



## Addendum No. 2

Page 1 of 7

**DATE:** January 8, 2021

Joliet Junior College  
1215 Houbolt Road  
Joliet, IL 60431

**TO:** Prospective Bidders  
**SUBJECT:** Addendum No. 2  
**PROJECT NAME:** Respiratory Therapy Build-Out  
**JJC PROJECT NO.:** B20036

This Addendum forms a part of the Bidding and Contract Documents and modifies the original bidding document as posted on the JJC website. Acknowledge receipt of this addendum in the space provided on the Bid Form. FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION.

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1. *Re: Lighting Controls;*

- a) *Could you indicate the location of the existing Lutron Lighting Control Panel?*

**6. CONNECT ZONED LIGHTING TO EXISTING LUTRON PANEL  
U1114B**

**Panel is located in electrical room U1114. This room is approx. 185 ft west from the center of the respiratory therapy shell space to the center of electrical room U1114.**

- b) *Can you furnish a single manufacturer's model number for the lighting control devices you want used, so we can see what it is you want the controllers to do? We can't tell by the plans or generic specifications if the wall switches are line voltage or low voltage. Or, can you furnish a Lighting Control Sequence of operations matrix?*

**Lighting control sequence of operations matrix have been provided to assist contractor in selecting appropriate lighting control devices. Refer to fixture symbols on plan E2-01 to determine specific device type in each sequence. Wall control devices have been revised; refer to sheet E2-01 for additional clarity.**

- c) *Can the control wiring between the lighting control power packs and the 0-10v fixtures be exposed above the ceiling?  
If not, will we be allowed to run Class 2 0-10v dimming and Occupancy Sensor control wires in the same conduit with the phase wiring as long as it's rated at 600v (ie #18 TFFN)? This is allowable by NEC. Running the Class 2 wiring in a parallel conduit system will be very expensive.*

**AEI takes no exception to running control wiring exposed above ceiling. Provide independent support for all exposed wiring. Wiring shall be plenum rated. Low voltage wiring shall not be installed in same conduit as phase wiring.**

- d) *What circuit and panelboard are we to use for the Exit Lighting?*

**The exit lighting shall be connected to panel 1ELH1. The circuit to utilize shall be the next available spare circuit.**

- e) *Can we use a single UL924 transfer switch for all of the EM fixtures in a single room?*

**AEI takes no exception to proposed solution.**

2. *Re: Power Distribution Acceptance Testing:*

- a) *Could you be more specific and isolate what testing you want to see?  
The specifications are too open ended and could be interpreted as meaning all the equipment on the site which could be listed on the tables.  
We aren't furnishing any new Switchgear, Panelboards, Transformers, we're only landing 20a 1p circuits on existing breakers in existing panelboards. Do you really want us to megger test #12 & #10 wire circuits?  
This seems like an expensive overkill on a such a small project.*

**Contractor to provide acceptance testing as indicated in 26 0812. Testing is to be provided for all new equipment and components installed under the scope of this project.**

3. *Re: Fire Alarm;*

- a) *I need to find out which Honeywell Fire Alarm system is being used currently and which contractor holds the maintenance agreement so I can get a quote from them for the devices and to integrate, test, and recertify the system after the new devices are installed.*

**Honeywell was listed in error. Per Addendum #1, the fire alarm system is Edwards. You may contact Convergent Technologies.**

4. *Re: Security;*

- a) *Could you clarify the scope of work required for Security? There was no specification for security work.*

**Scope of Work document contained within the Bid Document.PDF clearly states cameras and door access by JJC. However, contractor is providing and installing data cable. Refer to the scope of work document for further direction.**

5. *Finish schedule on A11.0 shows WD-1 as "Match Existing Wood Veneer at Stair". Can you share any photos or specifications for this existing wood veneer?*

**Provide maple veneer as described in updated schedule on sheet A11.0.**

6. *With regard to the above-mentioned project, please confirm that the General Contractor will be responsible for obtaining and paying the cost of a Builder's Risk Policy.*

*In addition, under "Damage and Negligence," (first paragraph on page 7), it states that, "The Contractor agrees to indemnify and save harmless the College and employees from and against all loss, including costs and attorney's fees, by reasons or liability imposed by law upon the College for damages because of bodily injury, including death at any time resulting therefrom, sustained by any person or persons or on account of damage to property including loss of use thereof as provided in the General Conditions and Supplementary Conditions." This paragraph does not state the cause of the fault to be indemnified, e.g., the negligence of the Contractor, excluding the negligence of the indemnitees, etc. I could not locate any mention of this in the General Conditions nor could I locate any Supplementary Conditions. Please advise.*

**Joliet Junior College will provide the Builders Risk Insurance.**

7. *We do not see spot on the bid form the Allowance #1 & 2 noted in (SECTION 012100). Please advise if these are required as one of the allowances has unit cost associated with sf of new work and the other is appears to be what contractor sees as means and methods for existing conditions.*

**Disregard any allowance called for in the specs. The allowance of \$35,000 provided on the bid form is what your bid will need to carry.**

8. *Please confirm the Nurse Call System are owner furnished and installed per section 275223 1.04 And if so, please provide the owner's Nurse Call provider.*

**Specification 275223 section 1.04.A.1 shall be deleted, and sections 1.01.B.1 and 1.01.B.2 added so that the contractor shall provide all devices as required. Refer to the attached section.**

9. *The Electrical drawings show (8) receptacles at each Lab Hospital Bed. However, details 1-3/A7.2 show a maximum of (6) receptacles at each bed, sometimes less. Please confirm the quantity of receptacles at each bed in Lab 1019D*

**Individual elevations may have equipment blocking the view of the receptacles. Refer to 13/A7.2 for the Typical Headwall Enlarged Elevation for all beds in the Lab 1019D and Exam 1019E. The elevation has been updated to reflect an additional receptacle for the monitor for a total (9) power receptacles, as well as an "E" designation to clearly show which are Emergency Power per the electrical drawings. See attached sheet A7.2.**

10. *Please advise on glass type for glass enclosure at reception 1102A.*

**Refer to Specification Section 08 8000 2.02 F. The application of Glass Type G-6 is listed as the Reception enclosure, including door.**

11. *Glass type G-2 is noted to be etched per A11.0 Finish Material Schedule. Please advise if this is a full height/width acid etch of the glass or some type of etched pattern glass.*

**The etching shall be uniform and full height and width of glass. Refer to requirements of Type G-2 as described in Specification Section 08 8000 2.02B.**

12. *There is a 1 hour rated frame/glass elevation in room 1019D (elevation 4 on sheet A7.2). It states to refer to details 15, 16 and 17 on sheet A10.0 but going to these details, it doesn't explain what the frame material is to be. Please advise what framing is desired for this 1 hour rated opening...is this a steel hollow metal frame OR a steel fire rated frame like a TGP frame?*

**Refer to Specification Section 08 4435 2.02 to see requirements of Protective Framed Glazing Assemblies.**

13. *There is a 1 hour rated frame/glass elevation in room 1019D (elevation 4 on sheet A7.2). It states to use G-5 glass but I am not seeing where G-5 glass is noted anywhere. Please advise makeup for G-5 glass? We must know if this glass/glazing is to be considered fire protective or fire resistive.*

**Refer to Specification Section 08 8000 2.02 C to see description of glass G-5.**

14. *On sheet A10.0, the door schedule lists hardware sets, but I cannot seem to locate these. Please advise hardware sets desired?*

**Refer to Specification Section 08 7100 3.06 for Hardware Sets.**

15. *The door schedule references several doors with a type G-4 glass, but I am not seeing where G-4 glass is noted anywhere. Please advise makeup for G-4 glass? We must know if this glass/glazing is to be considered fire protective or fire resistive.*

**Refer to Specification Section 08 8000 2.02 D to see description of glass G-4.**

16. *For glass type G-2, it is noted in the finish material schedule as 'etched glazing, ¼" thick'. Please advise if this is a simple full height/width acid etch of the glass or is this some type of etched pattern glass?*

**The etching shall be uniform and full height and width of glass. Refer to requirements of Type G-2 as described in Specification Section 08 8000 2.02B.**

17. *For the all glass-wall entrance,...there isn't any 'G- glass type given here, but it does stated ½" tempered laminated glass. Does this laminated/tempered glass have to be low iron or just standard tempered?*

**Refer to Specification Section 08 8000 2.02 F. The application of Glass Type G-6 is listed as the Reception enclosure, including door.**

18. *I just got my hands on this project and realize the pre bid meeting and the site walkthrough already happened. My question is, can we still bid this project as a GC. Please let me know if possible.*

**No, attendance to the prebid meeting was mandatory to bid this project as a G.C.  
Subcontractors that did not attend can bid to G.C.'s that did attend.**

**19. Receptacles at the Patient Beds in the LAB.**

- a) *The Architectural details 1, 2 & 3 on A7.2 Details show a maximum of six (6) receptacles at each bed, some with less.  
The electrical drawings are showing eight (8) at each bed.  
Please confirm the quantities.*

**Individual elevations may have equipment blocking the view of the receptacles. Refer to 13/A7.2 for the Typical Headwall Enlarged Elevation for all beds in the Lab 1019D and Exam 1019E. The elevation has been updated to reflect an additional receptacle for the monitor for a total (9) power receptacles, as well as an "E" designation to clearly show which are Emergency Power per the electrical drawings. See attached sheet A7.2.**

**20. Regarding the Nurse Call system:**

- a) *The specs are written as if the contractor were furnishing the Nurse Call equipment, but the spec indicates the Owner is furnishing the equipment for the contractor to install. Please confirm.*

**1.04 WORK BY OWNER**

- A. Refer to Section 27 0000 - General Communications Requirements which identifies Work by Owner affecting sub-system(s) covered by this Section.  
1. All system components (i.e. Master Station, Patient Station, Code Blue Station, etc.) shall be **Owner Furnished Contractor Installed (OFCI).**

**Specification 275223 section 1.04.A.1 shall be deleted, and sections 1.01.B.1 and 1.01.B.2 added so that the contractor shall provide all devices as required. Revised specification attached.**

- b) *If this is owner furnished, we need the owner's preferred Nurse Call provider to furnish these items before the bid:*  
i. *A complete list of materials we will be expected to install with catalog cuts of the devices.*

**Refer to reply to item 20.A above**

- ii. *Installation drawings showing the layout of the devices (the spec'd devices do not match the layout on the drawings)*

**Refer to reply to item 20.A above**

- iii. *Wiring diagrams with a cable legend with model numbers of the cable preferred by the owner's vendor.*

**Refer to reply to item 20.A above Refer to sheet T0-00 and specification 271500 for cable type for the nurse call system.**

- iv. *Confirmation that the preferred vendor will furnish all submittals, drawings, testing, training, support, guarantees, and warranties specified.*

**Refer to reply to item 20.A above. Refer to specifications 270000 and 275223 for requirements of items listed. Note that the system will be utilized for training purposes only.**

21. Can you confirm that existing stone base is at the proper elevation to allow for the 2" of insulation & 4" of SOG concrete.

**Compacted fill is existing, and the elevation appears to be below the bottom of the adjacent slab assembly. It is anticipated that some fill has been disturbed and possibly displaced since core and shell construction. Contractor shall include cost to field survey existing fill and to coordinate with Owner's Testing Agency to test compaction. Any additional material and labor to compact fill and provide a level sub-base is unknown and shall not be included in the bid.**

22. I do not see anything on spec for classroom AV. Assuming that is not part of the bid?

**Correct, classroom AV systems are not part of the bid. Refer to scope of work for providing data cabling.**

23. There was mention of Microsoft Surface Hub, is that provided by JJC?

**Refer to updated Section 27 4100.1 – Audiovisual Systems Equipment Schedule.**

- Are we to run any cables or install it?

**The AVSC will provide device, cabling, mounting, and installation per the specifications.**

- If running cables, what type of cable/plate?

**Refer to system diagram on TA6.01.**

24. I show JJC providing cameras and local monitors for the respiratory room, what about the microphones. They are not in the equipment list

**Refer to updated Section 27 4100.1 – Audiovisual Systems Equipment Schedule. Microphones have been added to the schedule.**

- Are we to install the items listed above being cameras, microphones, and monitors

**Cameras will be furnished and installed by the Owner. Monitors will be furnished by the Owner and installed by the contractor. The contractor will provide and install all cabling and microphones.**

## Respiratory Therapy

### Addendum #2

- If installing the cameras on the network is JJC providing network information

**JJC providing and installing cameras. This contractor only running data cables. Refer to scope of work.**

25. Is JJC setting up the network information on the SMD and SMP devices (notes for future use)

**AVSC will coordinate network requirements for these devices with the Owner at time of install.**

26. Is control system going on the network?

**Yes. Refer to system diagram on TA6.02.**

### A/E Clarifications:

1. Electric strikes indicated in hardware sets shall be provided by owner, installed by Contractor. Refer to Scope of Work document for further clarification.
2. Scope work calls out for contractor to provide temporary lighting for the project. Temporary lights are already installed and are not required to be provided. However, the contractor is responsible for adjusting/relocating temporary lighting during the construction process. Contractor shall demo and dispose of temporary lighting and bulbs at end of project.

