



State of Utah

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Division of Facilities Construction and Management

DAVID G. BUXTON  
Director

## ADDENDUM #1

Date: June 13, 2008

To: Contractors

From: Wayne Smith, Project Manager, DFCM

Reference: Project Jupiter Generator – Draper Complex  
Utah National Guard – Draper, Utah  
DFCM Project No.

Subject: **Addendum No. 1**

Pages	Addendum Cover Sheet	1 page
	<u>Engineers Addendum</u>	<u>13 pages</u>
	Total	14 pages

**Note:** *This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.*

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

- 1.1 **SCHEDULE CHANGES** – There are no changes to the project schedule.
- 1.2 **GENERAL ITEMS** – Questions and Answers, Specifications and Drawings from Spectrum Engineers

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Where ideas connect



SPECTRUM ENGINEERS

Doing what's right: yesterday, today and tomorrow

# Addendum #1



# DFCM

Division of Facilities Construction and Management  
4110 State Office Building Salt Lake City, UT 84114  
Telephone (801) 538-3018 FAX (801) 538-3267

<b>Job:</b>	Jupiter Generator Addition
<b>Spectrum Job Number:</b>	20080164
<b>DFCM Project Number:</b>	06295480
<b>Date:</b>	June 13, 2008

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## GENERAL

AD1-G01     Project Budget  
 The project budget has been increased to \$500,000.00.

## ELECTRICAL

AD1-E01     Specification 263213 Engine Generators  
 Change paragraph 3.5.B.11 to read "Load Bank Testing: Provide non-linear load bank test at 25%, 50%, 75% and 100%. Step load testing shall be performed from no load stepped up to each of the values indicated. The load bank used for testing shall have a total harmonic distortion (THD) of no less than 50%."

Change paragraph 3.5.B.12 to read "Live Load Testing: Provide testing of the live load by simulating a power outage on the system. Testing shall incorporate the effects of the transfer on the UPS system as the power is transferred to generator and then back to normal power. Live load testing shall be performed with the UPS connected and then performed with the UPS in bypass."

All testing indicated in section 3.5 of the specifications shall be documented in writing and shall verify the performance requirements of section 2.2 of the specifications.

AD1-E02     Specification 260900 – Instrumentation and Control for Voice Alarm System  
 Specifications section added. See attached.

AD1-E03     Specification 260940 – Sequence of Operation for Voice Alarm System  
 Specifications section added. See attached.

AD1-E04     Sheet EP601



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## Addendum #1

The ATS remote annunciator is shown as existing. The Annunciator is not existing but shall be provided new along with control wiring and conduit under the scope of this project.

AD1-E05      Sheets EI001, EI101, EI102, EI601:  
1. Alarm monitoring system sheets added. See attachments.

AD1-E06      Sheet EP102:  
2. Panel 2HA is to be located on the west wall of ELEC. 221.

### E-MAIL RFI's (Responses indicated in bold case)

Email dated: Wed 6/11/2008 9:18 AM  
Subject: Fwd: Jupiter Generator Addition

>>> "Dave Gerber" <dgerber@hiddenpeakelectric.com> 6/10/2008 4:10 PM  
>>>

1. On EP101, there is sheet note 2 on the left side of the page along with the fiber optic line. Does this note belong here?

Dave Gerber

Hidden Peak Electric

**Response:**

**No, the fiber line is existing to remain and does not connect to the generator.**

Email dated: Wed 6/11/2008 9:17 AM  
Subject: Fwd: Jupiter Generator Addition/DFCM # 06295480

>>> "Dave Gerber" <dgerber@hiddenpeakelectric.com> 6/10/2008 1:16 PM  
>>>

Dear Mr. Smith:

I have the following questions regarding this project.

1. EP601 shows "conduit and wiring per the manufacturer" from the 3 UPS's to annunciator panels. Where are the UPS's and annunciators? How are we to know what the manufacturer requires in the way of number and size of conductors? This needs to be specified.

**Response:**

**The UPS's are on the second floor and the Annunciator for the UPS system has already been installed.**



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## Addendum #1

2. *Regarding the SCIF area:*

- \* *How high is the ceiling?*
- \* *How high is the roof deck above it?*
- \* *Is the ceiling acoustical tile or something else?*

**Response:**

The ceiling is approximately 11-feet high and is open to structure in some areas and has a drop ceiling in others. The areas of work involved in this project are open to structure.

The roof deck is approximately 25 to 30 feet from the first floor finished floor.

