturer.

2. Standard receptacles shall be ivory or as directed, extra heavy-duty spec grade, 120V, 15/20A, grounding type, manufactured by Leviton, Hubbell or Pass & Seymour. Where other receptacle types are noted, provide those types of the same quality by the same 3. Standard GFCI receptacles shall be extra heavy-duty spec grade, UL 943, 10kA

maximum interrupting capacity, weather resistant complying with requirements above.

4. Where receptacles are located in damp or wet locations, provide weather resistant 5. Provide cast metal weatherproof (WP) boxes and other housings as noted.

6. Outdoor receptacles not protected from the weather shall be provided with hinged metal

WP "in-use" covers, where WP rating is maintained with equipment plug is inserted 7. Indoor receptacles in wet locations and outdoors under roofed openings, canopies, or marquees, not subject to beating rain or water run-off, shall be cast metal WP type when receptacle is covered (attached plug cap not inserted and receptacle cover closed).

8. Provide brushed stainless steel wall plates for devices in indoor finished spaces,

galvanized steel wall plates for devices indoor unfinished spaces and cast iron or aluminum covers outdoors. Use one-piece wall plates for all groups of devices. Plates shall be square and true, with the edges of the plate in continuous contact with the wall. 9. Identify each device on the project with a circuit number. Use self-adhesive labels on the faceplate of each switch or receptacle.

10. Use ivory devices when connected to normal circuits, red devices when connected to standby/emergency power circuits. 11. The color of wiring devices and type and color of device plates shall be indicated on

submittals and shall be coordinated with the Architect prior to installation.

I. Cord Reels

1. Provide Daniel Woodhead (Molex) Pow-R-Mite cord reels. 2. Cord reels shall be industrial duty, NEMA 4 rated, adjustable cable guide in 5 degree increments over a range of 270 degrees, capable of spring tension lift or stretch cable with no more than 10% sag, reel and housing shall be cast aluminum. At each cord reel provide a receptacle fed from local panel or as shown. Provide 6' cord with plug used to connect cord reel to building electric system.

3. Cord provided with reels shall be 600V SOW extra hard usage, oil resistant cord, number of conductors and gauge as noted below. 4. For 20A 120V cord reels provide cord reels with 600V/30A rated collector ring, 40' of 10/3 cord - Duplex receptacle in a rubber coated box and flip up protective cover -

heavy-duty stainless-steel mesh cable grips - ball stop - 330-degree pivot base). 5. Locate reels in ceiling, supported from building structure above; coordinate mounting location with Owner/Architect.

J. Distribution Equipment

system voltage, and source location.

1. Distribution equipment shall be manufactured by Cutler-Hammer, GE/ABB, Siemens, 2. Circuit breaker and other lugs shall be rated 75C. 3. When adding circuit breakers to existing panels, provide new units listed for use in the

panel, matching the existing ones in the panel. 4. Panelboards shall be hinged door-in-door dead-front, having bolt-on molded-case circuit breakers.

5. Dry transformers shall meet DOE 2016 efficiency requirements. 6. Safety switches shall be heavy-duty, with contacts for VFD. 7. Enclosures shall be suitable for installed location.

8. Provide new typewritten panel directories for all panels where work is done, including existing panels. Incorporate Owner's final room designations for all circuits. Obtain approval before installing.

9. Provide handle locks on breakers which serve emergency lighting circuits, exit signs, fire alarm equipment, security equipment, lighting control panels & lighting control devices, camera equipment, generator controls, PA system, and card access equipment. 10. Identify panelboards, safety switches, transformers, contactors, switchboard switches and motor starters with engraved plastic laminate labels, showing panel designation,

11. Where panels with contactors are scheduled, provide emergency stop buttons at locations shown on the drawing. Emergency stop buttons to consist of a red cast aluminum 60 MM mushroom button, IP 65, emergency stop legend plate, contact block and mounting collar. Emergency stop button to mount in a cast metal junction box, stainless steel coverplate. Emergency stop buttons to have a 3mm or 4mm aluminum red button with the word "Emergency" inscribed in the button or on a circular legend on the coverplate at the base of the button. 13. Where contactor panels are noted the minimum rating shall match panel being

controlled downstream. Provide emergency stop buttons wired to open contactor panels and enclosed contactors.

14. Where contactors are noted, provide panelboards with integral contactors with a minimum matching rating of the panel being controlled. Provide emergency stop buttons wired to open contactor panels and enclosed contactors. 15. Relocate non-illuminated 2-button contactor reset/off switch to location shown on

switch shall provide control of welding technology contactors (panel or enclosure mounted types), in addition to the emergency stop buttons. 16. Coordinate control voltage with existing and new controlled equipment in the same space. Emergency stop buttons and on/off push buttons located in the welding shop or welding theory, or electric rooms shall provide on (close contactor) /off (open contactors) for all contactors associated with welding technology.

A. Owner Furnished Equipment

documents and specifications.

3. Owner furnished equipment:

Busways.

 Transformers. Cord Reels. Luminaires.

1. Owner to furnish equipment noted below and have it

provided final connections, testing and startup. 2. Comply with bid documents for installation, circuiting execution, coordination, labeling, testing, closeout and other requirements for the equipment as shown on the bid

delivered to the job site. Electrical Contractor to install, and

ADDITIONAL ELECTRICAL NOTES

17. Provide spare fuse cabinet with fuses for each type used, see fuse specifications. Coordinate location of enclosure with Owner in the field.

K. Busways

1. Provide busways by GE, Spectra series busway with aluminum plug-in components or equal by Cutler-Hammer, Square D or Siemens. 2. Equipment and busways shall be rated as scheduled and shown on the floor plans.

3. Provide all accessories for a complete system including hangers, tap boxes, tees, elbows

end caps, supports and any additional fittings. 4. Secure busway from building structure above at intervals recommended by manufacturer, (2 supports per 10' section of bus duct minimum).

5. Locate sway bracing on all busways at intervals no greater than 12', minimum of 2 per busway with one brace at each end or at each elbow, unless manufacturer recommendations are more stringent 6. Provide Quick-Make, Quick break floor operable plug-in fused disconnects with 6' rope

drop. Refer to Busway Schedules for additional information on disconnects. 7. Provide SOW extra hard service cord between busway fused disconnects and cord drops

shown on the drawings. 8. Provide EMT or RGS in the ceiling cavity connected to RGS conduit on wall to provide

a raceway between the busway disconnect and special receptacles at the welding booths. Provide all connections to equipment and disconnects. 9. Provide Stainless steel strain relief cable grips with threaded aluminum fittings shall be provided for the cord at the busway disconnects and equipment terminations for cord

10. The cord shall be installed as a vertical riser from the tension take-up support device and equipment terminations

11. The length of the cord from a busway disconnect to a suitable tension take-up support device shall not exceed 6', in addition to what is shown on the drawings provide additional sections of bus to comply with this requirement.

12. Provide 2 hooked 6' sticks used to manually turn on/off disconnects 13. Coordinate installation of busway with new work and existing conditions, procure busway after coordination is complete

14. Test busways as recommended by manufacturer, turn over written report to

Architect/Engineer. L. Lighting Control Devices

1. Provide Lutron Vive wireless lighting controls to match components used elsewhere in the building. Networking of spaces not required. . Where shown on the drawings provide: dimming controls, switching control, UL924 emergency lighting, daylight sensors, wireless switches, wireless switches with

dimming controls, occupancy sensors, hubs, panels and support hardware and wiring required to provide devices shown in the lighting plans, details, and schedules. 3. Classrooms, theory rooms and similar spaces shall have a minimum of 2 zones with odd and even rows switched independently, and control of both zones from locations shown

on the drawings. 4. Offices and similar spaces shall have minimum of two zones, and control of both zones from locations shown on the drawings.

5. Use 8A Pow Packs for non-dimming lighting controls and equivalent 0-10V dimming or emergency where shown. where Locate power packs at the entrance to the space, 12" above ceiling at the main door. Where emergency lighting is shown, use UL924 power packs and control hub or hardware. Circuit hub from local non-emergency lighting

6. Use battery operated wireless PICO switches, two button on/off switches for non-dimming control and 3-botton with on/off/preset, raise/lower for dimming control.

7. Use Radio Powr Savr wireless occupancy and or vacancy sensor: a. ceiling mounted battery operated, 360-degree located in the center or the ceiling. Supply recessed mounting ring kit for each sensor. Sensor shall be capable or sensing 20'x20' (400sqft) at 9' above the floor. b. occupancy sensors and wall mounted or ceiling corner mounted shall be 180-degree, capable of major motion for 3000 sqft and minor motion of 1500 sqft. Provide wall

and ceiling mounting hardware to allow wall mounted type sensors to be directional. 3. Maintain 4' between occupancy sensors and air grills and mount devices within line of sight of entrances, teachers desks and student areas. Provide additional sensor as required for full coverage. 9. Sensors shall be set for 30-minute timeout. In spaces with 2 or more zones are provided,

sensing of occupant shall turn on 50% of the lighting, other 50% shall be turned on manually Exception: Toilet rooms, corridors, open office areas, shops or similar spaces where automatic on/off shall be provided. 10. Comply with manufacturer's wiring requirements. Use plenum rated wiring. Where controls manufacturer recommends Category 5E wiring, the lighting control system supplier shall also supply all Category 5E factory terminated and tested, plenum rated,

11. Controllers or occupancy sensors shall have additional contact for HVAC integration. 12. Switches shall be white or as directed with coverplate material and color to match wiring devices.

13. Submittal shall include cutsheets for all devices and wiring, floor plans showing devices

yellow cable with RJ45 connectors needed to support installation. Do not create links in

and wiring, single line diagram and a sequence of operation for each device. 14. Factory-authorized technician shall train contractor before system rough-in. After submittals are provided for approval, provide site visit to review system layout, time schedules and interfaces.

15. Factory-authorized technician shall provide on-site system startup. 16. Programming shall meet the requirements of IECC 2015, section 405. 17. Factory-authorized technician shall provide on-site Owner training.

18. Provide warranty for 10-year battery life. 19. Controls shall be initially set as described above and on the Drawings. After the Owner has become accustomed to the use of the system, make further changes at the Owner's direction. Provide one visits to the site for this work, in addition to any punchlist,

20. Turn over attic stock to Owner at completion of work as follows: 6 ceiling mounted sensors and mounting hardware, 6 non-dim power packs and 6 2-button switches.

M. Lighting 1. Provide submittals for each luminaire. When a luminaire is proposed as a substitute for

that specified, provide photometric report for the exact model proposed.

2. Provide driver/ballast disconnecting means whether or not required by NEC. 3. Each luminaire shall be provided with driver/ballast, lamps, trim and mounting hardware suitable for the installed location. 4. Provide hardware to support luminaires independent of the ceiling support system.

5. For grid-mounted luminaires, provide hardware to securely attach the luminaires to the 6. For linear pendant luminaires mounted in grid ceilings or on the grid, provide a single junction box used to covert from flexible cord to plenum rated circuiting and to support the pendant stem. If necessary, to keep separation of normal and emergency circuiting, provide dedicated junction box at one end of the pendant used to support stem and house normal circuiting and another junction box at the other end of the pendant used to

support the stem and housing of emergency circuiting. Identify each luminaire on the project with a circuit number. Use self-adhesive labels inside luminaires, placed so that the labels are visible when changing lamps but not visible in typical use. 8. For adjustable fixtures, adjust as directed by the Architect.

9. See architectural ceiling plan for exact placement of lighting. In case of gross discrepancy between lighting plans and architectural ceiling plan, alert architect and engineer for resolution. N. Emergency Lighting

junction box shared with normal system wiring.

1. Provide emergency lighting equipment as specified on the drawings. 2. Comply with local ordinance for exit signs. Where exit signs are shown at entrances or exit doors, provide exit sign high on wall and another low on the wall, final locations shall be coordinated with AHJ in the field. 3. If in conduit or junction box, emergency system wiring shall not be in a conduit or

O. Teledata Wiring System 1. Provide a unified Category 6 teledata wiring system, with a cable for each telephone and data jack shown on the drawings. Run cables from jacks to new modular patch

panels in existing cabinets or racks. Provide system components by Leviton with plenum-rated white Category 6 cabling, faceplates, jacks and patch panels to match existing category 6 wiring throughout the 3. Where teledata jacks are indicated to be relocated, prior to any demolition, test teledata

link with an automated tester to EIA/TIA standards to verify link was fully functional.

Turnover test reports to Architect/Engineer. After testing is complete continue with

work shown on the drawings. Uncoil excess wiring in the ceiling, extend wiring to new

location shown on the low-voltage drawing. Remove existing jack and replace with new

jack and cover plate. Retest link with new jack at new location. Contractor shall ensure that location of wiring and new device meet or exceed initial test results. If follow up testing does not meet or exceed initial test report, the contractor shall correct

deficiencies or provide new to match existing. Remove wireless access antennas and supports turn over to Owner. Coil and protect wiring in the ceiling from construction dust. Relocate device as shown on the drawings and install Owner furnished wireless access antenna. Comply with requirements above

for relocating teledata jacks and testing. 5. At location where new wireless access antennas are shown, not relocated, comply with requirements for teledata devices, install Owner furnished antenna.

6. Provide raceway except in accessible indoor ceiling spaces, attics and in hollow gypsum-board partitions. At jack locations, provide multiport stainless-steel faceplates with four openings.

Leviton QuickPort ivory jacks. Provide jacks as indicated and electrical ivory blank modules for unused jack locations Terminate teledata wiring in Leviton 2-unit 48-port QuickPort patch panels, with one Category 6A data jack for each cable termination, and 5 spare jacks for future use.

panel, secure cables to support bars within 1" of terminations. 9. Provide 2-unit horizontal cable management below and above each patch panel, on the front and back of the rack. Horizontal management shall have covers to keep wiring secured in raceway

Include rear cable management bars that screw into the back of the rack at each patch

10. Unless Owner directs otherwise, jack labels shall have the form XY, where X shall be a letter designating the patch panel, and Y shall be a number designating the jack in the 11. Labels shall be placed at each end of the cable, on the workstation faceplate, and on the

patch panel. Use machine-printed, self-adhesive labels. 12. Provide as-built plans with each location shown, indicating the label used and the number of jacks. 13. Test installed wiring through patch panels and jack locations to specified EIA/TIA

standards using an automated tester. Repair any deficiencies and retest. Submit testing

14. Cross-connect wiring and patch cables will be provided by the Owner.

P. Television Distribution Maintain existing Television system.

3. Provide approval and field coordinate location of devices, and boxes with the Owner prior to rough-in work. 4. Television, controls and mounting by Others.

2. At locations of televisions provide teledata jacks, duplex receptacle and 1.25" conduit

to accessible ceiling space, comply with requirements for Teledata Wiring System.

). Multimedia

At locations of smartboards provide duplex receptacle. Provide 2-compartment raceway along teaching wall for power and data, extend to smartboard on front wall.

Provide approval and field coordinate location of devices, and boxes with the Owner

4. Smartboard, controls, and mounting by Others. R. Paging System

prior to rough-in work.

1. Remove and turn over speakers to Owner. Remove any abandon-in-place conduits. 2. New speakers and wiring by Owner as part of overall system upgrade. 3. Coordinate demolition work and other new work with Owner and the speakers they provide

S. Clock Remove abandon in place circuiting and demolished clocks and clock speaker units

Relocate existing digital clocks as shown on the drawings. Owner to extend circuiting to new location, provide supports and back boxes as required for relocation of clocks.

4. Prior to any demolition, test and verify in writing correct clock and speaker operation of existing clocks in the area of work. Turnover report to Architect/Engineer. Include in test report if the clock functions correctly, clock voltage and other electrical characteristics. Report shall include the condition of the devices, any blemishes and pictures of existing combined components as previously installed and individual picture of each component. After report has been turned over to the Architect proceed with work shown on the drawings. Once new work is complete retest existing clocks in area of work. Contractor shall responsible to ensure clock function meet or exceed initial testing. Where follow-up testing does not meet or exceed initial test report, the contractor shall correct deficiencies or provide new to match existing.

New work related to replacement of door hardware or new door hardware to be provided by Owner's subcontractor in conjunction with construction.

T. Access Control

Maintain existing.

5. Maintain existing clock units not shown to be relocated.

3. Coordinate with the Owner's subcontractor as needed for new work. U. Intrusion Detection Maintain existing.

2. New work related to replacement of security sensors or new security sensors to be

provided by Owner's subcontractor in conjunction with construction.

3. Coordinate with the Owner's subcontractor as needed for new work. V. Video Surveillance

1. Maintain existing IP camera system. At locations of new cameras provide teledata jacks, comply with requirements for Teledata Wiring System, coordinate final location with Owner. 3. Owner to provide cameras, hardware and installation.

W. Fire Alarm 1. Modify the existing Edwards fire alarm system as noted below and shown on the Provide new devices shown on the drawings including: smoke detectors, heat detectors,

duct smoke detectors with key test/indicator swithes, horn/strobe units, and strobe-only units. Provide all power supplies, expansion boards, wiring, and programming required to support devices. 3. Fire alarm system managed and maintained by ADT Commercial at 101 Pheasant Run, Newtown, PA 18940, contact: Chris Fioravanti, Cell phone #: 267-228-3253, office phone number: 215- 579-7000, email: chris.fioravanti@redhawkus.com. Provide submittal, wiring, components and programming as recommended by ADT

Wiring shall be listed fire alarm cable as recommended by the manufacturer. 5. Provide shop drawings, I/O matrix, battery calculations, voltage drop calculations and other documentation required by NFPA 72 to the authority having jurisdiction. If the authority deems these items as required for approval of LVE plans, LVE requests that these be considered deferred submittals as described in 2015 IBC 107.3.4.1.

7. Provide record of completion, owner's manual, record drawings, and other testing and documentation to meet NFPA 72 requirements and satisfy the authority. X. Gas Detection Alarm Relocate devices to new weld shop. Provide new power circuiting as shown. Coordinate

6. Obtain permits and satisfactory inspections from authority having jurisdiction.

Y. Systems Provided by Others . Telephone handsets and telephone switch.

2. Data network equipment above physical layer. 3. Access control system. 4. New paging and intercommunications system. 5. Camera system beyond wiring.

ER

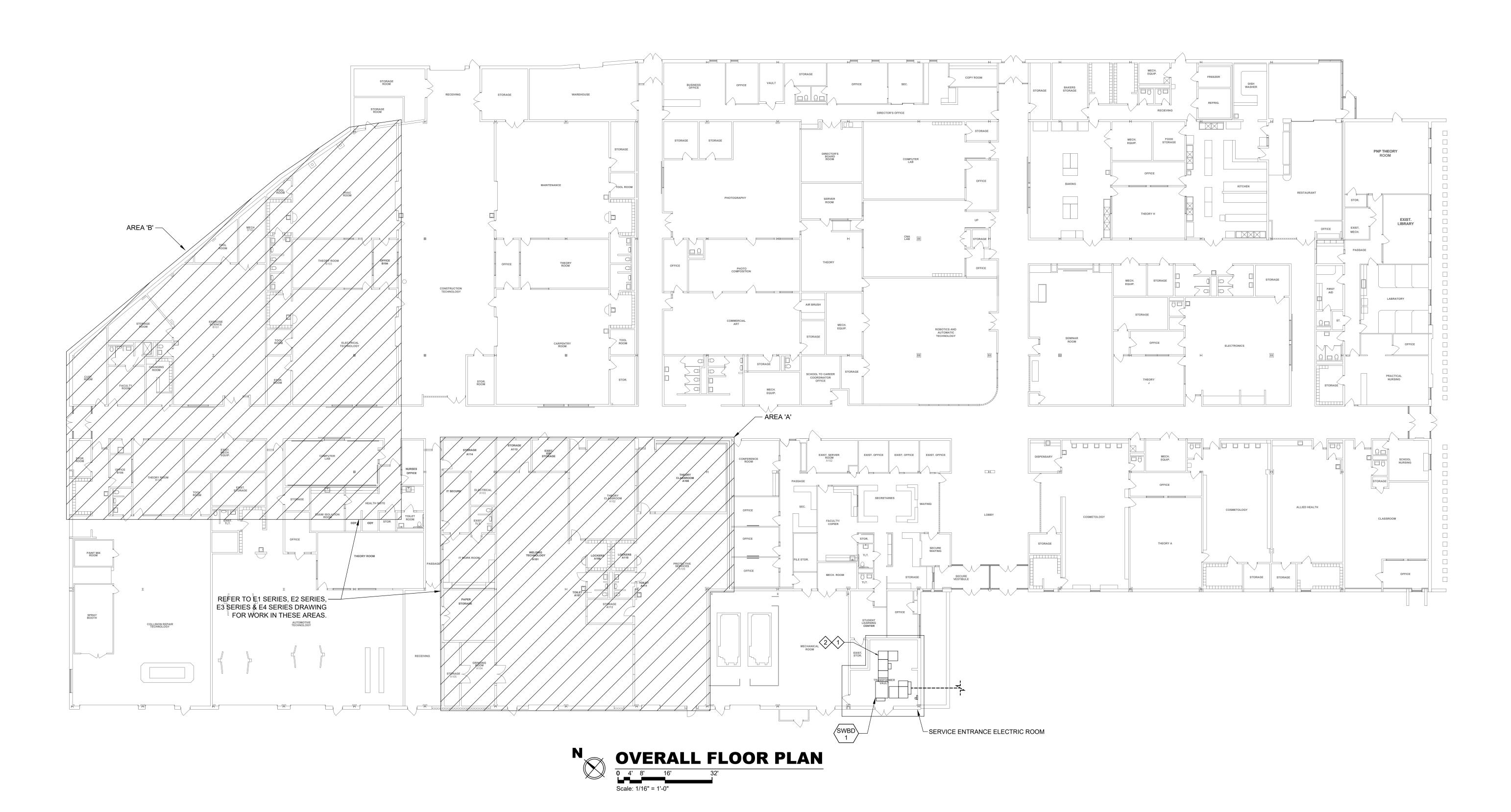
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E0.2



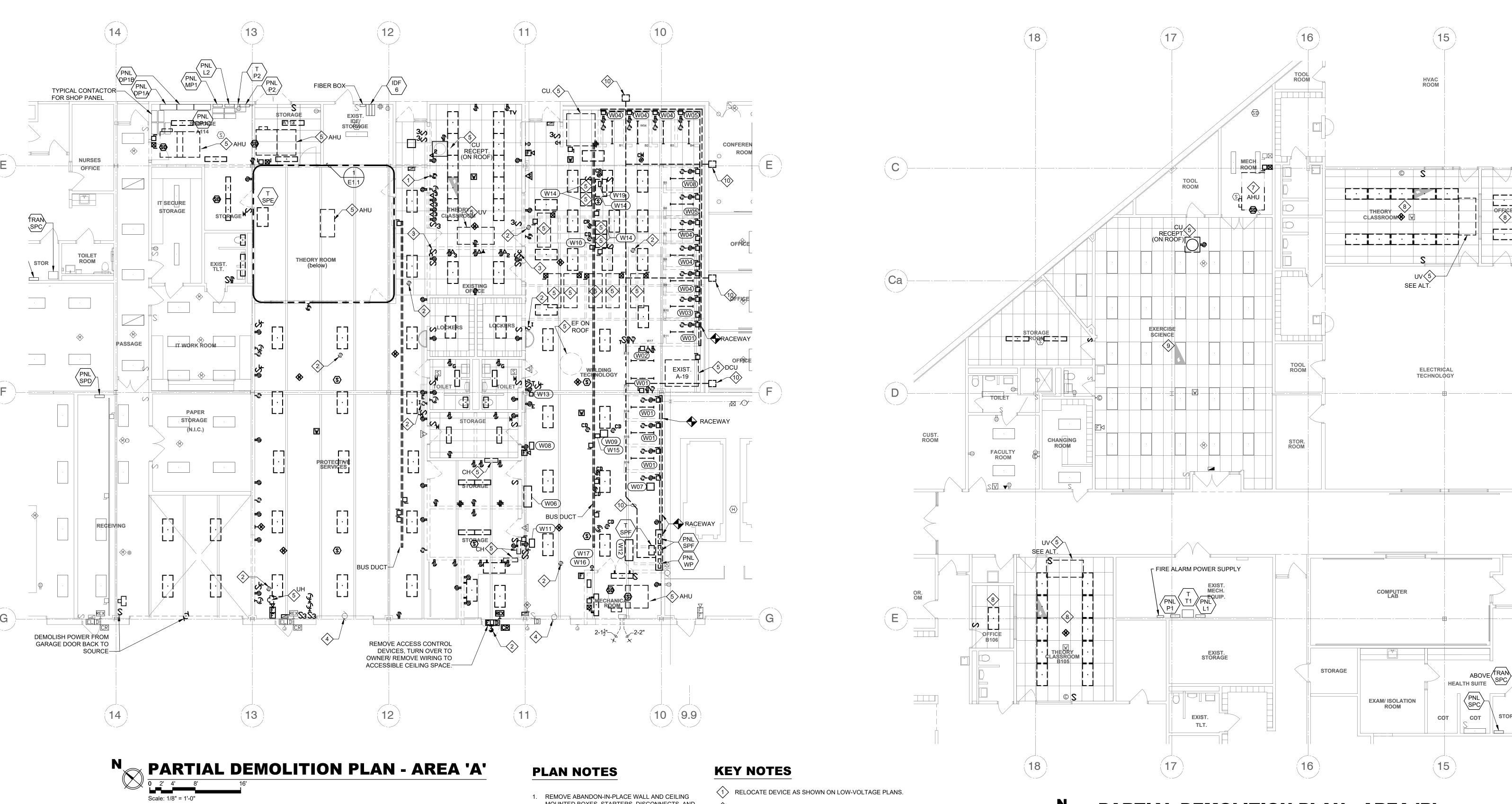
INTERIOR

LVE - 21146 **E0.3**



KEY NOTES

- FEED WELDING TECHNOLOGY PNL WT FROM SPARE 400A SWITCH, SEE PARTIAL SINGLE LINE DIAGRAM.
- EXTEND FEEDERS TO BUSWAY BW1 FED FROM EXISTING 400A SWITCH, SEE PARTIAL SINGLE LINE DIAGRAM.



THEORY CLASSROOM - DEMOLITION PLAN

MOUNTED BOXES, STARTERS, DISCONNECTS, AND

RACEWAYS. PATCH & PAINT TO MATCH EXISTING.

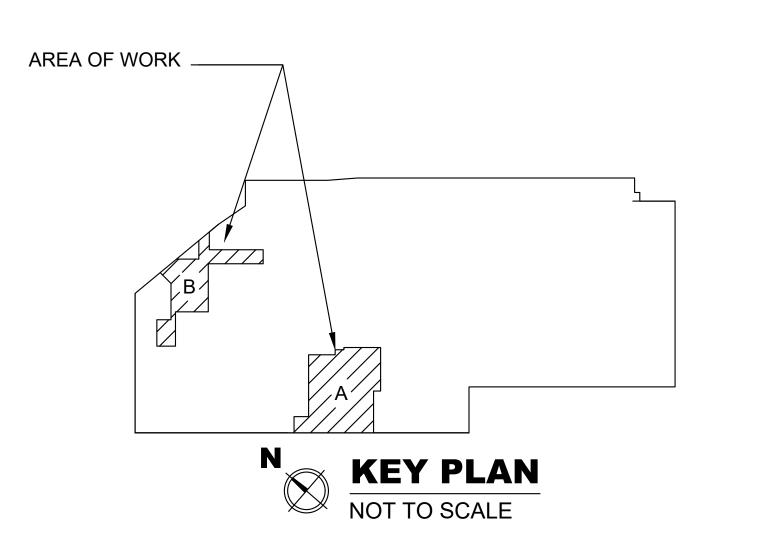
2. DEMOLISH LIGHTING AND CONTROLS AS SHOWN IN CLASSROOMS, STORAGE ROOMS, TOILET ROOMS, AND LIKE SPACES. CONNECT NEW LUMINAIRES TO EXISTING LIGHTING CIRCUITS THRU NEW LUTRON VIVE LIGHTING CONTROLS, OR AS SHOWN ON THE LIGHTING PLANS. IN THE SHOPS REPLACE POWER PACKS, OCCUPANCY SENSORS, BARROL TYPE KEY

- 3. DEMOLISH WIRING DEVICES & POWER EQUIPMENT AS SHOWN. REMOVE BRANCH CIRCUIT WIRING BACK TO SOURCE. EXTEND FEEDERS AS SHOWN ON POWER PLANS & SINGLE LINE DIAGRAMS.
- 4. DEMOLISH TELEDATA DEVICES, REMOVE WIRING BACK TO SOURCE. PROVIDE NEW AS SHOWN ON LV DRAWINGS.
- 5. DEMOLISH FIRE ALARM DEVICES, REMOVE WIRING TO ACCESSIBLE CEILING SPACE. EXTEND WIRING TO NEW DEVICES AS SHOWN ON LV DRAWINGS.
- 6. PATCH OPENINGS CREATED FROM DEMOLITION.
- . AS PART OF DEMOLITION IN THE WELDING SHOP, DEMOLISH ABANDON IN PLACE FORMER WELDING SHOP POWER DISTRIBUTION SYSTEM WITHIN AND AROUND THE SHOP. FIELD VERIFY THE EXTENT OF DEMOLITION, NOT ALL ABANDON CONDUITS AND BOXES MAY BE SHOWN ON PLAN. ASSUME AT A MINIMUM THAT THERE IS A CONDUIT SYSTEM, WITH ABANDON IN PLACE WIRING, EXTENDING FROM A LOCATION AT THE PANELS, THRU JUNCTION BOXES IN THE CEILING AND ON THE WALLS, TO CONDUITS STUBS OUT IN EACH BOOTH AND IN THE WALL AROUND THE WELDING SHOP.

- RELOCATE LUMINAIRE AS SHOWN ON LIGHTING PLAN. EXTEND CIRCUIT TO NEW LOCATION.
- (3) RELOCATE SHOP ON/OFF CONTACTOR CONTROLS AS SHOWN ON POWER PLANS.
- (4) REMOVE POWER FROM MOTORIZED DOOR. REFEED AS SHOWN ON POWER PLANS.
- REMOVE POWER FROM HVAC EQUIPMENT & CONTROLS. REMOVE CONTROLS & WIRING BACK TO SOURCE.
- DISCONNECT POWER FROM HVAC EQUIPMENT & CONTROLS. REMOVE CONTROLS. EXTEND CIRCUIT THRU NEW CONTROLS TO HVAC EQUIPMENT SHOWN ON POWER PLANS.
- REMOVE POWER FROM HVAC EQUIPMENT & CONTROLS. EXTEND EXISTING CIRCUIT THROUGH NEW CONTROLS TO NEW EQUIPMENT.
- (8) SEE ALTERNATE. REMOVE LIGHTING AND CONTROLS FROM CEILING TO BE REPLACED. TEMPORARILY SECURE LOW-VOLTAGE DEVICES IN THE CEILING. AFTER NEW CEILING IS INSTALLED RELOCATE LOW-VOLTAGE DEVICES IN THE CEILING. PROVIDE NEW LIGHTING AS SHOWN ON THE LIGHTING PLANS.
- SEE ALTERNATE. TEMPORARILY SECURE LIGHTING TO AND LOW-VOLTAGE DEVICES TO STRUCTURE ABOVE. AFTER NEW CEILING IS INSTALLED RELOCATE LIGHTING AND LOW-VOLTAGE DEVICES IN THE CEILING.
- REMOVE FORMER WELDING SHOP ABANDON IN PLACE POWER DISTRIBUTION SYSTEM, SEE PLAN NOTES FOR ADDITIONAL COMMENTS.



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



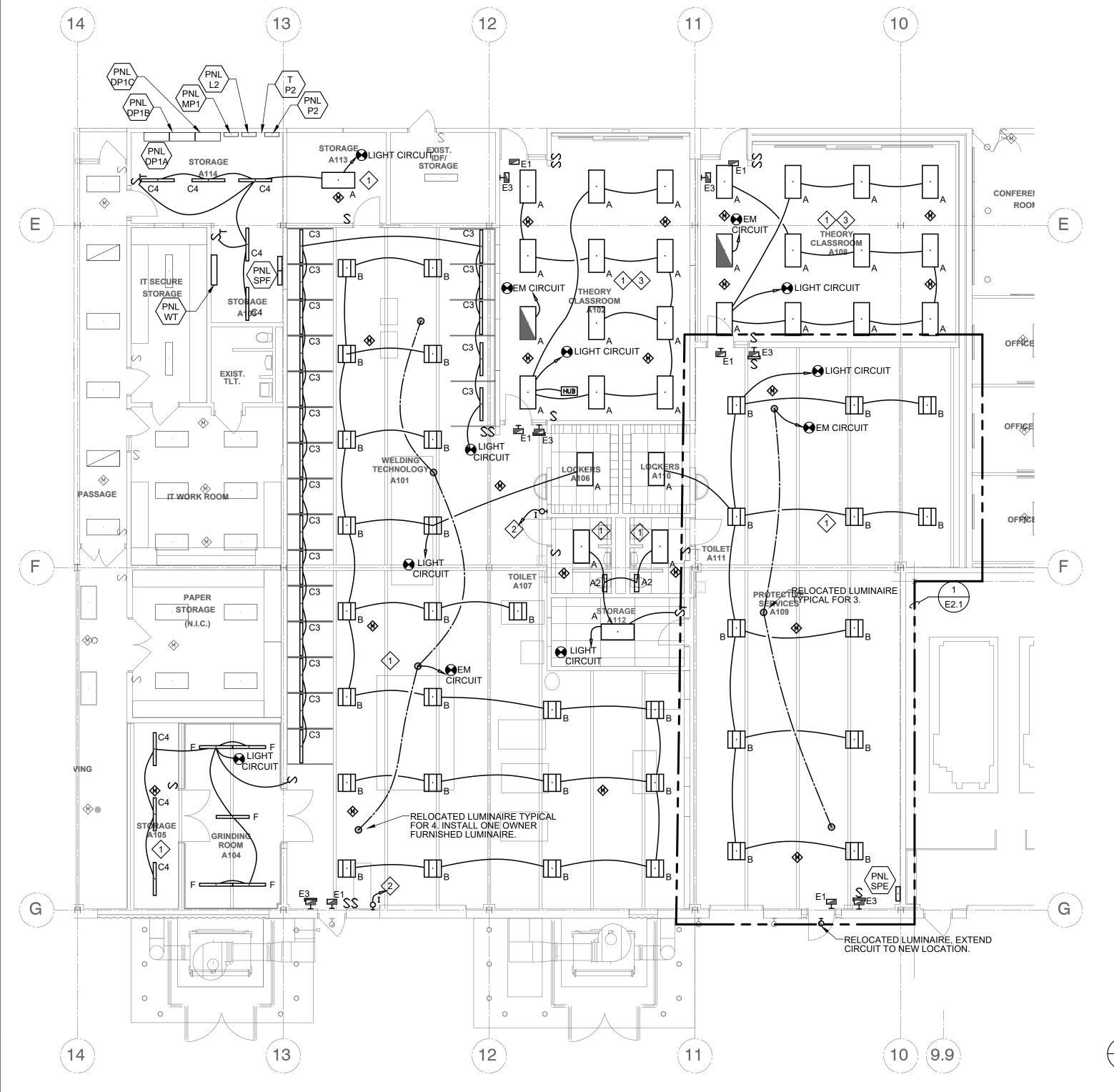
TYPICAL CONTA FOR SHOP PANE

OFFICE

LVE - 21146

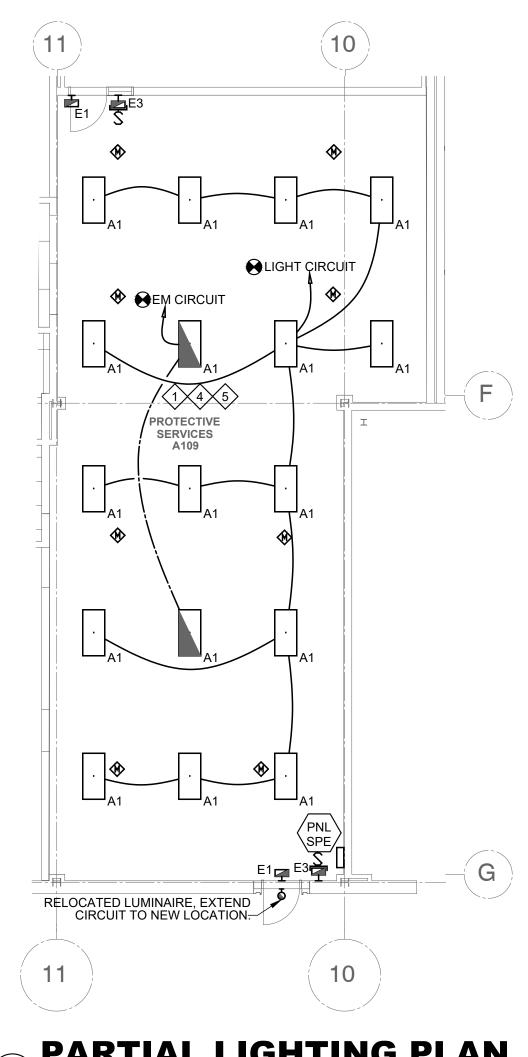
E1.1

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PARTIAL LIGHTING PLAN - AREA 'A'

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



PARTIAL LIGHTING PLAN - AREA 'A' - ALTERNATE

PLAN NOTES

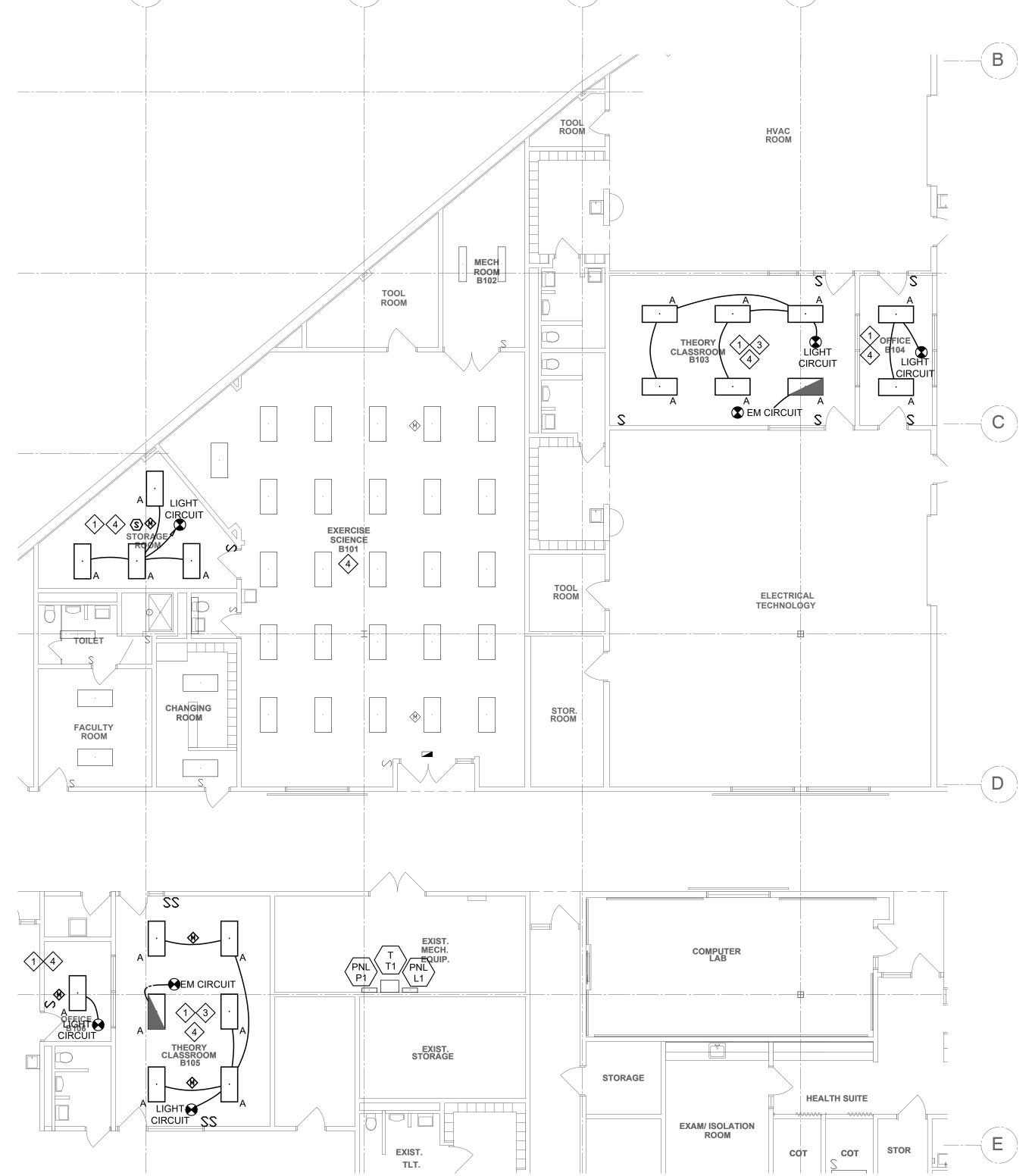
- 1. CIRCUIT EXIT SIGNS FROM LOCAL EXIT SIGN CIRCUIT.
- 3. REFER TO ARCHITECTURAL CEILING PLANS FOR NEW AND EXISTING CEILING GRID AND LUMINAIRE LAYOUT IN

KEY NOTES

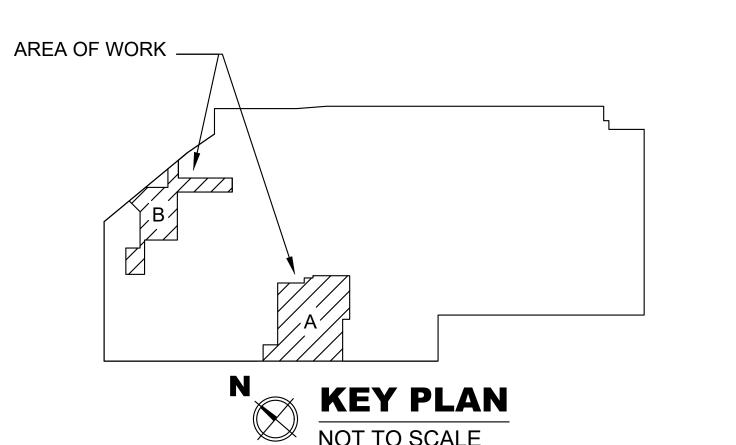
- PROVIDE LUTRON VIVE LIGHTING CONTROLS WITH DIMMING POWER PACK FOR EACH SWITCH SHOWN & EACH EMERGENCY LUMINAIRE. SEE ELECTRICAL NOTES ON E0.2 FOR ADDITIONAL REQUIREMENTS.
- (2) CONNECT INDICATOR LIGHT TO LOCAL RECEPTACLE CIRCUIT IN SHOP.
- IN THEORY ROOMS PROVIDE:

 -277V LIGHTING ZONE 1 ALONG THE TEACHING WALL.

