

**FLOOR PLAN-DEMOLITION WORK-MECHANICAL**

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

NOTE:

1. COORDINATE THE MECHANICAL WORK IN WALLS & CEILING WITH ARCHITECTURAL DRAWINGS

**GENERAL NOTES-DEMOLITION WORK**

1. ALL DEMOLISHED EQUIPMENT AND RUBBISH SHALL BE CLEARED, TRANSPORTED AND DISPOSED OF IN A LAWFUL AND RESPONSIBLE MANNER.
2. CAP OR PLUG ALL ACTIVE REMAINING SYSTEMS WHERE RECONNECTIONS ARE NOT PLANNED AT POINTS WHERE EXISTING SYSTEM IS RETAINED.
3. ALL UNUSED PIPE BRANCHES AFTER DEMOLITION SHALL BE REMOVED BACK TO MAIN AND CAPPED.
4. UNDER NO CIRCUMSTANCE SHALL THE WORK PERFORMED UNDER THIS CONTRACT ADVERSELY AFFECT ADJACENT AREAS, WHICH ARE NOT PART OF THIS CONTRACT.
5. IF SUSPECTED ASBESTOS-CONTAINING MATERIALS (ACM) ARE ENCOUNTERED IN THE COURSE OF THE WORK, THE CONTRACTOR SHALL CEASE WORK WITH THE SUSPECT MATERIAL AND AWAIT DIRECTION FROM THE COUNTY PROJECT MANAGER. THE CONTRACTOR SHALL FOLLOW APPLICABLE CODE, SPECIFICATION AND COUNTY GUIDELINES FOR ACM ABETMENT WORK.
6. MAINTAIN EXISTING SYSTEMS AS NECESSARY TO CONTINUE NORMAL OPERATIONS. ALL SERVICE INTERRUPTIONS SHALL BE AT OWNER'S CONVENIENCE.
7. ALL OPENINGS IN WALLS AND FLOORS REMAINING AFTER THE REMOVAL OF EXISTING PIPING, EQUIPMENT ETC. SHALL BE SEALED AND PATCHED TO MATCH EXISTING CONSTRUCTION CONDITIONS.
8. CAP OR PLUG ALL ACTIVE REMAINING SYSTEMS WHERE RECONNECTIONS ARE NOT PLANNED AT POINTS WHERE EXISTING SYSTEM IS RETAINED.
9. DURING THE CONSTRUCTION PHASE, IT IS VERY IMPORTANT TO MAINTAIN UNINTERRUPTED SERVICE TO OTHER AREA. CONTRACTOR SHALL ENSURE THAT THE OTHER PHASES ARE NOT AFFECTED AND PROVIDE TEMPORARY DUCT, CONDUITS, PIPES ETC. AS NECESSARY TO MAINTAIN CONTINUITY.

**DEMOLITION WORK-KEYED NOTES**

- 1 REMOVE EXISTING ELECTRIC WALL HEATER, CONTROLS, ACCESSORIES, ETC. (TYPICAL).
- 2 REMOVE EXISTING CEILING MOUNTED HEATER, CONTROLS, ACCESSORIES, ETC. (TYPICAL).
- 3 REMOVE EXISTING CIRCULATING FAN, CONTROLS, ACCESSORIES, ETC.(TYPICAL).
- 4 REMOVE EXISTING CEILING EXHAUST FAN, CONTROLS, ACCESSORIES, ETC (TYPICAL).
- 5 REMOVE EXISTING EXHAUST DUCT, VENT.
- 6 REMOVE EXISTING DRYER EXHAUST DUCT. SEAL DUCT OPENING, PATCH THE WALL TO MATCH EXISTING.
- 7 REMOVE EXISTING CEILING EXHAUST GRILLE (TYPICAL).
- 8 EXISTING ACCESS PANEL TO REMAIN (TYPICAL).
- 9 EXISTING ATTIC VENTILATION--PROPELLER TYPE EXHAUST FAN TO REMAIN (TYPICAL).
- 10 REMOVE EXISTING LOUVER (LOW WALL), INFILL WALL OPENING WITH BRICK TO MATCH EXISTING. MAINTAIN BUILDING INTEGRITY. REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION (TYPICAL).
- 11 REMOVE EXISTING ELECTRIC WALL HEATER, CONTROLS, ACCESSORIES, ETC (TYPICAL).

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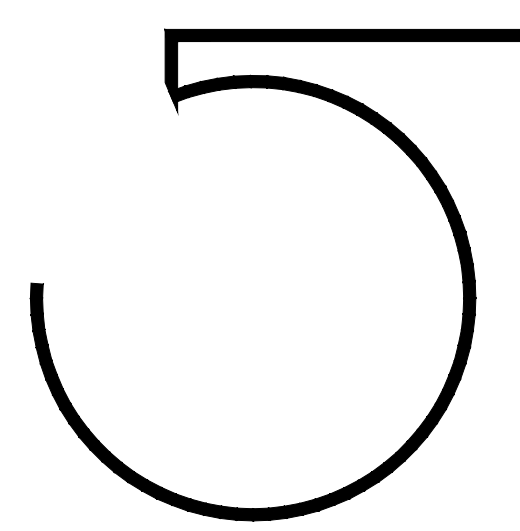
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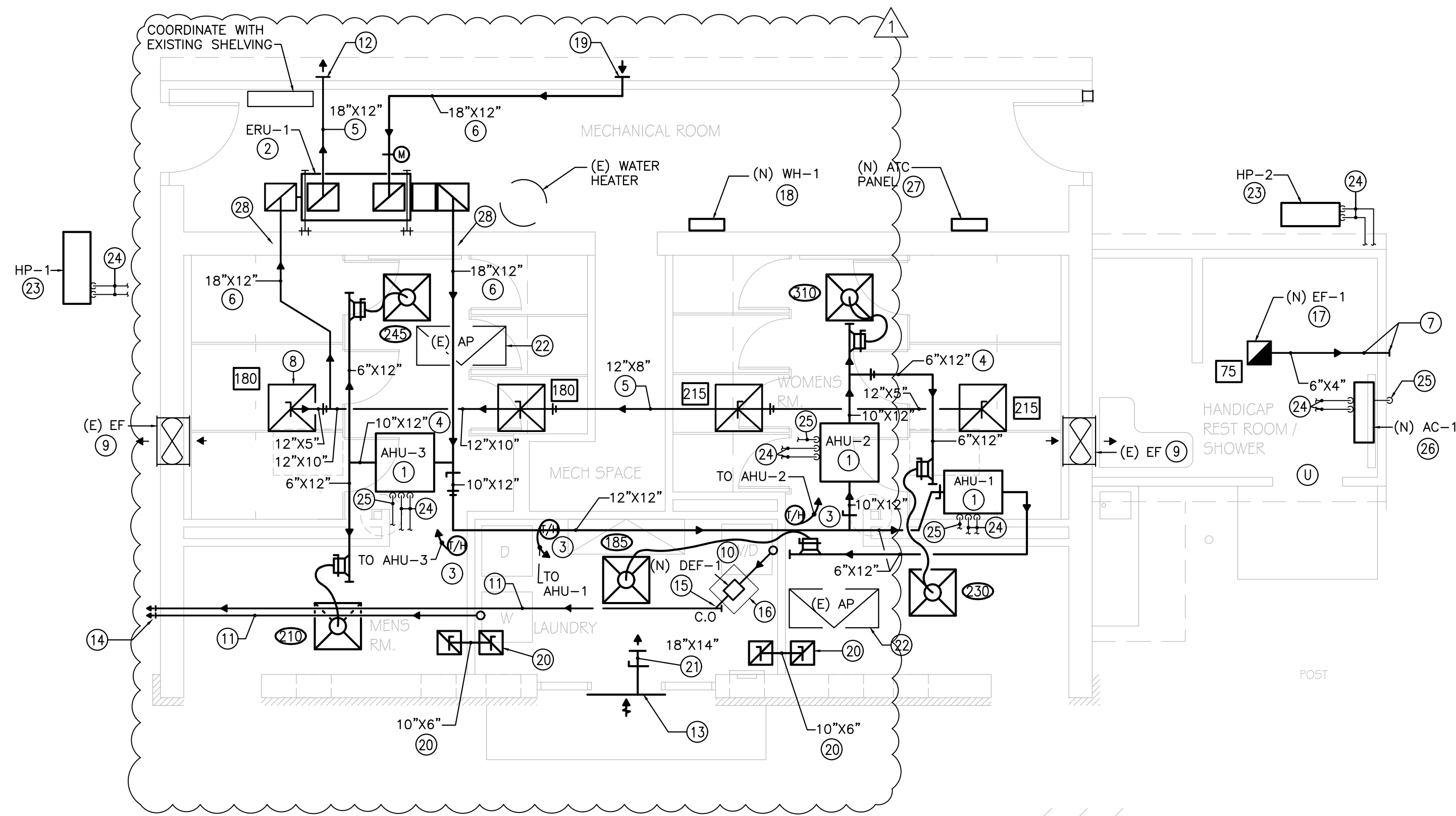
PROJECT PHASE:  
100% SUBMISSION

DATE: 12/11/2020



SHEET No.  
**M-2**

MECHANICAL FLOOR PLAN -  
DEMOLITION WORK



**FLOOR PLAN-NEW WORK-MECHANICAL**  
SCALE: 1/4" = 1'-0"

**HEAT PUMP TYPE-VRF UNIT (OUTDOOR UNIT) SCHEDULE**

UNIT NO	LOCATION	SERVES	O.A.T. (°F)	COOLING/HEATING CAPACITY				ELECTRICAL DATA				APPROXIMATE WEIGHT (LBS)	REMARKS		
				TOTAL (CONNECTED) INDOOR UNIT'S COOLING CAPACITY (MBH)	OUTDOOR UNIT'S COOLING CAPACITY (MBH)	TOTAL (CONNECTED) INDOOR UNIT'S HEATING CAPACITY (MBH)	OUTDOOR UNIT'S HEATING CAPACITY (MBH)	MCA	MOCP	CONNECTION					
										VOLTS	PHASE			CYCLE	
HP-1	AS SHOWN	AHU-1 THRU AHU-3	95	31.5	36.1	32.4	32.5	16.5	25	208	1	60	DAIKIN MFR. CO. MODEL # RXTQ36TAV	195	HEAT PUMP, VRF TYPE UNIT

**GENERAL NOTES:**

- PROVIDE COMPLETE WITH DDC CONTROLS FOR VRF SPLIT SYSTEMS, REFRIGERANT PIPES, AND DISCONNECT SWITCH.
- PROVIDE WIND BAFFLES IN THE OUTDOOR UNIT.
- SIZING AND DESIGN OF REFRIGERATION PIPES SHALL BE DONE BY MANUFACTURER AND INSTALLATION SHALL BE DONE AS PER MANUFACTURER'S RECOMMENDATIONS.
- MINIMUM EER/SEER RATING SHALL BE 10/16.
- COMMISSIONING OF COMPLETE VRF SYSTEM SHALL BE PERFORMED BY DAIKIN ENGINEERS TRAINED BY MANUFACTURER.
- UNITS SHALL BE CERTIFIED IN ACCORDANCE WITH AHRI 1230.
- THE CONTRACTOR SHALL COORDINATE UNIT'S MANUFACTURER FOR POWER REQUIREMENTS FOR BRANCH CONTROLLER, AND PROVIDE POWER CONNECTION AS REQUIRED.
- PROVIDE REFINET BRANCH PIPING KIT AND NAVIGATION WIRED REMOTE CONTROLLER.
- PROVIDE OUTDOOR MULTI-CONNECTION PIPE KIT.
- ALL UNITS SHALL PROVIDE ABOVE LISTED CAPACITIES BASED ON THE FOLLOWING PARAMETERS:  
COOLING: OUTDOOR TEMPERATURE=93 DEG F DB & 75 DEG F WB/INDOOR TEMPERATURE=74 DEG D DB  
HEATING: OUTDOOR TEMPERATURE=0 DEG F DB/INDOOR TEMPERATURE=70 DEG F DB
- INSTALL THE OUTDOOR UNIT (HEAT PUMP) UNIT ON 4" HIGH CONCRETE PAD. THE CONCRETE PAD SIZE SHALL BE 4" BEYOND UNIT FOOT PRINT. INSTALL THE UNIT AS PER MANUFACTURER'S RECOMMENDATIONS.
- ALL UNIT SHALL HAVE DEHUMIDIFICATION CAPABILITY.
- PROVIDE DAIKIN I-TOUCH MANAGER-CONTROL SYSTEM.

**AIR CONDITIONING UNIT (INDOOR UNIT) SCHEDULE**

UNIT NO	TYPE	LOCATION	SERVES	OUTDOOR AIR (CFM)	SUPPLY AIR (CFM)	EXTERNAL STATIC PRESSURE (IN WG)	COOLING/HEATING CAPACITY		ELECTRICAL DATA				APPROXIMATE WEIGHT (LBS)		
							COOLING (MBH)	HEATING (MBH)	MCA	MOCP	CONNECTION				
											VOLTS	PHASE		CYCLE	
AHU-1	CEILING MOUNTED DUCTED UNIT	AS SHOWN	HP-1	TEMPERED AIR FROM ERU-1 185 CFM	185	0.4	7.5	8.4	0.6	15	208	1	60	DAIKIN MFR. CO. MODEL # FXMQ07	70
AHU-2	CEILING MOUNTED DUCTED UNIT	AS SHOWN	HP-1	TEMPERED AIR FROM ERU-1 540 CFM	540	0.4	12	13.5	1.4	15	208	1	60	DAIKIN MFR. CO. MODEL # FXMQ12	85
AHU-3	CEILING MOUNTED DUCTED UNIT	AS SHOWN	HP-1	TEMPERED AIR FROM ERU-1 455 CFM	455	0.4	12	13.5	1.4	15	208	1	60	DAIKIN MFR. CO. MODEL # FXMQ12	85

**GENERAL NOTES:**

- CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH AND ALL ACCESSORIES AS RECOMMENDED BY MANUFACTURER.
- CONTRACTOR SHALL PROVIDE REFRIGERANT PIPING SIZED AS PER MANUFACTURER'S RECOMMENDATIONS DETERMINED THROUGH MANUFACTURER'S COMPUTER PROGRAM FOR PROPERLY SIZING THE PIPING.
- PROVIDE LOW AMBIENT CONTROL KIT TO °F OUTDOOR.
- PROVIDE CONDENSATE PUMP FOR FIELD INSTALLATION BY CONTRACTOR.
- THE CONTRACTOR SHALL COORDINATE WITH UNIT MANUFACTURER FOR REFRIGERANT PIPING LAYOUT AND PROPER SYSTEM INSTALLATION.
- THE CONTRACTOR SHALL PROVIDE FIELD INSTALLED FILTER RACK, AND PROVIDE MERV-8 FILTER.
- THE CONTRACTOR SHALL COORDINATE POWER REQUIREMENTS, AND PROVIDE 208V POWER TO EACH OF THE BRANCH CONTROLLERS.

**GENERAL NOTES-NEW WORK**

- ALL DEMOLISHED EQUIPMENT AND RUBBISH SHALL BE CLEARED, TRANSPORTED AND DISPOSED OF IN A LAWFUL AND RESPONSIBLE MANNER.
- CAP OR PLUG ALL ACTIVE REMAINING SYSTEMS WHERE RECONNECTIONS ARE NOT PLANNED AT POINTS WHERE EXISTING SYSTEM IS RETAINED.
- ALL UNUSED PIPE BRANCHES AFTER DEMOLITION SHALL BE REMOVED BACK TO MAIN AND CAPPED.
- UNDER NO CIRCUMSTANCE SHALL THE WORK PERFORMED UNDER THIS CONTRACT ADVERSELY AFFECT ADJACENT AREAS, WHICH ARE NOT PART OF THIS CONTRACT.
- IF SUSPECTED ASBESTOS-CONTAINING MATERIALS (ACM) ARE ENCOUNTERED IN THE COURSE OF THE WORK, THE CONTRACTOR SHALL CEASE WORK WITH THE SUSPECT MATERIAL AND AWAIT DIRECTION FROM THE COUNTY PROJECT MANAGER. THE CONTRACTOR SHALL FOLLOW APPLICABLE CODE, SPECIFICATION AND COUNTY GUIDELINES FOR ACM ABATEMENT WORK.
- MAINTAIN EXISTING SYSTEMS AS NECESSARY TO CONTINUE NORMAL OPERATIONS. ALL SERVICE INTERRUPTIONS SHALL BE AT OWNER'S CONVENIENCE.
- ALL OPENINGS IN WALLS AND FLOORS REMAINING AFTER THE REMOVAL OF EXISTING PIPING, EQUIPMENT ETC. SHALL BE SEALED AND PATCHED TO MATCH EXISTING CONSTRUCTION CONDITIONS.
- CAP OR PLUG ALL ACTIVE REMAINING SYSTEMS WHERE RECONNECTIONS ARE NOT PLANNED AT POINTS WHERE EXISTING SYSTEM IS RETAINED.
- DURING THE CONSTRUCTION PHASE, IT IS VERY IMPORTANT TO MAINTAIN UNINTERRUPTED SERVICE TO OTHER AREA. CONTRACTOR SHALL ENSURE THAT THE OTHER PHASES ARE NOT AFFECTED AND PROVIDE TEMPORARY DUCT, CONDUITS, PIPES ETC. AS NECESSARY TO MAINTAIN CONTINUITY.