3. *There was discussion at the pre-bid meeting discussing tying in some, or all, of the monitored points into an Energy Management System.*

*Where would this be? How many and what size conductors are necessary? Is there a schematic?*

**Response:**

The monitoring system drawings and specifications have been included as part of Addendum #1.

*Dave Gerber*

*Hidden Peak Electric Co.*

**Attachments:**

Specifications

Section 260900 – Instrumentation and Control for Voice Alarm System

Section 260940 – Sequence of Operation for Voice Alarm System

Drawings

Sheet EI001

Sheet EI101

Sheet EI102

Sheet EI601

End of Addendum #1

## SECTION 260900 - INSTRUMENTATION AND CONTROL FOR VOICE ALARM SYSTEM

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes providing the monitoring and voice alarm annunciation equipment for space temperature and humidity as well as equipment status for the IT and UPS rooms and equipment.
- B. Related Sections include the following:
  - 1. Division 26 Section "Sequence of Operations for Voice Alarm System" for requirements that relate to this Section.

#### 1.3 SYSTEM COMPONENTS

- A. Voice Alarm Annunciation System
- B. Temperature High and Low Limit Controllers
- C. Humidity High and Low Limit Controllers
- D. Dry Contact Alarm Interface Relays

#### 1.4 SEQUENCE OF OPERATION

#### 1.5 SUBMITTALS

- A. Product Data: Include manufacturer's technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.
  - 1. Voice Annunciator Software: Include technical data for operating system software, operator interface, and other third-party applications.
  - 2. Monitoring Devices: Instrumentation list with element name, type of device, manufacturer, model number, and product data. Include written description of sequence of operation including schematic diagram.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
  - 1. Bill of materials of equipment indicating quantity, manufacturer, and model number.
  - 2. Wiring Diagrams: Power, signal, and control wiring.
  - 3. Details of control panel faces, including controls, instruments, and labeling.
  - 4. Written description of sequence of operation.
- C. Operation and Maintenance Data: In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
  - 1. Maintenance instructions and lists of spare parts for each type of device.
  - 2. Interconnection wiring diagrams with identified and numbered system components and devices.
  - 3. Keyboard illustrations and step-by-step procedures indexed for each operator function.
  - 4. Inspection period, cleaning methods, cleaning materials recommended, and calibration tolerances.

5. Calibration records and list of set points.

#### 1.6 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Factory-Mounted Components: Where control devices specified in this Section are indicated to be factory mounted on equipment, arrange for shipping of control devices to equipment manufacturer.
- B. System Software: Update to latest version of software at Project completion.

#### 1.8 COORDINATION

- A. Coordinate location of thermostats, humidistats, and other exposed control sensors with plans and room details before installation.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

#### 2.2 VOICE ANNUNCIATOR SYSTEM

- A. Available Manufacturers:
  1. Zetron USA
  2. Approved Equal
- B. System to be a Zetron Model 1550.
  1. Comply with the following performance requirements:
    - a. Monitoring/Control Capacity
      - 1) 64 discrete input/output points
      - 2) 8 analog inputs 0 to 5VDC or 4 to 20mA
    - b. Voice Capacity
      - 1) 4 minutes of user voice storage
      - 2) Maximum of 99 user recordable alarm messages
    - c. Communication Interfaces
      - 1) Single PSTN telephone interface
      - 2) Radio interface
    - d. Programming Interfaces
      - 1) Front panel keypad and display
      - 2) RS-232 port with supplied SMCU programming software
      - 3) PSTN phone
    - e. Enclosure
      - 1) NEMA 4X fiberglass/polyester
      - 2)

### 2.3 INTERFACE RELAYS

- A. Available Manufacturers:
  - 1. IDEC
  - 2. GE
  - 3. Honeywell International Inc.; Home & Building Control.
  - 4. Invensys Building Systems.
  - 5. Johnson Controls, Inc.; Controls Group.
  - 6. MAMAC Systems, Inc.
  - 7. Siemens Building Technologies, Inc.
  - 8. Staefa Control System Inc.; Siemens Building Technologies, Inc.
  - 9. TAC Americas, INC.

