BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

OLD CUTLER ROAD
CORAL GABLES, FL 33158

100% SUBMITTAL
2026.07.16

USDA CONTRACT NUMBER:12639521D0050
CONTRACT MODIFICATION: P00001

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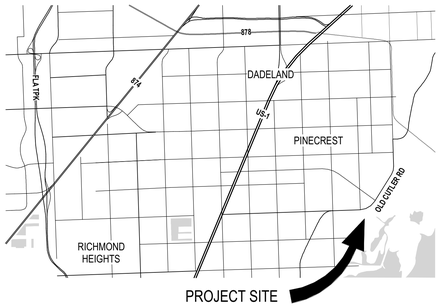
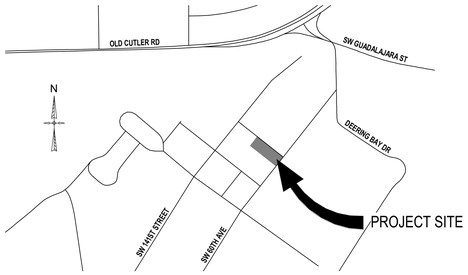
VICINITY MAP



SITE MAP



PROJECT TEAM

OWNER
USDA APHIS
13601 OLD CUTLER ROAD
MIAMI, FL 33158

STRUCTURAL ENGINEER
CLARK NEXSEN
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DESIGNER
CLARKNEXSEN
A JMT Company
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MACON, GEORGIA 31210
478.743.8415

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REVISIONS

SHEET
COVER SHEET

GI000

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

CN 10858

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2023 FLORIDA BUILDING CODE
CODE SUMMARY

Name of Project: USDA - APHIS - Agricultural Research Service (ARS) Building #63 Envelope & HVAC
Address: Old Cutler Road, Coral Gables, Florida Zip Code: 33158
Proposed Use: Laboratory & Office
Owner/Agent: Xiangbing Yang Phone #: (305) 278-4881 Email: xianbing.yang@usda.gov
Owned By: ☒ Federal ☐ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ☐ City -- ☐ County -- ☐ State

LEAD DESIGN PROFESSIONAL: CLARK NEXSEN, INC.

Designer	Firm	Name	Lic. #	Phone #	Email
Architectural	Clark Nexsen	Chadwick Roberson	--	(828) 232-0608	croberson@clarknexsen.com
Civil	N/A	--	--	--	--
Electrical	Clark Nexsen	James Dinkler	99966	(757) 961-7705	james.dinkler@clarknexsen.com
Fire Alarm	Clark Nexsen	Christopher Born	65399	(757) 961-7933	cborn@clarknexsen.com
Plumbing	Clark Nexsen	Wade Williams	79612	(478) 743-8415	wwilliams@clarknexsen.com
Mechanical	Clark Nexsen	Wade Williams	79612	(478) 743-8415	wwilliams@clarknexsen.com
Sprinkler-Standpipe	Clark Nexsen	Christopher Born	65399	(757) 961-7933	cborn@clarknexsen.com
Structural	Clark Nexsen	Peter Allen	79457	(757) 961-7878	pallen@clarknexsen.com
Retaining Walls >5'	N/A	--	--	--	--
Landscape Arch.	N/A	--	--	--	--

2023 FLORIDA BUILDING CODE: ☐ New Construction ☐ Addition ☐ Upfit
EXISTING: ☐ Addition ☐ Change of use ☒ Alteration - Level: ☐ I ☐ II ☒ III
CONSTRUCTED: (date) Unknown **ORIGINAL USE(S)** Laboratory & Office
RENOVATED: (date) 2011 **CURRENT USE(S)** Laboratory & Office
PROPOSED USE(S) Laboratory & Storage

BASIC BUILDING DATA

Non-Combustible Construction Type: ☐ I-A ☐ II-A ☐ I-B ☐ II-B
Combustible Construction Type: ☐ III-A ☐ IV ☐ V-A ☐ III-B ☒ V-B

Sprinklers: ☐ No ☐ Partial ☒ Yes ☒ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes ☐ Class I ☐ Class II ☐ Class III ☐ Wet ☐ Dry

Fire District: ☐ No ☒ Yes **Flood Hazard Area:** ☒ No ☐ Yes
Building Height: 14' **Number of Stories:** 1 **Basement:** ☒ No ☐ Yes

Building Area (502.1):

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUBTOTAL
5th Floor	N/A	N/A	N/A
4th Floor	N/A	N/A	N/A
3rd Floor	N/A	N/A	N/A
2nd Floor	N/A	N/A	N/A
1st Floor	6,304	0	6,304
Basement	N/A	N/A	N/A
TOTAL	6,304	0	6,304

ALLOWABLE AREA

Primary Occupancy:
Assembly (303) ☐ A1 ☐ A2 ☐ A3 ☐ A4 ☐ A5
Business (304) ☒
Educational (305) ☐
Factory (306) ☐ F-1 Moderate ☐ F-2 Low
High-Hazard (307) ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional (308) ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-2/I-3 Condition: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile (309) ☐
Residential (310) ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage (311) ☐ S-1 Moderate ☐ S-2 Low ☐ High-Piled
S-2 Parking Garage: ☐ Open ☐ Enclosed ☐ Repair Garage
Utility/Misc. (312) ☐

Accessory Occupancies:
Assembly (303) ☐ A1 ☐ A2 ☐ A3 ☐ A4 ☐ A5 (Queuing area only)
Business (304) ☐
Educational (305) ☐
Factory (306) ☐ F-1 Moderate ☐ F-2 Low
High-Hazard (307) ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional (308) ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-2/I-3 Condition: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile (309) ☐
Residential (310) ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage (311) ☐ S-1 Moderate ☒ S-2 Low ☐ High-Piled
S-2 Parking Garage: ☐ Open ☐ Enclosed ☐ Repair Garage
Utility/Misc. (312) ☐

Incidental Uses (Table 509):
☐ Furnace room where any piece of equipment is over 400,000 Btu per hour input
☐ Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
☐ Refrigerant machine room
☐ Hydrogen cut off rooms, not classified as Group H
☐ Incinerator rooms
☐ Paint shops, not classified as Group H, located in occupancies other than Group F
☐ In Group E occupancies, laboratories and vocational shops not classified as Group H.
☐ In Group I-2 occupancies, laboratories not classified as Group H.
☐ In ambulatory care facilities, laboratories not classified as Group H.
Laundry rooms over 100 square feet
☐ In Group I-2, laundry rooms over 100 square feet
☐ Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces
☐ In Group I-2, physical plant maintenance shops
☐ In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater
☐ In other than ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms over 100 square feet
☐ In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet
☐ Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterrupted power supplies

Special Uses (Ch 4): N/A

Special Provisions (Ch 5): N/A

Mixed Occupancy: ☒ No ☐ Yes Separation: -- Hr Exception: --
☐ Incidental Use Separation (509)
This separation is not exempt as a Non-Separated Use (see exceptions)
☐ Non-Separated Mixed Use (508.3.)
☐ Separated Mixed Use (508.4) - See below for area calculations

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} + \frac{\text{Actual Area of Occupancy C}}{\text{Allowable Area of Occupancy C}} \leq 1$$

Area = -- / -- + -- / -- + -- / -- = XX+XX+XX=XX ≤ 1.00

STORY NO. AND PRIMARY OCCUPANCY	FLOOR DESCRIPTION AND USE(S)	BLDG AREA PER STORY (ACTUAL)	ALLOWABLE AREA FROM TABLE 506.2	FRONTAGE INCREASE %	TOTAL ALLOWABLE AREA	ALLOWABLE BUILDING AREA 506.2.1-506.2.4
Level 1 - B	Lab/Storage	6,304	36,000	N/A	36,000	
--	--	--	--	--	--	36,000
--	--	--	--	--	--	

ALLOWABLE HEIGHT

Type of Construction: 5B	ALLOWABLE BUILDING HT. (TABLE 504.3)	PLANNED BUILDING HT.	ALLOWABLE NO. OF STORIES (TABLE 504.4)	PLANNED NO. OF STORIES
☐ Non-Sprinklered (NS)				
☒ Sprinklered NFPA 13 (S)				
☐ Sprinklered NFPA 13R (S13R)	60'	32'	3	1

FIRE PROTECTION REQUIREMENTS

FIRE RATED CONSTRUCTION SCHEDULE

Building Element			Rating Required	Rating Provided	Reduct*	Detail # & Sheet #	Assembly Design #	Penetration Design #	Joint Design #
TABLE 601 & 602	Primary Structural Frame		0	0	--	--	--	--	--
	Bearing Walls and Partitions Exterior	North: Fire Sep. Dist: 7.5'	1	2	--	--	--	--	--
		East: Fire Sep. Dist: +30'	0	0	--	--	--	--	--
		West: Fire Sep. Dist: +30'	0	0	--	--	--	--	--
		South: Fire Sep. Dist: +30'	0	0	--	--	--	--	--
	Bearing Walls and Partitions Interior		N/A	--	--	--	--	--	--
	Nonbearing Walls and Partitions Exterior	North: Fire Sep. Dist: N/A	N/A	--	--	--	--	--	--
		East: Fire Sep. Dist: N/A	N/A	--	--	--	--	--	--
		West: Fire Sep. Dist: N/A	N/A	--	--	--	--	--	--
		South: Fire Sep. Dist: N/A	N/A	--	--	--	--	--	--
	Nonbearing Walls and Partitions Interior		0&2	0&2	--	--	--	--	--
	Floors Above Grade	Floor Construction	N/A	--	--	--	--	--	--
		Supporting Structure	N/A	--	--	--	--		--
	Roofs	Roof Construction	0	0	--	--	--	--	--
		Supporting Structure	0	0	--	--	--		--
Shaft Enclosures (713)		Exit/Elevator	N/A	--	--	--	--	--	--
		Other	N/A	--	--	--	--	--	--
Corridor Ratings (1020.1)			0	0	--	--	--	--	--
Occupancy Separation (508.4)		Vertical	N/A	--	--	--	--	--	--
		Horizontal	N/A	--	--	--	--	--	--
Party/Fire Wall Separation			N/A	--	--	--	--	--	--
Smoke Barrier Separation**			N/A	--	--	--	--	--	--
Tenant/Unit Separation (708.1)		Vertical	N/A	--	--	--	--	--	--
		Horizontal	N/A	--	--	--	--	--	--
Incidental Use Separation (509.4)		Vertical	N/A	--	--	--	--	--	--
		Horizontal	N/A	--	--	--	--	--	--

* Indicate section number permitting reduction
** FIRE PROTECTION SCHEDULE NOTES:
1. EXISTING CORRIDOR SMOKE PARTITIONS NOT WITHIN SCOPE OF WORK.
2. TYPICAL INTERIOR PARTITIONS ARE NOT REQUIRED TO BE RATED.

LIFE SAFETY SYSTEM REQUIREMENTS

THIS SECTION REQUIRED TO BE COMPLETED FOR ALL PROJECTS

Emergency Lighting: (1008) ☐ No ☒ Yes
Exit Signs: (1013) ☐ No ☒ Yes
Fire Alarm: (907, NFPA 72) ☐ No ☒ Yes
Voice Communication System: (907) ☐ No ☒ Yes
Smoke Detection Systems: (907) ☐ No ☒ Yes ☐ Partial ____
Panic Hardware: (1010.1.10) ☐ No ☒ Yes
Life safety systems generator: (2702) ☐ No ☒ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: GI002

N/A Completed
☒ ☐ Fire and/or smoke rated wall locations (Chapter 7)
☒ ☐ Assumed and real property line locations
☒ ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☒ ☐ Existing structures within 30' of the proposed building
☒ ☐ Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.2)
☒ ☐ Occupant loads for each area
☒ ☐ Exit access travel distance (1016)
☒ ☐ Common path of travel distances (1014.3 & 1028.8)
☒ ☐ Dead end lengths (1018.4)
☒ ☐ Clear exit widths for each exit door
☒ ☐ Maximum calculated occupant load capacity each exit door can accomodate based on egress width (1005.1)
☒ ☐ Actual occupant load for each exit door
☒ ☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☒ ☐ Location of doors with panic hardware (1008.1.10)
☒ ☐ Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
☒ ☐ Location of doors with electromagnetic egress locks (1008.1.9.8)
☒ ☐ Location of doors equipped with hold-open devices
☒ ☐ Location of emergency escape windows (1029)
☒ ☐ The square footage of each fire area (902)
☒ ☐ The square footage of each smoke compartment (407.4)
☒ ☐ Note any code exceptions or table notes that may have been utilized regarding the items above

OCCUPANT LOADS

STORY NO.	PROPOSED USE	USE TYPE TBL 1004.5	SF/PER OCC TBL 1004.5	AREA	NET/GROSS AREA	NO. OF OCCUPANTS	STORY OCC. LOAD
1	Laboratory	Business	150	4542	Gross	11	42
1	Office	Business	150	1,762	Gross	31	
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	
						TOTAL BUILDING OCCUPANT LOAD:	42

ACCESSIBLE PARKING
(SECTION 1106)

LOT DR PARKING AREA	TOTAL # OF PARKING SPACES	# OF ACCESSIBLE SPACES PROVIDED: STANDARD WITH 5' ACCESS AISLE	VAN SPACES WITH: 8' ACCESS AISLE	VAN SPACES WITH: 11' ACCESS AISLE	TOTAL # ACCESSIBLE PROVIDED
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
TOTAL	--	--	--	--	--

NOTE: ALL PARKING IS EXISTING - NO NEW PARKING

PLUMBING FIXTURE REQUIREMENTS

USE	WATER CLOSETS OR URINALS MALE	WATER CLOSETS OR URINALS FEMALE	LAVATORIES MALE	LAVATORIES FEMALE	SHOWERS / TUBS	DRINKING FOUNTAINS	SERVICE SINKS	CLOTHES WASHER CONNECT.
LEVEL 1 - B OCC.								
TOTAL REQUIRED:	1	1	1	1	0	1	0	0
QTY PROVIDED:	1 SEE NOTE 1		1 SEE NOTE 1		0	0 NOTE 1	0 NOTE 1	0

PLUMBING FIXTURE TABLE NOTES:
1. ALL PLUMBING FIXTURE ARE EXISTING TO REMAIN.

