

Attachment D-2

Specifications & Drawings for the Hawk Dining PV & Battery Storage System

General Project Description

1. This project consists of a conventional grid-tied rooftop PV solar array in conjunction with on-site battery storage and a manual power transfer switch. The battery storage system will allow SOU to provide a minimum level of food service operations during an extended electric utility outage.
2. The system shall be designed so the batteries maintain full-charge from the PV array, with surplus generation flowing to the grid.
3. During an extended utility power outage, the manual transfer switch will allow designated critical building system loads to be served by battery and PV power.

Roof Requirements

1. The Hawk roof plan and building elevations are attached. The intent of this project is to maximize PV output by utilizing the south, east and west sloping roofs where feasible and cost effective.
2. The existing roofing is asphalt composition shingles. The roof structure is plywood over wood trusses. The roof structure has been engineered to accommodate the added PV loads.

PV Racking Systems

1. Tilt angle: Match roof slope
2. Attachment: Basis-of-design is the UNIRAC NXT system, Snap-N-Rack Ultra Rail system or approved equal. All racking components utilized for array equipment grounding shall be listed for that purpose and must be appropriately isolated to prevent galvanic corrosion and subsequent loss of array grounding continuity.
3. Shop Drawings: Provide layout and erection drawings showing dimensioned locations of all frames and roof attachments. Include erection drawings, elevations, and details where applicable.
4. Manufacturer Qualifications: Manufacturer with a minimum five years documented experience in producing pre-manufactured solar collector supporting steel or aluminum frame work.
5. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
6. Manufacturer's warranties. Provide a minimum 10-year manufacturer's workmanship warranty and minimum 5-year finish warranty for the racking system.

Solar Modules:

1. Orientation: South, East, West.
2. Minimum 20-year warranty. Manufacturer must have been in business for at least 10 years under their current name and tax identification number. Warranty must be in the Owner's name. Minimum 80% power output or more, for a period of 20 years. Manufacturer agrees to repair or replace components of PV modules that fail to exhibit the minimum power output within the specified warranty period.
3. PV modules shall be listed and in compliance with UL standard 1703, Standard for Safety. Flat-plate Photovoltaic Modules and Panels. Entire assembly shall be listed and labeled

by a qualified testing agency acceptable to authorities having jurisdiction for electrical and fire safety, Class A, according to UL 1703.

4. PV modules must also meet or exceed IEC 61215 and all other relevant standards.
5. Modules by Silfab, SunPower, Q-Cell, Canadian Solar, or approved equal. All electrical equipment must be U.L. listed.

Inverter(s) and Monitoring:

1. Inverter location: In the mechanical penthouse (see attached drawings).
2. Basis of design: Solar Edge inverters, or approved equal.
3. Provide integrated AC/DC disconnects.
4. Provide necessary inverter communications (hardware and software) to enable SOU to remotely monitor the system output and performance.
5. Data cabling for the offsite monitoring will be provided by SOU.
6. Inverters must be listed with UL 1741SA, "Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources".
7. Installation must comply all elements of the IEEE 1547-2018 interconnection standards.
8. Warranty: The inverters shall have a minimum 10-year warranty. All warranties shall be in the Owner's name.

Electrical Interconnection:

- Provide a solar system AC disconnect per City of Ashland Electric Department requirements as shown on the attached floor plan. Disconnect must be lockable in "ON" and "OFF" positions. Provide permanent labels at equipment per City requirements.
- Furnish and install all wiring, conduit, combiner boxes, and junction boxes for a complete system designed to comply with all building code and local jurisdiction requirements. All exposed wiring must be UV resistant.
- New AC conductors shall be sized so that voltage drop does not exceed 1% at full load. Connections to the facility's electrical system are design-build by the contractor. The facility service is 800 amp. 480-volt, three phase.
- Furnish and install array equipment grounding hardware. Provide PV grounding conductors and Code required bonding hardware.

Battery Storage and Manual Transfer Switch:

- Furnish & install a minimum 125 kWH battery storage system in the mechanical penthouse to enable essential building operations to continue during extended utility power outages.
- The batteries should be engineered for commercial building-scale solar energy storage, Lithium titanate (LTO) batteries or equal are approved.
- The manual transfer switch will disconnect the facility from utility power and enable select essential circuits to operate on PV and battery power. See the attached list of circuits to be powered via the manual transfer switch.
- The battery back up system should be designed to be expandable to allow for enhanced off-grid resilience in future work phases
- The manual transfer and battery storage design shall include all necessary circuiting, panels, disconnects, voltage monitoring, alarms, etc. as required to meet NEC requirements and permit SOU staff to easily switch the building over to standby power.

Required Documentation:

- Roof plan drawn to scale showing all system components and confirmation/coordination with all existing conditions.
- One-Line diagram for entire system. Include all system component specifications and ratings, conductor sizes and types, conduit sizes, ratings of combiner boxes and series OCPD's.
- Location and rating of facility interconnection point.
- Electrical calculations including voltage drops and string sizing calculations.
- Solar collector roof support system design and load calculations including all dead and live (snow, wind, seismic, etc.) loads.

Permitting:

The Design/Builder will be responsible for the preparation of construction drawings and specifications and for submitting documents to the City of Ashland for all required permits. At time of submittal for permitting, the Design/Builder shall provide to the Owner one complete set of permitting documents.

Project Closeout:

At completion of the project, the Design/Builder shall provide to the Owner 1 Operation & Maintenance (O&M) Manual in a 3-ring binder. Include copies of all as-built drawings, diagrams, calculations, product information, specifications, warranties, maintenances instructions, etc. in the O&M manuals. In addition to the printed O&M manuals, provide an electronic copy of all the O&M information prior to request for final payment.

The Design/Builder shall provide system instruction and training to SOU staff prior to final acceptance and payment.

The final product shall be a fully completed, fully functional, code compliant solar photovoltaic system with battery storage, manual power transfer, inverter(s) and monitoring with all equipment and warranties in place, and all permits and approvals secured.

Pricing shall not be submitted where such pricing is contingent on the university's acceptance of a third party's agreement, including but not limited to third-party cooperative procurement agreements. No third-party financing or assigned leases will be associated with this contract.

Enclosures:

Essential Building Electrical Loads (to be connected to battery back-up)