**NEW WORK-KEYED NOTES**

- NEW HORIZONTAL TYPE, CEILING MOUNTED, AHU UNIT. PROVIDE UNIT SUPPORTS. INSTALL THE UNIT IN FULL COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS. PROVIDE THE ACCESS PANEL (AP), THE AP SIZE SHALL BE 6" LARGER THAN AHU UNIT FOOT PRINT (TYPICAL).
- NEW ENERGY RECOVERY UNIT (ERU). PROVIDE UNIT SUPPORTS ASSEMBLY. INSTALL THE UNIT IN FULL COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS. INSTALL THE ERU UNIT ON WALL. PROVIDE AN ADEQUATE SERVICE CLEARANCE AROUND THE UNIT AS PER THE MANUFACTURER RECOMMENDATIONS. PROVIDE PROPER CLEARANCE FOR FILTER REMOVAL. VERIFY IN FIELD.
- PROVIDE COMBINATION TEMPERATURE AND HUMIDITY SENSOR (TYPICAL).
- NEW SUPPLY AIR DUCT. PROVIDE DUCT INSULATION, AND DUCT SUPPORTS (TYPICAL).
- NEW EXHAUST DUCT. PROVIDE DUCT SUPPORT (TYPICAL).
- OUTDOOR AIR DUCT. PROVIDE DUCT INSULATION, AND DUCT SUPPORTS (TYPICAL).
- NEW EXHAUST DUCT AND VENT.
- NEW CEILING EXHAUST GRILLE (TYPICAL).
- EXISTING EXHAUST FAN (TYPICAL).
- NEW DRYER EXHAUST FAN. PROVIDE FAN SUPPORT. INSTALL THE FAN IN FULL COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS (TYPICAL).
- NEW DRYER EXHAUST DUCT. PROVIDE DUCT SUPPORT AS REQUIRED (TYPICAL).
- 24" W X 18" H NEW EXHAUST LOUVER. MODIFY EXISTING WALL OPENING TO INSTALL NEW EXHAUST DUCT AND EXHAUST LOUVER. PROVIDE DUCT PLENUM. VERIFY IN FIELD (TYPICAL).
- PROVIDE NEW OUTDOOR AIR INTAKE LOUVER, MINIMUM 2.5 SQUARE FEET FREE AREA, WATER PROOF TYPE. PROVIDE DUCT PLENUM.
- PROVIDE DRYER VENT. INSTALL THE DRYER VENT AS PER THE MANUFACTURER RECOMMENDATIONS (TYPICAL).
- PROVIDE CLEAN OUT FOR DRYER EXHAUST DUCT.
- PROVIDE ACCESS PANEL PANEL IN THE CEILING. THE ACCESS PANEL SIZE SHALL BE 6" LARGER THAN EXHAUST FAN SIZE (TYPICAL).
- NEW CEILING MOUNTED EXHAUST FAN. PROVIDE FAN SUPPORT. INSTALL THE FAN IN FULL COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS (TYPICAL).
- PROVIDE NEW ELECTRIC WALL HEATER. PROVIDE HEATER SUPPORT. INSTALL THE HEATER IN FULL COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS (TYPICAL).
- NEW OUTDOOR AIR INTAKE LOUVER, 24" W X 18" H. PROVIDE NEW WALL OPENING TO INSTALL NEW LOUVER. PROVIDE DUCT PLENUM. VERIFY IN FIELD.
- PROVIDE TRANSFER AIR DUCT AND AIR GRILLE, 18" X 18" (TYPICAL).
- PROVIDE OPEN END DUCT WITH WIRE MESH SCREEN IN THE ATTIC SPACE.
- EXISTING ACCESS PANEL. SEAL AIR TIGHT (TYPICAL).
- NEW OUTDOOR UNITS (HP-1, HP-2). PROVIDE HP-1 & HP-2 UNIT ON NEW 4" HIGH CONCRETE PAD. ANCHOR THE UNIT BASE TO NEW CONCRETE PAD. INSTALL THE UNIT IN FULL COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS.
- PROVIDE REFRIGERANT PIPING. INSULATE THE REFRIGERANT PIPING AS PER THE MANUFACTURER RECOMMENDATIONS (TYPICAL).
- PROVIDE 1" CONDENSATE DRAIN (CD) PIPING. INSULATE THE CD PIPING, MAINTAIN PROPER PIPE SLOPE, EXTEND THE CD PIPING TO GRADE. TERMINATE CD PIPING 18" ABOVE GRADE LEVEL. PROVIDE SPLASH BLOCK. (TYPICAL).
- NEW WALL MOUNTED UNIT (AC-1). PROVIDE UNIT SUPPORTS. INSTALL THE UNIT IN FULL COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS.
- PROVIDE AUTOMATIC TEMPERATURE CONTROL PANEL. PROVIDE CONTROL FOR VRF UNITS (AHU-1 THRU AHU-3 & HP-1) AND SHALL BE INTERLOCKED WITH ENERGY RECOVERY UNIT (ERU-1).
- PROVIDE NEW WALL PENETRATION. COORDINATE AT SITE FOR ACTUAL DUCT ROUTING, VERIFY IN FIELD (TYPICAL).

**ENERGY RECOVERY UNIT-PLATE TYPE HEAT EXCHANGER (AIR TO AIR)**

UNIT NO	DURATION	OUTDOOR AIR (SUPPLY AIR)				EXHAUST AIR				ELECTRICAL DATA		EXTERNAL STATIC PRESSURE (IN WG)	APPROXIMATE WEIGHT (LBS)	BASIS OF DESIGN	REMARKS	
		OUTDOOR AIR (S.A. AIR) (CFM)	EAT DB/WB (°F)	LAT DB/WB (°F)	PD	DURATION	EXHAUST AIR (CFM)	EAT (°F)/%RH	PD	MCA	MOCP					VOLTS/PHASE/HZ
ERU-1	WINTER	1180	10/8	45.7/37.3	0.6	WINTER	810	70/30	0.9	15.1	20	208/1/60	0.55	225	ENERGY WALL MODEL # U-ERV-1200	① ② ③
	SUMMER	1180	93/75	82.8/69.9	0.6	SUMMER	810	74/50	0.9							④ ⑤

NOTE: ① INSTALL PLATE HEAT EXCHANGER AS PER MANUFACTURER'S RECOMMENDATIONS. ② PROVIDE MERV 11 FILTERS. ③ PROVIDE UNIT SUPPORTS ASSEMBLY. ④ BUILT-IN SUPPLY AND EXHAUST AIR FANS. ⑤ PROVIDE MINIMUM 10'-0" FEET INTERNALLY LINED DUCT FROM ERU UNIT FOR SUPPLY AND EXHAUST DUCT AS PER MANUFACTURER RECOMMENDATIONS

**AIR DEVICE SCHEDULE**

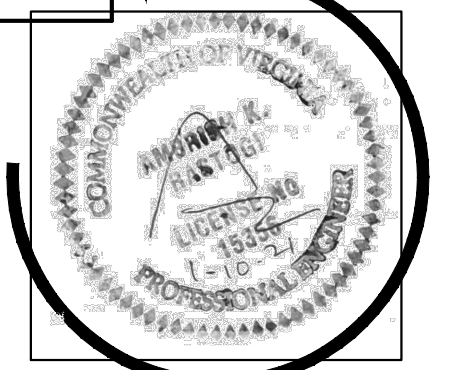
DESIGNATION	TYPE	AIR FLOW RANGE (CFM)	FACE SIZE	NECK SIZE	P.D. IN. WC	NC	BASIS OF DESIGN
☑	CEILING DIFFUSER	0-80	12x12	6"	0.044	-	TITUS-TMS
☑	CEILING DIFFUSER	0-105	24x24	6"	0.044	-	TITUS-TMS
☑	CEILING DIFFUSER	106-170	24x24	8"	0.049	16	TITUS-TMS
☑	CEILING DIFFUSER	171-270	24x24	10"	0.056	21	TITUS-TMS
☑	E.A. GRILLE	81-140	24x24	8"	0.01	-	TITUS-PAR
☑	E.A. GRILLE	141-220	24x24	10"	0.01	-	TITUS-PAR
☑	E.A. GRILLE	221-315	24x24	12"	0.01	12	TITUS-PAR
☑	E.A. GRILLE	316-425	24x24	14"	0.01	15	TITUS-PAR
☑	E.A. GRILLE	426-560	24x24	16"	0.01	18	TITUS-PAR
☑	E.A. GRILLE	561-900	24x24	18x18	0.01	18	TITUS-PAR
☑	SA REGISTER	0-100	8x8	6x6	0.06	13	TITUS-301RS
☑	SA REGISTER	101-160	10x8	8x6	0.06	13	TITUS-301RS
☑	SA REGISTER	161-250	14x8	12x6	0.10	18	TITUS-301RS
☑	SA REGISTER	251-340	14x10	12x8	0.10	20	TITUS-301RS

- NOTES:
- FLEX DUCT TO DIFFUSERS SHALL BE SAME SIZE AS DIFFUSER NECK DIAMETER.
  - ALL FINISH SELECTIONS SHALL BE BY ARCHITECT.
  - PROVIDE BORDER/FINISH AS REQUIRED FOR INTENDED CEILING INSTALLATION.
  - PROVIDE VOLUME DAMPER ON ALL AIR DEVICES.
  - PROVIDE ALL SUPPLY AIR DIFFUSERS WITH SQUARE TO ROUND ADAPTER AND VOLUME DAMPERS.
  - PROVIDE OPPOSED BLADE DAMPER.

**WALL HEATER SCHEDULE**

UNIT NO	SERVES	MOUNTED	KW	NO. OF STAGES	ELECT. DATA			BASIS OF DESIGN	REMARKS
					VOLT	PHASE	HZ		
WH-1	MECHANICAL / EQUIPMENT ROOM	WALL	3.0	1	208	1	60	QMARK-CWH3404F	① ② ③

- NOTES:
- UNIT SHALL HAVE AN INTEGRAL THERMOSTAT AND BUILT-IN POWER DISCONNECT.
  - UNIT SHALL BE INSTALLED MORE THAN 12" ABOVE THE FINISHED FLOOR.
  - UNIT SHALL BE RECESSED IN WALL OR WALL MOUNTED AS DIRECTED BY ARCHITECT



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PROJECT PHASE:  
PERMIT SET

DATE: 01/10/2021

### AIR CONDITIONING UNIT (INDOOR) SCHEDULE

UNIT NO.	LOCATION	SERVES	O.A.T.(°F)	COOLING CAPACITY		ELECTRICAL DATA			BASIS OF DESIGN DAIKIN MFR. CO. MODEL NO.	
				COOLING (MBH)	MCA	MOCP	CONNECTION			
							VOLTS	PHASE		CYCLE
AC-1	ADA TOILET	HP-2	95	8.9	-	-	208	1	60	FTX09A

- NOTES:**
- CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH AND ALL ACCESSORIES AS RECOMMENDED BY MANUFACTURER.
  - CONTRACTOR SHALL PROVIDE REFRIGERANT PIPING SIZED AS PER MANUFACTURER'S RECOMMENDATIONS DETERMINED THROUGH MANUFACTURER'S COMPUTER PROGRAM FOR PROPERLY SIZING THE PIPING.
  - PROVIDE LOW AMBIENT CONTROL KIT TO 0°F OUTDOOR.

### HEAT PUMP UNIT (OUTDOOR) SCHEDULE

UNIT NO.	LOCATION	SERVES	O.A.T.(°F)	COOLING CAPACITY		HEATING CAPACITY		ELECTRICAL DATA			BASIS OF DESIGN DAIKIN MFR. CO. MODEL NO.
				COOLING (MBH)	HEATING (MBH)	MCA	MOCP	CONNECTION			
								VOLTS	PHASE	CYCLE	
HP-2	ROOF	AC-1	95	8.9	10.0	8.7	15	208	1	60	RX09A

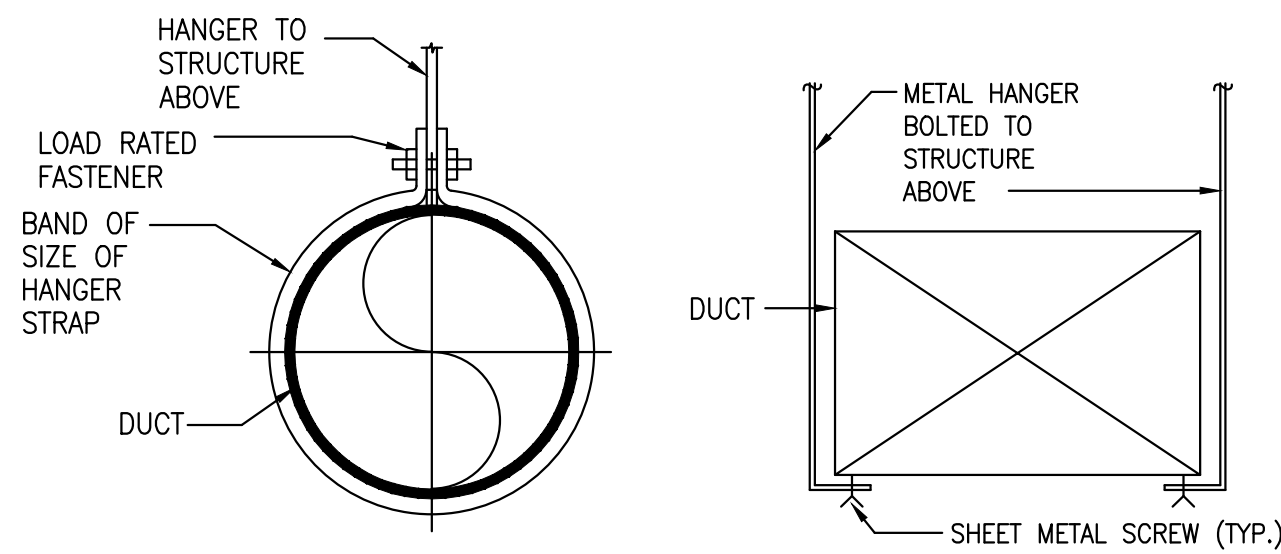
- NOTES:**
- CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH AND ALL ACCESSORIES AS RECOMMENDED BY MANUFACTURER.
  - CONTRACTOR SHALL PROVIDE REFRIGERANT PIPING SIZED AS PER MANUFACTURER'S RECOMMENDATIONS DETERMINED THROUGH MANUFACTURER'S COMPUTER PROGRAM FOR PROPERLY SIZING THE PIPING.
  - PROVIDE LOW AMBIENT CONTROL KIT TO 0°F OUTDOOR.

### FAN SCHEDULE

UNIT NO.	CFM	TOTAL SP (IN WG)	FAN TYPE	DRIVE	WT. LBS	ELECTRICAL DATA			BASIS OF DESIGN
						MOTOR WATTS/HP	AMPS	VOLTAGE (V/PH/Hz)	
EF-1	75	0.5	CEILING MOUNTED	DIRECT	25	100 WATTS	1.1	115/1/60	GREENHECK MODEL CSP-A190
DEF-1	170	0.5	CEILING MOUNTED	DIRECT	20	74 WATTS	0.96	115/1/60	TJERNLUND MODEL DE-160

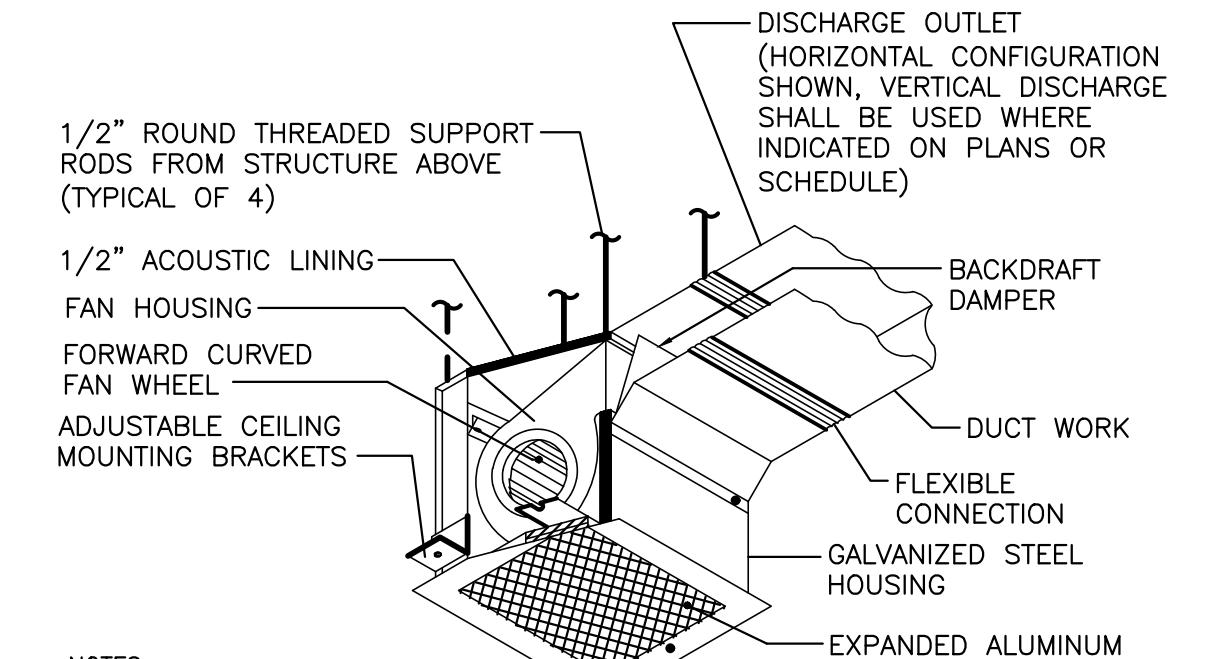
- GENERAL NOTES:**
- PROVIDE COMPLETE WITH SPRING ISOLATOR, BELT GUARD, INSULATED HOUSING, BRICK VENT/WALL CAP, BACKDRAFT DAMPER, STARTER AND UNIT MOUNTED DISCONNECT SWITCH.
  - DEF-1 SHALL BE INTERLOCKED WITH DRYER.