ENERGY CODE REQUIREMENTS

Climate Zone: 1A

Method of Compliance:
☐ Prescriptive (Energy Code)
☐ Performance (Energy Code)
☒ Prescriptive (ASHRAE 90.1)
☐ Performance (ASHRAE 90.1)

THERMAL ENVELOPE

Roof/Ceiling Assembly (each assembly)
Description of assembly: Wood trusses with asphalt shingles (add alt. for standing seam metal)
U-Value of total assembly: N/A
R-Value of insulation: Attic insulation = R-38 (R-38 minimum req)
Skylights in each assembly: N/A
U-Value of skylight: N/A
Total square footage of skylights in each assembly: N/A

Exterior Walls (each assembly)
Description of assembly: N/A - Existing assembly
U-Value of total assembly: N/A - Existing assembly
R-Value of insulation: N/A - Existing assembly
Fenestration
U-Value of assembly: N/A - Existing assembly
SHGC: N/A - Existing assembly
Projection factor: N/A - Existing assembly
Low-E: N/A - Existing assembly
Door U-Value: N/A - Existing assembly

Walls below grade (each assembly)
Description of assembly: N/A - Existing assembly
U-Value of total assembly: N/A - Existing assembly
R-Value of insulation: N/A - Existing assembly

Floors over unconditioned space (each assembly)
Description of assembly: N/A - Existing assembly
U-Value of total assembly: N/A - Existing assembly
R-Value of insulation: N/A - Existing assembly

Floors slab on grade (each assembly)
Description of assembly: Existing concrete slab on grade
U-Value of total assembly: N/A - Existing assembly
R-Value of insulation: N/A - Existing assembly
Horizontal / vertical requirement: N/A - Existing assembly
Slab heated: No

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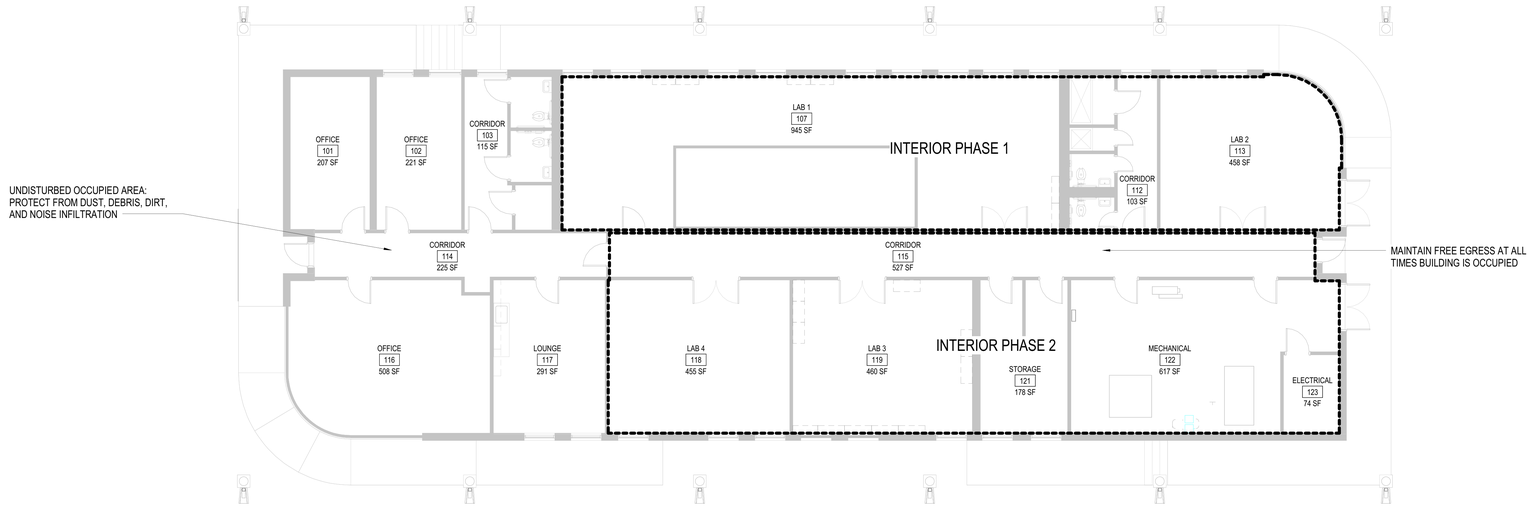

A1 PHASING PLAN

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

GENERAL PROJECT SYMBOLOGY

# NEW WORK KEYNOTE	# DEMOLITION KEYNOTE
E1 EXISTING COLUMN GRID LINE	FIRST FLOOR +12'-0" ELEVATION DATUM
ROOM NAME 101 ROOM DESIGNATION	1 REVISION TAG

PLAN NORTH INDICATOR
TRUE NORTH INDICATOR
NAME
SCALE:
PLAN TITLE AND NORTH ARROW

A1 NAME
SCALE: VIEW REFERENCE
ADDITIONAL ID INFO
IF USED
DETAIL, SECTION, ELEVATION TITLE

DETAIL / PLAN NUMBER
A1 AE402
SHEET WHERE SHOWN
DETAIL / ENLARGED PLAN

ELEVATION NUMBER
A1 AE301
SHEET WHERE SHOWN
EXTERIOR ELEVATION

SECTION NUMBER
A1 AE301 BUILDING A1 AE301
SHEET WHERE SHOWN
BUILDING SECTION

SECTION NUMBER
A1 AE311 BUILDING
SHEET WHERE SHOWN
DETAIL / WALL SECTION

DETAIL NUMBER
A1
DETAIL SECTION

SHEET NUMBER REFERENCE NOTED IN GENERAL NOTES ON SHEET

PHASING SEQUENCE & GENERAL NOTES

1. GENERAL PHASE EXECUTION:
   A. EACH PHASE AS INDICATED ON THE PHASING PLAN SHALL ENCOMPASS ALL REQUIRED TRADES AND ACTIVITIES, INCLUDING MOBILIZATION, DEMOBILIZATION, FROM THE SPECIFIC WORK AREA, INSTALLATION AND REMOVAL OF TEMPORARY SYSTEMS, SELECTIVE DEMOLITION, NEW CONSTRUCTION, TESTING, BALANCING, COMMISSIONING, AND ACCEPTANCE.
   B. ALL WORK WITHIN A PHASE, INCLUDING THE SUBMITTAL AND APPROVAL OF ALL TEST REPORTS, PUNCH LIST, AND ACCEPTANCE SHALL BE FULLY COMPLETED BEFORE COMMENCEMENT OF THE SUBSEQUENT PHASE.
   C. REPLACEMENT OF ELECTRIC DUCT HEATERS, LIGHTING FIXTURES, DUCTWORK (INCLUDING INSULATION AND BALANCING DAMPERS), AND CEILING SYSTEMS SHALL BE PERFORMED DURING THE PHASE IN WHICH THEY LOCATED AS INDICATED ON THE PHASING PLAN.
   D. PROVIDE A 21 DAY MINIMUM BUFFER BETWEEN CONSTRUCTION PHASES IN THE PROJECT SCHEDULE. COORDINATE MOVE-IN AND MOVE-OUT DATES TO ALLOW USDA PERSONNEL SUFFICIENT TIME TO RELOCATE LABORATORY FURNITURE, EQUIPMENT & MATERIALS.
2. UTILITY/ BUILDING SERVICES OUTAGE COORDINATION AND NOTICE:
   A. THIS PROJECT OCCURS WITHIN AN ACTIVE, OCCUPIED FACILITY. PRIORITIZE PLANNING TO MINIMIZE OUTAGE DURATIONS AND LIMIT OUTAGE-RELATED WORK DURING NORMALLY UNOCCUPIED HOURS TO THE GREATEST EXTENT PRACTICAL.
   B. COORDINATE ALL UTILITY & SYSTEM OUTAGES DIRECTLY WITH THE BUILDING USERS.
   C. PROVIDE MINIMUM 14 CALENDAR DAY ADVANCED WRITTEN NOTICE PRIOR TO ANY OUTAGE.
3. BUILDING CONTROLS REPLACEMENT:
   A. REPLACEMENT OF THE DIRECT DIGITAL CONTROL (DDC) SYSTEM, INCLUDING ASSOCIATED WORK OCCURRING IN OCCUPIED LABORATORY SPACES (E.G., VAV BOX CONTROLS, EXHAUST FAN VFDS), MAY BE PERFORMED AT ANY TIME, PROVIDED THE EXISTING DDC SYSTEM MUST REMAINS FULLY ONLINE AND OPERATIONAL UNTIL THE NEW BACNET CONTROL SYSTEM IS INSTALLED, TESTED, AND FULLY OPERATIONAL.
   B. MAINTAIN BUILDING ENVIRONMENTAL CONDITIONS DURING ALL PORTIONS OF WORK.
   C. COORDINATE WITH CHILLER REPLACEMENT SCOPE.
4. CHILLER REPLACEMENT:
   A. REMOVAL AND REPLACEMENT OF THE EXISTING AIR-COOLED CHILLER AND ASSOCIATED CHILLED WATER PUMPS SHALL BE PERFORMED IN CONJUNCTION WITH BUILDING CONTROLS REPLACEMENT.
   B. SCHEDULE WORK AND COORDINATE TO MINIMIZE DOWNTIME AND ENSURE SEAMLESS SYSTEM INTEGRATION UPON STARTUP.
5. REFER TO SPECIFICATION SECTION 074113.16 FOR ROOF REPLACEMENT SEQUENCE REQUIREMENTS.
6. EGRESS REQUIREMENTS:
   A. MAINTAIN BUILDING EGRESS DURING ALL TIMES BUILDING IS OCCUPIED.
   B. COORDINATE PERIODS OF EGRESS DISRUPTIONS WITH GOVERNMENT AND PROVIDE 14 CALENDAR DAY MINIMUM NOTICE PRIOR TO ANY CLOSURE.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

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REVISIONS

SHEET
PHASING PLAN & GENERAL PROJECT SYMBOLOGY

GI003

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

CN 10858

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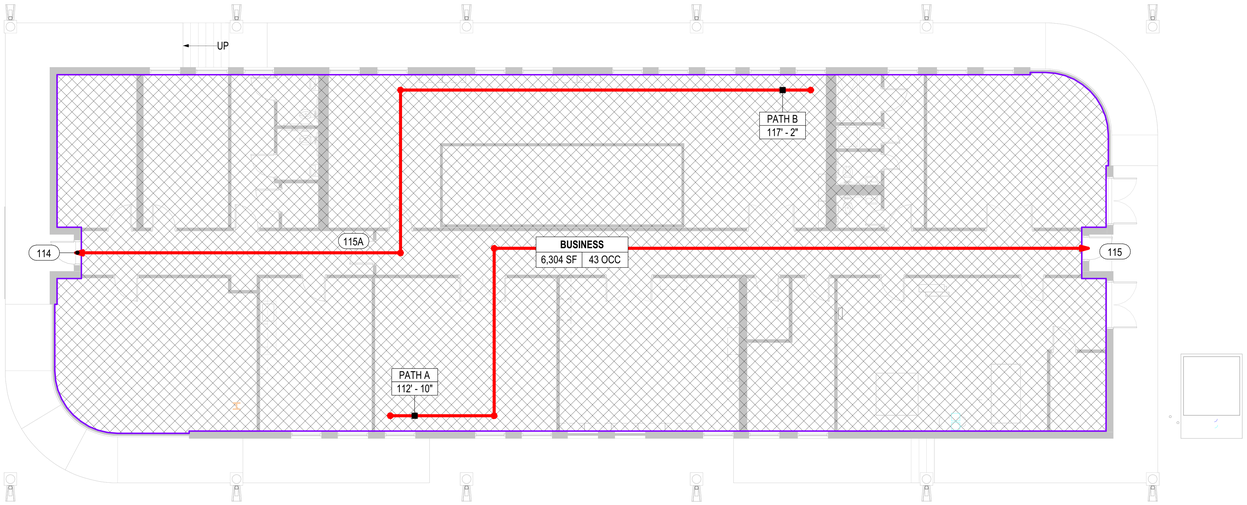

LIFE SAFETY - EXISTING OCCUPANT CALCULATION						
LEVEL	PATTERN	FUNCTION OF SPACE	SF PER PERSON	OCCUPANCY SF TYPE	AREA	*NUMBER OF OCCUPANTS
FINISH FLOOR		BUSINESS AREAS	150	GROSS	6,304 SF	43
FIRST FLOOR TOTALS:					6,304 SF	43

* NUMBER OF OCCUPANTS IS AN AGGREGATE AND IS A RESULT OF ROUNDING UP INDIVIDUAL AREAS

LIFE SAFETY - EXISITNG EGRESS DOOR SCHEDULE				
DOOR NO.	CLEAR EGRESS WIDTH PROVIDED	EGRESS WIDTH FACTOR	OCCUPANT LOAD	
			MAX PROVIDED	REQUIRED
FINISH FLOOR				
114	32"	0.15	213	23
115	32"	0.15	213	22
115A	32"	0.15	213	11

FIRST FLOOR LIFE SAFETY PLAN

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

GENERAL NOTES

1. COORDINATE ALL FIRE EXTINGUISHERS LOCATIONS SHOWN ON PLANS W/ LOCAL FIRE OFFICIAL'S REQUIREMENTS.
2. PROVIDE & INSTALL ALL BLOCKING IN WALLS AS REQUIRED FOR MOUNTING FIRE EXTINGUISHERS.
3. COORDINATE INSTALLATION REQUIREMENTS OF EXIT SIGNS, ALL ASSOCIATED HARDWARE, JUNCTION BOXES, WIRING & REQUIRED EXIT DEVICES W/ ELECTRICAL DRAWINGS & LOCAL INSPECTOR.
4. RATED WALLS AND PARTITIONS REQUIRED TO HAVE PROTECTED OPENINGS SHALL BE PERMANENTLY STENCILED EVERY 10'-0" ABOVE THE CEILING OR CONCEALED SPACE.