### 2.4 THERMOSTATS (High and Low Limits)

- A. Available Manufacturers:
  - 1. Erie Controls.
  - 2. Danfoss Inc.; Air-Conditioning and Refrigeration Div.
  - 3. Heat-Timer Corporation.
  - 4. Sauter Controls Corporation.
  - 5. Honeywell International Inc.; Home & Building Control.
  - 6. Invensys Building Systems.
  - 7. Johnson Controls, Inc.; Controls Group.
  - 8. MAMAC Systems, Inc.
  - 9. Siemens Building Technologies, Inc.
  - 10. Staefa Control System Inc.; Siemens Building Technologies, Inc.
  - 11. TAC Americas, INC.
- B. Electric, solid-state, microcomputer-based room thermostat with integral sensor.
  - 1. Sensing high and low temperature set points.
  - 2. Battery replacement without program loss.
  - 3. Thermostat display features include the following:
    - a. Actual room temperature.
    - b. Programmed temperature set points.
      - 1) High Limit adjustable 65 F to 85 F
      - 2) High Limit adjustable 60 F to 75 F
  - 4. Room Thermostat Cover Construction:
    - a. Manufacturer's standard locking cover.
    - b. Set-Point Adjustment: Exposed.
    - c. Set-Point Indication: Exposed.
    - d. Thermometer: Exposed.
    - e. Color: Manufacturers Standard
    - f. Orientation: Vertical.

### 2.5 HUMIDISTATS (High and Low Limits)

- A. Available Manufacturers:
  - 1. MAMAC Systems, Inc.
  - 2. ROTRONIC Instrument Corp.
  - 3. Honeywell International Inc.; Home & Building Control.
  - 4. Invensys Building Systems.
  - 5. Johnson Controls, Inc.; Controls Group.
  - 6. MAMAC Systems, Inc.
  - 7. Siemens Building Technologies, Inc.
  - 8. Staefa Control System Inc.; Siemens Building Technologies, Inc.
  - 9. TAC Americas, INC.

- B. Space Humidistats: Electric, 2-position type with adjustable, 2 percent throttling range, 20 to 80 percent operating range, and single- or double-pole contacts.
- C. Humidistat Cover Construction:
  - 1. Manufacturer's standard locking cover.
  - 2. Set-Point Adjustment: Exposed.
  - 3. Set-Point Indication: Exposed.
  - 4. Thermometer: Exposed.
  - 5. Color: Manufacturers Standard
  - 6. Orientation: Vertical.

## 2.6 CONDUIT AND WIRE

- A. Provide as shown on Drawings.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify installation location. Coordinate with other devices to be installed.

### 3.2 INSTALLATION

- A. Connect and configure equipment and software to achieve sequence of operation specified.
- B. Verify location of thermostats, humidistats, and other exposed devices with Drawings and room details before installation. Install devices at heights as detailed on Drawings.
- C. Install labels and nameplates to identify control components.

### 3.3 ELECTRICAL WIRING AND CONNECTION INSTALLATION

- A. Install raceways, boxes, and cabinets according to Division 26 Section "Raceway and Boxes for Electrical Systems."
- B. Install building wire and cable according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

### 3.4 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
  - 1. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove and replace malfunctioning units and retest.
  - 2. Test and adjust controls and safeties.
  - 3. Test each point through its full operating range to verify that safety and operating control set points are as required.
  - 4. Test each system for compliance with sequence of operation.
- B. Voice Annunciation Verification:
  - 1. Verify that instruments are installed before calibration and testing checks.
  - 2. Check instruments for proper location and accessibility.
  - 3. Check instrument installation for elevation, orientation, and other applicable considerations.
- C. Replace damaged or malfunctioning controls and equipment and repeat testing procedures.

3.5 ADJUSTING

- A. Calibrating and Adjusting:
  - 1. Calibrate instruments.
    - a. Check digital inputs using jumper wire.
    - b. Check thermostat and humidistat reading values.
    - c.
  - 2. Temperature:
    - a. Calibrate temperature switches to make or break contacts.
  - 3. Humidity:
    - a. Calibrate humidity switches to make or break contacts.
- B. Adjust initial temperature and humidity set points.

3.6 DEMONSTRATION

- A. Work with commissioner to validate installation and device functionality.
- B. Programming will be done by others, contractor is responsible to work with commissioning agent to validate installation and operation of field devices.

END OF SECTION 260900

## SECTION 260940 SEQUENCE OF OPERATION FOR VOICE ALARM SYSTEM

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. The sequences of control for the voice alarm system.

### PART 2 - SEQUENCE OF OPERATION

#### 2.1 Temperature Alarms

- A. Set temperature high and low limits to:
  - 1. High Limit 75°F (adj.)
  - 2. Low Limit 65°F (adj.)
- B. Connect to normally closed limit contacts that open on the appropriate alarm.