NOTE: FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS FOR BRANCHES WITH LESS THAN 25% OF THE TOTAL AIR FLOW FOR SUPPLY DUCTWORK



### TYPICAL DUCT SUPPORT AND DUCT TAP DETAIL

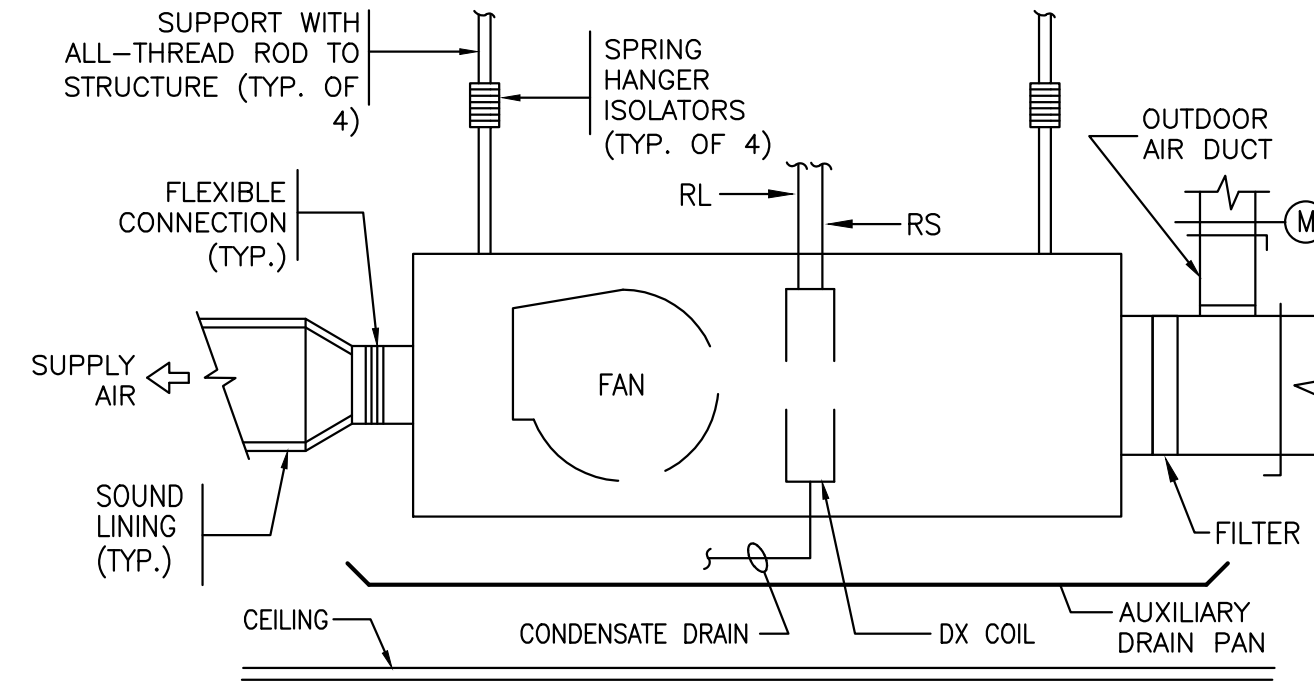
NO SCALE



- NOTES:**
- FANS SHALL BEAR THE AMCA SEAL FOR AIR & SOUND PERFORMANCE.
  - UNIT SHALL HAVE FACTORY MOUNTED TERMINAL BOX.
  - FAN SHALL BE SUPPLIED WITH MANUFACTURER'S WALL OR ROOF CAP AS SPECIFIED ON SCHEDULE.

### CEILING EXHAUST FAN DETAIL

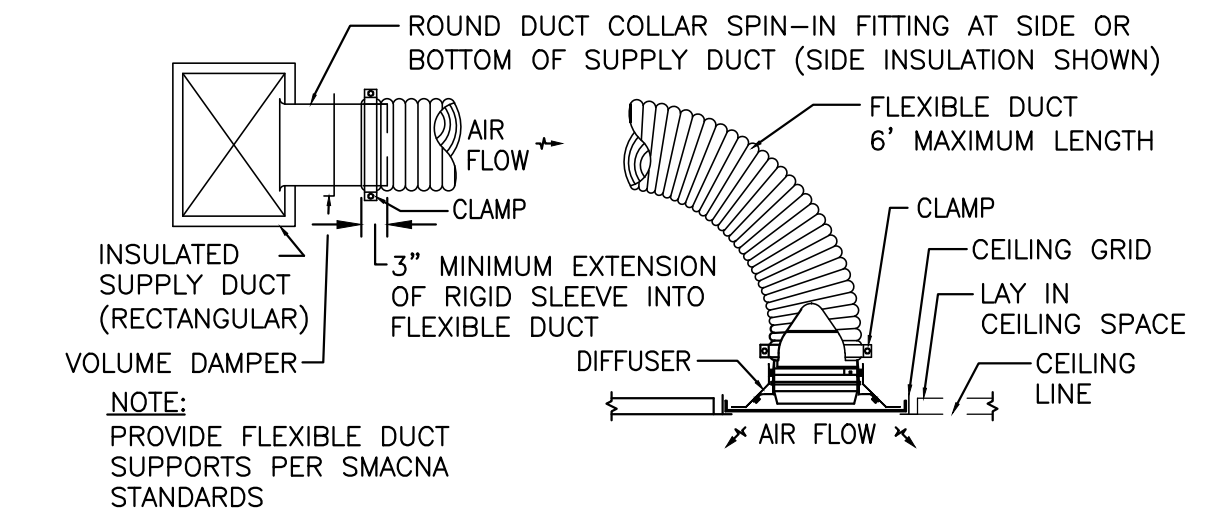
NO SCALE



NOTE: THE CONTRACTOR SHALL PROVIDE AUXILIARY DRAIN PAN AND SHALL BE EQUIPPED WITH WATER LEVEL DETECTION SENSOR THAT WILL SHUT OFF THE UNIT PRIOR TO OVERFLOW OF THE PAN PER INTERNATIONAL MECHANICAL CODE SECTION 307.2.3 & THE PAN SHALL BE 2" LARGER THAN UNIT ON ALL SIDES.

### TYPICAL HORIZONTAL-AIR HANDLING UNIT (AHU) DETAIL

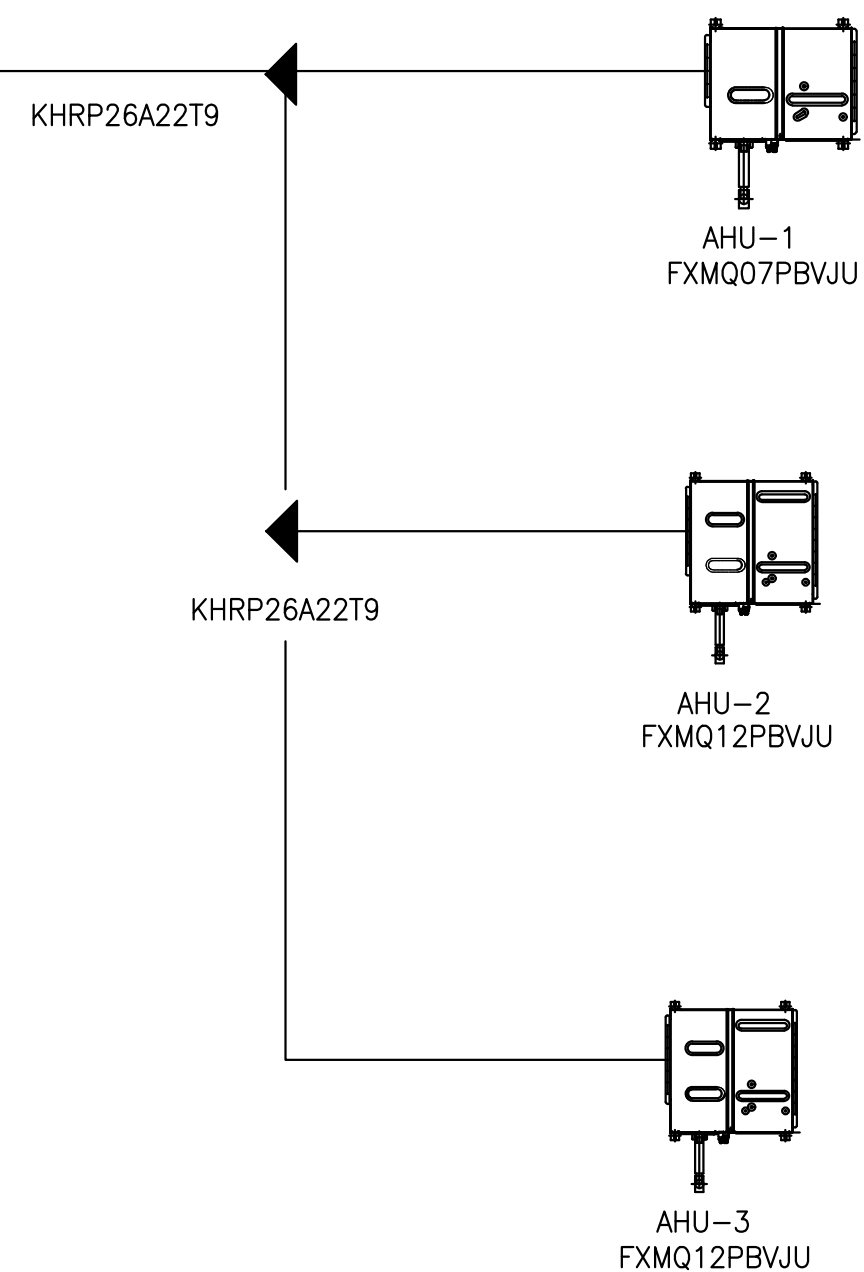
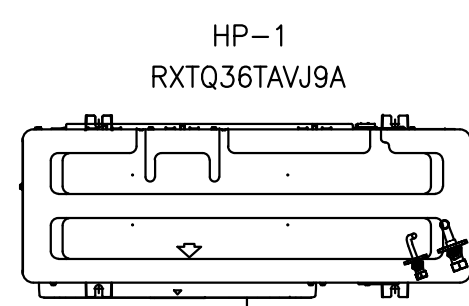
NO SCALE



NOTE: PROVIDE FLEXIBLE DUCT SUPPORTS PER SMACNA STANDARDS

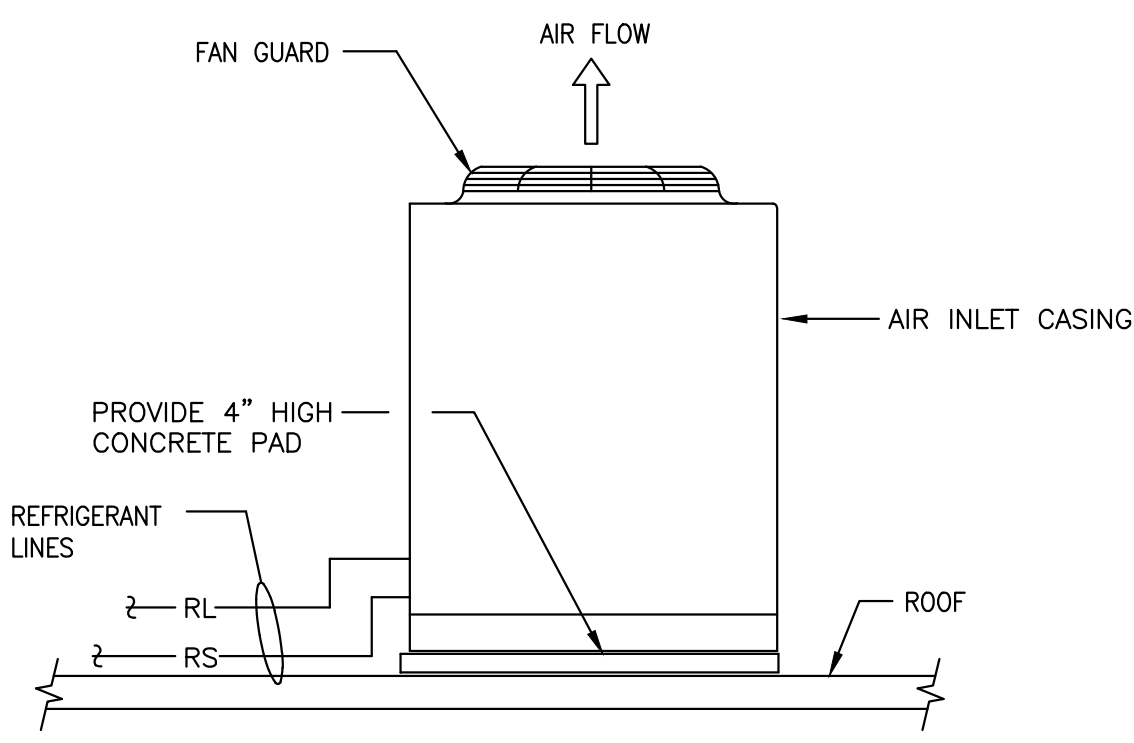
### TYPICAL DUCT BRANCH DETAIL

NO SCALE



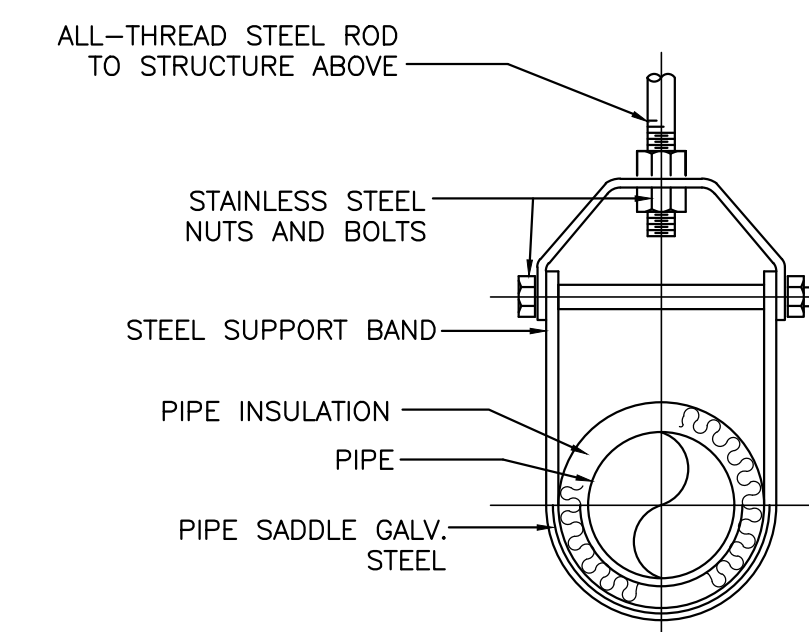
### HP-1, AHU-1 THRU AHU-3 REFRIGERANT PIPING SCHEMATIC DIAGRAM

NO SCALE



### OUTDOOR UNIT (HEAT PUMP, HP-1 & HP-2) DETAIL

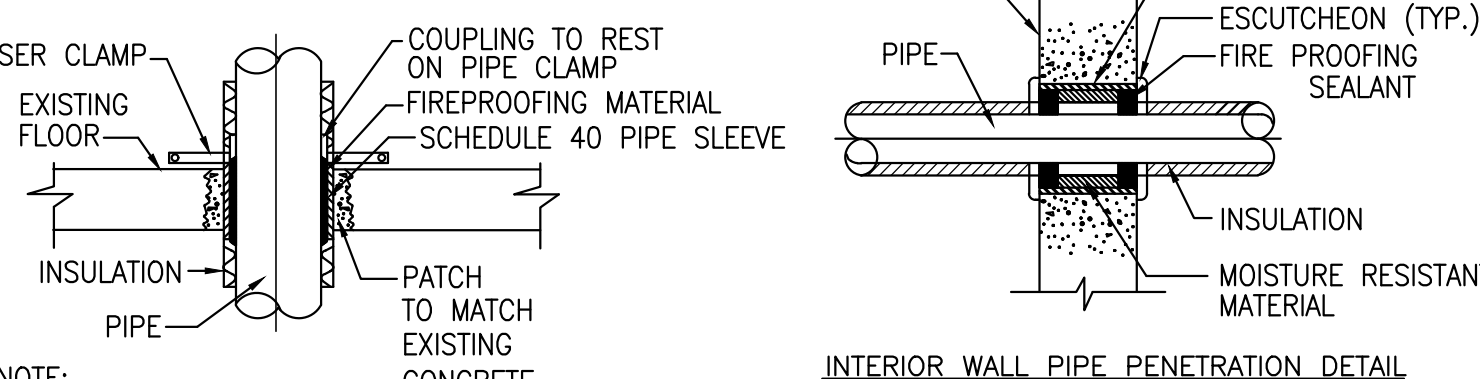
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NOTE: REFER TO SPECIFICATIONS FOR DETAILED REQUIREMENTS