A123-Roof Plan

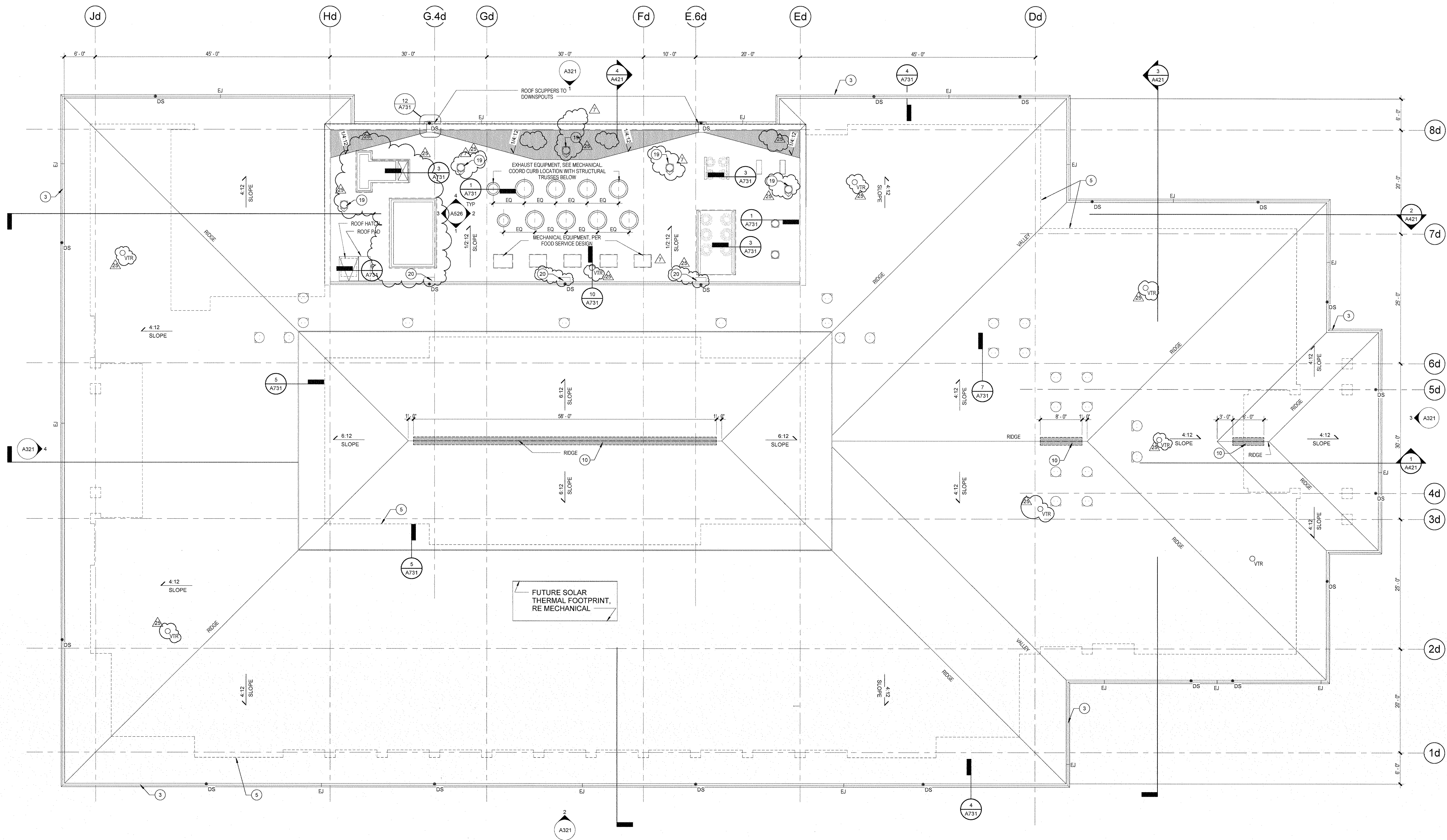
A321-Building Elevations

E121-Ground Floor Power (as-built)

E122-Attic/Mezzanine Power (as-built)

E403-Electrical One-Line

Hawk Dining Facility					
28-Jun-23					
Building Loads to switch to battery back-up during extended utility outage					
Panel	Circuit #	Function	Volts	Amps (est)	Notes
HP-House-1	7	lighting	120		lobby, elec rm, toilet room lighting
HP-House-1	17	server lights	120		
HP-House-1	21	dining room lights	120		
HP-House-1	29	LCP	120		lighting control panel
LP-House-1	33	heating control "brain"	120	< 1	
LP-House-1	35	FACP	120		
LP-House-1	7	IDF circuits	120		fiber optics switch. DDC computer
LP-House-1	9	IDF circuits	120		data rack
LP-House-1	11	IDF circuits	120		door controls
LP-House-1	19	solar hot water exchanger	120		
LP-House-1	33	fire alarm circuits	120		power supplies
LP-Server-2	whole panel	center cooking island	120/208, 3PH		all non-essential circuits will be switched off
LP-Server-5	whole panel	center cooking island	120/208, 3PH		all non-essential circuits will be switched off
HP-Kit-1	56	kitchen-office lights	120	5.7	measured with everything on (normal operation)
HP-Kit-1	37,39,41	EF-7-center island exhaust	480/3PH	2.4	VFD
HP-Mech-1	20,22,24	HWP (heating water pump)	480/3PH	4.3	field measured at 163v/4.3a. Rated at 460v, 10/9.03a
HP-Mech-1	1	lighting at mezzanine/attic	120		



ROOF PLAN - DINING HALL 1
1/8" = 1'-0"

KEYNOTES - ATTIC/ROOF PLANS

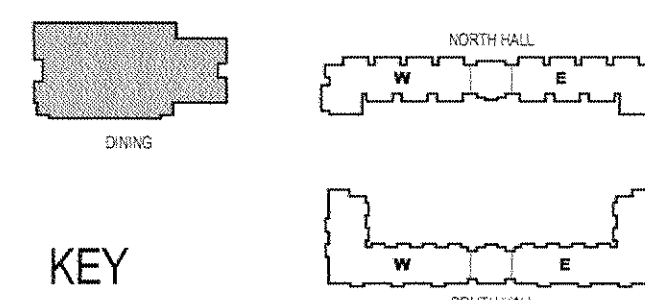
- 1 SHAF VENT
- 2 SOLAR HOT WATER ARRAY, SEE PLUMBING AND STRUCTURAL DRAWINGS
- 3 SHEET METAL GUTTER, TYPICAL
- 4 22x20 ATTIC ACCESS HATCH, PROVIDE LOCK UNLESS LOCATED WITHIN JANITOR CLOSET
- 5 DASHED LINES INDICATE EXTENT OF BUILDING BELOW, TYPICAL
- 6 PROVIDE 22x30 90-MINUTE RATED INSULATED ACCESS PANEL FOR EXHAUST FAN ACCESS CENTERED AT 42" ABOVE ATTIC ACCESS PLATFORM
- 7 TERMINATE SHAF AT 3'-0" ABOVE TOP OF PLATE, PROVIDE 2-HR HORIZONTAL SHAF WALL, ASSEMBLY TYPE 10
- 8 EXHAUST VENT FOR DOMESTIC HOT WATER HEATER, SEE PLUMBING DRAWINGS
- 9 SOLAR HOT WATER PIPE, SEE PLUMBING DRAWINGS
- 10 CONTINUOUS RIDGE VENT
- 11 FIREWALL BEYOND, DO NOT PENETRATE ROOF WITHIN 4" OF FINISHED FACE OF WALL
- 12 ELEVATOR HOISTWAY VENT
- 13 WASTE CHUTE VENT CAP
- 14 PROVIDE SHEET METAL FASDA FLASHING 2'-0" FROM VALLEY, COLOR TO MATCH FCS FASDA
- 15 4' x 8' TALL ACCESS PANEL
- 16 2' x 3' TALL INSULATED ACCESS PANEL
- 17 2' x 3' TALL ACCESS PANEL
- 18 METAL PARAPET CAP
- 19 ATTIC VENT
- 20 SPLASH BLOCK

LEGEND - DINING HALL ATTIC/ROOF PLANS

- ASPHALT SHINGLE
- BUILT-UP BITUMINOUS MEMBRANE ROOFING
- TAPERED INSULATION ROOF CRICKET
- WALKWAY PAD
- ROOF CRICKET
- FALL PROTECTION ANCHOR
- VENT THROUGH ROOF

GENERAL NOTES - ATTIC/ROOF PLANS

- A. ATTIC/ROOF PLAN KEYNOTES APPLY TO SHEETS A105-A108, A115-A116, AND A122-A123. ALL KEYNOTES MAY NOT OCCUR ON THIS SHEET AND DO NOT APPLY TO ANY OTHER SHEETS EXCEPT THOSE NOTED.
- B. SEE A01 AND A020 FOR ASSEMBLIES
- C. GRIDS ARE FOR REFERENCE ONLY. CONTRACTOR TO SET CONTROL POINTS FOR LAYOUT.
- D. ALL ROOF SLOPES ARE TO BE 6:12 UNLESS NOTED OTHERWISE.
- E. PROVIDE DRAFT STOPS AND ACCESS TO EACH ATTIC COMPARTMENT AS SHOWN ON PLANS. DRAFT STOP PARTITIONS ARE TO BE ASSEMBLY TYPE 11 AND 34. PROVIDE SELF-CLOSING HINGED PLYWOOD PANELS WHICH FIT TIGHT WHEN CLOSED. PULLS AND LATCHES ARE TO BE PROVIDED TO PROVIDE ACCESS FROM ONE COMPARTMENT TO ANOTHER, YET ENABLE PANELS TO STOP DRAFTS IN THE EVENT OF A FIRE.
- F. SEE ELECTRICAL DRAWINGS FOR LIGHTING
- G. PROVIDE 2x GUARDS ALONG EDGES OF ATTIC ACCESS PLATFORM PER OSHA REQUIREMENTS
- H. ALL SHAFTS ARE TO BE 2-HR RATED AND CONTINUE TO UNDERSIDE OF ROOF SHEATHING UNLESS NOTED OTHERWISE. CONTRACTOR TO USE SHAF WALL ASSEMBLY TYPE 10 AS REQUIRED FOR CONSTRUCTABILITY AND INCORPORATE RATED ACCESS PANELS AS NOTED