#### 2.2 Humidity Alarms

- A. Set humidity high and low limits to:
  - 1. High Limit 50%Rh (adj.)
  - 2. Low Limit 30%Rh (adj.)
- B. Connect to normally closed limit contacts that open on the appropriate alarm.

#### 2.3 Equipment Alarm Contacts

- A. Provide normally closed dry contacts for each equipment. Provide interface relays if required to meet requirement.

### PART 3 - EXECUTION

#### 3.1 PROGRAMMING

- A. System programming will be done by others.

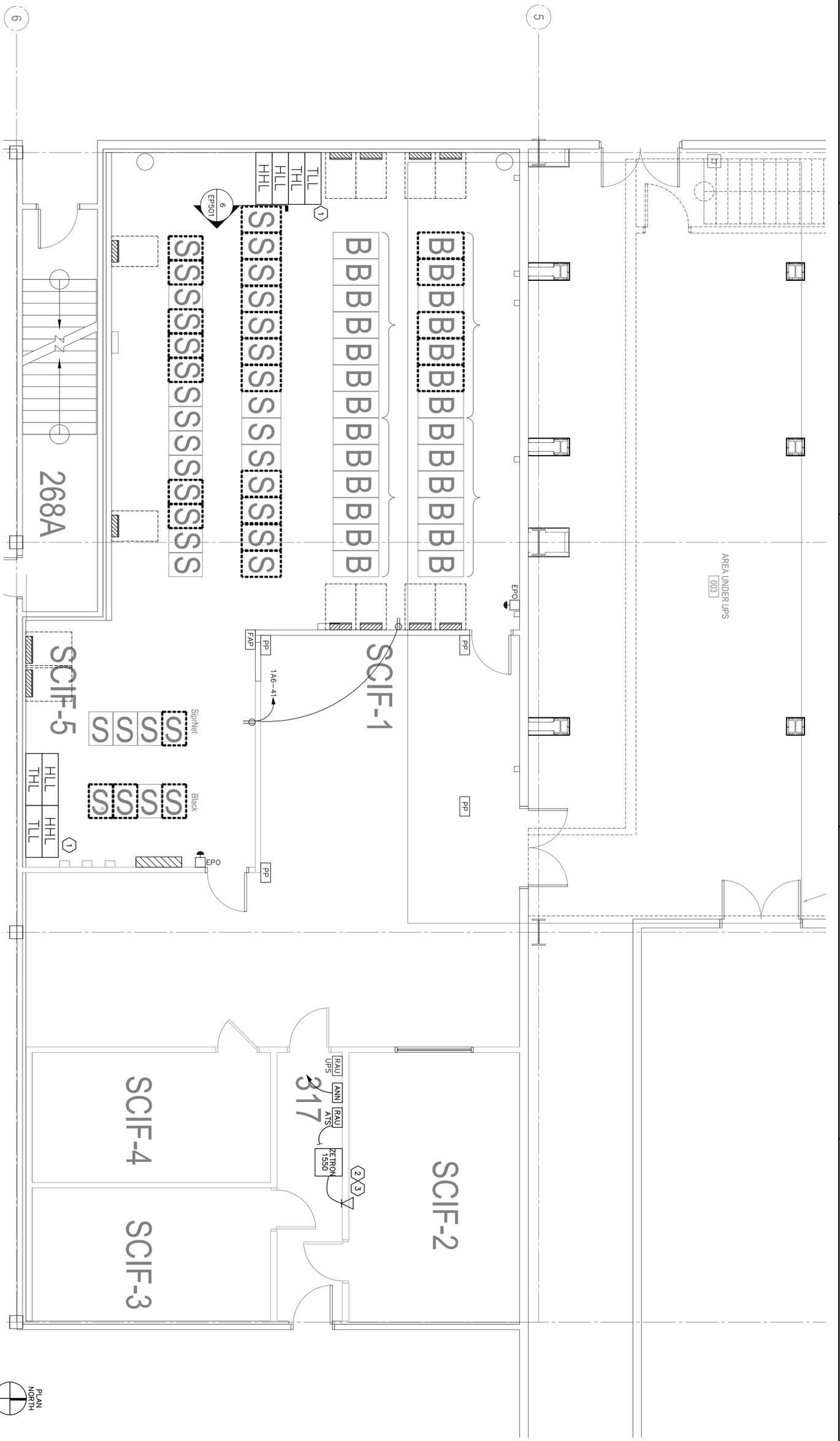
#### 3.2 DEMONSTRATION

- A. Work with commissioning agent to validate installation and sequences of operation.