   EXAMPLE:
   - 1-HOUR RATED BARRIER - PROTECT ALL OPENINGS

LIFE SAFETY PLAN SYMBOLS LEGEND

- PATH ID — EGRESS TRAVEL PATH
- 101A — DOOR TAG. REFER TO LIFE SAFETY EGRESS DOOR SCHEDULE.
- A1 — STAIR TAG. REFER TO LIFE SAFETY EGRESS STAIR SCHEDULE
- FEC — FIRE EXTINGUISHER CABINET
- FEB — FIRE EXTINGUISHER BRACKET
- SPACE NAME / 9,876 SF / 385 OCC — SPACE NAME; OCCUPANT LOAD (PEOPLE); SPACE AREA

RATED PARTITIONS LEGEND

- ONE HALF HOUR FIRE RATING
- ONE HOUR FIRE RATING
- TWO HOUR FIRE RATING
- THREE HOUR FIRE RATING
- FOUR HOUR FIRE RATING
- (SB) — SMOKE BARRIER (SB), SMOKE PARTITION (SP), OR PARTITION CAPABLE OF RESISTING THE PASSAGE OF SMOKE (S)

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

OLD CUTLER ROAD
CORAL GABLES, FL 33158

DESIGNER
CLARKNEXSEN
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3920 ARKWRIGHT ROAD, SUITE 385
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PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL
2026.07.16
100% SUBMITTAL

REVISIONS

SHEET
LEVEL 1 LIFE SAFETY PLAN

GI101

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

CN 10858

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GENERAL NOTES

1. COORDINATE STRUCTURAL WORK WITH COMPLETE CONTRACT DOCUMENTS AND REPORT DISCREPANCIES TO THE STRUCTURAL ENGINEER OF RECORD. COORDINATE THE WORK OF OTHER TRADES INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS FOR SLEEVES, INSERTS, HOLES, PRINCIPAL OPENINGS, DEPRESSIONS, EQUIPMENT PADS, HANGERS, AND ANCHORS.

2. REPORT DISCREPANCIES IN DIMENSIONS BETWEEN DIFFERENT DRAWINGS TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK IN AREAS THAT WILL BE AFFECTED. DO NOT SCALE DIMENSIONS FROM THE DRAWINGS.

3. DIMENSIONS AND ELEVATIONS GIVEN FOR THE EXISTING STRUCTURE AND FOR ASSOCIATED COMPONENTS THEREOF ARE APPROXIMATE. VERIFY AND COORDINATE EXISTING DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH THE WORK. TAKE MEASUREMENTS NECESSARY FOR FABRICATION, ALIGNMENT, AND INSTALLATION OF STRUCTURAL MEMBERS AND COMPONENTS RELATIVE TO THE EXISTING STRUCTURE. REPORT DISCREPANCIES IN DIMENSIONS BETWEEN THE CONTRACT DRAWINGS AND THE EXISTING CONDITIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK IN AREAS THAT WILL BE AFFECTED.

4. WHERE EXISTING CONDITIONS OR FRAMING DIFFER FROM THOSE SHOWN IN THE DRAWINGS, REPORT DISCREPANCIES TO THE OWNER'S REPRESENTATIVE.

5. PROVIDE NECESSARY SAFEGUARDS TO CONTINUOUSLY MAINTAIN EACH PORTION OF THE STRUCTURE IN A SAFE CONDITION AND TO PROTECT FROM DAMAGE THOSE PORTIONS OF THE EXISTING FACILITY THAT ARE TO REMAIN.

6. WHERE EXISTING CONSTRUCTION THAT IS TO REMAIN IN PLACE, BE RE-USED, OR REMAIN THE PROPERTY OF THE OWNER IS DAMAGED DURING CONSTRUCTION, REPLACE WITH NEW OR REPAIR TO ITS ORIGINAL CONDITION. COST ASSOCIATED WITH SUCH REPAIR AND REPLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

7. ITEMS SHOWN ON THE STRUCTURAL DRAWINGS ARE NEW CONSTRUCTION UNLESS SPECIFICALLY NOTED AS EXISTING. EXISTING ITEMS ARE DENOTED WITH '(E)' OR 'EXISTING'.

8. DETAILS AND SECTIONS APPLY NOT ONLY WHERE SPECIFICALLY INDICATED OR REFERENCED, BUT ALSO IN OTHER LIKE OR SIMILAR CONSTRUCTION THAT REQUIRES THEIR USE.

9. THE STRUCTURAL DRAWINGS CONTAINED HEREIN REPRESENT THE FINISHED STRUCTURE. PROVIDE TEMPORARY SHORING, GUYING, AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL STRUCTURAL WORK, INCLUDING CONNECTIONS, IS COMPLETE. THE ANALYSIS, DESIGN, SAFETY, ADEQUACY, AND INSPECTION OF SUCH TEMPORARY SUPPORTS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

10. CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND SUPERVISION OF THE WORK ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

11. REPRODUCTION OF CONTRACT DRAWINGS FOR USE AS SHOP DRAWINGS IS NOT PERMITTED.

12. DO NOT DEVIATE FROM THE STRUCTURAL DRAWINGS WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.

13. CONCENTRICALLY FASTEN VERTICALLY- OR LATERALLY-SUPPORTED COMPONENTS TO THE SUPPORTING STRUCTURAL MEMBER, UNLESS OTHERWISE NOTED.

14. INFORMATION PERTAINING TO THE EXISTING STRUCTURE WAS OBTAINED FROM SITE MEASUREMENTS AND PHOTOGRAPHS. EXISTING STRUCTURAL DRAWINGS WERE NOT AVAILABLE.

15. DESIGN OF THE ROOF-MOUNTED EQUIPMENT AND ITS ATTACHMENT TO THE ROOF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND EQUIPMENT MANUFACTURER. REFER TO MECHANICAL DOCUMENTS FOR REQUIREMENTS.

DESIGN NOTES

1. STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE FOLLOWING CODES AND CRITERIA:

   A. 2023 FLORIDA BUILDING CODE, EIGHTH EDITION, EFFECTIVE 31 DECEMBER 2023
   B. 2023 FLORIDA BUILDING CODE, EXISTING BUILDING, EIGHTH EDITION, EFFECTIVE 31 DECEMBER 2023
   C. ASCE 7-22, MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
   D. ANSI/AWC NDS-2018 NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION, WITH 2018 SUPPLEMENT

2. DESIGN LOAD CRITERIA:

   A. LIVE LOADS (UNIFORM)

ROOF	20 PSF
LIVE LOADS (CONCENTRATED)	
EXHAUST FAN	900 LB

   B. WIND LOADS:

BASIC DESIGN WIND SPEED, V	175 MPH
ALLOWABLE STRESS DESIGN WIND SPEED, V_{ASD}	136 MPH
RISK CATEGORY	II
ENCLOSURE CLASSIFICATION	ENCLOSED
WIND EXPOSURE CATEGORY	C
GUST EFFECT FACTOR, G	0.85
INTERNAL PRESSURE COEFFICIENTS, GC_{pi}	±0.18

   D. COMPONENTS AND CLADDING WIND PRESSURES:

   USE WIND PRESSURES BELOW FOR THE DESIGN OF COMPONENT AND CLADDING ELEMENTS OR RETAIN A PROFESSIONAL ENGINEER TO DETERMINE WIND PRESSURES FOR SPECIFIC EFFECTIVE WIND AREAS.

DESIGN WIND PRESSURE FOR ROOF COMPONENTS (PSF)

ROOF ZONE	COMPONENT TRIBUTARY AREA (FT^2)			
	1 - 100		101+	
1	+47	-131	+35	-71
2	+47	-151	+35	-73
3	+47	-227	+35	-119

DESIGN WIND PRESSURE FOR WALL COMPONENTS (PSF)

WALL ZONE	COMPONENT TRIBUTARY AREA (FT^2)			
	1 - 100		101+	
4	+71	-77	+59	-65
5	+71	-95	+59	-77

NOTES:
1. POSITIVE AND NEGATIVE SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM A SURFACE, RESPECTIVELY.
2. BUILDING ZONES ARE DEFINED IN ASCE 7
3. WIND PRESSURES INDICATED ARE AT STRENGTH-LEVEL (WIND LOAD FACTOR = 1.0). MULTIPLY PRESSURES BY 0.6 TO OBTAIN SERVICE-LEVEL PRESSURES.
4. DESIGN WIND PRESSURES FOR DEFLECTION-CONTROLLED COMPONENTS AND CLADDING MAY UTILIZE A 10-YEAR MEAN RECURRENCE INTERVAL.

   E. RAIN LOADS

RAIN INTENSITY, I	5.17 IN/HR (100 YEAR, 1-HOUR RAINFALL, PRIMARY DRAINAGE)
	9.33 IN/HR (100 YEAR, 15 MINUTE RAINFALL, SECONDARY DRAINAGE)

ROUGH CARPENTRY NOTES

1. PROVIDE WOOD FRAMING MEMBERS IN ACCORDANCE WITH NIST PS20 "AMERICAN SOFTWOOD LUMBER STANDARD" AND THE FOLLOWING REQUIREMENTS:

   A. MOISTURE CONTENT: 19 PERCENT MAXIMUM
   B. GRADE: NO. 2, OR BETTER
   C. SPECIES: SOUTHERN PINE

2. PROVIDE SHEATHING PANELS IN ACCORDANCE WITH NIST PS1 "STRUCTURAL PLYWOOD" AND THE FOLLOWING REQUIREMENTS:

   A. ROOF SHEATHING: 23/32" APA RATED SHEATHING, EXPOSURE 1 (MINIMUM, MATCH EXISTING)

   B. INSTALL SHEATHING CONTINUOUS OVER TWO OR MORE SPANS (EXCEPT FOR INFILL OF EXISTING OPENINGS - REFER TO DETAIL ON THIS SHEET).

   C. UNLESS OTHERWISE INDICATED, ATTACH ROOF SHEATHING PANELS TO FRAMING WITH MINIMUM 8d RING SHANK NAILS AT 6" OC AT PANEL EDGES AND ALONG INTERMEDIATE FRAMING MEMBERS. NAILS MUST HAVE THE FOLLOWING MINIMUM DIMENSIONS:
      a. 0.113-INCH NOMINAL SHANK DIAMETER
      b. RING DIAMETER A MINIMUM OF 0.012-INCH OVER SHANK DIAMETER
      c. 16 TO 20 RINGS PER INCH
      d. 0.280-INCH FULL ROUND HEAD DIAMETER
      e. 2" MINIMUM NAIL LENGTH

3. USE PRESERVATIVE TREATED WOOD FRAMING MEMBERS FOR MEMBERS PERMANENTLY EXPOSED TO THE WEATHER, SILL PLATES AROUND THE BUILDING PERIMETER, AND OTHER WOOD FRAMING MEMBERS IN CONTACT WITH CONCRETE OR MASONRY.

4. STEEL PLATE CONNECTORS MUST COMPLY WITH ASTM A36 SPECIFICATIONS (Fy=36 KSI). BOLTS CONNECTING WOOD MEMBERS MUST COMPLY WITH ASTM A307 COMMON STEEL BOLTS AND MUST BE 3/4"Ø, UNLESS OTHERWISE NOTED.

5. METAL FRAMING ANCHORS MUST COMPLY WITH ASTM A653, DESIGNATION SS. ANCHORS MUST BE CAPABLE OF SUPPORTING THE REACTIONS INDICATED.

6. NAIL STRUCTURAL FRAMING MEMBERS IN ACCORDANCE WITH THE "FASTENING SCHEDULE," TABLE 2304.10.1 OF THE FLORIDA BUILDING CODE, EIGHTH EDITION, UNLESS OTHERWISE INDICATED.

7. WHERE MULTIPLE FRAMING MEMBERS ARE INDICATED, FASTEN MEMBERS TOGETHER WITH 16d NAILS AT 12" OC, STAGGERED AT 2" FROM OPPOSITE EDGES, UNLESS OTHERWISE INDICATED.

SUPPLEMENTAL FASTENING REQUIREMENTS FOR EXISTING ROOF SHEATHING

1. FASTEN EXISTING ROOF SHEATHING PANELS TO THE EXISTING ROOF TRUSSES IN ACCORDANCE WITH FLORIDA EXISTING BUILDING CODE (FEBC) SECTION 706.7 AND AS INDICATED.

2. PROVIDE SUPPLEMENTAL FASTENERS CONSISTING OF ASTM F1667 CLASSIFICATION RSRS-01 RING SHANK NAILS WITH THE FOLLOWING MINIMUM PROPERTIES:

   A. 0.113-INCH NOMINAL SHANK DIAMETER
   B. RING DIAMETER A MINIMUM OF 0.010-INCH OVER SHANK DIAMETER
   C. 16 TO 20 RINGS PER INCH
   D. RING SHANK MUST EXTEND A MINIMUM OF 1 1/2" FROM TIP OF NAIL
   E. 0.280-INCH FULL ROUND HEAD DIAMETER
   F. 2 3/8" MINIMUM NAIL LENGTH

3. INSTALL SUPPLEMENTAL FASTENERS AT 6-INCHES ON CENTER AT ALL EXISTING SHEATHING PANEL EDGES AND INTERMEDIATE FRAMING. INDICATED SPACING IS FOR SUPPLEMENTAL FASTENERS, REGARDLESS OF EXISTING FASTENER PATTERN.
   A. IF EXISTING FASTENER TYPE AND PATTERN ARE VISIBLE AND CAN BE DOCUMENTED, CONTACT STRUCTURAL ENGINEER FOR DIRECTION ON POSSIBLE ADJUSTMENT TO SUPPLEMENTAL FASTENER PATTERNS.
   B. BASE BID MUST PROVIDE SUPPLEMENTAL FASTENERS AS INDICATED OVER THE ENTIRE ROOF AREA.

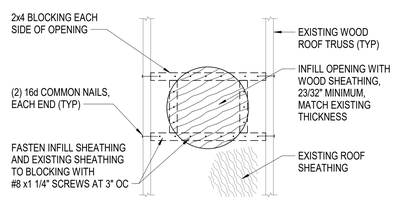
REPAIR OF EXISTING ROOF-TO-WALL CONNECTIONS

1. INSPECT THE ANCHORAGE OF EACH EXISTING TRUSS AT THE FOUR BUILDING CORNERS IN ACCORDANCE WITH FLORIDA BUILDING CODE, EXISTING BUILDING, SECTION 706.8.1.3. SEE ROOF PLAN FOR LOCATIONS. SUBMIT FINDINGS TO THE STRUCTURAL ENGINEER AS FOLLOWS:
   A. AT EACH LOCATION, PROVIDE A PHOTOGRAPH OF THE EXISTING TRUSS CONNECTION TO THE SUPPORTING STRUCTURE BELOW. PHOTOGRAPHS MUST CLEARLY SHOW FASTENERS INTO TRUSS AND THE CONNECTION OF THE STRAP TO THE SUPPORTING STRUCTURE.
   B. PROVIDE MEASUREMENTS OF STRAP WIDTH AND THICKNESS, AND FASTENER TYPE, DIAMETER, AND SPACING. DOCUMENT AND PROVIDE ANY VISIBLE PRODUCT INFORMATION.
   C. SUBMIT THE ABOVE INFORMATION TO THE STRUCTURAL ENGINEER FOR EVALUATION.