SOU NORTH CAMPUS VILLAGE

AMERICAN CAMPUS COMMUNITIES

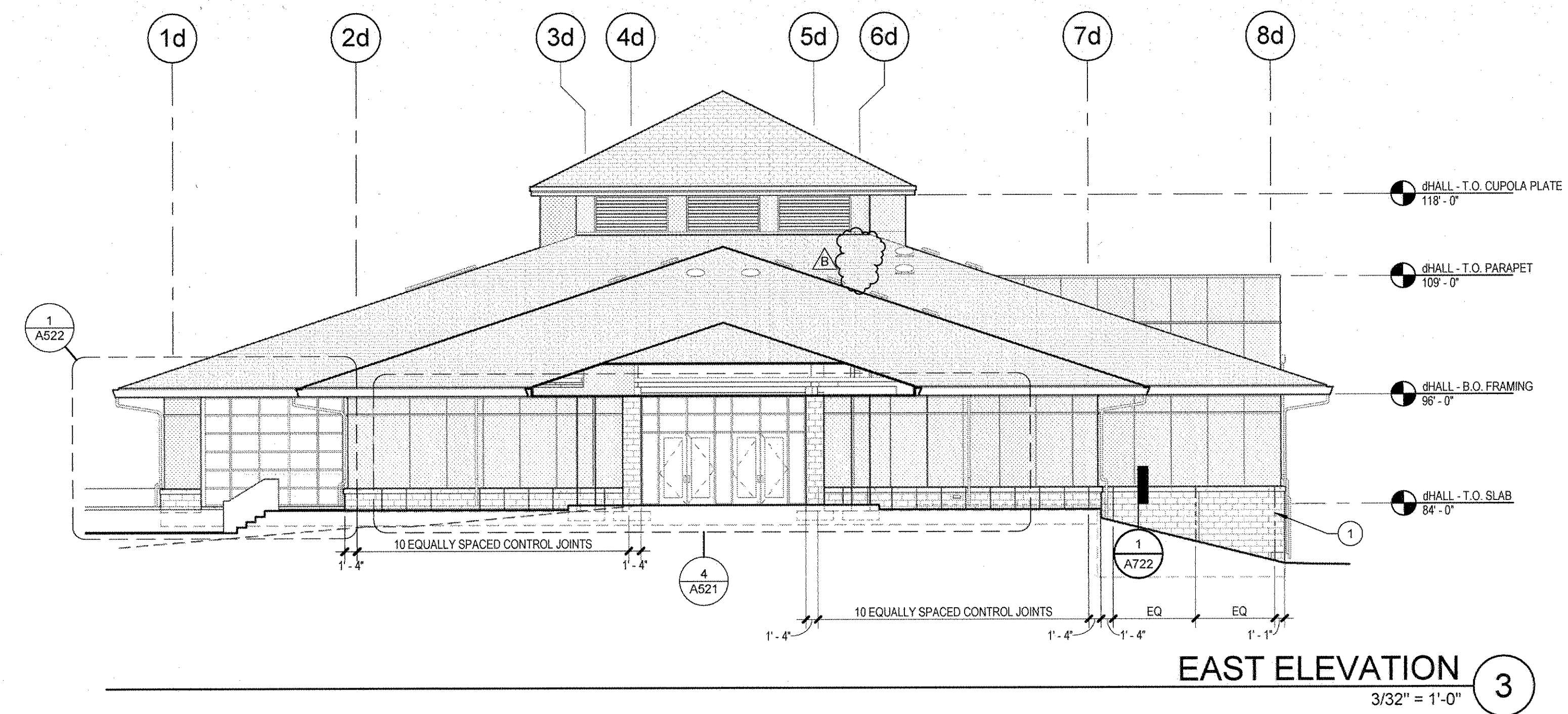
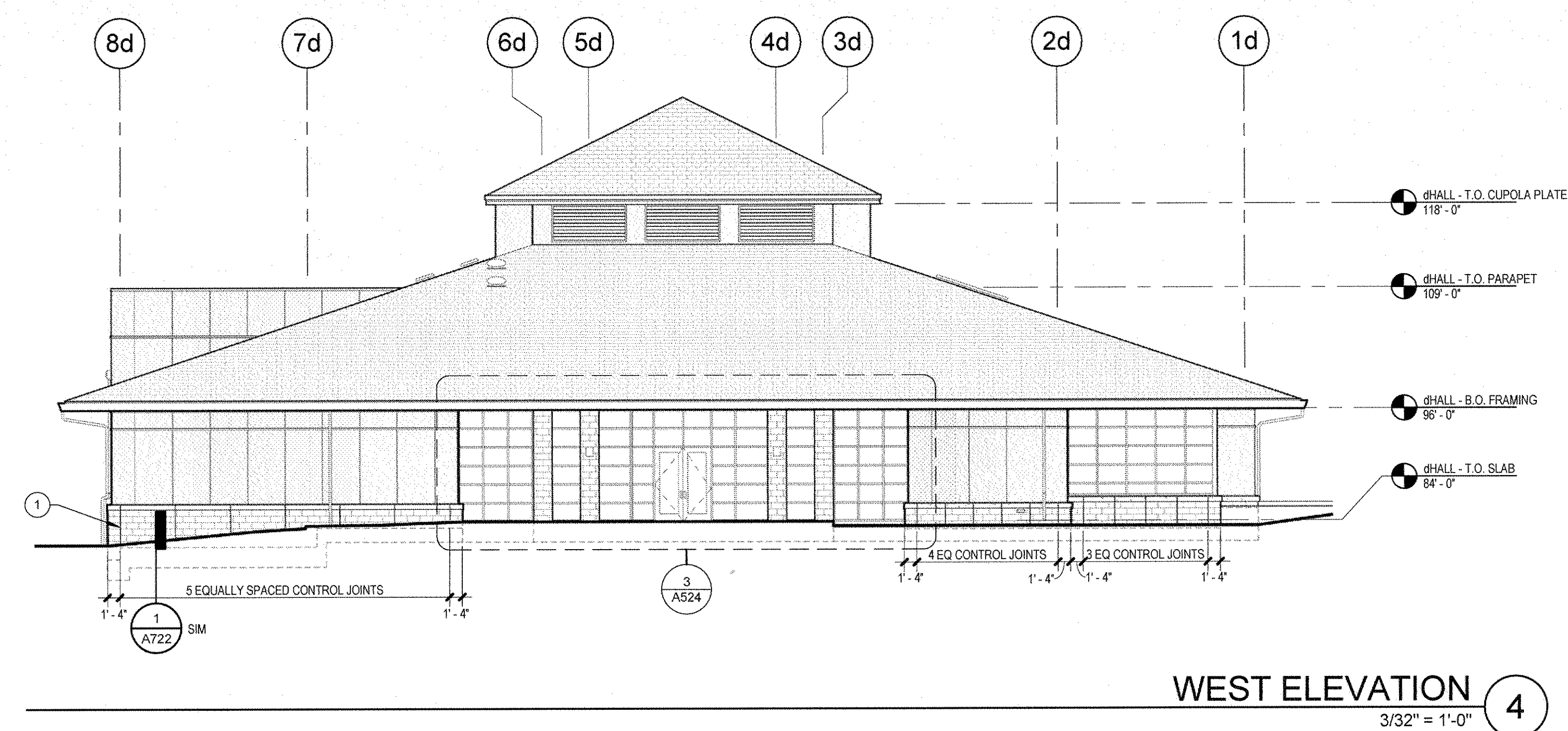
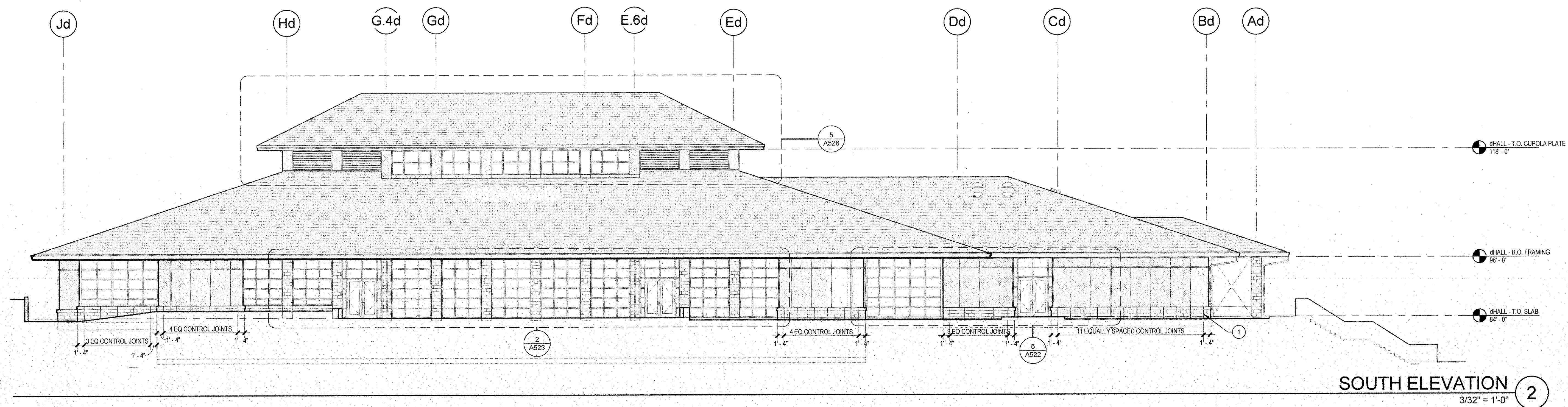
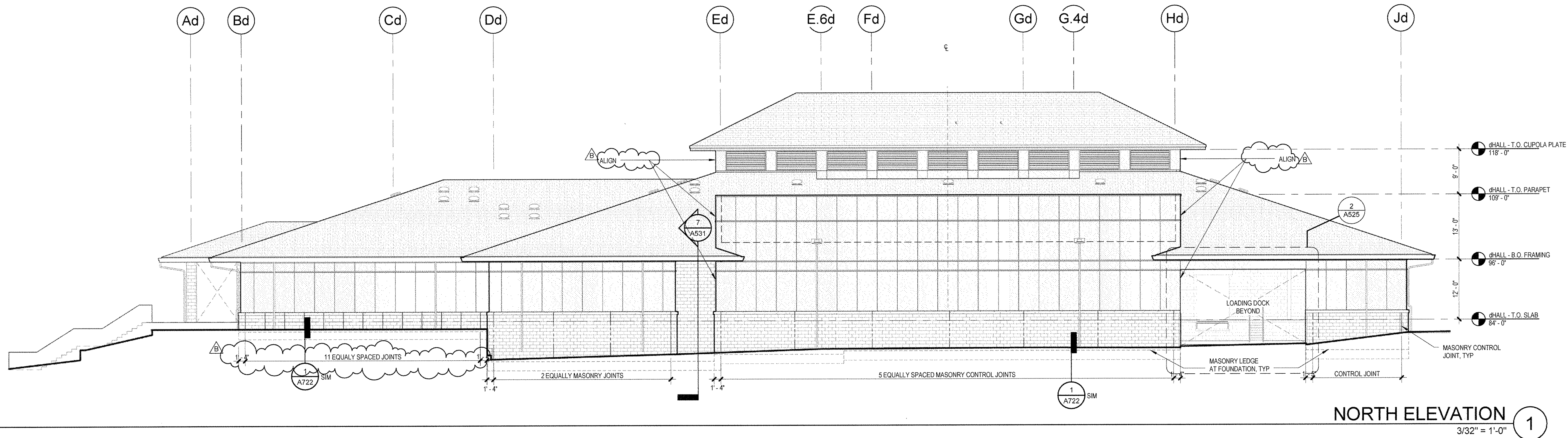
SOUTHERN OREGON UNIVERSITY, ASHLAND, OR 97520