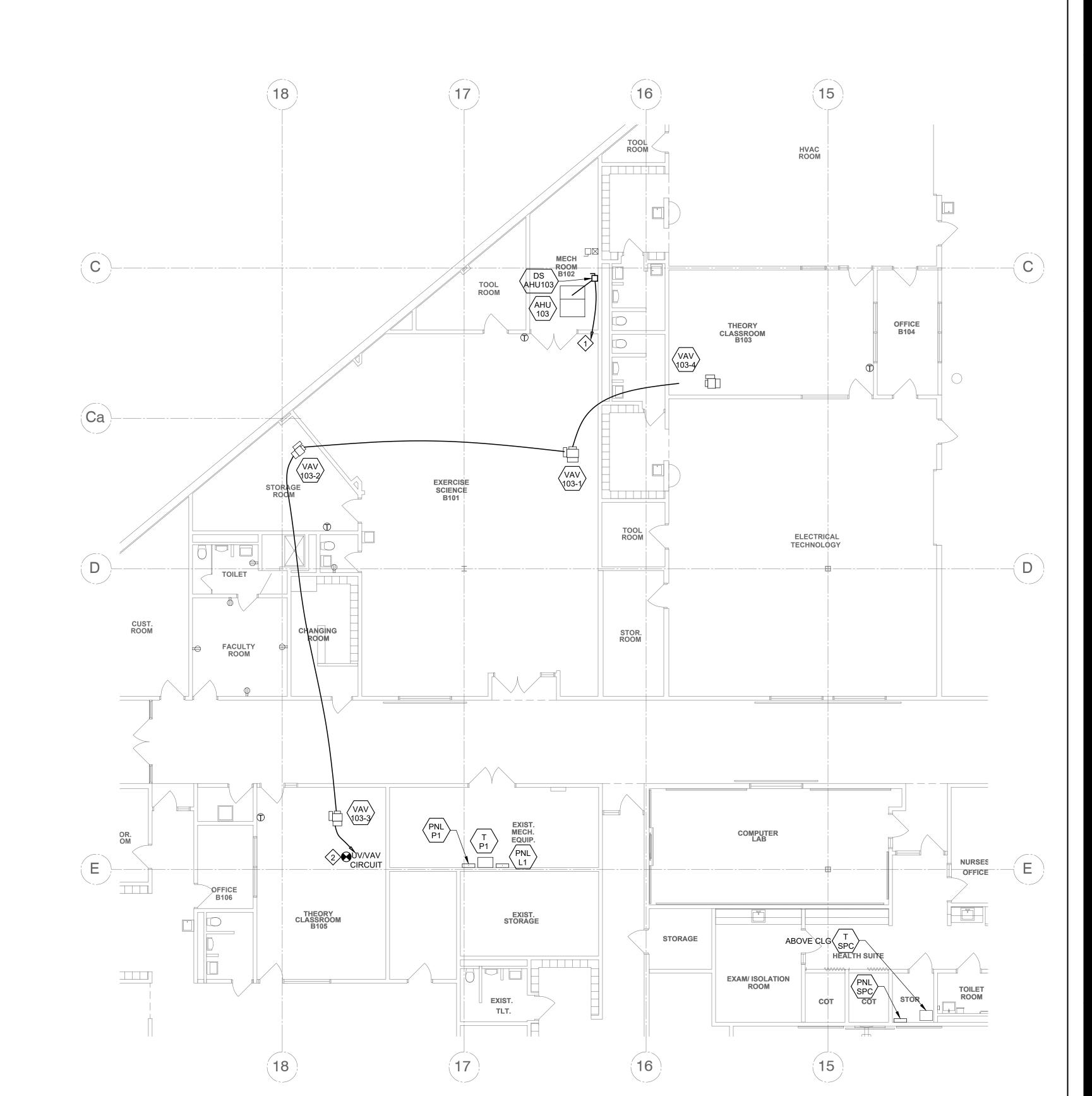
 -LIGHTING ZONE 2 CONSISTING OF EMERGENCY POWER PACK FOR 120V NORMAL EMERGENCY LIGHTING AND 277V LIGHTING GENERAL LIGHTING.
- (4) INSTALL NEW OR EXISTING LIGHTING AND CONTROLS AS SHOWN ON PLAN FOR ALTERNATE.
- PROVIDE 1 NORMAL POWER PACKS AND 1 EMERGENCY POWER PACKS FOR A TOTAL OF 2 ZONES.



PARTIAL LIGHTING PLAN - AREA 'B' - ALTERNATE



ADJUST FOOTCANDLE LEVELS FOR LUMINAIRE TYPES AS NOTED IN THE LUMINAIRE SCHEDULE.





12

TYPICAL 2-COMPARTMENT VERTICAL SURFACE— RACEWAY FROM HORIZONTAL SECTION TO TELEVISION, COORDINATE LAYOUT WITH

REFER TO ENLARGED PLAN ON DRAWING E5.1
FOR WORK IN THIS AREA.

IT SECURE STORAGE

IT WORK ROOM

STORAGE (N.I.C.)

TOILET ROOM

PASSAGE

EXIST. IDF/ STORAGE

CLASSROOM A102

LOCKERS A106

LOCKERS A110

STORAGE A112 SPE-3

PLAN NOTES

RELOCATE ON/OFF CONTROLS FOR SHOP CONTACTORS AT TEACHERS DESK. FINAL LOCATION TO BE COORDINATED WITH OWNER.

CLASSROOM

VAV

PROTECTIVE
SERVICES
VAV
101-1
SPE-7

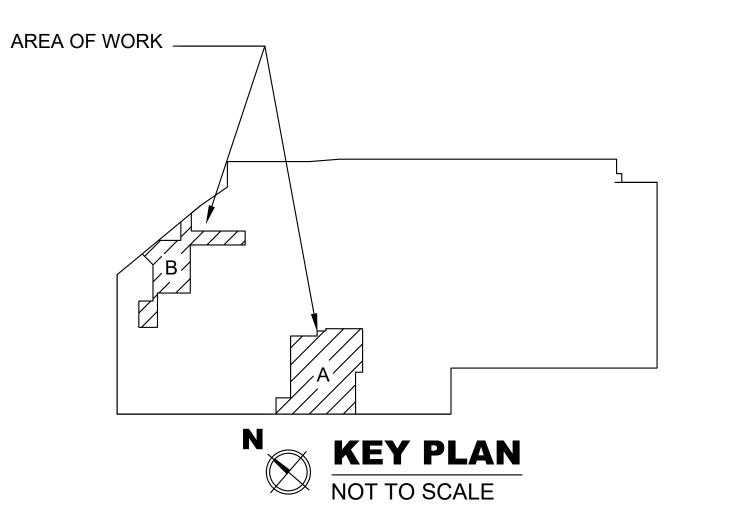
- PROVIDE CONTROL OF PROTECTIVE SERVICES CONTACTOR FROM EM STOP BUTTONS & RELOCATED ON/OFF CONTROL SWITCH IN THEORY CLASSROOM A108 & STORAGE A114.
- PROVIDE RECESSED BOX & 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE FOR THERMOSTATS. COORDINATE LOCATION WITH HC.
- 3. PROTECTIVE SERVICES A109 RECEPTACLES SHALL BE MOUNTED AT 2' TO TOP OF BOX.

KEY NOTES

- EXTEND EXISTING CIRCUIT THROUGH NEW CONTROLS TO NEW EQUIPMENT.
- 2 PROVIDE CIRCUITING TO VAV's AS PART OF ALTERNATE.



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



Щ

INTERIOR

LVE - 21146

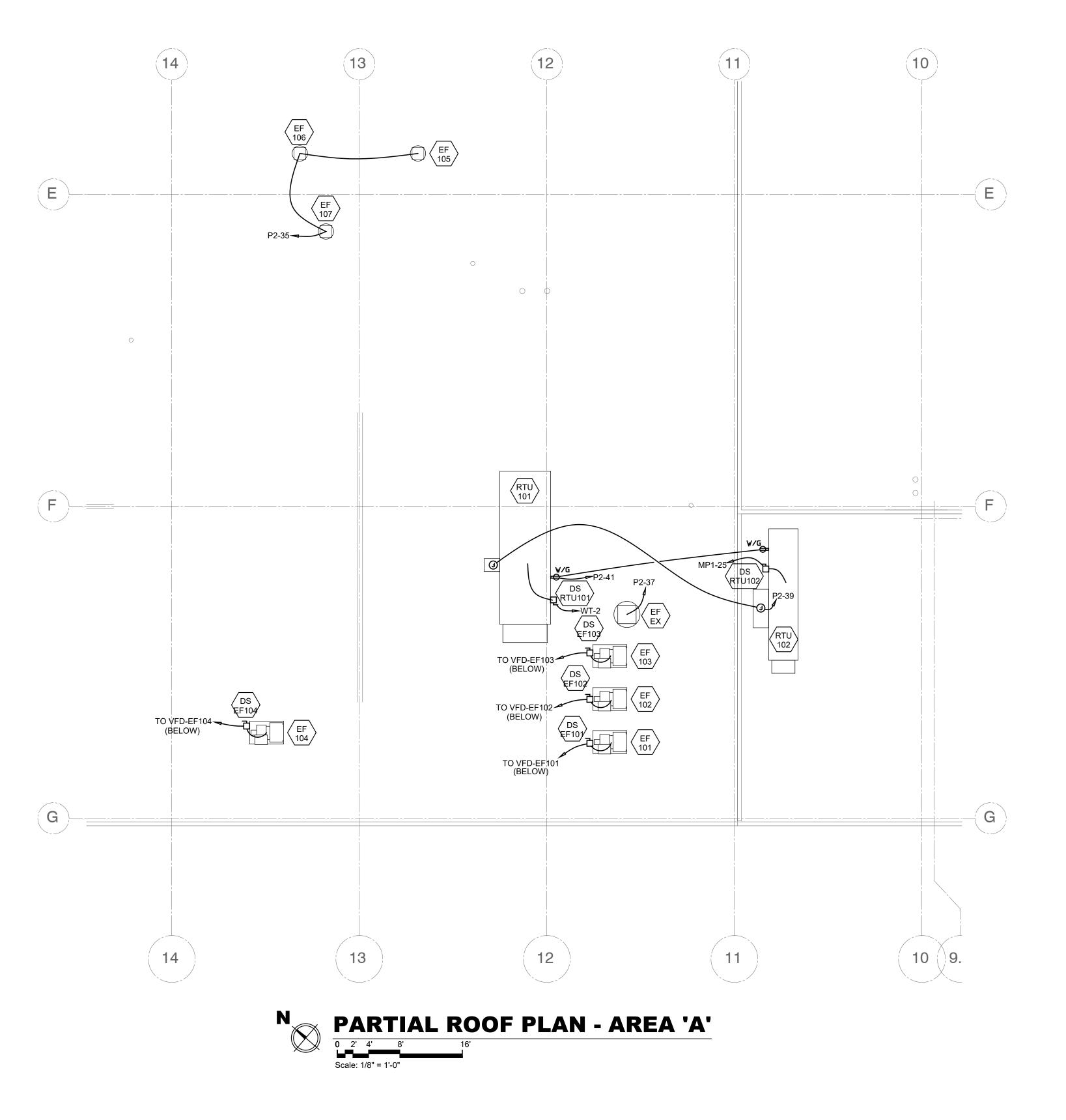
E3.1

AREA OF WORK _____

N KEY PLAN NOT TO SCALE

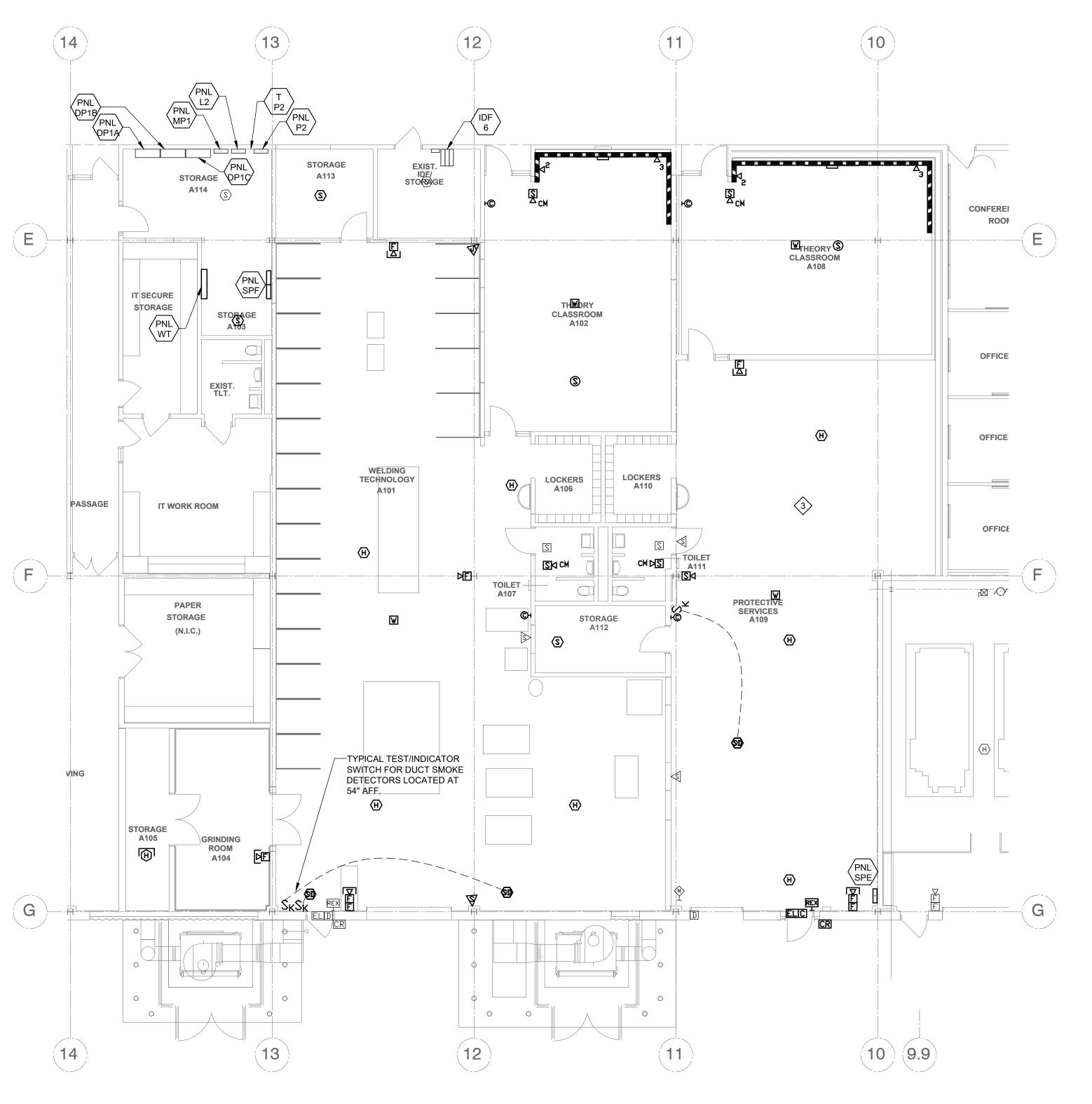
LVE - 21146

E3.2



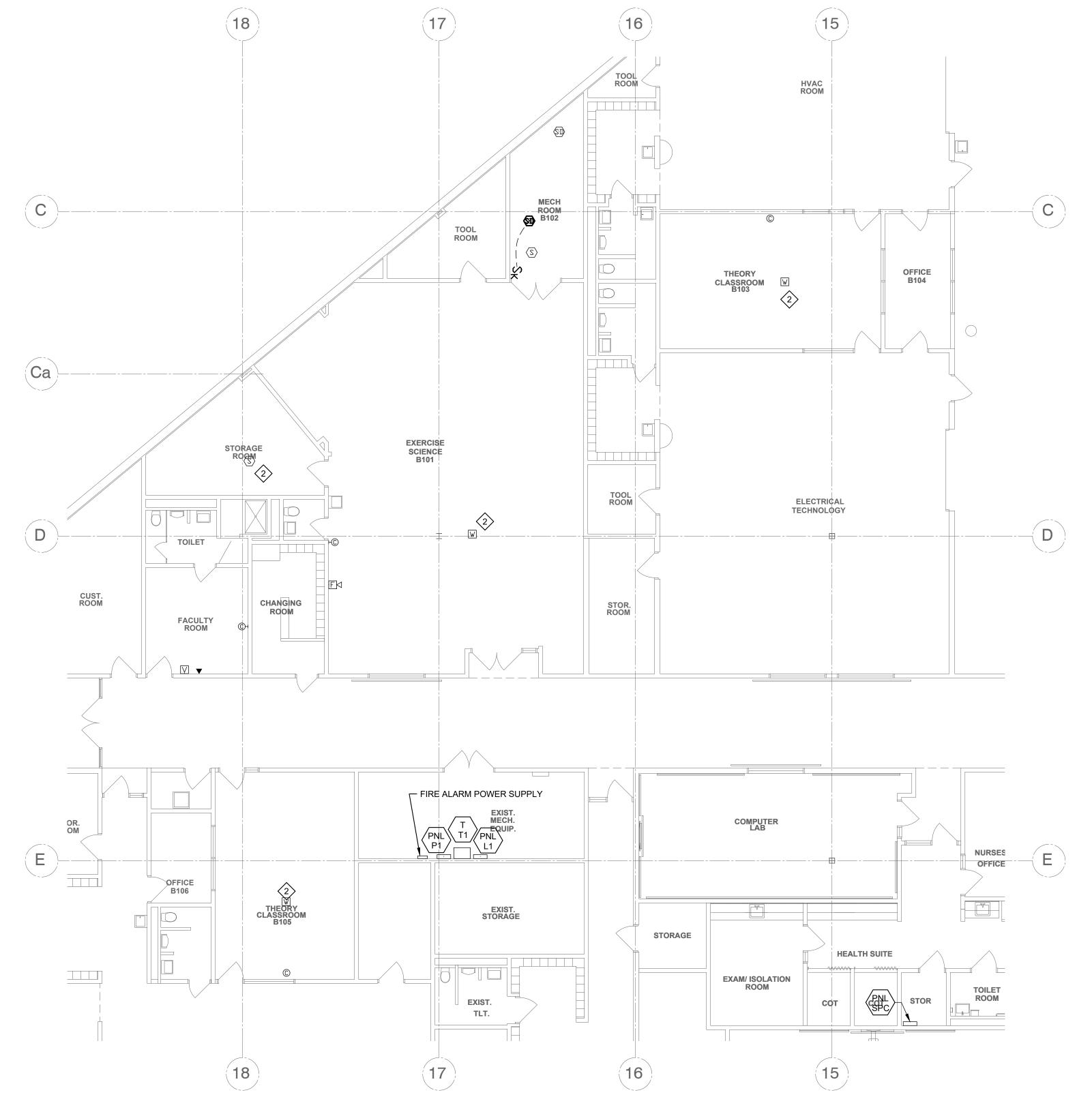


E4.1



N PARTIAL LOW-VOLTAGE PLAN - AREA 'A'

16'



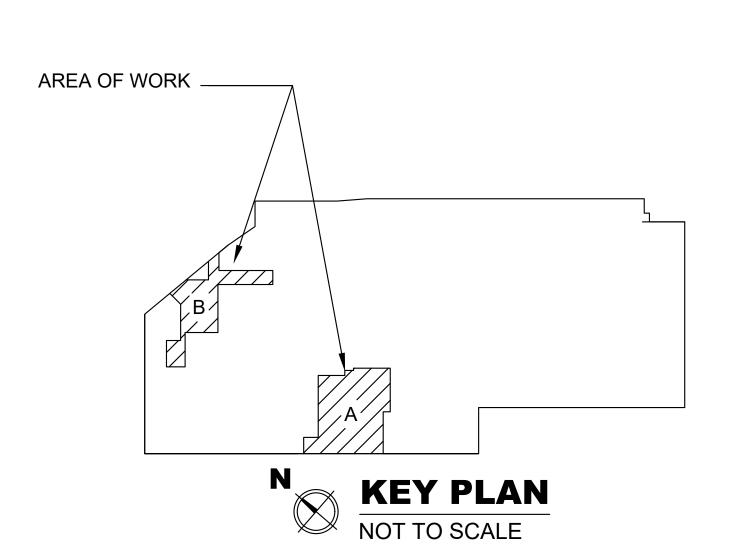
N PARTIAL LOW-VOLTAGE PLAN - AREA 'B' 16'

PLAN NOTES

- 1. FEED NEW DATA JACKS FROM PATCH PANELS IN IDF-6.
- 2. NEW WORK ASSOCIATED WITH CLOCKS, PAGING, SECURITY, & ACCESS CONTROL BY OWNER.

KEY NOTES

- 1 NOT USED
- 2 RELOCATE DEVICE IN NEW CEILING AS PART OF ALTERNATE.
- RELOCATE HORN/STROBE DEVICES IN CEILING IF ALTERNATE FOR NEW CEILING IS ACCEPTED.

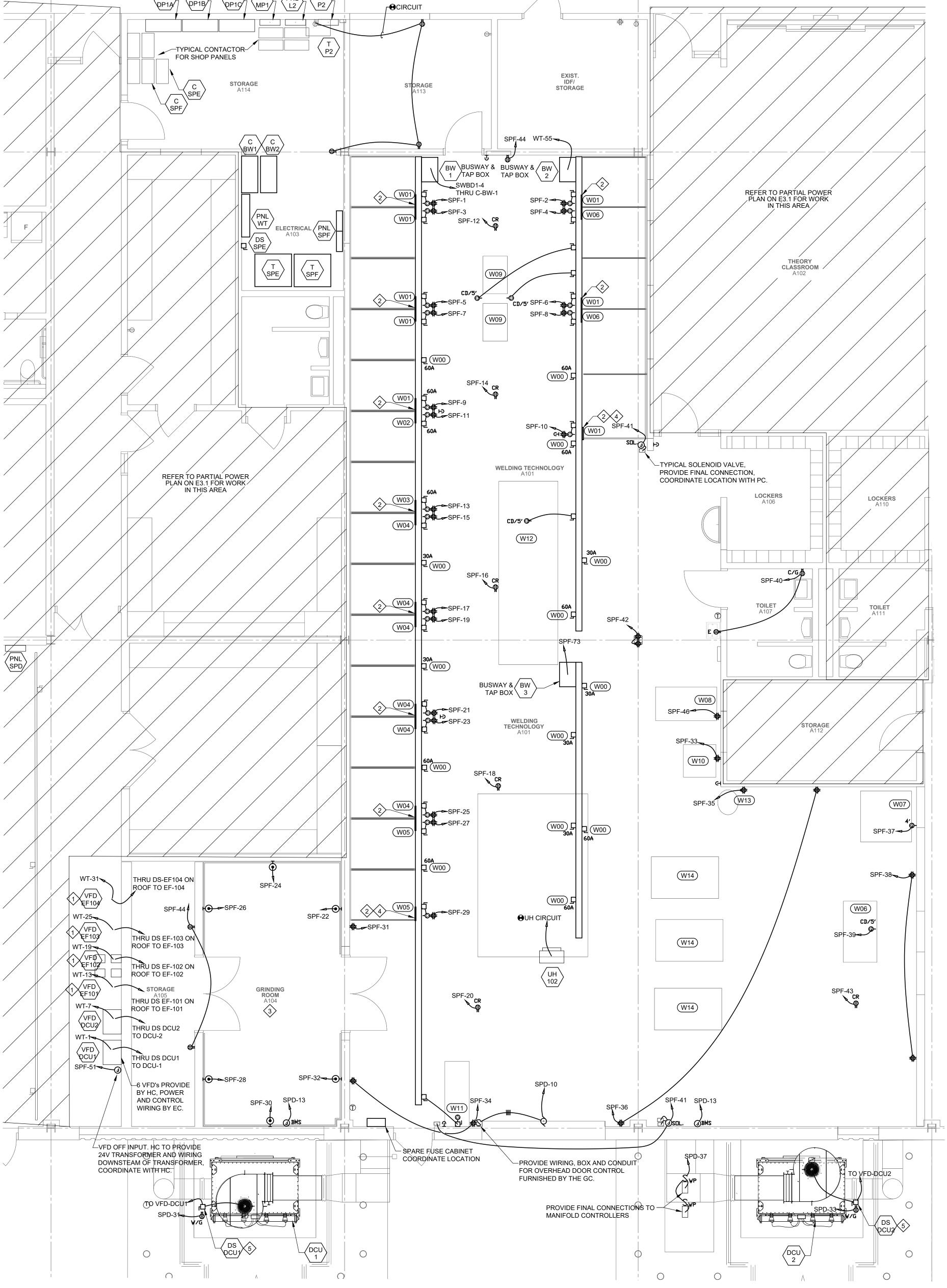


E5.1

Welding Shop Equipment Schedule Verify location and height of equipment connections *Special Requirements Circuit Power connection **Disconnect W00 W01 Welder - Miller
W02 Welder - Lincoln Electric
W03 Welder - Miller
W04 Welder - Miller
W05 Welder - Miller
W06 Band Saw - Ellis
W07 Vertcal Mill - Baileigh Industrial See floor plans | To bus duct disconnect | See floor plans Spare bus disconnect ncrowave 250DX EC to provide matching plug 60AF/60AT To bus duct disconnect 75 Precision TIG 60AF/60AT To bus duct disconnect EC to provide matching plug XMT 350 Mpa 60AF/50AT To bus duct disconnect EC to provide matching plug XMT 304 CC/CV DC Inverter Arc Welder NEMA L15-60R 60AF/40AT To bus duct disconnect 3 #6 + #10G. in 1" C to provide matching plug NEMA L15-60R 3 #6 + #10G. in 1" (60AF/40AT To bus duct disconnect EC to provide matching plug Mitre Horizontal Bandsaw B82150R(SP) CD/5' - NEMA L5-20R See floor plan 2 #10 + #10G. in 3/4" C EC to provide matching plug 2 #10 + #10G. in 3/4" C VMD-45G Geared Head Mill/Drill 15108206 EC to provide matching plug NEMA L5-20R W08 Pedestal Grinder - Dayton
W09 PAC cutting table - Hypertherm Tungsten grinder 1/4HP 081800046 2 #10 + #10G. in 3/4" C. See floor plan Powermax1650 G3 Series Plasma Cutting System CD/5' - NEMA L15-60R 3 #6 + #10G. in 1" C. To bus duct disconnect EC to provide matching plug W10 Table Saw - Makita C1230 12" Chop Saw 851889C7 NEMA 5-20R 2 #10 + #10G. in 3/4" C. See floor plan EC to provide 100A pin and sleve device with mechanical interlock and unfused circuit lock, W11 Welder - Miller 100A Pin GoldStar652 welding station MG470073C 100AT/100AF To bus duct disconnect 3 #3 + #8G. in 1.25" C. 480V/3PH/4W, aluminum housing, angled sleeve, NEMA 4X devices 6509-24M Flat/Angle Shear and Punch 7969FF0 30AT/20AF To bus duct disconnect EC to provide matching plug Metalworking Oven, plug-in
Down Draft Tables NEMA 5-20R 2 #10 + #10G. in 3/4" C. Provide ONOFF switch adjacent to table Portable Exhaust Fan - Ace Industrial Products 73701 Fan System 2 #10 + #10G. in 3/4" C. EC to provide cord and matching plug PipeWorx 400 MIG Welder MJ464018V To bus duct disconnect EC to provide cord and matching plug 0 Series 24V Wire Feeder EC to provide cord and matching plug 2 #12 + #12G. in 3/4" C. W18 Welder - Miller Coolmate 1.3 VCM200 Plasma Bevel Cutter CM029361 EC to provide cord and matching plug W19 Bevel Cutter - Victor NEMA 5-20R 2 #12 + #12G. in 3/4" C. * Terminate matching plug on existing equipment cord ** Disconnects shall be 3-phase type.

AREA OF WORK _____

KEY PLAN



ENLARGED PLAN - POWER - WELDING TECHNOLOGY AREA

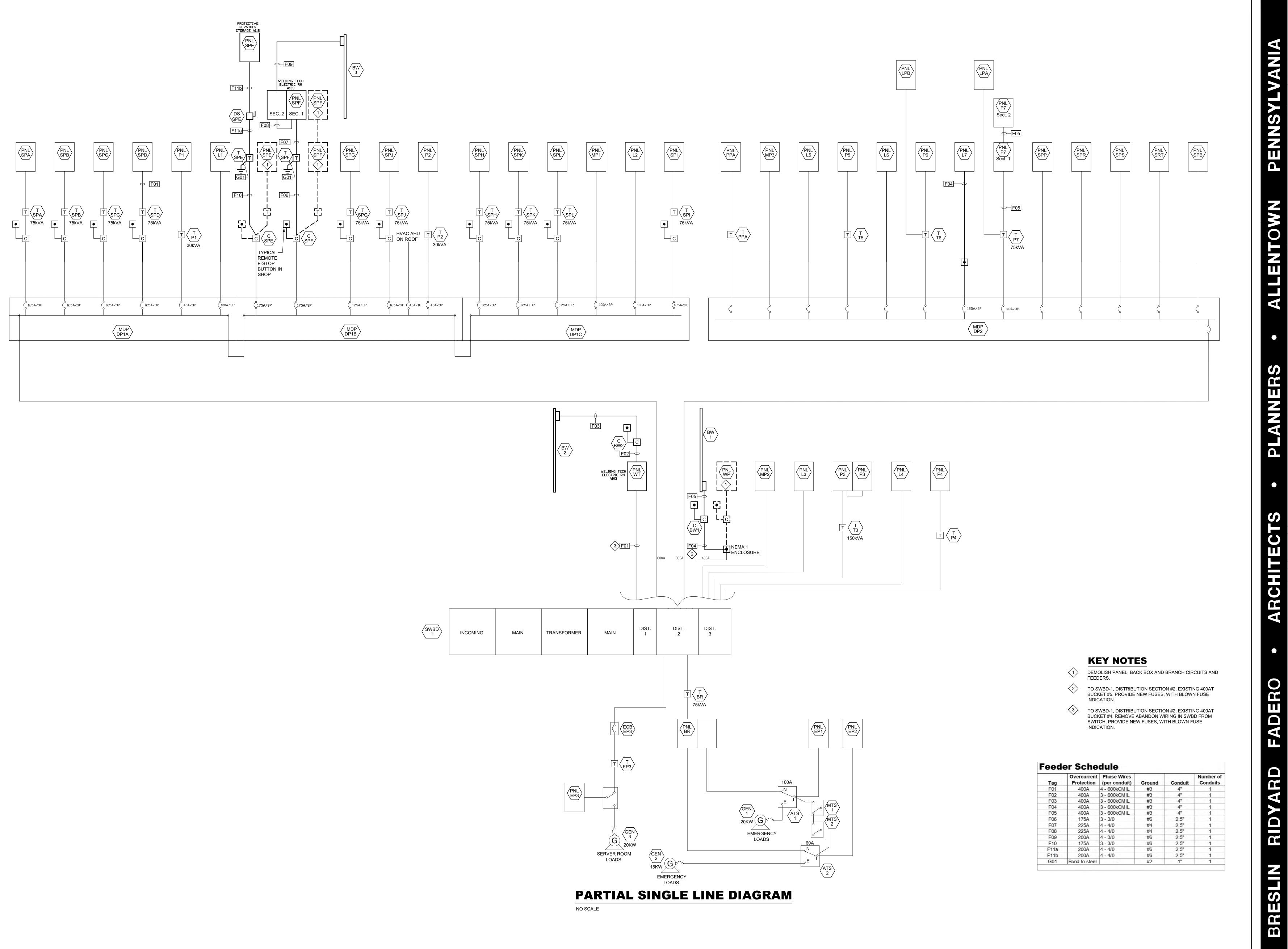
Scale: 1/4" = 1'-0"

KEY NOTES

- STACK VFD-EF-102 AND VFD-EF-104 BELOW VFD-EF-103 AND VFD-EF-101, COORDINATE LAYOUT WITH HC.
- 2 PROVIDE 2' WIDE UNI-STRUT SUPPORT SYSTEM FROM ROOF STRUCTURE TO TOP BOOTH FOR MECHANICAL PIPES, ELECTRICAL CONDUITS AND DEVICES. COORDINATE LAYOUT WITH MC.
- (3) PROVIDE FINAL CONNECTIONS TO OWNER FURNISHED FURNITURE WITH LFMC. INSTALL LFMC SNUG TO WALL AND UNDERSIDE OF FURNITURE.
- REDUCE GROUND BAR SIZE AS DETAILED AND SPECIFIED TO 8" OR 10" IN LENGTH.
- 5 PEDESTAL MOUNTED EQUIPMENT. COORDINATE FINAL LOCATION IN THE FIELD WITH NEW MECHANICAL WORK IN THIS AREA TO ALLOW CODE REQUIRED WORKING CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT.

PLAN NOTES

- SHOP WALL MOUNTED RECEPTACLES SHALL BE AT CT HEIGHT, UNLESS NOTED OTHERWISE.
- 2. PROVIDE CT BOX AND CONDUIT TO ACCESSIBLE CEILING SPACE FOR THERMOSTATS, COORDINATE WITH HC.
- PROVIDE ADDITIONAL GROUNDING AND BONDING IN AND AROUND THE WELDING SHOP AS INDICATED IN THE ELECTRICAL NOTES.
- 4. COORDINATE HVAC EQUIPMENT, CONTROLS AND DEVICE LOCATIONS WITH HC.
- 3. WELDING TECHNOLOGY A101 WALL MOUNTED RECEPTACLES SHALL BE AT CT HEIGHT.



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E7.1

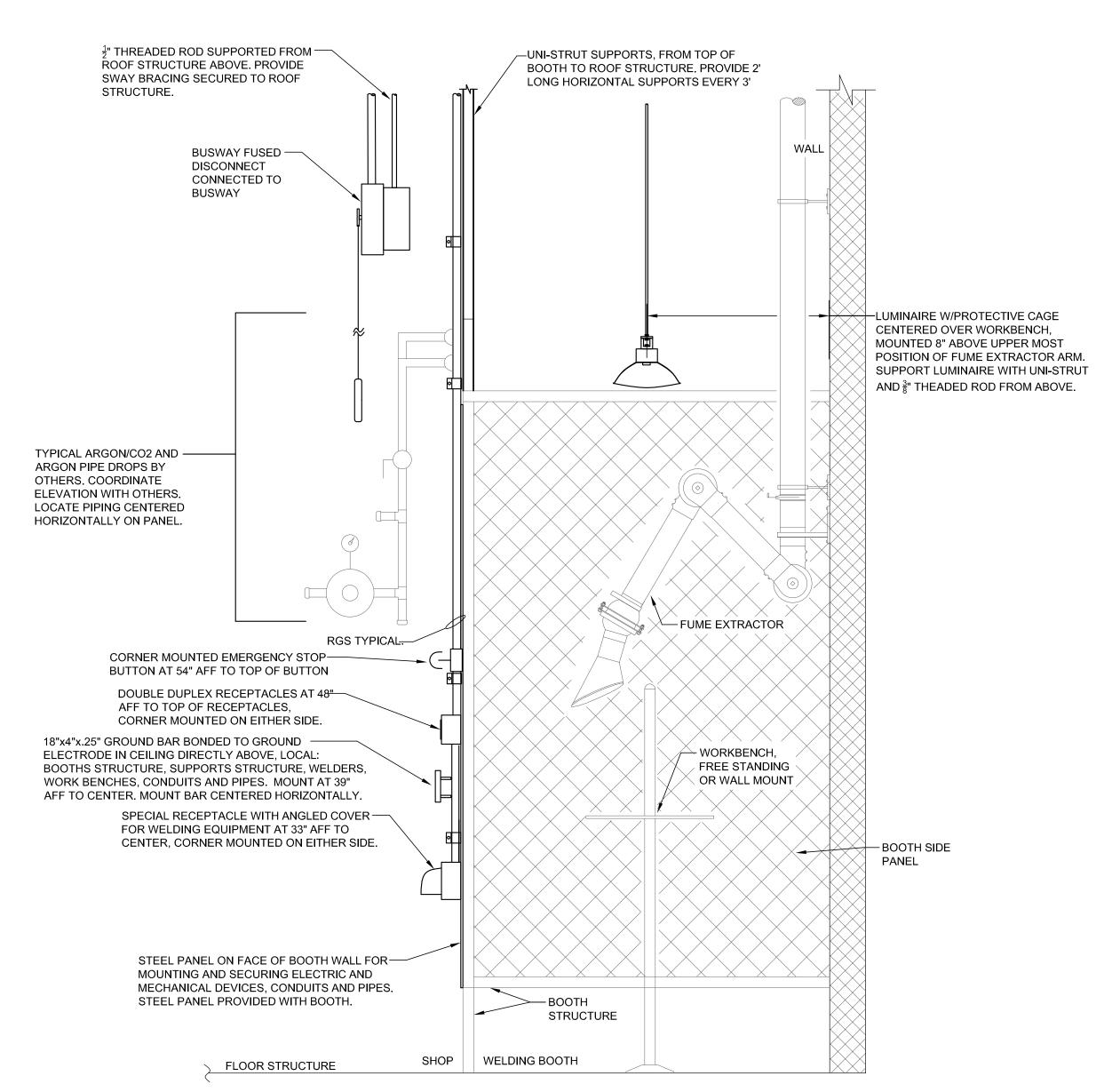
E7.2

NOTES - DUCT COLLECTOR PROVIDED BY HC. EC
TO PROVIDE POWER AND CONTROL
WIRING.
- BLOWER MOTOR GROUND WIRE SHALL
BE THE SAME SIZE AS MOTOR WIRES.

— — — BY ELECTRICAL CONTRACTOR
————BETWEEN DOOR AND PANEL (BY MFR)
NOTES: - ALL WIRING SHOULD COMPLY WITH NATIONAL ELECTRICAL CODE.

DUST COLLECTOR UNITS 1 & 2 WIRING DIAGRAM

⊡ 108 🗀 114



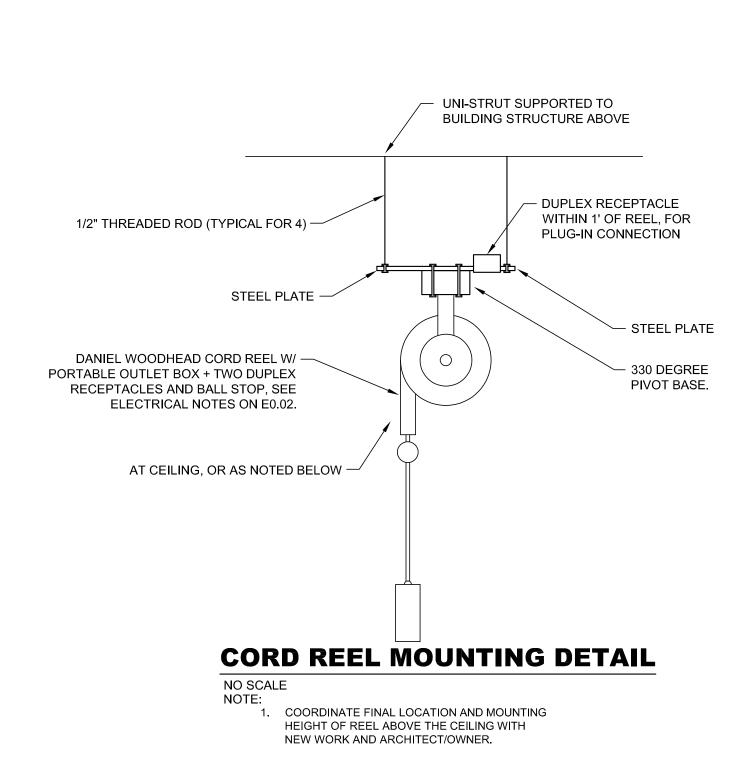
TYPICAL WELDING BOOTH DETAIL

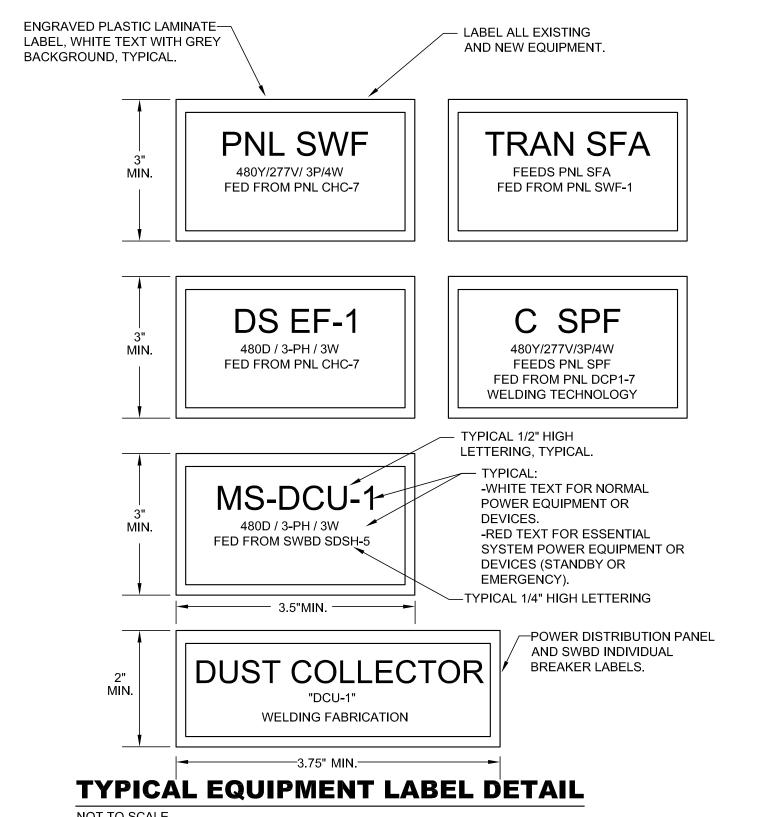
NOT TO SCALE

SUPPORT SYSTEM WITH MC.

- NOTES

 1. PROVIDE CAST METAL DEVICE BACK BOXES WHERE SURFACE MOUNTED BELOW 8'.
- 2. REFER TO ELECTRICAL NOTES FOR ADDITIONAL REQUIREMENTS AND GROUNDING.
- 3. UNI-STRUT SUPPORT FROM TOP OF BOOTH TO ROOF STRUCTURE SHALL BE SIZED TO HANDLE MECHANICAL PIPING, DEVICES AND ELECTRICAL CONDUITS AND DEVICES. COORDINATE UNI-STRUT
- 4. COORDINATE SUPPORTS, LAYOUT AND OTHER NEW WORK IN THE BOOTH AREA WITH ALL PRIME CONTRACTORS TO AVOID CONFLICTS.
- 5. PROVIDE MOCK-UP OF A SINGLE BOOTH PRIOR TO NEW WORK, CLEARLY SHOW SUPPORTS, RACEWAYS, BOXES, DEVICES, LIGHTING, GROUNDING AND COORDINATION WITH OTHER TRADES. CONTINUE WITH BOOTH WORK AFTER THE OWNER, ARCHITECT AND ENGINEER HAVE REVIEWED MOCK-UP AND REVIEW COMMENTS HAVE BEEN IMPLEMENTED.

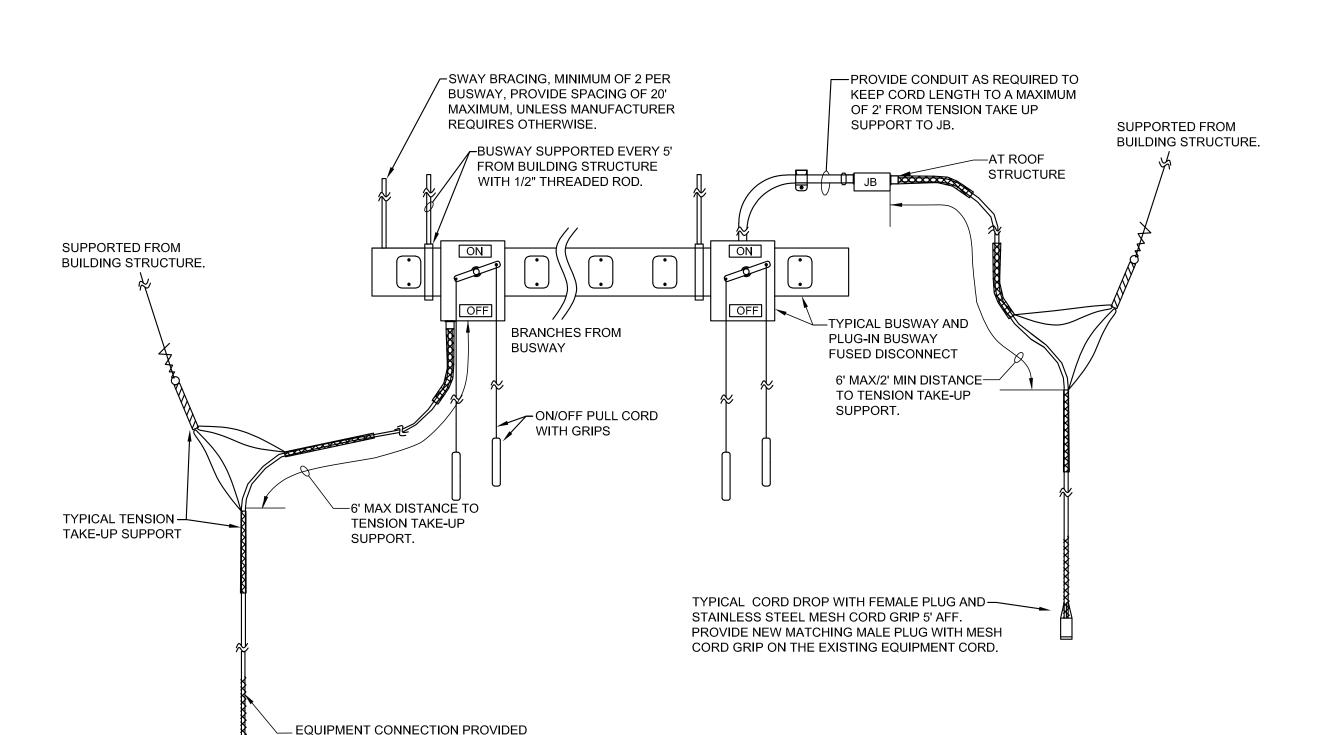




NOTE: IDENTIFY PANELBOARDS, SWITCHBOARD SWITCHES, POWER

DISTRIBUTION PANEL BREAKERS, SAFETY SWITCHES, TRANSFORMERS.

CONTACTORS AND MOTOR STARTERS WITH ENGRAVED LABELS. INDICATE EQUIPMENT ID, VOLTAGE AND LOCATION EQUIPMENT IS FED FROM AND WHAT IS FED THRU THE EQUIOPMENT (FOR TRANSFORMERS AND



TYPICAL WELDING SHOP BUSWAY DETAIL - CORD DROP

NOT TO SCALE

- 1. PROVIDE CONDUIT FROM BUSWAY DISCONNECT TO RECEPTACLES OR TO JUNCTION BOXES JUST ABOVE DROP CORDS. COMPLY WITH THE TYPICAL WELDING SHOP BUSWAY DETAIL-WELDING RECEPTACLE.
- 2. PROVIDE STAIN RELIEF THREADED FITTING FOR CORDS AT THE EQUIPMENT CONNECTION, JUNCTION BOXES ALONG WITH TAKE UP SUPPORTS.
- 3. PROVIDE HUBBELL, KELLEMS GALVANIZED STEEL WIRE TAKE UP SUPPORTS SIZED FOR TENSION AND KELLEMS STAINLESS STEEL CABLE GRIPS AND CORD DELUXE ALUMINUM STRAIGHT MALE GRIPS WITH STAINLESS STEEL MESH SIZED FOR CABLES OR CORDS.
- 4. REFER TO ELECTRICAL NOTES FOR ADDITIONAL INFORMATION ON BUSWAYS.