**End of Addendum #2**

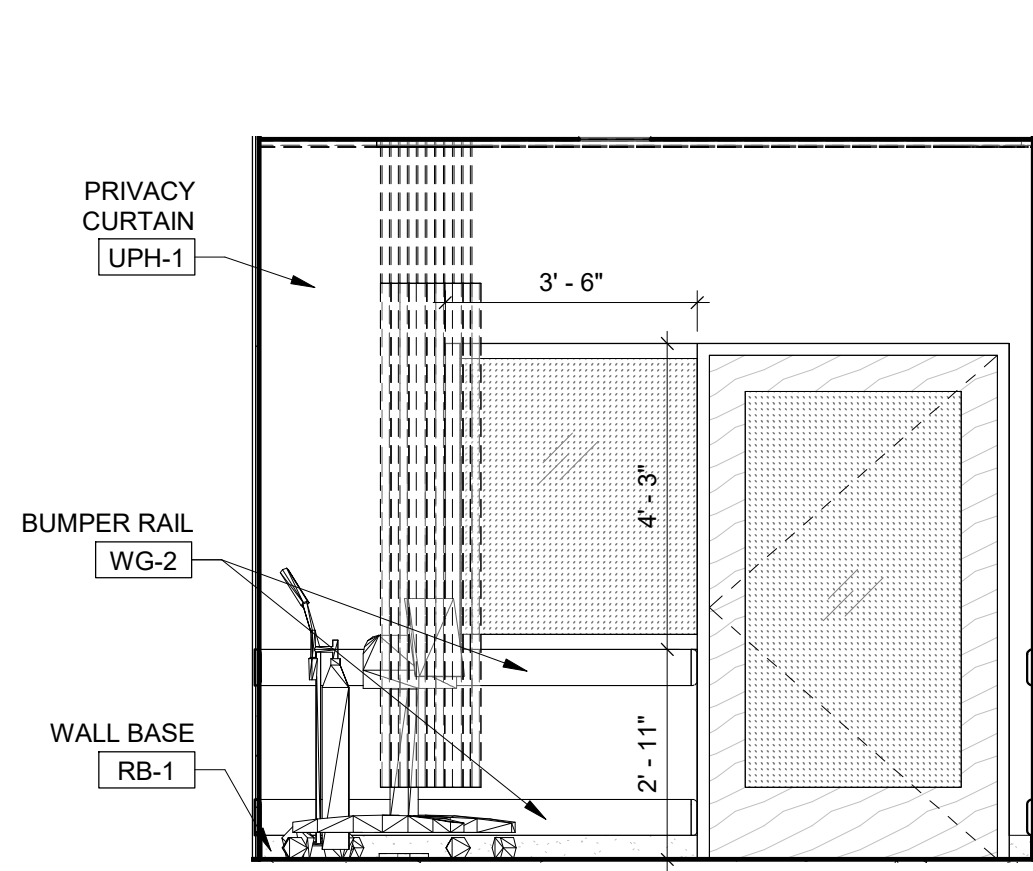
### Attachments:

Drawing Sheets: A7.2, A11.0, E2.01, E3.01, E8.01, TA3.01

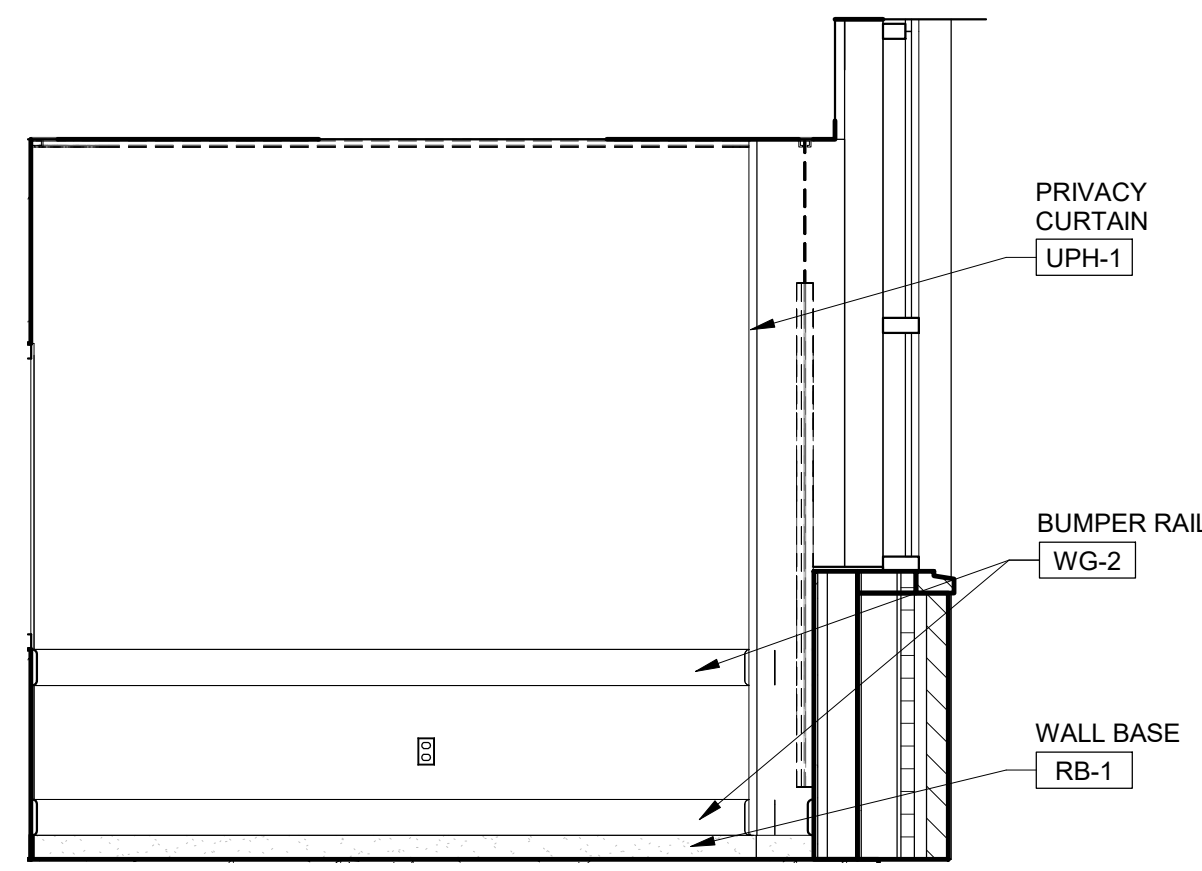
Specification Sections: 26 0812, 27 4100.1, 27 5223



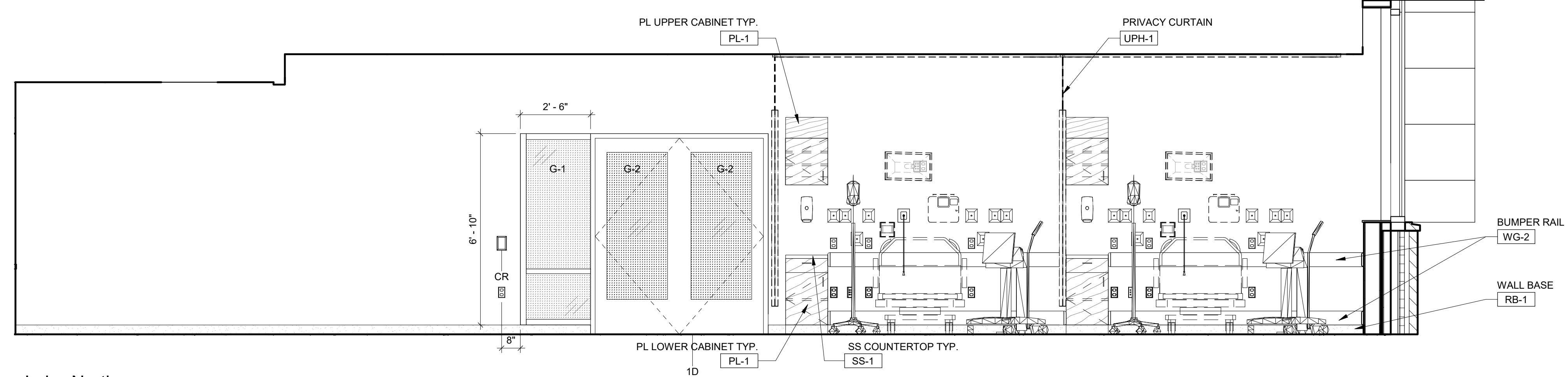
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FILE: C:\Users\jpatel\Documents\19130\_JJC Respiratory Therapy (rate)\v1



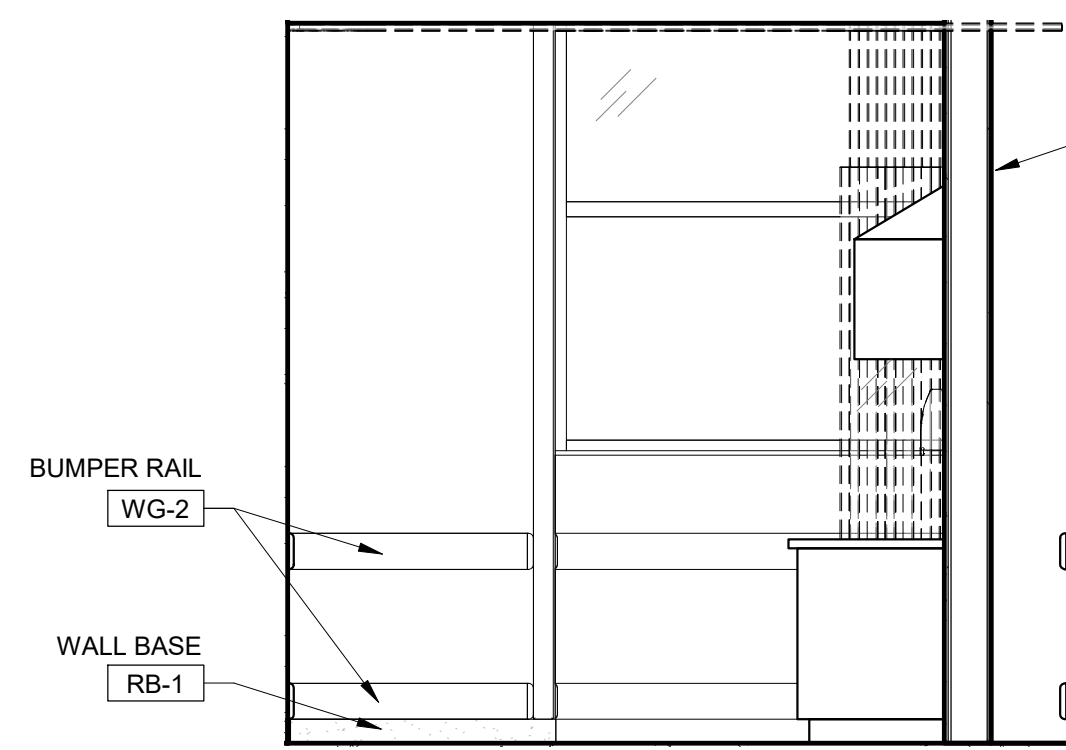
9 Exam - West  
3/8" = 1'-0"



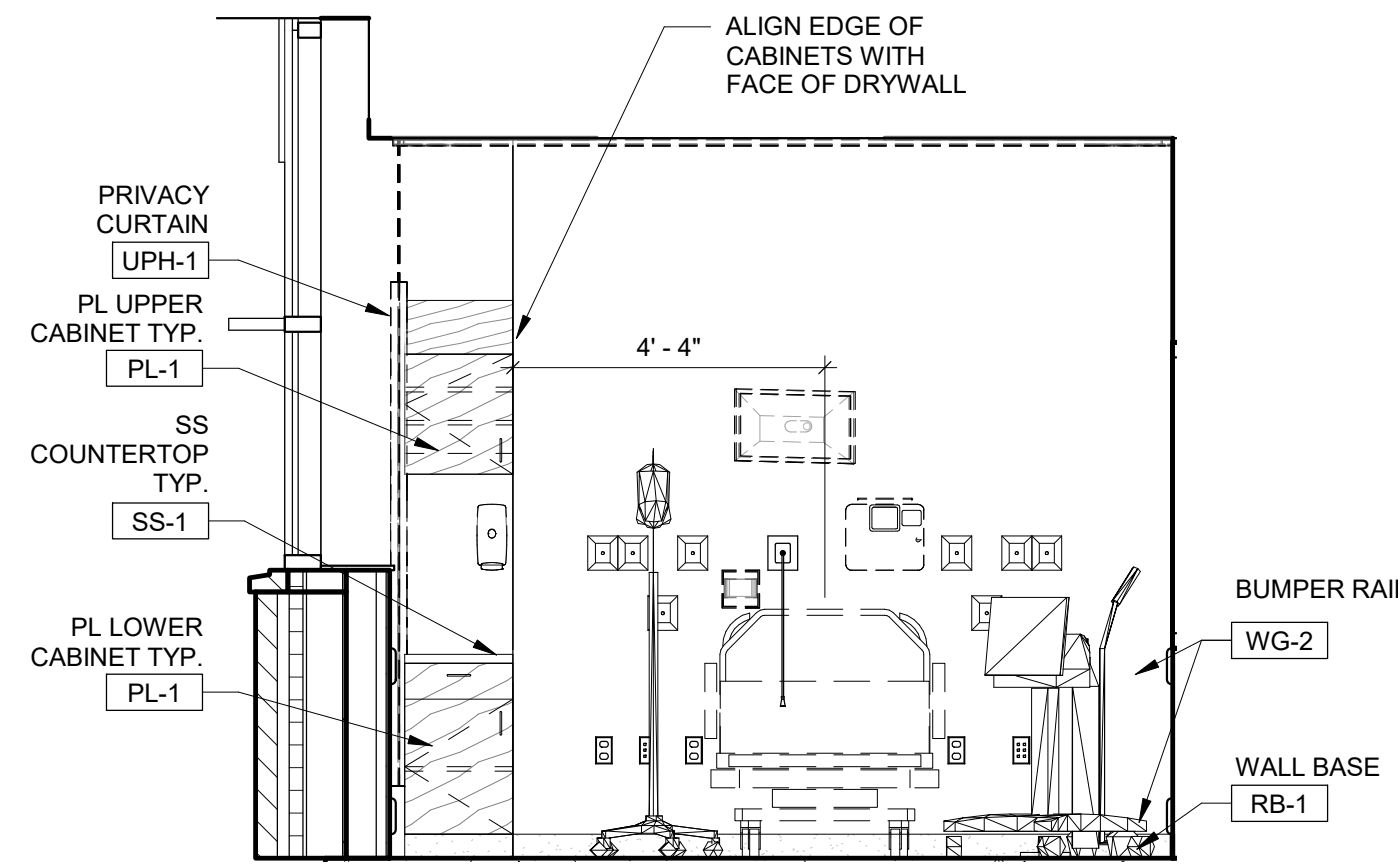
10 Exam - North  
3/8" = 1'-0"



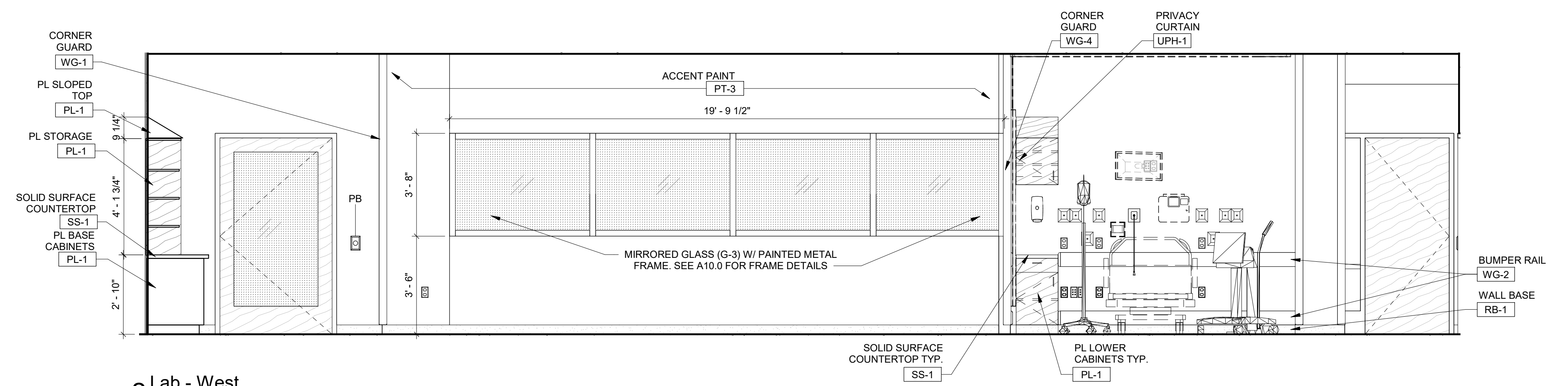
1 Lab - North  
3/8" = 1'-0"