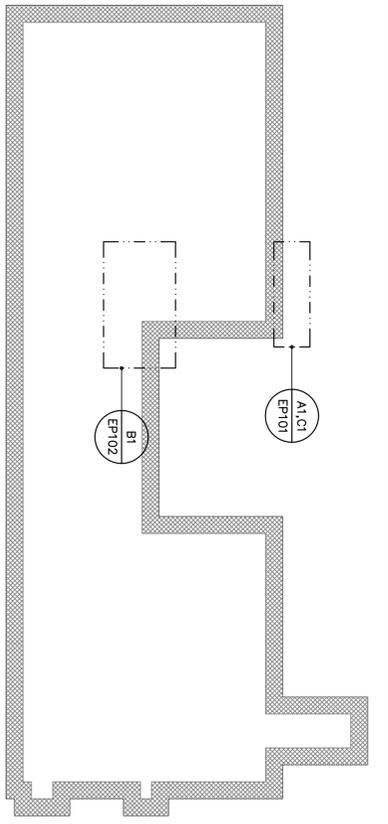
END OF SECTION 260940



**B1** MAIN FLOOR POWER PLAN  
SCALE: 1/4" = 1'-0"



**A3** KEYPLAN



**KEYNOTE**

1. PROVIDE CONDUIT, WIRE AND DEVICES AS SHOWN ON ONE LINE DIAGRAM SHEET EPO1. MOUNT AT 5' ABOVE FINISHED FLOOR. COORDINATE LOCATIONS WITH TRADES. PROVIDE POWER SOURCE FOR DEVICES AS REQUIRED.
2. PROVIDE TELEPHONE JACK FOR ZETRON CALL OUT.
3. COORDINATE LOCATION WITH OWNER.