THROUGH STAINLESS STEEL MESH GRIP

WITH THREADED CONNECTOR.

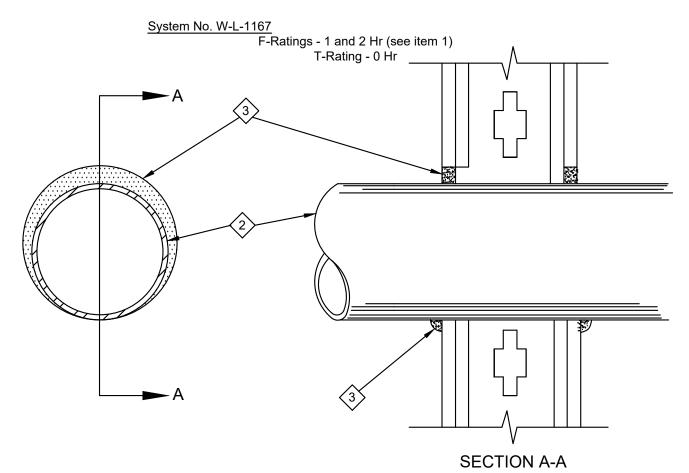
COORDINATE BUSWAY HEIGHT ABOVE FINISHED FLOOR WITH NEW WORK, EXISTING CONDITIONS AND TO ALLOW
ACCESS FROM BELOW WITH 8' LADDER (8' TO 10' AFF). FINAL LOCATION SHALL BE COORDINATED WITH
ARCHITECT/ENGINEER.

T-Rating - 0 Hr L Rating At Ambient - Less Than 1 CFM/sq ft L Rating At 400 F - Less Than 1 CFM/sq ft Section A-A

FIRE-RATED PENETRATION DETAIL

- 1 Floor or Wall Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks* . Max diam of opening is 32 in. See Concrete Block (CAZT) category in the Fire Resistance Directory for names of manufacturers.
- 2 Through Penetrants One metallic pipe, conduit or tubing to be centered within the firestop system. The annular space shall range from min 0 in. (point contact) to max 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used: A Steel Pipe - Nom 30 in. diam (or smaller) Schedule 5 (or heavier) steel pipe. B Iron Pipe - Nom 30 in. diam (or smaller) cast or ductile iron pipe.
- C Conduit Nom 4 in. diam (or smaller) electrical metallic tubing or nom 6 in. diam (or smaller) rigid galv steel conduit. D Copper Tubing - Nom 6 in. diam (or smaller) Type M (or heavier) copper tubing. E Copper Pipe - Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
- 3 Firestop System The firestop system shall consist of the following: A Packing Material - (Optional, Not Shown) - Mineral wool batt insulation, polyethylene backer rod or glass fiber batt insulation friction fitted into annular space. Packing material to be recessed from top surface of floor or both surfaces of wall as required to accommodate the required thickness of fill material. B Fill, Void or Cavity Material* - Caulk - Min 1/2 in. thickness of fill material applied within the annulus, flush with top
- surface of floor or with both surfaces of wall. At point contact location, apply min 1/4 in. diam bead of sealant at the pipe/concrete interface on the top surface of the floor or both surfaces of wall. SPECIFIED TECHNOLOGIES INC - SpecSeal 100, 101, 102, 105, 120 or 129 Sealant

*Bearing the UL Classification Mark

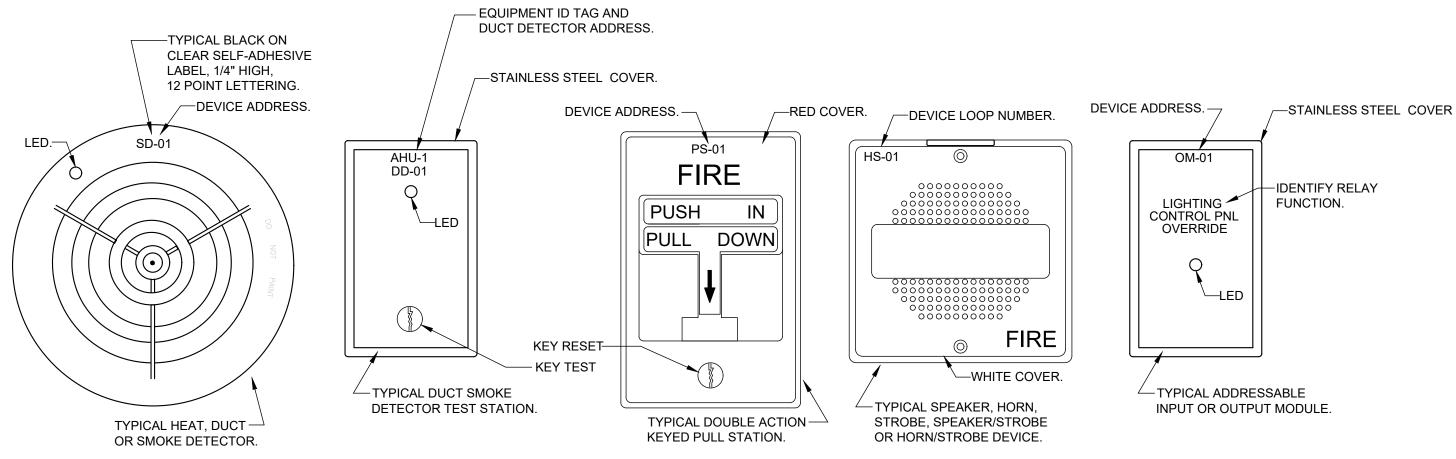


FIRE-RATED PENETRATION DETAIL

KEY NOTES

*Bearing the UL Classification Mark

- (1) Wall Assembly The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
- A Studs Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-1/2 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.
- B Gypsum Board* The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 14 in. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
- (2) Through Penetrant One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (point contact) to max 1-3/8 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
- A Steel Pipe Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe. B Iron Pipe - Nom 12 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe. C Conduit - Nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) steel electrical
- metallic tubing. D Copper Tubing - Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- Copper Pipe Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe. 3 Fill Void or Cavity Materials* - Caulk - Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. Min 1/2 in, diam bead of caulk applied to the penetrant/wallboard interface at the point contact location on both sides of wall. MINNESOTA MINING & MFG CO - FD-150+

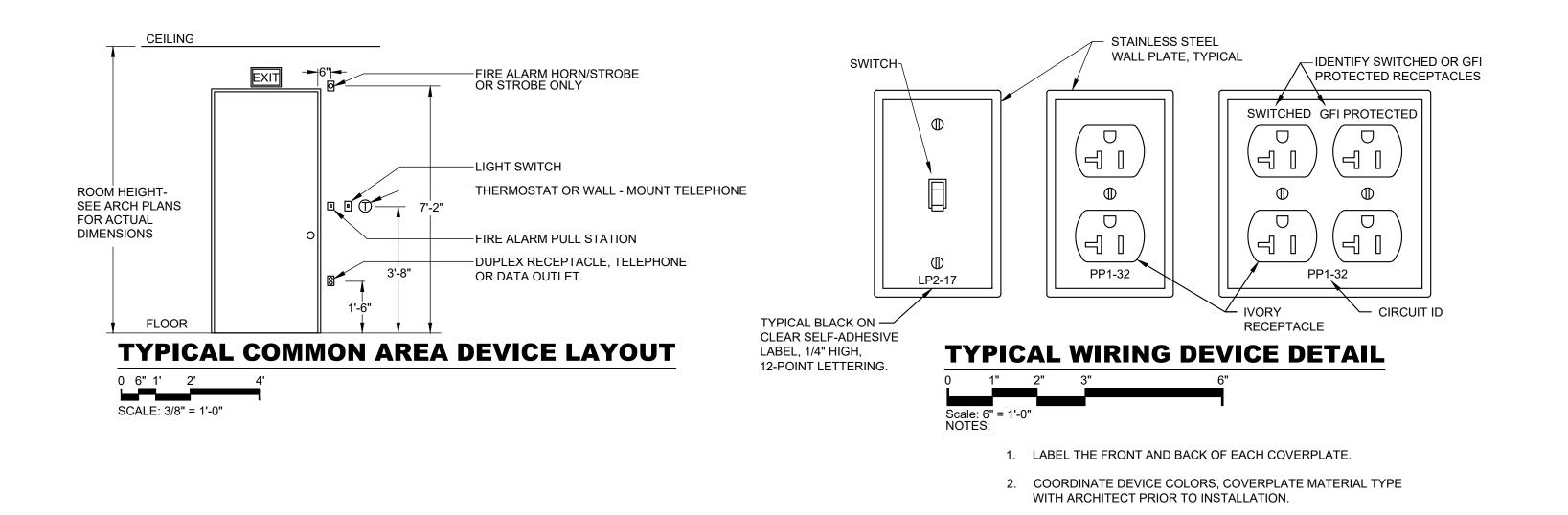


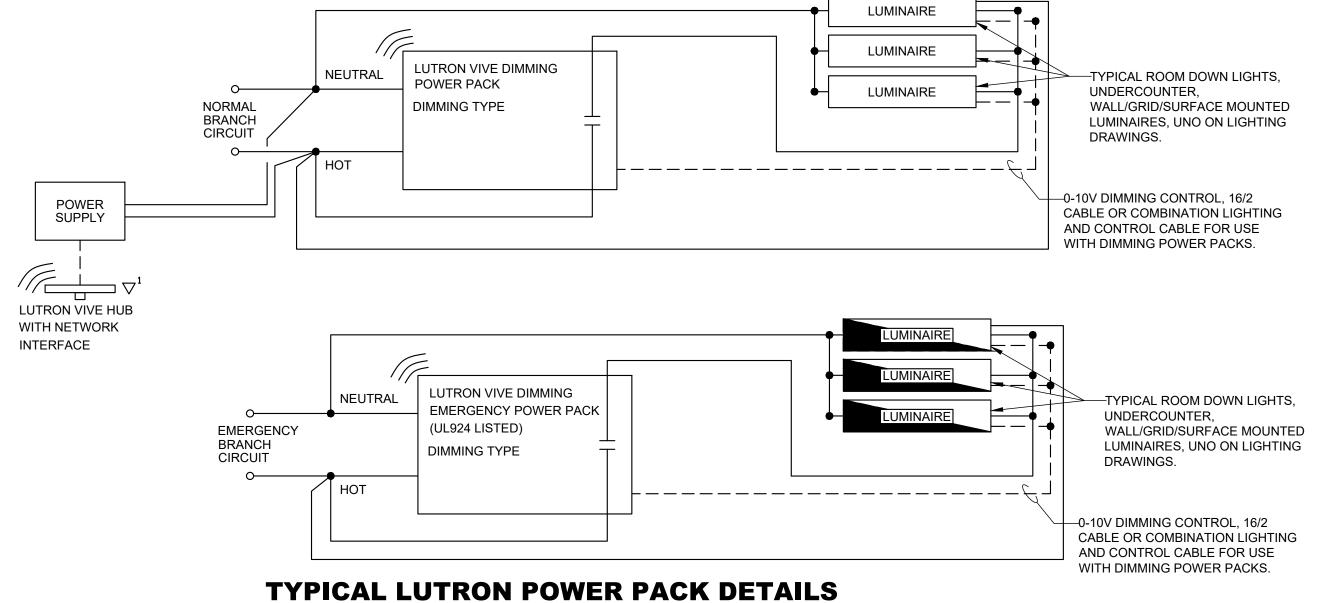
TYPICAL FIRE ALARM DEVICE DETAIL

- 1. IDENTIFY ALL NEW AND EXISTING NON-ADDRESABLE FIRE ALARM DEVICES WITH THE NON-ADDRESS LOOP
- 2. IDENTIFY ALL NEW AND EXISTING ADDRESSABLE DEVICES WITH DEVICE ADDRESS.

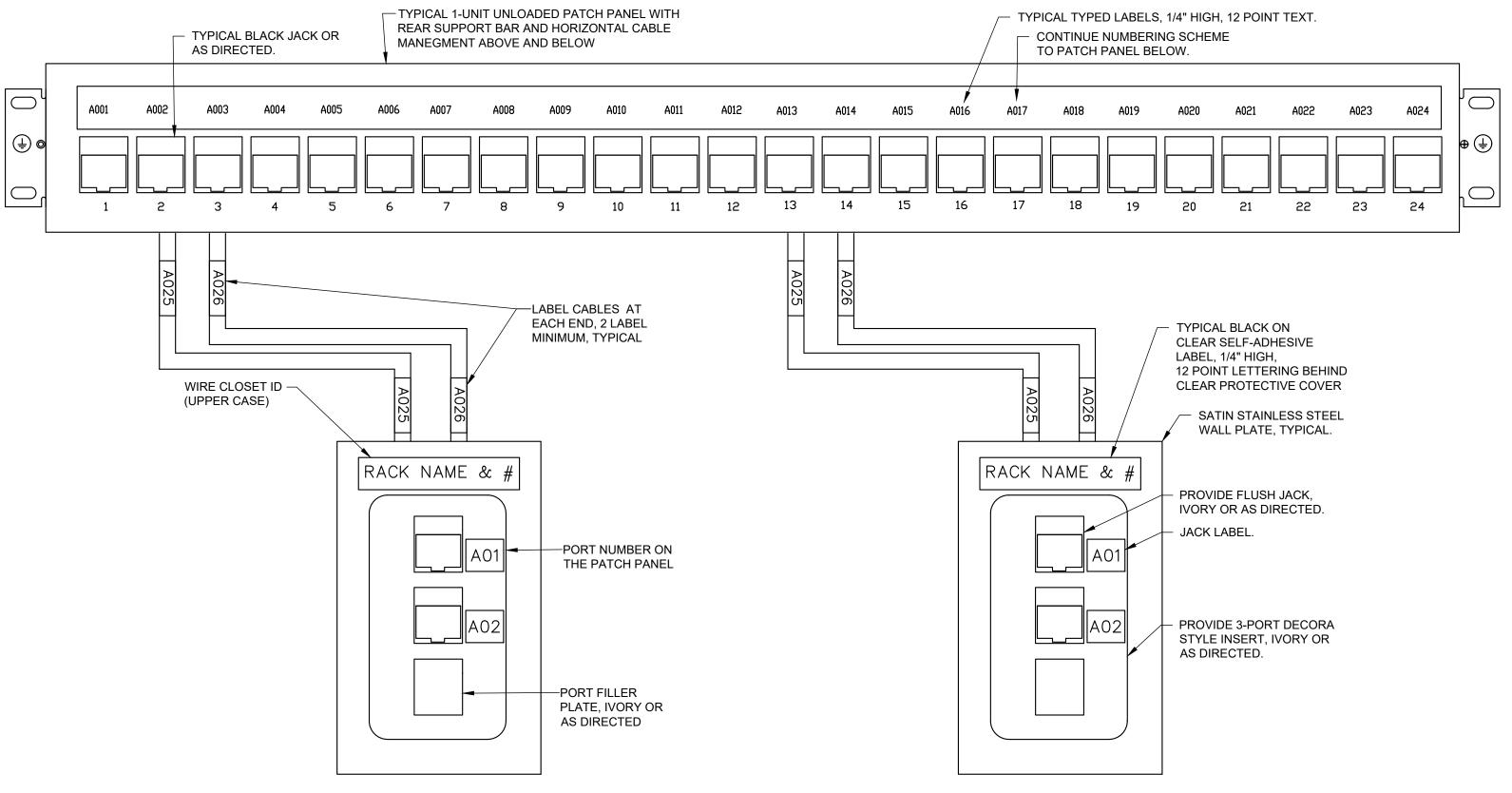
NOTES:

3. INCREASE TEXT SIZE FOR DEVICES LOCATED ABOVE 10' AFF TO 1/2" HIGH 14 POINT LETTERING.





- PROVIDE LUTRON VIVE SYSTEM, INCLUDING NEW HUB, PECO SWITCHES, POWER PACKS, WIRING AND PROGRAMMING. COMPONENTS TO MATCH THOSE USED ELSEWHERE IN THE BUILDING. SYSTEM SHALL BE STANDALONE IN EACH SPACE, BUT CAPABLE OF FUTURE INTEGRATION TO A NETWORKED SYSTEM.
- 2. PROVIDE VIVE SYSTEM IN SHOPS, THEORY ROOMS, STORAGE ROOM AND LIKE SPACES.
- 3. PROVIDE PROGRAMMING OF SYSTEM COMPONENTS AS COORDINATED WITH OWNER.
- 4. PROVIDE DEDICATED POWER PACKS FOR 277V LIGHTING AND 120V LIGHTING. POWER PACKS SHALL BE AT AN ACCESSIBLE LOCATION ABOVE THE CEILING AT MAIN ENTRANCE TO ROOM. IN THEORY ROOMS PROVIDE 2 NORMAL LIGHTING POWER PACKS AND 1 EMERGENCY POWER PACK FOR EACH EMERGENCY LUMINAIRE.
- 5. COMPLY WITH MANUFACTURER'S RECOMMENDED WIRING REQUIREMENTS.
- 6. PROVIDE DEDICATED 120V EMERGENCY POWER PACK IN THEORY ROOMS AND LIKE SPACES 120V NORMALLY ON EMERGENCY LIGHTING. SET SCHEDULE FOR EMERGENCY LUMINAIRE TO BE ON WHEN BUILDING IS IN USE, OR ON 24/7, IF DIRECTED. SET LOCAL EMERGENCY LIGHTING SHALL TURN ON TO 100% OUTPUT UPON LOSS OF NORMAL POWER TO THE LOCAL HUB AND LOCAL NORMAL LIGHTING.
- 7. INSTALL LUTRON WIRELESS DIMMERS, SWITCHES AND LIGHTING CONTROL DEVICES AS SHOWN ON THE DRAWINGS. SET HIGH LEVEL TRIM FOR THEORY ROOMS AND STORAGE ROOMS TO 50FC AVERAGE.



TYPICAL TELEDATA LABELING DETAIL

NOT TO SCALE

NOTES: 1. PROVIDE PRODUCTS BY LEVITON. FILL UNUSED OPENINGS WITH ELECTRICAL IVORY, OR AS DIRECTED BLANK

- 2. PATCH PANELS ARE TO BE LABELED IN CONSECUTIVE ORDER STARTING AT RACK LETTER, PORT 001. FACE PLATE SHALL IDENTIFY RACK LETTER AND PORT NUMBER FOR EACH JACK.
- 3. LABELING SCHEME SHOWN IS AN EXAMPLE. PROVIDE LABELING OF TELEDATA CABLES, PATCH PANELS, AND JACKS AS DEFINED BY OWNER IN WRITING IN A COORDINATION MEETING WITH SCHOOL DISTRICT'S DIRECTOR OF TECHNOLOGY
- 4. PROVIDE ADDITIONAL PATCH PANELS AS REQUIRED, FOR EACH UNLOADED PANEL, PROVIDE 24 CATEGORY 6 JACKS.

*Tag	Voltage	Size	Fuses	Enclosure	Phase Wires	Ground	Conduit	Comments
	480∆	60A	50A	NEMA 3R	3 #8	#8	1.5"	Provide contact, VFD cable from VFD to motor
DS-DCU-1	-	_		-	2 #14	-	.75"	Provide control wiring thru contact to VFD
DC DCILO	480∆	60A	50A	NEMA 3R	3 #8	#8	1.5"	Provide contact, VFD cable from VFD to motor
DS-DCU-2	-	-	-	-	2 #14	-	.75"	Provide control wiring thru contact
DS-RTU-101	480∆	30A	17.5A	NEMA 3R	3 #10	#10	3/4"	•
DS-RTU-102	480∆	30A	10A	NEMA 3R	3 #10	#10	3/4"	
DS-AHU-103	480∆	30A	6A	NEMA 1	3 #10	#10	3/4"	
DS-EF-101	480∆	30A	6A	NEMA 3R	3 #12	#10	1.0"	DS by HC.Provide VFD cable from VFD thru DS to motor
D3-EF-101	-	=	÷	-1	2 #14	(8)	.75"	Provide control wiring from VFD to DS on/off contact
DS-EF-102	480∆	30A	6A	NEMA 3R	3 #12	#12	1.0"	DS by HC.Provide VFD cable from VFD thru DS to motor
D3-EF-102	-	_		-	2 #14	-	.75"	Provide control wiring from VFD to DS on/off contact
DS-EF-103 -	480∆	30A	6A	NEMA 3R	3 #12	#12	1.0"	DS by HC.Provide VFD cable from VFD thru DS to motor
D3-EF-103	-	-	-	-	2 #14	-	.75"	Provide control wiring from VFD to DS on/off contact
DS-EF-104	480∆	30A	4.5A	NEMA 3R	3 #12	#12	1.0"	DS by HC.Provide VFD cable from VFD thru DS to motor
DS-EF-104	-	=	-	=	2 #14	-	.75"	Provide control wiring from VFD to DS on/off contact
DS-SPE	208Y	200A	200A	NEMA 1	See Single Line	Diagram		
Notes: 1	For all switche	s, provide ha	sp for padlock	ing in off position	on.			
	For all switche							
3	For all outdoor	switches, pr	ovide watertig	ht threaded cor	nduit hub kit.			
4 1	For fused swit	ches, provide	class R fuse	rejection kit.				
5 1	For all fuses, v	erify fuse siz	es match equi	pment namepla	te.			

-	D	B	to : I.D. :	D: / - - - 0 - -	T - (- (0 / A)	Connecte
Tag	Description	Busway Electrical	*Special Requirements	Distrabution Switches	Total (VA)	Load (A
BW-1	Busway 1	400A, 480∆/3PH/4W	Supported from structure above	Fused disconnects	268168	323
BW-2	Busway 2	400A, 480∆/3PH/4W	Supported from structure above	Fused disconnects	173663	209
BW-3	Busway 3	200A, 208Y/3PH/5W	Supported from structure above	Fused disconnects	0	0

Tag	Description	Rating	Туре	Enclosure	Control	Comments
C-BW-1	Busway 1 contactor	400A, 480∆/3PH/3W	Mechanically Held	NEMA 1, hinged door	120V, remote on/off selector switches and Emergency stop bottons	Provide fused CPT, Red PTT 'ON' pilot light, E-stop/on-off selector switch control
C-BW-2	Busway 2 contactor	400A, 480∆/3PH/3W	Mechanically Held	NEMA 1, hinged door	120V, remote on/off selector switches and Emergency stop bottons	Provide fused CPT, Red PTT 'ON' pilot light, E-stop/on-off selector switch control
C-SPE	PNL-SPE contactor	175 480∆/3PH/3W	Mechanically Held	NEMA 1	Relocate existing on/off controls in door of contactor	Existing to remain, relocate on/off switch in door of contactor, provide E-stop control
C-SPF	PNL-SPF contactor	175 480A/3PH/3W	Mechanically Held	NEMA 1	120V, remote on/off selector switches and Emergency stop bottons	Existing to remain, provide control from relocated on/off switch, and new E-stop buttons

Trans	former	Sched	ule	
Tag	Size	Primary Voltage	Secondary Voltage	Notes
T-SPF	75kVA	480Δ	208Y/120V	dry type, DOE 2016 compliant, isolastion pads
T-SPE	75kVA	480∆	208Y/120V	dry type, DOE 2016 compliant, isolastion pads
I-SPE	IOKVA	400Δ	2001/1200	ary type, DOE 2010 compliant, isolastion pags

VE - 21146

E8.1

DP′	1B		480	Y/277V, 3Ø, 4W					S	tora	ge A	113
Circuit Num.	Poles	Size	Load (VA)	Description	A	В	С	Description	Load (VA)	Size	Poles	Circu Num
1	3	125	10392	PNL SPJ	20785			PNL SPG	10392	125	3	2
3			10392			20785			10392			4
5			10392				20785		10392			6
7	3	175	3060	# PNL SPE	9640			# PNL SPF	6580	175	3	8
9			2520	Protective Services		9650		Welding Technology	7130			10
11			720				6190		5470			12
13	3	40	3326	Covid Rooftop Air Handler	11892			PNL P2	8566	40	3	14
15			3326	·		9231			5905			16
17			3326				11731		8406			18
19	3	20	0	Spare	0			Spare	0	20	3	20
21			0			0			0			22
23			0				0		0			24
# prov	ide new	breake	er label	Feed-thru to DP1C	51756	66145	67541					
					73288	105810	106246					
				Balanced connected load	l:	343 A						
					Existing GE	type CCD pa	nelboard					
1					Inspect and ti	ghten all exist	ing connec	tions.				
Circuit	breaker	panelbo	oard		Non-bold text	indicates exis	sting breake	ers and circuits, which may b	e spare after den	nolition.		
800A N	/ILO, wit	h feed-	thru lugs		Bold descrip	tion and load	d indicates	new circuit and wiring.				
NEMA	1 surfac	e enclo	sure		Bold size and	d poles indica	ates new bi	reaker. Remove existing brea	aker if necessary.			
Ground	l bar							-	-		Fed fror	n DP1

Circuit												Circ
Num.	Poles	Size		Description	A	В	С	Description	Load (VA)	Size	Poles	Nu
1	3	125	10392	PNL SPH	20785			PNL SPK	10392	125	3	1
3			10392	Electrical		20785		HVAC	10392			4
5			10392				20785		10392			(
7	3	125	10392	PNL SPI	20785			PNL SPL	10392	125	3	{
9			10392	Warehouse		20785		CON	10392			1
11			10392				20785	1	10392			1
13	3	100	15320	PNL MP1	30972			PNL L2	15651	100	3	1
15			15320		1	24576			9255			1
17			15320				25972		10651			1
19	3			Prepared Space	0			Prepared Space			3	2
21				-	1	0						2
23							0					2
25	3			Prepared Space	0			Prepared Space			3	2
27						0						2
29							0					3
31	3			Prepared Space	0			Prepared Space			3	3
33						0						3
35							0					3
37	3			Prepared Space	0			Prepared Space			3	3
39						0						4
41							0					
					51756	66145	67541	1				
					51700	00 (40)	01041	J				
				Balanced connected load	-	223 A						
				Dalathou Compoted Toda	Existing GE t							
					Inspect and tig	• •		lions				
Circuit b	rookor	nanalha	pard				_	ers and circuits, which may	ha enara aftar dan	aclitica		
SOOA M		paricibl	AIU				-	new circuit and wiring.	ne share arrei deri	IUIILIUM.		

Circuit												Circu
Num.	Poles	Size	Load (VA)	Description	A	В	С	Description	Load (VA)	Size	Poles	Num
1	3	20	1663	AHU-4, EF 25, EF35	3326			AHU-2 & AHU-7	1663	20	3	2
3			1663	_	_	3326			1663			4
5			1663				3326		1663			. 6
7	3	20	1663	AHU-8	3326			AHU-1 & AHU-3	1663	20	3	8
9			1663			3326			1663			10
11			1663				3326		1663			12
13	3	20	1663	AHU-5 & AHU-6	3326			AHU-9 & AHU-10	1663	20	3	. 14
15			1663			3326			1663		_	16
17			1663				3326		1663			18
19	3	20	1663	Air Filter HVAC	3326			Air Filter - Shop	1663	20	. 3	_ 20
21			1663			3326			1663			_ 22
23			1663				3326		1663			24
25	3	20	2018	RTU-102	2018			Prepared Space				26
27			2018	5HP	<u> </u>	2018		Prepared Space				28
29			2018			_	2018	Prepared Space				30
31				Prepared Space	0			Prepared Space				32
33				Prepared Space		0		Prepared Space				34
35				Prepared Space			0	Prepared Space				36
37				Prepared Space	0			Prepared Space				38
39				Prepared Space		0		Prepared Space				40
41				Prepared Space			0	Prepared Space				42
² rovide	engrave	ed equip	oment label									
					15320	15320	15320					
				Balanced connected load		55 A						
Circuit I	breaker	panelbo	ard		Existing GE p	anelboard						
linged	door-in-	door co	ver		Inspect and tig	hten all existi	ng connec	tions.				
100A N							-	s, connect to new breakers.				
NEMA	1 surface	e-mount	ted enclosur	re			-	new circuit and wiring.				
14kA S	CCR							eaker. Remove existing breake	er if necessary.			
Ground	lhar					•		3	•	Cod 4	from Di	340.4

P2			208	Y/120V, 3Ø, 4W					S	tora	ge A	\113
Circuit								_				Circui
Num.	Poles	Size	Load (VA)	Description	Α	В	С	Description	Load (VA)	Size	Poles	Num.
1	1	20	0	Recp - montco bay bath	0			Recp - PRT tool rm	0	20	1	2
3	1	20	0	Recp - PRT bath		0		Recp - PRT WLD office	0	20	1	4
5	1	20	0	Recp - welding theory			I	0 Recp - Const tool and storage	0	20	1	6
7	1	20	600	Recp - con bath	1201			Recp - cont theory	600	20	1	8
9	1	20	600	Recp - con mas office		1201		Recp - corridor and mech rm	600	20	1	10
11	1	20	600	Lights - Bathroom			120	1 UV - Warehouse	600	20	1	12
13	1	20	600	EF - con bath	1201			UV - const	600	20	1	14
15	1	20	600	EF - con shop		1201		UH at garage door	600	20	1	16
17	1	20	600	UV-5 - welding			120	1 Recp rm 122	600	20	1	18
19	1	20	0	Spare	600			Existing	600	20	1	20
21	1	20	0	Spare		600		Air control panel	600	20	1	22
23	2	60	1801	Recp- small engines			300	2 Cage panel	1201	40	2	24
25			1801	Recp- small engines	3002			-	1201	-	-	26
27	1	20	600	Recp-Rm 119		1201		AH 9+10 Control Panel	600	20	1	28
29	1	20	600	Existing			120	1 AH 6 Control Panel	600	20	1	30
31	1	20	600	Existing	1201			AH 4 Control Panel	600	20	1	32
33	1	20	600	Existing		1201		AH-4 Control Panel	600	20	1	34
35	1	20	540	EF-105,106,107 on roof			144	1 Auto Computer Rm A/c	901	30	2	36
37	1	20	460	EF-EX on roof	1361			Auto Computer Rm A/c	901			38
39	1	20*	501	Heat trace - RTU 101/102		501		Spare	0	20	1	40
41	1	20	360	Receptacles - RTU 101/102			36	0 Spare	0	20	1	42
	-		oment label with handle lo	ock. Balanced connected load	8566	5905 63 A	840	<u>6</u>				
See al de 1	hen elsoe	مطامممه		balanced connected toat								
	breaker dear in	•			Existing GE p			aliana				
_	door-in-i	uoor co	iver		Inspect and tig	•	_					
00A N			المسلمان				•	ts, connect to new breaker.				
		e-mou n	ted enclosu	re	-			s new circuit and wiring.				
0kAS iround					Bold size and	i poles indica	ites new t	oreaker. Remove existing breaker	if necessary. Fed from 0			

208 Y/120V, 3Ø, 4W

10kA SCCR

Ground bar

Circuit Num.	Poles	Size	Load (VA)	Description	A	В	С	Description	Load (VA)	Size	Poles	Circ Nun
1	3	100	0	Bus Duct (OFF)	540	-		Recp-Shop Wall	540	20	1	2
3	- 1	-	0			540		Recp-Shop Wall	540	20	1	4
5	-	-	0			-	720	Recp-Shop Wall	720	20	1	6
7	1	20	0	Recp-Shop Wall (OFF)	360	•		Recp-Receiving Wall	360	20	1	. 8
9	1	20	540	Recp-Shop Wall	•	1080		Overhead Door - Weld Shp A101	540	20	1	1
1 1	1	20	100	UH-103 - Receiving		-	100) Spare	0	20	1	1.
13	1	20	250	ATC - Weld shop	250	•		Spare	0	20	2	1
15	1	20	200	VAV-103-1,2,3,4	-	200			0	-	-	1
17	1	20	0	Recp-Receiving Wall (OFF)	-	-	0) Spare	0	20	2	1
19	1	20	1440	Recp-IT Work Room	1440			· ·	0	-	ļ -	2
21	1	20	1260	Recp-IT Work Room	-	1981		Unknown	721	20	1	2
23	1	20	1260	Recp-IT Work Room		-	1980	Recp-IT Work Room	720	20	1	2
25	1	20	1000	Motorized Overhead Doors	2120	•		Exhaust Fan EF-51	1120	20	1	2
27	1	20	0	Recp-Office B105 (OFF)	•	623		Hose Reels HR-1	623	20	1	2
29	1	20	720	Recp-IT Work Room	-	-	720	Hose Reels HR-2 (OFF)	0	20	1	3
31	1	20	180	Receptacle - DCU-2	803	-		Hose Reels HR-3	623	20	1	3
33	1	20	180	Receptacle - DCU-1	-	803		Hose Reels HR-4	623	20	1	3
35	1	20	1620	Receptacles - Prot. Serv. Theory A108	-		2341	Unknown	721	20	1	3
37	1	20	200	Outdoor manifold control panels	200	•		Spare	0	60	3	3
39	2	60	0	Spare	-	0			0	-	-	4
41	-	-	0		-		0	ı	0	-	-	4.
				Totals	5713	5227	5861	Ī				
								_				
		panelbo		Balanced connected load:		47 A						
•		door co	ver		Existing GE pa							
	breaker	S			Inspect and tigi		•					
M A00!	CΒ				rvon-bold text in	ndicates exist	ng break	ers and circuits, which may be spare af	ter demolition.			

Bold size and poles indicates new breaker. Remove existing breaker if necessary.

Receiving

Fed from DP1A thru contactor and T-SPD

Circuit Num.	Poles	Cina	Load (VA)	Description		В	С	Description	Load (VA)	Cina	Poles	Circui Num.
		Size		Description Post Core A400 (sheet)	A 2240	В	C	Description	1 /	Size		_
1	1	20	900	Receptacles - Prot. Serv. A109 (shop)	2340	1000		Receptacles - Prot. Serv. Theory A108	1440	20	1	2
5	1	20	900 720	Receptacles - Prot. Serv. A109 (shop)		1980	7	Receptacles - Weld. Theory A102	1080	20	1	6
7				Receptacles - Prot. Serv. A109 (shop)	720	-	- 1.	20 Spare	0		1	_
	1	20	720	Receptacles - Prot. Serv. A109 (shop)	720	540		Spare	0	20	1	8
9	1	20	540	Overhead door - Prot. Serv. A109		540		Spare	0	20	1	10
11	1	20	0	Spare				0 Spare	0	20	1	12
13	1	20	0	Spare	0			Spare	0	20	1	14
15	1	20	0	Spare		0		Spare	0	20	1	16
17	1	20	0	Spare				0 Spare	0	20	1	18
19	1	20	0	Spare	0			Spare	0	20	1	20
21	1	20	0	Spare		0		Spare	0	20	1	22
23	1	20	0	Spare				0 Spare	0	20	1	24
25	1	20	0	Spare	0			Spare	0	20	1	26
27	1	20	0	Spare		0		Spare	0	20	1	28
29	1	20	0	Spare				0 Spare	0	20	1	30
31	1	20	0	Spare	0			Spare	0	20	1	32
33	1	20	0	Spare		0		Spare	0	20	1	34
35	1	20	0	Spare				0 Spare	0	20	1	36
37	1	20	0	Spare	0			Spare	0	20	1	38
39	1	20	0	Spare		0		Spare	0	20	1	40
41	1	20	0	Spare				0 Spare	0	20	1	42
Panel of Circuit Hinged Bolt-on 100A M		panelbo door co s	oard	Totals Balanced connected load:	3060	2520 17 A		20				

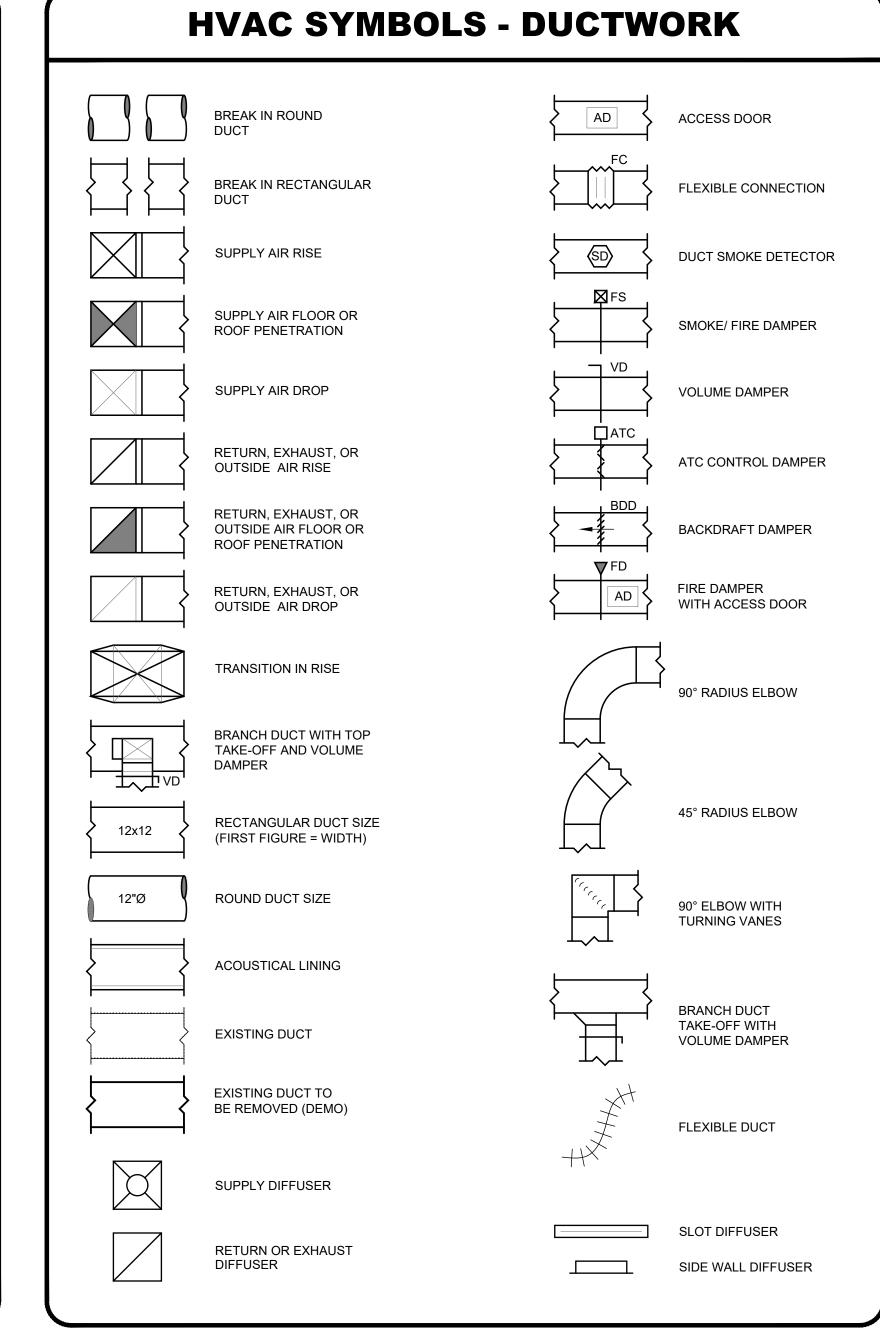
ircuit lum.	Poles	Size	Load (VA)	Description	A	В	С	Description	Load (VA)	Size	Poles	Circuit Num.
1	1	20	360	Receptacles - Booth 1	720	В	170	Receptacles - Booth 16	360	20	1	2
3	1	20	360	Receptacles - Booth 2	120	720		Receptacles - Booth 17	360	20	1	4
5	1	20	360	Receptacles - Booth 3				Receptacles - Booth 18	360	20	1	6
7	1	20	360	Receptacles - Booth 4	720			Receptacles - Booth 19	360	20	1	8
9	1	20	360	Receptacles - Booth 5		720		Receptacles - Booth 20	360	20	1	10
11	1	20	360	Receptacles - Booth 6				CM receptacle - Cord Reel - 1	180	20*	1	12
13	1	20	360	Receptacles - Booth 7	540			CM receptacle - Cord Reel - 2	180	20*	1	14
15	1	20	360	Receptacles - Booth 8		540		CM receptacle - Cord Reel - 3	180	20*	1	16
17	1	20	360	Receptacles - Booth 9			540	CM receptacle - Cord Reel - 4	180	20*	1	18
19	1	20	360	Receptacles - Booth 10	540			CM receptacle - Cord Reel - 5	180	20*	1	20
21	1	20	360	Receptacles - Booth 11		540		Receptacle - Grinding Rm Furniture-1	180	20	1	22
23	1	20	360	Receptacles - Booth 12				Receptacle - Grinding Rm Furniture-2	180	20	1	24
25	1	20	360	Receptacles - Booth 13	540			Receptacle - Grinding Rm Furniture-3	180	20	1	26
27	1	20	360	Receptacles - Booth 14		540		Receptacle - Grinding Rm Furniture-4	180	20	1	28
29	1	20	360	Receptacles - Booth 15				Receptacle - Grinding Rm Furniture-5	180	20	1	30
31	1	20	1100	Receptacle - Pedestal Grinder	1280			Receptacle - Grinding Rm Furniture-6	180	20	1	32
33	1	20	1200	Receptacle - Table Saw		1920		Receptacles - Welding Tech	720	20	1	34
35	1	20	750	Receptacle - Oven for rods	4500			Receptacles - Welding Tech	720	20	1	36
37	1	20	800	Receptacle - Verical Mil ,Baileigh Ind.	1520	000		Receptacles - Welding Tech	720	20	1	38
39	1	20	540	CD receptacle - horizontal band saw		900		Receptacles - Weld Tech EWC/Toilet	360 720	20*	1	40
41	1	20	400	Solinoid values - air/gas Weld shop	700	Section 1		Receptacles - Welding Tech column		20*	1	
43 45	1	20	180	CM receptacle - Cord Reel - 6	720	Section 2		Receptacles - Welding Tech/Storage	540	20*	1	44
47	1	20	0	Spare		1000		Receptacle - Pedestal Grinder	1000	20*	1	46 48
49	1	20	0	Spare Spare	0			Spare Spare	0	20*	1	50
51	1	20	250	VFD off controls	U	250		Spare Spare	0	20*	1	52
53	1	20	0	Spare		230		Spare	0	20	1	54
55	1	20	0	Spare	0			Spare	0	20	1	56
57	1	20	0	Spare	- 0	0		Spare	0	20	1	58
59	1	20	0	Spare				Spare	0	20	1	60
61	3	60	0	Spare	0			Spare	0	20	1	62
63			0			0		Spare	0	20	1	64
65	1.770	110.00	0					Spare	0	20	1	66
67	3	60	0	Spare	0			Spare	0	20	1	68
69	EEE/		0			0		Spare	0	20	1	70
71	4.7.21		0			3111	0	Spare	0	20	1	72
73	3	15	0	Spare	0			Spare	0	20	1	74
75	-		0			0		Spare	0	20	1	76
77			0					Spare	0	20	1	78
79	3	20	0	Spare	0			Spare	0	125	3	80
81			0			0			0			82
83		4 5 4	0				0		0			84
85	3	200		Sub feed breaker to Busway BW-3	0	0	0					
ngrave ngrave anel d inged olt-on 25A M	surface	eed labe ment la door co s ed-thru t	l bel	- CF		7130 53 A ge to match ex actor control to		actors. sting contactors.				
round								Fed thru C-SPF a	and T-SPF fro	m 1754	breake	r DP1B

ircuit Num.	Poles	Size	Load (VA)	Description	A	В	C	Description	Load (VA)	Size	Poles	Circuit Num.
1	3	60	7171	Dust Collector Unit #1	10889			RTU-101	3718	50	3	2
3			7171	20HP, fed thru VFD and DS		10889		10HP	3718			4
5			7171				10889		3718			6
7	3	60	7171	Dust Collector Unit #2	7171			Spare	0	50	3	8
9			7171	20HP, fed thru VFD and DS		7171			0			10
11		_ :	7171				7171		0			12
13	3	15	1275	EF-101	1275			Spare	0	20	3	14
15		1	1275	3HP, fed thru VFD and DS		1275			0			16
17		- 1	1275				1275	5	0			18
19	3	15	1275	EF-102	1275			Spare	0	20	3	20
21			1275	3HP, fed thru VFD and DS		1275			0			22
23			1275		1		1275	5	0			24
25	3	15	1275	EF-103	1275			Spare	0	125	3	26
27			1275	3HP, fed thru VFD and DS		1275			0			28
29			1275				1275	5	0			30
31	3	15	733	EF-104	733			Spare	0	125	3	32
33			733	2HP, fed thru VFD and DS		733			0			34
35			733				733	3	0			36
37	3	15	0	Spare	0			Spare	0	125	3	38
39			0			0			0			40
41			0				0		0			42
43	3	15	0	Spare	0			Spare	0	20	3	44
45			0			0			0			46
47		- 1	0	= +i			0		0			48
49	3	15	0	Spare	0			Spare	0	20	1	50
51	2.71		0			0		Spare	0	20	1	52
53			0					Spare	0	20	1	54
				FTLs to Busway BW-2 thru C-BW-2	57888	57888	57888	3				
				_								
				Totals	80504	80504	80504	1				
	ed equip	ment la	bel									
	lirectory			Balanced connected load:		290 A						
	door-in-		ver									
	breaker											
				feed-thru lugs								
EMA	1 surface	e-moun	ted enclosur	e								
kA S	CCR (mi	inimum)										
rounc	bar							End thru con	tactor from SWBD-1, 400A	hucke	t #5 se	ction #2

VERS

E8.2





APPLICABLE CODES & STANDARDS

TOP OF LOUVER

THERMOSTAT

TEPID WATER

UNDERCUT DOOR

VOLTS/PHASE/HERTZ

WATER PRESSURE DROP

VENT THRU ROOF

WALL-MOUNTED

TOTAL STATIC PRESSURE

TOT. CAP TOTAL CAPACITY

VENT

CONSTRUCTION CODE INCLUDING:

- 2015 INTERNATIONAL MECHANICAL CODE
- 2015 INTERNATIONAL FUEL GAS CODE
- 2015 INTERNATIONAL ENERGY CODE
- ANSI / ASHRAE / IESNA STD 90.1

HVAC CONTRACTOR

HOT WATER RETURN

INCHES OF WATER COLUMN

INTERNAL STATIC PRESSURE

HORSE POWER

HOT WATER

OR IDENTIFIER

INCHES

INSULATION

INFRARED

KILOWATT

INDIRECT WASTE

HTG

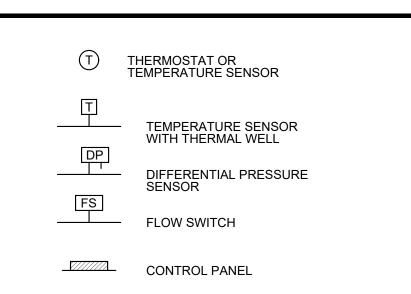
HWR

INSUL

IN-WC

- ANSI / ASHRAE STD 62.1
- NFPA 90A & 90B HVAC SYSTEMS

HVAC SYMBOLS - CONTROLS



ALTERNATES

- M-1: PROTECTIVE SERVICES A109 TO RECEIVE LAY-IN ACOUSTIC CEILING THROUGHOUT. H.C. TO PROVIDE CEILING MOUNTED DIFFUSERS, GRILLES, BRANCH DUCTWORK, AND EXTERNAL DUCT INSULATION.
- M-2: PROVIDE HVAC WORK IN CLASSROOM B103, OFFICE B104, CLASSROOM B105, AND OFFICE
- M-3: OWNER TO FURNISH DUST COLLECTOR DCU-1 AND DCU-2 AND WELDING FUME EXTRACTOR ARMS. H.C. TO COORDINATE DELIVERY AND PROVIDE OFF-LOADING, RIGGING, AND

HVAC EQUIPMENT

AHU -	AIR HANDLING UNIT (INCLUDING HEATING & VENTILATING UNITS)	(UH)	UNIT HEATER
DCU -	DUST COLLECTION UNIT	# CFM	GRILLE, REGISTER OR DIFFUSER
EF -	EXHAUST FAN	ST -	SOUND TRAP
OAI -	OUTDOOR AIR INTAKE HOOD	SA -	SPARK ARRESTOR

HVAC SYMBOLS - PIPING

>		TOP TAKE-OFF	\hookrightarrow	GATE VALVE
	Î,	BOTTOM TAKE-OFF	\longleftrightarrow	BALL VALVE
, 	$\overline{}$	PIPE RISE (ELBOW UP)	├	BUTTERFLY VALVE
<u></u>		PIPE DROP (ELBOW DOWN)	,,	
<u> </u>	→	FLOW DIRECTION		GLOBE VALVE
>	—⋈——∽	REDUCER		GATE VALVE OS & Y
5 —		SUPPLY PIPE	> W >	GATE VALVE OS & T
>		RETURN PIPE	> ▼ + →	GAS SHUT-OFF VALVE
>		EXISTING PIPE]	PIPE CAP
>		PIPE TO BE REMOVED (DEMO)		
>	—G——∽	GAS		MOMENT GUIDE
>	—D——	CONDENSATE DRAIN	∫ EJ	EXPANSION JOINT
>	—EXP——∽	EXPANSION TANK PIPING	>	FLEXIBLE CONNECTION
	—мu—— <u></u>	MAKE-UP WATER	\longrightarrow	UNION
				PIPE SUPPORT CURB
>	<u> </u>	THERMOMETER	\hookrightarrow	PIPE ANCHOR
	Ø		├	SUPPORT CURB WITH ANCHOR
>	- T - \	PRESSURE GAUGE	(
>	9	PRESSURE GAUGE WITH SNUBBER & GAUGE COCK (HYDRONIC SYSTEMS)	\$ \	AIR VENT WITH SHUT-OFF COCK
\$	Ф Х ———————————————————————————————————	PRESSURE GAUGE WITH PIGTAIL & GAUGE COCK (STEAM SYSTEMS)		

HVAC GENERAL NOTES

- THE HVAC DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT, PIPING, DUCTWORK AND ASSOCIATED SYSTEMS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATE THE INSTALLATION OF HVAC SYSTEMS WITH ACTUAL CONDITIONS IN THE
- A. PIPE AND DUCT ELEVATIONS ARE FOR REFERENCE ONLY. FIELD VERIFY ALL DIMENSIONS AND
- B. DUCT SIZES ARE MINIMUM CLEAR INSIDE DIMENSIONS.