REVISIONS	
A BID ADDENDUM	24 FEB 2012
B BID ADDENDUM	06 MAR 2012
7 AB 0005	25 JUN 2012
25 AB 0009	24 JUL 2012

CHECKED BY:	KPF
ISSUE DATE:	10 FEB 2012
PROJECT NO.:	09164

ROOF PLAN - DINING HALL

A123



GENERAL NOTES - EXTERIOR ELEVATIONS

- A. ELEVATION KEYNOTES APPLY TO SHEET A321. ALL KEYNOTES MAY NOT OCCUR ON THIS SHEET AND DO NOT APPLY TO ANY OTHER SHEETS EXCEPT THOSE NOTED.
- B. SEE A202 FOR WALL ASSEMBLIES.
- C. GRIDS ARE FOR REFERENCE ONLY. CONTRACTOR TO SET CONTROL POINTS FOR LAYOUT.
- D. NOTE NOT USED.
- E. DOWNSPOUTS ARE TO BE CENTERED ON EXTERIOR WALL FOS PANEL JOINTS.

KEYNOTES - EXTERIOR ELEVATIONS

1. MASONRY CONTROL JOINT, TYP.

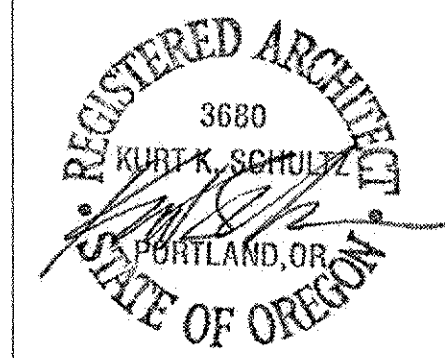
LEGEND - EXTERIOR ELEVATIONS

- GROUND FACE MASONRY UNIT BASE AND CAP
- FIBER CEMENT PANEL SIDING
- COMPOSITION SHINGLE ROOFING
- MECHANICAL LOUVER
- ALUMINUM STORE FRONT WINDOW SYSTEM

SERA

ARCHITECTURE
URBAN DESIGN + PLANNING
INTERIOR DESIGN

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SOU NORTH CAMPUS VILLAGE
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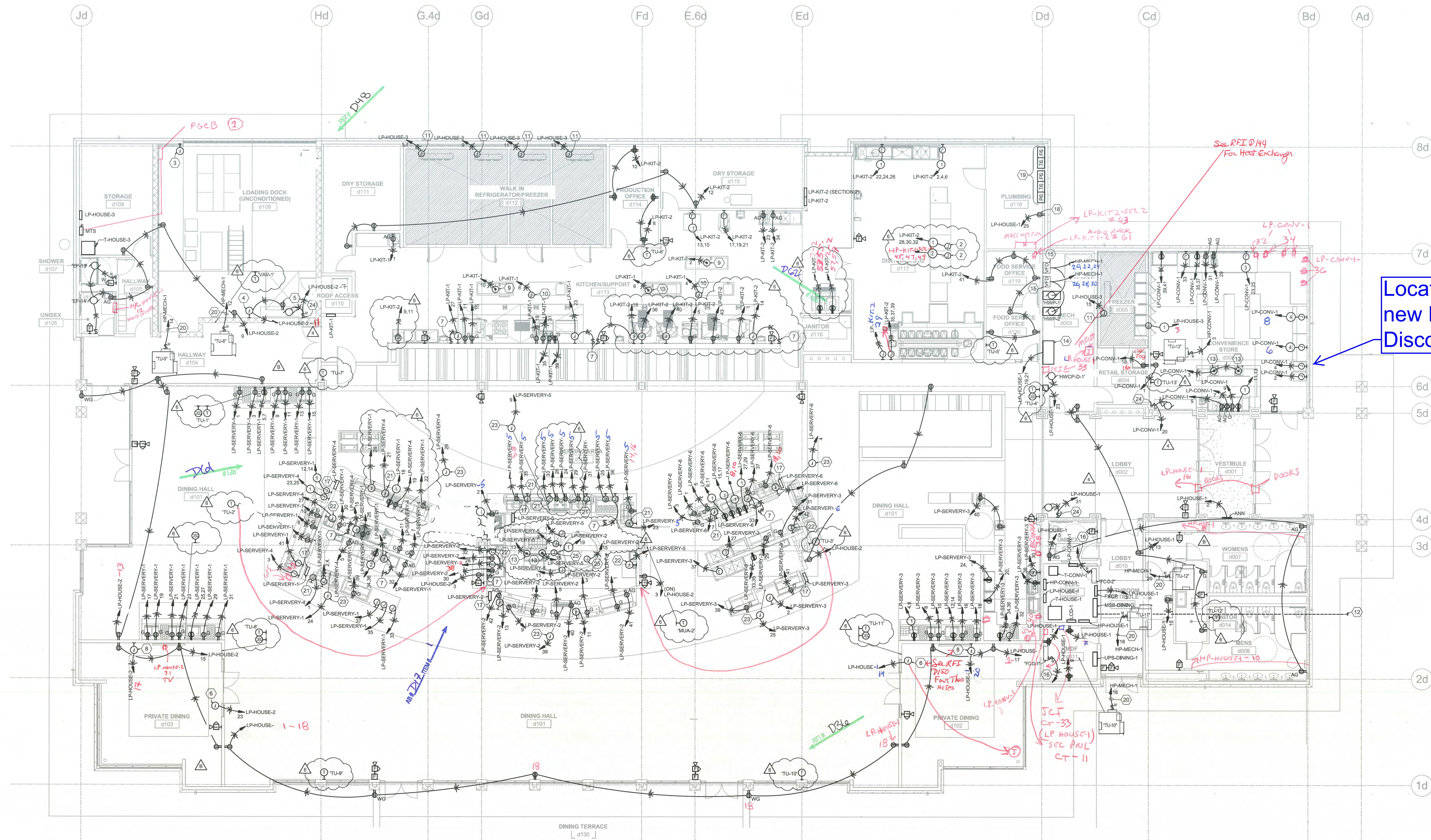
REVISIONS:
A BID ADDENDUM 24 FEB 2012
B BID ADDENDUM 08 MAR 2012