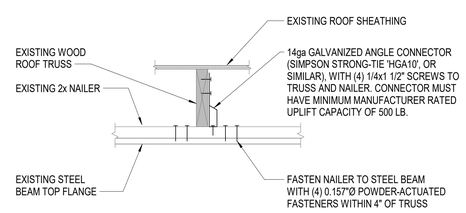
2. BASE BID MUST INCLUDE REPAIR OF THE ANCHORAGE OF TRUSSES AT LOCATIONS INDICATED ON PLAN. REPAIR IN ACCORDANCE WITH DETAILS ON THIS SHEET. BASE BID MUST INCLUDE FOUR (4) NEW 4'x8' PLYWOOD SHEETS FOR SHEATHING REPAIR AT CORNERS, IN ACCORDANCE WITH NOTE #4 BELOW.

3. THE STRUCTURAL ENGINEER WILL EVALUATE THE EXISTING CONDITIONS, BASED ON INFORMATION PROVIDE PER NOTE #1 ABOVE, AND WILL PROVIDE DIRECTION ON REPAIRS. WHERE EXISTING CONNECTIONS ARE DEEMED TO COMPLY WITH APPLICABLE FLORIDA BUILDING CODE REQUIREMENTS, THE EXISTING CONNECTION DOES NOT NEED TO BE REPAIRED.

4. WHERE EXISTING SHEATHING IS REMOVED TO ACCESS THE EXISTING CONNECTIONS, WHETHER FOR OBSERVATION OR REPAIR, THE REMOVED SHEATHING MUST NOT BE REUSED. PROVIDE NEW SHEATHING AND FASTEN IN ACCORDANCE WITH 'TYPICAL EXISTING ROOF OPENING INFILL' DETAIL ON THIS SHEET.



A2 TYPICAL EXISTING ROOF OPENING INFILL
NOT TO SCALE



A4 ROOF TRUSS TO STEEL BEAM CONNECTION
NOT TO SCALE

STRUCTURAL LEGEND

SYMBOL	DESCRIPTION
X	COLUMN REFERENCE LINE (CENTERLINE OF COLUMN)
#	KEYED CONSTRUCTION NOTE
WX	WALL TYPE
DN	SLOPE DIRECTION
DS	DECK SPAN
	CHANGE IN SLAB ELEVATION
	INDICATES ELEVATION REFERENCED TO FINISHED FIRST FLOOR
	SPOT ELEVATION
	BRICK
	CONCRETE
	CONCRETE MASONRY UNIT (CMU)
	GROUT
	POROUS FILL
	EARTH FILL
	SLAB DEPRESSION

STRUCTURAL ABBREVIATIONS

SYMBOL	DESCRIPTION
AB	ANCHOR BOLT
AFF	ABOVE FINISHED FLOOR
AHR	ANCHOR
APPROX	APPROXIMATELY
ARCH	ARCHITECTURAL
BD	BAR DIAMETER
BOC	BOTTOM OF CONCRETE
BOM	BOTTOM OF MASONRY
BOS	BOTTOM OF STEEL
BOSL	BOTTOM OF SLAB
BRG	BEARING
CFS	COLD-FORMED STEEL
CJ	SLAB CONSTRUCTION JOINT
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
DCJ	DOWELED CONSTRUCTION JOINT
DIA, Ø	DIAMETER
DN	DOWN
DWG(S)	DRAWING(S)
(E)	EXISTING
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
ELEV	ELEVATION
EOS	EDGE OF SLAB
EQ	EQUAL
ES	EACH SIDE
EW	EACH WAY
FFE	FINISHED FLOOR ELEVATION
FOB	FACE OF BRICK
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FS	FAR SIDE
FTG	FOOTING
GA	GAGE
GALV	GALVANIZED
HORIZ	HORIZONTAL
HS	HIGH STRENGTH
JBE	JOIST BEARING ELEVATION
KSI	KIPS PER SQUARE INCH
KIP (k)	1000 LBS
LBS	POUNDS
LG	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
MAX	MAXIMUM
MFR	MANUFACTURER
MIN	MINIMUM
MOW	MIDDLE OF WALL
NIC	NOT IN CONTRACT
No.	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
PJF	PREMOLDED JOINT FILLER STRIP
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
REINF	REINFORCING
REQD	REQUIRED
SCHED	SCHEDULE
SD	SLAB DEPRESSION
SF	STEPPED FOOTING
SIM	SIMILAR
SJ	SLAB SAWED (CONTRACTION) JOINT
SL	SLOPE(D)
SOG	SLAB-ON-GRADE
STD	STANDARD
SWP	SHEAR WALL PANEL
T&B	TOP AND BOTTOM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOGB	TOP OF GRADE BEAM
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TS	THICKENED SLAB
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
VIF	VERIFY IN FIELD
WP	WORKING POINT
WWR	WELDED WIRE REINFORCEMENT

USDA

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SHEET
STRUCTURAL NOTES, LEGEND AND ABBREVIATIONS

S-001

DESIGN: PAA
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REVIEW: MSH

CN 10858

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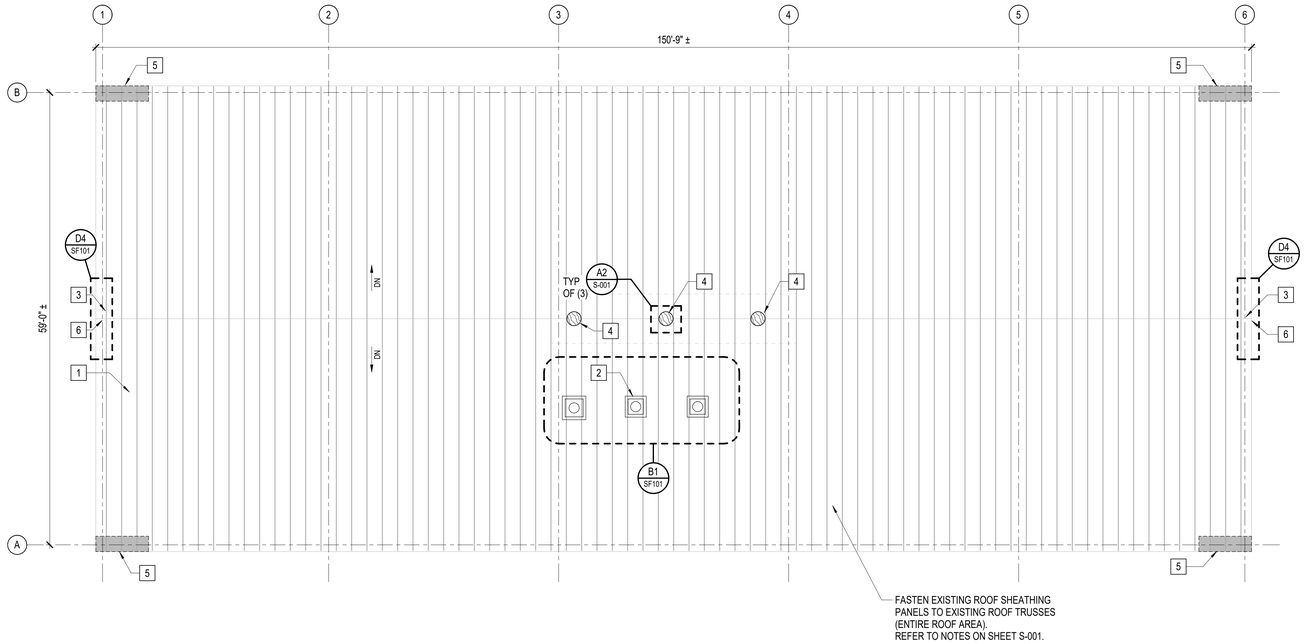
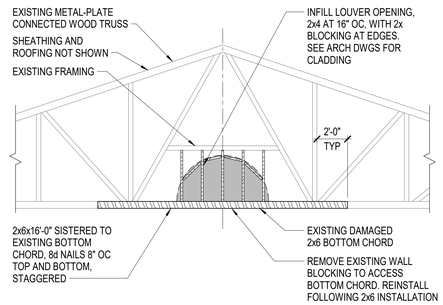
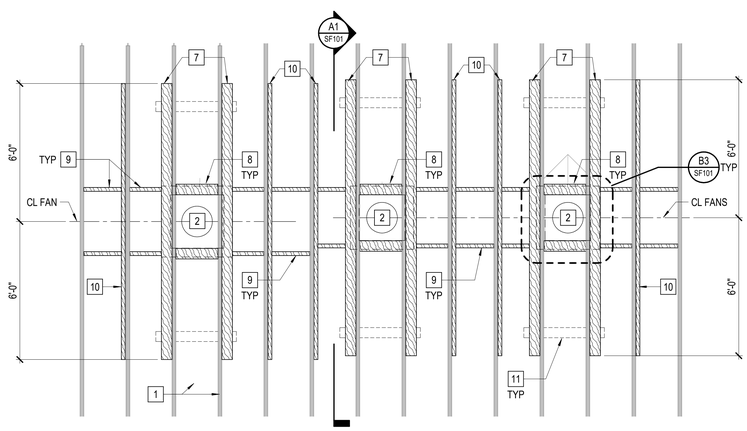


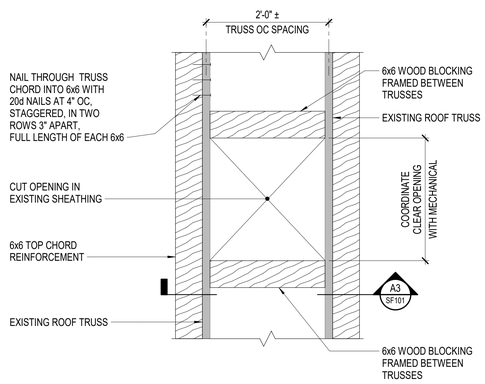
D1 ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"



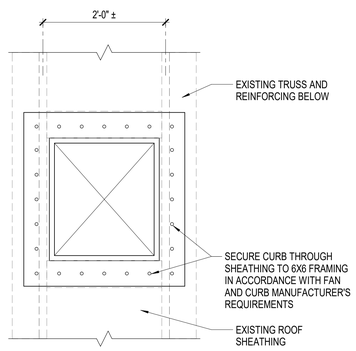
D4 PARTIAL ELEVATION - GABLE END
NOT TO SCALE



B1 ENLARGED ROOF FRAMING PLAN
SCALE: 3/8" = 1'-0"

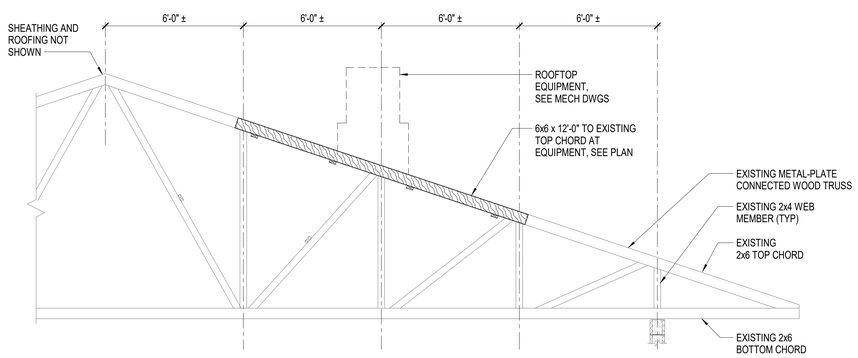


TRUSS REINFORCEMENT

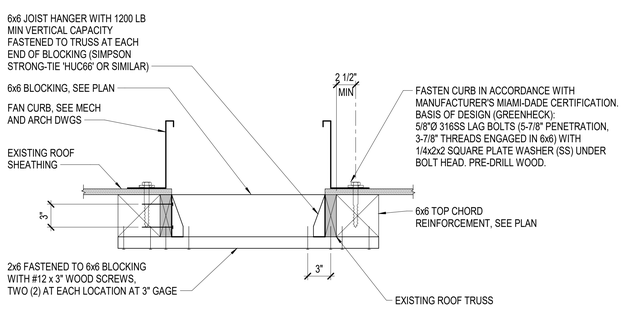


FAN CURB MOUNTING

B3 FAN BASE PLAN DETAIL
SCALE: 1" = 1'-0"



A1 TRUSS ELEVATION
SCALE: 3/8" = 1'-0"



A3 SECTION
SCALE: 1 1/2" = 1'-0"

GENERAL NOTES

1. FRAMING ELEVATIONS ARE INDICATED AS [+X'-X"], REFERENCED TO EXISTING FINISHED FLOOR DATUM, UNLESS OTHERWISE NOTED.
2. EXISTING ROOF CONSTRUCTION CONSISTS OF METAL-PLATE CONNECTED WOOD TRUSSES, 2'-0"± OC (TYPICAL), SUPPORTING WOOD SHEATHING AND ROOFING.
3. DO NOT CUT, DAMAGE, OR MODIFY EXISTING ROOF TRUSSES AND ROOF SHEATHING DURING ROOF COVERING DEMOLITION WORK.
4. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS.
5. REFER TO MECHANICAL DRAWINGS FOR DEMOLITION OF EXISTING EQUIPMENT ON ROOF, AND FOR INSTALLATION OF NEW EQUIPMENT.
6. REFER TO ARCHITECTURAL DRAWINGS FOR REMOVAL OF EXISTING ROOF COVERING AND INSTALLATION OF ROOFING.
7. REFER TO SHEET S-001, "SUPPLEMENTAL FASTENING REQUIREMENTS FOR EXISTING ROOF SHEATHING", FOR FASTENING EXISTING SHEATHING TO EXISTING ROOF FRAMING.