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CONSULTANTS

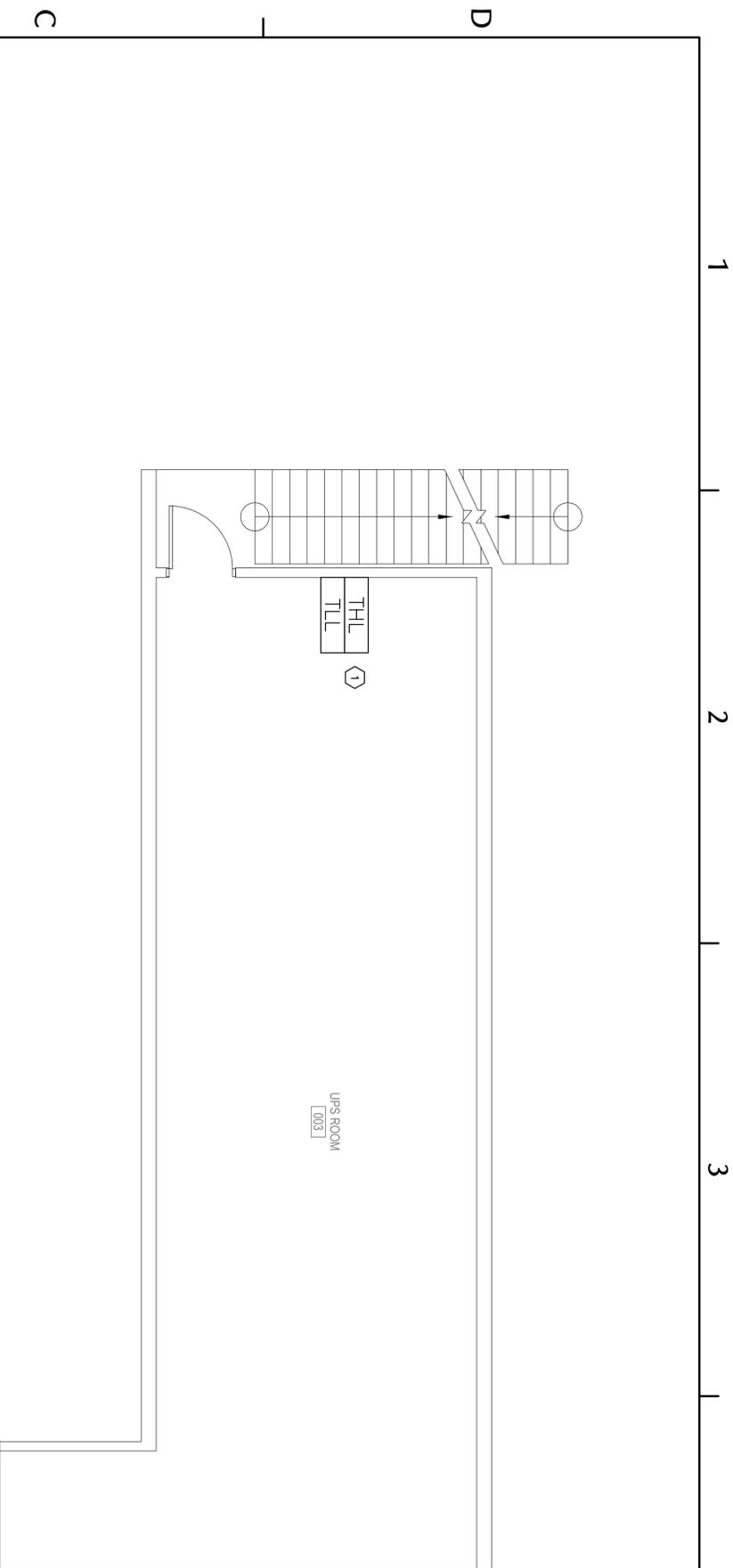
JUPITER  
GENERATOR  
ADDITION

MARK	DATE	DESCRIPTION
Δ 1		
Δ 2		
Δ 3		
Δ 4		
Δ 5		

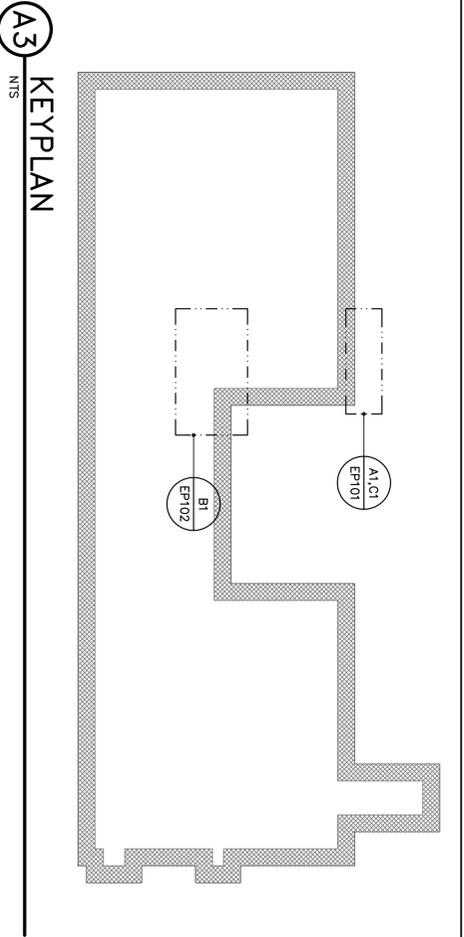
ISSUE DATE	
PROJECT NO.	
DRAWN BY:	AM
CHECKED BY:	LCJ
DESIGNED BY:	LCJ
RECORD DRAWING DATE	
SIGNATURE	
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SHEET TITLE  
**MAIN FLOOR  
TEMPERATURE AND  
HUMIDITY LIMITS PLAN**

**E1101**



**B1** UPS ROOM POWER PLAN  
SCALE: 1/4" = 1'-0"



**KEYNOTE**

1. PROVIDE CONDUIT, WIRE AND DEVICES AS SHOWN ON ONE LINE DIAGRAM SHEET E101. MOUNT AT 54" ABOVE FINISHED FLOOR. PROVIDE ALL INFORMATION WITH TRADES. PROVIDE POWER SOURCE FOR DEVICES AS REQUIRED.