### TYPICAL PIPE SUPPORT DETAIL

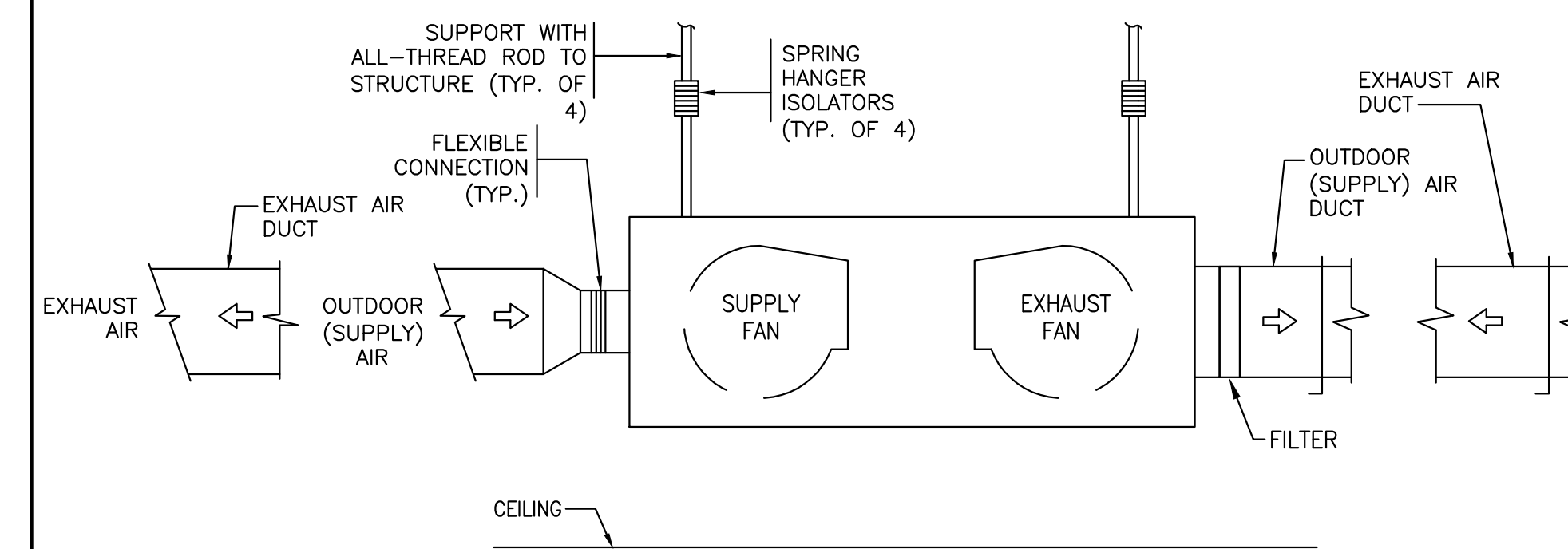
NO SCALE



NOTE: EXTEND PIPE SLEEVE 2" ABOVE FLOOR SURFACE  
PIPE FLOOR PENETRATION DETAIL

### TYPICAL PIPING PENETRATION DETAIL

NO SCALE

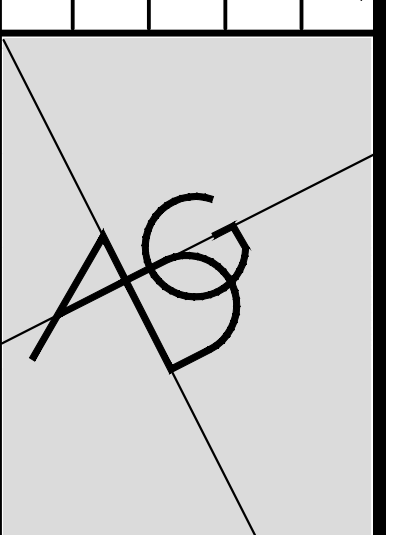


### HEAT RECOVERY UNIT (ERU) DETAIL

NO SCALE

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PROJECT PHASE:

100% SUBMISSION

DATE: 12/11/2020

SHEET No.

M-4

## ELECTRICAL NOTES









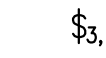





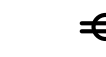
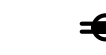









- IT IS THE INTENT OF THESE DRAWINGS AND OTHER RELATED DOCUMENTS TO PRODUCE A COMPLETE AND FUNCTIONING ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TESTS, AND OTHER SERVICES AS MAY BE NECESSARY TO ACHIEVE THIS PRODUCT. THE CONTRACTOR SHALL ACKNOWLEDGE ACCEPTANCE OF THE PLANS AS AN ADEQUATE DEFINITION OF THE SCOPE OF WORK AND EXTRA COST CLAIMS BASED ON DISCREPANCIES ON THE PLANS WILL NOT BE CONSIDERED.
- ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL CODES HAVING JURISDICTION. ALL EQUIPMENT, DEVICES, AND MATERIAL SHALL BE LISTED WITH UNDERWRITERS LABORATORIES FOR ITS APPLICATION AS INSTALLED AND SHALL BEAR THE UL LABEL.
- THE ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY SUCH FEES AS MAY BE NECESSARY FOR INSPECTIONS, TESTS, AND OTHER SERVICES WHICH ARE REQUIRED FOR THE COMPLETION OF HIS WORK.
- THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE CONDITIONS OF THE PREMISES AND THE CHARACTER AND EXTENT OF WORK REQUIRED PRIOR TO SUBMISSION OF BIDS. ANY DIFFICULTIES IN COMPLYING WITH THE DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT BEFORE BIDDING.
- ELECTRICAL PLANS ARE DIAGRAMMATIC. DO NOT SCALE DRAWINGS.
- CONSULT PLANS OF ALL OTHER TRADES FOR COORDINATION AND FOR RELATED AND ADJOINING WORK.
- CONSULT ARCHITECTURAL AND STRUCTURAL PLANS AND DETAILS FOR CONSTRUCTION HEADROOM, ROOM FINISHES, CEILINGS, ETC.
- SEE REFLECTED CEILING PLAN FOR EXACT LOCATION OF LIGHT FIXTURES.
- CIRCUIT NUMBERS ARE FOR IDENTIFICATION PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY SPACING THE CIRCUITS IN THE PANEL AND BALANCE THE LOAD ON THE PHASES UNDER NORMAL OPERATING CONDITIONS.
- SHOP DRAWINGS FOR ALL ELECTRICAL EQUIPMENT, FIXTURES, DEVICES AND MATERIALS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL BEFORE DELIVERY TO THE JOB SITE. EQUIPMENT, FIXTURES, DEVICES, AND MATERIAL DELIVERED TO THE JOB SITE OR INSTALLED PRIOR TO APPROVAL OF THE SHOP DRAWINGS, AND FOR WHICH THE SHOP DRAWINGS ARE SUBSEQUENTLY REJECTED, SHALL BE REPLACED WITH AN APPROVED ITEM AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL VERIFY WIRE SIZES, C/B AND FUSE RATINGS FOR ALL HVAC EQUIPMENT, AND BRING TO THE ATTENTION OF THE ARCHITECT ANY DISCREPANCIES AFFECTING THE WORK PRIOR TO PROCEEDING.
- ALL WORK SHALL BE DONE AT SUCH TIMES AND IN SUCH A MANNER AS WILL LEAST INTERFERE WITH THE MAINTENANCE AND OPERATION OF ALL RELATED OR AFFECTED SYSTEMS. ALL POWER OUTAGES, FIRE ALARM SHUT DOWNS, ETC SHALL BE COORDINATED WITH OWNER.
- CONTRACTOR SHALL VERIFY THAT ALL DOOR SWINGS ARE CORRECT BEFORE INSTALLING LIGHT SWITCH OUTLETS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SIZING OF ALL MOTOR OVERLOAD DEVICES (HEATERS) IN STARTERS BASED ON ACTUAL NAMEPLATE RATINGS ON THE EQUIPMENT BEING INSTALLED.
- HORSEPOWER RATINGS INDICATED ON DRAWINGS MAY DIFFER FROM ACTUAL EQUIPMENT FURNISHED. IF FURNISHED EQUIPMENT DIFFERS FROM RATINGS ON DRAWINGS, CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER FOR APPROPRIATE ACTION TO BE TAKEN.
- CONTRACTOR SHALL NOTE U.L. LABELS ON PACKAGED TYPE MECHANICAL EQUIPMENT. IF U.L. LABEL ON MECHANICAL EQUIPMENT TO ACTUALLY BE INSTALLED CALLS FOR THE OVER CURRENT PROTECTIVE DEVICE TO BE FUSES, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A FUSED DISCONNECT SWITCH WITH PROPER SIZE FUSES AT THE SWITCH LOCATION INDICATED ON DRAWINGS AT NO ADDITIONAL CHARGE TO THE OWNER.
- THE ELECTRICAL CONTRACTOR SHALL VERIFY THE TYPE OF CEILING SYSTEM WITH THE GENERAL CONTRACTOR OR CEILING CONTRACTOR TO INSURE THAT ALL RECESSED LIGHTING FIXTURES ARE COMPATIBLE WITH THE CEILING SYSTEM BEING INSTALLED. LIGHTING FIXTURES SHOULD NOT BE ORDERED UNTIL TYPE OF CEILING HAS BEEN VERIFIED.
- LIGHTING FIXTURES INSTALLED IN SUSPENDED CEILINGS SHALL BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE.
- THE CORRECT NUMBER OF WIRES MAY NOT BE INDICATED FOR ALL CIRCUITS, ONLY THOSE WHERE CLARIFICATION IS NECESSARY. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON THE DRAWINGS OR NOT.
- ALL EMPTY CONDUIT RUNS IN EXCESS OF 10 FT. SHALL BE PROVIDED WITH A PULL WIRE OF FISH TAPE/CORD.
- ALL CONDUCTORS, RACEWAYS AND CABLES SHALL BE CONCEALED IN CEILING OR WALL UNLESS INDICATED OTHERWISE.
- OPENINGS IN EXISTING BUILDING STRUCTURE FOR PASSAGE OF CONDUITS/CABLES SHALL NOT BE CUT UNTIL THE CONTRACTOR HAS ASKED FOR AND RECEIVED WRITTEN APPROVAL FROM THE ARCHITECT.
- THE LIGHTING FIXTURES SHALL BE FURNISHED AND INSTALLED COMPLETE WITH ALL ACCESSORIES (INCLUDING LAMPS) BY THE ELECTRICAL CONTRACTOR.
- SYMBOLS SHOWN ON THIS SHEET ARE STANDARD SYMBOLS AND MAY NOT NECESSARILY ALL BE APPLICABLE TO THIS PROJECT.
- THE CONTRACTOR SHALL GUARANTEE ALL HIS WORK AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.
- ALL PENETRATIONS OF FLOOR AND WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH IBC, NEC AND NFPA.
- CONDUCTORS SHALL BE INSTALLED CONTINUOUS BETWEEN DEVICES, WITH SPLICES LOCATED ONLY IN JUNCTION BOXES OR IN CABINETS. CONDUCTORS SHALL BE OF SUFFICIENT LENGTH TO REACH THE FARTHEST TERMINAL IN PANELS. A MINIMUM OF 6" LOOPS SHALL REMAIN WHERE CONNECTIONS OR TAPS ARE TO BE MADE IN BRANCH CIRCUIT WIRING.
- PROVIDE AN UPDATED TYPEWRITTEN PANEL DIRECTORY IN EACH PANEL AFTER COMPLETION OF WORK.
- ELECTRICAL CONTRACTOR SHALL PROVIDE AS BUILT DRAWINGS AND ALL MANUFACTURERS DATA AND WARRANTY LITERATURE AT THE COMPLETION OF THE CONTRACT.
- IF CEILING SPACE IS USED AS PLENUM, APPROPRIATE WIRING SHALL BE USED.
- STARTERS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR, AND INSTALLED BY ELECTRICAL CONTRACTOR AS PER MANUFACTURER'S RECOMMENDATION. COORDINATE EXACT LOCATIONS AND REQUIREMENTS.
- PER NEC 210.4 (B), CIRCUIT BREAKERS FEEDING MULTIWIRED BRANCH CIRCUITS SHALL BE SIMULTANEOUSLY DISCONNECTED WITH IDENTIFIED HANDLE TIE. TYPICAL.
- "SHARED" UNDER THIS CONTRACT IS DEFINED AS SPLIT CIRCUIT; CONTRACTOR SHALL SPLICE THE CIRCUIT AT THE SOURCE PANELBOARD AND RUN SEPARATE WIRING TO THE LOADS INDICATED.

## EQUIPMENT SPECIFICATIONS

- LIGHT FIXTURES:**
  - ALL NEW LIGHTING FIXTURES SHALL BE LED INSTALLED COMPLETE WITH LAMPS. REFER TO LIGHTING FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION.
  - THE ELECTRICAL CONTRACTOR SHALL PROVIDE SPARE LAMPS EQUAL TO 15% OF THE TOTAL OF ALL LIGHTING FIXTURES INSTALLED ON THE PROJECT.
- RACEWAY:**
  - MINIMUM SIZE OF THE CONDUIT SHALL BE 3/4".
  - PROVIDE FLEXIBLE CONDUIT FOR MOTOR CONNECTIONS, AND FOR OTHER ELECTRICAL EQUIPMENT CONDITIONS, WHERE SUBJECT TO MOVEMENT AND VIBRATION. 18" MAXIMUM LENGTH.
  - PROVIDE LIQUID TIGHT FLEXIBLE CONDUIT FOR CONNECTION OF MOTOR AND FOR OTHER ELECTRICAL EQUIPMENT WHERE SUBJECT TO MOVEMENT AND VIBRATION, AND ALSO WHERE SUBJECT TO ONE OR MORE OF THE FOLLOWING CONDITIONS, UNLESS NOTED OTHERWISE:
    - MOIST AND HUMID ATMOSPHERE WHERE CONDENSATE CAN BE EXPECTED TO ACCUMULATE.
    - CORROSIVE ATMOSPHERE.
    - SUBJECT TO DRIPPING OIL, GREASE OR WATER.
  - ALL CONDUITS SHALL BE GROUNDED PER NEC. CONDUITS ENTERING THE OUTLET BOXES, PANEL CABINETS ETC. MUST BE FITTED WITH A DOUBLE LOCKNUT AND BUSHING.
  - PROVIDE RIGID STEEL, THREADED, THICK WALL CONDUIT, GALVANIZED OR EMT FOR ALL PANEL FEEDERS, AND ALL EXPOSED WIRING IN UNFINISHED AREAS.
  - ALL WIRE RACEWAYS IN OR PASSING THROUGH CONCRETE WALLS, SLABS, OR UNDERGROUND SHALL BE GALVANIZED RIGID STEEL THREADED CONDUIT.
- WIRES AND CABLES:**
  - ALL WIRE AND CABLE SHALL BE COPPER WITH THHN/THWN INSULATION AND ALL WIRE SIZES ARE BASED ON COPPER CONDUCTORS WITH 75°C INSULATION UNLESS INDICATED OTHERWISE. ALL CONNECTORS, LUGS, ETC. SHALL BE LISTED FOR 75°C.
  - PROVIDE WIRING NOT SMALLER THAN #12 AWG FOR THE POWER DISTRIBUTION, AND NOT SMALLER THAN #14 AWG FOR THE FIRE ALARM SYSTEM. ARMORED METAL CABLE OR METAL CLAD CABLE, WHERE CONCEALED, MAY BE USED IF ACCEPTABLE TO THE LOCAL AUTHORITY HAVING JURISDICTION AND IN COMPLIANCE WITH APPLICABLE CODES.
  - ALL CIRCUITS 120/208 VOLT OVER 100 FEET AND ALL 277/480 VOLT CIRCUITS OVER 200 FEET FROM PANEL TO FIRST OUTLET SHALL HAVE CONDUCTORS ONE SIZE LARGER THAN NORMALLY REQUIRED WHETHER INDICATED ON PANEL SCHEDULE OR NOT.
  - CONDUCTORS INSTALLED UNDERGROUND OR IN THE WET LOCATIONS SHALL BE U.L. LISTED PER NEC, AND SHALL BE SUITABLE FOR WET LOCATIONS.
- ELECTRICAL BOXES AND FITTINGS:**
  - ALL BOXES AND FITTINGS SHALL BE OF CODE-GAUGE STEEL.
  - JUNCTION AND PULL BOXES: PROVIDE GALVANIZED CODE-GAUGE SHEET STEEL JUNCTION AND PULL BOXES WITH SCREW-ON COVER OF TYPES, SHAPES AND SIZES TO SUIT EACH RESPECTIVE LOCATION AND INSTALLATION, WITH WELDED SEAMS AND EQUIPPED WITH STAINLESS STEEL NUTS, SCREWS, AND WASHERS.
  - PROVIDE WEATHERPROOF OUTLETS FOR INTERIOR AND EXTERIOR LOCATIONS EXPOSED TO WEATHER OR MOISTURE.
  - ALL PULL BOXES SHALL BE FABRICATED FROM #12 OR HEAVIER GAUGE GALVANIZED STEEL AS REQUIRED BY THE NEC, AND SHALL BE EQUIPPED WITH SCREW FASTENED COVER.
- WIRING DEVICES:**
  - PROVIDE DUPLEX, SPECIFICATION GRADE RECEPTACLES 2 POLE, 3 WIRE GROUNDING WITH GREEN HEXAGONAL EQUIPMENT GROUND SCREWS, GROUND TERMINALS AND POLES INTERNALLY CONNECTED TO MOUNTING YOKE, 20 AMPERES, 125 VOLTS, WITH METAL PLASTER EARS, SIDE WIRING, NEMA CONFIGURATION 5-20R. HUBBELL CAT. NO. HBL5362 OR EQUAL.
  - SWITCHES, 20 AMPS, 120/277 VOLTS, WITH MOUNTING YOKE INSULATED FROM MECHANISM, EQUIPPED WITH PLASTER EARS, SWITCH HANDLE, AND SIDE WIRED SCREW TERMINALS.
  - ALL SWITCHES AND RECEPTACLES SHALL BE OF WHITE COLOR WITH MATCHING COVER PLATES, OR AS SELECTED BY ARCHITECT.
  - ALL DEVICES INSTALLED IN THE LOCATION EXPOSED TO AMBIENT CONDITIONS SHALL BE WEATHERPROOF.
- PANELBOARDS:**
  - PANELBOARD BUSBARS SHALL BE COPPER.
  - PANELBOARD ENCLOSURES: PROVIDE GALVANIZED SHEET STEEL CABINET, CODE-GAUGE, GUTTERS, PROVIDE FRONTS WITH ADJUSTABLE TRIM CLAMPS, AND DOORS WITH CONCEALED PIANO DOOR HINGES AND DOOR SWINGS AS INDICATED, EQUIPPED WITH INTERIOR CIRCUIT-DIRECTORY FRAME AND CARD WITH CLEAR PLASTIC COVERING. PROVIDE BAKED GRAY ENAMEL FINISH OVER A RUST INHIBITOR COATING. DESIGN ENCLOSURES FOR RECESSED/SURFACE MOUNTING AS INDICATED. PROVIDE ENCLOSURES WHICH ARE FABRICATED BY SAME MANUFACTURERS AS PANELBOARDS WHICH MATE AND MATCH PROPERLY WITH PANELBOARD TO BE ENCLOSED.
  - CABINETS FOR DISTRIBUTION PANELS SHALL HAVE 6 INCHES OF GUTTER SPACE ON ALL SIDES. PANELBOARDS AND LIGHTING PANELS SHALL HAVE A MINIMUM OF 5" ON ALL SIDES.
  - ALL PANELBOARDS SHALL BE EQUIPPED WITH COMMON KEYED LOCKS. PROVIDE MINIMUM OF ONE KEY PER PANEL PLUS (6) SPARES.
  - PANELBOARDS SHALL BE AS INDICATED ON THE DRAWINGS, WITH BOLT-ON MOLDED CASE CIRCUIT BREAKERS AND COPPER BUS BARS. CIRCUIT BREAKERS AND INTERIORS SHALL BE OF THE SAME MANUFACTURER AND UL LISTED. THE PANELBOARDS SHALL COMPLY WITH ALL APPLICABLE STANDARDS.
- DISCONNECT SWITCHES:**
  - DISCONNECT SWITCHES SHALL BE TYPE HD, HEAVY DUTY, FUSIBLE OR NON-FUSIBLE, AS NOTED, SINGLE THROW, 600-V AC, 1200 A AND SMALLER: UL 98 AND NEMA KS 1, HORSEPOWER RATED, WITH CLIPS OR BOLT PADS TO ACCOMMODATE INDICATED FUSES, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.