KEY NOTES

1. EXISTING ROOF STRUCTURE, CONSISTING OF WOOD PANEL SHEATHING OVER METAL-PLATE CONNECTED WOOD TRUSSES SPACED AT 2'-0"± OC, TYPICAL.
2. ROOF MOUNTED MECHANICAL EQUIPMENT, TYPICAL OF 3
3. REINFORCE EXISTING WATER DAMAGED TRUSS BOTTOM CHORD, REFER TO 'PARTIAL ELEVATION - GABLE END', THIS SHEET
4. FILL OPENING IN EXISTING ROOF SHEATHING AFTER EXISTING EQUIPMENT REMOVED, REFER TO DETAIL A2 ON SHEET S-001.
5. REPAIR EXISTING TRUSS-TO-BEAM CONNECTIONS WITHIN 6'-0" OF GABLE END WALL. REFER TO NOTES AND DETAILS ON SHEET S-001.
6. INFILL EXISTING LOUVER OPENING, REFER TO 'PARTIAL ELEVATION - GABLE END', THIS SHEET.
7. 6x6 x12'-0" FOR FAN SUPPORT AND TRUSS REINFORCING
8. 6x6 - FAN SUPPORT FRAMING, REFER TO DETAIL B3, THIS SHEET
9. 2x6 BETWEEN EXISTING TRUSS AND NEW WOOD FRAMING MEMBERS. ALIGN WITH 6x6 FAN SUPPORT FRAMING.
10. 2x6 x12'-0", FASTENED TO EXISTING TRUSS WITH 3"x0.128" (10d) NAILS, 24" OC TOP AND BOTTOM, STAGGERED ON OPPOSITE SIDES
11. 2x6 (FLAT), NAILED TO UNDERSIDE OF EXISTING TRUSS CHORD, TO SUPPORT 6x6 REINFORCING MEMBER

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'
3/8" = 1' - 0" 0 1' 2' 3' 4' 5' 10'
1" = 1' - 0" 0 6" 1' 2' 3'
1 1/2" = 1' - 0" 0 3" 6" 9" 1' 2'

USDA

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

OLD CUTLER ROAD
CORAL GABLES, FL 33158

DESIGNER
CLARKNEXSEN
A JMT Company
4525 MAIN STREET, SUITE 1400
VIRGINIA BEACH, VIRGINIA 23462
757-455-5800

PROFESSIONAL SEAL
NOT FOR CONSTRUCTION

SUBMITTAL
2026.07.16
100% SUBMITTAL

REVISIONS

SHEET
ROOF FRAMING PLAN AND DETAILS

SF101

DESIGN: PAA
DRAWN: PAA
REVIEW: MSH

CN 10858

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Tom Pallen

RCP LEGEND

MECHANICAL

- SUPPLY GRILLE
- RETURN GRILLE
- EXHAUST FAN

ELECTRICAL

- INDICATES BRACKET, WALL MOUNTED ELECTRICAL LIGHT / FIXTURE / EQUIPMENT, ETC
- LIGHT FIXTURES
- EMERGENCY EGRESS LIGHT FIXTURES
- CEILING MOUNTED EXIT LIGHT
- CEILING MOUNTED EXIT LIGHT W/ ARROW
- OS — CEILING MOUNTED OCCUPANCY SENSOR
- CEILING MOUNTED SECURITY CAMERA

FIRE PROTECTION

- INDICATES BRACKET, WALL MOUNTED FIRE PROTECTION FIXTURE / EQUIPMENT, ETC
- SPRINKLER HEAD
- V — FIRE ALARM STROBE
- F — FIRE ALARM HORN STROBE
- S — SPEAKER
- S — SPEAKER W/ STROBE
- CO — CARBON MONOXIDE DETECTOR
- S — SMOKE DETECTOR
- H — HEAT DETECTOR
- P — PHOTO DETECTOR

ARCHITECTURAL

- 8'-0" — CEILING HEIGHT
- EXP — EXPOSED CEILING
- 2' x 2' ACOUSTICAL TILE LAY-IN CEILING
- GWB CEILING / SOFFIT

ARCHITECTURAL SYMBOLOGY

REFER TO THE GENERAL "G" SERIES SHEETS FOR GENERAL PROJECT SYMBOLOGY

- DIRECTION OF SLOPE
- FEC — FIRE EXTINGUISHER CABINET
- FEB — FIRE EXTINGUISHER BRACKET
- XXXn — EXTERIOR ASSEMBLY TYPE
- 120 — DOOR NUMBER
- 12 / 4 — ROOF SLOPE
- CJ — CONTROL JOINT
- BSJ — BUILDING SEPARATION JOINT
- EJ — EXPANSION JOINT

ARCHITECTURAL GENERAL NOTES

1. PLAN DIMENSIONS SHOWN ARE TO FACE OF FRAMING MEMBERS, FACE OF MASONRY, FACE OF EXISTING WALL AND TO CENTERLINE OF COLUMNS.
2. ALL NOTES, DETAILS, AND FEATURES DRAWN AS APPLICABLE FOR ONE CONDITION ARE APPLICABLE TO SIMILAR CONDITIONS, WHETHER OR NOT SPECIFICALLY INDICATED.
3. ALL ELEVATIONS ARE MEASURED FROM THE REFERENCE ELEVATION +0'-0", WHICH IS THE TOP OF THE EXISTING FIRST FLOOR SLAB, UON.
4. DO NOT SCALE DRAWINGS TO DETERMINE DIMENSIONS OR SIZES OF BUILDING ELEMENTS.
5. ALL WOOD BLOCKING AND MISCELLANEOUS STEEL SHOWN IN DETAILS AND SECTIONS SHALL BE CONTINUOUS, UON.
6. USE FIRE-RETARDANT TREATED WOOD PRODUCTS FOR ALL CONCEALED WOOD BLOCKING, UON.
7. USE PRESERVATIVE-TREATED WOOD PRODUCTS FOR ALL WOOD BLOCKING IN CONTACT WITH EXTERIOR MASONRY OR CONCRETE WALLS, AND FOR ALL WOOD BLOCKING IN CONTACT WITH CONCRETE SLABS ON GRADE.
8. VERIFY ALL DIMENSIONS. BRING ANY DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE GOVERNMENT.
9. ANY CONFLICTING INFORMATION BETWEEN THE ARCHITECTURAL DRAWINGS AND ANY OTHER DRAWINGS, SPECIFICATIONS, AND/OR EXISTING CONDITIONS SHALL BE NOTED IN WRITING TO THE GOVERNMENT FOR REVIEW AND MUST BE CLARIFIED PRIOR TO COMMENCING THE CONSTRUCTION IN QUESTION.
10. PROVIDE WOOD OR METAL BLOCKING BEHIND GWB AT THE FOLLOWING LOCATIONS:
    A. ALL WALL-MOUNTED CABINETRY, SHELVING, AND SIMILAR ITEMS.
    B. ALL WALL-MOUNTED VIDEO MONITORS, AND SIMILAR ITEMS.
11. ALL MATERIALS USED IN THE PROJECT SHALL BE NEW AND PROVIDED BY THE CONTRACTOR, UON.
12. USE BITUMINOUS MEMBRANE TO SEPARATE PRESERVATIVE-TREATED WOOD PRODUCTS FROM CONTACT WITH ANY METAL SURFACE.

ARCHITECTURAL ABBREVIATIONS

&	AND
@	AT
ACT	ACOUSTICAL CEILING TILE
ADJ	ADJUSTABLE, ADJUST
AFF	ABOVE FINISH FLOOR
AFS	ABOVE FINISH SLAB
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATE
APC	ARCHITECTURAL PRECAST CONCRETE
BD	BOARD
BLDG	BUILDING
BLKG	BLOCKING
BRG	BEARING
BSJ	BUILDING SEPARATION JOINT
BUR	BUILT-UP ROOFING
℄	CENTER LINE
CG	CORNER GUARD
CJ	CONTROL JOINT
CL	COLUMN LINE
CLR	CLEAR
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CPT	CARPET
CT	CERAMIC TILE
D	DEPTH / DRYER
DBL	DOUBLE
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPENSER
DN	DOWN
DS	DOWNSPOUT
DWG	DRAWING
EA	EACH
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION
EOS	EDGE OF SLAB
EPS	EXPANDED POLYSTYRENE
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
EXP	EXPANSION / EXPOSED
EXT	EXTERIOR
FD	FLOOR DRAIN
FEB	FIRE EXTINGUISHER BRACKET
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FGL	FIBERGLASS
FIN	FINISH
FLR	FLOOR
FO	FACE OF
FP	FIRE PROTECTION
FRT	FIRE RETARDANT TREATED
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFRG	GLASS FIBER REINFORCED GYPSUM
GL	GLASS
GWB	GYPSUM WALLBOARD
GYP	GYPSUM
HDW	HARDWARE
HDWD	HARDWOOD
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HT	HEIGHT
HVAC	HEATING, VENTILATION, & AIR CONDITIONING
ID	INSIDE DIAMETER
IGU	INSULATING GLASS UNIT
INSUL	INSULATION
INT	INTERIOR
JT	JOINT
KO	KNOCK OUT
L	LENGTH / LONG
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTG	MOUNTING
MTL	METAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
PH	PANIC HARDWARE
PL	PLATE
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
POLYISO	POLYISOCYANURATE INSULATION
PR	PAIR
PTD	PAINTED
R	RADIUS
RD	ROOF DRAIN
REF	REFRIGERATOR
REINF	REINFORCING
REQ'D	REQUIRED
RM	ROOM
RO	ROUGH OPENING
RWL	RAIN WATER LEADER
SAB	SOUND ATTENUATING BLANKET
SAFB	SOUND ATTENUATING FIRE BLANKET
SF	SQUARE FEET
SIM	SIMILAR
SQ	SQUARE
SS	STAINLESS STEEL
STRUCT	STRUCTURAL
STD	STANDARD
STL	STEEL
SUSP	SUSPENDED
T & B	TOP & BOTTOM
TELE	TELECOMMUNICATION
THR	THRESHOLD
TOC	TOP OF CONCRETE
TOW	TOP OF WALL
TP	TOILET PARTITION
TTL	TOTAL
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VTR	VENT THRU ROOF
W	WIDTH / WASHER
W/	WITH
W/O	WITHOUT
WC	WALLCOVERING
WD	WOOD
WDW	WINDOW
WO	WINDOW OPENING
WP	WORK POINT
WT	WEIGHT
XPS	EXTRUDED POLYSTYRENE

MATERIAL LEGEND

	PLYWOOD / MDF		GWB / GROUT / SPRAY FIREPROOFING		INSULATION - RIGID		WOOD BLOCKING / FRAMING - CONTINUOUS
	INSULATION - BATT / LOOSE / BLANKET		INSULATION - SPRAY FOAM				WOOD BLOCKING - INTERRUPTED
						NOT ALL ABBREVIATIONS, SYMBOLS, AND LEGEND GRAPHICS LISTED ARE NECESSARILY USED ON THIS PROJECT. REFER TO DOCUMENTS FOR SPECIFIC INFORMATION.	

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BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

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CORAL GABLES, FL 33158

DESIGNER

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3920 ARKWRIGHT ROAD, SUITE 385
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478-743-8415

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL

2026.07.16

100% SUBMITTAL

REVISIONS

SHEET

ARCHITECTURAL LEGEND, NOTES AND ABBREVIATIONS

A-001

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

CN 10858

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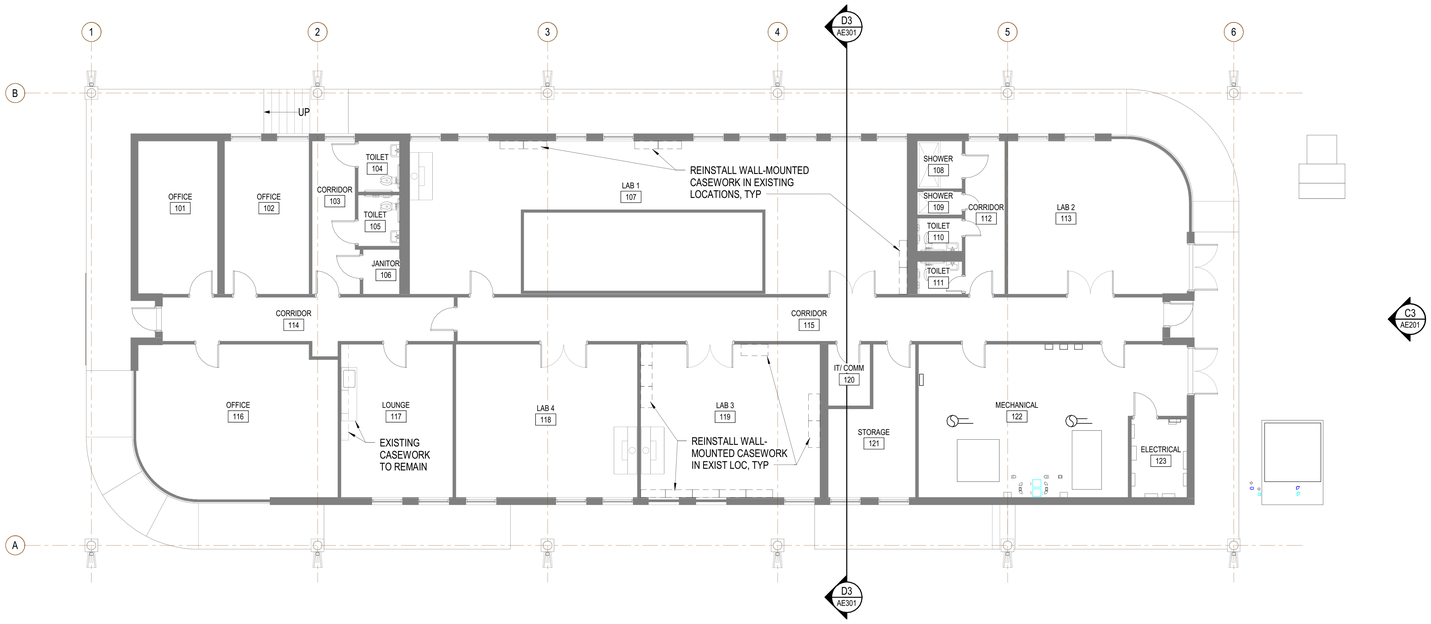

FIRST FLOOR PLAN

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

GENERAL NOTES

1. ALL DIMENSIONS TO BE FIELD VERIFIED PRIOR TO INSTALLATION OF EQUIPMENT / SHELVING / CASEWORK.
2. VERIFY AND COORDINATE PENETRATIONS THROUGH ROOF DECK AND PARTITIONS WITH PM&E DRAWINGS.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