ELEVATIONS

- C. COORDINATE INSTALLATION OF MECHANICAL WORK WITH ALL OTHER TRADES
- D. MAINTAIN MANUFACTURERS RECOMMENDED SERVICE CLEARANCES THE CONTRACTOR SHALL COORDINATE THE SHUTDOWN AND REMOVAL OF EXISTING SYSTEMS AND
- CONSTRUCTION PHASING SCHEDULE. PRIOR TO ORDERING MECHANICAL EQUIPMENT, VERIFY CLEARANCE FOR RIGGING EQUIPMENT THROUGH EXISTING DOORS, HATCHES, WINDOWS, AND SIMILAR EXISTING SPACE CONSTRAINT

EQUIPMENT AND THE INSTALLATION OF NEW SYSTEMS AND EQUIPMENT WITH THE PROJECT

- INSTRUCTIONS WHERE EQUIPMENT DOES NOT CLEAR EXISTING OPENINGS. 4. DO NOT RIG OR HOIST EQUIPMENT OR MATERIALS ABOVE OCCUPIED AREAS OF THE BUILDING.
- COORDINATE RIGGING SCHEDULE WITH OWNER. . PROVIDE ALL METHODS AND MATERIALS FOR SUPPORTING EQUIPMENT, PIPING, AND DUCTWORK. IN AREAS OF BAR JOIST CONSTRUCTION, SUPPORT LOADS FROM TOP CHORD OF BAR JOISTS AT PANEL

CONDITIONS. DISASSEMBLE AND RE-ASSEMBLE EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS

- . UNLESS OTHERWISE INDICATED, THIS CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING OF THE EXISTING FACILITY FOR HIS RESPECTIVE WORK. PATCHING SHALL MATCH EXISTING MATERIALS,
- A. PROVIDE LINTELS WHERE PENETRATING EXISTING MASONRY CONSTRUCTION; SUBMIT SHOP

DRAWINGS ON LINTELS, INDICATING SIZE AND TYPE, FOR PENETRATIONS OF LOAD BEARING MASONRY

- B. CUTTING AND PATCHING OF THE ROOF SHALL BE PERFORMED BY AN AUTHORIZED SUB-CONTRACTOR CERTIFIED BY THE ORIGINAL ROOFING MANUFACTURER; ALL WORK SHALL BE PERFORMED IN
- ACCORDANCE WITH EXISTING WARRANTY REQUIREMENTS. C. PROVIDE STEEL FRAMING ANGLES WHERE PENETRATING FLOOR AND ROOF DECKS; ANGLES SHALL BE
- MINIMUM 4" x 4" x 1/4" UNLESS NOTED OTHERWISE. D. MODIFY EXISTING ROOF, FLOOR, AND WALL OPENINGS TO ACCOMMODATE THE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS; PROVIDE ANGLE FRAMING FOR ROOF AND FLOOR PENETRATIONS, SLEEVES AND LINTELS FOR WALL PENETRATIONS. PATCH EXITING ROOF, FLOOR, AND WALL
- E. WHERE CUTTING AND PATCHING IS INDICATED TO BE PERFORMED BY THE GENERAL CONTRACTOR,

OPENINGS TO MATCH EXISTING MATERIALS AND METHODS WHERE PENETRATIONS ARE NOT UTILIZED

- F. UNLESS OTHERWISE INDICATED, REMOVE AND REINSTALL EXISTING ACOUSTICAL CEILING TILES AND CEILING GRID TO FACILITATE THE INSTALLATION OF DUCTWORK, PIPING, EQUIPMENT, AND CONTROLS. IMMEDIATELY NOTIFY THE ARCHITECT, AND OWNER IF ENVIRONMENTAL HAZARDS SUCH AS ASBESTOS IS ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO
- AVOID DISTURBING EXISTING HAZARDOUS MATERIALS. THE MECHANICAL CONTRACTOR SHALL NOT PERFORM ABATEMENT WORK AS PART OF THIS CONTRACT. ALL MATERIAL EXPOSED WITHIN THE CEILING RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE OR HAVE A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM SMOKE-DEVELOPED RATING OF 50. ALL DUCT TYPE, MASTICS, AND VIBRATION ISOLATION CONNECTIONS SHALL HAVE A MAXIMUM FLAME

SPREAD RATING OF 25 AND SMOKE SPREAD RATING OF 50 OR LESS, DUCT COVERING AND LININGS

SHALL NOT FLAME, GLOW, SMOLDER, OR SMOKE WHEN TESTED IN ACCORDANCE WITH ASTM C411 AND

- UL 181. FLEXIBLE DUCTWORK SHALL COMPLY WITH UL 181. 9. PROVIDE UL LISTED FIRE PROOFING SEALANTS AROUND ALL DUCT, PIPING, AND CONDUIT PENETRATIONS OF RATED FIRE RESISTANT WALLS AND FLOORS. PROVIDE UL LISTED DRAFT STOPPING
- SEALANTS AROUND ALL DUCT, PIPING, AND CONDUIT PENETRATIONS OF NON-RATED FLOORS. 0. PROVIDE ACOUSTICAL SEALS AROUND DUCTWORK AND PIPING PENETRATIONS OF ACOUSTICALLY
- . PRIME AND PAINT ALL FERROUS MATERIALS EXPOSED TO THE OUTDOORS. PRIME AND PAINT ADDITIONAL MATERIALS AS NOTED ON THE DRAWINGS. PRIMER AND PAINT SHALL BE SUITABLE FOR ITS
- 2. PROVIDE AUTOMATIC AIR VENTS AT ALL HIGH POINTS IN HYDRONIC PIPING SYSTEMS; PROVIDE DRAIN
- VALVES AT ALL LOW POINTS.
- 13. MOUNT THERMOSTATS AND SIMILAR CONTROL DEVICES 48" AFF.

FOR NEW EQUIPMENT AND SYSTEMS.

COORDINATE THE SIZE AND LOCATION OF OPENINGS.

- 4. UNLESS OTHERWISE NOTED, SMOKE DETECTORS SHALL BE FURNISHED, BY THE EC, AND INSTALLED BY THE H.C. IN THE RETURN AIR DUCTS UPSTREAM OF ANY FILTERS, EXHAUST AIR CONNECTIONS, AND OUTDOOR AIR CONNECTIONS FOR ALL UNITS WITH A DESIGN CAPACITY OF 2000 CFM OR GREATER. SMOKE DETECTORS SHALL BE LABELED FOR INSTALLATION IN AIR DISTRIBUTION SYSTEM AND INSTALLED IN ACCORDANCE WITH NFPA 72.
- 5. OUTSIDE AIR INTAKE OPENINGS SHALL BE LOCATED A MINIMUM OF 10 FEET FUEL-FIRED APPLIANCE VENTS, PLUMBING VENTS, EXHAUST FAN DISCHARGE, OR FROM ANY OTHER SOURCE OF HAZARDOUS OR
- 6. PERFORM START-UP EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURERS' WRITTEN START-UP INSTRUCTIONS OR IN CONJUNCTION WITH FACTORY AUTHORIZED TECHNICIANS. ADJUST
- CONTROL AS APPLICABLE. 7. PROVIDE WRITTEN NOTICE AT LEAST 3 DAYS PRIOR TO PERFORMING PIPING LEAK TESTS AND 7 DAYS PRIOR TO EQUIPMENT START-UP AND OPERATIONAL TESTS.

AUTOMATIC TEMPERATURE CONTROLS TO ACHIEVE SATISFACTORY TEMPERATURE AND/OR HUMIDITY

- 18. UNLESS OTHERWISE INDICATED, ALL DUCTWORK SHALL BE OF SHEET METAL CONSTRUCTION WITH SEALED JOINTS. ROUND FLEXIBLE DUCTWORK SHALL BE LIMITED TO 6'-0" PER BRANCH DUCT
- 19. DO NOT UTILIZE AIR HANDLING EQUIPMENT AND DUCTED SYSTEMS FOR TEMPORARY HEAT; OBTAIN WRITTEN APPROVAL FROM THE ENGINEER PRIOR TO PLACING EQUIPMENT INTO SUSTAINED OPERATION. CHANGE ALL AIR FILTERS 30 DAYS AFTER PROJECT COMPLETION.
- 20.PROVIDE ACCESS DOORS IN WALLS AND CEILINGS FOR ALL SERVICEABLE DEVICES INCLUDING FIRE DAMPERS, SHUT-OFF VALVES, CONTROL VALVES, CONTROL DAMPERS, AND VOLUME DAMPERS. PROVIDE UL-LISTED ACCESS DOORS IN FIRE RESISTANCE RATED CONSTRUCTION.
- 21.PROVIDE IDENTIFICATION OF MECHANICAL SYSTEMS AND EQUIPMENT INCLUDING DUCTWORK AND
- A. PROVIDE LOCATION / IDENTIFICATION MARKERS ON CEILING GRID OR ACCESS PANELS FOR SHUT-OFF VALVES, CONTROL VALVES, FIRE DAMPERS, SMOKE DETECTORS, AND OTHER SERVICEABLE DEVICES.

HVAC DEMOLITION NOTES

OWNER RESERVES RIGHT TO CLAIM ANY AND ALL SALVAGEABLE MATERIALS AND EQUIPMENT. PRIOR TO COMMENCING DEMOLITION WORK, IDENTIFY ITEMS OWNER CHOOSES TO CLAIM. REMOVE AND STORE

CLAIMED ITEMS. REMOVE AND DISPOSE OF ALL UNCLAIMED MATERIALS AND EQUIPMENT.

- . DO NOT RIG OR HOIST REMOVED EQUIPMENT OR MATERIALS OVER OCCUPIED AREAS OF THE BUILDING. COORDINATE RIGGING SCHEDULE WITH OWNER.
- 3. THE MECHANICAL CONTRACTOR SHALL NOT PERFORM HAZARDOUS MATERIAL ABATEMENT. IMMEDIATELY NOTIFY THE OWNER, AND ARCHITECT IN THE EVENT HAZARDOUS MATERIALS ARE ENCOUNTERED PRIOR OR DURING DEMOLITION. HAZARDOUS MATERIAL ABATEMENT INCLUDING THE REMOVAL OF ASBESTOS,
- . UNLESS OTHERWISE NOTED, THE REMOVAL OF REFRIGERANTS THAT ARE CONTAINED WITHIN MECHANICAL EQUIPMENT AND PIPING SYSTEMS SHALL BE PERFORMED BY THE MECHANICAL CONTRACTOR AND HIS CERTIFIED PERSONNEL OR CERTIFIED SUB-CONTRACTOR.

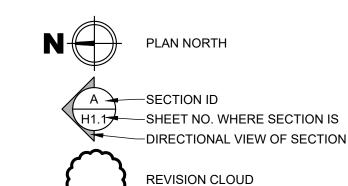
LEAD, PCB'S, AND MOLD SHALL BE PERFORMED BY THE OWNER OR HIS SEPARATE CONTRACTOR.

- . COORDINATE THE REMOVAL OF HVAC SYSTEMS IN ACCORDANCE WITH THE PROJECT CONSTRUCTION PHASING SCHEDULE. DO NOT REMOVE OR DE-ACTIVATE SYSTEMS NEEDED TO REMAIN IN OPERATION THROUGHOUT THE DESIGNATED CONSTRUCTION PHASES. WHERE PARTIAL REMOVAL OF OR CONNECTION TO ACTIVE SYSTEMS IS REQUIRED, COORDINATE PERIODS OF TEMPORARY SHUTDOWN WITH THE OWNER OR CONSTRUCTION MANAGER.
- 6. UNLESS OTHERWISE NOTED, ALL CUTTING AND PATCHING OF EXISTING FLOORS, CEILINGS, WALLS, AND ROOFS AS NEEDED TO PERFORM MECHANICAL DEMOLITION WORK, INCLUDING TEMPORARY REMOVAL AND REINSTALLATION OF CEILINGS. SHALL BE PERFORMED BY THE MECHANICAL CONTRACTOR. PATCH WORK SHALL BE COMPATIBLE WITH EXISTING CONSTRUCTION MATERIALS, FINISHES, AND FIRE RESISTANCE RATINGS. PATCHING OF ROOFS SHALL INCLUDE THE CLOSURE OF EXISTING ROOF OPENINGS WITH CORRUGATED METAL DECK, STANDING SEAM SHEET METAL, STEEL PLATES, CONCRETE, WOOD, INSULATION, AND OTHER MATERIALS TO MATCH THE EXISTING ROOF CONSTRUCTION. PATCHING OF EXISTING ROOFING WEATHERPROOFING SURFACES SHALL BE PERFORMED BY AN APPROVED ROOFING SUB-CONTRACTOR AND IN ACCORDANCE WITH THE ORIGINAL ROOFING MANUFACTURERS WARRANTY REQUIREMENTS.
- PROVIDE TEMPORARY PROTECTION OF EXISTING FIRE PROTECTION DEVICES IN AREAS WHERE DEMOLITION WORK WILL BE PERFORMED. COORDINATE TEMPORARY PROTECTION AND SHUTDOWN OF FIRE ALARM SYSTEMS WITH THE OWNER.
- 3. IN LOCATIONS WHERE THE MECHANICAL CONTRACTOR IS THE SOLE CONTRACTOR PERFORMING DEMOLITION WORK, INCLUDING CUTTING OF EXISTING FLOORS, WALLS, CEILINGS, AND ROOF FOR WORK RELATED TO THE INSTALLATION OF NEW HVAC WORK, PROVIDE TEMPORARY DUST CONTROL BARRIERS AND EXHAUST FANS TO MAINTAIN A NEGATIVE SPACE PRESSURE IN THE AREA OF WORK.
- . PROVIDE ALL MEANS AND METHODS FOR DRAINING AND RE-FILLING OF EXISTING HYDRONIC SYSTEMS AS NECESSARY TO PERFORM DEMOLITION WORK AND CONNECT TO EXISTING PIPING WORK.

COMMON ABBREVIATIONS

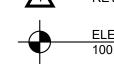
A/E	ARCHITECT/ENGINEER	HC	HVAC CONTRACTOR
AB CLG	ABOVE CEILING	HCP	HANDICAPPED
ABV	ABOVE	HGT	HEIGHT
AFF	ABOVE FINISHED FLOOR	HR	HOUR
AFI	ARC-FAULT INTERRUPTER	IR	INFRARED
AFR	ABOVE FINISHED ROOF	JB	JUNCTION BOX
ALT	ALTERNATE	KES	KITCHEN EQUIPMENT SUPPLIER
ATS	AUTOMATIC TRANSFER SWITCH	LV	LOW-VOLTAGE
BFC	BELOW FINISHED CEILING	MC	MECHANICAL CONTRACTOR
C/G	COUNTERTOP GFI	MCA	MINIMUM CIRCUIT AMPACITY
CD	CORD DROP	MOCP	MAXIMUM OVERCURRENT PROTECTION
CL	CENTERLINE	MT	MULTITECHNOLOGY
CLG	CEILING	MO	MICROWAVE OVEN
CM	CEILING MOUNTED	NA	NOT APPLICABLE
COL	COLUMN	NE NE	NORMAL/EMERGENCY
CT	COUNTERTOP HEIGHT-44" AFF UNO OR CURRENT TRANSFORMER	IN⊏	(NORMALLY ON)
CR	CORD REEL	NIC	NOT IN CONTRACT
DBF	DOWN BELOW FLOOR	NTS	NOT TO SCALE
DET	DETAIL	OFCI	OWNER FURNISHED- CONTRACTOR INSTALLED
DIA	DIAMETER	PC	PLUMBING CONTRACTOR
DIM	DIMENSION	PIR	PASSIVE INFRARED
DN	DOWN	SE	SERVICE ENTRANCE
DW	DISHWASHER	SECT	SECTION
DWG	DRAWING	SHT	SHEET
EC	ELECTRICAL CONTRACTOR	SIM	SIMILAR
EL	ELEVATION	SPD	SURGE PROTECTION DEVICE
ELEV	ELEVATOR	SPEC	SPECIFICATION
EMER	EMERGENCY	SS	SERVICE SINK
EO	EMERGENCY ONLY (NORMALLY OFF)	STD	STANDARD
EWC	ELECTRIC WATER COOLER (PROVIDE GFI RECEPTACLE)	SUSP	SUSPENDED
EV		TBR	TO BE REMOVED
EX	EXISTING	TL	TASK LIGHT
FA	FIRE ALARM	TR	TAMPER RESISTANT
FBO ELD	FURNISHED BY OWNER	TSTAT	THERMOSTAT
FLR	FLOOR	UNO	UNLESS NOTED OTHERWISE
FPC	FIRE PROTECTION CONTRACTOR	US	ULTRASONIC
FSC	FOOD SERVICE CONTRACTOR	W/	WITH
GC	GENERAL CONTRACTOR	W/O	WITHOUT
GFI	GROUND-FAULT INTERRUPTER	W	WALL-MOUNTED
GND	GROUND	WP	WEATHERPROOF

COMMON SYMBOLS

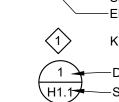




REVISION NUMBER



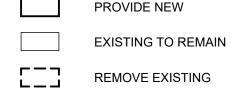
— DIRECTION OF VIEW -SHEET NO. WHERE EL. IS DRAWN —ELEVATION ID



KEYNOTE 1 — DETAIL ID H1.1 SHEET NO. WHERE DETAIL IS



EQUIPMENT TAG SHOWING TYPE AND ID. SEE EQUIPMENT SCHEDULES FOR DETAILS



CONNECT TO EXISTING EXISTING TO BE REMOVED

DRAWING LIST

P0.1 Cover Sheet P1.1 Partial Demolition Plans - Area 'A' & 'B' P2.1 Partial Drainage Plans - Area 'A' & 'B' P3.1 Partial Supply Plans - Area 'A' & 'B'

P8.1 Schedules & Details H0.1 Cover Sheet H1.1 Partial Demolition Plans - Area 'A' & 'B'

H2.1 Partial New Work Plans - Area 'A' & 'B' H2.2 Partial Roof Plan - Area 'A' H5.1 Enlarged Plan - New Work - Welding Technology Area H6.1 Controls Flow Diagram

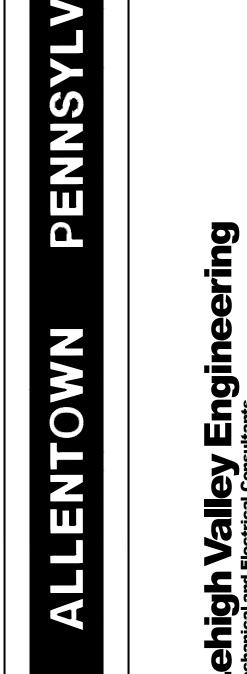
H7.1 Details H7.2 Details H8.1 Schedules E0.1 Cover Sheet

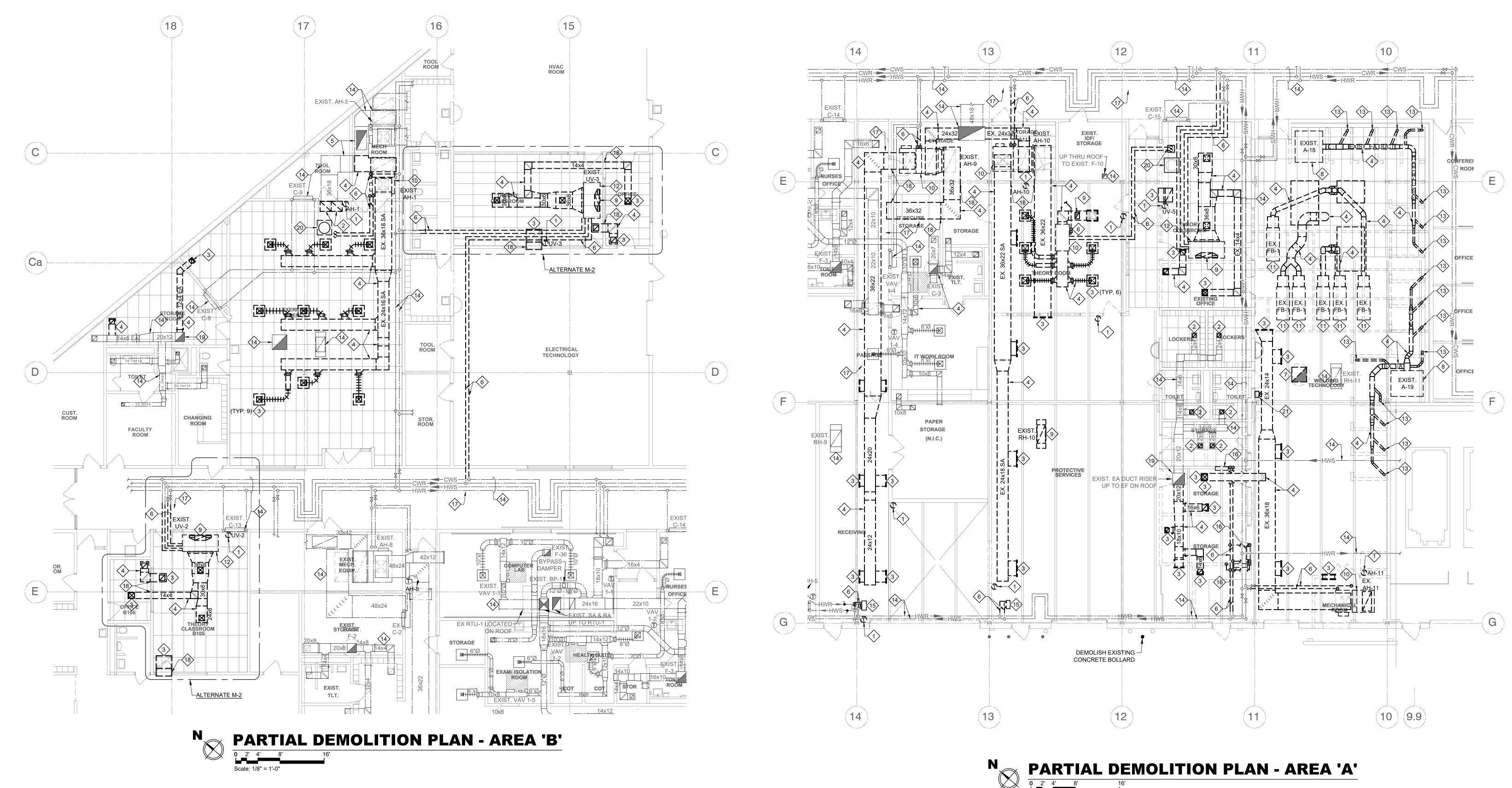
E0.2 Electric Notes E0.3 Overall Plan E1.1 Partial Demolition Plan - Areas 'A' & 'B' E2.1 Partial Lighting Plan - Areas 'A' & 'B' E3.1 Partial Power Plan - Areas 'A' & 'B'

E3.2 Partial Roof Plan - Area 'A' E4.1 Partial Low-Voltage Plan - Areas 'A' & 'B' E5.1 Enlarged Plan - Power - Welding Technology Area E7.1 Details E7.2 Details

E7.3 Details E8.1 Schedules E8.2 Schedules

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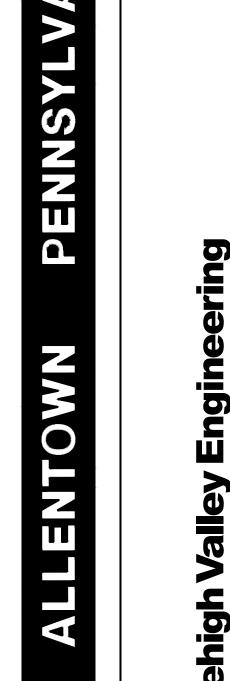




KEYNOTES - DEMOLITION

- REMOVE EXISTING THERMOSTAT INCLUDING ALL ASSOCIATED WIRING OR PNEUMATIC TUBING BACK TO SOURCE. PATCH WALL TO MATCH EXISTING CONSTRUCTION AND FINISH.
- 2 REPLACE EXISTING GRILLE, REGISTER, OR DIFFUSER. PROVIDE NEW GRILLE, REGISTER OR DIFFUSER.
- BACK TO ACTIVE MAIN, CAP EXISTING TAKE-OFF AT MAIN. WHERE DUCTWORK PENETRATES AN EXISTING WALL OR FLOOR, PATCH EXISTING WALL OR FLOOR PENETRATIONS TO MATCH EXISTING CONSTRUCTION AND FIRE RATING.
- AND INSULATION. WHERE PIPING IS TO BE REMOVED BACK TO AN ACTIVE MAIN, CAP TAKE-OFFS AT MAINS. WHERE PIPING PENETRATES AN EXISTING WALL OR FLOOR, PATCH EXISTING WALL OR FLOOR PENETRATIONS TO MATCH EXISTING CONSTRUCTION AND FIRE RATING.
- REMOVE EXISTING ROOF EXHAUST FAN INCLUDING ALL ASSOCIATED DUCTWORK, CONTROLS, DAMPERS AND (19) EXISTING EXHAUST FAN AND ASSOCIATED CONTROLS TO REMAIN ROOF CURB. PATCH EXISTING ROOF PENETRATION TO MATCH EXISTING CONSTRUCTION. E.C. TO REMOVE POWER WIRING AND CONDUIT BACK TO SOURCE.
- 8 REMOVE EXISTING DUST COLLECTOR AND ALL ASSOCIATED DUCTWORK AND CONTROLS. REMOVE EXISTING COMPRESSED AIR PIPING BACK TO MAIN. CAP PIPING AT EXISTING MAIN. F.C. TO REMOVE POWER WIRING. COMPRESSED AIR PIPING BACK TO MAIN. CAP PIPING AT EXISTING MAIN. E.C. TO REMOVE POWER WIRING.
- REMOVE EXISTING ROOF VENT(GRAVITY RELIEF VENT, OUTSIDE AIR INTAKE HOOD, OR GOOSENECK) INCLUDING ALL ASSOCIATED DUCTWORK, CONTROLS, DAMPER, AND ROOF CURB. PATCH EXISTING ROOF PENETRATION TO MATCH EXISTING CONSTRUCTION.

- (10) REMOVE EXISTING AIR HANDLING UNIT INCLUDING ALL ASSOCIATED DUCTWORK, PIPING, CONTROLS, DAMPERS, AND SUPPORTS. E.C. TO DISCONNECT POWER WIRING BACK TO SOURCE.
- (11) REMOVE EXISTING AIR CLEANER UNIT AND ASSOCIATED DUCTWORK AND CONTROLS. E.C. TO REMOVE
- REMOVE EXISTING CLASSROOM UNIT VENTILATOR AND ALL ASSOCIATED PIPING AND CONTROLS. E.C. TO REMOVE POWER WIRING BACK TO SOURCE.
- (13) REMOVE EXISTING WELDING FUME CAPTURE ARM AND ASSOCIATED DUCTWORK, HANGERS, AND SUPPORTS.
- REMOVE EXISTING HOT WATER UNIT HEATER AND ALL ASSOCIATED PIPING AND CONTROLS. E.C. TO REMOVE POWER WIRING AND CONDUIT BACK TO SOURCE.
- (16) REMOVE EXISTING HOT WATER CONVECTOR AND ALL ASSOCIATED PIPING, VALVES, AND CONTROLS.
- (17) H.C. TO REMOVE AND RE-INSTALL CEILING FOR DEMOLITION WORK IN THIS AREA.
- (18) H.C. TO PATCH EXISTING WALL TO MATCH EXISTING CONSTRUCTION AND FINISH.
- (20) REMOVE EXISTING CONDENSING UNIT, ROOF CURB, AND ALL ASSOCIATED REFRIGERANT PIPING AND POWER WIRING AND CONDUIT BACK TO SOURCE. H.C. TO PATCH EXISTING ROOF.
- ATC CONTRACTOR TO RELOCATE EXISTING GAS DETECTION ALARM AND MONITORING SYSTEM INCLUDING STROBE LIGHT.

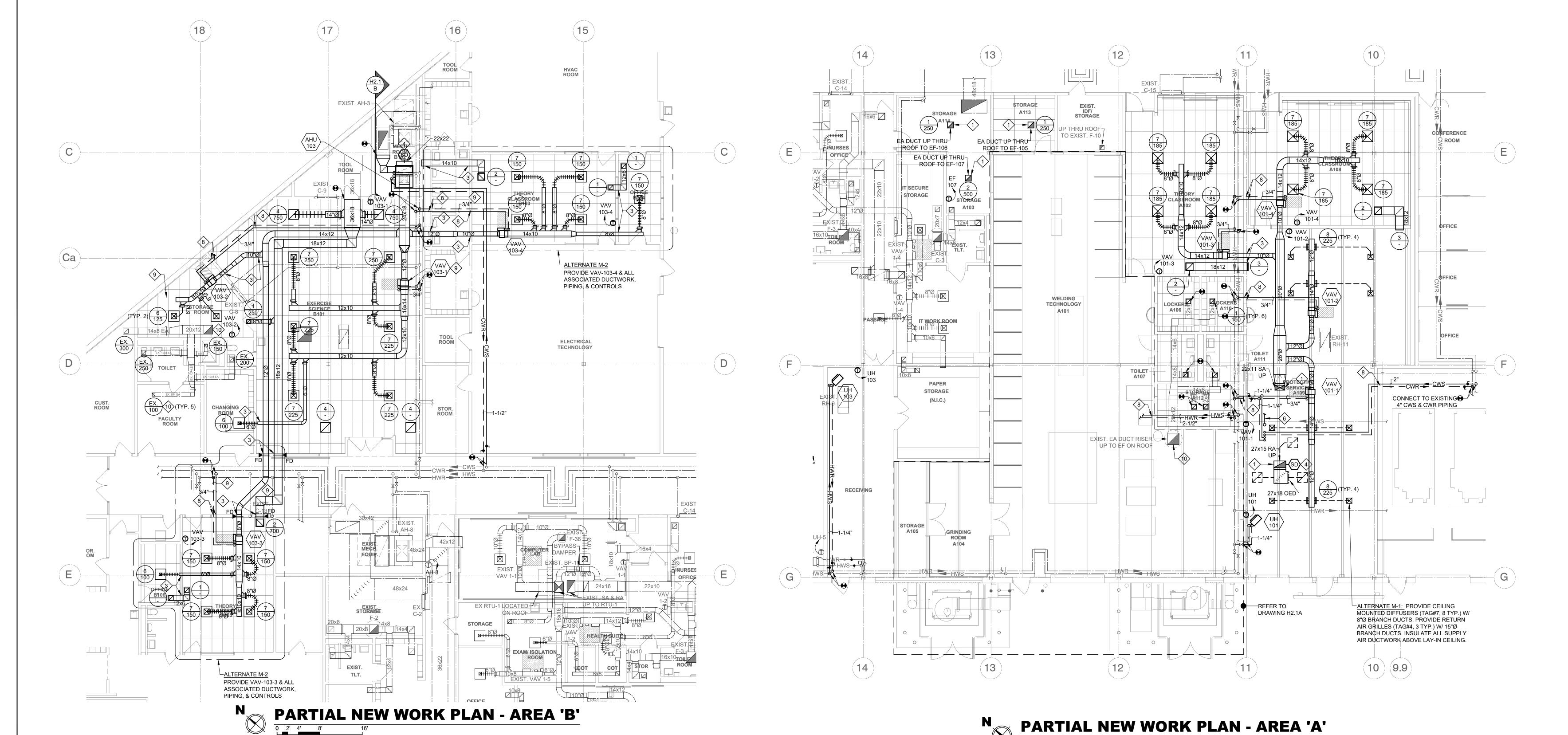


AREA OF WORK _

N KEY PLAN NOT TO SCALE

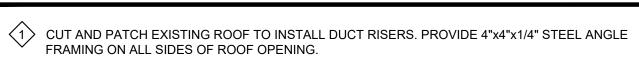
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H2.1



- 2 PROVIDE NEW ROOF CURB TO SUPPORT EQUIPMENT. CUT AND PATCH EXISTING ROOF.
- (3) CUT AND PATCH EXISTING MASONRY WALL TO INSTALL DUCTWORK, GRILLE, OR LOUVER. PROVIDE LINTEL TO SUPPORT MASONRY. REFER TO STRUCTURAL DRAWINGS FOR LINTEL SIZING
- 4 E.C. TO FURNISH DUCT SMOKE DETECTOR. H.C. TO INSTALL IN DUCTWORK
- PROVIDE ELECTRIC HEAT TRACE ON HOT WATER AND CHILLED WATER PIPING ABOVE ROOF LINE. HEAT TRACE AT 5 WATTS/FT. PROVIDE DISCONNECT SWITCH, THERMOSTAT, AND WARNING SIGNS.
- PROVIDE NEW 4" CONCRETE EQUIPMENT PAD.
- 8 CUT AND PATCH EXISTING WALL TO ROUTE PIPING TO DESIRED LOCATION. PROVIDE PIPE SLEEVE THRU MASONRY CONSTRUCTION.
- 9 H.C. TO REMOVE AND RE-INSTATE EXISTING ACOUSTIC TILE CEILING IN THIS AREA TO PERFORM MECHANICAL WORK.

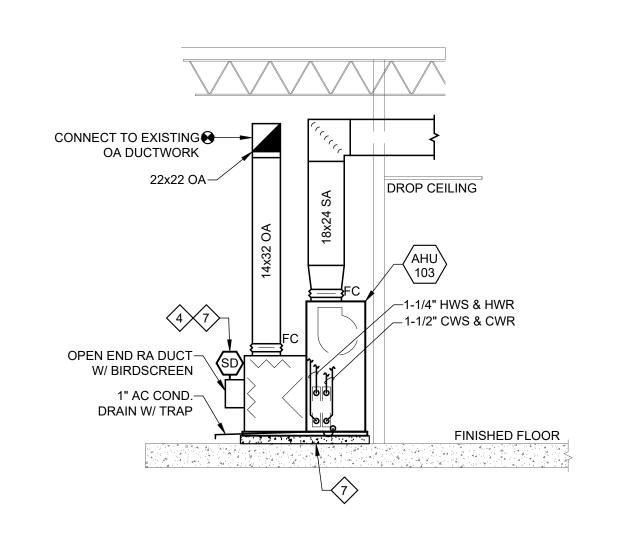




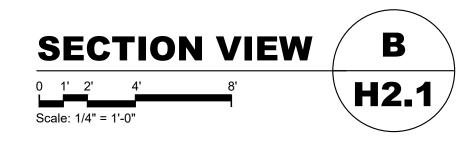


(6) EXTEND 1-1/4" AC CONDENSATE DRAIN PIPING BELOW ROOF TO EXISTING 4" RWC.

(10) RE-BALANCE EXISTING GRD'S AND EXISTING FAN.

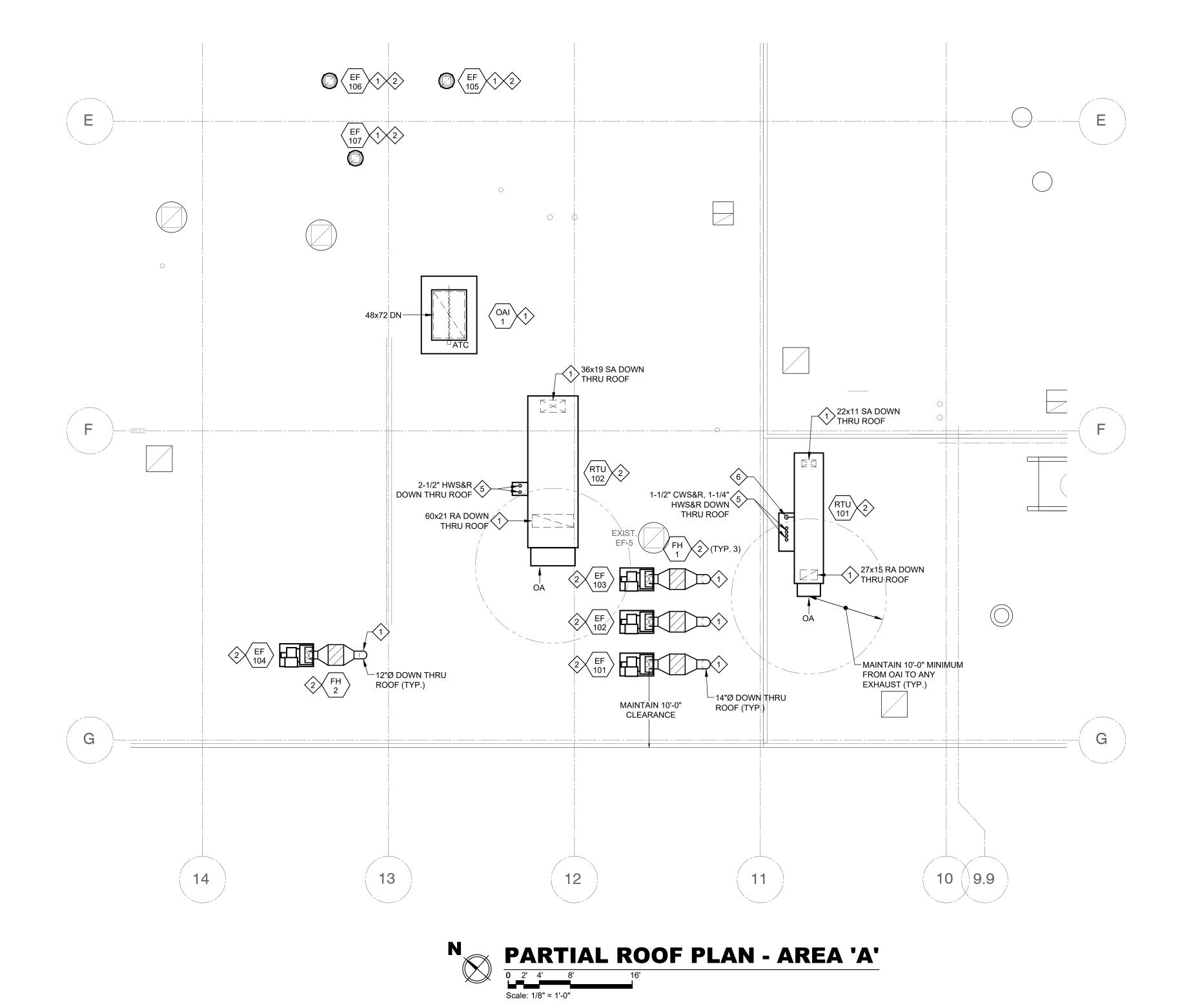


Scale: 1/8" = 1'-0"



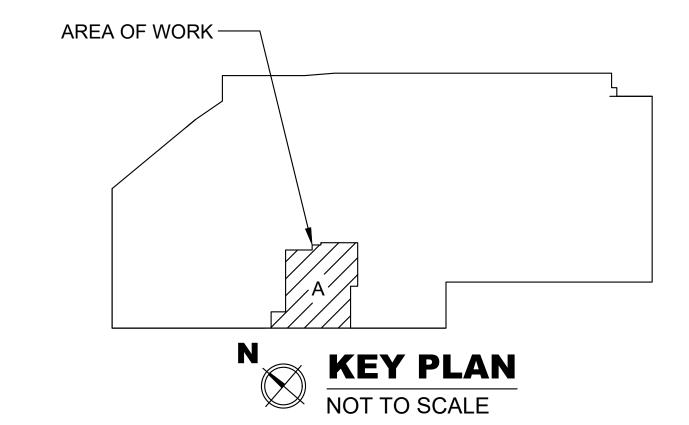
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H2.2



KEYNOTES

- CUT AND PATCH EXISTING ROOF TO INSTALL DUCT RISERS. PROVIDE 4"x4"x1/4" STEEL ANGLE FRAMING ON ALL SIDES OF ROOF OPENING.
- 2 PROVIDE NEW ROOF CURB TO SUPPORT EQUIPMENT. CUT AND PATCH EXISTING ROOF.
- CUT AND PATCH EXISTING MASONRY WALL TO INSTALL DUCTWORK, GRILLE, OR LOUVER. PROVIDE LINTEL TO SUPPORT MASONRY. REFER TO STRUCTURAL DRAWINGS FOR LINTEL SIZING REQUIREMENTS.
- E.C. TO FURNISH DUCT SMOKE DETECTOR. H.C. TO INSTALL IN DUCTWORK.
- PROVIDE ELECTRIC HEAT TRACE ON HOT WATER AND CHILLED WATER PIPING ABOVE ROOF LINE. HEAT TRACE AT 5 WATTS/FT. PROVIDE DISCONNECT SWITCH, THERMOSTAT, AND WARNING SIGNS.
- EXTEND 1-1/4" AC CONDENSATE DRAIN PIPING BELOW ROOF TO EXISTING 4" RWC.
- 7> PROVIDE NEW 4" CONCRETE EQUIPMENT PAD.
- CUT AND PATCH EXISTING WALL TO ROUTE PIPING TO DESIRED LOCATION. PROVIDE PIPE SLEEVE THRU MASONRY CONSTRUCTION.
- H.C. TO REMOVE AND RE-INSTATE EXISTING ACOUSTIC TILE CEILING IN THIS AREA TO PERFORM MECHANICAL WORK.
- 10 RE-BALANCE EXISTING GRD'S AND EXISTING FAN.