CHECKED BY: KF2
ISSUE DATE: 10 FEB 2012
PROJECT NO.: 091641

EXTERIOR ELEVATIONS -
DINING HALL

A321

GMP SET



1 POWER FLOOR PLAN - DINING HALL
1/8" = 1'-0"

ELECTRICAL POWER SYMBOLS

	IONIZATION TYPE SMOKE DETECTOR.		208V/1PH OUTLET
	MOTOR-RATED SWITCH, TOGGLE TYPE, 20 AMP, 120-277 VOLT AC		MOTOR
	SINGLE POLE SWITCH, TOGGLE TYPE, 20 AMP, 120-277 VOLT AC		CEILING MOUNTED RECEPTACLE
	FLOW SWITCH.		FLOOR MOUNTED RECEPTACLE
	TAMPER SWITCH		BRANCH CIRCUIT CONDUCTORS: #12AWG MINIMUM, GROUND, NEUTRAL, HOT (OR SWITCHED HOT)
	PRESSURE SWITCH		VARIABLE FREQUENCY DRIVE.
	FIRE ALARM PULL STATION, MOUNTED 4'-0" A.F.F.		FIRE ALARM CONTROL PANEL.
	FIRE ALARM SPEAKER-HORN, MOUNTED 6'-8" A.F.F.		FIRE ALARM REMOTE ANNUNCIATOR PANEL.
	FIRE ALARM STROBE DEVICE, MOUNTED 6'-8" A.F.F.		ABOVE FINISHED FLOOR.
	FIRE ALARM SPEAKER-HORN/STROBE DEVICE, MOUNTED 6'-8" A.F.F.		THIS LETTER ADJACENT TO ANY SYMBOL INDICATES MOUNTING HEIGHT TO BE 4" ABOVE BACKSPLASH OF COUNTER.
	NON-FUSED DISCONNECT SWITCH.		THIS LETTER ADJACENT TO ANY SYMBOL INDICATES GROUND FAULT CURRENT INTERRUPTER.
	FUSED DISCONNECT SWITCH.		THIS LETTER ADJACENT TO ANY SYMBOL INDICATES WEATHERPROOF ENCLOSURE.
	PANELBOARD		PLAN NOTE DESIGNATION.
	WALL MOUNTED JUNCTION BOX.		REFERENCE DESIGNATION SHEET NUMBER
	CEILING MOUNTED JUNCTION BOX.		DETAIL PLAN NUMBER
	DUPLEX CONVENIENCE RECEPTACLE		
	FOURPLEX CONVENIENCE RECEPTACLE		
	WALL MOUNTED JUNCTION BOX FOR THERMOSTAT. PULL THERMOSTAT WIRING BACK TO DESIGNATED UNIT.		
	WALL MOUNTED JUNCTION BOX FOR CO2 MONITOR. PULL CO2 MONITOR WIRING BACK TO DESIGNATED UNIT.		

PLAN NOTES

- PROVIDE AND INSTALL NEW PORTABLE GENERATOR CONNECTION BOX "PGCB" AT LOCATION SHOWN. ENCLOSURE TO BE NEMA 1 RATED WITH LOCKING DOOR. RE: E303 PORTABLE AC GENERATOR TAP BOX DETAIL "PGCB" FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL J-BOX FLUSH WITH CEILING FOR HARDWIRED KITCHEN EQUIPMENT. CONFIRM EXACT LOCATION WITH KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. RE: KITCHEN DRAWINGS FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL J-BOX ALONG INTERIOR SIDE OF EXTERIOR WALL FOR POWER FOR FUTURE OVERHEAD DOOR. J-BOX SHALL BE MOUNTED IN ACCESSIBLE LOCATION FOR FUTURE USE. ROUTE 1" CONDUIT BACK TO ELECTRICAL ROOM AND CAP INSIDE ELECTRICAL. PROVIDE WITH PULLSTRING. LABEL CONDUIT INSIDE THE ELECTRICAL "FUTURE LOADING DOCK OVERHEAD DOOR".
- PROVIDE AND INSTALL WALL MOUNTED J-BOX FOR HYDRAULIC DOCKLEVELER CONTROL BOX. CONFIRM LOCATION AND ADDITIONAL REQUIREMENTS WITH DOCKLEVELER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE AND INSTALL RECEPTACLE WITHIN DOCKLEVELER'S PIT AS SHOWN. RE: DOCKLEVELER MANUFACTURER'S WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL CEILING MOUNTED J-BOX FOR POWER TO ROLLER SHADES. CONFIRM REQUIREMENTS AND LOCATION PRIOR TO ROUGH-IN.
- PROVIDE AND INSTALL TOGGLE SWITCH FOR EXHAUST HOOD LIGHTS. CONNECT POWER FROM SWITCH TO JUNCTION BOX ON EXHAUST HOOD. CONFIRM J-BOX LOCATION AND ADDITIONAL REQUIREMENTS WITH EQUIPMENT SUPPLIER. VERIFY LOCATION OF SWITCH WITH KITCHEN SUPPLIER/ARCHITECT PRIOR TO ROUGH-IN.
- PROVIDE AND INSTALL WALL MOUNTED J-BOX FOR OWNER SUPPLIED DISPLAY SCREEN. CONFIRM EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.
- PROVIDE AND INSTALL NEW NEMA 5-15P CEILING MOUNTED RECEPTACLE WITH 10 FOOT RETRACTABLE POWER CORD IN LOCATION SHOWN. SHALL BE SIMILAR TO APC GROUP'S "KITCHEN LEASH" RETRACTABLE POWER CORD. PROVIDE MOUNTING SUPPORTS PER SUPPLIER'S RECOMMENDATIONS. CONFIRM EXACT LOCATION OF CEILING MOUNTED RECEPTACLE WITH FOOD SERVICE VENDOR.
- PROVIDE AND INSTALL IN-FLOOR J-BOX IN LOCATION SHOWN. ELECTRICAL CONTRACTOR SHALL PROVIDE SURFACE MOUNTED DUPLEX RECEPTACLE TO BE MOUNTED TO WORK TABLE LEG. RE: KITCHEN DRAWINGS FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL POWER TO WALK-IN REFRIGERATOR/FREEZER'S EVAPORATOR. CONFIRM EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH FOOD SERVICE VENDOR'S RECOMMENDATIONS PRIOR TO ROUGH-IN. RE: KITCHEN DRAWINGS FOR ADDITIONAL INFORMATION.
- RE: SHEET E051 ELECTRICAL SITE PLAN FOR CONTINUATION.