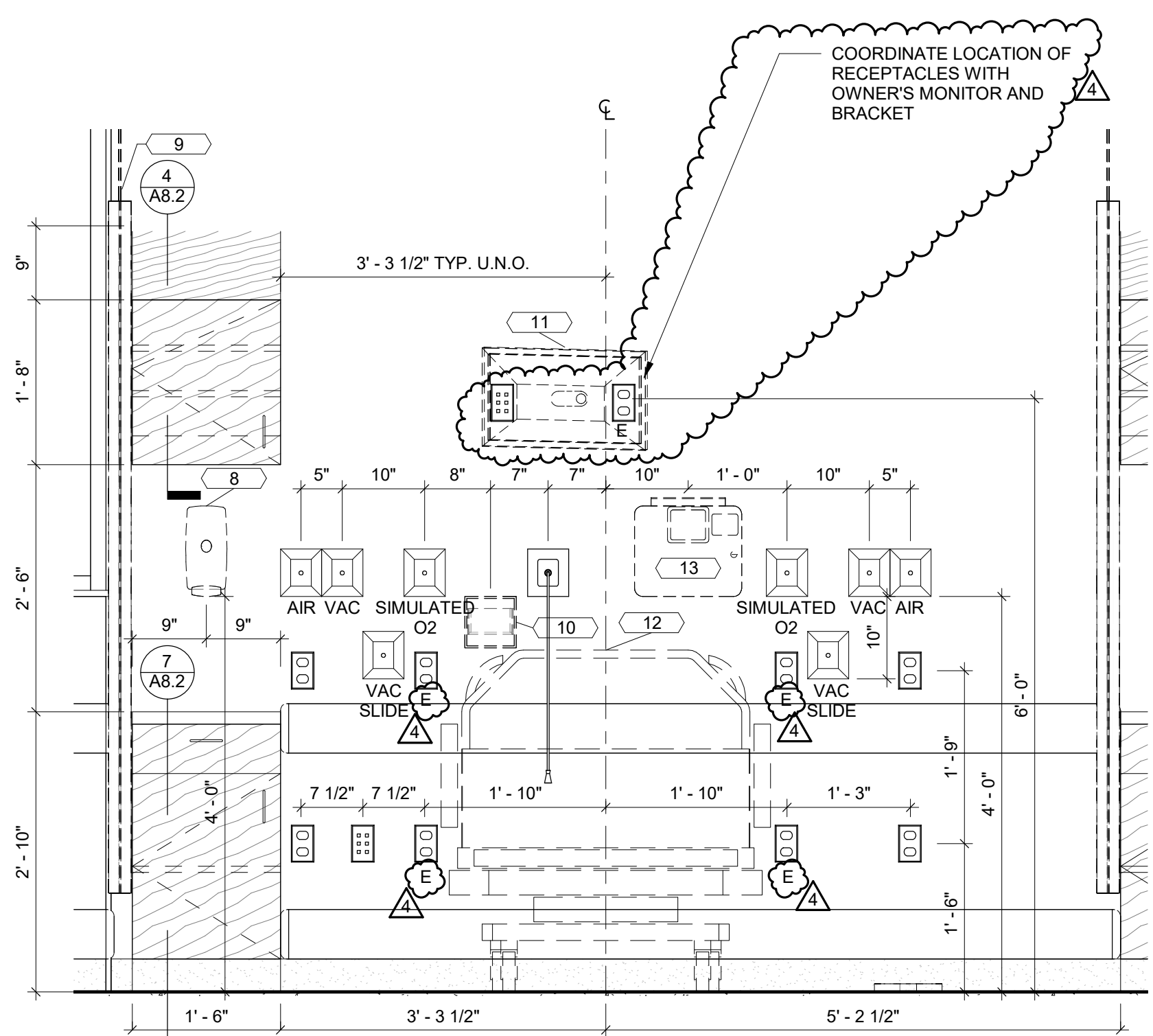
11 Exam - East  
3/8" = 1'-0"



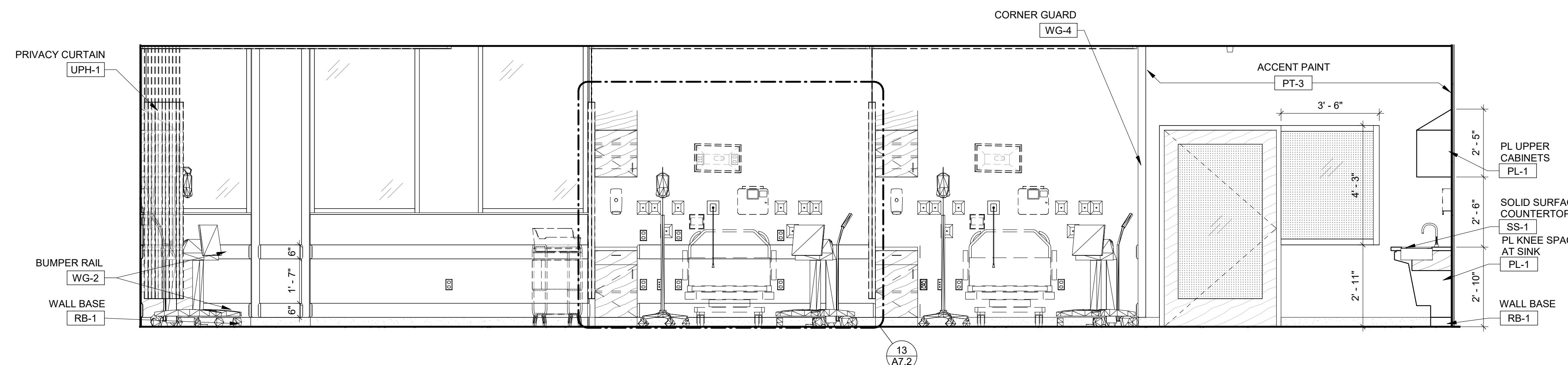
12 Exam - South  
3/8" = 1'-0"



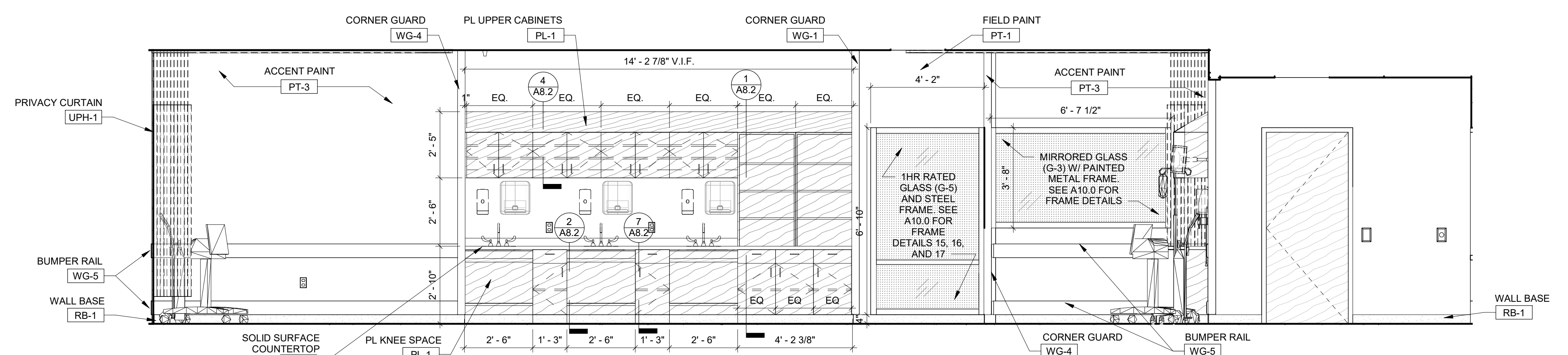
2 Lab - West  
3/8" = 1'-0"



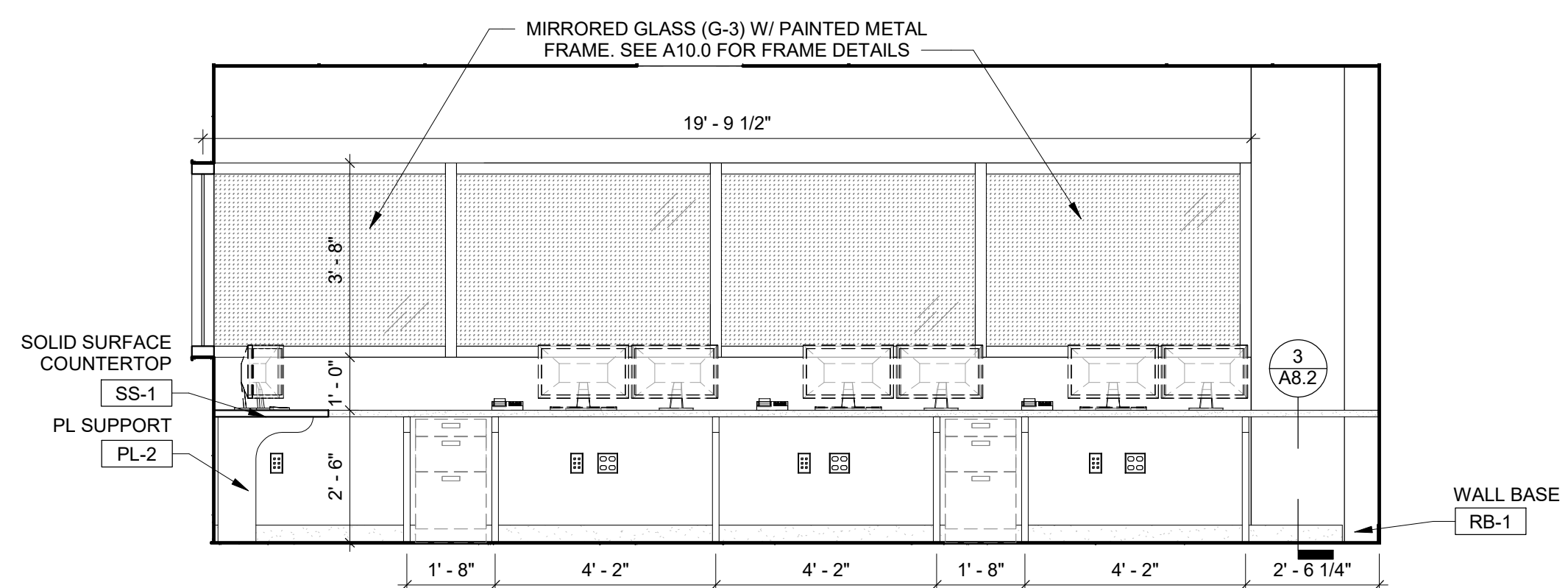
13 Typical Headwall at Lab and Exam Room Enlarged Elevation  
3/4" = 1'-0"



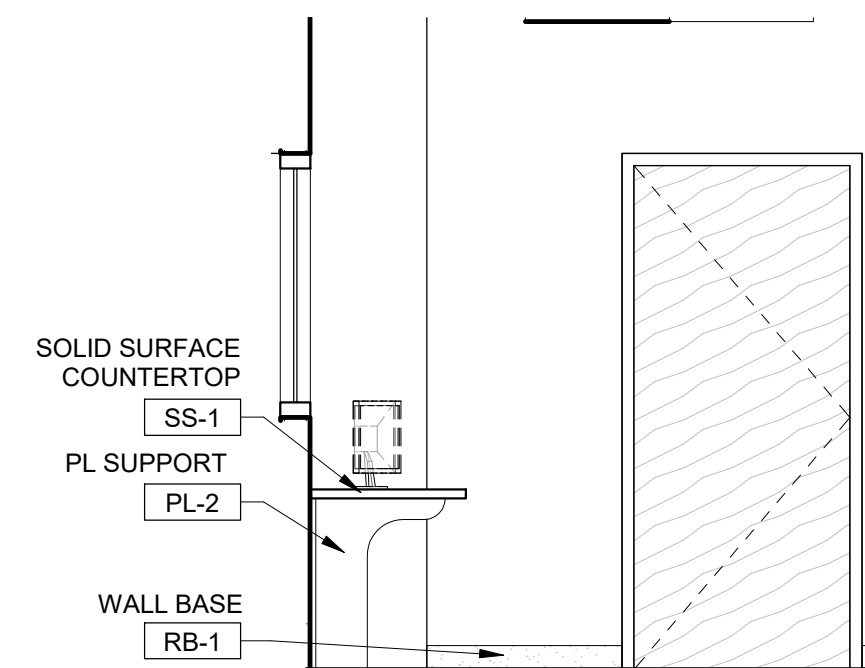
3 Lab - East  
3/8" = 1'-0"



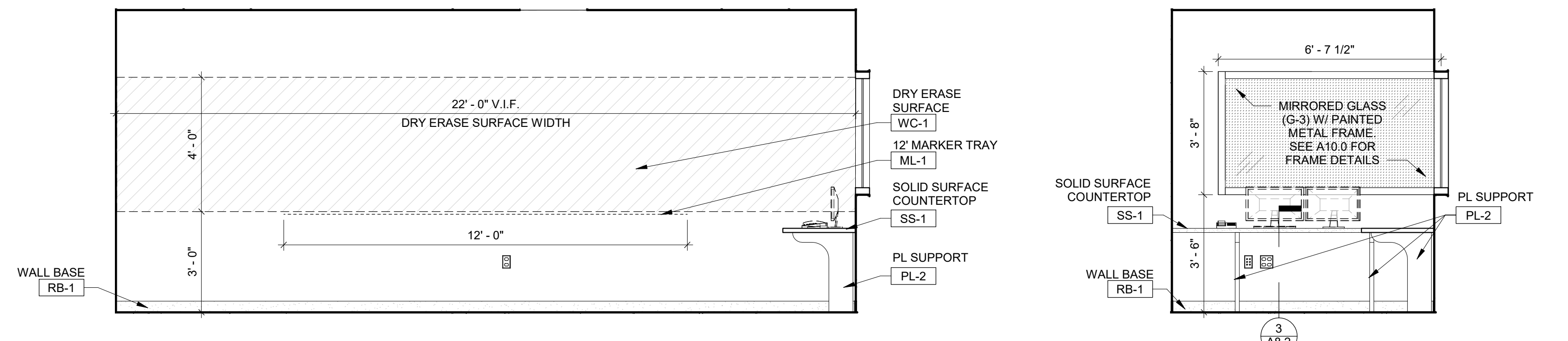
4 Lab - South  
3/8" = 1'-0"