24x24 DOWN TURN ELBOW (TYP.)

- HC TO CUT & PATCH EXISTING WALL. PROVIDE ANGLE RINGS

PROVIDE RAIN SHIELD AT TOP OF DUCT PENETRATION

20x20 DISCHARGE W/ ATC DAMPER & BIRDSCREEN

EACH SIDE OF WALL.

(TYPICAL)

H5.1

PROVIDE 24 GA GALVANIZED SHEET METAL SLOPED JACKET ON TOP OF OUTDOOR RECTANGULAR DUCTWORK.

(13) SUMMER/WINTER ATC DAMPERS AND CONTROL WIRING BY H.C.

CONCRETE PAD/ FOUNDATION -BY GC. HC TO ANCHOR DCU

TO PAD (TYP.)

SECTION VIEW

KEYNOTES

CUT AND PATCH EXISTING ROOF TO INSTALL DUCT RISERS. PROVIDE 4"x4"x1/4" STEEL ANGLE FRAMING ON ALL SIDES OF ROOF OPENING.

(3) CUT AND PATCH EXISTING MASONRY WALL TO INSTALL DUCTWORK, GRILLE, OR LOUVER. PROVIDE LINTEL TO SUPPORT MASONRY. REFER TO STRUCTURAL DRAWINGS FOR LINTEL SIZING

PROVIDE ELECTRIC HEAT TRACE ON HOT WATER AND CHILLED WATER PIPING ABOVE ROOF LINE. HEAT TRACE AT 5 WATTS/FT. PROVIDE DISCONNECT SWITCH, THERMOSTAT, AND WARNING SIGNS.

(8) CUT AND PATCH EXISTING WALL TO ROUTE PIPING TO DESIRED LOCATION. PROVIDE PIPE SLEEVE

(9) H.C. TO REMOVE AND RE-INSTATE EXISTING ACOUSTIC TILE CEILING IN THIS AREA TO PERFORM

(2) PROVIDE NEW ROOF CURB TO SUPPORT EQUIPMENT. CUT AND PATCH EXISTING ROOF

(4) E.C. TO FURNISH DUCT SMOKE DETECTOR. H.C. TO INSTALL IN DUCTWORK.

7 PROVIDE NEW 4" CONCRETE EQUIPMENT PAD.

(10) RE-BALANCE EXISTING GRD'S AND EXISTING FAN.

THRU MASONRY CONSTRUCTION.

MECHANICAL WORK.

(6) EXTEND 1-1/4" AC CONDENSATE DRAIN PIPING BELOW ROOF TO EXISTING 4" RWC.

DUST COLLECTION CONTROL PANEL FURNISHED BY DCU MRF, MOUNTED BY H.C. POWER WIRING

PROVIDE LOW VOLTAGE START/STOP SWITCH AND WIRING TO DCU VFD AND TO SHOP EMERGENCY STOP SWITCH (SHOP EMERGENCY STOP SWITCH BY E.C.)

6 6" DIAMETER WELDING FUME SOURCE CAPTURE ARM FURNISHED BY OWNER, INSTALLED BY H.C. (HENLEX MODEL V6-A)

17 14"Ø ROUTE EXHAUST DUCT DOWN TO CUTTING TABLES. H.C. TO PROVIDE SUITCASE LATCH AND FINAL CONNECTION TO CUTTING TABLE. (CUTTING TABLE BY OWNER)

PROVIDE LOW VOLTAGE VARIABLE SPEED CONTROL SWITCH AND WIRING TO EXHAUST FAN VFD AND TO SHOP EMERGENCY STOP SWITCH (SHOP EMERGENCY STOP SWITCH BY E.C.) (19) COMPRESSED AIR PIPING TO DCU-1 AND DCU-2 BY P.C. AIR REGULATORS AND FILTERS FURNISHED

BY DCU MANUFACTURER. 20 PROVIDE NEMA 4 VENTED ENCLOSURE WITH FILTER FOR MOUNTING OF VFD REMOTE KEYPADS (FOR EF-101 THRU EF-104)

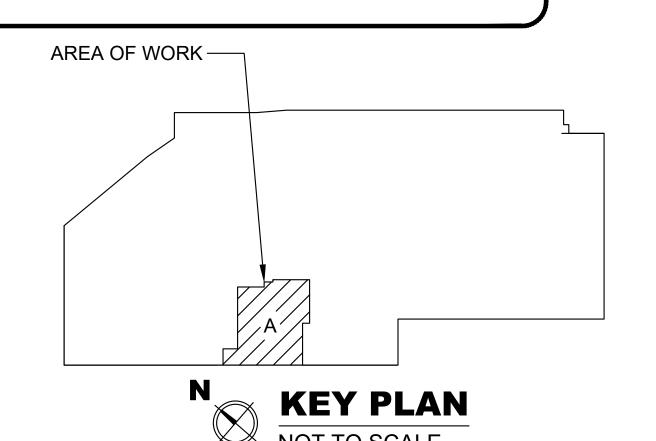
21) ATC CONTRACTOR TO RELOCATE EXISTING GAS DETECTION ALARM AND MONITORING SYSTEM

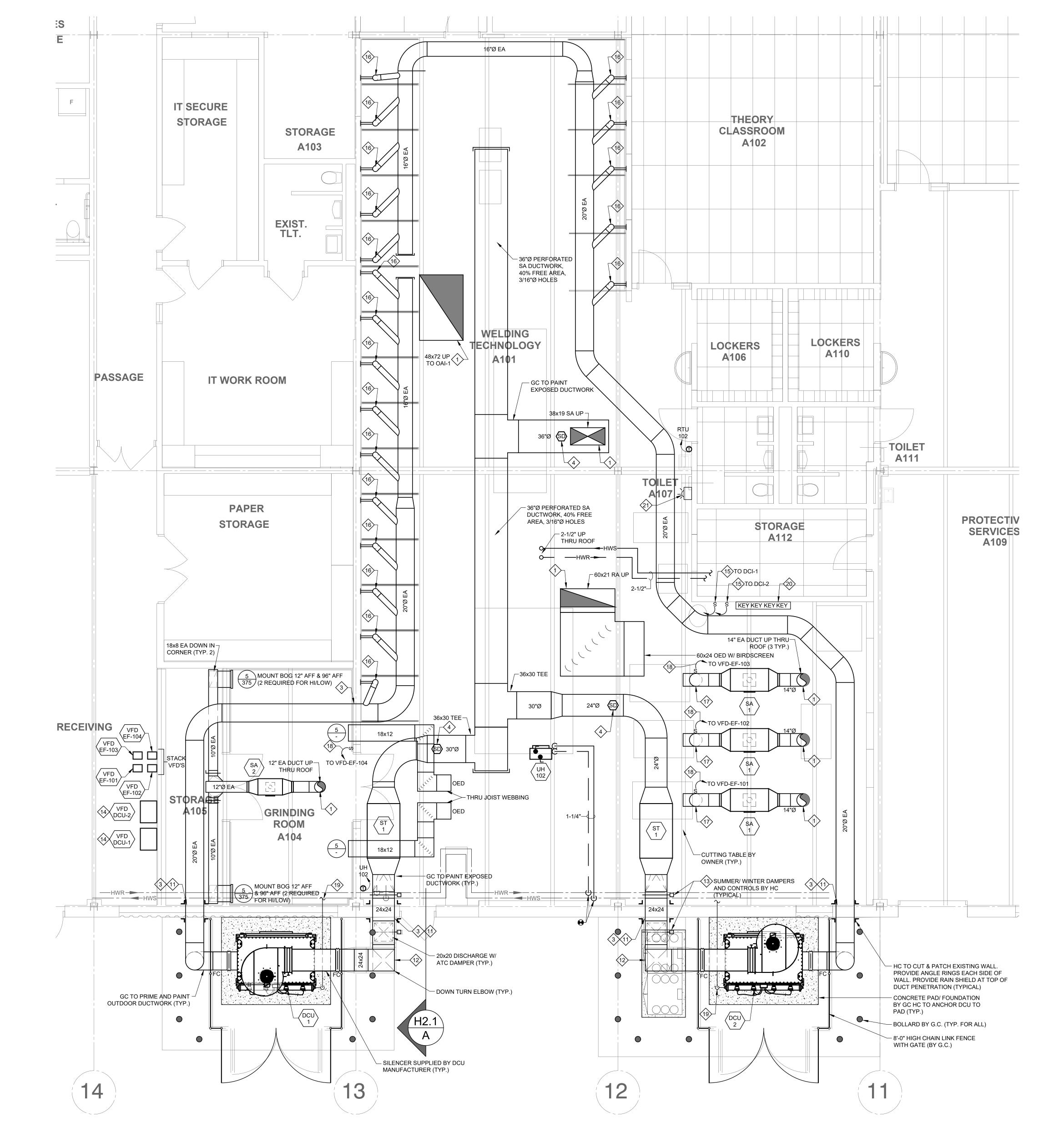
SPECIAL NOTES

REFER TO KEYNOTE 16: H.C. TO PROVIDE ONE MOCK-UP PRIOR TO INSTALLING FUME ARMS. FIELD VERIFY MOUNTING HEIGHT AND BRACKET LOCATION WITH OWNER.

ALTERNATES

ALTERNATE M-3: H.C. TO FURNISH DCU-1, DCU-2, AND WELDING FUME EXTRACTORS (20 TYP.) IN LIEU OF OWNER FURNISHED EQUIPMENT.





ENLARGED PLAN - NEW WORK - WELDING TECHNOLOGY AREA

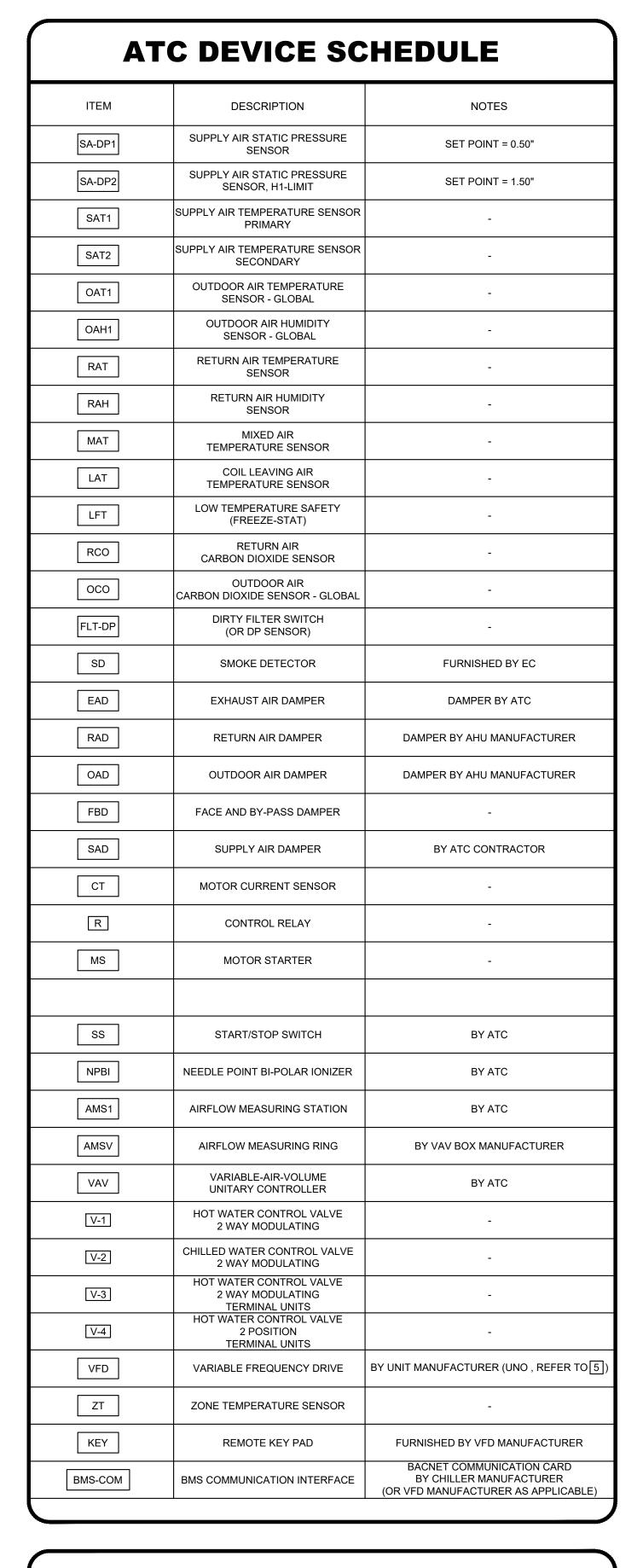
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H5.1

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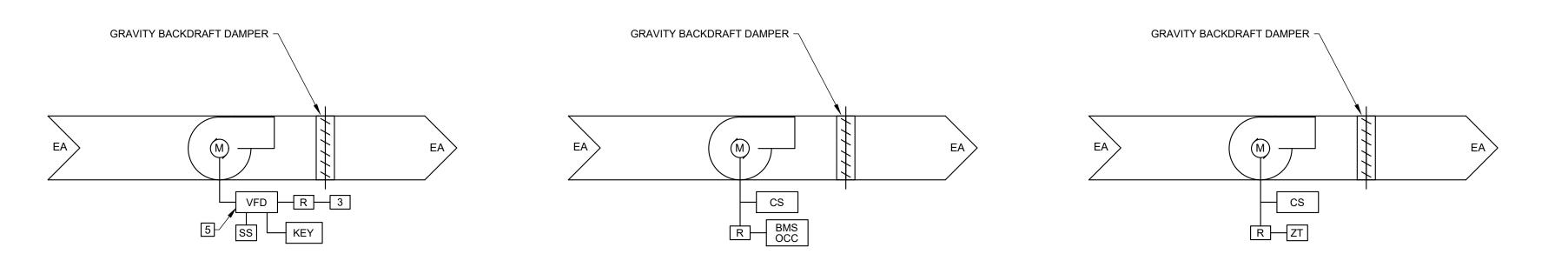
- EXISTING GLOBAL INPUTS.
- (2) AHU CONTROL PANEL BY ATC CONTRACTOR.
- DUCT DETECTOR FURNISHED BY EC (OR FIRE ALARM CONTRACTOR). CONTROL WIRING FOR UNIT SHUT-DOWN BY ATC CONTRACTOR.
- DAMPERS BY AHU MANUFACTURER, ACTUATOR BY ATC CONTRACTOR,
- AIR FLOW MEASURING STATION BY ATC CONTRACTOR.
- VAV DDC CONTROLLER BY ATC.

SPECIAL NOTES

- 1 H.C. TO PROVIDE BAFFLE PLATE ACROSS TOP OF COILS, FROM HW COIL TO CW COIL.
- 2 H.C. TO PROVIDE BAFFLE PLATE AT TOP OF HW COIL TO SHIELD FREEZE-STAT BULB.
- WIRE TO EMERGENCY STOP SWITCH BY E.C.
- PROVIDE NEEDLE POINT BI-POLAR IONIZER, TOP PRODUCT INNOVATION TYPE C6.0 OR EQUAL.
- 5 VFD FURNISHED BY H.C.

GENERAL NOTES

ALL CONTROL COMPONENTS, DEVICES, SENSORS, VALVES, DAMPERS, AND WIRING SHALL BE BY ATC UNLESS NOTED OTHERWISE. WHERE NOTES INDICATE "BY ATC", NOTE IS INTENDED

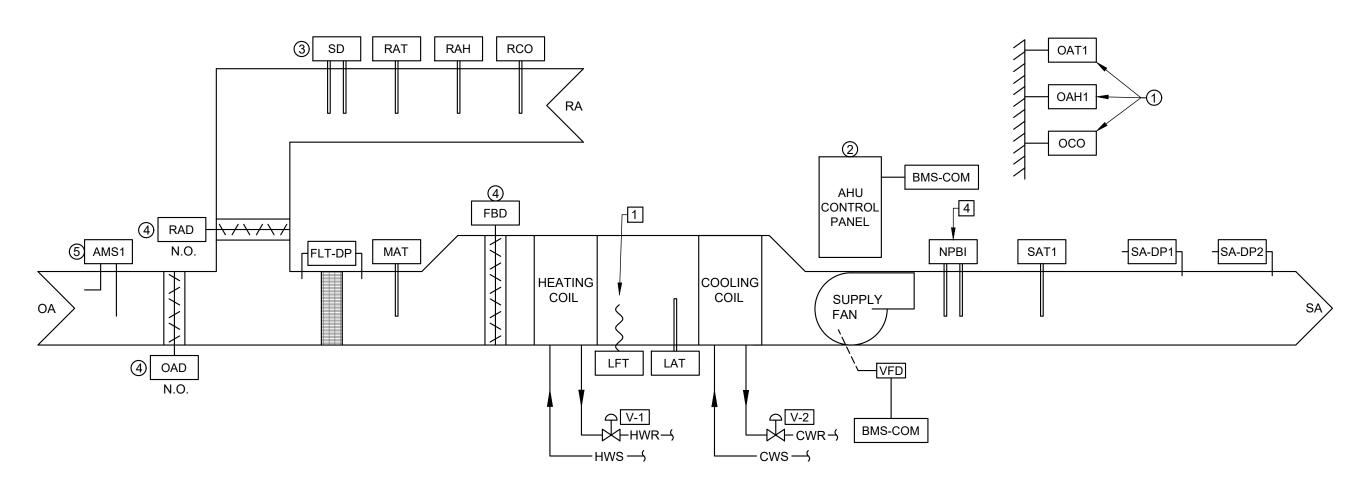


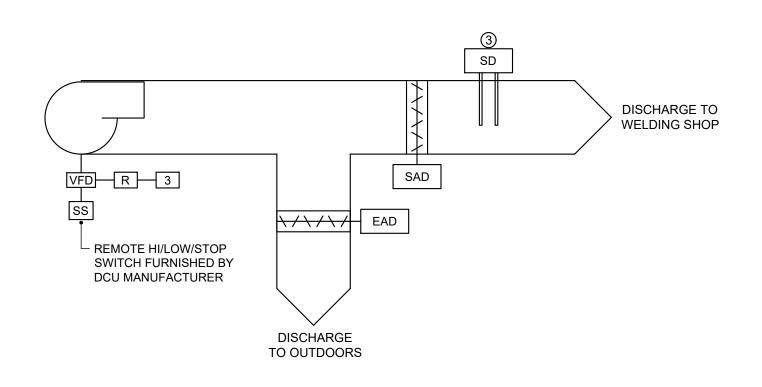
EXHAST FAN TYPICAL FOR EF-101, 102, 103, 104

EXHAST FAN

TYPICAL FOR EF-105, 106

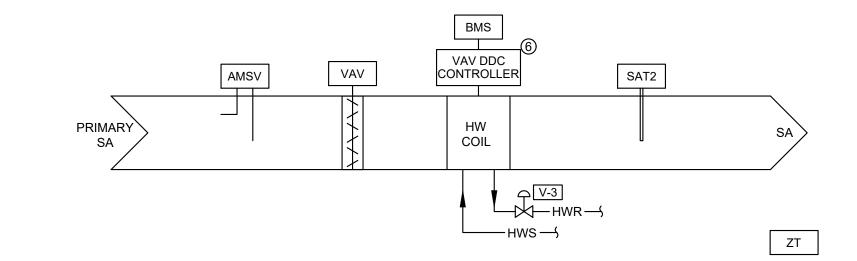
EXHAST FAN TYPICAL FOR EF-107



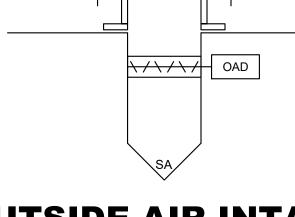


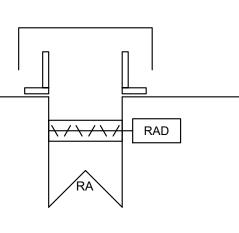
AHU 4 PIPE, VAV TYPICAL FOR: AHU-101 & RTU-101