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LEVEL 1 FLOOR PLAN

AE101

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

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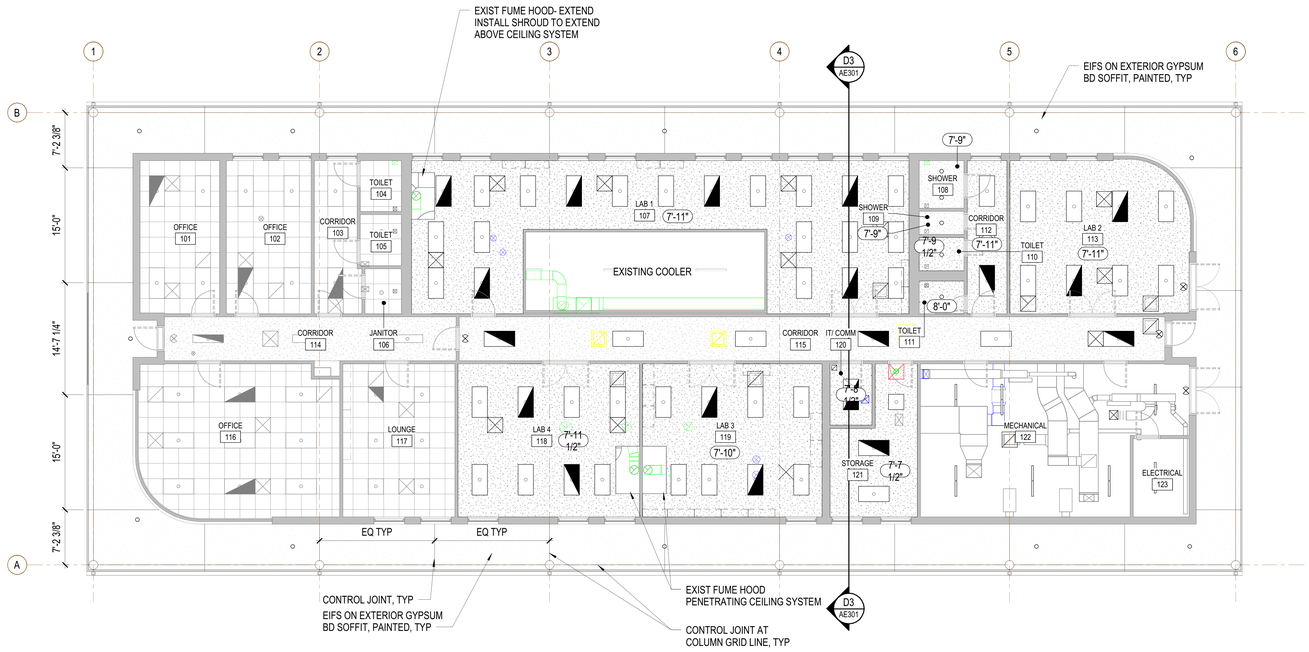
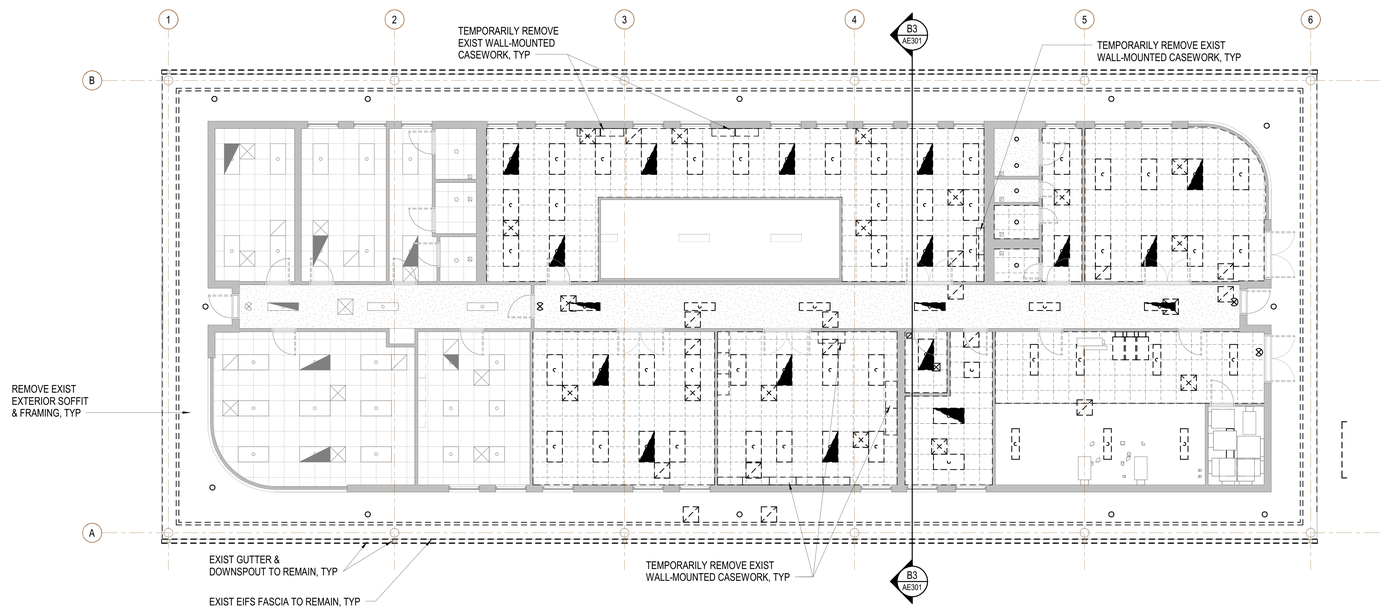


LEVEL 1 REFLECTED CEILING PLAN

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



REFLECTED CEILING DEMOLITION PLAN

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

GENERAL NOTES

1. REFER TO SHEET A-001 FOR RCP LEGEND
2. HVAC, ELECTRICAL, & LIGHTING DEVICES ARE SHOWN FOR GENERAL COORDINATION PURPOSES ONLY. REFER TO ELECTRICAL & MECHANICAL DRAWING FOR FULL SCOPE. NOTIFY GOVERNMENT IMMEDIATELY OF ANY CONFLICTS OR DISCREPANCIES.
3. COORDINATE ALL EXTERIOR SOFFIT/ BULKHEAD FRAMING WITH FINAL LIGHTING FIXTURE LOCATIONS & EXISTING FIRE SUPPRESSION HEADS.
4. FIELD VERIFY CEILING HEIGHTS SHOWN ON RCP DRAWINGS PRIOR TO INSTALLATION OF ALL MECHANICAL DUCTWORK, SPRINKLER PIPING, ELECTRICAL EQUIPMENT, CONDUITS, ETC. NOTIFY GOVERNMENT IMMEDIATELY OF ANY CONFLICTS OR DISCREPANCIES.
5. INSTALL WIRE HANGERS @ ALL CORNERS OF LIGHT FIXTURES, REGISTERS, & GRILLES.
6. REFER TO INTERIOR & EXTERIOR SECTIONS FOR ADDITIONAL CEILING DETAILS NOT NOTED ON THIS SHEET.
7. ALL RECESSED LIGHTING SHALL BE CENTERED WITHIN THE SOFFIT DIMENSIONS, UON.
8. ALL FIXTURES INCLUDING BUT NOT LIMITED TO LIGHTING, MOTION DETECTORS, FIRE ALARM DEVICES, & SPRINKLER HEADS SHALL BE CENTERED WITHIN ACOUSTICAL CEILING TILE, UON.
9. WHERE GYPSUM BOARD CEILINGS SPAN LONGER THAN 30'-0", CONTROL JOINTS SHALL BE LOCATED IN GWB SOFFIT EVERY 30'-0". ALIGN WITH CONTROL JOINTS IN GWB WALLS WHERE PRESENT.
10. ALL NOTED CEILING ELEVATIONS ARE EXISTING, UON

DEMOLITION SYMBOLS

- EXISTING WALL TO REMAIN
- EXISTING DOOR TO REMAIN
- EXISTING ELEMENT TO BE REMOVED IN ITS ENTIRETY
- EXISTING HVAC TERMINALS TO BE REMOVED
- DENOTES EXISTING LIGHT FIXTURE TO BE REMOVED
- DENOTES EXISTING CEILING GRID TO BE REMOVED

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

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SHEET
REFLECTED CEILING PLANS

AE111

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

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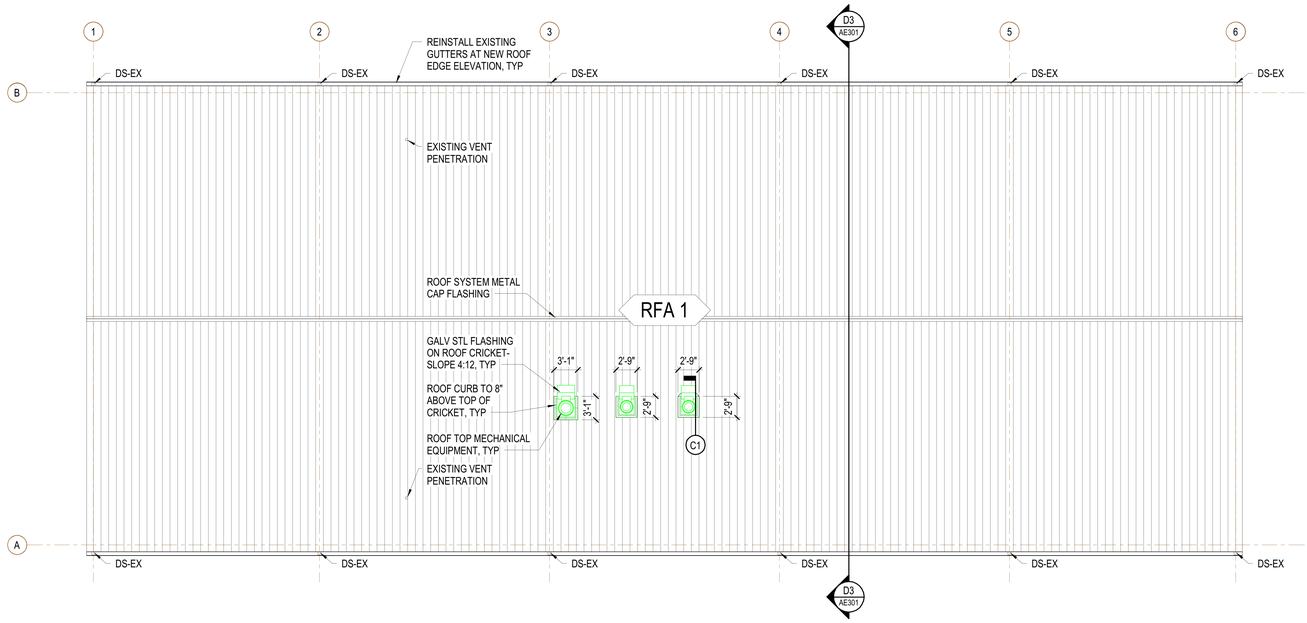
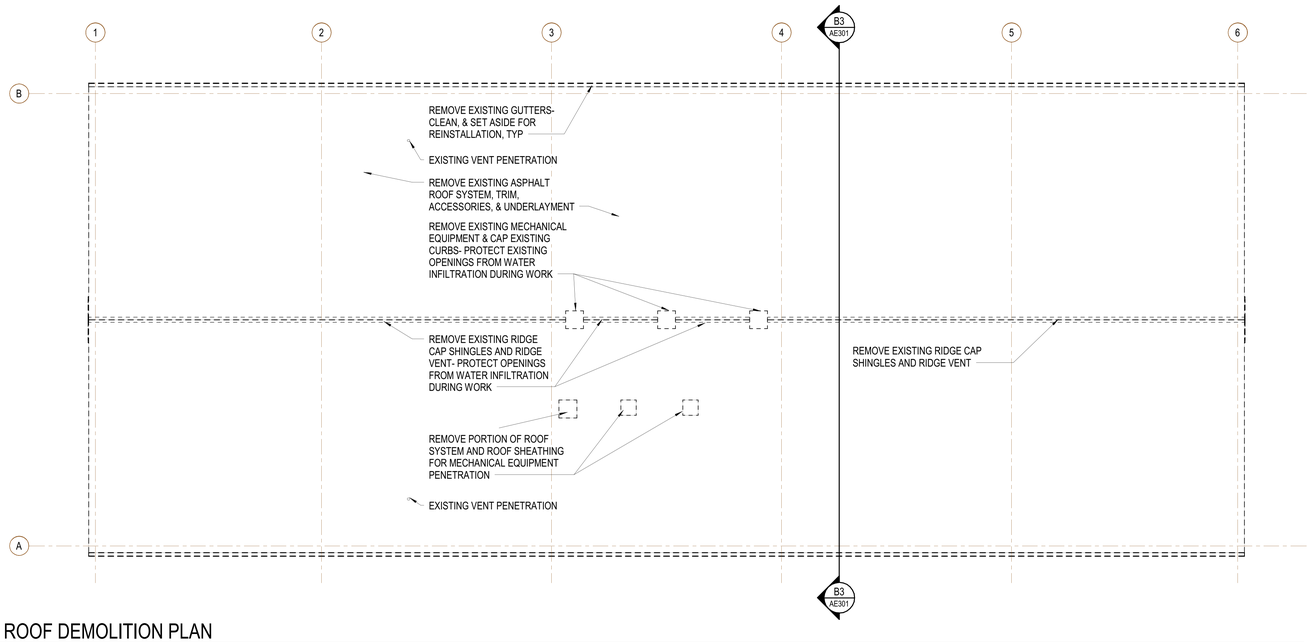


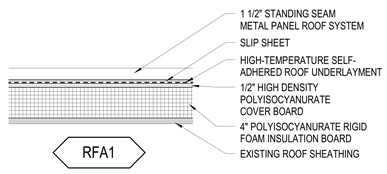
ROOF PLAN

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



ROOF DEMOLITION PLAN

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



TYPICAL ROOF ASSEMBLY TYPE

NOT TO SCALE

GENERAL NOTES

1. ALL ROOF SLOPES ARE EXISTING 4:12.
2. COORDINATE WITH MECHANICAL DRAWINGS FOR LOCATION OF ROOF PENETRATIONS THAT MAY NOT BE SHOWN ON THIS DRAWING.
3. FOR EACH ROOF-MOUNTED EQUIPMENT CURB, PROVIDE A 4:12 PREFABRICATED ALUMINUM CRICKET INSTALLED TO MAINTAIN POSITIVE SLOPE TO ROOF EDGE. THICKNESS: 0.050". JOINTS SHALL BE FULLY WELDED. APPLY BITUMINOUS BOND BREAKER WHERE CRICKET MEETS DISSIMILAR METALS. SIZE CRICKET TO WIDTH OF CURB.
4. CONFIRM ROOF OPENING SIZE AND LOCATION W/ MECHANICAL & EXISTING ROOF TRUSS LOCATIONS.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