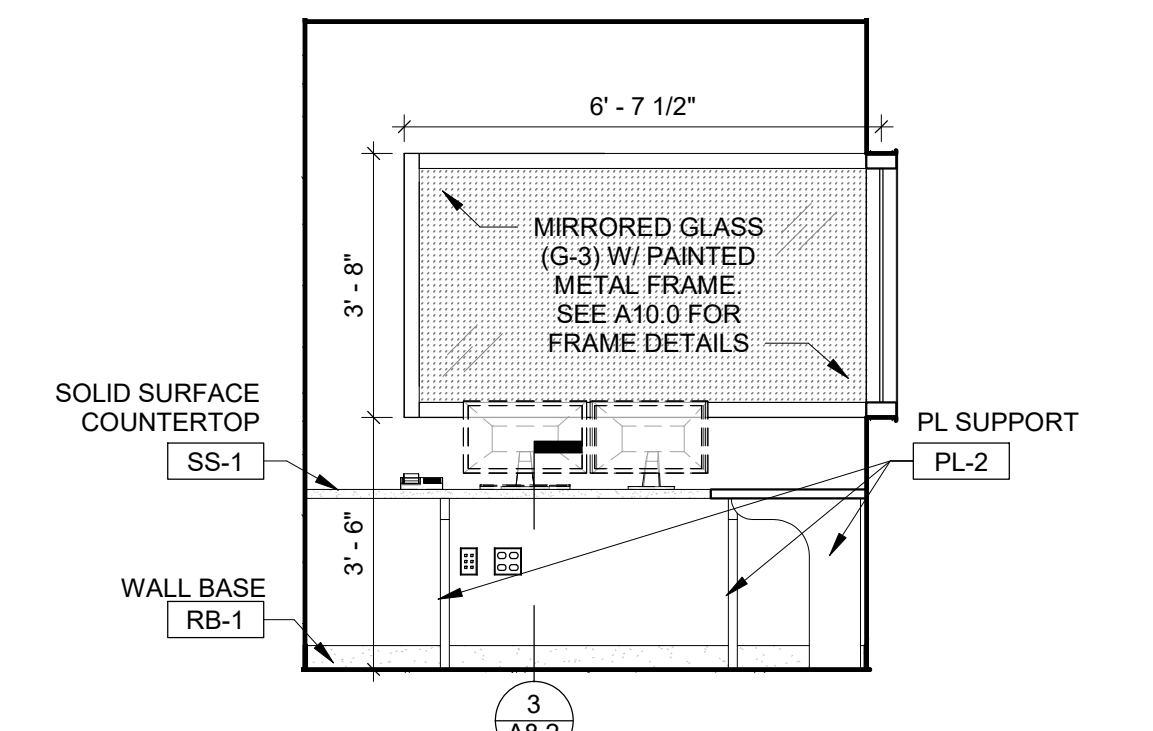
5 Control - East  
3/8" = 1'-0"



6 Control - South  
3/8" = 1'-0"



7 Control - West  
3/8" = 1'-0"



8 Control - North  
3/8" = 1'-0"

MEP/AV

Affiliated Engineers, Inc. (AEI)

Structural

Helen Torres & Associates, PLLC

Key Plan

4 01-08-2020 Addendum 2  
3 11-30-2020 Issued for Bid  
2 11-19-2020 Issued for JJC Review  
1 09-16-2020 Schematic Design / Design Development  
No. Date Issue Description

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Client / Project Name

Joliet Junior College

Respiratory Therapy

1215 Houbolt Rd, Joliet, IL 60431

Sheet Title

Interior Elevations

QAC:

Checker

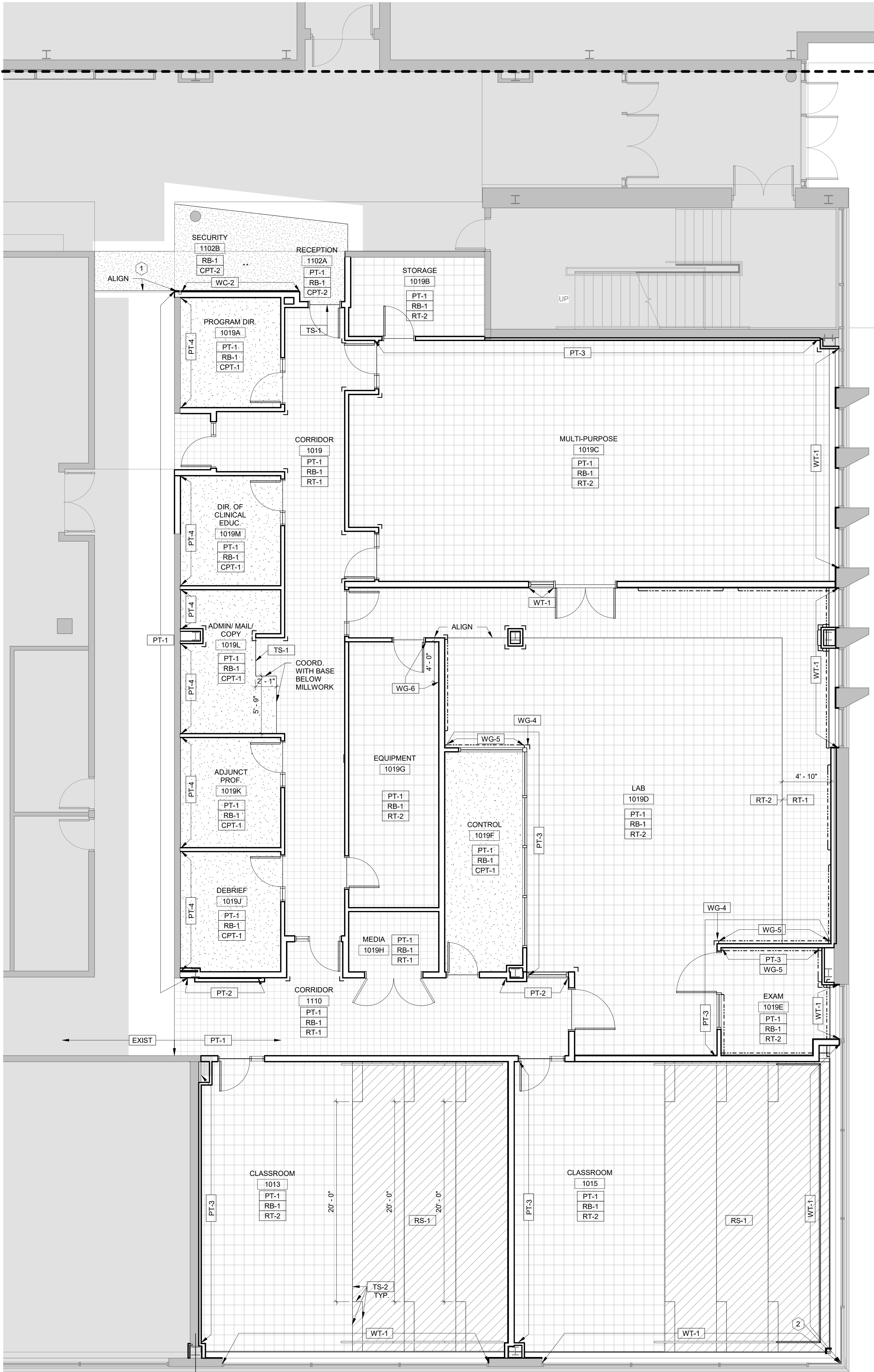
Project No.

19130

A7.2



FINISH MATERIAL SCHEDULE						
MARK	DESCRIPTION	MANUFACTURER	STYLE	COLOR	SIZE	REMARKS
BASE						
RB-1	RESILIENT BASE	JOHNSONITE	TRADITIONAL COVE BASE	BLACK 40	4"	
CEILING						
ACT-1	ACOUSTICAL CEILING TILE	USG	ASTRO CLIMAPLUS FLB EDGE 8227	WHITE	24"x24"x5/8"	SHADOWLINE TAPERED
PT-6	PAINT - CEILING	SHERWIN WILLIAMS	FLAT	SNOWBOUND SW7004		
FLOOR						
CPT-1	CARPET TILE	INTERFACE	OLD STREET	BLACK GRID 105745	50CM X 50CM	ASHLAR INSTALLATION, OWNER PROVIDED / GC TO INSTALL
CPT-2	CARPET TILE	INTERFACE	CUBIC	HEIGHT 6393	50CM X 50CM	MATCH EXISTING INSTALLATION METHOD, OWNER PROVIDED / GC TO INSTALL
RS-1	RUBBER SHEET	NORA	NORAPLAN SENTICA 1701	OCEAN MIST	3MM	INSTALL ON TREADS, LANDINGS AND RISERS
RT-1	VINYL COMPOSITION TILE	ARMSTRONG	IMPERIAL TEXTURE EXCELO	LAVERDAR SHADOW 51834	12"x12"	QUARTER TURN INSTALLATION, DO NOT WAX
RT-2	VINYL COMPOSITION TILE	ARMSTRONG	IMPERIAL TEXTURE EXCELO	BLUE/ GREY 51930	12"x12"	QUARTER TURN INSTALLATION, DO NOT WAX
GLAZING						
G-1	GLAZING	-	VISION GLAZING	LOW-IRON	1/4" THK.	
G-2	GLAZING	-	ETCHED GLAZING		1/4" THK.	
G-3	GLAZING	-	TRANSPARENT ONE-WAY MIRROR	GREY	1/4" THK.	
MILLWORK						
PL-1	PLASTIC LAMINATE	WILSONART	38 FINE VELVET TEXTURE FINISH	MONTICELLO MAPLE 7925		
PL-2	PLASTIC LAMINATE	PIONITE	SUEDE	ICE FISHIN		
SS-1	SOLID SURFACE	LG HAUSYS	HI-MACS	GLITZ GR313		
WD-1	WOOD VENEER	-	-	COORDINATE FINISH WITH OWNER		SELECT WHITE MAPLE, QUARTER SLICED BOOK VENEER MATCH, RUNNING ASSEMBLY.
WG-3	MILLWORK	FRY REGLET	MILLWORK 1/4" POST OUTSIDE CORNER MWPOS075	WHITE	3/4"	
WG-7	MILLWORK	FRY REGLET	DRYWALL "Z" REVEAL - DRMZ-100-100	WHITE	1" x 1"	
WG-8	MILLWORK	FRY REGLET	MILLWORK REVEAL "L" ANGLE - MWRL100	WHITE	1"	
WG-9	MILLWORK	FRY REGLET	MILLWORK REVEAL "P" - MWRF10050	WHITE	1"	
MISCELLANEOUS						
EXIST	EXISTING FINISH TO REMAIN					
ML-1	MARKER SHELF	KOROSEAL	QUANTUM ALUMINUM TRAY	SILVER QUANTUM		MECHANICALLY FASTENED. REFER TO ELEVATIONS FOR LOCATIONS.
TB-1	TACKABLE SURFACE	CARNEGIE	STRIE	6423W 811		
UPH-1	PRIVACY CURTAIN	ARC COM	EBB-X AC-33304X	SURF #5		
TRANSITIONS						
TS-1	TRANSITION STRIP	SCHLUTER	RENO-U	AEU80		VCT TO CARPET TILE TRANSITIONS
TS-2	STAIR NOSING	NORA	STAIR NOSING T 5044 E/F	0702		MITER ALL CORNERS
WALL						
PT-1	FIELD PAINT	SHERWIN WILLIAMS	EGGSHELL	SNOWBOUND SW7004		TYPICAL THROUGHOUT U.N.O.
PT-2	ACCENT PAINT	ICI	EGGSHELL	AMBER COAST 50YR 23/365		
PT-3	ACCENT PAINT	BENJAMIN MOORE	EGGSHELL	KENSINGTON BLUE 840		
PT-4	ACCENT PAINT	BENJAMIN MOORE	EGGSHELL	WETHERSFIELD MOSS HC-100		
PT-5	PAINT - HM DOORS AND FRAMES	SHERWIN WILLIAMS	SHER-CRYL HPA ACRYLIC B66T354	ARCHITECTURAL BROWN - MATCH EXISTING		
WC-1	WHITE BOARD	3M POST-IT	SUPER STICKY DRY ERASE SURFACE	WHITE		APPLIED DRY ERASE SURFACE TO RUN ENTIRE WIDTH OF WALL--SEE ELEVATIONS. PROVIDE BLOCKING IN WALL FOR CONTINUOUS MARKER LEDGE AT BOTTOM EDGE.
WC-2	ACCENT WALL MATERIAL	MODULAR ARTS	MINERAL COMPOSITE PANELS - DUNE	WHITE	32" X 32"	SHOP FINISH PAINT: ZOLOTONE ILLUMINATIONS, COLOR: 2FX01047 WITH 2 CLEAR COATS.
WALL PROTECTION						
WG-1	CORNER GUARD	INPRO	160 SURFACE MOUNT CORNER GUARD	FEATHER 0238		
WG-2	WALL GUARD	INPRO	1400 WALL GUARD	FEATHER 0238		
WG-4	CORNER GUARD	INPRO	160 SURFACE MOUNT CORNER GUARD	BRITTANY BLUE 0135		
WG-5	WALL GUARD	INPRO	1400 WALL GUARD	BRITTANY BLUE 0135		
WG-6	RIGID SHEET WALL PROTECTION	INPRO	PALLADIUM	FEATHER 0238		SEE ELEVATIONS FOR HIEGHT
WINDOW TREATMENT						
WT-1	WINDOW SHADES	LUTRON SHADING BY VIMCO	BASKETWEAVE 90 - 3%	CHARCOAL/GRAY		OR EQUAL
*ALL FINISHES LISTED ARE BASIS OF DESIGN. PLEASE REFER TO THE PROJECT MANUAL FOR SUBSTITUTION PROCEDURES.						