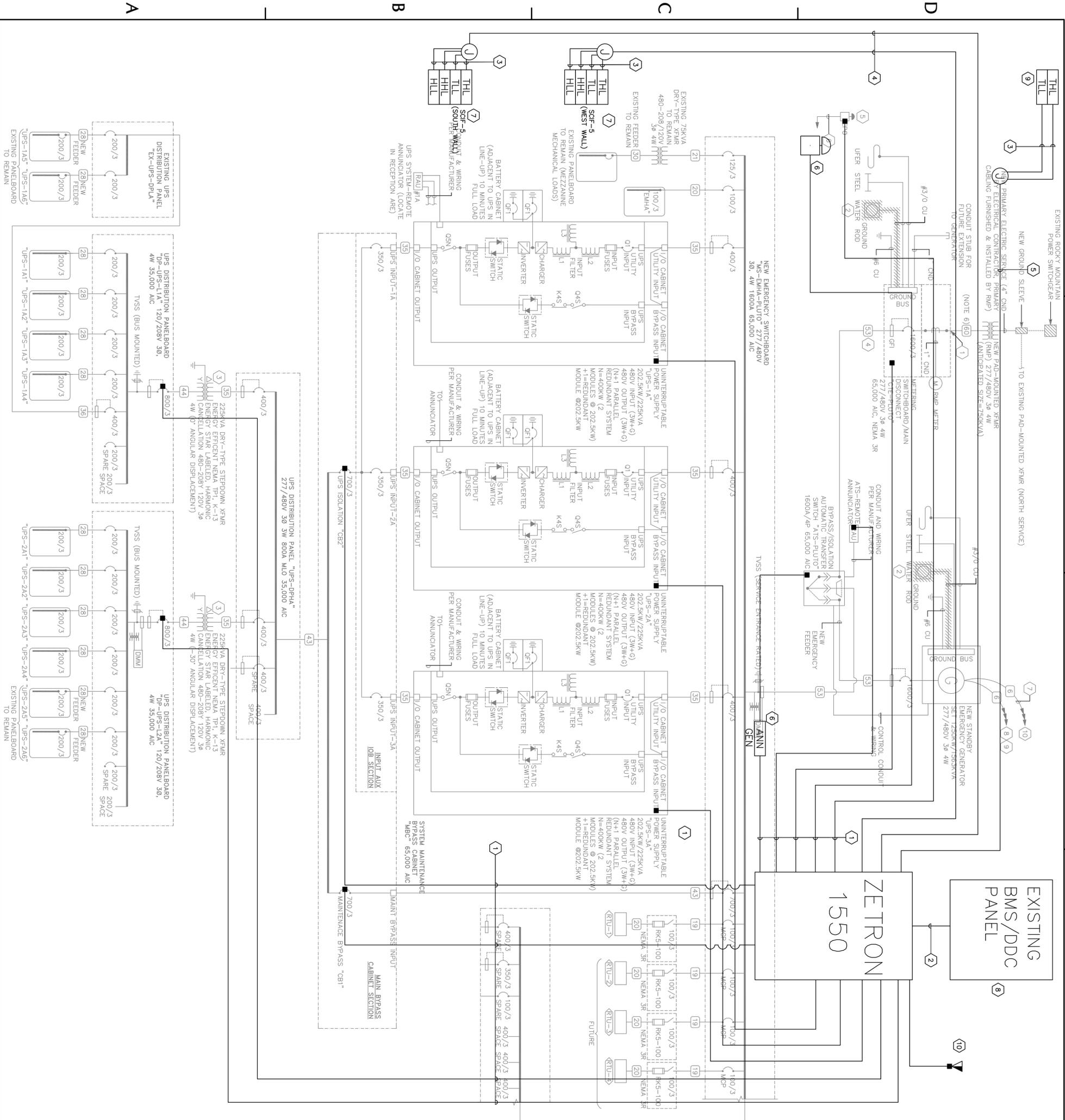
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**JUPITER GENERATOR ADDITION**

MARK	DATE	DESCRIPTION
Δ		
Δ		
Δ		
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ISSUE DATE  
 PROJECT NO:  
 DRAWN BY: AM  
 CHECKED BY: LCI  
 DESIGNED BY: LCI  
 RECORD DRAWING DATE  
 SIGNATURE:

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 SHEET TITLE  
**MEZZANINE TEMPERATURE AND HUMIDITY LIMITS PLAN**  
**E1102**