PLAN NOTES

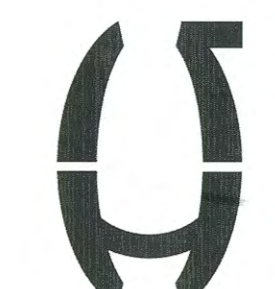
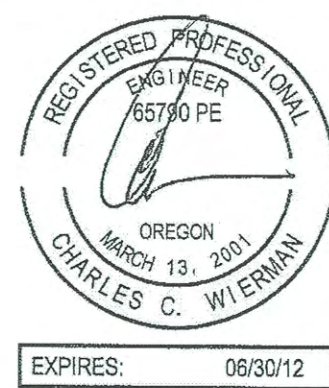
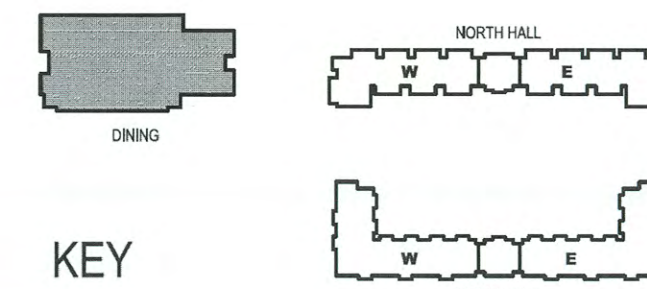
- PROVIDE AND INSTALL HUBBELL #81PFR NON-METALLIC IN SLAB FLOOR BOX IN LOCATION SHOWN FOR KITCHEN EQUIPMENT. PROVIDE WITH PROVISIONS FOR (1) FLUSH MOUNTED DUPLEX RECEPTACLE. CONFIRM EXACT LOCATION AND COVER ASSEMBLY WITH KITCHEN VENDOR SUPPLIER PRIOR TO ORDER. CONFIRM COVER ASSEMBLY FINISH WITH ARCHITECT PRIOR TO ORDER.
- SOLAR HOT WATER HEAT EXCHANGER. CONFIRM REQUIREMENTS WITH MANUFACTURER'S RECOMMENDATIONS PRIOR TO ROUGH-IN.
- VARIABLE FREQUENCY DRIVE TO BE SUPPLIED WITH EQUIPMENT. ELECTRICAL CONTRACTOR TO INSTALL AND PROVIDE POWER. RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- ROUTE HOMERUN TO ASSOCIATED CONDENSING UNIT LOCATED ON ROOF.
- LOCATION OF ELECTRICAL PANELBOARDS SHOWN FOR REFERENCE ONLY. PANELBOARDS SHALL BE BUILT INTO SERVING AREA CASEWORK. COORDINATE EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH KITCHEN VENDOR SUPPLIER. ELECTRICAL PANELBOARDS SHALL MAINTAIN 3'-0" MINIMUM WORKING CLEARANCE IN FRONT OF PANEL ALONG WITH 30" MINIMUM WIDTH WORKING CLEARANCE IN FRONT OF PANEL AS SPECIFIED WITHIN THE NEC.
- PROVIDE AND INSTALL DEDICATED DUPLEX RECEPTACLE FOR FIRE SPRINKLER'S AIR COMPRESSOR. CONFIRM LOCATION WITH FIRE SPRINKLER CONTRACTOR.
- PROVIDE TAMPER, FLOW AND PRESSURE SWITCHES AS REQUIRED FOR MONITORING OF WET AND DRY SPRINKLER SYSTEMS.
- RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR WIRING SIZING AND ADDITIONAL INFORMATION.
- PROVIDE POWER FOR FIRE SUPPRESSION SYSTEM. CONFIRM EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH KITCHEN VENDOR SUPPLIER. RE: KITCHEN DRAWINGS FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL CEILING MOUNTED J-BOX FOR POWER TO MENU BOARDS. CONFIRM EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH OWNER'S KITCHEN SUPPLIER PRIOR TO ROUGH-IN.
- PROVIDE AND INSTALL NEW MOTOR RATED TOGGLE SWITCH FOR DISCONNECTING MEANS TO OVERHEAD DOOR MOTOR. INSTALL CONTROL BOX PROVIDED WITH OVERHEAD DOOR IN LOCATION DETERMINED BY OWNER. PROVIDE AND INSTALL ALL ASSOCIATED CONDUIT AND CONTROL WIRING AS NECESSARY FOR PHOTO-SENSING EYE AND PUSH BUTTON DEVICES. INSTALL PER MANUFACTURER'S INSTRUCTIONS. CONFIRM REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
- PROVIDE AND INSTALL NEW FLUSH MOUNTED FLOOR J-BOX FOR KITCHEN EQUIPMENT. CONFIRM EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH KITCHEN VENDOR SUPPLIER PRIOR TO ROUGH-IN. RE: KITCHEN DRAWINGS FOR ADDITIONAL INFORMATION.

GENERAL KITCHEN ELECTRICAL NOTES:

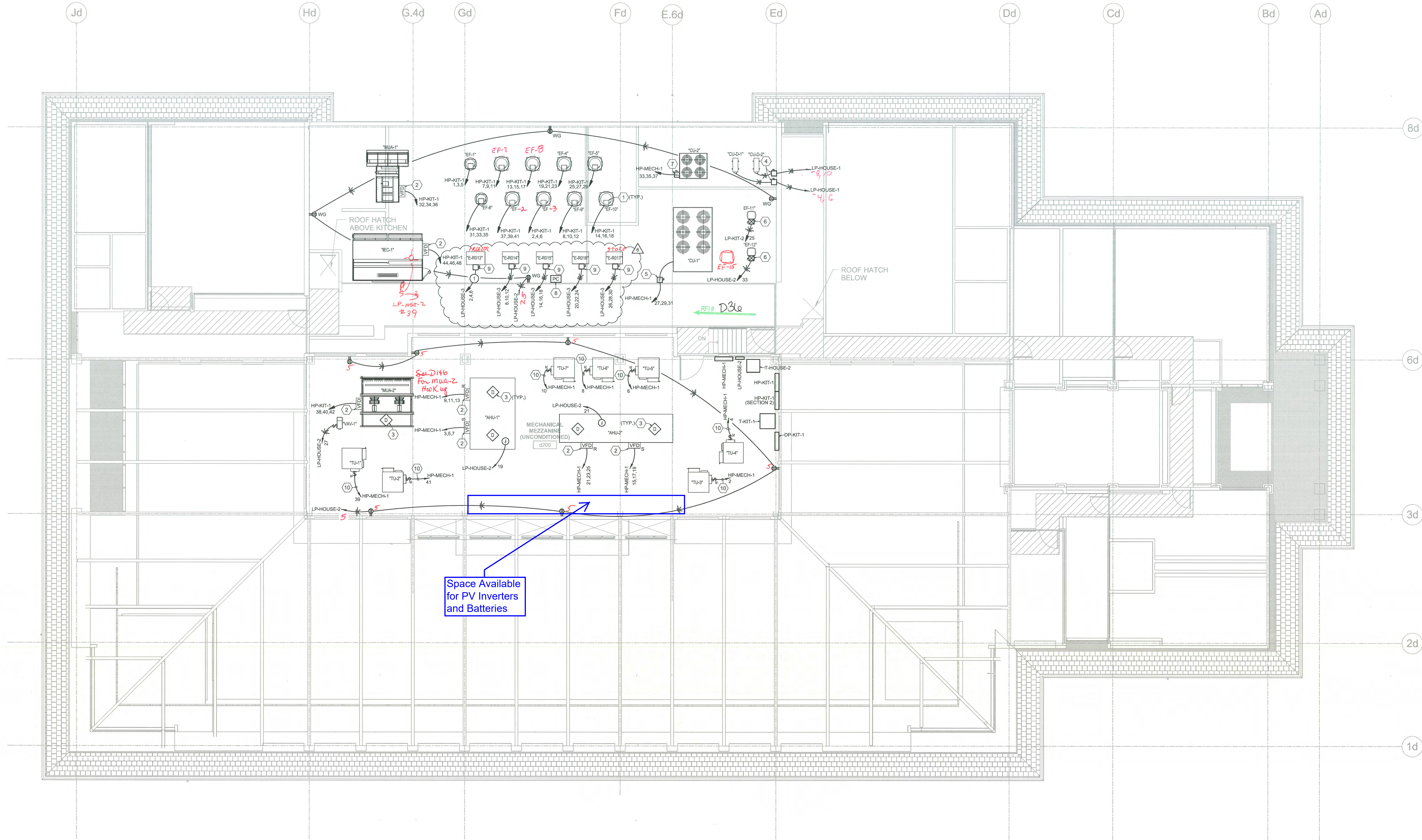
- THESE DRAWINGS ARE SCHEMATIC IN NATURE. ROUGH-IN AND POWER REQUIREMENTS ARE SUBJECT TO CHANGE BASED ON PURCHASED EQUIPMENT TO BE INSTALLED. ELECTRICAL CONTRACTOR SHALL USE FOOD SERVICE VENDOR'S EQUIPMENT KITCHEN EQUIPMENT SHOP DRAWINGS FOR EXACT LOCATIONS AND REQUIREMENTS FOR KITCHEN EQUIPMENT ROUGH-IN.
- THIS DRAWING IS NOT TO BE USED FOR ESTABLISHING ROUGH-IN LOCATIONS. REFER TO DIMENSIONED ROUGH-IN SHOP DRAWINGS PREPARED BY THE KITCHEN EQUIPMENT CONTRACTOR.
- ALL ELECTRICAL LINES SHALL BE CONCEALED FROM SIGHT IN WALLS AND COLUMNS UNLESS NOTED OTHERWISE.
- PROVIDE ALL ROUGH-INS, INTERCONNECTING WIRING AND FINAL CONNECTIONS TO CONTROLS, RECEPTACLES, J-BOXES, BREAKER PANELS, OR SWITCHES ETC. IN CONFORMANCE WITH LOCAL CODES.
- FURNISH AND INSTALL ALL DISCONNECTS, INTERLOCKS, AND CONTACTORS REQUIRED BY GOVERNING CODES.
- ALL FLOOR OUTLETS AND ELECTRICAL PEDESTALS SHALL BE WATERPROOF.
- PROVIDE INSTALLATION SWITCHES, CONTROLS, AND ALL INTERCONNECTING WIRING TO VENTILATOR LIGHTS AND VENTILATOR FAN ON/OFF SWITCHES FURNISHED WITH EQUIPMENT UNDER KITCHEN EQUIPMENT DIVISION 11.
- FURNISH AND INSTALL INTERCONNECTING CONTROL WIRING AND CONDUIT BETWEEN FIRE PROTECTION CONTROL PANELS, VENTILATORS, AND GAS SOLENOID VALVE TO SHUT DOWN COOKING EQUIPMENT DURING FIRE SYSTEM ACTIVATION.
- PROVIDE WIRING AND CONDUIT TO INTERCONNECT: FROM VENTILATOR CONTROL CABINET TO MAIN THERMOSTAT J-BOX ON VENTILATOR. FROM CONTROL CABINET TO REMOTE FIRE SWITCH. FROM CONTROL CABINET TO REMOTE SOLENOID VALVES. FROM CONTROL CABINET TO MAGNETIC START SWITCH.
- FURNISH AND INSTALL SHUNT TRIP CIRCUIT BREAKERS TO SHUT DOWN POWER SUPPLY TO ALL ELECTRICAL SERVICE UNDER THE VENTILATORS DURING FIRE SYSTEM ACTIVATION.
- FURNISH 120V CIRCUIT, WIRING, AND CONDUIT FROM TERMINAL BLOCK INSIDE FIRE PROTECTION CONTROL CABINET TO UL APPROVED SOLENOID GAS VALVE INSTALLED BY THE PLUMBER.
- FURNISH AND INSTALL FOR WALK-IN COLD STORAGE ROOMS ALL INTERCONNECTING CONDUIT AND WIRING CONCEALED FROM SIGHT ON TOP OF COLD STORAGE ROOM. COLD STORAGE ROOM LIGHTS, SWITCHES, TEMPERATURE ALARMS, THERMOSTATS FURNISHED BY KITCHEN CONTRACTOR FOR INSTALLATION BY ELECTRICIAN. CEILING MOUNTED EVAPORATORS INSTALLED UNDER KITCHEN EQUIPMENT, DIVISION 11.
- ALL EVAPORATOR MOTOR CONNECTIONS SHALL BE MADE WITH CONDUIT TO A J-BOX CONNECTION. PLUG-IN TYPE CONNECTIONS WILL NOT BE ACCEPTABLE.
- FURNISH AND INSTALL "EVS" AND FOAM INSULATION TO PROPERLY SEAL-OFF ALL PENETRATIONS OF COLD STAGE ROOM PANELS.