## FINISH LEGEND

- XX-0 WALL TAG
- XX-0 BASE TAG
- XX-0 FLOOR TAG
- BUMPER GUARD WALL PROTECTION
- CARPET TILE
- RT-1
- RT-2
- RS-1
- CORNER GUARD
- FLOOR PATTERN DIRECTION INDICATOR

## FINISH NOTES

- ALL INTERIOR WALLS TO BE PAINTED PT-1, U.N.O.
- ALL WALLS TO RECEIVE RB-1, U.N.O.
- ALL DRYWALL CEILINGS OR SOFFITS TO BE PAINTED IN AN EGGSHELL FINISH ON THE VERTICAL SURFACE AND A FLAT FINISH ON THE UNDERSIDE OF THE CEILING/SOFFIT
- ALL BUMPER GUARDS TO BE WG-2 U.N.O. INSTALL WHERE INDICATED ON THE FINISH PLAN.
- ALL CORNER GUARDS TO BE WG-1 U.N.O. CORNER GUARDS TO BE INSTALLED FROM TOP OF WALL BASE TO CEILING IN ALL ENCLOSED ROOMS AND CORRIDORS.
- ALL FLOORING TRANSITIONS TO OCCUR AT THE CENTERLINE OF DOOR U.N.O.
- CENTER VCT AND CARPET TILES IN ROOM, TYP.
- SEE ELEVATIONS AND DETAILS FOR MILLWORK FINISHES.
- ALL NEW AND EXISTING HOLLOW METAL DOOR FRAMES TO BE PAINTED PT-5.
- COVER PLATES AND DEVICES FOR ELECTRICAL AND DATA OUTLETS TO BE WHITE. UPGRADE EXISTING OUTLETS AND DEVICES TO MATCH.
- REFER TO ELEVATIONS FOR LOCATIONS OF WHITEBOARD MATERIAL.
- PROVIDE WINDOW TREATMENTS WT-1 FOR ALL EXTERIOR WINDOWS IN SCOPE OF WORK.
- PROVIDE FLOOR SEAMING DIAGRAM.
- PAINT ALL ELECTRICAL PANELS IN THE SCOPE OF WORK TO MATCH THE ADJACENT WALLS.
- NEW MILLWORK TO RECEIVE RB-1 AT THE TOEKICK.
- FLOOR FINISHES TO EXTEND UNDER MILLWORK AND COUNTERS AT KNEE AND EQUIPMENT SPACES.

## SHEET NOTES

- 1 REMOVE EXISTING VCT AND INSTALL CPT-2
- 2 PAINT COLUMN PT-1

MEPI/AV

Affiliated Engineers, Inc. (AEI)

Structural

Helen Torres & Associates, PLLC

Key Plan

01-08-2020 Addendum 2  
11-30-2020 Issued for Bid  
11-19-2020 Issued for JJC Review  
09-16-2020 Schematic Design / Design Development  
No. Date Issue Description

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Client / Project Name

Joliet Junior College

Respiratory Therapy

1215 Houbolt Rd, Joliet, IL 60431

Sheet Title

Finish Plan and Material Schedule

QA/QC

Project No.

19130

A11.0



LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	LAMP WATTS	VOLT	MOUNTING	DESCRIPTION	COMMENTS
F1	LITHONIA	EPANL 2X2 3400LM 80CRI 50K MIN10 2T MVOLT	31 W	MOVOLT	CEILING / FLUSH	2 x 2 LED TROFFER LIGHT	
F2	LITHONIA	LDVNSQ-50/20 L86AR LD	23 W	MOVOLT	RECESSED	6" LED RECESSED SQUARE LIGHT	
F3	LITHONIA	EPANL 2X4 5400LM 80CRI 50K MIN10 2T MVOLT	48 W	MOVOLT	CEILING / FLUSH	2 x 4 LED TROFFER LIGHT	
F4	FOCAL POINT	FSM2L-TF-375LF-35K-1C-UNV-LD1-XFF-WH-12	96 W	MOVOLT	RECESSED	CUSTOM LENGTH 4" LED LINEAR LIGHT	SEE ARCHITECTURAL PLANS FOR LIGHTING DESIGN
X1	LITHONIA	EDGR-W-FACER-COLOR	4 W	MOVOLT	CEILING / FLUSH	EXIT SIGN WITH RED LETTERS	

Control Methods

RESPIRATORY THERAPY (ROOM NUMBERS)	Time Clock Auto On/Off (Via BAS)	Vacancy Sensor - Manual/On Auto off	Occupancy Sensor Override On (During Time Clock On Hours)	Manual Control - On/Off	Manual Control - Dimming 3 Buttons: On/Off, Raise, Lower	Control Emergency Lights (Via UL 924-09025)
25			X	X		
27			X	X		
1013			X	X		
1015			X	X		
1110 - Z01	X					
1019 - Z01	X					
1019A			X	X		
1019B		X				
1019C			X	X		
1019D			X	X		
1019E			X	X		
1019F			X	X		
1019G			X	X		
1019H		X				
1019I			X	X		
1019K			X	X		
1019L			X	X		
1019M			X	X		

ELECTRICAL LIGHTING GENERAL NOTES

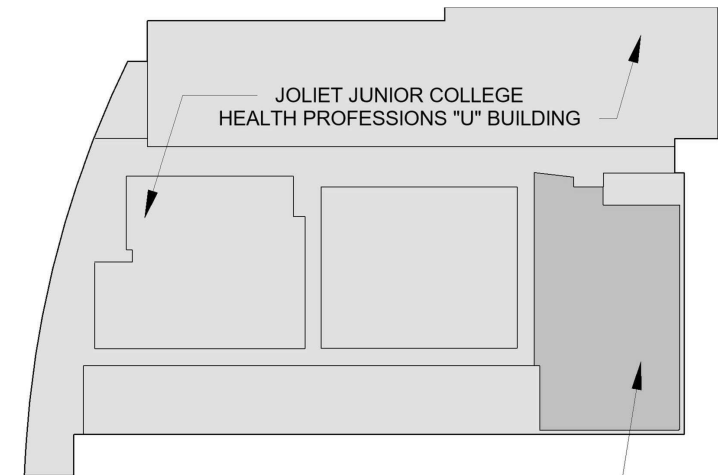
1. LIGHTING FIXTURES SHOWN ARE FOR CIRCUITING AND SWITCHING INFORMATION ONLY. SEE ARCHITECTURAL PLANS FOR ACTUAL FIXTURE LOCATIONS.
2. ALL RACEWAYS ARE TO CONTAIN NO MORE THAN NINE CURRENT CARRYING CONDUCTORS AND A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
3. EACH EXIT SIGN & EMERGENCY LIGHTING CIRCUIT SHALL HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
4. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
5. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
6. CONNECT ZONED LIGHTING, IDENTIFIED AS Zxx, TO EXISTING LUTRON PANEL U1114B

SHEET KEYNOTES

1. PROVIDE UL924 RELAY DEVICE FOR EM LIGHTING. UL924 DEVICE SHALL BE POWERED AND SWITCHED RESPECTIVELY WITH OTHER DEVICES IN LOCATION USING PANEL 1LH1 AND GET EMERGENCY POWER FROM EMERGENCY PANEL 1ELH1 WITH NEW 20A 1P CIRCUIT BREAKER.

MEP

Affiliated Engineers, Inc. (AEI)



Key Plan

4	01-08-2021	Addendum 2
3	11-30-2020	Issued for Bid
2	11-19-2020	Issued for JJC Review
1	09-18-2020	Schematic Design / Design Development
No.	Date	Issue Description

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Client / Project Name

Joliet Junior College

Respiratory Therapy

1215 Houblold Rd, Joliet, IL 60431

Sheet Title

Electical Lighting Level 01 Floor Plan

Q&Q:

FM

Project No.

19130

E2.01

12

S

2 ELECTRICAL LIGHTING LEVEL 01 FLOOR PLAN

SCALE: 3/16" = 1'-0"

1 ELECTRICAL LIGHTING LEVEL 01 FLOOR PLAN

SCALE: 3/16" = 1'-0"

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## 2 ELECTRICAL POWER LEVEL 01 FLOOR PLAN

SCALE: 3/16" = 1'-0"

## 1 ELECTRICAL POWER LEVEL 01 FLOOR PLAN

SCALE: 3/16" = 1'-0"

### ELECTRICAL POWER GENERAL NOTES

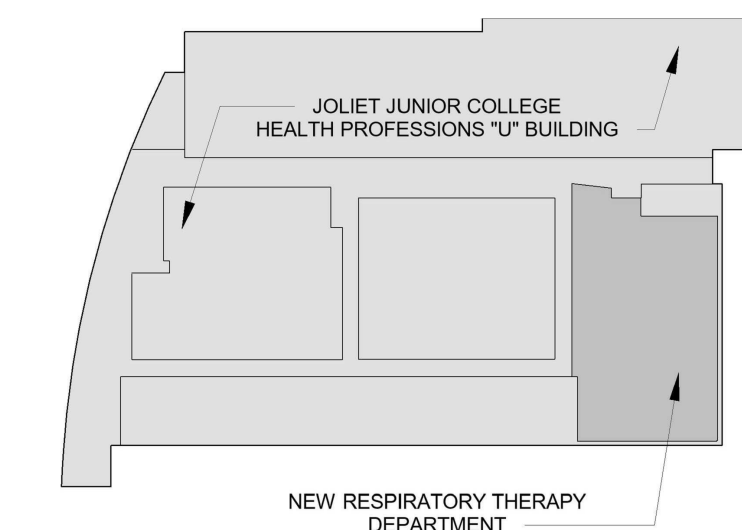
1. CONDUCTOR SIZES ARE BASED ON COPPER THHN/THWN IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN OR EQUAL TO 100.
2. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
3. ALL RACEWAYS ARE TO CONTAIN NO MORE THAN NINE CURRENT CARRYING CONDUCTORS AND A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
4. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
5. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
6. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
7. SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
8. ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. REFER TO "ELECTRICAL MOTOR SCHEDULE" FOR ADDITIONAL MECHANICAL, PLUMBING, AND FIRE PROTECTION COORDINATION INFORMATION INCLUDING CIRCUITING, STARTER, AND MEANS OF DISCONNECT REQUIREMENTS. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
9. PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NACP) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
10. COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
11. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
12. RIGID METAL CONDUIT SHALL BE USED UNDER ALL PAVED AREAS AS REQUIRED.
13. IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
14. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANK-OFF PLATES IS NOT ACCEPTABLE.
15. RECEPTACLE CIRCUITS WITH STAND-BY POWER HAVE CIRCUIT NUMBERS FOR INTENT ONLY. ACTUAL CIRCUIT NUMBERS WILL DIFFER IN THE FIELD.
16. ALL ELECTRICAL FIXTURE FACEPLATES SHALL BE STAINLESS STEEL.

### SHEET KEYNOTES

- 1 RECEPTACLES SHOWN FOR CIRCUITING INFORMATION. SEE ARCHITECTURAL DRAWINGS AND ELEVATIONS FOR EXACT LOCATION.
- 2 PROVIDE JUNCTION BOX IN FLOOR / RAISED SEATING FOR FIXED CONNECTION FOR FURNITURE WITH BUILT IN RECEPTACLES.
- 3 PROVIDE RECEPTACLE FOR CEILING MOUNTED PROJECTOR.
- 4 COORDINATE OUTLET WITH FFE LAYOUT.

MEP

Affiliated Engineers, Inc. (AEI)



Key Plan

4	01-08-2021	Addendum 2
3	11-30-2020	Issued for Bid
2	11-19-2020	Issued for JJC Review
1	09-18-2020	Schematic Design / Design Development
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Client / Project Name

Joliet Junior College

Respiratory Therapy

1215 Houblold Rd, Joliet, IL 60431

Sheet Title

Electrical Power Level  
01 Floor Plan

Q&A/C

FM

Project No.

19130

E3.01

**MAIN TYPE**      MCB

**MAIN RATING**    100 A

**BUS RATING**    100 A

**VOLUME**      120/208 Wye

**PHASE**        3      **WIRE**      4

**MOUNTING**    Recessed

**ENCLOSURE**   Type 1

**LOCATION**        T7 1ST FLOOR, ELEC. 1115

**FED FROM**      1P2-3

**SCCR**            KA

**CALCULATED AVAILABLE FAULT...**    KA

**1PL4**

**REMARKS:** EXISTING PANELBOARD

DESCRIPTION	BRKR NOTES	BRKR AMP. POLES	CKT NO	LEFT SIDE, KVA			RIGHT SIDE, KVA			CKT NO	BRKR AMP. POLES	BRKR NOTES	DESCRIPTION
				A	B	C	A	B	C				
RECEPTACLE SECURITY 25		20 A	1	0.54		0.54			2	1	20 A	RECEPTACLE ROOM 1019, 1110	
RECEPTACLE RECEPTION 27		20 A	1	3	0.54		0.36		4	1	20 A	RECEPTACLE LAB 1019D	
RECEPTACLE STORAGE 1019B		20 A	1	5		0.72	0.72		6	1	20 A	RECEPTACLE EXAM 1019E	
RECEPTACLE PROGRAM DIR. 1019A		20 A	1	7	0.72		0.90		8	1	20 A	RECEPTACLE ROOM 1019E, 1019D	
RECEPTACLE DIR. OF CLUNG...		20 A	1	9		0.72	0.72		10	1	20 A	RECEPTACLE LAB 1019D	
RECEPTACLE ADMIN MAIL COPY...		20 A	1	11		0.72	0.72		12	1	20 A	RECEPTACLE LAB 1019D	
RECEPTACLE ADMIN MAIL COPY...		20 A	1	13	0.36		0.72		14	1	20 A	RECEPTACLE LAB 1019D	
RECEPTACLE ADJUNCT PROF. 1019K		20 A	1	15	0.72		0.72		16	1	20 A	RECEPTACLE LAB 1019D	
RECEPTACLE DEBRIEF 1019J		20 A	1	17		0.90	0.72		18	1	20 A	RECEPTACLE LAB 1019D	
RECEPTACLE CLASSROOM 1013		20 A	1	19	1.08		0.36		20	1	20 A	RECEPTACLE CONTROL 1019F	
RECEPTACLE CLASSROOM 1013		20 A	1	21		0.36	0.36		22	1	20 A	RECEPTACLE CONTROL 1019F	
POWER CLASSROOM 1013		20 A	1	23		0.72	1.08		24	1	20 A	RECEPTACLE ROOM 1019C, 1019F	
POWER CLASSROOM 1013		20 A	1	25	0.72		0.90		26	1	20 A	RECEPTACLE ROOM 1019C-2...	
CLASSROOM 1013		20 A	1	27	0.72		1.26		28	1	20 A	RECEPTACLE ROOM 1019C-2...	
POWER CLASSROOM 1013		20 A	1	29		0.72	0.36		30	1	20 A	RECEPTACLE LAB 1019D	
RECEPTACLE CLASSROOM 1015		20 A	1	31	1.08		0.18		32	1	20 A	RECEPTACLE ADMIN MAIL COPY...	
RECEPTACLE CLASSROOM 1015		20 A	1	33	0.36		0.18		34	1	20 A	RECEPTACLE MEDIA 1019H	
CLASSROOM 1015		20 A	1	35		0.72	0.36		36	1	20 A	RECEPTACLE MEDIA 1019H	
POWER CLASSROOM 1015		20 A	1	37	0.72		0.36		38	1	20 A	RECEPTACLE MEDIA 1019H	
POWER CLASSROOM 1015		20 A	1	39		0.72			40				
POWER CLASSROOM 1015		20 A	1	41		0.72			42				