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ROOF PLANS

AE121

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

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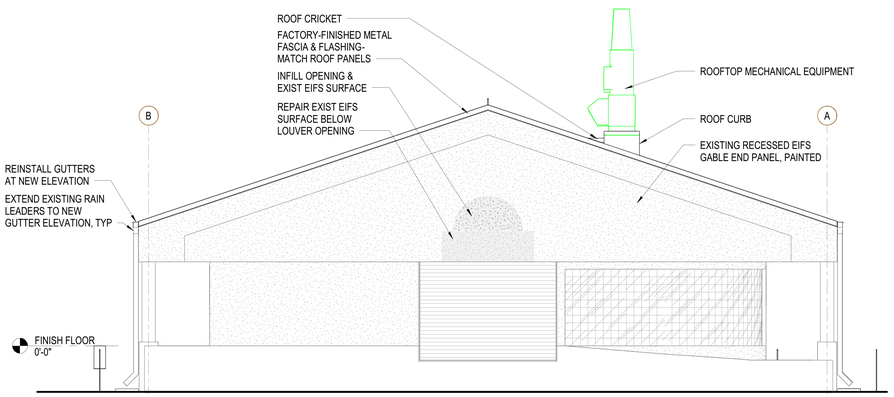
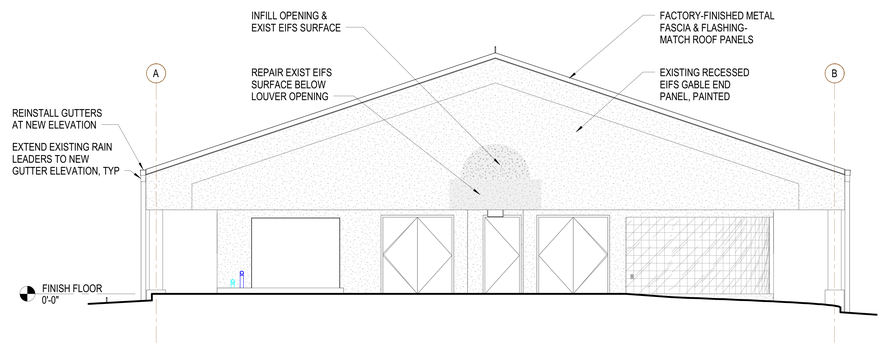
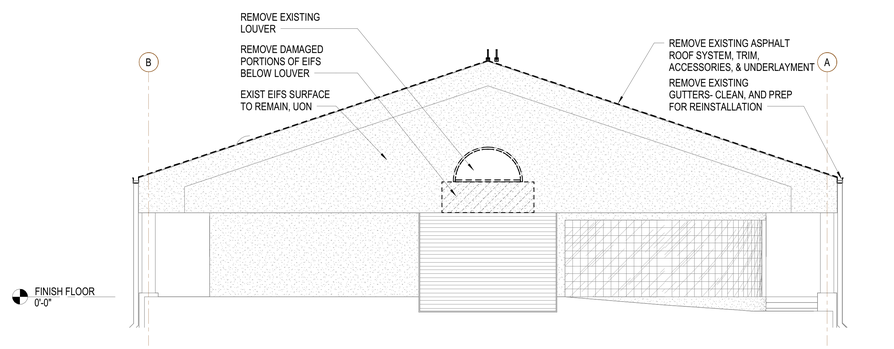


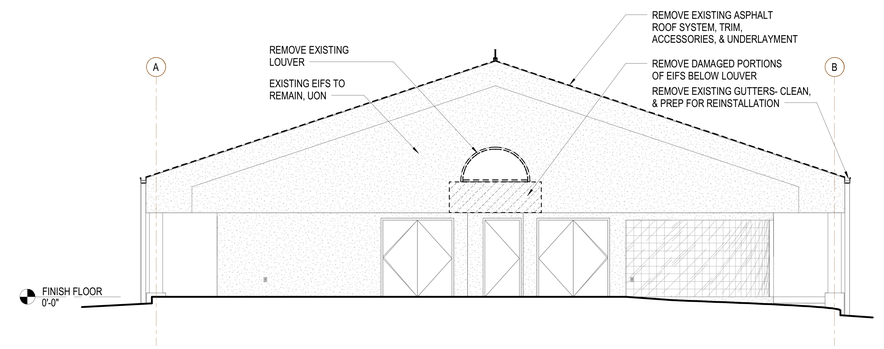
C1 EXTERIOR ELEVATION- WEST
SCALE: 3/16" = 1'-0"



C3 EXTERIOR ELEVATION- EAST
SCALE: 3/16" = 1'-0"



A1 EXTERIOR DEMOLITION ELEVATION- WEST
SCALE: 3/16" = 1'-0"



A3 EXTERIOR DEMOLITION ELEVATION- EAST
SCALE: 3/16" = 1'-0"

GENERAL NOTES

1. REFER TO SHEET A-001 FOR ARCHITECTURAL SYMBOLS LEGEND.
2. REFER TO AND COORDINATE WITH STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL FOR ADDITIONAL INFORMATION NOT SHOWN ON THIS DRAWING.
3. CLEAN EXISTING SYNTHETIC STUCCO SYSTEM EXPOSED BY DEMOLITION AND PREPARE FOR PAINT.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

USDA

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REVISIONS

SHEET
EXTERIOR ELEVATIONS

AE201

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

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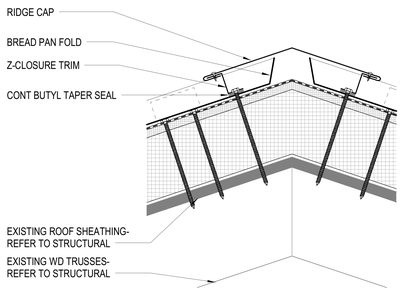
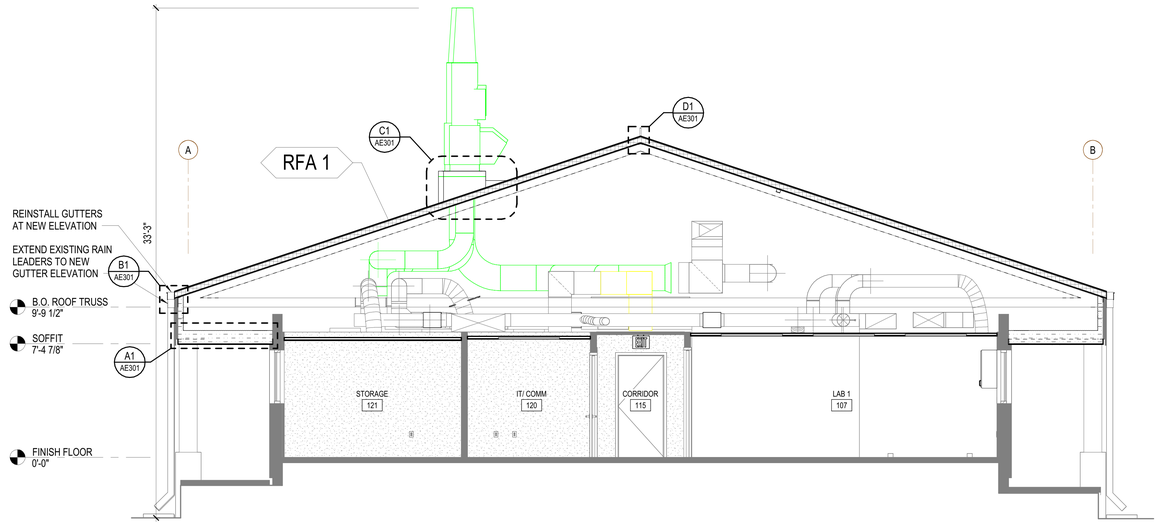


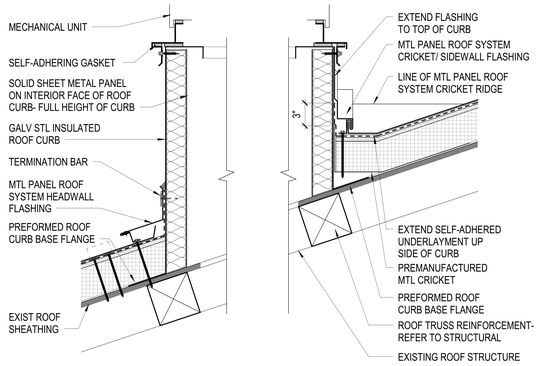
D1 RIDGE DETAIL- UNVENTED

SCALE: 3" = 1'-0"



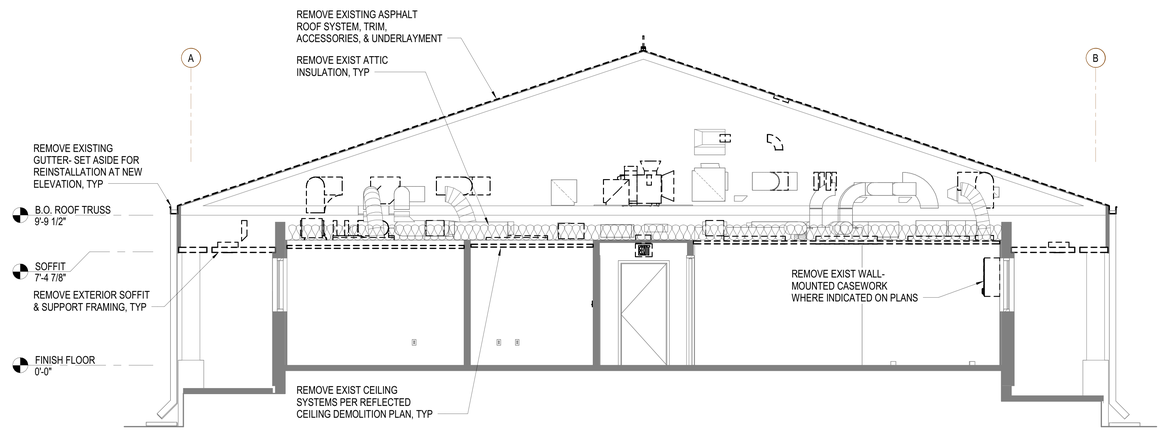
D3 BUILDING SECTION 1

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



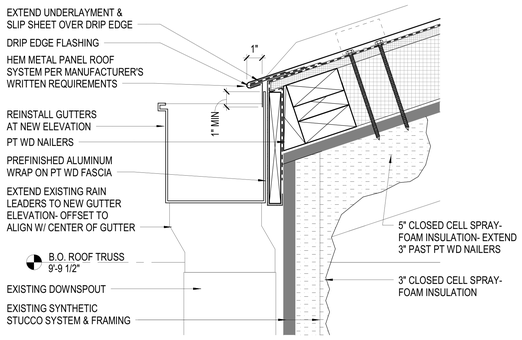
C1 TYP ROOF CURB DETAIL

SCALE: 1 1/2" = 1'-0"



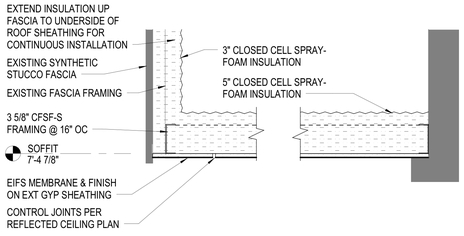
B3 DEMOLITION BUILDING SECTION 1

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



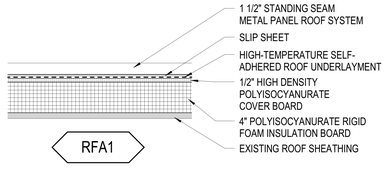
B1 EAVE DETAIL

SCALE: 3" = 1'-0"



A1 TYP EXTERIOR SOFFIT DETAIL

SCALE: 1 1/2" = 1'-0"



TYPICAL ROOF ASSEMBLY TYPE

SCALE: 1 1/2" = 1'-0"

GENERAL NOTES

1. FASTENER TYPE, SIZE, AND SPACING PER ROOFING MANUFACTURER
2. EXPOSED FASTENERS SHALL BE COLOR-MATCHED TO THE ADJACENT MATERIAL

GRAPHIC SCALE(S)

3" = 1' - 0" 0 3" 6" 1'

1 1/2" = 1' - 0" 0 3" 6" 9" 1' 2'

1/4" = 1' - 0" 0 1' 5' 10' 15'

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

OLD CUTLER ROAD
CORAL GABLES, FL 33158

DESIGNER
CLARKNEXSEN
A JMT Company
3920 ARKWRIGHT ROAD, SUITE 385
MACON, GEORGIA 31210
478.743.8415

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL

2026.07.16

100% SUBMITTAL

REVISIONS

SHEET

BUILDING SECTIONS

AE301

DESIGN: JAM
DRAWN: JAM
REVIEW: CSR

CN 10858

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GENERAL

- DEMOLITION NOTE IDENTIFICATION
- CONSTRUCTION NOTE IDENTIFICATION
- INDICATES EXISTING ITEM
- INDICATES NEW ITEM
- INDICATES ITEM TO BE REMOVED
- REMOVE TO THIS POINT
- CONNECT NEW TO EXISTING

ABBREVIATIONS

AD	ACCESS DOOR
ADJ	ADJUSTABLE
AFMS	AIRFLOW MEASUREMENT STATION
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATE
AVG	AVERAGE
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	COOLING
CONT	CONTINUATION
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DIA	DIAMETER
DP	DIFFERENTIAL PRESSURE
DPT	DEW POINT TEMPERATURE
DWG	DRAWING
DX	DIRECT EXPANSION
EAT	ENTERING AIR TEMPERATURE
ECM	ELECTRONICALLY COMMUTATED MOTOR
EER	ENERGY EFFICIENCY RATIO
ENT	ENTERING
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXR	EXISTING TO REMAIN
FPM	FEET PER MINUTE
FT	FEET
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HR	HOUR
HTG	HEATING
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LBS	POUNDS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	BTUH, THOUSANDS
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MIN	MINIMUM
MISC	MISCELLANEOUS
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
RH	RELATIVE HUMIDITY
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SP	STATIC PRESSURE
SQFT	SQUARE FEET
TEMP	TEMPERATURE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
WG	WATER GAUGE