## ELECTRICAL SYMBOLS

NOTE: THESE SYMBOLS ARE STANDARD AND ALL MAY NOT BE APPLICABLE TO THIS JOB. ALL MOUNTING HEIGHTS ARE STANDARD UNLESS NOTED OTHERWISE ON THE DRAWINGS.

-  LED LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE.
-  WALL MOUNTED LIGHTING FIXTURE.
-  BATTERY PACK. CONNECT TO UNSWITCHED HOT-LEG OF CIRCUIT INDICATED.
-  BRANCH CIRCUIT WIRING CONCEALED IN WALLS OR CEILING. NUMBER OF HASHES INDICATES NUMBER OF WIRES AND SHOWN ONLY WHERE REQUIRED FOR CLARITY.
-  BRANCH CIRCUIT WIRING RUN UNDER GROUND OR UNDER SLAB.
-  HOME RUN TO PANELBOARD. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS IN HOME RUN.
-  FLUSH MOUNTED SWITCH, +48" AFF.
-  3 WAY OR 4 WAY FLUSH MOUNTED SWITCH, +48" AFF.
-  MOTOR RATED SWITCH WITH THERMAL OVERLOAD PROTECTION.
-  FLUSH MOUNTED SWITCH WITH OCCUPANCY SENSOR, +48" AFF.
-  CEILING MOUNTED OCCUPANCY SENSOR.
-  FLUSH MOUNTED KEYED SWITCH, +48" AFF.
-  JUNCTION BOX, SIZE AS REQUIRED.
-  DUPLEX RECEPTACLE, NEMA 5-20R, +18" AFF, U.O.N.
-  DUPLEX RECEPTACLE, NEMA 5-20R, GROUND FAULT INTERRUPT, +44" AFF, U.O.N.
-  DOUBLE DUPLEX (QUAD) RECEPTACLE, NEMA 5-20R, +18" AFF.
-  DUPLEX RECEPTACLE, NEMA 5-20R, FLOOR MOUNTED.
-  SINGLE RECEPTACLE, NEMA CONFIGURATION AS NOTED, +18" AFF.
-  PHOTO-CELL, WALL MOUNT +10'0" A.F.F.
-  120/208 VOLT PANELBOARD.
-  MOTOR CONNECTION.
-  DISCONNECT SWITCH. 240V, POLES, AMPS, AND FUSING TO MATCH CIRCUIT BREAKER.
-  MOTOR STARTER.
-  ENCLOSED CIRCUIT BREAKER.
-  GROUND PER NEC ARTICLE 250.

## ELECTRICAL ABBREVIATIONS

A	AMP
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CAPACITY
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CU	COPPER
DN	DOWN
EC	EMPTY CONDUIT
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FSS	FUSED SAFETY SWITCH
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HP	HORSE POWER
IBC	INTERNATIONAL BUILDING CODE
KVA	KILOVOLT AMPS
KW	KILOWATTS
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NFSS	NON FUSED SAFETY SWITCH
P	POLE
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT AMPS
W	WATTS
WP	WEATHERPROOF

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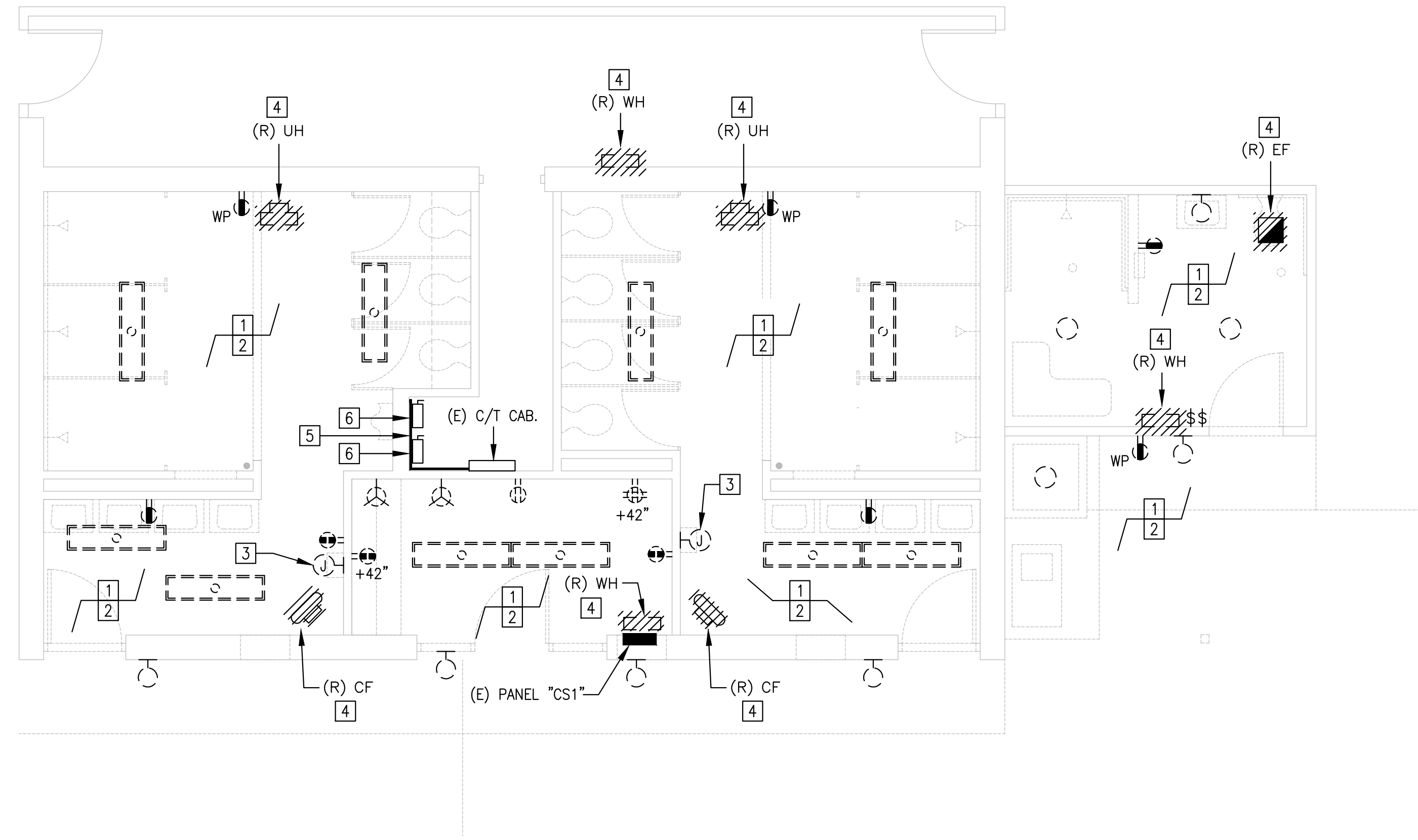
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PROJECT PHASE:  
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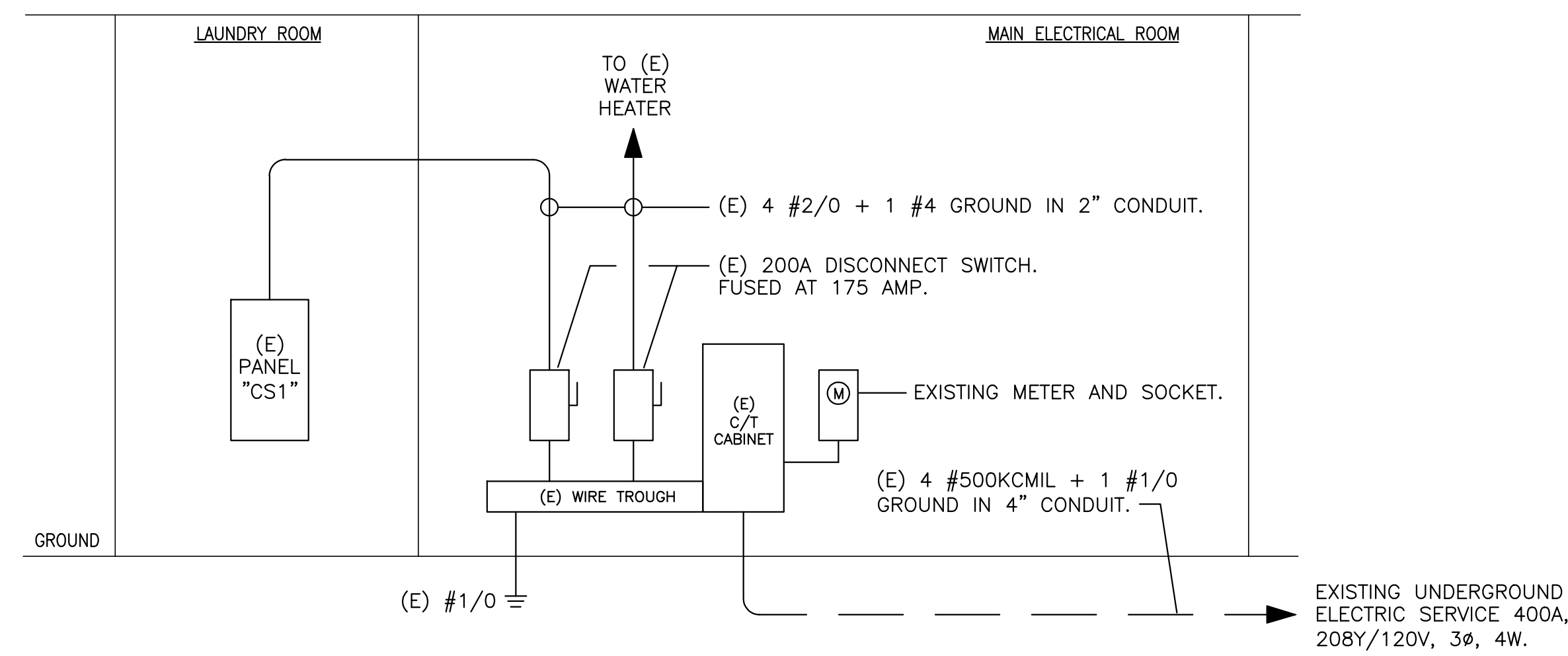
DATE: 12/11/2020

SHEET No.  
 E-1



**ELECTRICAL DEMOLITION – FLOOR PLAN**

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



**PARTIAL ELECTRICAL RISER DIAGRAM**

NOT TO SCALE

**ELECTRICAL DEMOLITION NOTES**

1. CONTRACTOR SHALL REMOVE ALL EXISTING WORK THAT WILL NOT BE REUSED DURING NEW CONSTRUCTION. LEAVING THE BUILDING FREE AND CLEAN OF OLD SYSTEMS.
2. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES TO MINIMIZE DOWN TIME OF SYSTEMS THAT WILL REMAIN IN OPERATION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FIRE RATING, AND WATERPROOFING INTEGRITY IN ALL CASES.
4. ALL REMOVED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR FOR DISPOSAL UNLESS OTHERWISE DIRECTED BY OWNER. CONTRACTOR SHALL COORDINATE FOR ITEMS THAT SHALL BE RETURNED TO OWNER.
5. REMOVE ALL EXPOSED, ELECTRICAL WIRING AND CONDUITS THAT ARE NOT GOING TO BE REUSED IN NEW WORK BACK TO PANEL.
6. ALL ELECTRICAL DEVICES IN WALLS TO BE DEMOLISHED SHALL BE REMOVED UNLESS OTHERWISE NOTED. MAINTAIN CIRCUIT CONTINUITY FOR DEVICES THAT REMAIN.

**PLAN KEYED NOTES #**

1. ALL EXISTING LIGHT FIXTURES, AND CONTROLS TO BE REMOVED WITH ASSOCIATED BRANCH CIRCUIT WIRING AND CONDUITS BACK TO THE PANELBOARD, UNLESS OTHERWISE NOTED. REFER TO NEW WORK PLAN.
2. EXISTING DUPLEX RECEPTACLE, TO BE REMOVED WITH ASSOCIATED BRANCH CIRCUIT WIRING AND CONDUITS BACK TO NEXT DEVICE OR PANELBOARD, UNLESS OTHERWISE NOTED.
3. EXISTING HAND DRYER, TO BE REMOVED WITH ASSOCIATED BRANCH CIRCUIT WIRING AND CONDUITS BACK TO THE PANELBOARD, UNLESS OTHERWISE NOTED. REFER TO NEW WORK PLAN.
4. EXISTING ELECTRIC WALL HEATER (WH) UNIT HEATER (UH), EXHAUST FAN (EF) CEILING FAN (CF) TO BE REMOVED WITH ASSOCIATED CIRCUIT WIRING AND CONDUITS BACK TO THE PANELBOARD. IF CIRCUIT IS NO LONGER ACTIVE, AT THE PANELBOARD, TURN CIRCUIT BREAKER(S) TO THE OFF POSITION AND LABEL AS "SPARE".
5. EXISTING SERVICE WIRE TROUGH TO REMAIN.
6. EXISTING 200A FUSIBLE SAFETY SWITCH FUSED AT 175A

**DEMO/NEW WORK LEGEND**

- (E) DENOTES EXISTING TO REMAIN.
- (R) DENOTES EXISTING TO BE REMOVED. REMOVE WITH ALL CIRCUITRY THERETO.
- (RE) DENOTES EXISTING TO BE REMOVED AND RELOCATED.
- (ER) DENOTES NEW LOCATION OF EXISTING ITEM. (\*)
- (N) DENOTES NEW TO MATCH EXISTING.
- (\*) EXTEND BRANCH CIRCUIT WIRING AS REQUIRED. MAINTAIN INTEGRITY OF EXISTING SYSTEMS.