**TOTAL PHASE SUMMARY**

	A	B	C
PHASE SUBTOTAL (KVA):	9.18	7.74	9.11
PHASE SUBTOTAL (AMPS):	78 A	65 A	78 A

LOAD CLASSIFICATION	POWER	CONNECTED (KVA)	DEMAND FACTOR	DEMAND (KVA)
LIGHTING	0.00 KVA	5.76 KVA	100%	5.76 KVA
MOTOR	0.00 KVA	0.00 KVA	125%	0.00 KVA
RECEPTACLE	20.00 KVA	125% LARGEST, 100% OTHER	100%	20.00 KVA
HEATING	0.00 KVA	100% FIRST 10KVA, 50% OTHER	125%	15.17 KVA
<b>TOTAL LOAD</b>		26.10 KVA		20.93 KVA
<b>TOTAL AMPS</b>		72.0 A		58 A

**MAIN TYPE**      MCB \_\_\_\_\_

**MAIN RATING**    100 A \_\_\_\_\_

**BUS RATING**    100 A \_\_\_\_\_

**120/208 Vys**

**3 PHASE      4 WIRE**

**MOUNTING**    Recessed \_\_\_\_\_

**ENCLOSURE**   Type I \_\_\_\_\_

**T/1ST FLOOR/EM. ELEC. 0190**

**FED FROM** \_\_\_\_\_

**SCCR** \_\_\_\_\_ kA

**CALCULATED AVAILABLE FAULT...** \_\_\_\_\_ kA

**REMARKS:** EXISTING PANEL. NEW CIRCUIT IS SHOWN FOR INTENT ONLY. PLACE NEW CIRCUIT ON NEXT AVAILABLE BREAKER.

LEFT SIDE, KVA														RIGHT SIDE, KVA													
DESCRIPTION	BRKR NOTES	BRKR AMP. POLES	CKT NO	A	B	C	A	B	C	CKT NO	BRKR AMP. POLES	BRKR NOTES	DESCRIPTION														
RECEPTACLE LAB 1019D		20 A	1	1	0.90					2																	
RECEPTACLE LAB 1019D		20 A	1	3		0.90				4																	
RECEPTACLE LAB 1019D		20 A	1	5			0.90			6																	
RECEPTACLE LAB 1019D		20 A	1	7	0.90					8																	
RECEPTACLE EXAM 1019E		20 A	1	9		0.90				10																	
RECEPTACLE LAB 1019D		20 A	1	11			0.90			12																	
				13						14																	
				15						16																	
				17						18																	
				19						20																	
				21						22																	
				23						24																	
				25						26																	
				27						28																	
				29						30																	
				31						32																	
				33						34																	
				35						36																	
				37						38																	
				39						40																	
				41						42																	

**TOTAL PHASE SUMMARY**

	<b>A</b>	<b>B</b>	<b>C</b>
PHASE SUBTOTAL (KVA):	1.80	1.80	1.8
PHASE SUBTOTAL (AMPS):	15 A	15 A	15 A

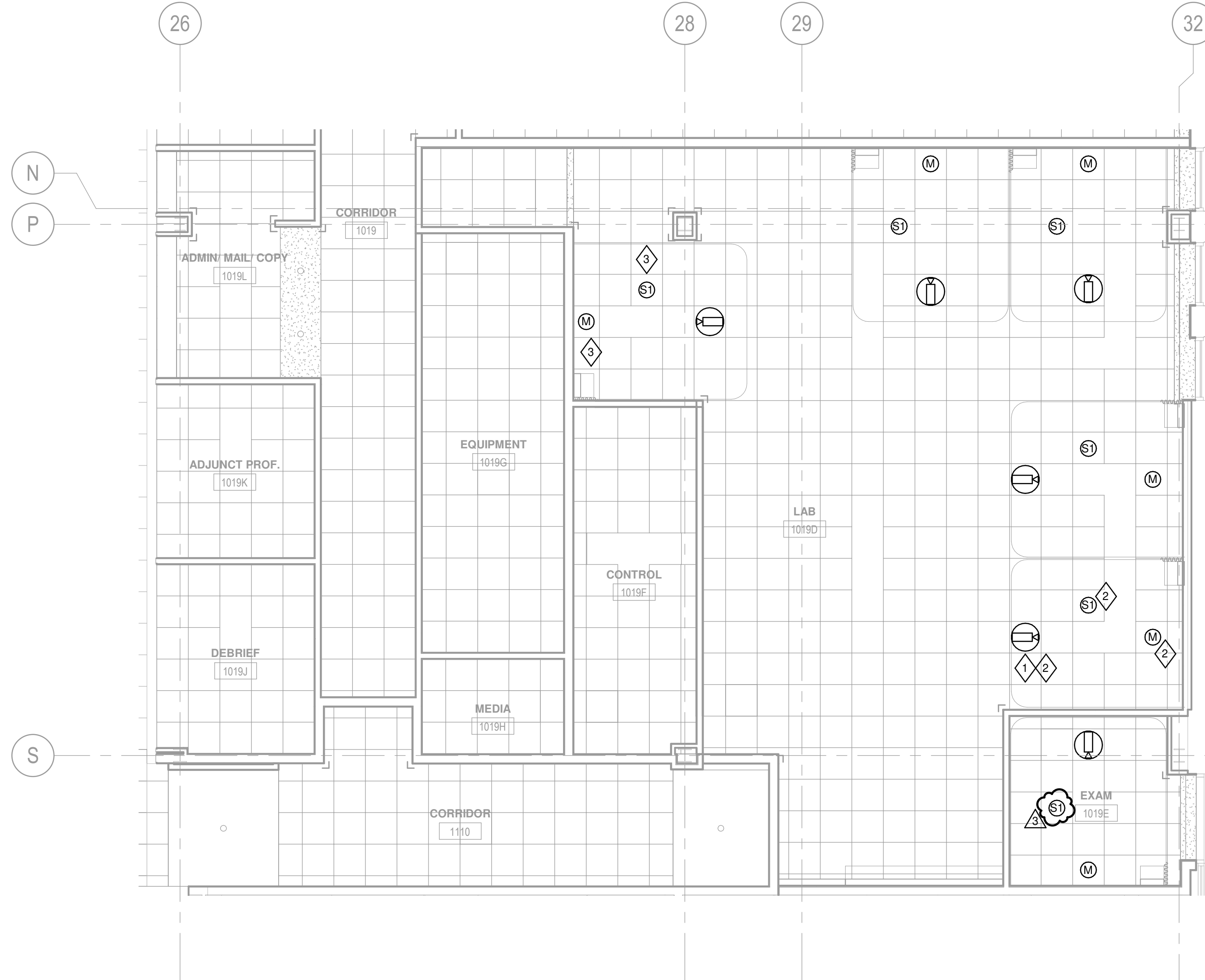
LOAD CLASSIFICATION	CONNECTED (KVA)	DEMAND FACTOR	DEMAND (KVA)
POWER	0.00 KVA	100%	0.00 KVA
LIGHTING	0.00 KVA	125%	0.00 KVA
MOTOR	0.00 KVA	125% LARGEST, 100% OTHER	0.00 KVA
RECEPTACLE	5.40 KVA	100% FIRST 10KVA, 50% OTHER	5.40 KVA
HEATING	0.00 KVA	125%	0.00 KVA
<b>TOTAL LOAD</b>	<b>5.40 KVA</b>		<b>5.40 KVA</b>
<b>TOTAL AMPS</b>	<b>15 A</b>		<b>15 A</b>



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**2 AUDIO/VISUAL FLOOR PLAN**  
SCALE: 3/16" = 1'-0"



**1 AUDIO/VISUAL REFLECTED CEILING PLAN**  
SCALE: 3/16" = 1'-0"

**TECHNOLOGY GENERAL NOTES**

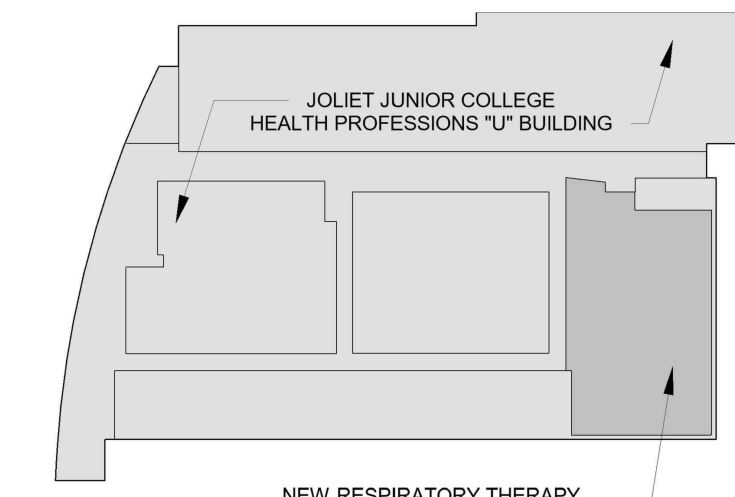
1. ALL CABLE, TELECOMMUNICATION PATHWAYS, TELECOMMUNICATION SPACES, AND INSTALLATION METHODS AND PROCEDURES SHALL COMPLY WITH JOLIET JUNIOR COLLEGE CURRENT TELECOMMUNICATIONS POLICIES AND PROCEDURES STANDARDS.
2. ALL CABLE, TELECOMMUNICATION PATHWAYS, TELECOMMUNICATION SPACES, INSTALLATION METHODS AND PROCEDURES SHALL COMPLY WITH ALL LOCAL MUNICIPAL, STATE, AND FEDERAL CODES AND REGULATIONS, IN ADDITION TO MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
3. DIVISION 27 CONTRACTOR SHALL PROVIDE ALL CABLING, PATCH PANELS, HORIZONTAL WIRE MANAGEMENT, TERMINATIONS, AND TESTING FOR A HORIZONTAL STRUCTURED CABLE SYSTEM FOR ALL VOICE, DATA, VIDEO, AV, SECURITY, NURSE CALL, MEDICAL EQUIPMENT, AND OTHER SUCH SYSTEMS. ALL PRODUCTS SHALL BE OF A PANDUIT SOLUTION PER THE PROJECT SPECIFICATIONS. CABLING SHALL BE NEATLY DRESSED ON LADDER RACK OR PLACED WITHIN MESH CABLE SOCK OR EQUIVALENT. ALL HORIZONTAL VOICE AND DATA CABLES SHALL TERMINATE AT THE FLOOR SERVING IDF ON THE SAME LEVEL AS THE DATA OUTLET. ALL HORIZONTAL AUDIO VISUAL CABLES SHALL TERMINATE AT THE FLOOR SERVING AUDIO VISUAL MEDIA CLOSET ROOM 1019H.
4. DIVISION 27 CONTRACTOR SHALL COORDINATE WITH ALL VOICE, DATA, VIDEO, AV, SECURITY, NURSE CALL, MEDICAL EQUIPMENT, AND OTHER SUCH SYSTEMS PROJECT DOCUMENTS TO ENSURE THAT ALL CONNECTIVITY REQUIREMENTS ARE COMPLETE AND COORDINATED. REFER TO ARCHITECTURAL, AV, NURSE CALL, MEDICAL EQUIPMENT, AND SECURITY DRAWINGS FOR MOUNTING HEIGHTS, LOCATIONS, AND OTHER INSTALLATION DETAILS.
5. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED. BASIS OF DESIGN FOR WALL PENETRATIONS SHALL BE THE STI EZ-PATH SERIES, HILTI SPEED SLEEVES, OR EQUIVALENT. INCREASE QUANTITIES OF EZ-PATH SLEEVES AS REQUIRED TO ENSURE MAXIMUM OF 50% FILL OF ALL SLEEVES UPON PROJECT COMPLETION.
6. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
7. SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
8. DIVISION 26 CONTRACTOR SHALL PROVIDE ALL RACEWAYS AND BOXES FOR PATHWAY SYSTEMS, FLOORBOX LOCATIONS, AND IN-WALL LOCATIONS. THE DIVISION 27 CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED RACEWAYS, PANELS, ENCLOSURES, BOXES, AND HARDWARE AS REQUIRED FOR A COMPLETE INSTALLATION. ALL PATHWAYS AND CABLE TRAY ROUTING SHALL BE COORDINATED WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
9. DIVISION 26 CONTRACTOR SHALL SUPPLY A NEW TELECOMMUNICATIONS BONDING BACKBONE FROM THE EXISTING IDF J1120 TO A NEW TELECOMMUNICATIONS GROUNDING BUSBAR IN THE AV MEDIA CLOSET 1019H.
10. DIVISION 27 CONTRACTOR SHALL PROVIDE ALL GROUNDING AND BONDING CONNECTIONS FROM THE EXISTING TGB WITHIN THE IDF TO ALL NEW EQUIPMENT AND MATERIALS AS REQUIRED WITHIN THE IDF, AND FROM THE NEW TGB IN THE AV MEDIA CLOSET TO ALL NEW EQUIPMENT AND MATERIAL AS REQUIRED WITHIN THE AV MEDIA CLOSET.
11. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
12. ALL CABLE SHALL BE SUPPORTED BY WIDE BASE J-HOOKS WHERE CONCEALED IN ACCESSIBLE CEILING WHEN NOT INSTALLED WITHIN CABLE TRAY OR CONDUIT RACEWAYS.
13. PROVIDE A 20' SLACK LOOP OF CABLE COILED AT EACH CEILING MOUNTED DEVICE FOR FUTURE LOCATION ADJUSTMENT.

**SHEET KEYNOTES**

1. REFER TO T3.01 FOR NETWORK CONNECTION LOCATIONS FOR ALL AV CAMERAS.
2. CENTER DEVICE IN CEILING TILE, TYPICAL FOR ALL LOCATIONS.
3. ROUTE AV CABLING TO MEDIA ROOM 1019H. LEAVE 10' SLACK AT EACH END FOR TERMINATIONS. TYPICAL FOR ALL SIMILAR DEVICES.