GENERAL KITCHEN ELECTRICAL NOTES (CONTINUED):

- ELECTRICAL CONTRACTOR (DIVISIONS) IS TO PROVIDE POWER FOR THE REFRIGERATION PACKAGE AND ALL COILS. ON WALK-IN FREEZERS, THE ELECTRICAL CONTRACTOR (DIVISION 26) TO PROVIDE ELECTRICAL SERVICE FROM THE CONTROL PANEL AT THE REFRIGERATION PACKAGE TO THE EVAPORATOR FOR FAN OPERATION AND DEFROST OPERATION.
- FEDERAL SCHEDULE:**
- (2) #10AWG, (1) #10AWG GROUND, 3/4" CONDUIT.
 - (2) #8AWG, (1) #10AWG GROUND, 3/4" CONDUIT.
 - (3) #6AWG, (1) #10AWG GROUND, 1" CONDUIT.
 - (3) #10AWG, (1) #10AWG GROUND, 3/4" CONDUIT.
- GENERAL NOTES:**
- ELECTRICAL CONTRACTOR SHALL REFER TO TECHNOLOGY, SECURITY AND AUDIOVISUAL SHEETS FOR ADDITIONAL SCOPE OF WORK.
 - LABEL EACH PIECE OF EQUIPMENT/CONNECT, END DEVICE, RECEPTACLE, ETC. WITH PANELBOARD AND CIRCUIT IN WHICH IT SERVES.
 - REFERENCE SHEET E403 FOR ELECTRICAL ONE-LINE DIAGRAM.
 - REFERENCE E500 SHEETS FOR ELECTRICAL PANELBOARD SCHEDULES.
 - REFERENCE KITCHEN DRAWINGS FOR ADDITIONAL SCOPE OF WORK.



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POWER FLOOR PLAN - DINING HALL - ATTIC
 1/8" = 1'-0"

ELECTRICAL POWER SYMBOLS

	SMOKE DETECTOR.		FOURPLEX CONVENIENCE RECEPTACLE
	MOTOR-RATED SWITCH, TOGGLE TYPE, 20 AMP, 120-277 VOLT AC		208V/1PH OUTLET
	SINGLE POLE SWITCH, TOGGLE TYPE, 20 AMP, 120-277 VOLT AC		MOTOR.
	FLOW SWITCH.		PHOTOCELL
	TAMPER SWITCH		VARIABLE FREQUENCY DRIVE.
	FIRE ALARM PULL STATION, MOUNTED 4'-0" A.F.F.		BRANCH CIRCUIT CONDUCTORS; #12AWG MINIMUM. GROUND, NEUTRAL, HOT (OR SWITCHED HOT)
	FIRE ALARM SPEAKER-HORN, MOUNTED 6'-8" A.F.F.		ABOVE FINISHED FLOOR.
	FIRE ALARM STROBE DEVICE, MOUNTED 6'-8" A.F.F.		"A" THIS LETTER ADJACENT TO ANY SYMBOL INDICATES MOUNTING HEIGHT TO BE 4" ABOVE BACKSLASH OF COUNTER.
	FIRE ALARM SPEAKER-HORN/STROBE DEVICE, MOUNTED 6'-8" A.F.F.		"G" THIS LETTER ADJACENT TO ANY SYMBOL INDICATES GROUND FAULT CURRENT INTERRUPTER.
	NON-FUSED DISCONNECT SWITCH.		"W" THIS LETTER ADJACENT TO ANY SYMBOL INDICATES WEATHERPROOF ENCLOSURE.
	FUSED DISCONNECT SWITCH.		PLAN NOTE DESIGNATION.
	PANELBOARD		REFERENCE DESIGNATION.
	WALL MOUNTED JUNCTION BOX.		SHEET NUMBER
	DUPLEX CONVENIENCE RECEPTACLE		DETAIL/PLAN NUMBER

PLAN NOTES:

- DISCONNECT SWITCH SHALL BE PROVIDED INTEGRAL WITH UNIT. MAKE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS. RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR WIRE SIZING AND VARIABLE FREQUENCY DRIVES.
- VFD TO BE SUPPLIED WITH UNIT. ELECTRICAL CONTRACTOR TO MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS. FIELD VERIFY EXACT LOCATION OF VFD. RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR WIRE SIZING.
- PROVIDE AND INSTALL RETURN AND SUPPLY AIR SMOKE DETECTORS. PROVIDE AND INSTALL FIRE ALARM INTERFACE AND FAN SHUT DOWNS AS NECESSARY.
- PROVIDE AND INSTALL 30A/208V/1PH/NF NEMA 3R DISCONNECT SWITCH IN LOCATION SHOWN. PROVIDE RED PLACARD WITH WHITE LETTERING INDICATING EQUIPMENT BEING SERVED. PANEL NOMENCLATURE, CIRCUIT BREAKER NUMBERS AND PANEL LOCATION PROVIDING POWER TO UNIT. MOUNT PERMANENT PLACARD ON FRONT FACE OF DISCONNECT. RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR WIRE SIZING.
- PROVIDE AND INSTALL 200A/480V/3PH NEMA 3R DISCONNECT SWITCH FUSED AT 150A IN LOCATION SHOWN. ENCLOSURE SHALL BE RATED FOR 14kAIC. PROVIDE RED PLACARD WITH WHITE LETTERING INDICATING EQUIPMENT BEING SERVED. PANEL NOMENCLATURE, CIRCUIT BREAKER NUMBERS AND PANEL LOCATION PROVIDING POWER TO UNIT. MOUNT PERMANENT PLACARD ON FRONT FACE OF DISCONNECT. RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR WIRE SIZING.
- PROVIDE COMBINATION MOTOR STARTER/DISCONNECT SWITCH. MAKE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS. RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR WIRE SIZING.
- PROVIDE AND INSTALL 30A/480V/3PH NEMA 3R DISCONNECT SWITCH FUSED AT 20A IN LOCATION SHOWN. ENCLOSURE SHALL BE RATED FOR 14kAIC. PROVIDE RED PLACARD WITH WHITE LETTERING INDICATING EQUIPMENT BEING SERVED. PANEL NOMENCLATURE, CIRCUIT BREAKER NUMBERS AND PANEL LOCATION PROVIDING POWER TO UNIT. MOUNT PERMANENT PLACARD ON FRONT FACE OF DISCONNECT. RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR WIRE SIZING.
- PROVIDE AND INSTALL DOUGLAS LIGHTING CONTROLS WPP-5527 PHOTOCELL HIGH ON EXTERIOR WALL WHERE SENSING DEVICE WILL NOT BE INFLUENCED BY SHADOWS CAUSED BY BUILDING EQUIPMENT, OVERHANGS, ETC. MOUNT ON WEATHERPROOF BOX. ROUTE CONTROL WIRING BACK TO LIGHTING CONTROL PANEL 1, LOD-1.

PLAN NOTES:

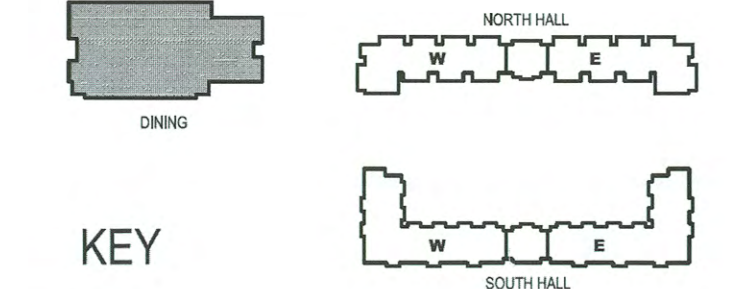
- PROVIDE AND INSTALL 30A/208V/3PH NON-FUSED NEMA 3R DISCONNECT SWITCH FOR KITCHENS VALU-KM REFRIGERATOR/FREEZERS COMPRESSOR. PROVIDE UNITS/STUBS AS NECESSARY TO MOUNT DISCONNECT SWITCH NEXT TO UNIT WHILE MAINTAINING EQUIPMENT'S WORKING CLEARANCES. CONFIRM EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH MANUFACTURER'S RECOMMENDATIONS. RE: KITCHEN DRAWINGS FOR ADDITIONAL INFORMATION.
- RE: SHEET E403 DINING HALL ELECTRICAL ONE-LINE DIAGRAM FOR WIRING SIZING AND ADDITIONAL INFORMATION.

FEEDER SCHEDULE

- (3) #8 AWG, (1) #10 AWG GROUND, 1" CONDUIT.

GENERAL NOTES:

- ELECTRICAL CONTRACTOR SHALL REFER TO TECHNOLOGY, SECURITY AND AUDIOVISUAL SHEETS FOR ADDITIONAL SCOPE OF WORK.
- LABEL EACH PIECE OF EQUIPMENT/DISCONNECT, END DEVICE, RECEPTACLE, ETC. WITH PANELBOARD AND CIRCUIT IN WHICH IT SERVES.
- REFERENCE SHEET E403 FOR ELECTRICAL ONE-LINE DIAGRAM.
- REFERENCE E500 SHEETS FOR ELECTRICAL PANELBOARD SCHEDULES.
- REFERENCE KITCHEN DRAWINGS FOR ADDITIONAL SCOPE OF WORK.



Notice of Alternate Billing Cycle: The Contract will allow the Owner to require the submission of billings or estimates in billing cycles other than 30-day cycles. Billing or statements shall be submitted monthly ending on the last day of the month.

Notice of Extended Certification Provision: The Contract will allow the Owner to certify billings and estimates within 20 days after the billings and estimates are received from the original contractor.

Notice of Extended Payment Provision: The Contract will allow the Owner to make payment within 30 days after the date a billing or estimate is received.



1. PROVIDE AND INSTALL VERIS INDUSTRIES ENERCEPT #B0205-0800-3 NETWORK POWER TRANSDUCER FOR METERING OF DINING HALL BUILDING. ATTACH OTTS TO INCORPORATE FEEDBACK. PROVIDE AND INSTALL PORTABLE GENERATOR TO METER INTO METASTAS BUILDING AUTOMATIC CONTROL SYSTEM.
2. PROVIDE 200A, 120/208V, 3-PH, 4-WIRE, PORTABLE GENERATOR CONTROL BOX. PROVIDE WITH MECHANICAL LUGS FOR CONNECTING PORTABLE GENERATOR CONTROL CABLES.
3. PROVIDE 200A, 120/208V, 3-PH, 4-WIRE, 3-POLE MANUAL TRANSFER SWITCH (MTS). MTS SHALL BE CONFIGURED TO ALLOW FOR TRIP ACCESS ONLY.
4. PROVIDE 225A, 120/208V, 3-PH, 4-WIRE, 3-POLE DISTRIBUTION PANELEBOARD TO SERVE KITCHEN WALK-IN REFRIGERATOR FREEZER AND CONVECTION STOVE FREEZER LUGS.
5. PROVIDE DUAL-LINE #6-2/0-10-0-277-80-0-4 SINGLE-PHASE CENTRAL LIGHTING INVERTER, OR EQUAL. INVERTER SHALL BE PROVIDED WITH FOUR (4) NORMALLY ON 200AMP OUTPUT CIRCUIT BREAKERS. UPON FAILURE OF NORMAL POWER SUPPLY, INVERTER SHALL AUTOMATICALLY TRANSFER TO 277V SUPPLY.

FEEDER SCHEDULE

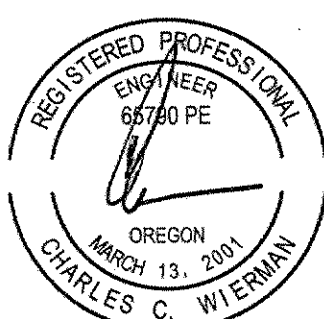
2	20A	(2)3W12, (1)1W12G, 1/2"C
3	20A	(2)3W12, (1)1W12G, 1/2"C
3	25A	(3)3W10, (1)1W10G, 1/2"C
3	30A	(3)3W10, (1)1W10G, 1/2"C
4	40A	(3)3W8, (1)1W8G, 3/4"C
5	50A	(3)3W8, (1)1W8G, 3/4"C
103	100A	(1)1W8G, 1-1/4"C
104	100A	(4)1W1, (1)W8G, 1-1/2"C
105	150A	(3)3W10, (1)W8G, 1-1/2"C
154	150A	(4)3W10, (1)W8G, 1-1/2"C
223	225A	(1)1W4G, 2"
224	225A	(4)W4G, (4)1W4G, 2"
403	400A	(2)2"C, EACH W/4W(3)3W10, (1)W8G
404	400A	(2)2"C, EACH W/4W(3)3W10, (1)W8G
404	600A	(2)3"C, EACH W/4W(4)3W30M1, (1)W1G
504	500A	(3)3"C, EACH W/4W(3)3W30M1

PORTABLE GENERATOR
CONNECTION BOX *PGCB
225A, 3PH, 4W
120/208V
18kAIC

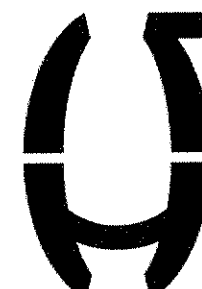
S E R A

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EXPIRES:	06/30/12
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SOU NORTH CAMPUS VILLAGE
AMERICAN CAMPUS COMMUNITIES

SOUTHERN OREGON UNIVERSITY, ASHLAND, OR 97520

REVISIONS		
A	BID ADDENDUM	24 FEB 2012
B	BID ADDENDUM	06 MAR 2012

CHECKED BY:
ISSUE DATE: 10 FEB 2012
PROJECT NO.: 091641

**ELECTRICAL
ONE-LINE
DIAGRAM -
DINING HALL
E403**

GMP SET