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NO.	REVISIONS

**AS**

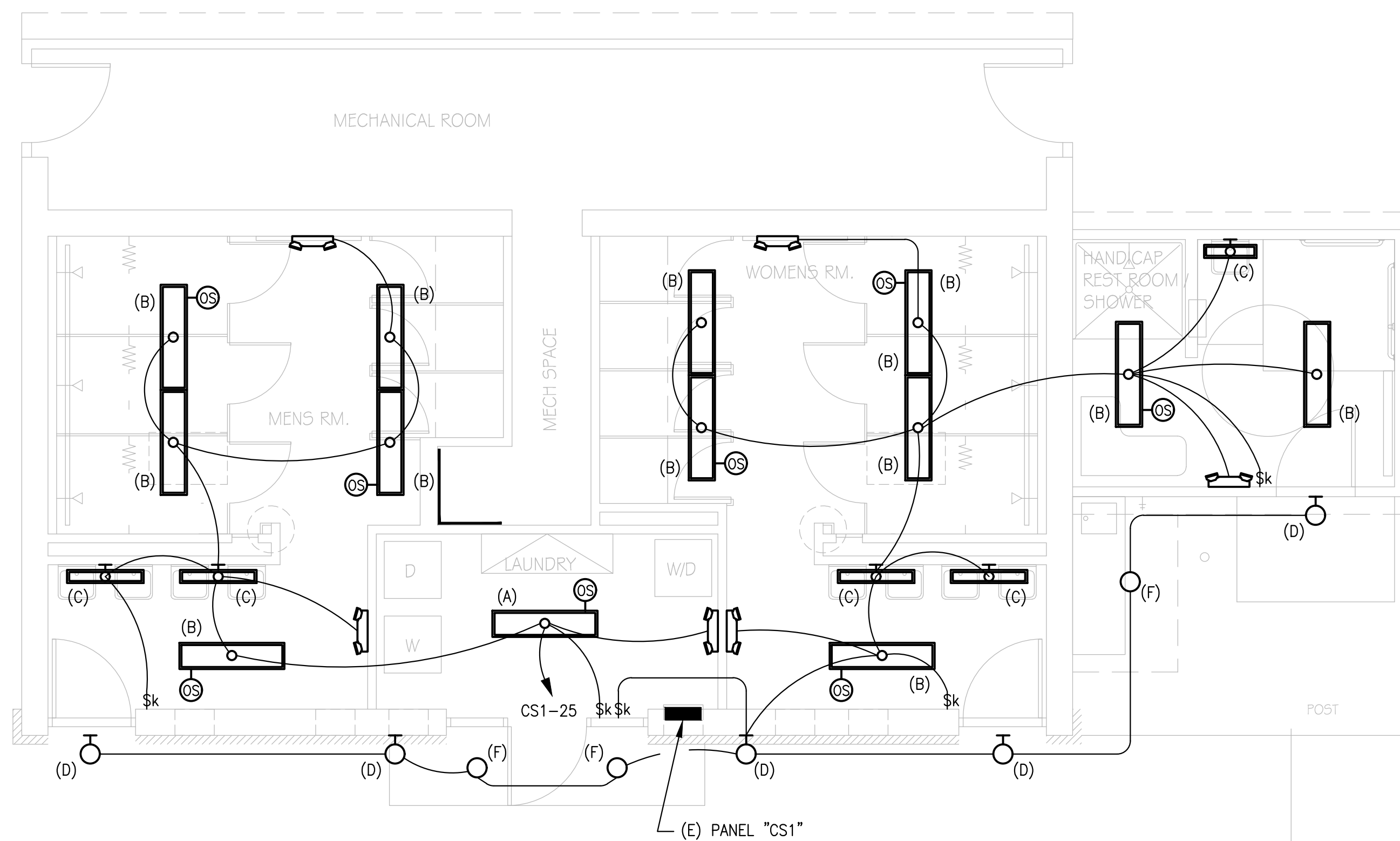
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 POHICK BAY REGIONAL PARK  
 6501 POHICK BAY DRIVE  
 LORTON, VA 22079  
 NORTHERN, VA

PROJECT PHASE:  
 100% SUBMISSION

DATE: 12/11/2020

SHEET No.  
**E-2**



**FLOOR PLAN - LIGHTING**

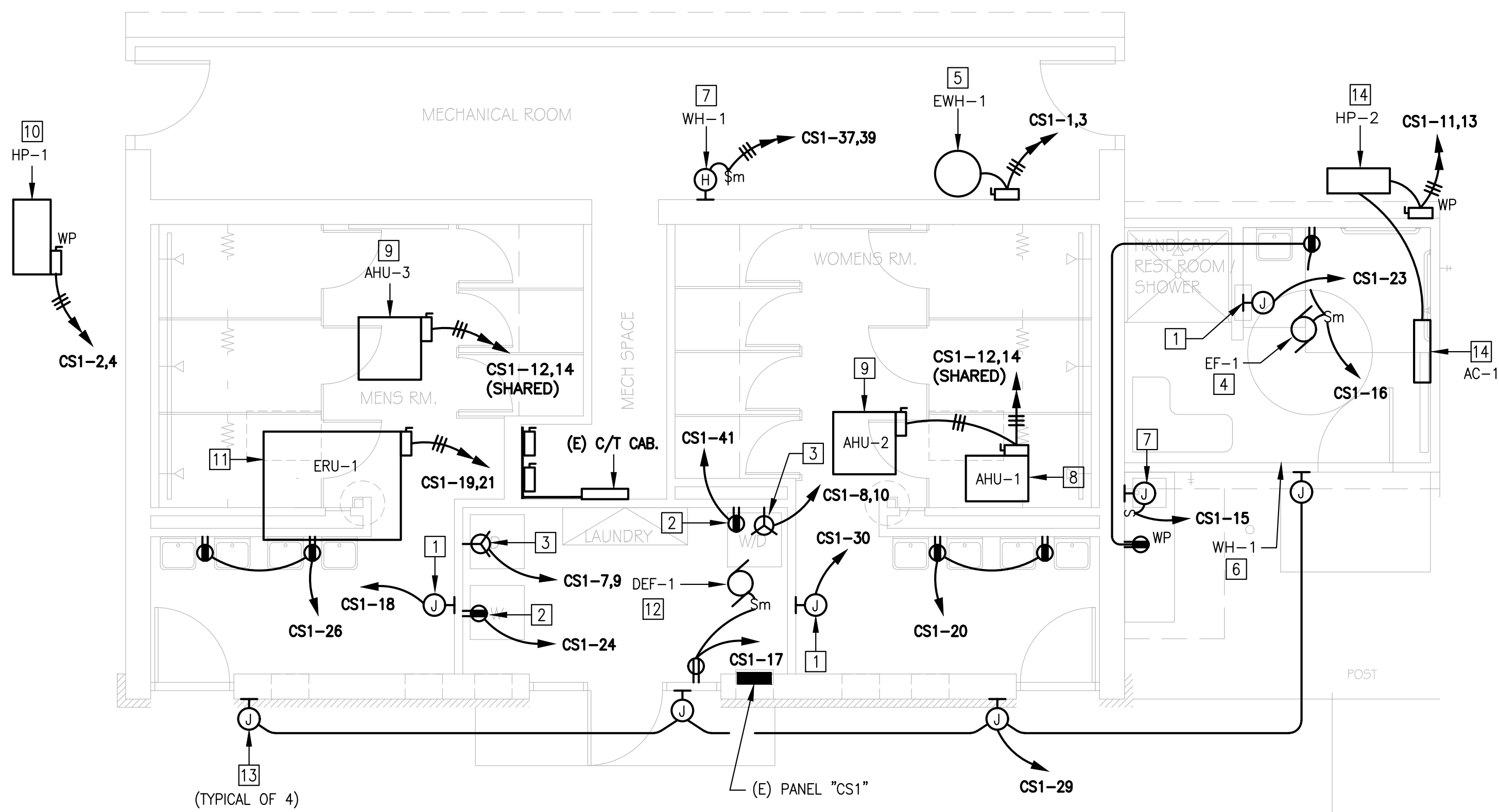
SCALE: 1/4" = 1'-0"  
NOTE: ALL WORK IS NEW, UNLESS OTHERWISE NOTED.

**LIGHTING FIXTURE SCHEDULE**

FIXTURE DESIGNATION	FIXTURE TYPE	MANUFACTURER	CATALOG NO.	LAMP		WATTS	QTY	TOTAL	VOLTS	MOUNTING	REMARKS
				NO.	TYPE						
(A)	1' x 4' LINEAR LED LUMINAIRE.	LITHONIA	ALLS4-60L-MVOLT-EZ1-LP835.	1	6000LU/LED/40K	47	1	47	120	SURFACE	
(B)	1' x 4' LINEAR LED FOR WET LOCATION	LITHONIA	FEML48-4000-LPACL-WD-MVOLT-35K	-	37.8W/LED/35K	37.8	12	453.6	120	SURFACE	Ⓢ PROVIDE WITH OCCUPANCY SENSOR. SEE LIGHTING PLAN
(C)	CYLINDER VANITY LED 36"	LITHONIA	FMVCL-36IN-MVOLT-35K-90CRI-BN.	1	2050LU/LED	26	4	104	120	SURFACE	
(C1)	CYLINDER VANITY LED 24"	LITHONIA	FMVCL-24IN-MVOLT-35K-90CRI-BN.	1	1391LU/LED	18	1	18	120	SURFACE	WALL MOUNT ABOVE MIRROR.
(D)	LOW-PROFILE LED WALL PACK	LITHONIA	BRISK-S17L-730K-PCU	1	14W/LED/40K	14	5	70	120	SURFACE	WALL MOUNT +10" AFF. UON. WITH DUSK TO DAWN SENSOR
(F)	OUTDOOR RECESS LED LIGHT	LITHONIA	WF4-LED-4000K-80CRI-10W	1	1000LU/LED	10	3	30	MVOLT	RECESS	
	LED EMERGENCY UNIT WITH 90 MIN BACK-UP.	LITHONIA	EU2-LED-M12-WHITE.	2	1.8W/LED/40K	1.8	7	12.6	120	SURFACE	
								TOTAL WATTS =	735.2		

**INTERIOR LIGHTING CALCULATIONS**

RESTROOM SPACE = 814 SQ. FT.  
LIGHTING POWER BUDGET ALLOWANCE @ 0.98/SQ. FT. = 797 WATTS.  
INSTALLED LIGHTING FIXTURES = 735.2 WATTS.



**FLOOR PLAN - POWER**

SCALE: 1/4" = 1'-0"  
NOTE: ALL WORK IS NEW, UNLESS OTHERWISE NOTED.

**KEYED NOTES - POWER #**

- NEW HAND DRYER, 1.0KW, 120V, 1Ø
- NEW CLOTHES WASHERS, 15A, 120V. 1Ø. CIRCUIT TO PANEL 'CS1'
- NEW DRYERS, 5KW, 240V, 1Ø. CIRCUIT TO PANEL 'CS1'
- NEW SHOWER EXHAUST FAN (EF-1), 100 WATTS, 120V, 1Ø.
- NEW ELECTRIC WATER HEATER (EWH-1) 5KW, 208V, 1 PHASE.
- ELECTRICAL WALL HEATER (WH-1) 3KW, 208V, 1Ø. REFER TO MECHANICAL DRAWING FOR EXACT LOCATION.
- WALL MOUNTED J. BOX FOR HEAT TRACE 7W, PER LINEAR FOOT, 120V, 1Ø. REFER TO PLUMBING DRAWING FOR EXACT LOCATION.
- AHU-1, 0.6 MCA, 15A MOCP, 208V, 1Ø. REFER TO MECHANICAL DRAWING FOR EXACT LOCATION.
- AHU-2 & AHU-3, 1.4 MCA, 15A MOCP, 208V, 1Ø. REFER TO MECHANICAL DRAWING FOR EXACT LOCATION.
- HP-1, 0.6 MCA, 25A MOCP, 208V, 1Ø. REFER TO MECHANICAL DRAWING FOR EXACT LOCATION.
- ERU-1, MCA 8.1A, MOCP 15A, 208V, 1Ø. REFER TO MECHANICAL DRAWING FOR EXACT LOCATION.
- DRYER EXHAUST FAN (DEF-1) 74 WATTS, 115V, 1Ø. REFER TO MECHANICAL DRAWING FOR EXACT LOCATION.
- WALL MOUNTED J. BOX FOR CARD READER. COORDINATE WITH ARCHITECTURE PLAN FOR EXACT LOCATION.
- HP-2, (OUTDOOR UNIT) COMPRESSOR 8.5A, FAN .36A  
AC-1, (INDOOR UNIT) FAN .30A  
SYSTEM MCA 8.7A, SYSTEM MOCP 15A, 208V, 1Ø. THE INDOOR UNIT POWER FROM THE OUTDOOR UNIT. REFER TO MECHANICAL DRAWING FOR EXACT LOCATION.

**(E) PANEL CS1**

POLES 42  
MIN AIC EXISTING  
NOTES 1

VOLTS 208Y/120 VOLTS  
PHWIRE 3 PHASE, 4 WIRE (A, B, C, N, EG)  
MAIN 225 AMPS MLO

MOUNTING RECESSED  
LOCATION LAUNDRY RM  
FED FROM SEE RISER

LOAD DESCRIPTION	LOAD KVA	BREAKER TRIP	CTK #	PHASE KVA			BREAKER TRIP	LOAD KVA	LOAD DESCRIPTION		
				A	B	C					
ELECTRIC WATER HEATER (EWH-1)	2.50	30	1	4.21			30	1.71	HP-1		
(E) CIRCUIT	0.72	20	5		1.44		20	0.72	(E) CIRCUIT		
DRYER	2.67	40	7	5.34			40	2.67	DRYER		
HP-2	0.90	15	11		1.25		15	0.35	AHU-1, AHU-2, AHU-3		
SPARE	0.90	15	13	1.25			15	0.35			
REC. & DEF-1 - LAUNDRY	0.25	20	17		0.82		20	0.82	GFI REC. & EF-1 H.C BATHROOM		
ERU	0.84	2	15	1.20			20	0.36	GFI RECEPTACLES - WOMEN RM.		
HAND DRYER	1.00	20	23		2.44		20	1.44	WASHER		
(E) LIGHTING - BACK ROOM	0.74	15	25	1.10			20	0.36	GFI RECEPTACLES - MEN RM.		
SECURITY DOOR POWER	0.48	15	27		0.20		20		SPARE		
SPARE	0.48	15	29		1.48		20	1.00	HAND DRYER		
SPARE	0.72	15	31	0.72			32	0.72	(E) SODA MACHINE		
(E) CIRCUIT	0.72	15	33		0.72		34	20	SPARE		
SPARE	1.50	15	35				36	20	SPARE		
WALL HEATER (WH-2)	1.50	20	37	1.64			38	20	3	0.14	HEAT TRACE
WASHER	1.44	20	41		1.44		42			SPACE	
TOTAL CONNECTED KVA PER PHASE				15.5	14.0	9.3					

**LOAD COMPUTATIONS AND MINIMUM FEEDER AMPACITY**

CATEGORY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA	DEMAND AMPS	MULTIPLIER	MINIMUM AMPACITY
LIGHTING	1.4	1.00	1.4	3.9	1.25	4.9
RECEPTACLES	21.0	NEC TABLE 220.44	15.5	43.1	1.00	43.1
KITCHEN EQUIPMENT		0.65			1.00	
ELECTRICAL HEATING EQUIP	3.0	1.00	3.0	8.3	1.25	10.4
WATER HEATER	5.0	1.00	5.0	13.9	1.25	17.4
OTHER LOADS	8.3	1.00	8.3	23.1	1.00	23.1
TOTAL CONNECTED - KVA 38.8 TOTAL DEMAND AMPS 92 TOTAL MINIMUM FEEDER AMPACITY 99						

NOTES:  
1. CIRCUIT BREAKERS SHOWN ARE EXISTING, UNLESS OTHERWISE NOTED.  
2. DISCONNECT AND REMOVE (E) CIRCUIT BREAKERS AND PROVIDE NEW BREAKER INDICATED. TYPE AND INTERRUPTING RATING SHALL MATCH EXISTING.  
3. PROVIDE NEW GFI BREAKER INDICATED. TYPE AND INTERRUPTING RATING SHALL MATCH EXISTING.

THE PLANS, IDEAS, ARRANGEMENTS, AND DESIGNS INDICATED OR REPRESENTED BY THIS DRAWING (S) ARE OWNED BY, AND ARE THE PROPERTY OF FRANK V. STURGEON, ARCHITECT. AND ARE INTENDED ONLY IN CONNECTION WITH THIS SPECIFIC PROJECT. THESE DRAWINGS SHALL NOT BE USED, IN WHOLE OR IN PART FOR ANY OTHER PURPOSE FOR WHICH THEY WERE NOT ORIGINALLY INTENDED WITHOUT WRITTEN PERMISSION FROM FRANK V. STURGEON, AIA ARCHITECT. © 2020