MEP

Affiliated Engineers, Inc. (AEI)



Key Plan

3	01-06-2021	Addendum 2
2	11-30-2020	Issued for Bid
1	11-19-2020	Issued for JJC Review
No.	Date	Issue Description

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Client / Project Name

Joliet Junior College

Respiratory Therapy

1215 Houblold Rd, Joliet, IL 60431

Sheet Title

Audio/Visual Level 01  
Floor and Ceiling Plan

Q&A:

AS

Project No.

19130

TA3.01



## SECTION 26 0812 POWER DISTRIBUTION ACCEPTANCE TESTS

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Section 26 0519 – Low-Voltage Electrical Power Conductors and Cables
- B. Section 26 0813 – Power Distribution Acceptance Test Tables
- C. Section 26 2816 – Enclosed Switches and Circuit Breakers
- D. Section 26 2913 – Enclosed Controllers

#### 1.02 REFERENCE

- A. Work under this section is subject to requirements of Contract Documents including General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements.

#### 1.03 DESCRIPTION

- A. Section includes acceptance testing requirements for assessing the suitability for service and reliability of the power distribution system.
- B. It is the purpose of this specification to assure all tested electrical equipment, both contractor and Owner supplied, is operational and within industry and manufacturer's tolerances and is installed in accordance with design specifications.
- C. Tests and inspections shall be performed after installation.
- D. Tests and inspections shall determine suitability for energization.
- E. Electrical systems shall pass tests prior to substantial completion or Owner occupancy.
- F. All tests tables referenced in this specification provided in Section 26 0813 – Power Distribution Acceptance Test Tables.
- G. Items to be tested and inspected as follows:
  - 1. 600-volt conductors and cables
  - 2. Low-voltage insulated-case/molded-case circuit breakers
  - 3. Low-voltage disconnect switches
  - 4. Thermographic survey
- H. Testing required in this specification is to be performed by the installing contractor. The installing contractor will be identified as the "Testing Agency" throughout the remainder of the document.

#### 1.04 REFERENCE STANDARDS

- A. ANSI/IEEE C2 – National Electrical Safety Code
- B. ANSI/IEEE C37 – Guides and Standards for Circuit Breakers, Switchgear, Relays, Substations, and Fuses
- C. ANSI/IEEE C57 – Distribution, Power, and Regulating Transformers
- D. ANSI/IEEE C62 – Surge Protection
- E. ANSI/IEEE Std. 43 – IEEE Recommended Practice for Testing Insulation Resistance of Rotating Machinery
- F. ANSI/IEEE Std. 81 – Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
- G. ANSI/IEEE Std. 141 – IEEE Recommended Practice for Electrical/Power Distribution for Industrial Plants (IEEE Red Book)
- H. ANSI/IEEE Std. 142 – IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (IEEE Green Book)
- I. ANSI/IEEE Std. 241 – IEEE Recommended Practice for Electrical Power Systems in

Commercial Buildings (IEEE Gray Book)

- J. ANSI/IEEE Std. 242 – IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems (IEEE Buff Book)
- K. ANSI/IEEE Std. 399 – IEEE Recommended Practice for Power Systems Analysis (IEEE Brown Book)
- L. ANSI/IEEE Std. 446 – IEEE Recommended Practice for Emergency and Standby Power Systems for Industrial and Commercial Applications (IEEE Orange Book)
- M. ANSI/IEEE Std. 493 – IEEE Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems (IEEE Gold Book)
- N. ANSI/IEEE Std. 1100 – IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment (IEEE Emerald Book)
- O. NETA – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems
- P. NEMA AB 4 – Guidelines for Inspection and Preventive Maintenance of Molded-Case Circuit Breakers Used in Commercial and Industrial Applications
- Q. NEMA MG1 – Motors and Generators
- R. NFPA 70 – National Electrical Code
- S. NFPA 70B – Recommended Practice for Electrical Equipment Maintenance
- T. NFPA 70E – Electrical Safety Requirements for Employee Workplaces
- U. NFPA 101 – Life Safety Code
- V. NFPA 110 – Emergency and Standby Power Systems
- W. NIST – National Institute of Standards and Technology
- X. OSHA – Part 1910 – Subpart S – 1910.308 – Special Systems

#### **1.05 SUBMITTALS**

- A. Test Reports: Include the following:
  - 1. Summary of project
  - 2. Description of equipment tested
  - 3. Equipment used to conduct the test
  - 4. Description of test
  - 5. Test results, as compared to manufacturers' or industry accepted standards and tolerances
  - 6. Conclusions and recommendations
  - 7. Signature of responsible test organization authority
- B. List of equipment used to perform tests. Identify the following:
  - 1. Type
  - 2. Manufacturer
  - 3. Model number
  - 4. Serial number
  - 5. Date of last calibration
  - 6. Documentation of calibration leading to NIST standards

#### **1.06 QUALITY ASSURANCE**

- A. Qualifications of Testing Agency:
  - 1. Testing firm shall be regularly engaged in testing of electrical equipment, devices, installations, and systems.
  - 2. Testing firm shall meet Federal Occupational Safety and Health Administration (OSHA) requirements for accreditation of independent testing laboratories.
  - 3. On-site technical person shall be currently certified by the InterNational Electrical Testing Association in electrical power distribution system testing.

4. Testing firm shall use technicians who are regularly employed by the firm for testing services.
5. Testing firm shall submit proof of above qualifications with bid documents when requested.

## **PART 2 PRODUCTS**

### **2.01 NOT APPLICABLE TO THIS SECTION.**

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Documentation: Deliver the following to testing firm, minimum two weeks prior to commencement of testing:
  1. Complete set of electrical plans and specifications, with available short circuit indicated on power riser diagrams.
  2. Approved submittals and shop drawings of equipment being tested.
  3. Pertinent change orders.
  4. Evaluation, overcurrent protective device coordination and arc flash studies provided by Engineer.
- B. Schedule: Notify Owner and Engineer 10 working days prior to performance of any tests.
- C. Coordination: Coordinate with Construction Manager/Owner/Engineer the testing schedule and availability of equipment ready for testing.
- D. Test Power: Provide test power (including specialized) for equipment testing before and after service energizing.

### **3.02 FIELD QUALITY CONTROL**

- A. Inspection and Test Procedures: Comply with NETA.
  1. 600 V Conductors and Cables:
    - a. Visual and Mechanical Inspection:
      - 1) Compare cable data with drawing and specifications.
      - 2) Inspect exposed sections of cables for physical damage.
      - 3) Verify tightness of accessible bolted electrical connections by calibrated torque wrench in accordance with manufacturer's published data or Table 12.
      - 4) Perform thermographic survey of bolted electrical connections in accordance with paragraph "Thermographic Survey."
      - 5) Inspect compression-applied connectors for correct cable match and indentation.
      - 6) Verify visible cable bends meet or exceed ICEA and manufacturer's minimum allowable bending radius.
      - 7) For cables are terminated through window-type current transformers, provide an inspection to verify neutral and ground conductors are correctly placed for operation of protective devices.
      - 8) Inspect for correct identification and arrangements.
      - 9) Inspect jacket and insulation condition.
    - b. Electrical Tests:
      - 1) Perform insulation-resistance test using megohm meter. Applied potential to be 1000 VDC. Individually test each conductor with other conductors grounded. Test duration shall be one minute.
      - 2) Perform continuity tests to insure correct cable connection.
    - c. Test Values:
      - 1) Insulation-resistance values should not be less than 50 megohms.
  2. Low-Voltage Insulated-Case/Molded-Case Circuit Breakers, 225A and Larger:
    - a. Visual and Mechanical Inspection:
      - 1) Compare nameplate data with drawings and specifications.

- 2) Inspect circuit breaker for correct mounting.
  - 3) Check cell fit, element alignment and racking mechanism for draw-out breakers.
  - 4) Operate circuit breaker to insure smooth operation.
  - 5) Inspect case for cracks or other defects.
  - 6) Verify tightness of accessible bolted electrical connections and/or cable connections by calibrated torque-wrench method in accordance with manufacturer's published data or Table 12.
  - 7) Inspect mechanism contacts and arc chutes in unsealed units.
- b. Electrical Tests:
- 1) Perform a contact-resistance test.
  - 2) Perform insulation-resistance test at 1000 VDC from pole-to-pole and from each pole-to-ground with breaker closed and across open contacts of each phase. Test duration shall be one minute. Use a minimum test voltage in accordance with Table 1 or manufacturer's published data.
  - 3) Perform insulation-resistance test at 1000 VDC on all control wiring. Test duration shall be one minute. Do not perform the test on wiring connected to solid-state components. Follow manufacturer's recommendation.
  - 4) Perform adjustments for final trip settings in accordance with overcurrent protective device coordination study.
  - 5) Perform long-time delay time-current characteristic tests by passing 300% rated current through each pole separately unless series testing is required to defeat ground fault functions.
  - 6) Determine short-time pickup and delay by primary current injection.
  - 7) Determine ground-fault pickup and time delay by primary current injection.
  - 8) Determine instantaneous pickup current by primary injection using run-up or pulse method.
  - 9) Verify correct operation of auxiliary features such as trip and pickup indicators, zone interlocking, electrical close and trip operation, trip-free, and anti-pump function.
  - 10) Verify trip unit calibrations by secondary injection.
  - 11) Determine minimum operation voltage on shunt trip and close coils in accordance with Table 20.
  - 12) Check charging mechanism.
- c. Test Values:
- 1) Bolt-torque levels shall be in accordance with Table 12, unless otherwise specified by manufacturer.
  - 2) Compare microhm or millivolt drop values to adjacent poles or similar breakers. Investigate deviations of more than 50% of lowest value. Investigate any value exceeding manufacturer's recommendations.
  - 3) Circuit breaker insulation-resistance shall be in accordance with Table 1.
  - 4) Control wiring insulation-resistance shall comply with manufacturer's published data. In the absence of manufacturer's published data, use Table 1. Values of insulation resistance less than this table or manufacturer's minimum shall be investigated.
  - 5) Trip characteristic of breakers shall fall within manufacturer's published time-current characteristic tolerance band, including adjustment factors. If manufacturer's curves are not available, trip times shall not exceed the value shown in Table 7. Circuit breakers exceeding specified trip time at 300% of pickup shall be tagged defective.
  - 6) For molded-case circuit breakers, instantaneous pickup values shall be within manufacturer's published data or tolerances shown in Table 8.

- 7) Minimum operation voltages on shunt trip and close coils shall be in accordance with manufacturer's published data. In the absence of manufacturer's data, refer to Table 20.
3. Low-Voltage Disconnect Switches:
  - a. Visual and Mechanical Inspection:
    - 1) Compare equipment nameplate data with drawings and specifications.
    - 2) Inspect physical and mechanical condition.
    - 3) Inspect anchorage, alignment, grounding, and required clearances.
    - 4) Verify correct blade alignment, blade penetration, travel stops, and mechanical operation.
    - 5) Verify that fuse sizes and types are in accordance with drawings, short-circuit and overcurrent protective device coordination studies.
    - 6) Verify that each fuse has adequate mechanical support and contact integrity.
    - 7) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or Table 12.
    - 8) Perform thermographic survey of accessible bolted electrical connection in accordance with paragraph "Thermographic Survey."
    - 9) Verify operation and sequencing of interlocking systems.
    - 10) Verify correct phase barrier installation.
    - 11) Verify correct operation of all indicating and control devices.
    - 12) Confirm correct application of manufacturer's recommended lubricants.
  - b. Electrical Tests:
    - 1) Measure contact resistance across each switchblade and fuseholder.
    - 2) Perform insulation-resistance test at 1000 VDC from pole-to-pole and from each pole-to-ground. Test duration shall be one minute. Use a minimum test voltage in accordance with Table 1 or manufacturer's published data.
    - 3) Measure fuse resistance.
    - 4) Perform ground fault test, if applicable.
  - c. Test Values:
    - 1) Compare bolted connection resistances to values of similar connections.
    - 2) Bolt-torque levels should be in accordance with Table 12, unless otherwise specified by the manufacturer.
    - 3) Compare microhm or millivolt drop values to adjacent poles or similar switches. Investigate deviations of more than 50% of lowest value. Investigate any value exceeding manufacturer's recommendations.
    - 4) Minimum insulation-resistance shall be in accordance with manufacturer's published data or Table 1.
    - 5) Investigate fuse-resistance values that deviate from each other by more than 15%.
4. Thermographic Survey:
  - a. Visual and Mechanical Inspection:
    - 1) Inspect physical, electrical, and mechanical conditions.
    - 2) Remove all necessary covers prior to thermographic inspection.
    - 3) Equipment to be inspected shall include all current-carrying devices. Provide report including the following:
      - a) Discrepancies.
      - b) Temperature difference between area of concern and reference area.
      - c) Cause of temperature difference.
      - d) Areas inspected. Identify inaccessible and unobservable areas and equipment.
      - e) Identify load conditions at time of inspection.
      - f) Provide photographs and thermogram of deficient area.



- b. Test Parameters:
      - 1) Inspect distribution systems with imaging equipment capable of detecting minimum temperature difference of 1°C at 30°C.
      - 2) Equipment shall detect emitted radiation and convert detected radiation to visual signal.
      - 3) Thermographic surveys should be performed during periods of maximum possible loading but not less than 40% of rated load of the electrical equipment being inspected. Refer to NFPA 70B, Section 20.17 (Infrared Inspection).
    - c. Test Results:
      - 1) Temperature differences of 1°C to 3°C indicate possible deficiency and warrant investigation.
      - 2) Temperature differences of 4°C to 15°C indicate deficiency; repair as time permits.
      - 3) Temperature differences of 16°C and above indicate major deficiency, repair immediately.
      - 4) Suggested actions based on temperature rise can be found in Table 18.
- B. Test Reports:
  - 1. Testing firm shall do the following:
    - a. Prepare test report, including description of equipment tested, description of test, test results, conclusions and recommendations, retesting results, list of test equipment used and calibration date.
    - b. Show test results in comparison to industry and manufacturer's values and tolerances.
    - c. Interpret test results in writing and give recommendations for acceptance or rejection upon consultation with Engineer and prior to energizing equipment.
    - d. Assure electrical equipment is operational and within industry and manufacturer's tolerances and is installed in accordance with contract documents.
    - e. Assure suitability of energization.
    - f. Report to the Owner and Engineer any system, material, or workmanship that is found defective on the basis of acceptance tests.
    - g. Retest equipment when required.
    - h. Maintain written record of tests.
    - i. Utilize safety practices during the tests in accordance with:
      - 1) Acceptable state and local safety operating procedures
      - 2) Owner's safety practices
      - 3) OSHA
      - 4) NFPA 70E
    - j. Perform tests with apparatus de-energized and grounded, except where otherwise specifically required ungrounded by test procedures.
    - k. Assemble and certify final test report.
    - l. Provide 4 copies of complete test report.
    - m. Attach label to all tested equipment with indication of date tested and testing firm name.
  - 2. Contractor shall do the following:
    - a. Investigate, replace, or repair any fault in material or in any part of the installation revealed by the tests.
    - b. Deliver one copy of each test report directly to Engineer within 30 days after completion of testing, unless directed otherwise. Insert a copy of each test report in the equipment operation and maintenance manuals.
- C. Test Equipment:
  - 1. Test Instrument Calibration:
    - a. Testing firm shall have calibration program that assures test instruments are maintained with rated accuracy.