DUST COLLECTION UNIT TYPICAL FOR DCU-1, DCU-2



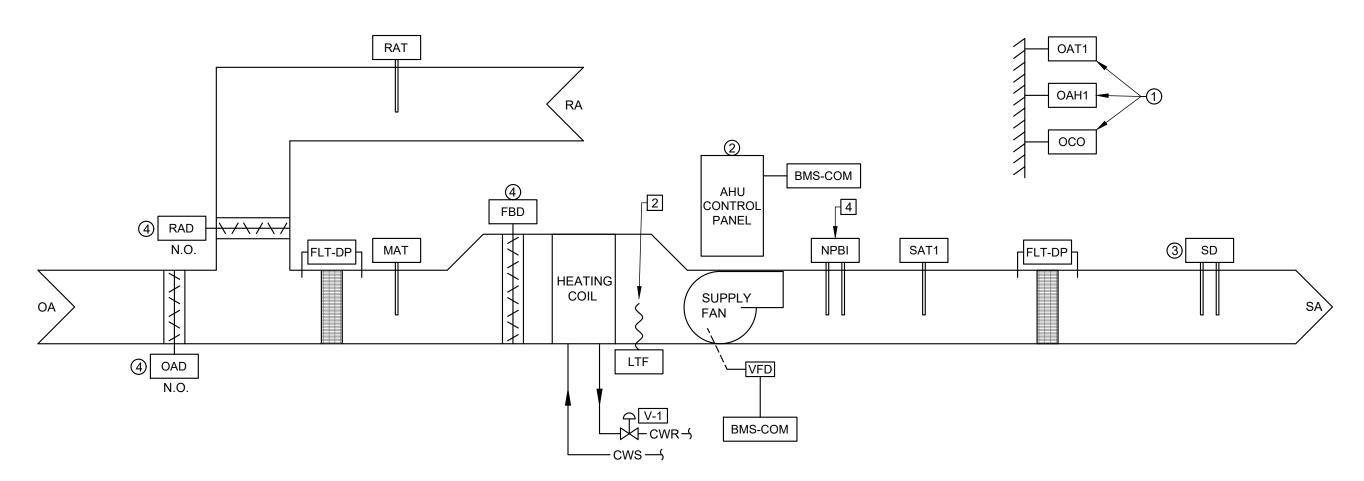
VARIABLE AIR VOLUME TERMINAL WITH HOT WATER HEAT



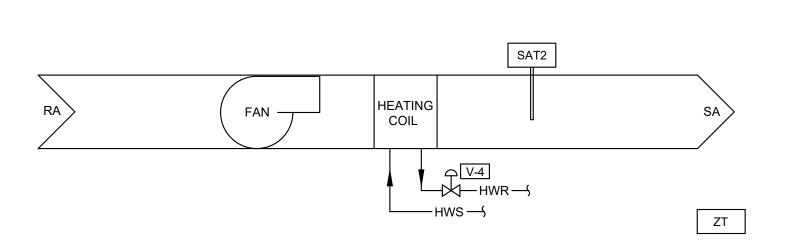


OUTSIDE AIR INTAKE TYPICAL FOR OAI-1

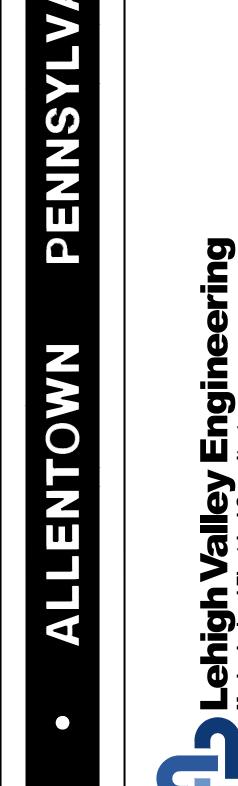




AHU 2 PIPE, SINGLE ZONE



HOT WATER UNIT HEATER TYPICAL FOR ALL CH'S & UH'S

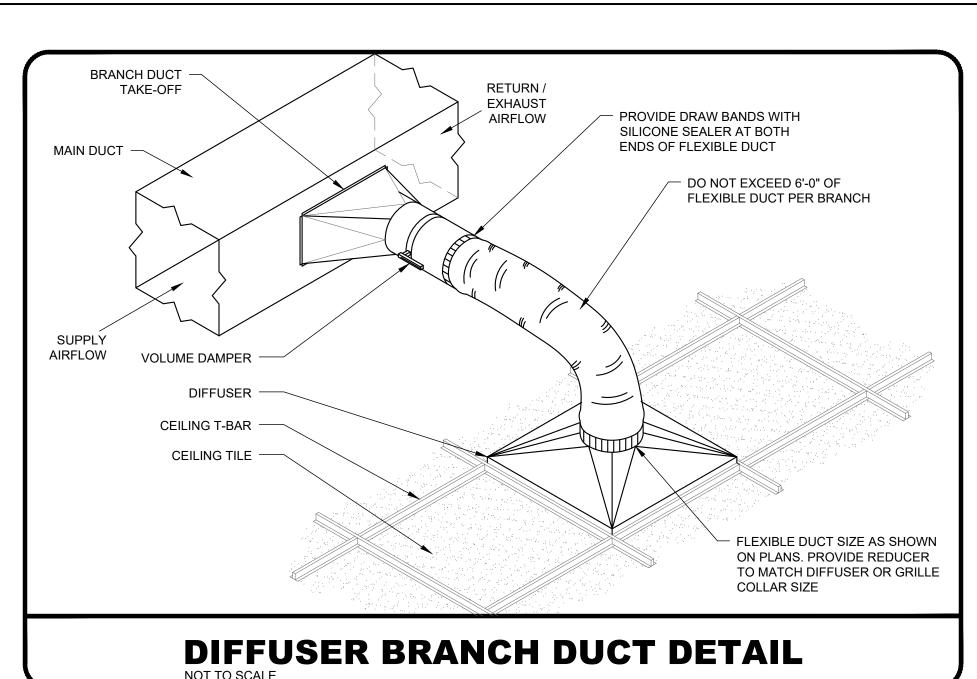


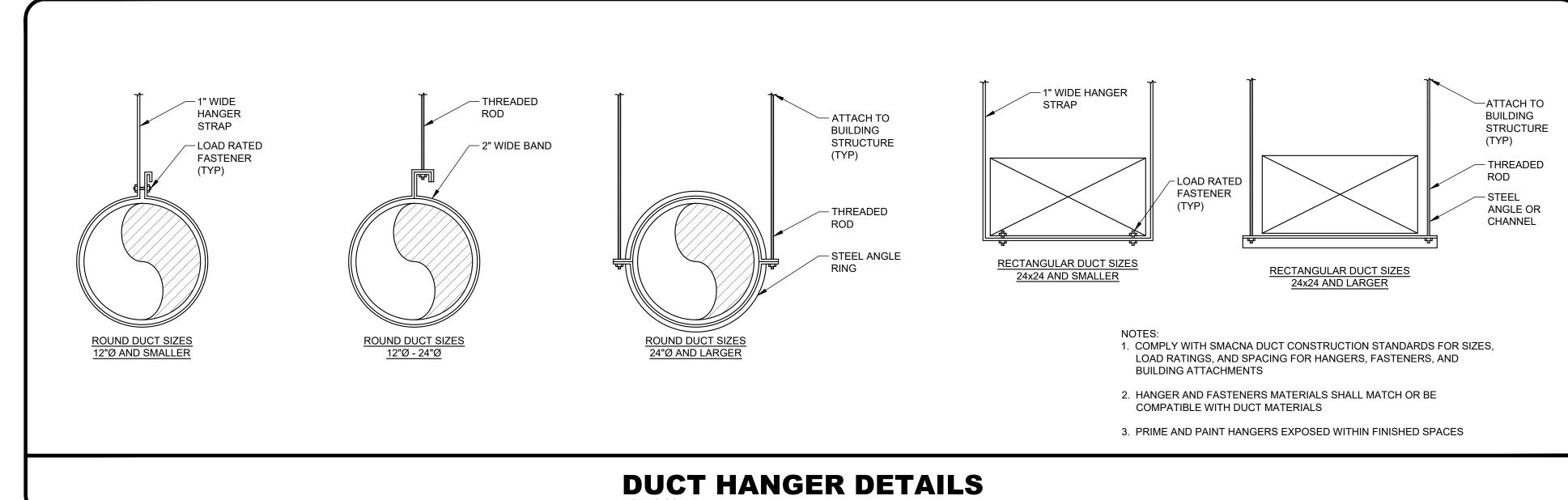
FADERO

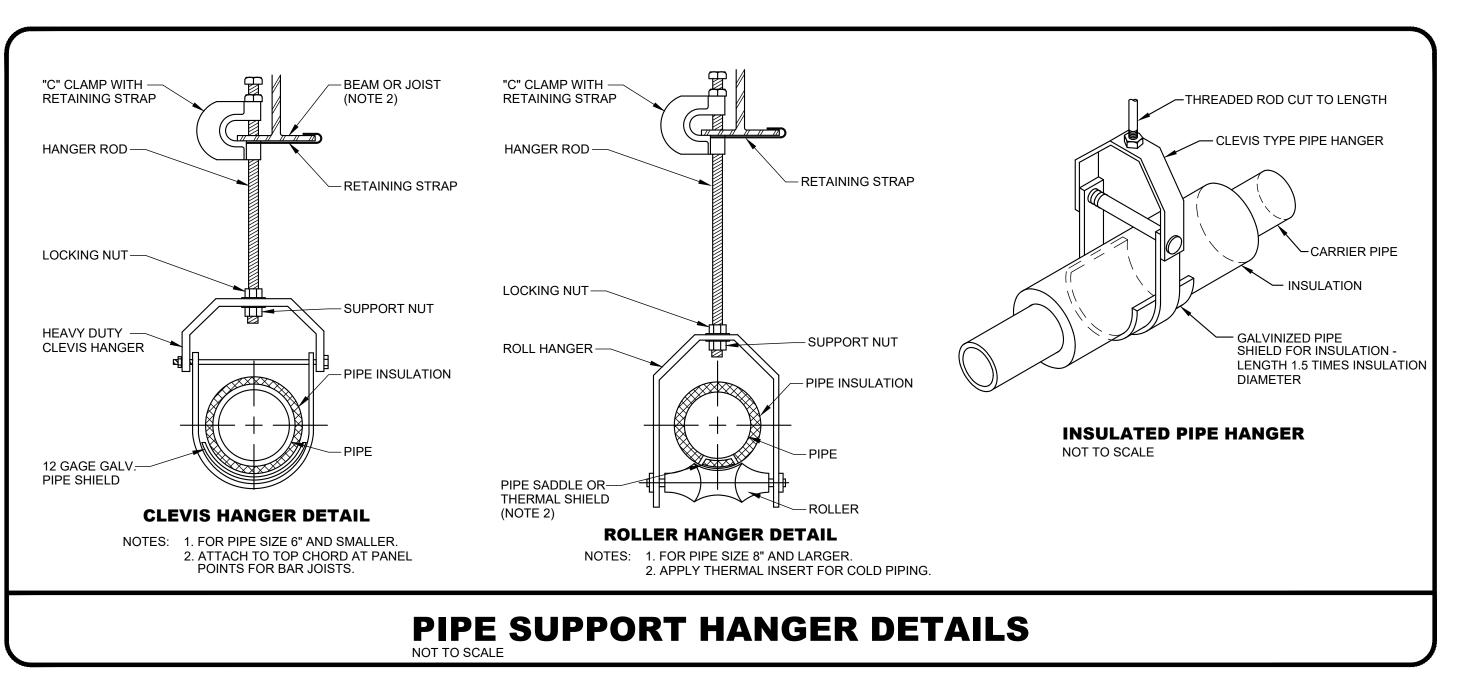
BRES

LVE - 21146

H7.1







-PIPE TO FLOOR DRAIN

-FLOAT TYPE AIR VENT

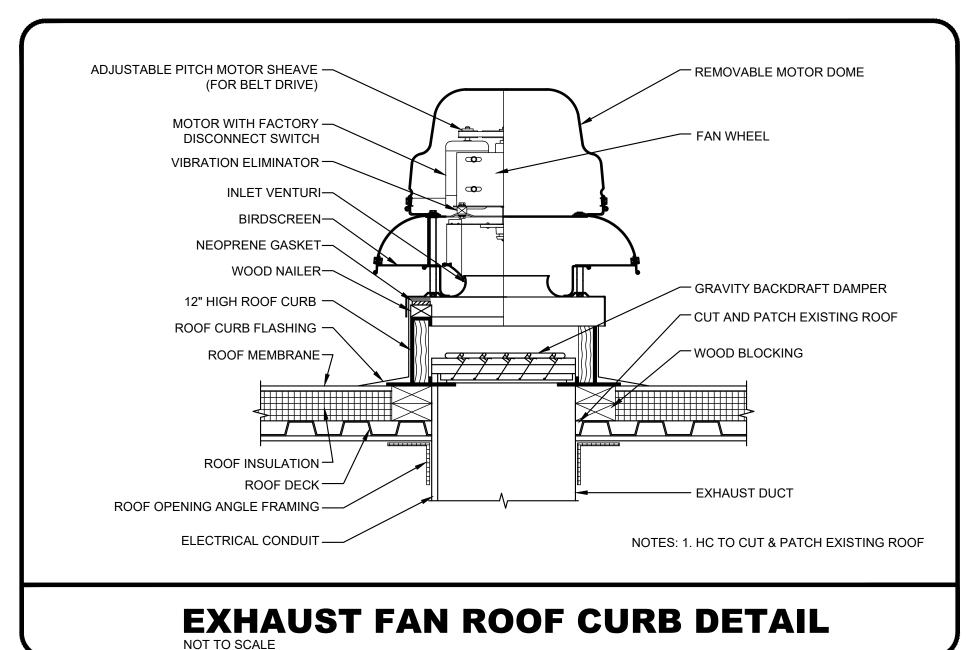
SYSTEM HIGH POINT

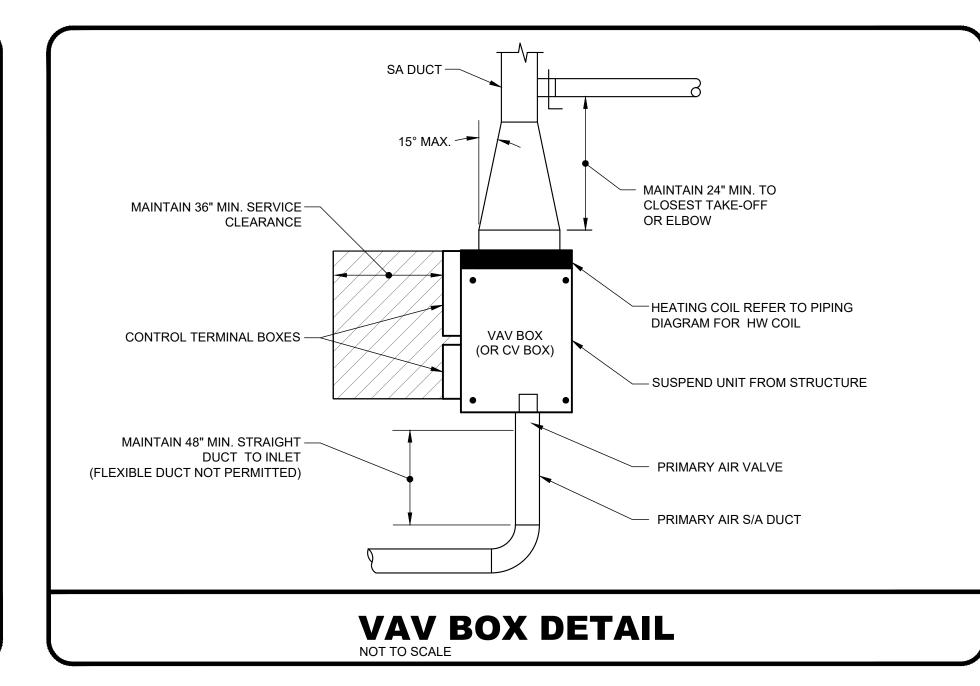
AUTOMATIC AIR VENT

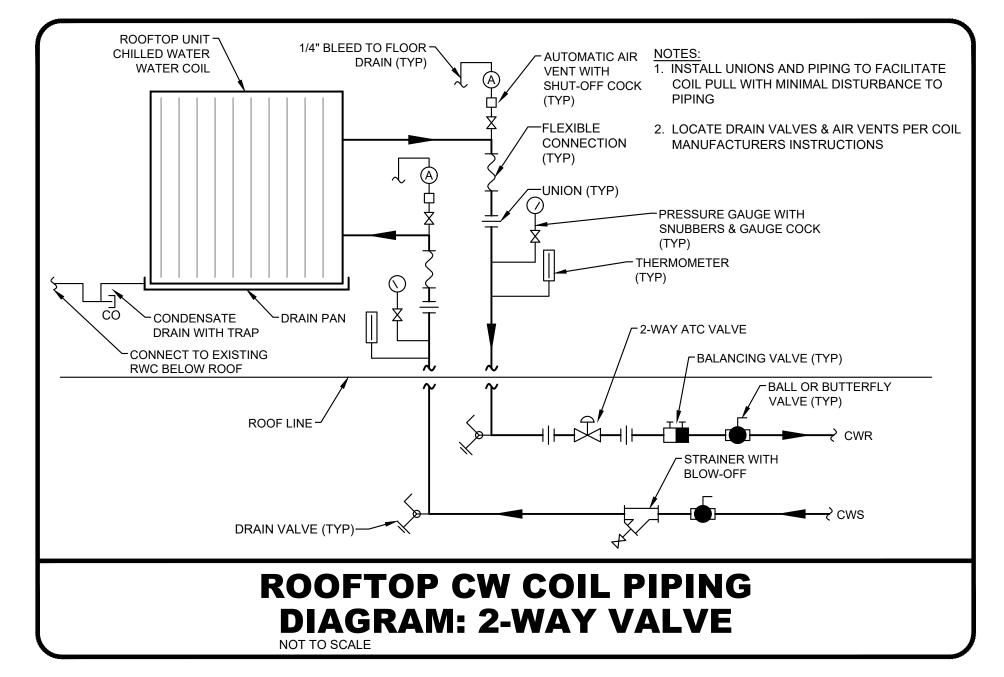
PIPING DETAIL

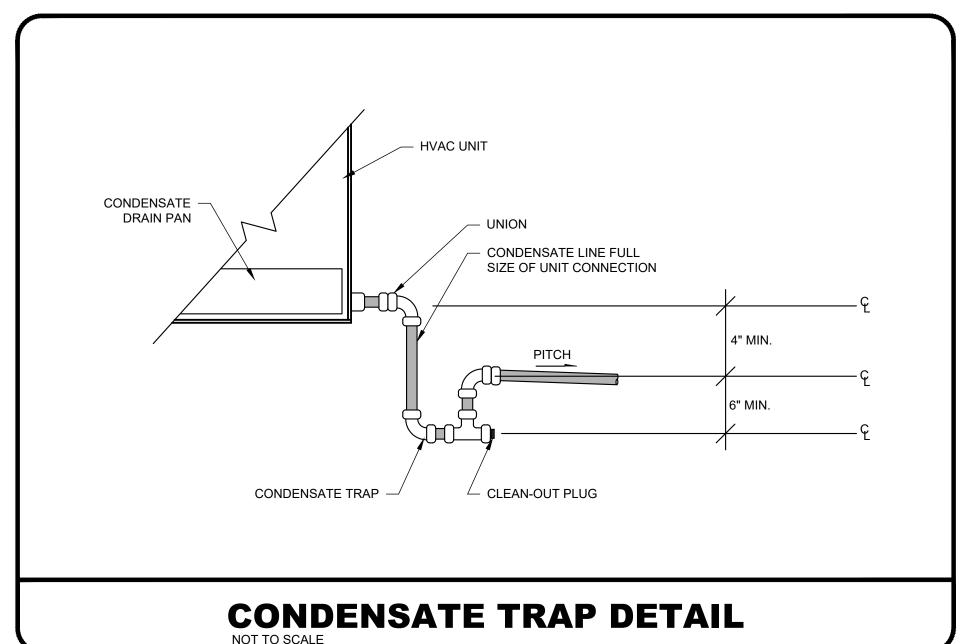
BALL VALVE OR GAUGE COCK

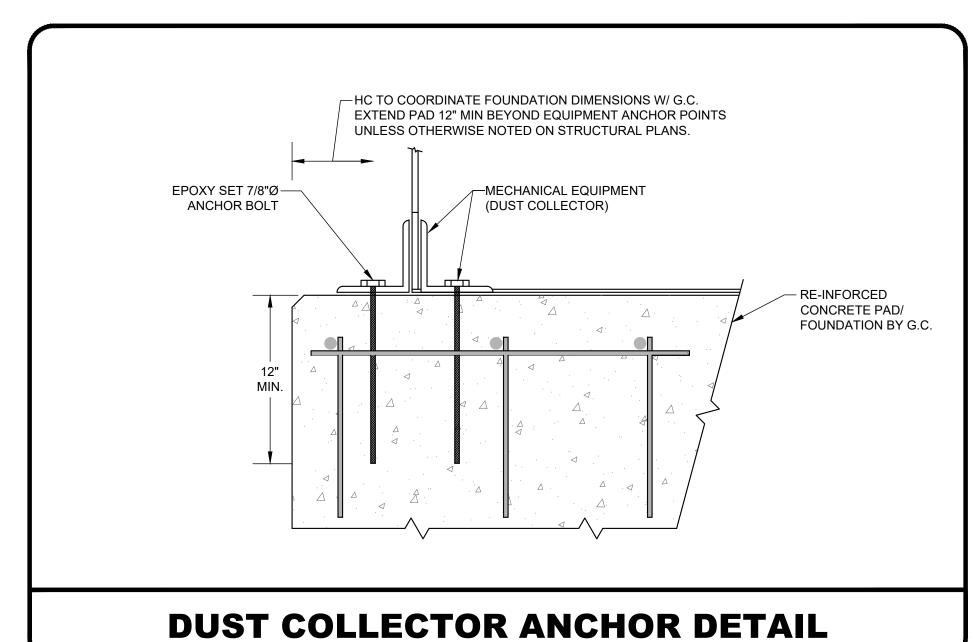
THREADOLET OR TEE AT PIPING

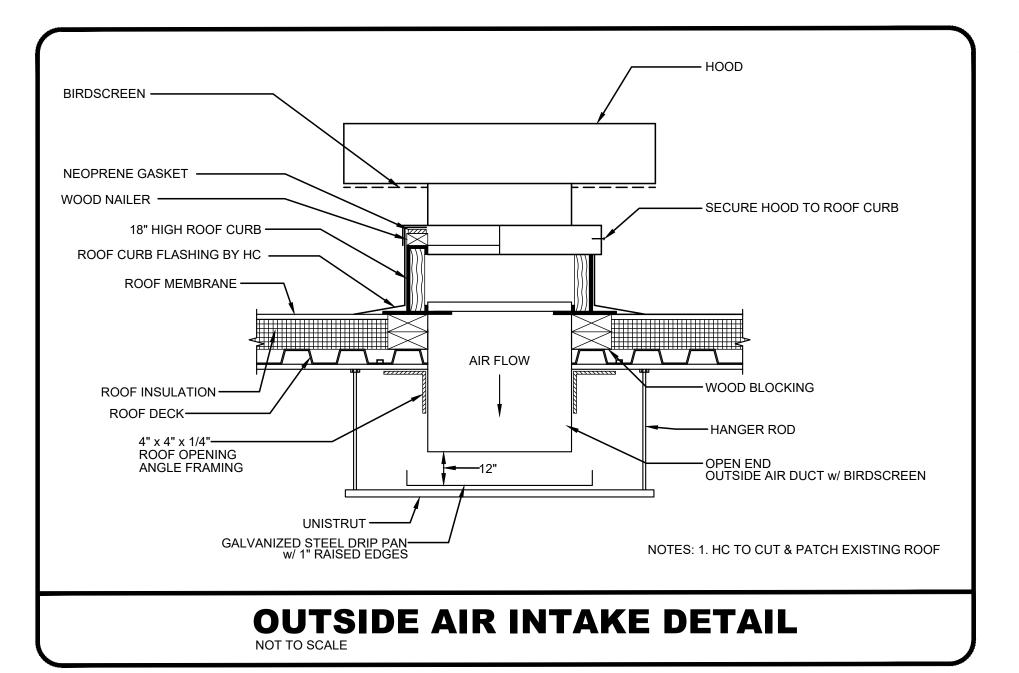


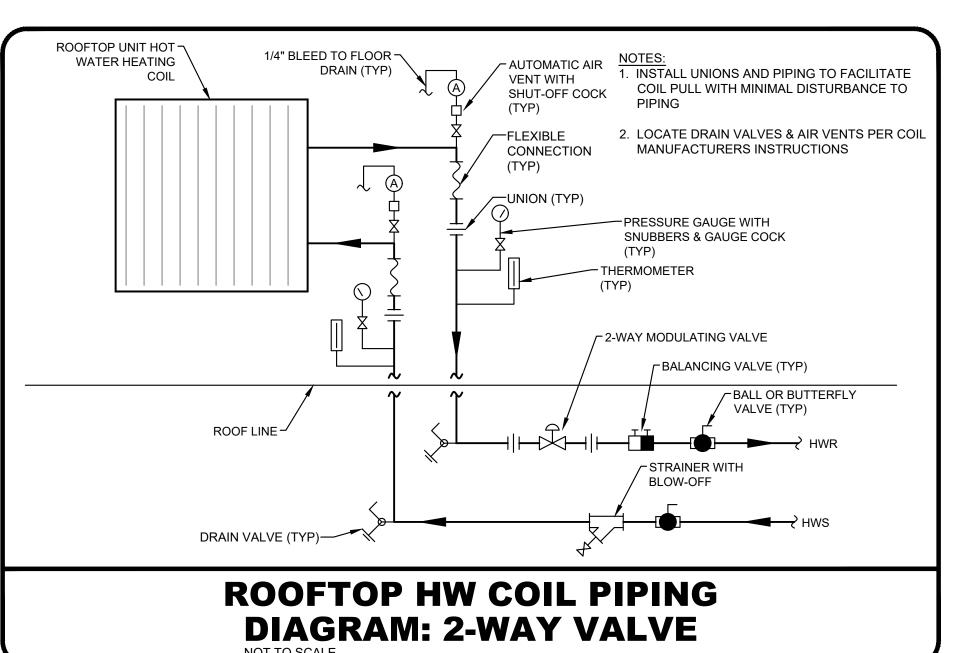


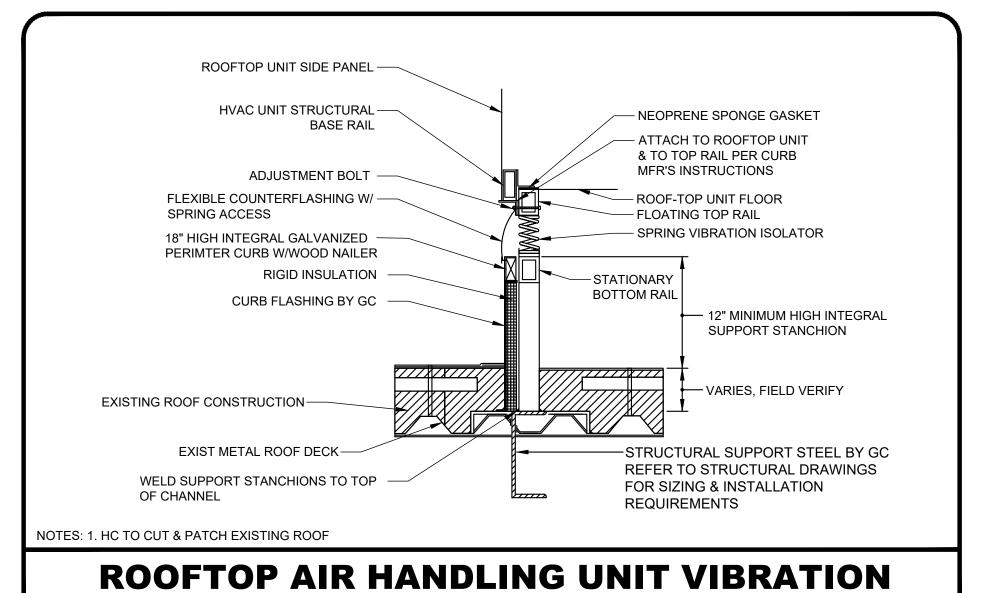












ISOLATION CURB DETAIL

FUME ARM BRACKET

WELDING BOOTH

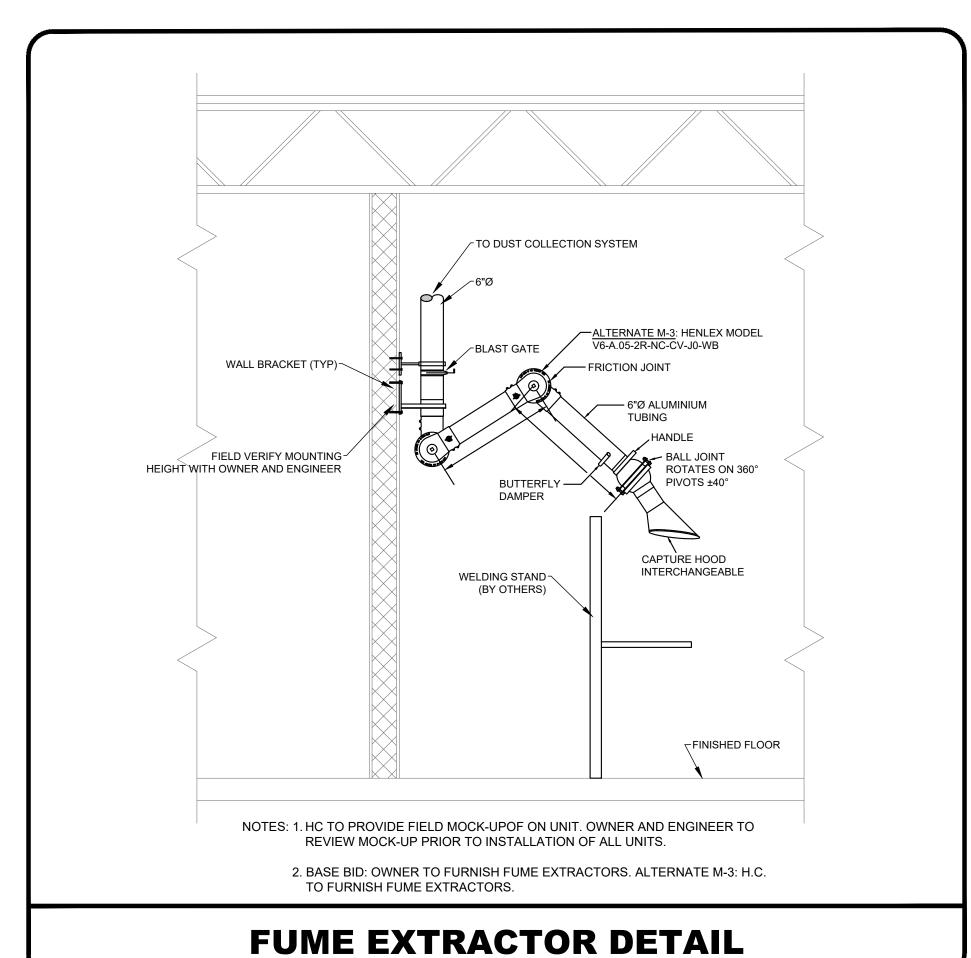
WELDING BOOTH

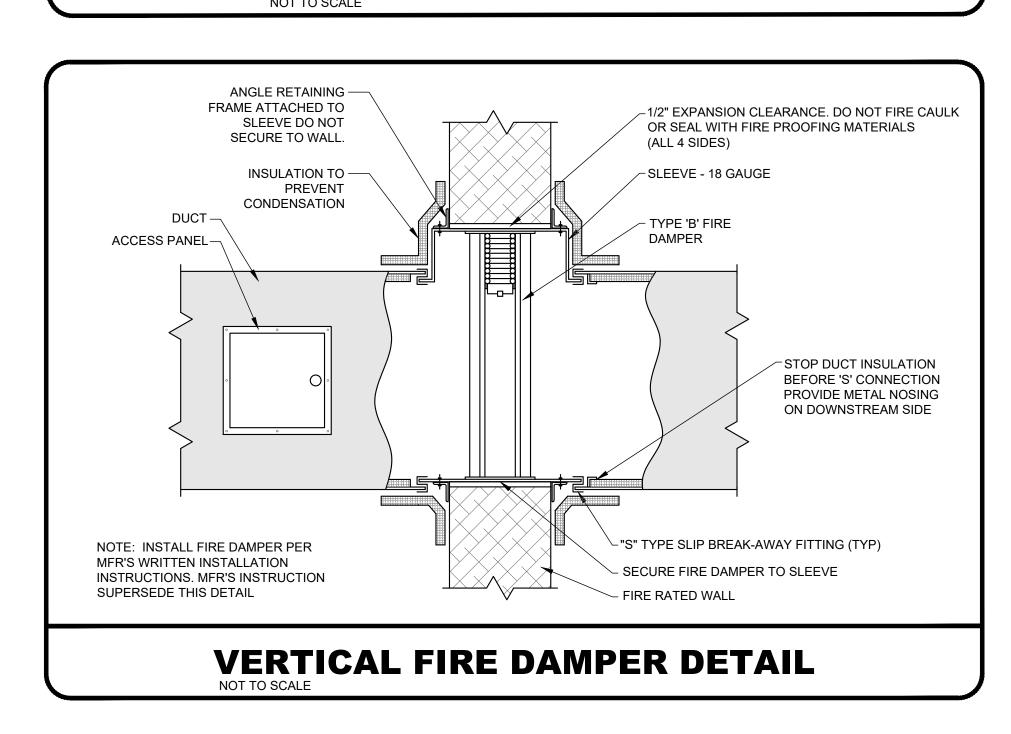
WELDING BOOTH

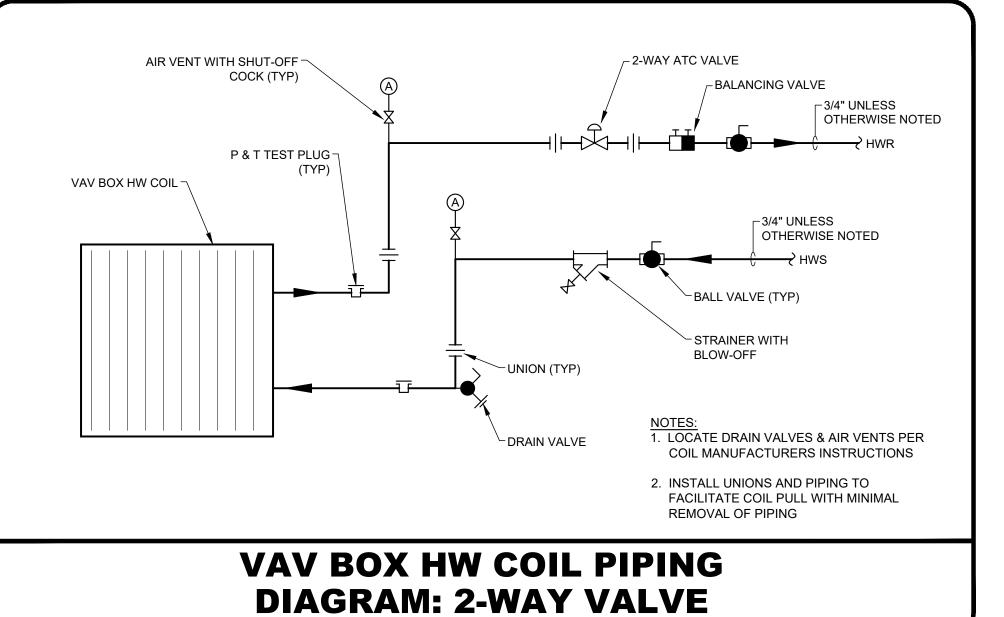
FUME ARM BRACKET MOUNTING DETAIL

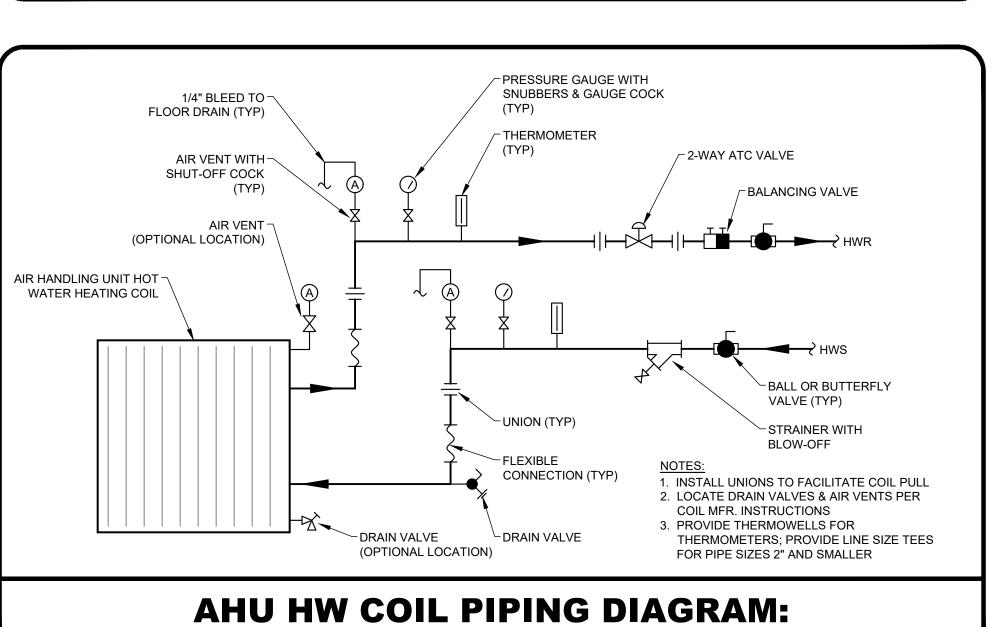
NOTE FIELD VERIEV: PROVIDE
MOCKUP INSTALLATION FOR ONE
ARM FOR APPROVIDE BY OWNER
BEFORE INSTALLING ALL UNITS:

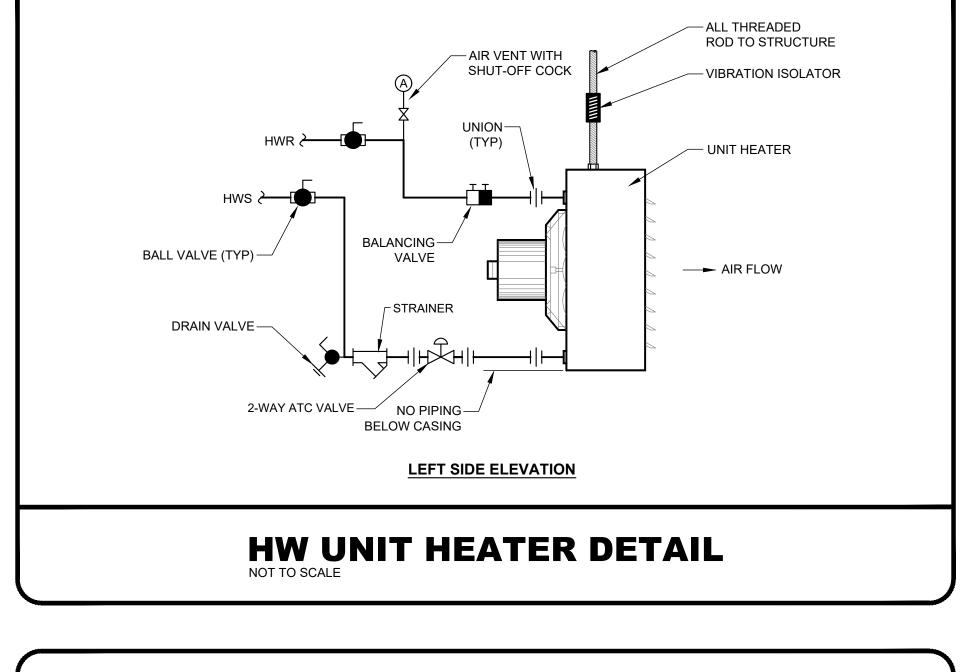
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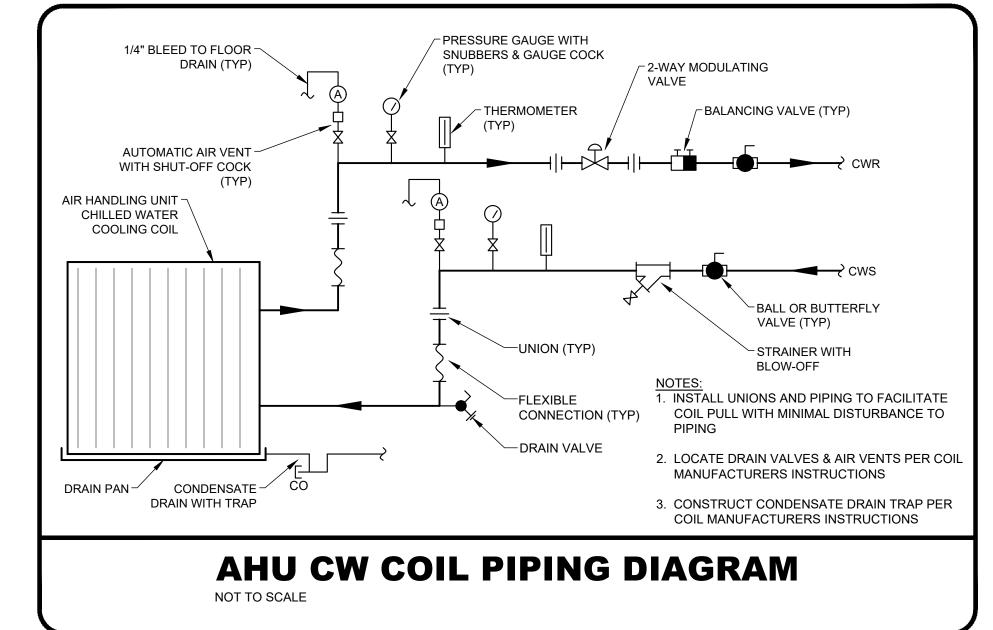


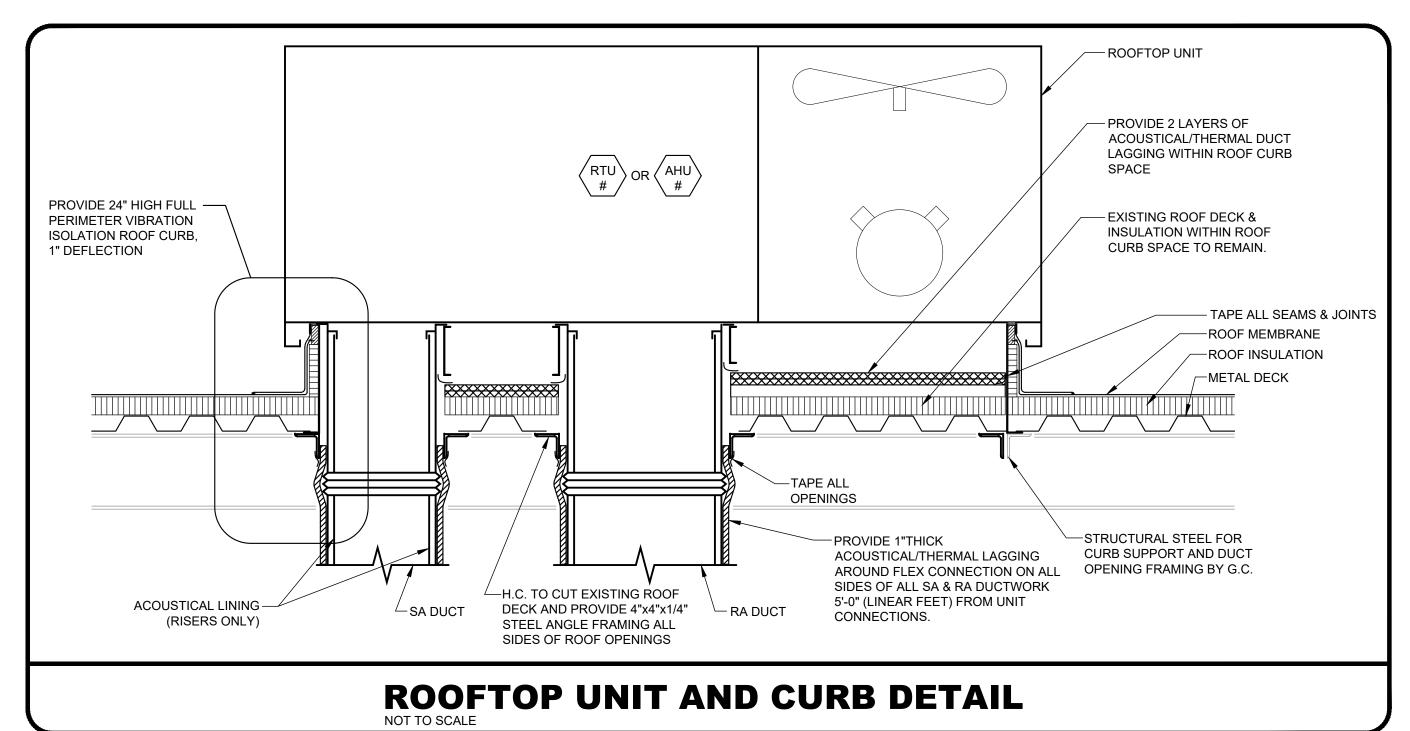


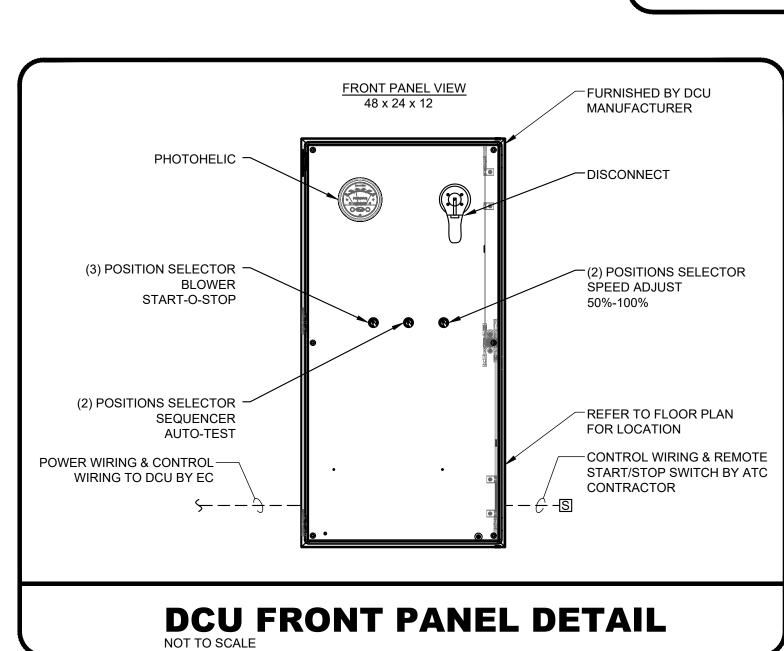


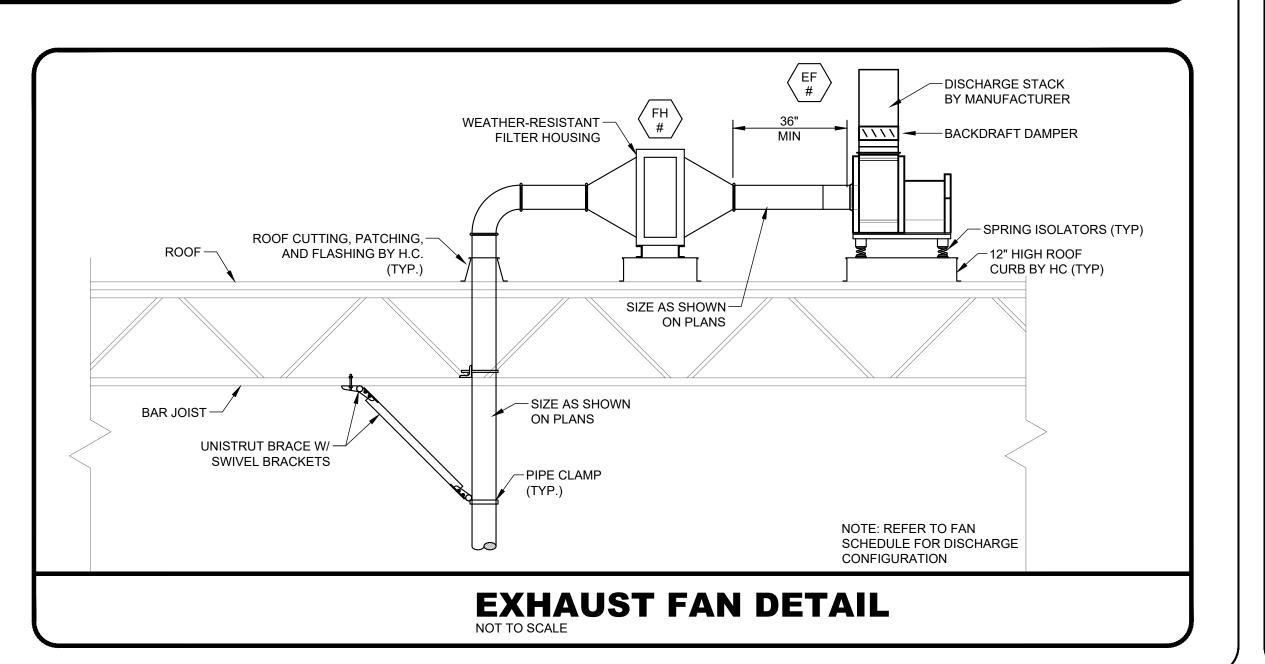












NOTES

1, 2, 3, 4

1, 2, 3, 4

4.0

LVE - 21146

SPARK ARRESTOR SCHEDULE (sA) FILTER HOUSING SCHEDULE AIRFLOW CFM HOUSING SIZE FILTER SIZE TOTAL FILTER AREA SQ FT MFR. MODEL No. NOTES TAG No. 12" BAG | 2@ MERV 14 | 24x24x12 FH-1 CAMFIL GLIDE PAK 25 3000 48 x 24 1500 24 x 24 12" BAG 1@ MERV 14 24x24x12 GLIDE PAK 25 NOTES: 1. PROVIDE 2" THICK MERV 8 PRE-FILTER

BAG FILTERS SHALL BE CAM-FLO XLT

PROVIDE DIRTY FILTER SWITCH WITH REMOTE LIGHT INDICATOR

4. WEATHER RESISTANT HOUSING WITH OUTDOOR PAINTED FINISH.

US DUCT SPARK TRAP 3000 14"Ø 0.75 SA-2 US DUCT SPARK TRAP 12"Ø 0.25 1500 NOTES: 1. PROVIDE DROP-OUT FITTING, H.C. TO CAP

3. PROVIDE UNIT MOUNTED VARIABLE SPEED SWITCH FOR BALANCING

2. PROVIDE CONTROL CIRCUIT TRANSFORMER, FUSES, AND DISCONNECT SWITCH.

4. LOW VOLTAGE (24V) ON/OFF SWITCH BY ATC, WIRE TO VFD.

MODEL No.

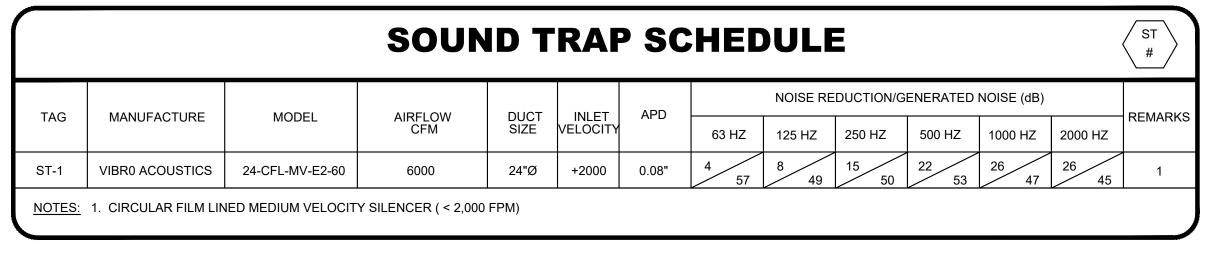
AIRFLOW INLET CFM DIA.

APD

	0/	AI SCH	EDU	LE	UH #
TAG No.	MFR.	MODEL No.	CFM	THROAT SIZE	NOTES
OAI-1	GREENHECK	FG1	13000	48 x 72	1
NOTES: 1.	PROVIDE DAM	HIGH ROOF CURB. MPER WITH 24V CON PER IN CURB SPACE		JATOR.	

TAG No.

MFR.



		HO	T WA	ΓΕΙ	R UN	NIT	HE	AT	ER	S	СНЕ	EDU	LE (#)
TAG	MANUFACTURER	MODEL	TYPE	CFM	CAPACITY MBH NOTE 1	EAT DEG F	LAT DEG F	FLOW GPM	EWT DEG F	WPD FT	FAN HP	V/P/Hz	NOTES
UH-101	STERLING	HS-84	HORIZONTAL PROPELLER	950	52.0	60	106	6.1	180	0.23	1/12	120/1/60	1, 2, 3
UH-102	STERLING	HS-84	HORIZONTAL PROPELLER	950	52.0	60	106	6.1	180	0.23	1/12	120/1/60	1, 2, 3
UH-103	STERLING	HS-84	HORIZONTAL PROPELLER	950	52.0	60	106	6.1	180	0.23	1/12	120/1/60	1, 2, 3

PROVIDE DISCONNECT SWITCH AND SUPPLY DIFFUSER. PROVIDE LINE VOLTAGE THERMOSTAT WITH HEAVY DUTY GUARD.

			DU	ST (COL	.LEC	CTIO	N	UNI	T SC	HE	DULE			DCU #
TAO No	ADEA CEDVED	MED	MODELNA	CEM.	TOD	DDM	DDIVE	LID	\//D/I.I=			FILTERS		OPER.	NOTEC
TAG No.	AREA SERVED	ED MFR. MODEL No. CFM T.S.P. RPM DRIVE HP		V/P/Hz	TYPE	%EFF	QUANTITY	TOTAL FILTER AREA (FT) 2	WT. LBS.	NOTES					
DCU-1	WELDING SHOP	AIREX	PS-12-SXBD-06	6,000	10.0	1,750	DIRECT	20	460/3/60	CARTRIDGE	99.9	12	3780	3,000	1, 2, 3
DCU-2	WELDING SHOP	AIREX	PS-12-SXBD-06	6,000	10.0	1,750	DIRECT	20	460/3/60	CARTRIDGE	99.9	12	3780	3,000	1, 2, 3
NOTES:	1. PROVIDE REMOTE-M	MOUNTED DUS	T COLLECTOR CC	NTROL PA	NEL WITH	SINGLE-PC	INT POWER	CONNI	FCTION, PO	OWER DISCONN	IECT				

SWITCH, FAN VFD AND NEMA 12 ENCLOSURE, COMPRESSED AIR REGULATOR AND MULTI-STAGE DRYER, DRI AIR MODEL E6000, 55 GALLON DRUM, AND DRUM CONNECTION KIT. PROVIDE REMOTE HI/LO/STOP SWITCH.

2. EC TO PROVIDE OUTDOOR POWER DISCONNECT SWITCH AND WIRING FROM INDOOR CONTROL PANEL TO FAN MOTOR. 3. ALTERNATE M-3: H.C. TO FURNISH DCU-1 & DCU-2 IN LIEU OF OWNER FURNISHED.

GRILLE - REGISTER - DIFFUSER SCHEDULE										
TAG	MANUFACTURER	MODEL	CFM RANGE	SIZE	PATTERN	MATERIAL	FINISH	MAX NC	NOTES	
1	TITUS	350FL	125 - 250	10 x 10	RETURN	ALUMINUM	BWE	10	-	
2	TITUS	350FL	0 - 800	16 x 16	RETURN	ALUMINUM	BWE	14	-	
3	TITUS	350FL	0 - 800	18 x 12	RETURN	ALUMINUM	BWE	17	-	
4	TITUS	350FL	800 - 1600	22 x 22	RETURN	ALUMINUM	BWE	20	-	
5	TITUS	33RL	0 - 800	16 x 12	RETURN	STEEL	BWE	24	3	
6	TITUS	MCD-AA	0 - 125	6"	ADJUST.	ALUMINUM	BWE	24	1	
7	TITUS	MCD-AA	125 - 250	8"	ADJUST.	ALUMINUM	BWE	23	1	
8	TITUS	272FL	0 - 250	14 x 6	DOUBLE DEFL.	ALUMINUM	BWE	-	2	

RTU-101 CONFIGURATION

RTU-102 CONFIGURATION

AHU-103 CONFIGURATION

56

78"=W

45"=W

1. DISCHARGE PLENUM

5. INTERNAL FACE & BYPASS

8. RAIN HOOD W/ BIRDSCREEN 9. VIBRATION ISOLATION ROOF CURB

4. HW HEATING COIL

6. MERV 8 FILTERS

2. MERV 14 HIGH EFFICIENCY FILTERS 3. VARIABLE SPEED DIRECT DRIVE FAN

I. DISCHARGE AIR PLENUM

8. RAIN HOOD W/ BIRDSCREEN 9. VIBRATION ISOLATION ROOF CURB

3. CW COOLING COIL 4. COIL TOP PLATE BY HC 5. HW HEATING COIL

2. VARIABLE SPEED DIRECT DRIVE FAN

6. INTERNAL FACE & BYPASS DAMPER 7. FILTER MIXING BOX WITH MERV 8 FILTERS

1. BELT DRIVE SUPPLY FAN, VERTICAL CABINET

2. CW COOLING COIL 3. HW HEATING COIL

4. MERV 8 FILTERS

2. OR TITUS S300FL DIRECT SPIRAL DUCT MOUNT.

3. PROVIDE OPPOSED BLADE VOLUME DAMPER WITH THRU-GRILLE ADJUSTMENT.

2. COORDINATE BMS INTERFACE & ATC VOLTAGE CHARACTERISTICS WITH ATC CONTRACTOR.

3. PROVIDE REMOTE KEYPAD AND COMMUNICATION CABLE.

4. FURNISHED BY DCU MANUFACTURER.

2. PROVIDE SUPPLY FAN VARIABLE FREQUENCY DRIVE AND PREMIUM EFFICIENCY MOTOR 5. UNIT OPERATING WEIGHT INCLUDES ROOF CURB.

3. PROVIDE SINGLE POINT POWER CONNECTION, DISCONNECT SWITCH BY EC

5. ECONOMIZER DAMPERS

7. FILTER MIXING BOX WITH MERV 8 FILTERS

	VFD #							
TAG	SERVICE	BASIS OF DESIGN	MODEL	NEMA	МОТО	R DATA	NOTES	
NOS.	SERVICE	MANUFACTURER	WODEL	ENCLOSURE	HP	V/PH/HZ	NOTES	
VFD-EF-101	EF-101	ABB	ACH 550	1	3	480/3/60	1, 2, 3	
VFD-EF-102	EF-102	ABB	ACH 550	1	3	480/3/60	1, 2, 3	
VFD-EF-103	EF-103	ABB	ACH 550	1	3	480/3/60	1, 2, 3	
VFD-EF-104	EF-104	ABB	ACH 550	1	2	480/3/60	1, 2, 3	
VFD-DCU-1, VFD-DCU-2	DCU-1, DCU-2	-	-	-	-	-	4	

						F#	AN S	СНІ	ED	ULE					EF SF #
TAG	AREA SERVED	MANUFACTURER	MODEL	CFM	ESP IN WG	DRIVE	SONES	HP (WATTS)	MOTC RPM	V/P/Hz	ROOF OPENING INXIN	CONTROL	DAMPER	WEIGHT LBS	NOTES
EF-101	CUTTING TABLE	GREENHECK	FJI-18-BI-41-4-100-1-30	3000	2.0	DIRECT	20	3	1050	460/3/60	29 x 15	4	GBDD	650	1, 7
EF-102	CUTTING TABLE	GREENHECK	FJI-18-BI-41-4-100-1-30	3000	2.0	DIRECT	20	3	1050	460/3/60	29 x 15	4	GBDD	650	1, 7
EF-103	CUTTING TABLE	GREENHECK	FJI-18-BI-41-4-100-1-30	3000	2.0	DIRECT	20	3	1050	460/3/60	29 x 15	4	GBDD	650	1, 7
EF-104	GRINDING ROOM	GREENHECK	FJI-18-BI-41-4-100-1-30	1500	2.0	DIRECT	20	2	750	460/3/60	29 x 15	4	GBDD	650	1, 7
EF-105	STORAGE A-113	GREENHECK	G-080	250	.375	DIRECT	6.0	1/20	1550	115/1/60	NA	6	GBDD	50	1, 2, 3
EF-106	STORAGE A-114	GREENHECK	G-080	250	.375	DIRECT	6.0	1/20	1550	115/1/60	NA	6	GBDD	50	1, 2, 3
EF-107	ELECTRICAL A-103	GREENHECK	G-095	500	.375	DIRECT	4.0	1/12	1550	115/1/60	NA	5	GBDD	60	1, 2, 3
NOTES:		CONNECT SWITCH HIGH ROOF CURB.					5. THERMO			S OCC/UNOC	CC				

GBDD = GRAVITY BACKDRAFT DAMPER

7. PROVIDE DISCHARGE STACK, ROOF CURB, AND HORIZONTAL FAN INLET.

		BASIS OF DESIGN		INLET	OUTLET	AI	RFLOW CF	М				HOT WA	TER COIL (3	30% PG)			UNIT	NC DADIATED	
TAG	MANUFACTURER MODEL SIZE WXH		COOLING MAX	COOLING MIN	HEATING MIN	EAT	LAT	МВН	EWT	LWT	GPM	WPD	ROWS	TOTAL APD	RADIATED NOTE 1	NOTES			
VAV-101-1	PROTECTIVE SERVICES A109	YORK / JCI	TSS	10	12 x 14	750	375	375	55	95	16.5	180	140	1.0	2.5	2	0.25	30	1, 2
VAV-101-2	PROTECTIVE SERVICES A109	YORK / JCI	TSS	10	12 x 14	750	375	375	55	95	16.5	180	140	1.0	2.5	2	0.25	30	1, 2
VAV-101-3	THEORY CLASSROOM A102	YORK / JCI	TSS	10	12 x 14	750	375	375	55	95	16.5	180	140	1.0	2.5	2	0.25	30	1, 2
VAV-101-4	THEORY CLASSROOM A108	YORK / JCI	TSS	10	12 x 14	750	375	375	55	95	16.5	180	140	1.0	2.5	2	0.25	30	1, 2
VAV-103-1	EXERCISE SCIENCE B101	YORK / JCI	TSS	12	12 x 14	1500	750	750	55	95	33.0	180	140	1.75	2.5	2	0.25	30	1, 2
VAV-103-2	STORAGE	YORK / JCI	TSS	6	10 x 11	250	250	125	55	95	11.0	180	140	0.75	2.5	2	0.25	30	1, 2
VAV-103-3	THEORY ROOM B105	YORK / JCI	TSS	10	12 x 14	700	350	375	55	95	23.7	180	140	1.0	2.5	2	0.25	30	1, 2, 3
VAV-103-4	THEORY ROOM B103	YORK / JCI	TSS	10	12 x 14	750	375	375	55	95	23.7	180	140	1.0	2.5	2	0.25	30	1, 2, 3

																			AI	RH	AN	IDL	INC) UI	NIT	SC	HE	DU	LE													RTU #
	1	0.5	DIEO				SUPPLY	FAN											TER COIL							CHIL	LED WATE	R COIL					PRE-FILTE	RS				HI-EFFICIENC	FILTERS		OPER	
TAG	MANUFACTU	RER / M	RIES ODEL	SERVICE	TOTAL SA	MIN OA	TSP E	SP E	ВНР	MHP	RPM	MCA	МОР	V/P/Hz	SEN. CAP	EAT LAT	ROWS	EWT	LWT F	LOW	APD V	VPD TOT	SEN.	EAT EAT DB W	AT LAT VB DB	LAT WB R	OWS EW1	T LWT	FLOW	APD WP	D TYPE	%EFF	INITIAL APD (IN H	FINAL 20) APD (IN H	TOTAL FI AREA (F	LTER TYI	PE %EFF	INITIAL APD (IN H20)	MID LIFE PD (IN H20)	TOTAL FILTE AREA (FT)	R WT	NOTES
					CFM	CFM	inH20 ir	H20							MBH	°F °F		°F	°F (GPM IN	(H20)	FT MBH	I MBH	°F °	F °F	°F	°F	°F	GPM	N (H20) FT			` `	, , ,	/ AREA (I	F1)		, , ,		AREA (FT)	LBS	
RTU-101	YORK / JC	у хто	-45x45	PROTECTIVE SERVICES	3,200	800	4.8 1	.50	3.6	5	3334	7.4	15	460/3/60	159	52.5 90	2	180	140	8.2	0.12	2.8 119	80	80 6	55	54	6 44	56	19.6	.84 6.4	2" PLEATED	MERV 8	0.1	0.5	10.7	21"	BAG MERV 14	-	-	-	4000	1, 2, 3, 4,
TU-102	YORK / JC	у хто	-51x78	WELDING TECHNOLOGY	8,800	1,760	4.75	.50	8.7	10	2183	14.6	25	460/3/60	980	0 90	2	180	140	50.5	0.30	3.8 -	-	-		-		-	-		2" PLEATED	MERV 8	0.1	0.5	35.6	3 21"	BAG MERV 14	0.52	1.27	18.9	5500	1, 2, 3, 4,
HU-103	YORK / JC	CI A	CR	EXERCISE SCIENCE	3,200	800	2.2 1	.00	2.0	3	1011	9.1	15	460/3/60	204	52.5 110	2	180	140	10.5	0.13	9.8 110	76	80 6	57 55	57	6 44	56	21.8	.38 7.	2" PLEATED	MERV 8	0.1	0.5	24	21"	BAG MERV 14	-	-	-	3600	1, 2, 3, 4

3. REFER TO ALTERNATE M-2

THE ITEMS INCLUDED IN THE GENERAL REQUIREMENTS FOR MECHANICAL AND ELECTRICAL WORK OF THIS SPECIFICATION ARE A PART OF THESE SPECIFICATIONS FOR THE PLUMBING WORK.

<u>REMOVALS</u>

THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF EXISTING PIPING AND EQUIPMENT SHOWN ON THE ARCHITECTURAL AND PLUMBING DEMOLITION DRAWINGS OR CONFLICTS WITH NEW CONSTRUCTION OR NEW MECHANICAL SYSTEMS. EXISTING PIPING TO OBSOLETE EQUIPMENT SHALL BE DISCONNECTED, REMOVED AND CAPPED IN ACCORDANCE WITH GENERAL DEMOLITION NOTES.

ANY REMOVALS WHICH REQUIRE SYSTEMS TO BE SHUT-DOWN SHALL BE COORDINATED WITH OWNER AND KEPT AT A MINIMUM.

THE OWNER SHALL HAVE THE OPTION TO KEEP ANY SALVAGEABLE ITEMS REMOVED FROM THE BUILDING. IF OWNER DOES NOT WISH TO KEEP ANY ITEMS THEY SHALL BE DISCARDED PROPERLY OFF SITE BY THIS CONTRACTOR.

DESCRIPTION OF PLUMBING SYSTEM

THE LAYOUT AND SIZES OF ALL MAINS AND PRINCIPAL BRANCHES OF ALL PIPING SYSTEMS ARE AS SHOWN ON THE DRAWINGS. SMALL BRANCHES SHALL BE AS DIRECT AS POSSIBLE, FOLLOWING THE LINES OF THE BUILDING AND SHALL BE SIZED IN ACCORDANCE WITH DRAWINGS AND LOCAL APPLICABLE PLUMBING CODE.

SANITARY/WASTE, VENT AND SUPPLY PIPING SYSTEMS SHALL BE EXTENDED FROM MAINS TO FIXTURES OR EQUIPMENT AS REQUIRED.

SANITARY/WASTE AND VENT PIPING ABOVE FLOOR

TYPE DWV COPPER TUBE (NOT PERMITTED FOR URINAL WASTE), SERVICE WEIGHT NO-HUB CAST IRON PIPE AND FITTINGS WITH NO-HUB HEAVY DUTY COUPLINGS, SCHEDULE 40 PVC WITH PVC DRAINAGE PATTERN SOCKET FITTINGS AND SOLVENT-CEMENTED JOINTS. NOTE: OBTAIN APPROVAL TO INSTALL PVC FROM LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION. PVC IS NOT PERMITTED IN RETURN AIR PLENUM SPACE.