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NORTHERN, VA

PROJECT PHASE:  
100% SUBMISSION  
DATE: 12/11/2020

SHEET No.  
**E-3**

## PLUMBING NOTES

- THE INTENT OF THESE DRAWINGS IS TO PROVIDE COMPLETE AND PROPERLY FUNCTIONING PLUMBING SYSTEMS. PROVIDE ALL LABOR AND MATERIAL NECESSARY TO ACHIEVE SUCH ENDS. CONTRACTOR IS OBLIGATED TO EXAMINE PLANS AND VISIT THE SITE BEFORE THE BID. ANY OBSERVED FAULTS OR AMBIGUITY IN THIS PLAN SET SHALL BE CALLED TO THE ENGINEER IMMEDIATELY, SO THAT THE MATTER MAY BE RESOLVED PRIOR TO THE SUBMISSION OF THE BUDGET PROPOSAL. BY SUBMISSION OF BID, THE CONTRACTOR SHALL ACKNOWLEDGE ACCEPTANCE OF THIS PLAN SET AS AN ADEQUATE DEFINITION OF THE SCOPE OF WORK, AND EXTRA COST CLAIMS BASED ON INADEQUACY OF PLANS WILL NOT BE CONSIDERED. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION OF DRAWINGS AND TO PROVIDE THE COMPLETE AND FUNCTIONING SYSTEM.
- ALL WORK ON THIS PROJECT SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS. ALL EQUIPMENT SHALL BE UL LISTED.
- THESE DRAWINGS ARE SCHEMATIC AND INTENDED TO DEPICT THE GENERAL LOCATION OF PLUMBING SYSTEM COMPONENTS. CONSULT ARCHITECTURAL PLANS FOR PROPER DIMENSIONS AND LOCATIONS OF EQUIPMENT.
- CONTRACTOR SHALL OBTAIN AND PAY FOR PERMITS AND ARRANGE FOR INSPECTIONS BY LOCAL AUTHORITIES HAVING JURISDICTION WITH THE EXCEPTION OF THE BUILDING PERMIT.
- PLUMBING CONTRACTOR SHALL THOROUGHLY CLEAN HIS WORK AREA DAILY OR AS REQUESTED BY THE GENERAL CONTRACTOR. PLUMBING CONTRACTOR SHALL ALSO REMOVE HIS TRASH AND DEBRIS AFTER THE COMPLETION OF THE WORK.
- THE PLUMBING WORK SHALL BE PERFORMED IN A WORKMANLIKE FASHION. WORK SHALL BE REJECTED IF, IN OPINION OF THE OWNER'S REPRESENTATIVE, IT IS NOT INSTALLED IN A PROPER MANNER.
- COORDINATE ALL PLUMBING WORK THAT REQUIRES ELECTRICAL POWER WITH THE BUILDING POWER TYPE AND AVAILABILITY.
- VERIFY THE LOCATION, INVERT ELEVATION AND DIRECTION OF FLOW OF ALL PLUMBING PIPING BEFORE THE INSTALLATION OF NEW WORK.
- DOMESTIC WATER PIPING SHALL BE COPPER TUBING, TYPE-L HARD TEMPER, WITH WROUGHT COPPER SOLDER JOINT FITTINGS AND 95-5 SOLDER.
- SANITARY SEWER DRAINAGE PIPING SHALL BE HUBLESS CAST IRON, SERVICE WEIGHT OR PVC TYPE (SCHEDULE 40) DWV WITH SOLVENT CEMENTED, DWV SOCKET TYPE FITTINGS. PVC SHALL NOT BE USED IN PLENUM CEILINGS. INTERIOR SANITARY WASTE PIPING SHALL NOT SLOPE LESS THAN 1/4" PER FOOT, UNLESS AS NOTED ELSEWHERE. MINIMUM SANITARY LINE BELOW GRADE SHALL BE 2" IN DIAMETER.
- ALL SERVICE VALVES ON THIS PROJECT SHALL BE BALL TYPE.
- TEST AND DISINFECT DOMESTIC WATER SYSTEMS IN ACCORDANCE WITH APPLICABLE CODES.
- INSULATION:  
PIPE INSULATION SHALL BE MOLDED GLASS FIBER, APPROXIMATELY 3-1/2" POUND DENSITY, WITH A K FACTOR OF .023 AT 75° F EQUAL TO JOHN-MANVILLE "FLAME-SAFE AP-1". WATER HEATER JACKET SHALL BE WHITE KRAFT BONDED TO ALUMINUM FOIL, REINFORCED WITH FIBERGLASS YARN AND HAVING A PRESSURE SENSITIVE TAPE CLOSURE SYSTEM BONDED TO THE LONGITUDINAL LAP.  
FITTING AND VALVES SHALL BE COVERED WITH FIBERGLASS INSERT AND WITH FIBER PRE-MOLDED PVC COVERS SIMILAR TO JOHN-MANVILLE "ZESTON".  
INSULATION SHALL BE APPLIED IN THE FOLLOWING THICKNESS:  
DOMESTIC COLD WATER 1" THICK  
DOMESTIC HOT WATER 1" THICK  
PROVIDE INSULATION ON ALL COLD WATER PIPING, ON ALL HOT WATER PIPING, ON ALL HOT WATER CIRCULATING PIPING AND ON ALL NEW WATER PIPING RISERS.
- IDENTIFY ALL THE PLUMBING PIPING.
- HANGERS AND SUPPORTS, SHALL BE PER MSS-58 FOR ACCEPTABLE TYPES, MSS-69 FOR INSTALLATION AND SPACING.
- PIPING PENETRATIONS: ALL MASONRY PENETRATIONS SHALL BE CORE-DRILLED, WET WHERE POSSIBLE. OBTAIN OWNER'S PERMISSION PRIOR TO DRILLING. X-RAY FLOOR SLAB PRIOR TO DRILLING FOR ALL CABLE TENSIONED SLABS. DO NOT CUT STRUCTURAL MEMBERS.
- PROVIDE PIPE SLEEVES FOR ALL FLOOR AND MASONRY WALL PENETRATIONS. PACK VOID SPACE WITH APPROVED FLEXIBLE FIREPROOF SEALANT.
- PROVIDE DIELECTRIC FITTING BETWEEN CONNECTION OF DISSIMILAR MATERIALS.
- VALVES:  
A. PIPING UP TO 2" SHALL BE BALL-TYPE SHUT-OFF VALVES, 2-PIECE.  
B. CHECK VALVE  
C. BACKFLOW PREVENTERS - ALL DEVICES WHICH CONTROL, UTILIZE OR OTHERWISE CONTACT THE POTABLE DOMESTIC WATER SUPPLY SHALL BE EQUIPPED WITH APPROPRIATE BACKFLOW PREVENTION, IN ACCORDANCE WITH LOCAL REQUIREMENTS.
- SUBMITTALS  
A. SUBMIT CONTROL WIRING DIAGRAMS FOR ALL EQUIPMENT INCLUDING INTERLOCKS WITH OTHER DEVICES AS DESCRIBED IN CONTROL SEQUENCES OR AS OTHERWISE INDICATED.  
B. SUBMIT DRAWINGS OF ALL SLAB PENETRATIONS FOR OWNER/ARCHITECT/ENGINEER REVIEW AND APPROVAL PRIOR TO PROCEEDING WITH THE PENETRATION INSTALLATION. ALL FLOOR PENETRATIONS SHALL BE CORE-DRILLED AND X-RAYED PRIOR TO WORK.  
C. SUBMIT A LIST OF ANY PRODUCT SUBSTITUTIONS, SUBSTITUTED EQUIPMENT DATA, AND THE ASSOCIATED COST SAVINGS AT THE TIME OF BID SUBMISSION. SUBSTITUTIONS AFTER THE CONTRACT IS AWARDED WILL NOT BE ACCEPTED.  
D. IMMEDIATELY UPON PROJECT COMPLETION, PREPARE AND SUBMIT AS-BUILT DRAWINGS IN THE FORM OF MARKED-UP CONSTRUCTION DOCUMENTS DETAILING THE AS-BUILT CONDITIONS AND ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS. INCLUDE ALL EQUIPMENT SUBSTITUTIONS AND MODIFICATIONS REQUIRED TO ACCOMMODATE THE ACCOMMODATE THE SUBSTITUTIONS.  
E. A MINIMUM OF TWO WEEKS TIME WILL BE REQUIRED FOR A REVIEW OF EACH SUBMITTAL BY THE ARCHITECT AND ENGINEER. INVOLVED SUBMITTALS SUCH AS CONTROLS MAY REQUIRE ADDITIONAL TIME TO REVIEW. CONTRACTOR IS RESPONSIBLE FOR ALLOCATING SUFFICIENT TIME IN THE CONSTRUCTION SCHEDULE TO OBTAIN FINAL APPROVAL OF SUBMITTALS, INCLUDING TIME FOR SUBSEQUENT REVIEWS OF SUBMITTALS NOT INITIALLY APPROVED. ANY CLAIMS FOR DELAYS RELATED TO SUBMITTAL REVIEW WILL NOT BE ACCEPTED.
- PIPE INSTALLATION MUST NEVER PROJECT INTO THE AREA DEFINED BY THE FIRE RATED ASSEMBLY.
- ALL PIPING MUST BE RUN WITHIN THE INTERSTITIAL SPACES AND NOT PROJECT INTO THE FINISHED SPACE. HOWEVER, IF IT BECOMES NECESSARY TO HAVE A PIPE PROJECT INTO A FINISHED SPACE IT MUST BE CONCEALED WITH A CHASE BUILT OF SIMILAR MATERIALS TO THAT OF THE ADJACENT FINISHED MATERIALS. IF THIS APPEARS TO BECOME NECESSARY, IT SHOULD BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER, BEFORE IMPLEMENTATION TO DETERMINE IF REROUTING IS POSSIBLE.
- PROJECT CLOSEOUT:  
A. FURNISH "AS-BUILT" DRAWINGS.  
B. PROVIDE DOMESTIC WATER STERILIZATION CERTIFICATES.  
C. PROVIDE OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT.  
D. PROVIDE WARRANTY CERTIFICATES FOR ALL EQUIPMENT.  
E. PROVIDE REQUIRED SPARE PARTS.  
F. PROVIDE SYSTEM DEMONSTRATION.  
G. PROVIDE INSTRUCTION TO OWNER AND DESIGNATED PERSONNEL, DEMONSTRATING TYPICAL MAINTENANCE AND REPAIR PROCEDURES.

## PLUMBING FIXTURE CONNECTION SCHEDULE

FIXTURE	MARK	MINIMUM CONNECTIONS					REMARKS
		WASTE	VENT	CW	HW	MAX FLOW	
WATER CLOSET	WC-1	3"	2"	1"	-	1.28 GAL. FLUSH	FLOOR MOUNTED WATER CLOSET. AMERICAN STANDARD, MODEL # 2234.001, "MADERA FLOWISE, 15" HEIGHT, ELONGATED FLUSHOMETER TOILET, VITREOUS CHINA LESS EVERCLEAN, MANUAL FLUSH VALVE, 1.28 GPF. PROVIDE TOILET SEAT.
WATER CLOSET ADA	WC-2	3"	2"	1"	-	1.28 GAL. FLUSH	WALL MOUNTED WATER CLOSET. AMERICAN STANDARD, MODEL # 2856.128, WALL MOUNTED. MANUAL FLUSH VALVE, ADA COMPLAINT. PROVIDE WATER CLOSET WALL SUPPORT CARRIER ASSEMBLY. PROVIDE TOILET SEAT.
LAVATORY	LAV-1	1-1/2"	1-1/2"	1/2"	1/2"	0.5 GPM	AMERICAN STANDARD "LUCERNE" WALL HUNG LAVATORY. MODEL #0355.012 FAUCET: AMERICAN STANDARD "MONTERREY" POLISHED CHROME CENTERSET GOOSENECK LAVATORY FAUCET. MODEL #7502.170VP
LAVATORY	LAV-2	1-1/2"	1-1/2"	1/2"	1/2"	0.5 GPM	AMERICAN STANDARD "LUCERNE" WALL HUNG LAVATORY. MODEL #0355.012 FAUCET: AMERICAN STANDARD "MONTERREY" POLISHED CHROME CENTERSET GOOSENECK LAVATORY FAUCET. MODEL #7502.170VP
URINAL	UR-1	2"	1-1/2"	3/4"	-	1.0 GAL. FLUSH	WALL MOUNTED. FLUSH VALVE. PROVIDE WALL CARRIER SUPPORT ASSEMBLY. AMERICAN STANDARD "WASHBROOK-FLOWISE" UNIVERSAL URINAL. MODEL #6590.001, VITREOUS CHINA, ULTRA HIGH EFFICIENCY, LOW CONSUMPTION, FLUSHED RIM
SHOWER	SH-1	2"	1-1/2"	1/2"	1/2"	2.5 GPM	AMERICAN STANDARD-PRESSURE BALANCE VOLUME AND TEMPERATURE CONTROL VALVE MODEL# R121. STUDIO T590.507, WITH TRIM KIT INCLUDING METAL LEVER HANDLE AND FLOW WISE SHOWER HEAD
HANDICAPPED SHOWER	SH-2	2"	1-1/2"	1/2"	1/2"	2.5 GPM	DELTA-MULTI CHOICE, UNIVERSAL PRESSURE BALANCE TUB AND SHOWER WITH DIVERTER VALVE FOR DUAL SHOWERS ASSEMBLY, MODEL #T13H923, ADA COMPLIANCE, HAND SHOWER, SHOWER HEAD, S/S GRAB BAR WITH ADA SLIDE, METAL LEVER HANDLE.
SINK	SK-1	2"	1-1/2"	1/2"	1/2"	2.5 GPM	JOHN BOOS, MODEL # EPT8R5 STAINLESS STEEL TABLE W/SINK. 18 GAUGE STAINLESS STEEL WORK TOP WITH 5" RISER & TURN DOWN, STAINLESS STEEL BASE & ADJUSTABLE UNDERSHELF, TYPE 300 STAINLESS STEEL WITH # 4 POLISH. 16"X20"X12" BOWL. ADJUSTABLE BULLET FEET. SINK'S BOWL LOCATION SHALL BE COORDINATED WITH ARCHITECTURAL DRAWINGS. FAUCET: AMERICAN STANDARD "MONTERREY" POLISHED CHROME CENTERSET GOOSENECK LAVATORY FAUCET. MODEL #7502.170VP
WASHER	W-1	2"	1-1/2"	1/2"	1/2"	-	REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFICATION
DRYER	D-1	NA	NA	NA	NA	NA	REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFICATION
NON-FREEZE HOSE BIBB	NFHB-1	NA	NA	3/4"	NA	4.0 GPM	JOSAM SERIES # 71300, CHROME-PLATED 1/4-TURN HYDRANT/SILL-COCK, STAINLESS STEEL BOX, HINGED LATCHING OVER, 3/2" HPT OUTLET, INTEGRAL VACUUM BREAKER, BACKFLOW PREVENTER, NON-FREEZE WITH BOX. SUITABLE FOR WALL MOUNTING.
HOSE BIBB	HB-1	NA	NA	3/4"	NA	4.0 GPM	JAY R.SMITH MFR. CO-MODEL # FIG. #5670 (-H), BENT NOSE WITH FLANGE AND VACUUM BREAKER. SUITABLE FOR WALL MOUNTING.
SHOWER DRAIN (TRENCH DRAIN)	TD-1	2"	1-1/2"	NA	NA	NA	MODEL # LUXE, LINEAR SHOWER DRAIN-WEDGEWIRE, MODERN DESIGN LINEAR DRAINS, CHANNEL WIDTH 3-3/16" WIDTH, STRAINER, DRAIN ADAPTER, 2" DRAIN PIPE.

### REMARKS:

- ALL PLUMBING FIXTURE COLOR SHALL BE SELECTED BY THE ARCHITECT.
- PROVIDE TEMPERING VALVE FOR ALL LAVATORY.
- PROVIDE POINT-OF-USE THERMOSTATIC MIXING VALVE, AND SET HOT WATER OUTLET TO 95°F.

## SPECIAL NOTES

- DOMESTIC WATER SYSTEM SHALL INCLUDE PIPING, FITTING, PIPING ACCESSORIES, VALVES, VALVE BOXES, HANGERS, SUPPORTS, BACK FLOW PREVENTERS, VACUUM BREAKER AND WATER HEATER, ECT.
- SANITARY SYSTEM SHALL INCLUDE PIPING, FIXTURES, FITTING, PIPING ACCESSORIES, HANGERS AND SUPPORTS.
- ALL EQUIPMENT AND THE SYSTEMS SHALL BE PROVIDED IN CONFORMANCE WITH NFPA, AGA, PDI, MANUFACTURER'S RECOMMENDATIONS, STATE, LOCAL CODES AND ORDINANCES.
- ALL EXPOSED PIPING SHALL BE CHROMED-PLATED.
- FIXTURES INTENDED FOR USE BY HANDICAPPED SHALL BE IN COMPLIANCE WITH ADA REQUIREMENTS.

## PLUMBING EQUIPMENT

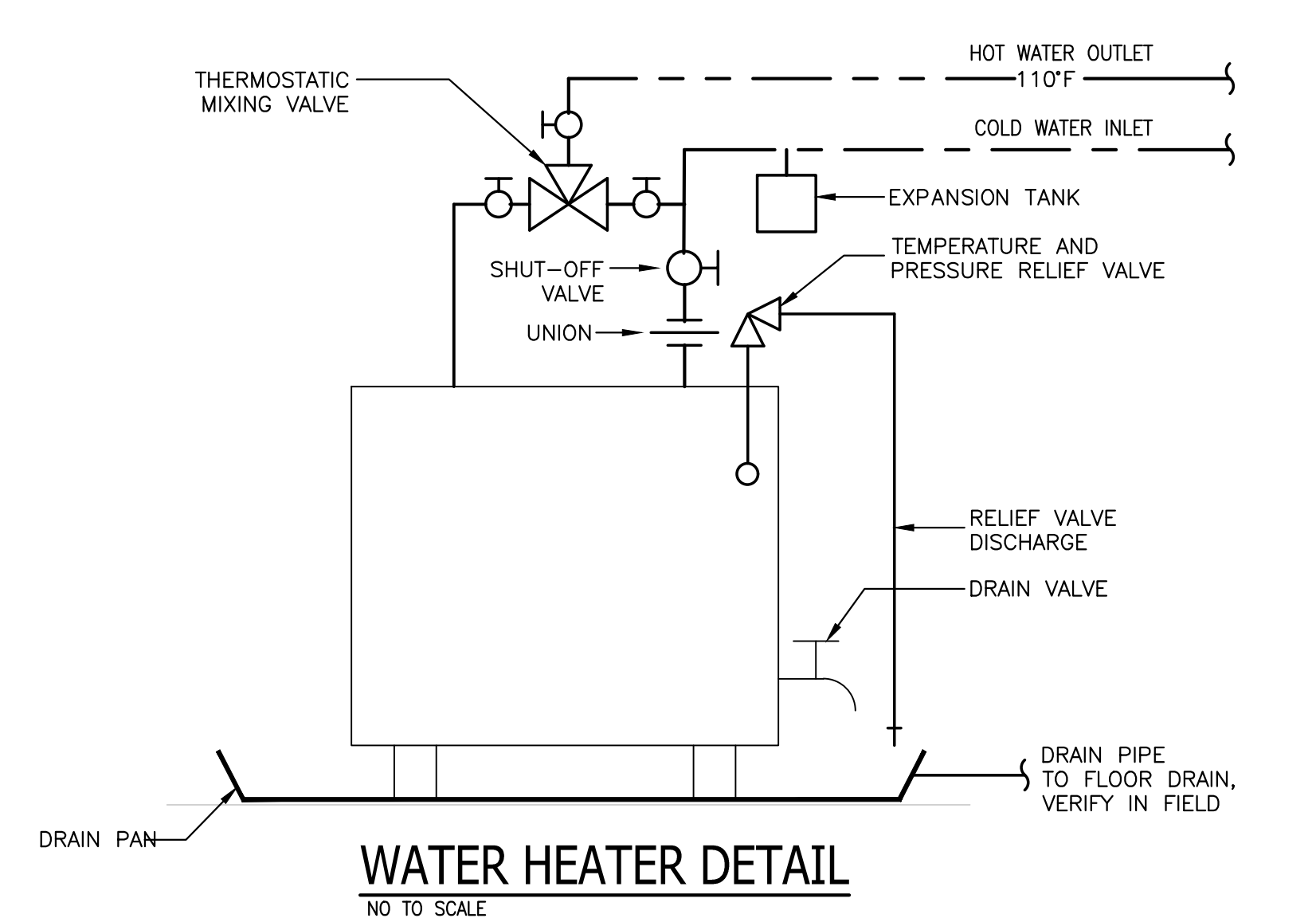
- TEMPERING VALVE (TV): LAWLER MODEL TMM-1070, UNIT #86800; POINT OF USE, INTEGRAL BACK FLOW CHECKS, 3/8" CONNECTIONS, 1.5 GPM @ 40 PSI DROP, AND SHALL BE COMPLIANCE WITH ASSE 1070.
- ESCUTCHEONS: PROVIDE NICKLEBRASS OR CHROME PLATED ESCUTCHEONS ON ALL EXPOSED PIPING WHEN THEY PASS THROUGH WALLS.
- WATER HEATER (EWH-1): ELECTRIC WATER HEATER AO SMITH MODEL DEL-50, 50 GALLON STORAGE CAPACITY, 4.5 KW ELECTRIC HEATER, 18 GPH RECOVERY RATE AT 100°F RISE, 208V/1Ø/60HZ. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE HEAT TRAPS PIPING ARRANGEMENT. INSTALL THE HEAT TRAP PIPING AS PER THE WATER HEATER'S MANUFACTURER RECOMMENDATIONS.