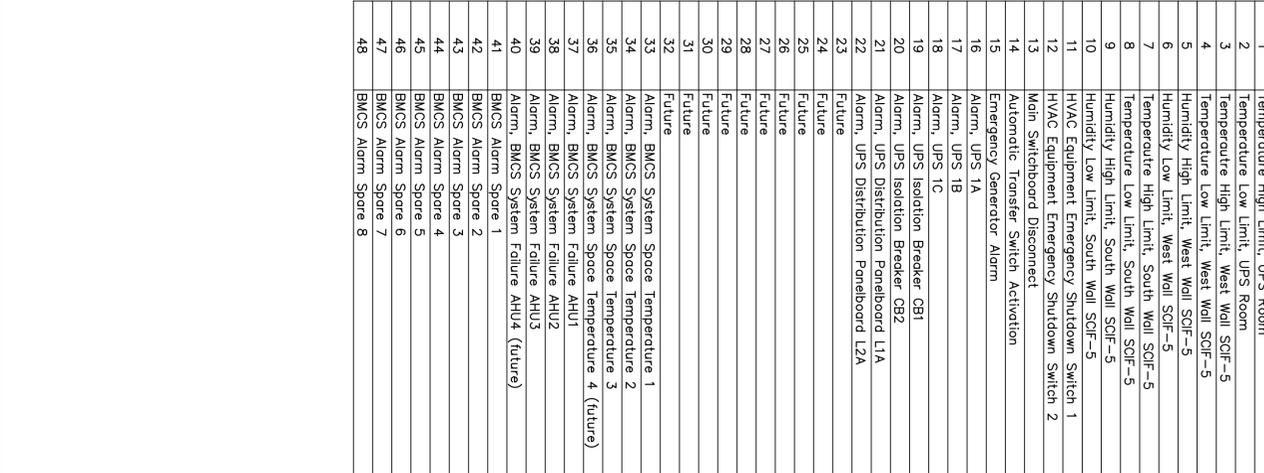
**GENERAL SHEET NOTES**

- REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE FOR CLEARANCE FOR OVERHEAD FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
- ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT.
- PROVIDE NORMALLY CLOSED INTERFACE RELAY IF REQUIRED FOR EACH ALARM POINT.

**OSHEET KEYNOTES**

- PROVIDE 2-EACH #14 CU CONTROL WIRING, 600 VOLT RATED TYPE THHN, IN 0.75-INCH EMT.
- PROVIDE 16-EACH 18/2 UTP IN 1.5-INCH CONDUIT.
- PROVIDE 1-EACH 18/2 UTP IN 0.75-INCH CONDUIT.
- PROVIDE 4-EACH 18/2 UTP IN 1-INCH CONDUIT.
- PROVIDE 2-EACH 18/2 UTP IN 0.75-INCH CONDUIT.
- SEE SHEET EP102 FOR LOCATION.
- SEE SHEET ET102 FOR LOCATION.
- PROVIDE CONDUIT AND WIRE FOR BMS INTERFACE TO DDC FOR PANEL OPERATION BY OTHERS. COORDINATE WITH RICH JONES 801-523-4459.
- SEE SHEET EP101 FOR LOCATION.
- PROVIDE TELEPHONE JACK FOR ZETRON CALLOUT.

Zetron Point	Point Description
1	Temperature High Limit, UPS Room
2	Temperature Low Limit, UPS Room
3	Temperature High Limit, West Wall SCF-5
4	Temperature Low Limit, West Wall SCF-5
5	Humidity High Limit, West Wall SCF-5
6	Humidity Low Limit, West Wall SCF-5
7	Temperature High Limit, South Wall SCF-5
8	Temperature Low Limit, South Wall SCF-5
9	Humidity High Limit, South Wall SCF-5
10	Humidity Low Limit, South Wall SCF-5
11	HVAC Equipment Emergency Shutdown Switch 1
12	HVAC Equipment Emergency Shutdown Switch 2
13	Main Switchboard Disconnect
14	Automatic Transfer Switch Activation
15	Emergency Generator Alarm
16	Alarm, UPS 1A
17	Alarm, UPS 1B
18	Alarm, UPS 1C
19	Alarm, UPS 1D
20	Alarm, UPS Isolation Breaker CB1
21	Alarm, UPS Distribution Panelboard L1A
22	Alarm, UPS Distribution Panelboard L2A
23	Future
24	Future
25	Future
26	Future
27	Future
28	Future
29	Future
30	Future
31	Future
32	Future
33	Alarm, BMS System Space Temperature 1
34	Alarm, BMS System Space Temperature 2
35	Alarm, BMS System Space Temperature 3
36	Alarm, BMS System Space Temperature 4 (future)
37	Alarm, BMS System Failure AHU1
38	Alarm, BMS System Failure AHU2
39	Alarm, BMS System Failure AHU3
40	Alarm, BMS System Failure AHU4 (future)
41	BMCS Alarm Spare 1
42	BMCS Alarm Spare 2
43	BMCS Alarm Spare 3
44	BMCS Alarm Spare 4
45	BMCS Alarm Spare 5
46	BMCS Alarm Spare 6
47	BMCS Alarm Spare 7
48	BMCS Alarm Spare 8



**JUPITER  
GENERATOR  
ADDITION**

DRAWN BY: AM  
CHECKED BY: LCI  
DESIGNED BY: LCI

RECORD DRAWING DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

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SHEET TITLE: VOICE ALARM ANNUNCIATOR ONE-LINE DRAGRAM

EI601

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