SANITARY/WASTE AND VENT PIPING BELOW FLOOR

SERVICE WEIGHT CAST IRON PIPE AND FITTINGS WITH COMPRESSION GASKETS, SCHEDULE 40 PVC WITH PVC DRAINAGE PATTERN SOCKET FITTINGS AND SOLVENT-CEMENTED JOINTS. NOTE: OBTAIN APPROVAL TO INSTALL PVC FROM LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.

DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT HAS BEEN INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.

TEST SANITARY DRAINAGE, VENT AND STORM PIPING ACCORDING TO PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR, IN THE ABSENCE OF A PRESCRIBED METHOD, THE PROCEDURES DESCRIBED IN THE APPLICABLE PLUMBING

REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

DOMESTIC WATER PIPING (ABOVE FLOOR)

ALL HOT AND COLD WATER LINES ABOVE GRADE, SHALL BE HARD DRAWN COPPER TUBING, TYPE "L", ASTM SPECIFICATION B-88, LATEST REVISION. ALL TUBING SHALL BE OF DOMESTIC MANUFACTURER AND SHALL HAVE NAME OF MANUFACTURER STAMPED

FITTINGS ON COPPER TUBING SHALL BE SOLDER JOINT TYPE WROUGHT COPPER, OR CAST BRONZE. FITTINGS SHALL BE ASSEMBLED WITH NO LEAD SOLDER, USING A NON-CORROSIVE FLUX, AND AS RECOMMENDED BY THE MANUFACTURER OF THE TUBING AND FITTINGS. USE OF SELF-CLEANING FLUX IS PROHIBITED.

SUITABLE ADAPTERS SHALL BE USED WHERE NECESSARY FOR CONNECTIONS TO FITTINGS, VALVES OR OTHER ACCESSORIES HAVING THREADED ENDS.

TEST DOMESTIC WATER PIPING ACCORDING TO PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR, IN THE ABSENCE OF A PRESCRIBED METHOD, THE PROCEDURES DESCRIBED IN THE APPLICABLE PLUMBING CODE.

REPAIR LEAKS AND DEFECTS IN NEW PIPING AND PORTIONS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

PURGE NEW DOMESTIC WATER PIPING AND PORTIONS OF THE EXISTING PIPING THAT HAVE BEEN ALTERED. EXTENDED. OR REPAIRED PRIOR TO USING, COMPLY WITH PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR, IN THE ABSENCE OF PRESCRIBED METHOD, THE PROCEDURES DESCRIBED IN EITHER AWWA C651 OR AWWA C652, OR AS DESCRIBED IN THE APPLICABLE PLUMBING CODE.

<u>VALVES</u>

VALVES SHALL BE FULL PORT BALL VALVES. ACCESSIBLY LOCATED AND EQUAL IN AREA TO PIPE ON WHICH THEY ARE PLACED. PROVIDE VALVES ON ALL BRANCHES AT ALL SUPPLY WATER EQUIPMENT AND WHERE INDICATED ON DRAWINGS. VALVES SHALL BE EQUAL TO JOMAR, JENKINS, CRANE, FAIRBANKS, HAMMOND OR NIBCO, INC.

VALVES SHALL BE BRASS BODY SOLDERED CONNECTIONS, BALL VALVE SUITABLE FOR A WATER WORKING PRESSURE OF 125 POUNDS.

PIPE PENETRATIONS SLEEVE AND SEAL ALL PIPE PENETRATIONS OF WALLS AND FLOORS. SEAL ALL

PENETRATIONS THROUGH FIRE RATED WALLS WITH AN APPROVED FIRE PROOF SEALANT. INSTALL SLEEVE AND MECHANICAL SLEEVE SEAL FOR PIPE PENETRATIONS THROUGH FOUNDATION WALLS. PIPE HANGERS

ALL HANGERS AND SUPPORTS FOR PLUMBING PIPING, INCLUDING SUPPORT SPACING,

MATERIAL AND SEISMIC REQUIREMENTS, SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING AND PLUMBING CODE AND LOCAL AUTHORITY HAVING JURISDICTION.

<u>CLEANOUTS</u> CLEANOUTS SHALL BE THE SAME NOMINAL SIZE AS THE PIPE THEY SERVE, WITH THE

EXCEPTION OF PIPING LARGER THAN 4 INCHES, IN WHICH CASE, THE CLEANOUT SHALL BE A MINIMUM OF 4 INCHES. **CUTTING AND PATCHING**

ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS

CONTRACT SHALL BE DONE BY THE CONTRACT WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE LINES OF WORK. ALL PATCHING SHALL MATCH ADJACENT FINISHES.

<u>UNIONS</u>

UNIONS SHALL BE INSTALLED ADJACENT TO ALL EQUIPMENT AND WHEREVER THEIR USE WILL FACILITATE EASY REMOVAL OF EQUIPMENT FOR REPAIR OR REPLACEMENT.

UNIONS SHALL BE STANDARD WEIGHT, ALL BRASS, GROUND JOINT FOR SOLDERED OR SWEATED TYPE CONNECTIONS.

WHERE COPPER WATER PIPE CONNECTS TO STEEL OR GALVANIZED STEEL TANKS OR DEVICES, FURNISH AND INSTALL EPCO OR APPROVED EQUAL DI-ELECTRIC UNIONS. PIPING INSULATION

INSULATION SHALL BE AS MANUFACTURED BY ARMSTRONG CORK COMPANY, GUSTIN BACON COMPANY, JOHNS-MANVILLE, OWENS CORNING, PPG, OR APPROVED EQUAL.

ALL INTERIOR COLD WATER AND HOT WATER PIPING INCLUDING MAINS. RUNOUTS AND RISERS, EXPOSED OR CONCEALED, AND INTERIOR STORM PIPING INCLUDING ROOF DRAIN BODIES SHALL BE INSULATED WITH FIBERGLASS HAVING A 3-1/2 POUNDS PER CUBIC FOOT DENSITY MINIMUM. INSULATION SHALL HAVE A MAXIMUM K FACTOR OF 0.24 AT 75 DEGREES F. MEAN TEMPERATURE. THICKNESSES SHALL BE 1-1/2" FOR PIPING UP TO 2-1/2" & 2" THICK FOR PIPING LARGER THAN 2-1/2". PROVIDE VAPOR BARRIER ON COLD WATER AND HOT WATER. REPAIR EXISTING INSULATION DAMAGED OR REMOVED DUE TO THE NEW CONSTRUCTION AND ALTERATIONS.

ALL VALVES AND FITTINGS SHALL BE INSULATED WITH MOLDED FIBERGLASS FITTINGS EQUAL IN THICKNESS TO THE INSULATION ON THE ADJOINING PIPE. THE FINISH OF THE FITTING SHALL OVERLAP THE ADJOINING PIPE COVERING BY TWO INCHES. INSULATION ON ALL FITTINGS SHALL BE COVERED WITH VAPOR BARRIER WHERE REQUIRED.

INSULATION SHALL BE RUN CONTINUOUS WITHOUT INTERUPTION, INCLUDING PIPE HANGER LOCATIONS.

PIPE IDENTIFICATION

ALL PIPING SHALL BE IDENTIFIED BY MEANS OF PLASTIC SLEEVES MANUFACTURED BY SETON NAME PLATE CORPORATION OR APPROVED EQUAL.

BANDING SHALL BE ON NOT LESS THAN 10 FEET CENTERS AND DIRECTION OF FLOW SHALL BE INDICATED ON EACH BAND. BANDS SHALL BE INSTALLED AT EACH CHANGE IN DIRECTION AND ON EACH BRANCH FROM MAIN PIPING. IDENTIFICATION SHALL BE AS

DOMESTIC COLD WATER DOMESTIC HOT WATER

PLUMBING FIXTURES AND EQUIPMENT

DESCRIPTION OF WORK

THE EXTENT OF THE PLUMBING FIXTURE AND EQUIPMENT WORK IS HEREBY DEFINED TO INCLUDE (BUT NOT BY WAY OF LIMITATION) THE FURNISHING AND INSTALLING OF THE FIXTURES, MATERIALS, AND EQUIPMENT SPECIFIED IN THIS SECTION, LISTED IN SCHEDULES AND AS SHOWN ON THE DRAWINGS.

QUALITY ASSURANCE

MANUFACTURER: A FIRM REGULARLY ENGAGED IN THE MANUFACTURING OF FIXTURES, MATERIALS AND EQUIPMENT. OF THE TYPES AND SIZES SIMILAR TO THE REQUIRED UNITS, WHICH HAVE BEEN IN SATISFACTORY USE FOR NOT LESS THAN 5 YEARS IN SIMILAR SERVICE.

ASME INSPECTION FORM U-1 REQUIRED. ASME STANDARD FOR 150 PSI SECTION VIII REQUIRED.

MANUFACTURER: AS NOTED ON THE PLANS AND AS LISTED ON THE SCHEDULES.

PLUMBING CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL FIXTURES, VALVES, HANGERS, EQUIPMENT, ETC., FOR REVIEW PRIOR TO ORDERING AND SHALL INCLUDE:

GUARANTEES PRODUCT DATA: INCLUDE: MANUFACTURER'S DATE MANUFACTURER'S PRODUCT WARRANTY OPERATING INSTRUCTIONS

MAINTENANCE MANUALS WIRING DIAGRAMS AND ELECTRICAL DETAILS

MANUFACTURED PRODUCTS

GENERAL: PROVIDE FACTORY FABRICATED FIXTURES AND EQUIPMENT RECOMMENDED BY THE MANUFACTURER FOR USE IN THE SERVICE INDICATED. PROVIDE PRODUCTS OF THE TYPE AND PRESSURE RATING INDICATED FOR EACH SERVICE OR, IF NOT INDICATED, PROVIDE PROPER SELECTION AS DETERMINED BY THE SYSTEM INSTALLER TO COMPLY WITH INSTALLATION REQUIREMENTS. PROVIDE SIZES AND CONNECTIONS MATCHING PIPE, TUBE AND VALVE CONNECTIONS.

FIXTURES: FIXTURES AS SHOWN ON THE DRAWINGS AND AS SPECIFIED IN THE "PLUMBING FIXTURE AND EQUIPMENT SCHEDULE".

PLUMBING MATERIALS INCLUDING SPECIALTIES: PROVIDE PLUMBING MATERIALS AND SPECIALTIES AS SHOWN ON THE DRAWINGS AND AS SPECIFIED IN THE "PLUMBING FIXTURE AND EQUIPMENT SCHEDULE".

PLUMBING EQUIPMENT: PROVIDE PLUMBING EQUIPMENT AS SHOWN ON THE DRAWINGS AND AS SPECIFIED IN THE "PLUMBING FIXTURE AND EQUIPMENT SCHEDULE".

FIXTURES SPECIFIED IN THE SCHEDULES OR APPROVED EQUAL AS DETERMINED BY

INSTALL FIXTURES, MATERIALS AND EQUIPMENT IN ACCORDANCE WITH

FIXTURE MANUFACTURERS

MANUFACTURER'S WRITTEN INSTRUCTIONS, ROUGHING-IN DRAWINGS AND DETAILS ON

ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE BY OWNER. DURING THIS PERIOD, THE CONTRACTOR AGREES TO MAKE WHATEVER ADJUSTMENTS NECESSARY TO THE INSTALLATION, OR REPLACE ANY MATERIAL OR EQUIPMENT THAT PROVES TO BE UNSATISFACTORY BY THE ARCHITECT, ENGINEER AND OWNER. ALL GUARANTEES SHALL BE IN ADDITION TO EXPRESSED GUARANTEES OF THE MANUFACTURERS AND/OR SUPPLIERS.

ALL POTABLE WATER PRODUCTS SHALL BE IN COMPLIANCE WITH REQUIREMENTS OF

GENERAL PLUMBING NOTES

PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS IN THIS SECTION OF WORK IN ACCORDANCE WITH ALL APPLICABLE CODES.

2. THE PLUMBING DRAWINGS SHALL BE CONSIDERED AS BEING DIAGRAMMATIC AND ARE NOT TO BE SCALED FOR THE ACCURATE CUTTING OF PIPE OR ITS EXACT PLACEMENT, BUT THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHER TRADES WILL PERMIT. BEFORE ANY PIPING IS INSTALLED, CONFER WITH ALL OTHER CONTRACTORS IN ORDER TO ESTABLISH THE LOCATIONS OF THEIR PIPING, CONDUIT, DUCTWORK, GRILLES, FOUNDATIONS, STRUCTURAL STEEL, LIGHTING FIXTURES AND OTHER EQUIPMENT SO AS TO AVOID INTERFERENCE. FAILURE TO COORDINATE SHALL NOT RESULT IN ANY ADDITIONAL EXPENSE TO THE OWNER.

3. VERIFY THE EXACT LOCATION OF ALL EXISTING LINES AND ALL INVERTS PRIOR TO THE INSTALLATION OF ANY NEW PIPING.

4. ALL FIXTURES SHALL BE COMPLETE AND INCLUDE SUPPLIES, STOPS, VALVES, FAUCETS, DRAINS, TRAPS, TAILPIECES, ESCUTCHEONS, ETC. TRAPS FOR ALL LAVATORIES AND SINKS SHALL BE REMOVABLE. LOCATE VALVES IN A READILY ACCESSIBLE LOCATION. ALL EXPOSED WASTE AND SUPPLY PIPING LOCATED IN FINISHED AREAS SHALL BE CHROME PLATED BRASS.

5. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL WASTE PIPING BELOW GRADE SHALL BE A MINIMUM OF 2" IN SIZE.

6. SECURE ALL PERMITS, INSPECTION CERTIFICATES, ETC., AND PAY ALL CHARGES CONNECTED WITH SAME.

7. ALL MATERIALS SHALL BE NEW AND SHALL FIT THE SPACE AVAILABLE. VERIFY DIMENSIONS AT SITE.

8. ALL PIPING, APPARATUS, EQUIPMENT, ETC. SHALL BE PROPERLY SUPPORTED, BRACED VERTICALLY AND HORIZONTALLY IN ACCORDANCE WITH APPLICABLE CODES AND AS REQUIRED TO PREVENT EXCESSIVE MOVEMENT DURING SEISMIC CONDITIONS.

9. REMOVE EXISTING CEILING TILES AND GRID OR PORTION OF EXISTING PLASTER OR GYPSUM BOARD AS REQUIRED TO OBTAIN ACCESS TO CEILING SPACE TO ACCOMPLISH INDICATED PLUMBING WORK, UNLESS SPECIFICALLY INDICATED OTHERWISE. PROVIDE ADDITIONAL TEMPORARY HANGERS/CABLES REQUIRED TO SUPPORT REMAINING CEILING, LIGHT FIXTURES, DEVICES, ETC. STORE EXISTING CEILING TILES AND GRID IN A SAFE LOCATION AND RE-INSTALL ONCE THE WORK IS COMPLETED. REPLACE DAMAGED TILES AND GRID WITH NEW TO MATCH EXISTING. PATCH/REPLACE DAMAGED PORTION OF PLASTER OR GYPSUM BOARD AND PAINT TO MATCH EXISTING. REMOVE ALL TEMPORARY FACILITIES ONCE THE WORK IS COMPLETED. REFER TO THE ARCHITECTURAL DRAWINGS FOR FINISH TREATMENT OF SPACES.

10. ALL VALVES, CLEANOUTS, ETC., SHALL BE LOCATED AND INSTALLED TO PERMIT ACCESS FOR SERVICE WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS.

11. PROVIDE CLEANOUTS ON ALL ACCESSIBLE TRAPS, AT THE BASE OF ALL SOIL/WASTE STACKS, AT EACH CHANGE OF DIRECTION OF PIPING GREATER THAN 45 DEGREES AND LOCATED AT INTERVALS NOT TO EXCEED THE MAXIMUM PERMITTED BY THE APPLICABLE PLUMBING CODE AND AS INDICATED ON THE DRAWINGS.

12. STERILIZE NEW DOMESTIC WATER PIPING AND PORTIONS OF THE EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED PRIOR TO USING. COMPLY WITH PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR, IN THE ABSENCE OF PRESCRIBED METHOD, THE PROCEDURES DESCRIBED IN EITHER AWWA C651 OR AWWA C652, OR AS DESCRIBED IN THE APPLICABLE PLUMBING CODE. FURNISH STERILIZATION REPORT TO ENGINEER UPON COMPLETION.

13. ALL DOMESTIC WATER PIPING SHALL BE HUNG LEVEL WITHOUT PITCH.

14. COPPER PIPING SHALL BE PROTECTED AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS, AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON IRON TRAPEZE HANGERS WITH OTHER PIPING, SATISFACTORY AND PERMANENT ELECTROLYTIC ISOLATION MATERIAL SHALL PREVENT CONTACT WITH OTHER METALS.

15. WATER PIPING SHALL NOT BE RUN IN AREAS SUBJECT TO FREEZING TEMPERATURES. WATER PIPING IN EXTERIOR WALLS SHALL BE RUN ON CONDITIONED SIDE OF THE

16. ALL WATER PIPING SHALL BE INSULATED AND ALL WATER PIPING INSTALLED ABOVE THE CEILING SHALL BE BELOW THE BUILDING INSULATION.

17. PROVIDE DRAIN VALVES AT ALL LOW POINTS OF DOMESTIC WATER PIPING SYSTEMS FOR COMPLETE DRAINAGE AND INDICATE LOCATION OF SAME ON RECORD DRAWINGS.

18. ALL PLUMBING FIXTURES MUST BE VENTED IN ACCORDANCE WITH APPLICABLE PLUMBING CODE INCLUDING LOCAL CODES.

FIXTURES, WALL DIMENSIONS, ETC. 20. THE ARCHITECTURAL DRAWINGS, INCLUDING INTERIOR ELEVATIONS, SHALL GOVERN THE ARRANGEMENT, LOCATION, AND MOUNTING HEIGHTS OF ALL FIXTURES AND EQUIPMENT. BUT NOT TO THE EXTENT OF PERMITTING ANY OMISSIONS OF FIXTURES. OR EQUIPMENT SHOWN ON THE PLUMBING DRAWINGS. ANY DISCREPANCY BETWEEN THE DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, SHALL BE

19. REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATION OF DOORS, WINDOWS,

21. ALL FIRE RATED FLOOR AND WALL PENETRATIONS SHALL BE SEALED WITH FIRE RESISTANT CAULKING / MATERIALS. PATCH EXISTING OPENINGS FROM DEMOLISHED PIPING IN FIRE RATED FLOORS AND WALLS AS REQUIRED TO MAINTAIN FIRE RATING.

22. CAULK AROUND ALL PLUMBING FIXTURES INSTALLED. CAULK SHALL BE

PLUMBING CONTRACT.

BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND ENGINEER.

NON-HARDENING, NON-YELLOWING, MILDEW RESISTANT SILICONE AND IN A COLOR SELECTED BY THE ARCHITECT. 23. ANY REFERENCE TO "GC" OR "GENERAL CONTRACTOR" SHALL MEAN THE APPROPRIATE

GENERAL TRADES CONTRACTOR. THIS REFERENCE IS NOT TO OUTLINE WORK AMONG

GENERAL TRADES CONTRACTORS, BUT TO NOTE WHAT WORK IS NOT A PART OF THE

24. ALL POTABLE WATER PIPING, DEVICES AND EQUIPMENT SHALL BE NSF-61 COMPLIANT.

25. NO DEAD-LEG SUPPLY (3X PIPE DIA. MAXIMUM) SHALL BE IN PLACE UPON COMPLETION OF PROJECT.

26. ANY REQUIRED SHUT-DOWNS SHALL NOT BE INITIATED WITHOUT WRITTEN APPROVAL FROM OWNER AND ENGINEER. ANY REQUIRED SHUT-DOWNS SHALL BE KEPT AT A

PLUMBING SYMBOLS

	DOMESTIC COLD WATER	──	BACKFLOW PREVENTER
	DOMESTIC HOT WATER		BACKWATER VALVE
	DOMESTIC HOT WATER RETURN		BALL/BUTTERFLY VALVE
•	EXIST DOMESTIC COLD WATER	$-\!\!\!\!-\!$	GATE VALVE
••	EXIST DOMESTIC HOT WATER		GLOBE VALVE
	EXIST DOMESTIC HOT WATER RETURN		CHECK VALVE
TW	TEPID WATER		SOLENOID VALVE
	SANITARY/WASTE UNDERGROUND	<u> </u>	BALANCING VALVE WITH
	SANITARY/WASTE ABOVEGROUND	•	MEMORY STOP
	EXIST SANITARY/WASTE UNDERGROUND		PRESSURE TEMPERATURE RELIEF VALVE
	EXIST SANITARY/WASTE ABOVEGROUND	_	MIXING VALVE
— —RW— —	RAIN/STORM WATER UNDERGROUND	─	CIRCUIT SOLVER THERMOSTATIC
	RAIN/STORM WATER ABOVE GROUND	-	RECIRCULATION VALVE
— —ERW— —	EXIST RAIN/STORM WATER UNDERGROUND		GAS SHUT-OFF VALVE
ERW	EXIST RAIN/STORM WATER ABOVEGROUND		WATER HAMMER ARRESTER
	VENT		STRAINER
———G———	GAS		UNION
EG	EXIST GAS		THERMOMETER
——————————————————————————————————————	AIRTIGHT CONDUIT		PRESSURE GAUGE
— — AW— —	ACID WASTE UNDERGROUND	PR PR	PRESSURE REGULATOR
———AW———	ACID WASTE ABOVEGROUND	!	PRESSURE REDUCING
———AV———	ACID VENT		VALVE
TP	TRAP PRIMER		WALL HYDRANT
CA	COMPRESSED AIR	$\overline{}$	FLOOR CLEANOUT
———MA———	MEDICAL AIR		PLUG CLEANOUT
ox	OXYGEN)	
——VAC——	VACUUM		PIPE CAP
NO2	NITROUS OXIDE		PIPE RISE
———WAGD———	WASTE ANESTHESIA GAS DISPOSAL		PIPE DROP
N	NITROGEN		DIRECTION OF FLOW
CO2	CARBON DIOXIDE		EXPANSION JOINT
——DE——	DEIONIZED WATER		FLEXIBLE CONNECTION
——————————————————————————————————————	ACETYLENE		MOMENT GUIDE
——————————————————————————————————————	ARGON	×	PIPE ANCHOR
LCW	LAB COLD WATER		SUPPORT CURB
			SUPPORT CURB W/ANCHOR
		<u>(6)</u>	ROOF DRAIN
		\equiv 	FLOOR DRAIN
			FLOOR SINK
		(A1)	AIR STATION

PLUMBING ABBREVIATIONS

BFP

BOP

BOTT

BTUB

CA

CD

CFH

CIP

CW

DSN

EEW

ESH

ESE

EWC

EXT

FD

FDN

FS

FT

FTG

HOR

HOT WATER HEATER

HOT WATER RETURN

INSIDE DIAMETER

FT HD

AREA DRAIN	INSUL	INSULATION	
ABOVE FINISHED GRADE	INT	INTERIOR	COM
ABOVE FINISHED ROOF	INV	INVERT	CON
ACID VENT	IVV	INDIRECT WASTE	
ACID WASTE	KW	KILOWATT	
BELOW FINISHED GRADE	LAV	LAVATORY	N (
BACKFLOW PREVENTER	LBS	POUNDS	1
BELOW	LMB	LAUNDRY MACHINE BOX	A
BOTTOM OF PIPE	MFG	MANUFACTURER	H1.1
ВОТТОМ	MB	MOP BASIN	1
BATHTUB	MBH	1,000 BTU	
COMPRESSED AIR	MV	MIXING VALVE	{ }
CONDENSATE DRAIN	OD	OUTSIDE DIAMETER	
CUBIC FEET PER HOUR	ORD	OVERFLOW ROOF DRAIN	Λ
CAST IRON PIPE	Р	PRESSURE GAUGE	
CLEAN OUT	PD	PRESSURE DROP	
COLD WATER	PRV	PRESSURE REDUCING VALVE	
DRINKING FOUNTAIN	PSIG	POUNDS PER SQUARE INCH GAUGE	
DUCTILE IRON PIPE	RCP	REINFORCED CONCRETE PIPE	11 1111
DOWNSPOUT	RD	ROOF DRAIN	
DOWNSPOUT NOZZLE	RP	RECIRCULATING PUMP	^
EMERGENCY EYEWASH	RPM	REVOLUTIONS PER MINUTE	1>
EMERGENCY SHOWER	RWC	RAINWATER CONDUCTOR	1
EMERGENCY SHOWER/EYEWASH	S	SOIL LINE/STACK	H1.17
ELECTRIC WATER COOLER	SAN	SANITARY SEWER	
EXTERIOR	SK	SINK	101
FLOOR DRAIN	SH	SHOWER	TYPE
FOUNDATION	SI	SOLIDS INTERCEPTOR	
FLOOR SINK	SS	SERVICE SINK	
FEET	Т	THERMOMETER	
FEET OF HEAD	TD	TRENCH DRAIN	
FOOTING	TW	TEPID WATER	
GALVANIZED	UR	URINAL	
GROUND HYDRANT	V	VENT	Θ
GREASE INTERCEPTOR	VER	VERTICAL	•
GREASE SEPARATOR	VTR	VENT THRU ROOF	♦
GAS SOLENOID VALVE	W	WASTE	
HOSE BIBB	WC	WATER CLOSET	
HORIZONTAL	WCO	WALL CLEAN OUT	
HEATING	WF	WASHFOUNTAIN	
HOT WATER	WH	WALL HYDRANT	

WHA

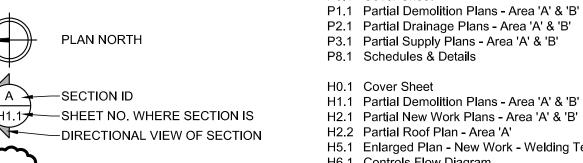
WATER HAMMER ARRESTER

WATER SOLENOID VALVE

COMMON ABBREVIATIONS

A/E	ARCHITECT/ENGINEER	HC	HVAC CONTRACTOR
AB CLG	ABOVE CEILING	HCP	HANDICAPPED
ABV	ABOVE	HGT	HEIGHT
AFF	ABOVE FINISHED FLOOR	HR	HOUR
AFI	ARC-FAULT INTERRUPTER	IR	INFRARED
AFR	ABOVE FINISHED ROOF	JB	JUNCTION BOX
ALT	ALTERNATE	KES	KITCHEN EQUIPMENT SUPPLIER
ATS	AUTOMATIC TRANSFER SWITCH	LV	LOW-VOLTAGE
BFC	BELOW FINISHED CEILING	MC	MECHANICAL CONTRACTOR
C/G	COUNTERTOP GFI	MCA	MINIMUM CIRCUIT AMPACITY
CD	CORD DROP	MOCP	MAXIMUM OVERCURRENT PROTECTION
CL	CENTERLINE	MT	MULTITECHNOLOGY
CLG	CEILING	MO	MICROWAVE OVEN
СМ	CEILING MOUNTED	NA	NOT APPLICABLE
COL	COLUMN	NE NE	NOT APPLICABLE NORMAL/EMERGENCY
СТ	COUNTERTOP HEIGHT-44" AFF UNO OR CURRENT TRANSFORMER	INC	(NORMALLY ON)
CR	CORD REEL	NIC	NOT IN CONTRACT
DBF	DOWN BELOW FLOOR	NTS	NOT TO SCALE
DET	DETAIL	OFCI	OWNER FURNISHED- CONTRACTOR INSTALLED
DIA	DIAMETER	PC	PLUMBING CONTRACTOR
DIM	DIMENSION	PIR	PASSIVE INFRARED
DN	DOWN	SE	SERVICE ENTRANCE
DW	DISHWASHER	SECT	SECTION
DWG	DRAWING	SHT	SHEET
EC	ELECTRICAL CONTRACTOR	SIM	SIMILAR
EL	ELEVATION	SPD	SURGE PROTECTION DEVICE
ELEV	ELEVATOR	SPEC	SPECIFICATION
EMER	EMERGENCY	SS	SERVICE SINK
EO	EMERGENCY ONLY (NORMALLY OFF)	STD	STANDARD
EWC	ELECTRIC WATER COOLER (PROVIDE GFI RECEPTACLE)	SUSP	SUSPENDED
EX	EXISTING	TBR	TO BE REMOVED
FA	FIRE ALARM	TL	TASK LIGHT
FBO	FURNISHED BY OWNER	TR	TAMPER RESISTANT
FLR	FLOOR	TSTAT	THERMOSTAT
FPC	FIRE PROTECTION CONTRACTOR	UNO	UNLESS NOTED OTHERWISE
FSC	FOOD SERVICE CONTRACTOR	US	ULTRASONIC
GC	GENERAL CONTRACTOR	W/	WITH
GFI	GROUND-FAULT INTERRUPTER	W/O	WITHOUT
GND	GROUND	W	WALL-MOUNTED
		WP	WEATHERPROOF

MMON SYMBOLS **DRAWING LIST**



REVISION NUMBER ELEVATION

REVISION CLOUD

— DIRECTION OF VIEW SHEET NO. WHERE EL. IS DRAWN —ELEVATION ID KEYNOTE

——DETAIL ID ——SHEET NO. WHERE DETAIL IS ROOM/SPACE NO. **EQUIPMENT TAG SHOWING**

TYPE AND ID. SEE EQUIPMENT SCHEDULES FOR DETAILS PROVIDE NEW

EXISTING TO REMAIN

REMOVE EXISTING CONNECT TO EXISTING EXISTING TO BE REMOVED

H1.1 Partial Demolition Plans - Area 'A' & 'B' H2.1 Partial New Work Plans - Area 'A' & 'B' H5.1 Enlarged Plan - New Work - Welding Technology Area H6.1 Controls Flow Diagram

H7.1 Details H7.2 Details H8.1 Schedules E0.1 Cover Sheet E0.2 Electric Notes

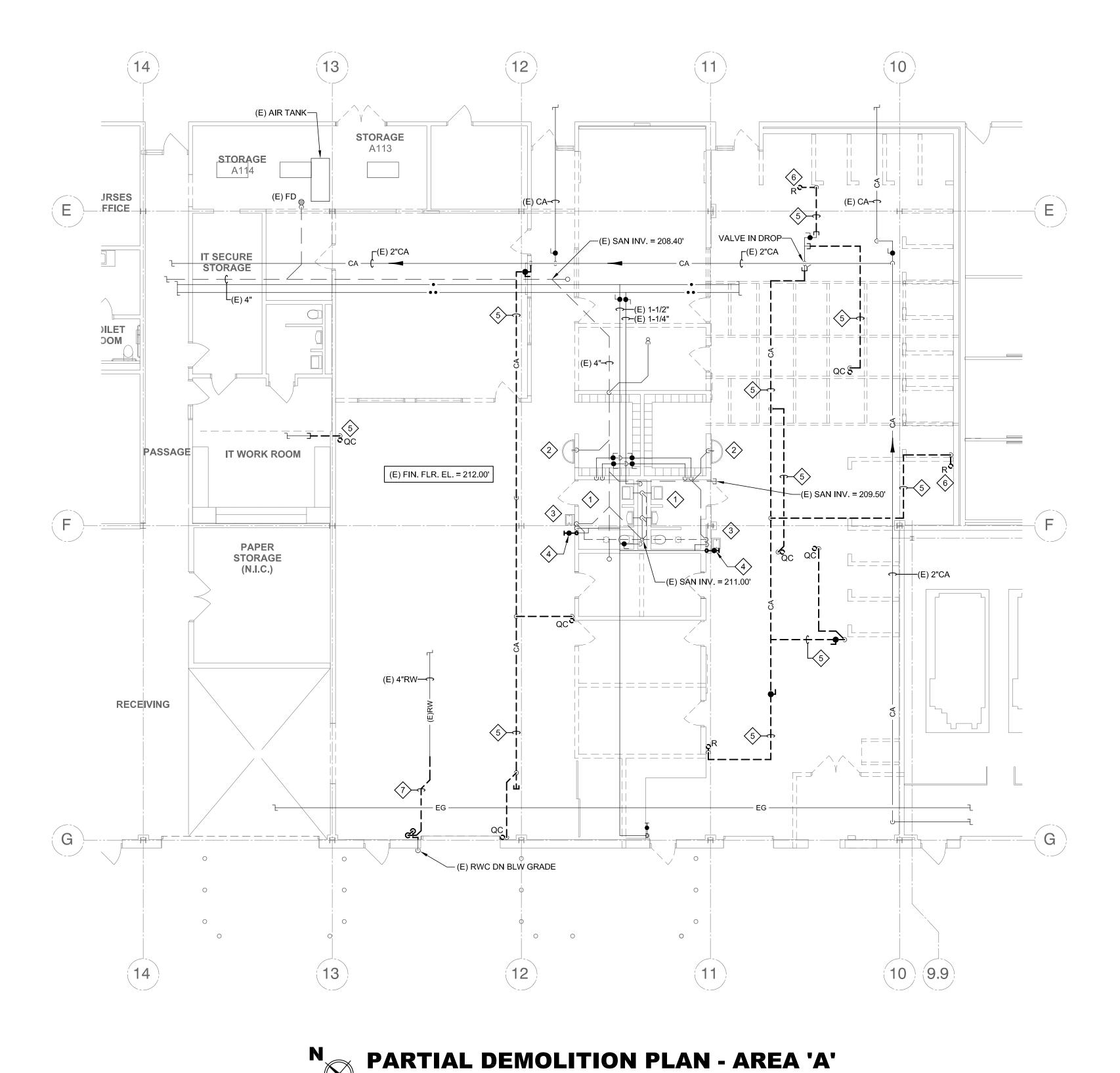
E0.3 Overall Plan E1.1 Partial Demolition Plan - Areas 'A' & 'B' E2.1 Partial Lighting Plan - Areas 'A' & 'B' E3.1 Partial Power Plan - Areas 'A' & 'B' E3.2 Partial Roof Plan - Area 'A' E4.1 Partial Low-Voltage Plan - Areas 'A' & 'B'

E5.1 Enlarged Plan - Power - Welding Technology Area E7.1 Details E7.2 Details E7.3 Details E8.1 Schedules

E8.2 Schedules

LVE - 21146

P0.1



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

DEMOLITION KEYNOTES:

REFER TO GENERAL DEMOLITION NOTES ON DWG. P0.1 FOR ADDITIONAL DEMOLITION REQUIREMENTS.

- EXISTING PLUMBING FIXTURES IN TOILET ROOM TO REMAIN.
- 2 DISCONNECT AND REMOVE EXISTING SEMI-CIRCULAR WASH FOUNTAIN AND ALL RELATED TRIM IN ITS ENTIRETY. CAP WASTE AND SUPPLY PIPING IN WALL FOR NEW FIXTURE.
- DISCONNECT AND REMOVE EXISTING ELECTRIC WATER COOLER IN ITS ENTIRETY. CAP WASTE, VENT AND SUPPLY PIPING IN WALL FOR NEW FIXTURE.
- DISCONNECT AND REMOVE EXISTING HOSE BIBB IN ITS ENIRETY. CAP SUPPLY PIPING IN WALL FOR NEW FIXTURE.
- 5 DISCONNECT AND REMOVE EXISTING COMPRESSED AIR PIPING IN ITS ENTIRETY AND CAP AT ACTIVE MAIN.
- 6 DISCONNECT AND REMOVE OBSOLETE COMPRESSED AIR REGULATOR SERVING DUST COLLECTING EQUIPMENT AND ALL RELATED APPURTENANCES IN THEIR ENTIRETY AND CAP PIPING AT ACTIVE MAIN.
- DISCONNECT AND REMOVE EXISTING PORTION OF RAINWATER PIPING AS REQUIRED TO CORRECTLY ROUTE TO EXISTING EXTERIOR DROP.

GENERAL DEMOLITION NOTES

SELECTIVE DEMOLITION INCLUDES, BUT IS NOT LIMITED TO, REMOVAL AND LEGAL DISPOSAL OF EQUIPMENT AND SYSTEMS MADE OBSOLETE AND/OR REPLACED BY NEW WORK. SELECTIVE DEMOLITION INCLUDES REMOVAL AND RELOCATION OR RE-INSTALLATION, DISCONNECTIONS AND RE-CONNECTIONS OF SERVICES, SUPPORTS AND SUBSEQUENT FINAL SUPPORTS, TEMPORARY CAPPING, AND RE-ROUTING OF TEMPORARY SERVICES TO PERMIT NEW OR RENOVATION WORK TO PROCEED.

THE DEMOLITION WORK INDICATED ON THE DRAWINGS IS INTENDED TO ASSIST THE CONTRACTOR AND GIVE GENERAL INFORMATION. NOT ALL DEMOLITION OR TEMPORARY CONNECTIONS ARE SHOWN. PRIOR TO SUBMITTING BID, THE CONTRACTOR SHALL VISIT THE PROJECT SITE AND REVIEW ORIGINAL DRAWINGS IF AVAILABLE. CONTRACTOR IS RESPONSIBLE TO DETERMINE THE FULL EXTENT OF SELECTIVE DEMOLITION, AND INCLUDE ALL REQUIRED SELECTIVE DEMOLITION WORK IN HIS BID, WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS. NO ADDITIONAL COSTS WILL BE GRANTED FOR SELECTIVE DEMOLITION. LEGALLY DISPOSE OF ALL ITEMS AND MATERIALS, EXCEPT ANY ITEMS SPECIFICALLY DESIGNATED BY THE OWNER TO BE SALVAGED. REMOVE AND PLACE THE DESIGNATED SALVAGED EQUIPMENT IN A LOCATION DIRECTED BY THE OWNER.

REFER TO GENERAL CONSTRUCTION TRADE DEMOLITION DRAWINGS AS WELL AS THE PLUMBING DRAWINGS FOR EXTENT OF THE AREA TO BE DEMOLISHED AND FOR FIXTURES AND EQUIPMENT REQUIRED TO BE REMOVED DUE TO THE NEW CONSTRUCTION AND RENOVATIONS.

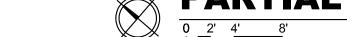
PIPING MADE OBSOLETE BY THE NEW CONSTRUCTION SHALL BE REMOVED, INCLUDING INSULATION, HANGERS, AND SUPPORTS, AND CAPPED ABOVE CEILINGS AT ACTIVE MAINS, BELOW FLOORS OR IN WALLS SO THAT IT IS COMPLETELY CONCEALED AT THE COMPLETION OF THE PROJECT. DISCONNECT PIPING FROM OBSOLETE FIXTURES OR EQUIPMENT WHICH IS TO BE REMOVED BY OTHERS AND CAP AND REMOVE PIPING IN SAME MANNER. EXISTING FLOOR DRAINS AND CLEANOUTS ARE TO REMAIN UNLESS OTHERWISE NOTED. PIPING REMOVED FROM THE EXISTING PLUMBING SYSTEM SHALL NOT BE USED IN THE INSTALLATION OF THE NEW SYSTEM.

IN ALL AREAS WHERE PATCHING IS REQUIRED, THE PLUMBING CONTRACTOR SHALL PATCH THE SUB-SURFACE WHERE THE NEW SURFACE IS TO BE FINISHED BY THE GENERAL CONTRACTOR. THIS SUB-SURFACE MUST BE PROVIDED SO THAT IS DOES NOT INHIBIT THE INSTALLATION OF OR AFFECT THE APPEARANCE OF THE NEW FINISH. IF A NEW FINISH WILL NOT BE PROVIDED BY THE GENERAL CONTRACTOR, THE PLUMBING CONTRACTOR IS RESPONSIBLE TO PATCH THE SURROUNDING FINISHED SURFACE TO MATCH EXISTING. PATCH EXISTING OPENINGS FROM DEMOLISHED PIPING IN FIRE RATED FLOORS AND WALLS AS REQUIRED TO MAINTAIN FIRE RATING.

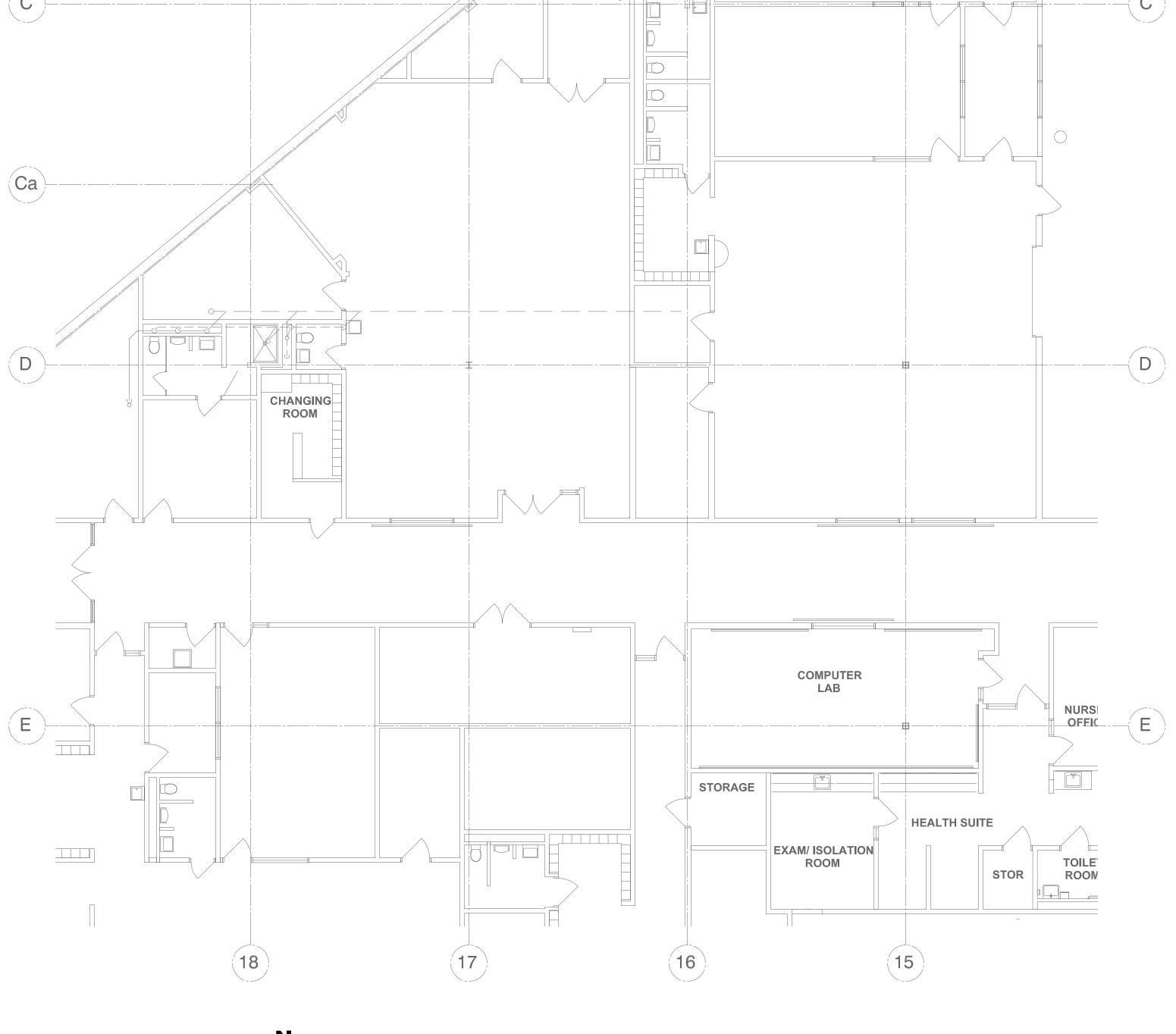
PLUMBING CONTRACTOR SHALL REMOVE/ REPLACE EXISTING CEILING TILES AND GRID AS REQUIRED TO ACCOMPLISH INDICATED PLUMBING WORK, UNLESS SPECIFICALLY INDICATED OTHERWISE. REFER TO THE ARCHITECTURAL DRAWINGS FOR FINISH TREATMENT OF SPACES.

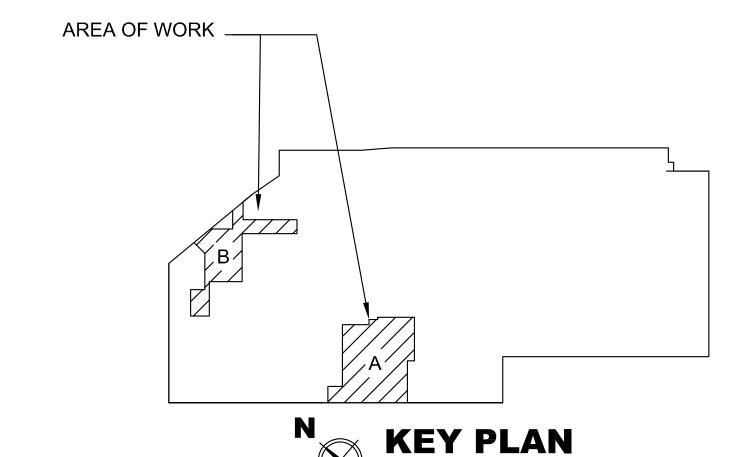
WHERE NEW SANITARY PIPING IS INSTALLED BELOW NEW OR EXISTING WALL FOOTINGS, PROVIDE SLEEVE AND ENCASE IN CONCRETE AS REQUIRED BY THE STRUCTURAL ENGINEER. VERIFY ALL EXISTING CONDITIONS AND COORDINATE EXACT LOCATION OF NEW OPENINGS FOR PIPING REQUIRED TO PENETRATE EXISTING GRADE BEAMS OR FOUNDATION WALLS WITH THE STRUCTURAL ENGINEER.