## PLUMBING SYMBOLS

	SANITARY PIPE
	CONDENSATE DRAIN PIPE
	VENT PIPE
	DOMESTIC COLD WATER PIPE
	DOMESTIC HOT WATER PIPE
	EXISTING PIPING
	CLEAN OUT
	WATER HAMMER ARRESTOR (P.D.I.)
	PIPE UP, PIPE DOWN
	SHUT-OFF GATE VALVE, VALVE IN VERTICAL
	CHECK VALVE
	PIPE UNION
	FLOOR DRAIN, FLOOR SINK
	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
	TERMINATION POINT OF DEMOLITION

## ABBREVIATIONS

BFP	BACKFLOW PREVENTER
CAP	CAPACITY
CONN	CONNECTION
CO	CLEANOUT
DFU	DRAINAGE FIXTURE UNIT
DF	DRINKING FOUNTAIN
DN	DOWN
E	EXISTING TO REMAIN
ER	EXISTING TO BE RELOCATED
E.C.O.	EXTERIOR CLEAN OUT
FD	FLOOR DRAIN
FS	FLOOR SINK
GAL	GALLONS
G.C.O.	GRADE CLEAN OUT
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HUB DRAIN
HS	HAND SINK
HW	HOT WATER
IW	INLET WASTE
KS	KITCHEN SINK
LAV	LAVATORY
MS	MOP SINK
N	NEW
OPS (DRAIN)	OPEN SITE DRAIN (FUNNEL)
PSI	POUNDS PER SQUARE INCH
RD	ROOF DRAIN
R	REMOVE
RE	RELOCATED EXISTING
SAN	SANITARY
SFU	SUPPLY FIXTURE UNIT
SK	SINK
SS	SERVICE SINK
TD	TRENCH DRAIN
TMV	THERMOSTATIC MIXING VALVE
TV	TEMPERING VALVE
TW	TEMPERED WATER
TYP	TYPICAL
UC	UNDER COUNTER
V	VENT
V.I.F	VERIFY IN FIELD
VTR	VENT THRU ROOF
WH	WATER HEATER
WHA	WATER HAMMER ARRESTOR
WC	WATER CLOSET



## FIXTURE UNIT (FU) CALCULATIONS

FIXTURE TYPE	FU	EXISTING	NEW	BALANCE	TOTAL FU
WATER CLOSET	4	8	8	0	0
LAVATORY	1	9	9	0	0
URINAL	2	1	1	0	0
SINK	2	1	1	0	0
SHOWER	2	7	7	0	0
WASHER	2	2	2	0	0
FLOOR DRAIN	2	1	1	0	0
TOTAL					0

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PROJECT PHASE:  
100% SUBMISSION

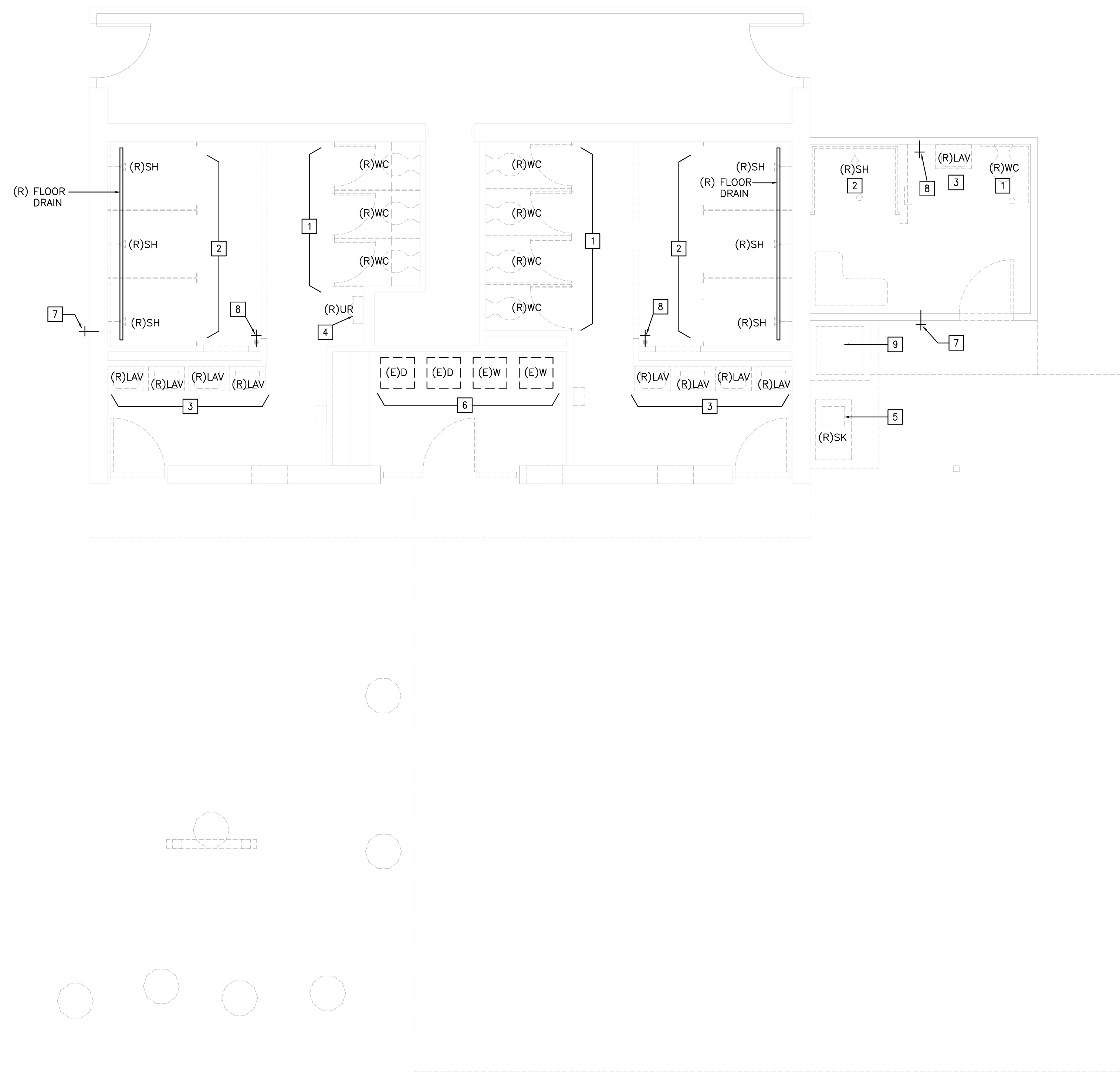
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SHEET No.

P-1

PLUMBING COVER SHEET





**FLOOR PLAN—DEMOLITION WORK—PLUMBING**  
 SCALE: 1/4" = 1'-0"

**GENERAL DEMOLITION NOTES**

1. CAP OR PLUG ALL ACTIVE REMAINING SYSTEMS WHERE RECONNECTIONS ARE NOT PLANNED AT POINTS WHERE EXISTING SYSTEM IS RETAINED.
2. THE CONTRACTOR SHALL REMOVE ANY AND ALL OBSOLETE, UNUSED OR UNNECESSARY ITEMS AS CALLED OUT ON DRAWINGS OR HEREIN SPECIFIED. ANY SUCH ITEMS INTENDED FOR SUCH REMOVAL SHALL BE COMPLETELY VERIFIED AND APPROVED BY THE ARCHITECT.
3. REMOVE, TRANSPORT AND DISPOSE OF DEMOLISHED EQUIPMENT, RUBBISH AND WASTE IN A LAWFUL AND RESPONSIBLE MANNER.
4. THE LENGTH OF ANY UNVENTED PIPING SHALL NOT EXCEED 2".

**DEMOLITION WORK - KEY NOTES**

- 1 REMOVE EXISTING WATER CLOSET. CAP AND REUSE EXISTING CW, VENT, & SANITARY PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION OF NEW WATER CLOSET FIXTURES (TYPICAL).
- 2 REMOVE EXISTING SHOWER AND SHOWER HEAD, DRAINS, FLOOR DRAINS CAP AND REUSE EXISTING CW, VENT, & SANITARY PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION OF NEW SHOWER AND SHOWER HEAD (TYPICAL)
- 3 REMOVE EXISTING LAVATORY. CAP AND REUSE EXISTING CW, VENT, & SANITARY PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION OF NEW LAVATORY (TYPICAL).
- 4 REMOVE EXISTING URINAL. CAP AND REUSE EXISTING CW, VENT, & SANITARY PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION OF NEW URINAL.
- 5 REMOVE EXISTING SINK. CAP AND REUSE EXISTING CW, VENT, & SANITARY PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION OF NEW SINK.
- 6 REMOVE EXISTING WASHER/DRYER. MODIFY AND REUSE EXISTING CW, VENT, & SANITARY PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION OF NEW NEW WASHER (TYPICAL).
- 7 REMOVE EXISTING EXTERIOR HOSE BIBB. CAP AND REUSE EXISTING CW PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION OF HOSE BIBB (TYPICAL).
- 8 REMOVE EXISTING INTERIOR HOSE BIBB. CAP AND REUSE EXISTING CW PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION OF HOSE BIBB.
- 9 REMOVE EXISTING FLOOR DRAIN. CAP DRAIN AND VENT PIPING. REFER TO ARCHITECTURAL DRAWING FOR INFORMATION.

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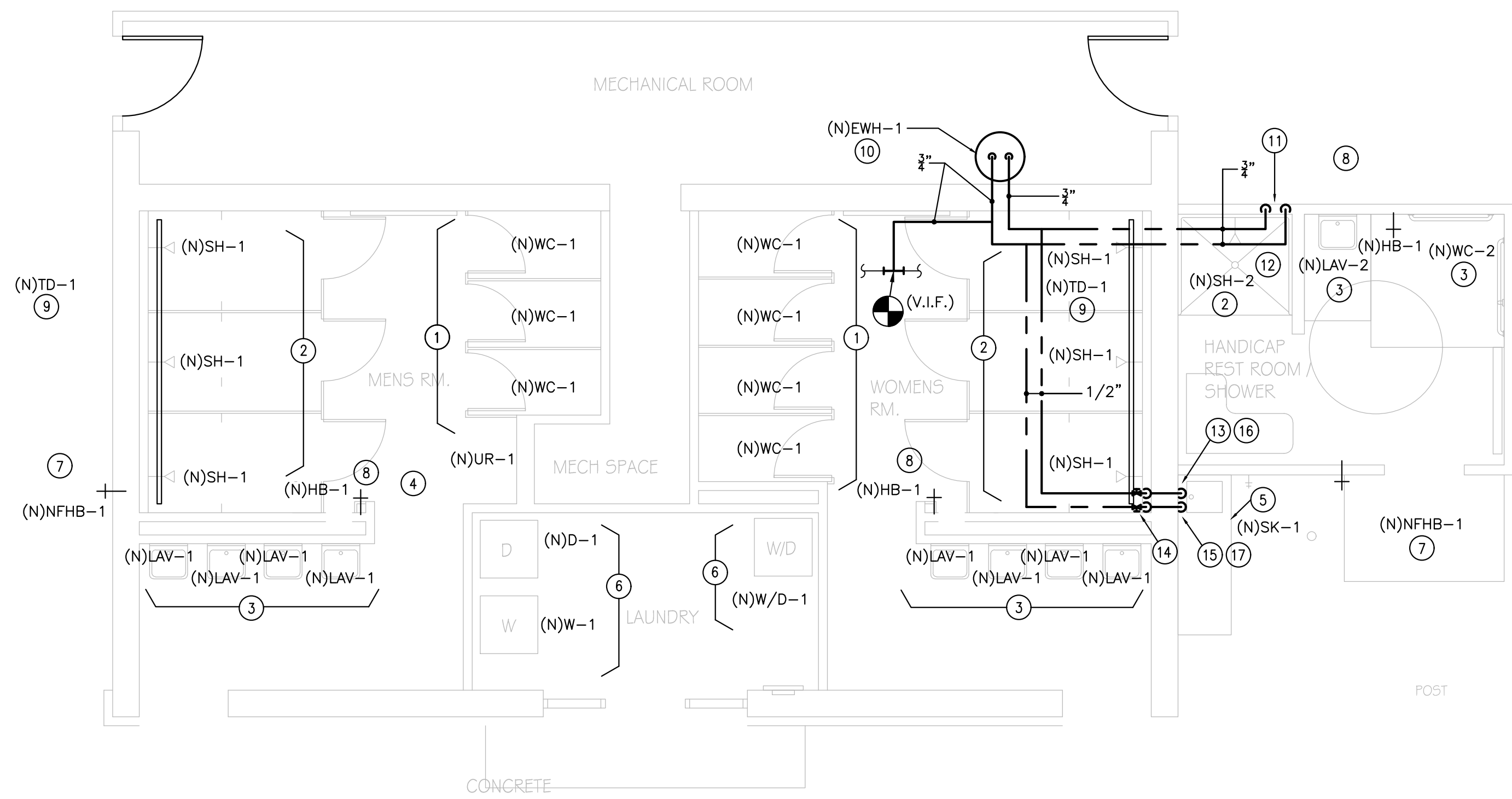
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SHEET No.  
**P-2**



### NEW WORK - KEY NOTES

- ① NEW WATER CLOSET. REUSE AND PROVIDE CW, VENT, & SANITARY PIPES. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON NEW WATER CLOSET LOCATION, VERIFY IN FIELD (TYPICAL).
- ② NEW SHOWER AND SHOWER HEAD. REUSE AND PROVIDE CW, VENT, & SANITARY PIPES. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON LOCATION NEW SHOWER AND SHOWER HEAD LOCATION, VERIFY IN FIELD (TYPICAL)
- ③ NEW LAVATORY. REUSE AND PROVIDE CW, VENT, & SANITARY PIPES. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON NEW LAVATORY LOCATION, VERIFY IN FIELD (TYPICAL).
- ④ NEW URINAL. REUSE AND PROVIDE CW, VENT, & SANITARY PIPES. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON NEW URINAL LOCATION, VERIFY IN FIELD.
- ⑤ NEW SINK. PROVIDE CW, VENT, & PIPING INSULATION.
- ⑥ NEW WASHER. REUSE AND MODIFY CW, VENT, & SANITARY PIPES. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON NEW WASHER LOCATION, VERIFY IN FIELD (TYPICAL).
- ⑦ NEW EXTERIOR NON-FREEZE TYPE HOSE BIBB. CAP AND REUSE EXISTING CW PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON NEW HOSE BIBB LOCATION, VERIFY IN FIELD.
- ⑧ NEW INTERIOR-TYPE HOSE BIBB. CAP AND REUSE EXISTING CW PIPING. MODIFY AND PROVIDE ADDITIONAL PIPING AND INSULATION BASED ON NEW HOSE BIBB LOCATION, VERIFY IN FIELD. REFER TO ARCHITECTURAL DRAWINGS FOR NEW LOCATION OF HOSE BIBB (TYPICAL).
- ⑨ NEW TRENCH DRAIN (SHOWER DRAIN). MODIFY EXISTING SANITARY AND VENT PIPES. PROVIDE ADDITIONAL PIPING AS REQUIRED. MAINTAIN PROPER SLOPE, VERIFY IN FIELD (TYPICAL).
- ⑩ PROVIDE NEW WATER HEATER (EWH). PROVIDE WATER HEATER SUPPORT. INSTALL THE WATER HEATER IN FULL COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS.
- ⑪ CW, HW DN TO SHOWER AND LAVATORY. INSTALL THE CW & HW PIPING ON THE HEATED SIDE OF THE WALL (TYPICAL).
- ⑫ PROVIDE NEW DRAIN. MODIFY AND PROVIDE NEW SANITARY AND VENT PIPING, VERIFY IN FIELD.
- ⑬ PROVIDE NEW SANITARY AND VENT PIPING. CONNECT EXISTING PIPING, VERIFY IN FIELD (TYPICAL).
- ⑭ PROVIDE SHUT-OFF VALVE FOR CW AND HW PIPING (SERVING SINK, SK-1) INSIDE THE BUILDING (TYPICAL).
- ⑮ PROVIDE EXTERIOR TYPE PIPING INSULATION FOR CW, HW AND SANITARY PIPING (TYPICAL).
- ⑯ PROVIDE WITH 7 WATTS/LINEAR FEET HEAT TRACE FOR CW, HW AND SANITARY PIPING. RAYCHEM MANUFACTURER COMPANY, SELF REGULATING TYPE. PROVIDE CONTROL AND ACCESSORIES. PROVIDE POWER CONNECTION AS REQUIRED (TYPICAL).
- ⑰ PROVIDE P-TRAP WITH DRAIN PLUG.

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