- b. Instruments shall be calibrated in accordance with the following frequency schedule:
  - 1) Field instruments: Analog, 6 months maximum; Digital, 12 months maximum
  - 2) Laboratory instruments: 12 months
  - 3) Leased specialty equipment: 12 months where accuracy is guaranteed by lessor
- c. Dated calibration labels shall be visible on test equipment.
- d. Records, which show date and results of instruments calibrated or tested, must be kept up-to-date.
- e. Up-to-date instrument calibration instructions and procedures shall be maintained for test instrument.
- f. Equipment used for field testing shall be more accurate than instrument being tested.
- g. Calibrating standard applied to testing equipment shall be of higher accuracy than instrument tested.

**END OF SECTION**

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**SECTION 27 4100.1**  
**AV EQUIPMENT SCHEDULE**  
**CLINICAL ASSESSMENT LAB**

Eqpt. ID	Mfg.	Model #	Description	QTY	Notes
<b>DISPLAY/PROJECTION</b>					
MON/1-6	FBOIC		Exam Room Monitor	6	FBOIC
	FBOIC		Mounting Arm	6	FBOIC
FPD/1	Microsoft	Surface Hub 2S	50" Interactive Flat Panel Display	1	
	Steekase	Room Wall Mount	Mounting Hardware	1	
<b>VIDEO</b>					
CAM/1-6	Axis	P3245-LV	H.264 Network Camera	6	FBOIO
SMD/1-6	Extron	SMD 101	H.264 Streaming Media Decoder	6	
	Extron	RSU 126	Rack Shelf	3	
AVS/1	Extron	60-1546-012957	12x8 XTP System	1	
	Extron	XTP II Crosspoint 3200 Frame	32x32 Mounting Frame	1	
	Extron	XTP II CP 4i HD 4K PLUS	4-port HDMI Input Module	2	
	Extron	XTP CP 4i 4K	4-port XTP Input Module	2	
	Extron	XTP II CP 4o HD 4K PLUS	4-port HDMI Output Module	1	
	Extron	XTP CP 4o 4K	4-port XTP Output Module	2	
	Extron	XTP Matrix Blank Plate	Blank Plate	9	
SMP/1,2	Extron	SMP 351	H.264 Streaming Media Processor - 80GB SSD	2	
	Extron	Link License	SMP 300 Panopto Features	2	
PC/1,2			Desktop PC	2	FBOIO
	Matrox	Mura iPX	Video Capture Card	2	FBOIO
			Dual NIC	2	
			Keyboard & Mouse	2	
			Video Monitor	4	
TPX/1,2	Extron	XTP T HD 4K	XTP Transmitter	2	
	Extron	MBU 125	Undertable Mount	2	
TPR/1-6	Extron	XTP R HD 4K	Twisted Pair Receiver	6	
	Extron	PS 1215C	Power Supply	6	
	Extron	ZipClip 400	Mounting Bracket	6	
<b>AUDIO</b>					
MIC/1-6	Audix	M70	Ceiling Microphone	6	
HS/1,2	Logitech	H390	Microphone/Headset	2	
DAS/1	Extron	DMP 128 Plus C AT	Digital Audio Server	1	
DASE/1	Extron	DMP 128 FlexPlus C AT	Digital Audio Server Expander	1	
AMP/1	Extron	XPA U 358-70V	8-Ch. Audio Amplifier	1	
S1	Extron	SF 26CT	Ceiling Speaker	6	
	Audinate	DVS-TK-001	Dante Virtual Sound Card	2	
<b>CONTROL/MISC</b>					
CNS/1	Cisco		Clinical Network Switch	1	FBOIO
	Cisco		FO SFP Link Module	1	FBOIO
MC/1	Extron	IPCP Pro 250	Master Control Processor	1	
	Extron	RSU 126	Rack Mount Kit	1	
CP/1	Extron	TLP Pro 1025T	Control Panel	1	
AVP/1	AVSC		Custom AV Interface Panel	2	
AVP/2	AVSC		Custom AV Interface Panel	7	
<b>BASEBUILDING AV</b>					

END OF SECTION

Joliet Junior College

Respiratory Therapy

11-30 2020 Addendum 2: 01-06-2021

Audiovisual Systems Equipment Schedule

274100.1 - 1

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## SECTION 27 5223 NURSE CALL SYSTEM

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. This section details product and execution requirements for a complete Caregiver/Patient Communication system for [Project].
- B. Provide complete caregiver/patient communication system as shown on drawings.
  - 1. All system components (i.e. Master Station, Patient Station, Code Blue Station, Ceiling Light, cabling, etc.) required for an operational training system as shown in the drawings shall be provided by the contractor.
  - 2. Head-end components (i.e. Nurse Call network switches, system software, etc.) are existing and are not required to be provided for this project.

#### 1.02 RELATED WORK

- A. Section 26 0593 - Electrical Systems Firestopping
- B. Section 27 0000 - General Communications Requirements
- C. Section 27 0528.33 - Raceway and Boxes for Communications Systems
- D. Section 27 0553 - Communications Systems Identification
- E. Section 27 1500 - Communications Horizontal Cabling

#### 1.03 REFERENCES AND STANDARDS

- A. Work under this section is subject to requirements of Contract Documents including General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements.
- B. Refer to Section 27 0000 - General Communications Requirements which identify pertinent References and Standards.
- C. Other applicable references and standards include:
  - 1. NEMA SB 10 - Audio Standards for Nurse Call Systems
  - 2. UL 1069 - Hospital Signaling and Nurse Call Equipment
  - 3. AIA – American Institute of Architects

#### 1.04 WORK BY OWNER

- A. Refer to Section 27 0000 - General Communications Requirements which identifies Work by Owner affecting sub-system(s) covered by this Section.
  - 1. ~~All system components (i.e. Master Station, Patient Station, Code Blue Station, etc.) shall be Owner Furnished Contractor Installed (OFCI).~~

#### 1.05 SUBMITTALS

- A. Shop drawings for all equipment and devices provided under this Section.
- B. Provide system wiring diagram showing all devices on system.

#### 1.06 QUALITY ASSURANCE

- A. Refer to Section 27 0000 - General Communications Requirements which identify general quality assurance requirements for the Project.
- B. All materials and products shall be of the highest professional quality and in proper operating condition performing to the manufacturer's published specifications. Discontinued materials and products are not allowed.
- C. Contractor shall:
  - 1. Have been in the nurse call/paging/intercom business for minimum of 5 yrs. and shall have successfully completed two (2) projects equal to magnitude specified in the following sections within the previous two (2) yrs.
  - 2. Be a certified/authorized installer of the equipment type(s) proposed.

- a. This authorization/certification shall be in place at time of bidding and remain so throughout project.
- b. System basis of design shall be ASCOM/GE Telligence.

### **1.07 GUARANTEE**

- A. Refer to Division 01, General Conditions, and General Requirements - Guarantee Documents for general warranty requirements.
- B. Provide a written one (1) year warranty covering the installed system.
- C. During the warranty period, the products shall be free from defects in material or factory workmanship.
- D. The product and materials warranty shall cover the full replacement or repair of defective products.
  - 1. Coverage shall include all parts, labor, travel, and expenses.

## **PART 2 PRODUCTS**

### **2.01 SYSTEM**

- A. System shall be a network based Caregiver/Patient signal system which allows both data and voice to be distributed over a common network infrastructure. System shall be solid state, of modular construction and provide simultaneous audible and visible annunciation of all calls made from all stations on the network.
- B. General Requirements
  - 1. Duplex audible and visible annunciation of all calls shall be viewed at master stations and visible annunciation at corridor lights and zone lights associated with each call.
  - 2. System shall consist of master stations, patient stations, corridor lights, zone lights, code blue stations, centralized control equipment with power supply and system cabling.
  - 3. Alerting tones shall be electronically generated and be amplified at each master station.
  - 4. Central equipment (network switch) and termination panels shall be rack mounted.
    - a. Central equipment (network switch) is existing in serving IDF.
  - 5. Power supply shall operate from 120 V, 60 Hz.
  - 6. Shall be capable of controlling a minimum of 100 patient stations, corridor lights, zone lights, staff stations, and code blue stations.
  - 7. Calls on system shall function as follows:
    - a. Normal Call:
      - 1). Shall have a steady illumination at corridor light and any zone light associated with station.
      - 2). Shall have a steady illumination and a slow rate tone at master station.
      - 3). Shall have a steady illumination and a slow rate tone at duty station.
    - b. Emergency Call:
      - 1). Shall flash at a slow rate of illumination at corridor light and any zone lights associated with station.
      - 2). Shall have a slow rate flash of illumination and a rapid rate tone at master station.
      - 3). Shall have a slow rate flash of illumination and a rapid rate tone at duty station.
    - c. Code Blue Call:
      - 1). Shall flash at a rapid rate of illumination at corridor light and any zone lights associated with station.
      - 2). Shall have a rapid rate flash of illumination and a steady tone at master station.
      - 3). Shall have a rapid rate flash of illumination and a steady tone at duty station.
- C. Master Station
  - 1. Shall be of modular construction and contain solid-state networks for operation.
  - 2. Shall have full duplex audio communication.
  - 3. Shall provide visual identification of all incoming calls by room designation and call type.
  - 4. Shall have volume adjuster for incoming tones.
  - 5. Shall have the capability to monitor adjacent nursing zones.

6. Shall have integral phone for caregiver/patient privacy.
7. Shall have the capability to communicate with other master stations on the system.
- D. Patient Stations:
  1. Shall originate normal call.
  2. Shall have a minimum of (1) cancel button, (1) receptacle for pillow speaker, (1) auxiliary input receptacle and an optional receptacle for bed interface.
  3. Shall have a status LED to indicate communication status.
  4. An alarm shall sound at master station when a device is removed from patient station.
    - a. To cancel device alarm, device must be reinserted into station and depress cancel button.
- E. Pillow Speaker
  1. Shall include a minimum of (1) patients call button, and integral moisture-resistant speaker.
  2. Shall have jack to plug into patient station that can withstand accidental removal from patient station receptacle without damage to pillow speaker or patient station.
  3. Cord shall be a minimum of 6 ft with an integrated sheet clip.
  4. Shall have a light to indicate communication status.
  5. Shall be full duplex audio communication.
  6. Electronic components shall be isolated from surface controls.
- F. Call Cord
  1. Pushbutton
    - a. Pushbutton switch shall be mounted in a high impact plastic housing that is permanently molded to cord.
    - b. Shall have a plug that is molded to cord for insertion to station receptacle.
    - c. Cord shall be 6' in length, have a non-removable bed sheet clamp, and be highly flexible polyvinyl chloride cable.
    - d. Entire assembly shall be shock proof and be able to withstand gas sterilization without discoloration or deterioration.
- G. Corridor and Zone Light
  1. Lamps shall be incandescent or LED.
  2. Shall be programmable.
  3. Lamp colors shall be easily interchangeable if required.
  4. Shall indicate level of call by the flashing rate.
  5. Lens shall be shatter-proof, heat resistant plastic and shall snap on or off for easy lamp replacement.
  6. Supervised light at master station locations shall emit an audible annunciation.
- H. Cabling:
  1. Shall use RJ-45 type connectors.
  2. Connections shall use a minimum of 4-pair unshielded twisted pair Category 6 cable.
    - a. Refer to specifications section 27 1500 for cable criteria.
  3. Use manufacturer's recommendations.
  4. Shall be plenum rated.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. System installation shall be in accordance with manufacturer's recommendations and requirements.
- B. Equipment and wiring shall not be installed until building is enclosed, weather tight, and temperature and humidity conditions are approximately same as final conditions expected.
- C. Install all cabling in conduit, cable tray and free-air. Terminate cabling per manufacturers recommendations.
  1. Support cable not in conduit or cable tray using J-hooks.

- D. Coordinate all pathway routing and back box locations with electrical contractor and architect.
- E. Coordinate all back box sizes with electrical contractor and architect.
- F. Provide supervised corridor light at each master station location for tone and light announcement in case of power outage.
- G. At completion of installation, contractor shall provide personnel to check and test the system, subsequently certify to Owner that system is complete, operational, and meet all requirements.
- H. Contractor shall be responsible for set up of system features with Owner. Coordination includes, but is not limited to, the following:
  - 1. Identifying call priority levels on master station.
  - 2. Setting up caregiver call groups.
  - 3. Configuring incoming calls to ensure call is directed to correct caregiver device.
  - 4. Assist owner with setting up or configuring any other available option on system.
    - a. Contractor shall provide two (2) copies of step-by-step manual to Owner for system set up or configurations for future use.
- I. All system components shall be cataloged products of a single supplier.
- J. Label cabling and system components.
  - 1. Labeling shall be by mechanical means.
  - 2. Hand lettered designations are not allowed.
  - 3. Tags shall be non-removable.
  - 4. Characters shall be black ink and printed on background of contrasting color.
  - 5. Labels shall be as large as practicable while fitting properly.
  - 6. No lettering shall be smaller than 10-point.
  - 7. Label cables at each end with tag which is wrapped around cable sheath.
- K. Test and adjust system to Owner's satisfaction.
  - 1. Provide test results to owner.

### **3.02 SYSTEM DOCUMENTATION**

- A. Refer to Section 27 0000 - General Communications Requirements for general guidelines regarding documentation requirements.
- B. Provide two (2) sets of complete instruction manuals which include:
  - 1. Service manuals
  - 2. Updated schematics (as built)
  - 3. Record drawings which depict all station location(s)
  - 4. Parts lists
  - 5. Recommended spare parts lists
  - 6. Current list of local manufacturer approved service centers
  - 7. Troubleshooting

### **3.03 OWNER TRAINING**

- A. Provide training for owner's personnel on operation and maintenance of total system and each component.
- B. Training shall be complete to enable owner personnel to operate system, configure at user level and to perform maintenance and troubleshooting functions.
- C. Conduct training during normal business hours after system start-up and owner acceptance.
- D. Training shall include hands-on exposure to the installed system.
- E. Shall be one (1) session; duration two (2) hours minimum for the session.
- F. Up to ten (10) members of the owners' staff may attend each session.

### **END OF SECTION**