REMOVE OBSOLETE VENTS THRU ROOF IN THEIR ENTIRETY INCLUDING ALL OBSOLETE VENT PIPING IN ACCESSIBLE CEILING SPACE. PATCH RESULTING OPENINGS IN THE ROOF AS REQUIRED BY THE TYPE OF ROOF CONSTRUCTION. PROVIDE NEW ROOF INSULATION AND MATERIALS TO MATCH EXISTING. THE PLUMBING CONTRACTOR SHALL RETAIN THE SERVICES OF A QUALIFIED ROOFING CONTRACTOR IN ACCORDANCE WITH ORIGINAL ROOFING MANUFACTURER'S INSTALLATION AND WARRANTY REQUIREMENTS.

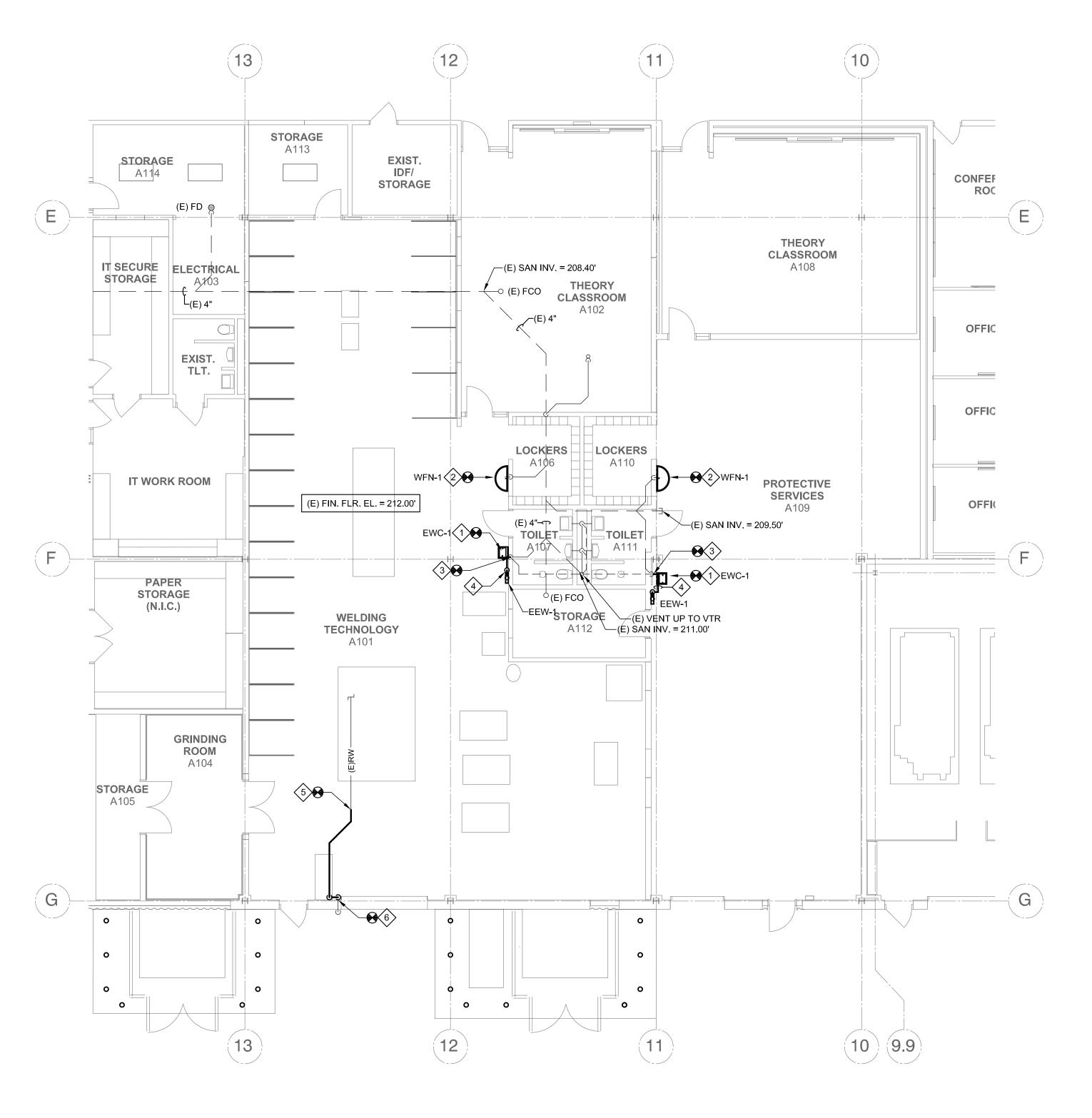








P2.1

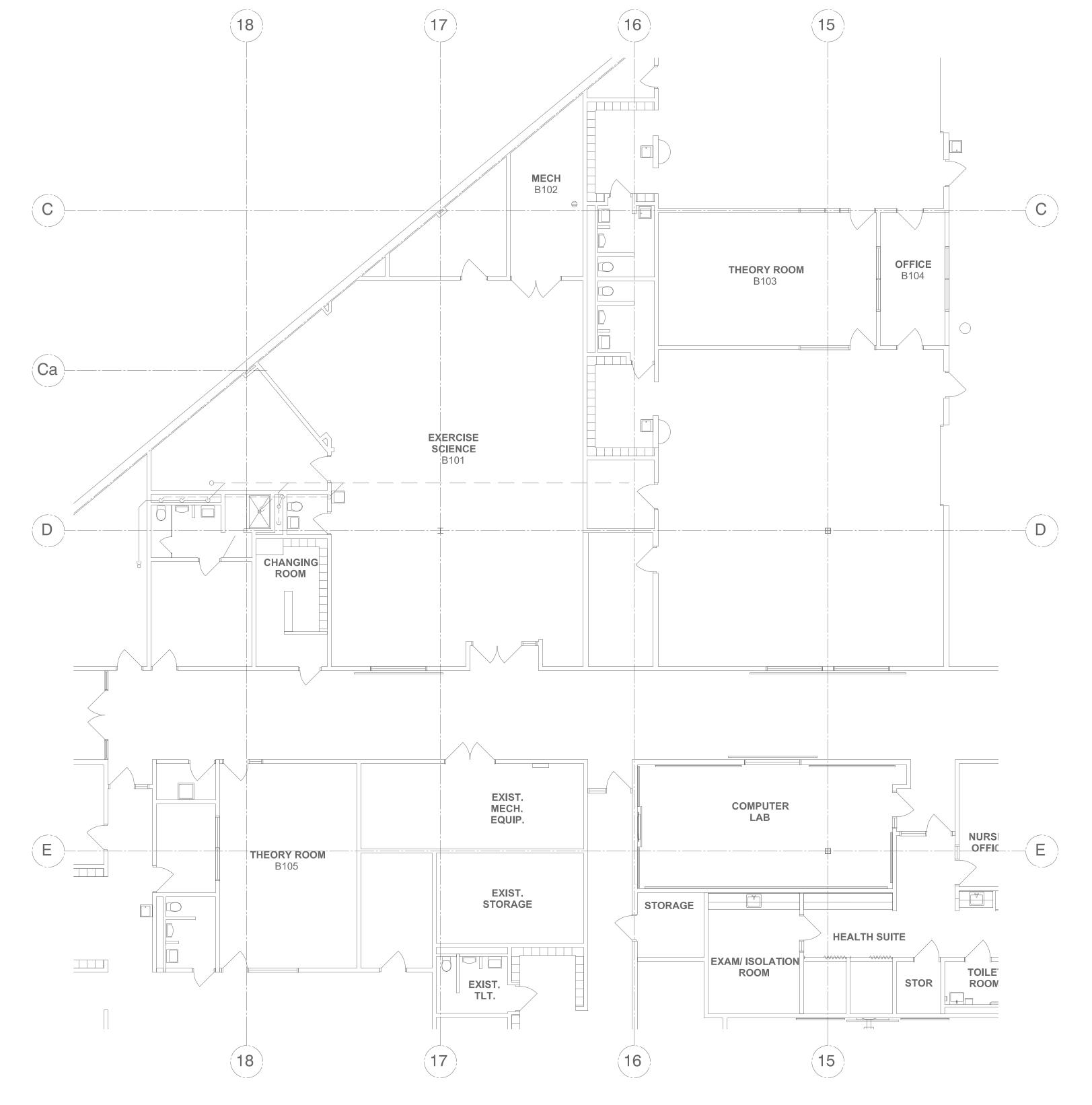


PARTIAL DRAINAGE PLAN - AREA 'A' O 2' 4' 8' 16' Scale: 1/8" = 1'-0"

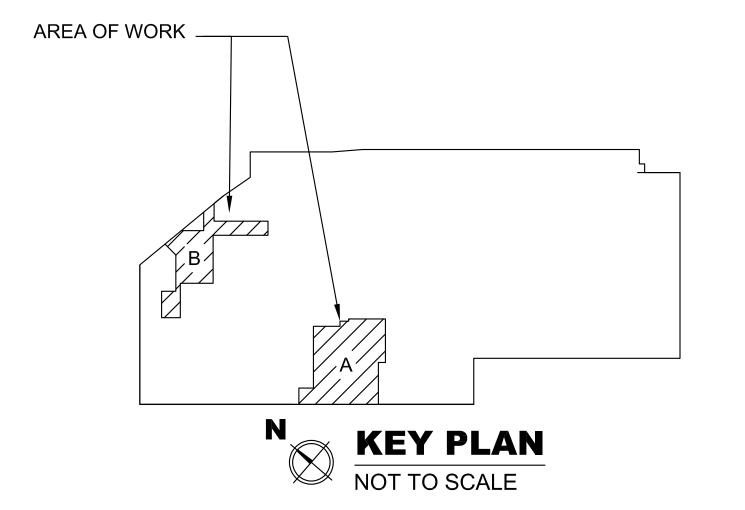
KEYNOTES:

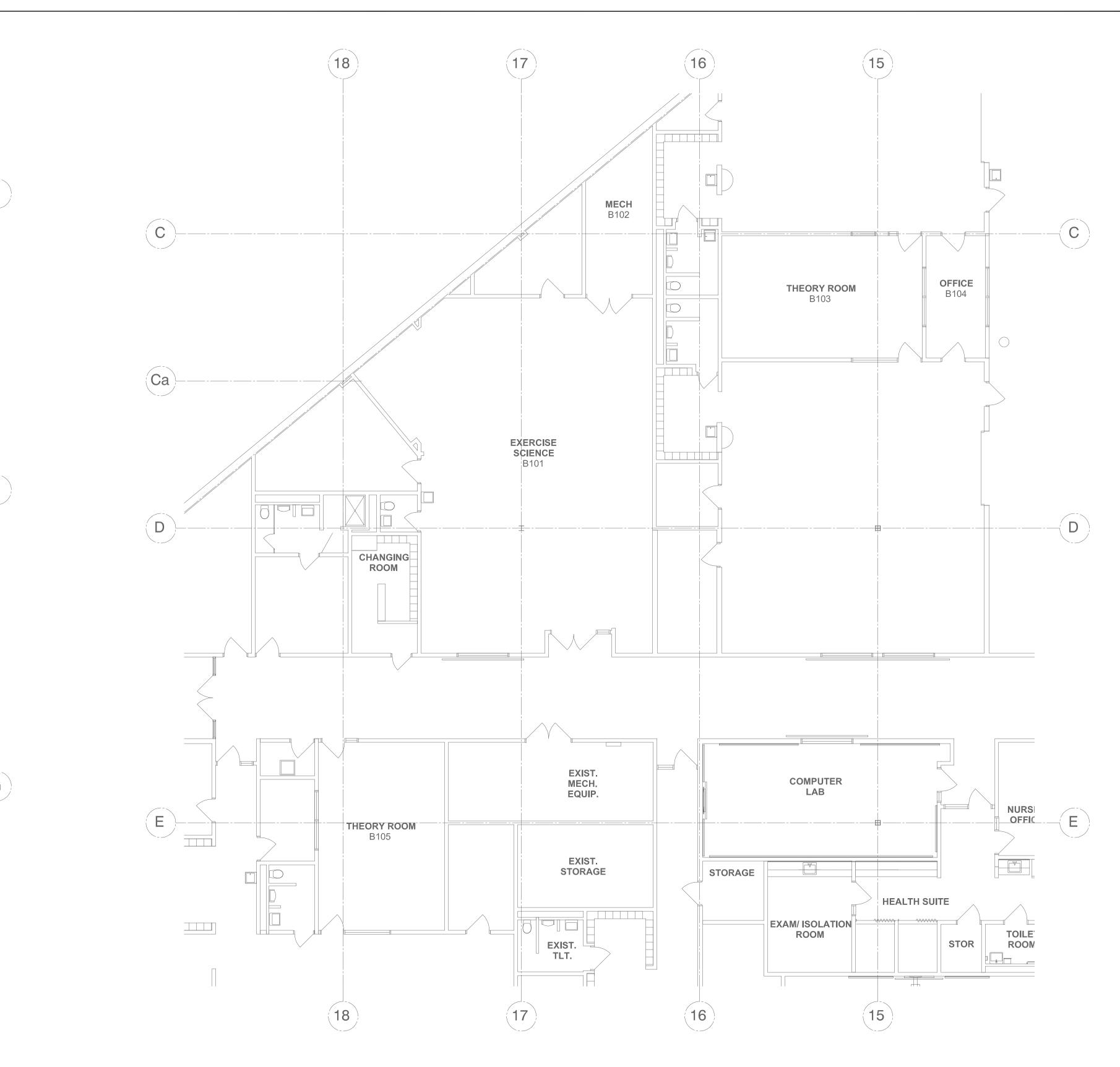
- REWORK EXISTING WASTE AND VENT TO SERVE NEW ELECTRIC WATER COOLER. CUT AND PATCH WALL AS REQUIRED PER GENERAL DEMOLITION NOTES.
- REWORK EXISTING WASTE PIPING TO SERVE NEW SEMI-CIRCULAR WASH FOUNTAIN. CUT AND PATCH WALL AS REQUIRED PER GENERAL DEMOLITION NOTES.
- CONNECT NEW 2"WASTE FROM NEW EEW-1 TO EXISTING WASTE PIPING SERVING ELECTRIC WATER COOLER. VERIFY EXACT SIZE AND LOCATION OF CONNECTION POINT IN
- FIELD. CUT AND PATCH WALL AS REQUIRED PER GENERAL DEMOLITION NOTES.

 A RACK WASTE PIPING ALONG WALL AND ROUTE BENEATH ELECTRIC WATER COOLER.
- 5 CONNECT NEW 4"RWC TO EXISTING STORM DRAINAGE IN CEILING SPACE VERIEY EXACT
- CONNECT NEW 4"RWC TO EXISTING STORM DRAINAGE IN CEILING SPACE. VERIFY EXACT SIZE, LOCATION AND INVERT OF CONNECTION POINT IN FIELD.
- 6 CONNECT NEW 4"RWC TO EXISTING STORM DRAINAGE EXITING THE STRUCTURE. VERIFY EXACT SIZE AND LOCATION OF CONNECTION POINT IN FIELD. COORDINATE DROP LOCATION WITH GARAGE DOOR HARDWARE AND WELDING EQUIPMENT ALONG WALL.











REFER TO ENLARGED

CYLINDER STORAGE ON THIS DRAWING

WELDING GAS

(E) AIR TANK—

STORAGE A114

IT SECURE | ELECTRICAL |

IT WORK ROOM

GASOTROG DETAIL

DROP PIPING TO -

UNISTRUT ELEVATION RING

STORAGE

WELDING BOOTHS

ON DWG P7.1

IURSES OFFICE

> OILET ROOM

> > PASSAGE

RECEIVING

STORAGE

IDF/

AS POSSIBLE

TYP. 3/4"CA DN ALONG WALL

(TYPICAL) WELDING TECHNOLOGY -DROP PIPING TO

N/O SHUTOFF

VALVE

UNISTRUT ELEVATION

LOCKER\$

ATOP WELDING BOOTHS

CLASSROOM •

CONFER

⊐ THEORY CLASSROOM

A108

SERVICES

TERMINATE 12" BELOW

(TYPICAL)

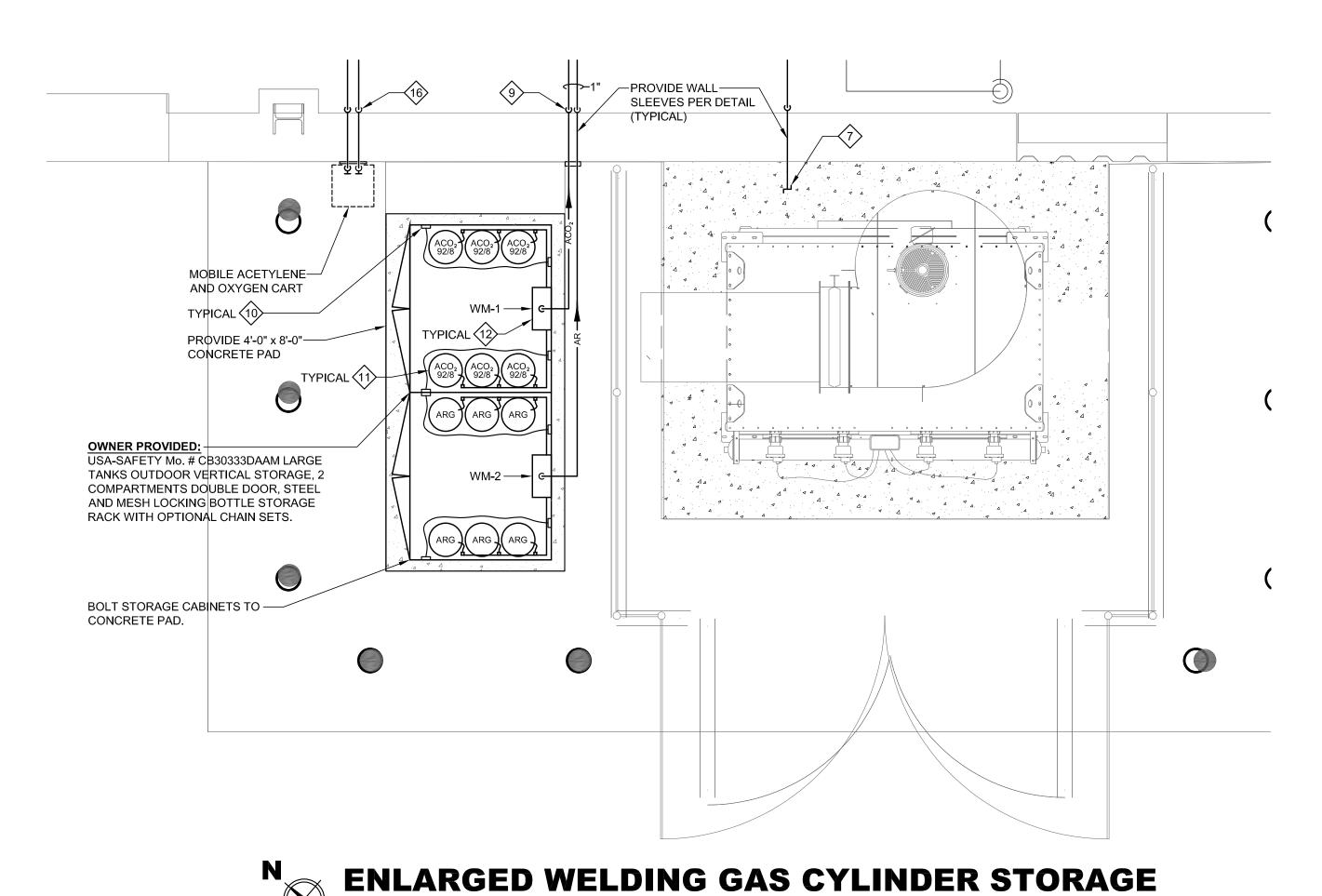
REQUIREMENTS.

(TYPICAL)

STRUCTURE WITH BALL VALVE. REFER TO AC & O2 PIPING DIAGRAM ON DWG. P8.1

-HR-1 SHALL BE INSTALLED HIGH IN

CEILING SPACE. ATTACH TO STRUCTURE PER MANUFACTURER'S ROC





KEYNOTES:

REQUIREMENTS IN FIELD.

- (1) CONNECT NEW 1-1/4"CA TO EXISTING COMPRESSED AIR IN CEILING SPACE. VERIFY EXACT SIZE AND LOCATION OF CONNECTION POINT IN FIELD.
- igl< 2igr> PROVIDE 1-1/4"CA DROP DN ALONG WALL TO SOLENOID SHUT-OFF VALVE ASSEMBLY. (3) PROVIDE 3/4"CA QUICK CONNECTION OUTLET. SUPPORT FROM ROOF STRUCTURE.

COORDINATE HOSE LENGTH AND SIZE WITH EXACT EQUIPMENT MANUFACTURER'S

- 4 DROP 1/2"ARGON AND 1/2"ARGON/CARBON DIOXIDE TO APPROXIMATELY 48"AFF. TERMINATE WITH BALL VALVE, PRESSURE REGULATOR AND DRIP LEG. (TYPICAL)
- $raket{5}$ install welding gas piping thru structure and above existing garage door. COORDINATE EXACT LOCATION AND ELEVATION IN FIELD.
- 6 ARGON AND ARGON/CARBON DIOXIDE PIPE LOCATION SHOWN IS FOR CLARITY ONLY. PIPING SHALL BE RACKED VERTICALLY ALONG UNISTRUT ALONG TOP OF WELDING BOOTHS. COORDINATE EXACT ROUTING IN FIELD.
- (7) 1/2"CA FOR DUST COLLECTOR. P.C. SHALL MAKE FINAL CONNECTION AND TERMINATE WITH BALL VALVE AND DRIP LEG. VERIFY EXACT LOCATION OF CONNECTION POINT IN FIELD.
- (8) REWORK EXISTING COLD WATER SUPPLY PIPING TO SERVE NEW HOSE BIBB. CUT AND PATCH AS REQUIRED PER GENERAL DEMOLITION NOTES.
- (9) 1"ARGON AND 1"ARGON/CARBON DIOXIDE RACKED VERTICALLY ALONG WALL.
- (10) P.C. SHALL PROVIDE RESTRAINTS FOR FULL WELDING CYLINDERS PER REQUIREMENTS OF NFPA AND OSHA. COORDINATE LOCATION WITH OWNER AND EXTERIOR STORAGE
- (11) FULL ARGON 92%/ CO2 8% A2C122 CYLINDERS.
- MOUNT MANIFOLDS TO STORAGE CAGE WALL. CUT HOLES IN STORAGE CABINET AS REQUIRED TO RUN PIPING. COORDINATE EXACT QUANTITY, SIZE AND LOCATIONS IN FIELD.
- (13) REWORK EXISTING SUPPLY PIPING AS REQUIRED TO SERVE NEW FIXTURE. CUT AND ✓ PATCH EXISTING WALL AS REQUIRED PER GENERAL DEMOLITION NOTES.
- (14) CONNECT NEW 1/2"COLD WATER TO EXISTING SUPPLY PIPING IN CEILING SPACE. VERIFY EXACT SIZE AND LOCATION OF CONNECTION POINT IN FIELD.+
- CONNECT NEW 1/2"HOT WATER TO EXISTING SUPPLY PIPING IN CEILING SPACE. VERIFY EXACT SIZE AND LOCATION OF CONNECTION POINT IN FIELD.

SIZE AND LOCATION OF CONNECTION POINT IN FIELD.

- (16) 3/4" ACETYLENE AND 3/4" OXYGEN RACKED VERTICALLY ALONG WALL. (17) CONNECT NEW 3/4"CA TO EXISTING COMPRESSED AIR IN CEILING SPACE. VERIFY EXACT
- PROVIDE SOLENOID VALVE IN PIPING FOR EACH WELDING SERVICE. SOLENOID VALVES SHALL BE ASCO, NORMALLY CLOSED, GENERAL PURPOSE, 120 VOLT AC, SUITABLE FOR THE LINES IN WHICH THEY ARE TO BE INSTALLED. POWER WIRING FOR THE VALVES SHALL BE BY THE EC LOW VOLTAGE WIRING SHALL BE BY THE PC.

WELDING GAS LEGEND

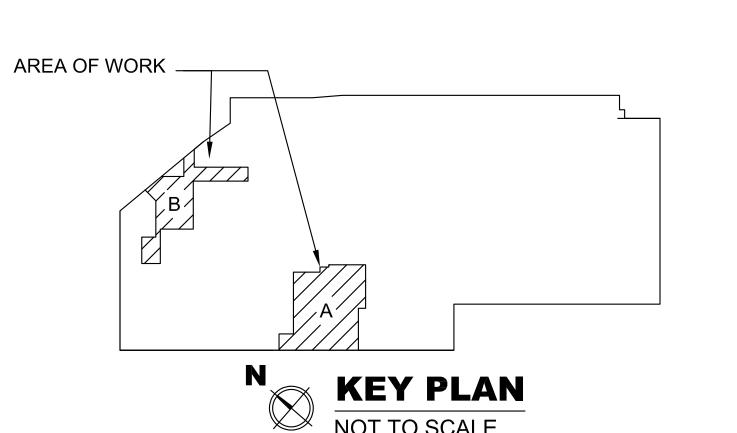
AR/CO2 ARGON/CARBON DIOXIDE — (92/8 MIXTURE) ACETYLENE

WELDING GAS SCHEDULE

(REFER TO PLUMBING FIXTURE AND EQUIPMENT SCHEDULE ON DWG. P8.1)

(WM-1) ARGON/CARBON DIOXIDE AUTOMATIC CHANGE-OVER MANIFOLD

(WM-2) ARGON AUTOMATIC CHANGE-OVER MANIFOLD



LVE - 21146

P8.1

PLUMBING FIXTURE SCHEDULE

ELECTRIC WATER COOLER (EWC-1)

STATION, VANDAL RESISTANT, FILTERED, STAINLESS STEEL WITH ALL STANDARD EQUIPMENT. PROVIDE:

a. PVC P-TRAP AS REQUIRED WITH CLEANOUT AND WATER SUPPLY SHUT-OFF VALVE; b. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS. INSTALL UNIT AT ADULT ADA HEIGHT IN ACCORDANCE WITH THE MANUFACTURER.

BRADLEY, Mo. SN2004-A-AST4-TMA-LSD-BS SENTRY, STAINLESS STEEL, 54" SEMI-CIRCULAR, 4 STATION, ADA COMPLIANT WITH ALL STANDARD EQUIPMENT INCLUDING VOLUME CONTROL VALVE, COMBINATION STOP STRAINER AND CHECK VALVES, LIQUID SOAP DISPENSER, THERMOSTATIC MIXING VALVE.

WOODFORD, Mo. 24-C-BR ANTI-SIPHON ROUGH BRASS WALL FAUCET WITH 3/4" HOSE THREAD ON VACUUM BREAKER OUTLET AND OPTIONAL METAL WHEELHANDLE AND LOOSE TEE KEY. INSTALL UNITS APPROXIMATELY 24" ABOVE FINISHED FLOOR UNLESS DIRECTED OTHERWISE.

EMERGENCY EYE/FACEWASH (EEW-1)

WITH INVERTED DIRECTIONAL LAMINAR FLOW FOR ZERO VERTICAL VELOCITY SUPPLIED BY AN INTEGRAL 4.2 GPM FLOW CONTROL. SURFACE MOUNTED 18 GAUGE, TYPE 304 STAINLESS STEEL CABINET FOR WHEELCHAIR ACCESSIBILITY AND POLISHED CHROME-PLATED BRASS PULL-DOWN VALVE WITH UNIVERSAL SIGN. VERIFY EXACT LOCATION ON WALL WITH OWNER.

CEILING SPACE. COORDINATE LOCATION WITH FLOOR PLANS.

OWNER PROVIDED -

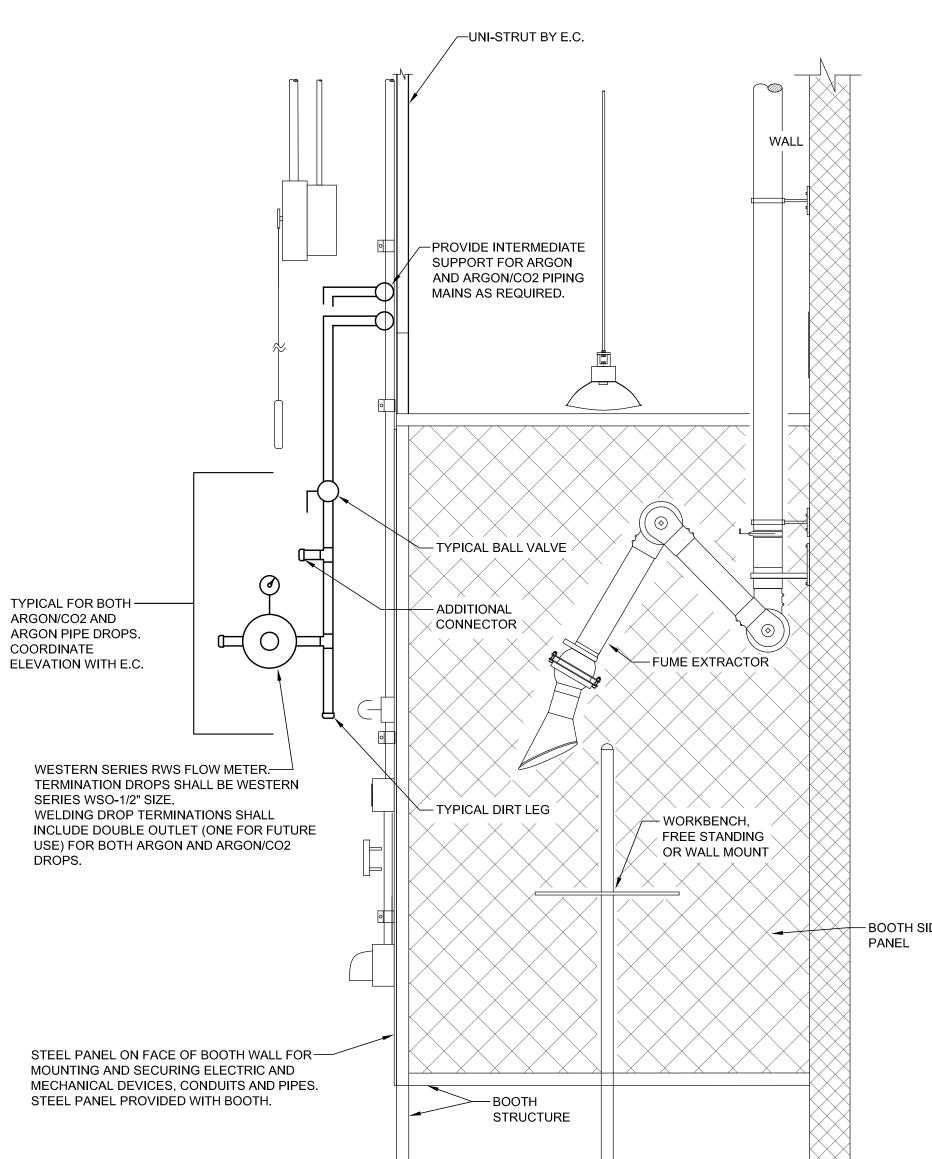
REELCRAFT HEAVY DUTY SPRING RETRACTABLE HOSE REEL. MODEL No. HD76070 OLP, 3/8"DIAMETER HOSE, 70 FT. HOSE LENGTH. VERIFY MANUFACTURER OF HOSE REELS AND AIR COUPLINGS WITH THE ARCHITECT AND OWNER.

MANIFOLDS AS MANUFACTURED BY WESTERN ENTERPRISES

ARGON (AR) - PART #BIHL-3-6S, 3 x 3 STAGGERED CONFIGURATION AUTOMATIC SWITCHOVER MANIFOLD (CGA-580), WALL MOUNTED WITH ALL STANDARD EQUIPMENT INCLUDING PRESSURE GAUGES, RED/GREEN STATUS LIGHTS ON FRONT OF CABINET,115/24 VAC POWER SUPPLY WITH DUAL DRY CONTACTS FOR REMOTE CHANGEOVER ALARM FUNCTION, RIGHT AND LEFT BRASS HEADERS CONFIGURED WITH STAGGERED 5" ON CENTERS BETWEEN CYLINDERS AND INCLUDES MASTER SHUT-OFF VALVES, HEADER VALVES FOR EACH CYLINDER AND STAINLESS STEEL FLEXIBLE PIGTAILS WITH CHECK VALVES. PROVIDE INTEGRAL PRESSURE REDUCING WITHIN MANIFOLD SYSTEM. DELIVERY PRESSURE: 30-125 PSIG.

ARGON/CARBON DIOXIDE (AR,CO2) - PART #BIHL-3-6S-DDC, 3 x 3 STAGGERED CONFIGURATION AUTOMATIC SWITCHOVER MANIFOLD FOR 92% ARGON/8% CARBON DIOXIDE MIXER GASES (CGA-580), WALL MOUNTED WITH ALL STANDARD EQUIPMENT INCLUDING PRESSURE GAUGES, RED/GREEN STATUS LIGHTS ON FRONT OF CABINET, 115 VAC, 500 SCFH INTERNAL GAS HEATER TO PREVENT REGULATOR FREEZE-UPS,115/24 VAC POWER SUPPLY WITH DUAL DRY CONTACTS FOR REMOTE CHANGEOVER ALARM FUNCTION, RIGHT AND LEFT BRASS HEADERS CONFIGURED WITH STAGGERED 5" ON CENTERS BETWEEN CYLINDERS AND INCLUDES MASTER SHUT-OFF VALVES, HEADER VALVES FOR EACH CYLINDER AND STAINLESS STEEL FLEXIBLE PIGTAILS WITH CHECK VALVES. PROVIDE INTEGRAL PRESSURE REDUCING WITHIN MANIFOLD SYSTEM. DELIVERY PRESSURE: 30-125 PSIG. PROVIDE INTEGRAL HEATER AND EXPLOSION PROOF.

REMOTE AUDIO/VISUAL



TYPICAL WELDING GAS DROP DETAIL

NOTES: ARGON AND ARGON/CO2 PIPE MAINS SHALL BE RACKED ALONG UNISTRUT BY PC.

ELKAY, Mo. LVRC8WSK, WALL MOUNT, SINGLE ADA COOLER, EZH2O BOTTLE FILLING

WASHFOUNTAIN (WFN-1)

HAWS MODEL Mo. 7656WCSM EYEWASH UNIT WITH AXION MSR EYE/FACE WASH HEAD PROVIDE HAWS Mo. 9201EW AXION LEAD FREE THERMOSTATIC MIXING VALVE IN

3/4" CA MAIN-

FROM ABV

EXTERIOR

SEAL SLEEVE WITH-

FIBERGLASS INSULATION —

WITH PVC FITTING COVERS (REFER TO SPECIFICATIONS FOR INSULATION THICKNESS

NO SCALE

BACKFLOW -CHECK VALVE FLASHBACK -

ARRESTOR

GRADE

MOBILE AC & O2 —

EXTERIOR WALL SLEEVE DETAIL

TYPICAL PIPING HANGER DETAIL

SILICONE BASED

NON-SHRINK

SEALANT

WALL

-ASCO 3/4" SOLENOID VALVE.

VALVE SHALL BE CLOSED UNDER

BLEED OFF SYSTEM PRESSURE.

TERMINATE WITH HORIZONTALLY

MOUNTED McMASTER-CARR

CLOG-RESISTANT ALUMINUM

BALL VALVE(TYP)

-PIPE SUPPORT

(TYPICAL)

MUFFLER

— INTERIOR

PIPE O.D.

-SCH. 10 STL. OR C.I. WALL SLEEVE.

INSTALL WITH NON-SHRINK GROUT

- CLEVIS HANGER WITH THREADED ROD

ATTACHED TO BUILDING STRUCTURE.

REFER TO SPECIFICATIONS FOR

SPACING

-18 GAUGE PIPE

-SHUT-OFF VALVE

AC & O₂ PIPING DIAGRAM

TERMINATION. COORDINATE FINAL CONNECTION POINT

SHIELD (MIN 12" LONG)

WITH FLARED ENDS

OR EPOXY SEAL

4 4 4

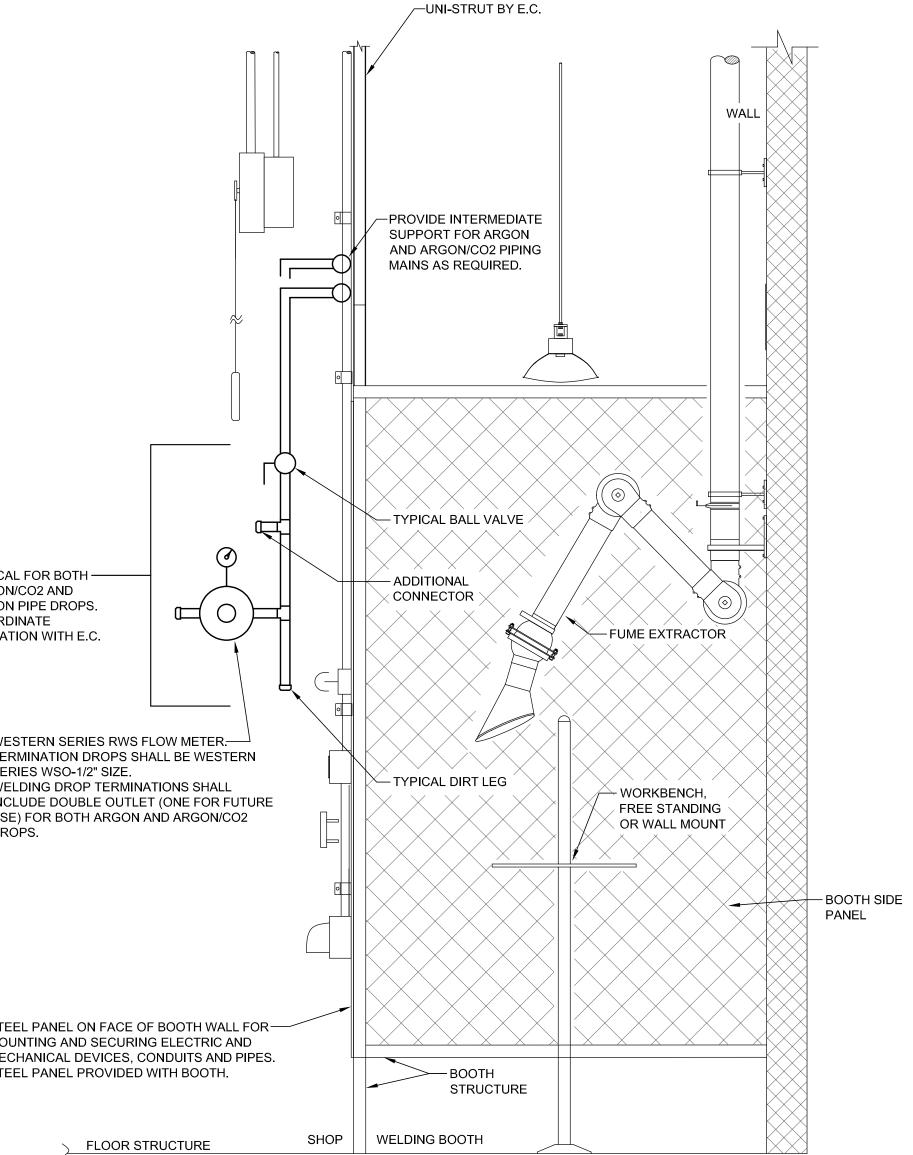
COMPRESSED AIR PURGE ASSEMBLY

EMERGENCY STOP ACTIVATION TO

NORMAL OPERATION AND OPEN UPON

OWNER PROVIDED -

INSTALLATION OF ALL MANIFOLDS, PIPING AND MISCELLANEOUS APPURTENANCES SHALL BE IN STRICT ACCORDANCE WITH ALL MANUFACTURER'S REQUIREMENTS. CONTACT AIRGAS USA



PLUMBING FIXTURE CONNECTIONS														
ITEM	FIXTURE	MINIMUM PIPING CONNECTIONS												
NO.	FIXTURE	TRAP & TRAP ARM	WASTE	VENT	C.W.	H.W.	T.\							
EWC-1	ELECTRIC WATER COOLER (WALL HUNG)	1-1/2"	2"	1-1/2"	1/2"	-	-							
WFN-1	WASHFOUNTAIN (SEMI-CIRCULAR- ADA)	-	2"	2"	3/4"	3/4"	-							
EEW-1	EMERGENCY EYEWASH (WALL MTD)	1-1/4"	1-1/4"	1-1/4"	-	-	1/2							
HB-1	HOSE BIBB	-	-	-	3/4"	-	-							

1. WET VENT OR COMBINATION DRAIN AND VENT. REFER TO FLOOR PLAN.

2. CONNECTION SIZES ARE TO BE AS SHOWN ON SCHEDULE, EXCEPT AS OTHERWISE NOTED OR SHOWN ON PLANS.

WATER HAMMER ARRESTER SCHEDULE												
SYMBOL	FIXTURE UNITS	SMITH FIGURE NO.	SYMBOL	FIXTURE UNITS	SMITH FIGURE NO							
A	1-11	5005	D	61-113	5030							

5010

5020

WELDING GENERAL NOTES

12-32

33-60

1. WELDING GAS CYLINDERS SHALL BE PROVIDED BY THE OWNER.

2. PROVIDE RESTRAINTS FOR BOTTLES IN ACCORDANCE WITH NFPA AND OSHA REQUIREMENTS.

114-154

155-330

5040

5050

- 3. ALL BRANCHES SHALL TEE OFF TOP OF PIPE MAIN.
- 4. WIRING FOR WELDING GAS MANIFOLDS IS BY THE EC. COORDINATE WORK WITH EC.
- 5. PROVIDE A BALL VALVE IMMEDIATELY UPSTREAM OF QUICK CONNECT TERMINATION (TYPICAL FOR ALL SERVICES).
- ABOVE GRADE OXYGEN, ARGON, ARGON/CO2 AND CO2 PIPING SHALL BE COPPER TUBE OF SIZE INDICATED. PIPE AND FITTING SHALL BE FACTORY CLEANED, SEALED AND LABELED FOR OXYGEN SERVICE. WALL THICKNESS SHALL BE TYPE 'K'. FITTINGS SHALL BE WROUGHT COPPER SOLDER JOINT WITH SILVER BRAZING ALLOY. ABOVE GRADE ACETYLENE PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE FACTORY CLEANED, SEALED AND LABELED FOR ACETYLENE SERVICE. COPPER PIPING IS NOT PERMITTED FOR ACETYLENE PIPING, VALVES AND FITTINGS. INTERIOR AND EXTERIOR ACETYLENE PIPING SHALL BE PAINTED WITH (2) COATS OF RUST INHIBITIVE PAINT. COLOR AS SELECTED BY ARCHITECT. PERFORM FIELD TESTS AND INSPECTIONS AND REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.
- 8. COMPRESSED AIR PIPING SYSTEM SCHEDULE 40, STEEL PIPE CONFORMING TO ASTM A53, TYPE E OR S, GRADE B, BLACK OR HOT-DIP ZINC COATED WITH ENDS THREADED ACCORDING TO ASME B1.20.1. PROVIDE MALLEABLE-IRON THREADED FITTINGS (ASME B16.3, CLASS 150 OR 300) AND MALLEABLE-IRON THREADED UNIONS (ASME B16.39, CLASS 150 OR 300). ALL BALL, GLOBE AND CHECK VALVES SHALL COMPLY WITH REQUIREMENTS IN DIVISION 22, SECTION "GENERAL-DUTY VALVES FOR PLUMBING PIPING". COMPLY WITH REQUIREMENTS IN DIVISION 22, SECTION "HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT" FOR PIPE HANGER AND SUPPORT DEVICES, EXTERIOR COMPRESSED AIR PIPING SHALL BE PAINTED WITH (2) COATS OF RUST INHIBITIVE PAINT. COLOR AS SELECTED BY ARCHITECT. PERFORM FIELD TESTS AND INSPECTIONS AND REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST. INSPECT FILTER AND PRESSURE REGULATOR FOR PROPER OPERATION AND PREPARE TEST REPORTS.
- 9. WELDING GAS SYSTEM SHALL BE IN COMPLIANCE WITH OSHA-STANDARD 1910,253. COMPRESSED GAS ASSOCIATION (CGA) - SAFE HANDLING OF COMPRESSED GASES, NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AND INTERNATIONAL FIRE CODE (IFC).
- 10. WELDING VALVE SHALL BE FULL PORT STAINLESS STEEL THREADED AND 3 PIECE FOR WELDING GAS WITH FLOATING BALL VALVE.