DUCTWORK

SINGLE LINE	DOUBLE LINE	
		RECTANGULAR DUCT
12x12	12x12	RECTANGULAR DUCT WIDTHxHEIGHT (INCHES)
		RECTANGULAR SUPPLY DUCT TURN DOWN
		RECTANGULAR EXHAUST DUCT TURN DOWN
		RECTANGULAR RETURN DUCT TURN DOWN
		RECTANGULAR SUPPLY DUCT TURN UP
		RECTANGULAR EXHAUST DUCT TURN UP
		RECTANGULAR RETURN DUCT TURN UP
		RECTANGULAR DUCT TAP
		MITERED ELBOW WITHOUT TURNING VANES
		MITERED ELBOW WITH TURNING VANES
		RECTANGULAR DUCT RADIUS ELBOW (R=1.5W)
		ROUND DUCT
12ø	12ø	ROUND DUCT DIAMETER (INCHES)
		SUPPLY ROUND DUCT TURNING DOWN
		EXHAUST ROUND DUCT TURNING DOWN
		RETURN ROUND DUCT TURNING DOWN
		SUPPLY ROUND DUCT TURNING UP
		EXHAUST ROUND DUCT TURNING UP
		RETURN ROUND DUCT TURNING UP
		ROUND DUCT TAP
		ROUND DUCT RADIUS ELBOW (R=1.5D)
		CONCENTRIC DUCT TRANISTION
		ECCENTRIC DUCT TRANSITION
		FLEXIBLE DUCT
		ACOUSTICALLY LINED DUCTWORK
		SUPPLY AIRFLOW
		RETURN, EXHAUST, OR TRANSFER AIRFLOW
RISE		INCLINED RISE WITH RESPECT TO AIRFLOW
DROP		DECLINED DROP WITH RESPECT TO AIRFLOW

DUCTWORK ACCESSORIES

- BD — BACKDRAFT DAMPER
- FLEXIBLE DUCT CONNECTOR
- M — MOTORIZED CONTROL DAMPER
- VOLUME DAMPER

DUCTWORK SYSTEM ABBREVIATIONS

- SA — SUPPLY AIR
- EA — EXHAUST AIR
- RA — RETURN AIR
- TA — TRANSFER AIR
- OA — OUTDOOR AIR

AIR DISTRIBUTION DEVICES

- CEILING SUPPLY AIR DEVICE
- ACTIVE THROW DIRECTION (TYP)
  INACTIVE / BLOCKED DIRECTION (TYP)
  CEILING SUPPLY AIR DEVICE WITH 2-WAY DIRECTIONALTHROW (OTHER CONFIGURATIONS SIMILAR)
- CEILING RETURN OR TRANSFER AIR DEVICE
- CEILING EXHAUST AIR DEVICE
- SIDEWALL AIR DEVICE
- AB — AIR DEVICE TYPE. REFER TO SCHEDULE
  (CFM) — NECK DIAMETER (INCHES)
  AIR DEVICE WITH ROUND NECK TAG
- (CFM) — EXISTING TO REMAIN AIR DEVICE
- G22/22 (CFM) — AIR DEVICE TYPE. REFER TO SCHEDULE
  NECK WIDTH / LENGTH (INCHES)
  AIR DEVICE WITH RECTANGULAR NECK TAG

PIPING

SINGLE LINE	DOUBLE LINE	
		PIPE
6" CWS	6" CWS	PIPE (DIAMETER AND SYSTEM ABBREVIATION)
		HYDRONIC PIPE TURN DOWN
		HYDRONIC PIPE TURN UP
		HYDRONIC PIPE TEE
		HYDRONIC PIPE TOP CONNECTION
		HYDRONIC PIPE BOTTOM CONNECTION
		DRAIN PIPE TURN DOWN
		DRAIN PIPE TURN UP
		DRAIN PIPE TEE
		CAPPED PIPE
CO	CO	CLEAN OUT

VALVES AND PIPING ACCESSORIES

- AUTOMATIC AIR VENT
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- CONCENTRIC REDUCER
- DIRECTION OF FLOW
- ECCENTRIC REDUCER
- FLANGED CONNECTION
- FLEXIBLE CONNECTION
- GATE VALVE
- GLOBE VALVE
- ISOLATION VALVE (BALL VALVE FOR 2" & UNDER, BUTTERFLY VALVE FOR 2-1/2" AND LARGER)
- MANUAL AIR VENT
- METERED BALANCING VALVE W/ PRESSURE TAPS
- NEEDLE VALVE
- PIPE SLEEVE
- PRESSURE GAUGE WITH GAUGE COCK
- PT — PRESSURE/TEMPERATURE TEST PLUG
- STRAINER
- THREE-WAY CONTROL VALVE
- THERMOMETER
- UNION

PIPING SYSTEM ABBREVIATIONS

- CWS — CHILLED WATER SUPPLY
- CWR — CHILLED WATER RETURN
- D — CONDENSATE DRAIN
- RS/RL — REFRIGERANT SUCTION/LIQUID

GENERAL NOTES

1. GENERAL NOTES ON THIS DRAWING ARE APPLICABLE TO EACH MECHANICAL DRAWING OF THIS SET. NOTES SPECIFIC TO INDIVIDUAL MECHANICAL DRAWINGS WILL BE SHOWN ON THE RESPECTIVE MECHANICAL DRAWING.
2. PROVIDE A COMPLETE HVAC SYSTEM TO INCLUDE ALL LABOR, MATERIALS, TOOLS, AND EQUIPMENT FOR A COMPLETE AND FUNCTIONAL SYSTEM INCLUDING ALL NECESSARY APPURTENANCES CUSTOMARILY INCLUDED IF NOT SPECIFICALLY CALLED OUT.
3. CONFORM WITH ALL APPLICABLE LAWS, CODES, AND REGULATIONS OF MUNICIPAL, STATE AND FEDERAL AUTHORITIES.
4. CONFORM TO APPLICABLE ASHRAE, NFPA, AND SMACNA STANDARDS AND OTHER REGULATORY BODIES HAVING JURISDICTION OVER THE CLASS OF WORK.
5. MATERIALS AND EQUIPMENT SHALL HAVE STAMPS OR SEALS OF ARI, ASME, UL, AND ASTM.
6. MAKE TESTS FOR ACCEPTANCE AND APPROVAL AS REQUIRED BY CODE AND THE REQUIREMENTS OF APPLICABLE REGULATORY AGENCIES. REQUIRED TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE CONTRACTING OFFICER UNLESS OTHERWISE WAIVED IN WRITING.
7. OBTAIN AND PAY FOR ALL PERMITS, LICENSES, DOCUMENTS, AND SERVICES RELATED TO INSTALLATION OF THE WORK.
8. COORDINATE WORK WITH THE OTHER TRADES IN ORDER TO RESOLVE ANY CONFLICT THAT MIGHT ARISE DUE TO THE LOCATION OF EQUIPMENT OR THE USE OF SPACE.
9. EQUIPMENT OF HIGHER ELECTRICAL CHARACTERISTICS MAY BE SUBSTITUTED PROVIDED SUCH PROPOSED EQUIPMENT IS APPROVED IN WRITING AND CONNECTING ELECTRICAL SERVICE, CIRCUIT BREAKERS AND CONDUIT SIZES ARE APPROPRIATELY MODIFIED AT NO COST TO THE OWNER.
10. RUN ALL HORIZONTAL PIPING AND DUCTWORK ABOVE CEILING UNLESS OTHERWISE NOTED.
11. CUT OPENINGS, AS REQUIRED, IN THE EXISTING CONSTRUCTION FOR THE INSTALLATION OF PIPING, DUCTWORK, AND EQUIPMENT. PATCH AND REPAIR TO MATCH THE EXISTING ADJACENT CONSTRUCTION.
12. MAKE DUCT PENETRATIONS OF ALL WALLS WITH SHEET METAL DUCTS. FLEXIBLE DUCT PENETRATIONS OF WALLS ARE NOT ACCEPTABLE.
13. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF DIFFUSERS, REGISTERS, AND GRILLES. FINISH AND COLOR TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD PALETTE.
14. DUCTWORK SIZES ARE INSIDE CLEAR DIMENSIONS.
15. ALL ELBOWS IN DUCTWORK SHALL BE RADIUS ELBOWS UNLESS OTHERWISE NOTED. WHERE SQUARE ELBOWS ARE SHOWN, INSTALL DOUBLE WALL TURNING VANES. RADIUS ELBOWS SHALL HAVE A MINIMUM CENTERLINE RADIUS OF CURVATURE OF 1.5 TIMES DUCT WIDTH OR DIAMETER.
16. DO NOT INSTALL EQUIPMENT, PIPING OR DUCTWORK OVER ANY ELECTRICAL EQUIPMENT OR ELECTRICAL SERVICE SPACE.
17. LAYOUT OF PIPING AND DUCTWORK IS DIAGRAMMATIC. RUN ALL EXPOSED PIPING AND DUCTWORK AS HIGH AS POSSIBLE UNLESS OTHERWISE NOTED. ALLOW FOR RISES, DROPS AND OFFSETS AS REQUIRED.
18. EXTEND DRAIN LINES TO NEAREST DRAIN OR AS INDICATED. ALL CONDENSATE DRAIN PIPING SHALL BE TRAPPED AND PITCHED DOWN IN DIRECTION OF FLOW A MINIMUM OF 1/8" PER FOOT.
19. INSTALL MECHANICAL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH A MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS. PIPING SHALL NOT INTERFERE WITH FILTER PULL. MAINTAIN EQUIPMENT MANUFACTURER'S RECOMMENDED MINIMUM SERVICE CLEARANCE.
20. MECHANICAL CONTRACTOR SHALL PROVIDE AUTOMATIC CONTROL DEVICES, SUCH AS TEMPERATURE SENSORS, RELAYS, PRESSURE SWITCHES WHICH ARE ASSOCIATED WITH MECHANICAL EQUIPMENT AND ASSOCIATED CONTROL WIRING FROM STARTER TO THE CONTROL DEVICE. ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT AND WIRING FROM POWER SOURCE TO DISCONNECT SWITCH, FROM DISCONNECT SWITCH TO STARTER, AND FROM STARTER TO THE EQUIPMENT.
21. ALL CONTROL WIRING EXCEPT IN EQUIPMENT ROOMS SHALL BE RUN CONCEALED. WIRING IN WALLS SHALL BE IN CONDUIT. ALL WIRING SHALL BE PLENUM RATED. CONTROL WIRING IN EXPOSED AREAS SHALL BE BUNDLED AND SECURED OR RUN IN CONDUIT. NO WIRING SHALL BE SURFACE MOUNTED IN FINISHED SPACES. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
22. LOCATE THERMOSTATS AND TEMPERATURE SENSORS 48" ABOVE FINISHED FLOOR OR AS NOTED ON THE PLANS.
23. PROVIDE PRESSURE/TEMPERATURE (P/T) PLUGS, WITH CAPS UP AND DOWNSTREAM OF ALL EQUIPMENT, AT THE SUPPLY AND RETURN TAPS OF ALL PIPING BRANCHES AND WHERE INDICATED. PROVIDE EXTENDED PLUGS AND LABELS WHERE PIPING IS INSULATED. PROVIDE REMOVABLE INSULATION PLUG.
24. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS AND THE ENDS OF ALL PIPING LOOPS. PROVIDE 1/2" DRAIN VALVES AT LOW POINTS IN PIPING. PROVIDE MINIMUM PITCH SUFFICIENT TO INSURE ADEQUATE VENTING AND DRAINING.
25. PROVIDE FLUSHING VALVES AND TEES AT BOTH SIDES OF ALL EQUIPMENT. TAPS SHALL MATCH EQUIPMENT PIPING UP TO 1". FOR LARGER EQUIPMENT AND PIPE LOOPS PROVIDE 1 1/2" TAPS AND VALVES.
26. ALL EQUIPMENT REMOVED FROM THE BUILDING, DURING DEMOLITION, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE NOTED.
27. EXISTING DUCT, PIPE AND EQUIPMENT SIZES NOTED ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND ARE NOT WARRANTED TO BE CORRECT. FIELD VERIFY ALL EXISTING DUCT, PIPE AND EQUIPMENT SIZES AND THEIR RESPECTIVE LOCATIONS BEFORE PROCEEDING WITH ANY ASSOCIATED WORK.
28. PRIOR TO SUBMITTING A PROPOSAL, THE CONTRACTOR IS STRONGLY ENCOURAGED TO VISIT THE SITE AND THOROUGHLY INSPECT ALL EXISTING CONDITIONS TO ENSURE THAT THE WORK REPRESENTED ON THE DRAWINGS CAN BE INSTALLED AS INDICATED.
29. RECLAIM REFRIGERANT FROM EXISTING EQUIPMENT IN ACCORDANCE WITH ENVIRONMENTAL PROTECTION AGENCY REGULATIONS. IN NEW EQUIPMENT, PROVIDE ONLY NEW REFRIGERANT.
30. REFER TO ELECTRICAL DRAWINGS FOR VOLTAGE AND PHASE REQUIREMENTS FOR ALL EQUIPMENT REQUIRING AN ELECTRICAL CONNECTION.
31. RUN-OUT DUCTS TO AN INDIVIDUAL AIR DEVICES AND VAV TERMINAL UNITS SHALL BE THE SAME SIZE AS THE AIR DEVICE'S NECK OR TERMINAL UNIT'S INLET, UNLESS NOTED OTHERWISE.
32. EACH DUCT BRANCH AND EACH RUN-OUT DUCT TO AN INDIVIDUAL AIR DEVICE SHALL INCLUDE A DUCT-MOUNTED MANUAL VOLUME DAMPER FOR AIRFLOW BALANCING. DAMPERS SCHEDULED TO BE INCLUDED WITH AIR DEVICES DO NOT ELIMINATE THE REQUIREMENT FOR DUCT MOUNTED BALANCING DAMPERS.

DUCT CONSTRUCTION AND LEAKAGE SCHEDULE

SYSTEM	SYSTEM DUCT TYPE	TYPE OF PRESSURE	SMACNA PRESSURE CLASS (IN WG)	SEAL CLASSIFICATION (PER SMACNA)	RECTANGULAR LEAKAGE CLASS (CFM/100 SQFT AT 1IN. WG)	ROUND AND FLAT OVAL LEAKAGE CLASS (CFM/100 SQFT AT 1IN. WG)
SUPPLY AIR DUCTWORK	FROM AIR HANDLING UNIT TO INLET OR REHEAT / VAV UNIT	POSITIVE	4	A	6	3
SUPPLY AIR DUCTWORK	FROM VAV TERMINAL / REHEAT UNIT TO SUPPLY OUTLETS	POSITIVE	2	A	6	3
RETURN AIR DUCTWORK	ALL RETURN DUCTWORK	NEGATIVE	3	A	6	3
EXHAUST AND OUTSIDE AIR DUCTWORK	DUCTWORK UNDER POSITIVE CONDITIONS	POSITIVE	3	A	6	3
EXHAUST AND OUTSIDE AIR DUCTWORK	DUCTWORK UNDER NEGATIVE CONDITIONS	NEGATIVE	3	A	6	3
TRANSFER AND RELIEF AIR DUCTWORK	DUCTWORK UNDER POSITIVE CONDITIONS	POSITIVE	2	A	6	3

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DESIGNER
CLARKNEXSEN
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478-743-8415

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL
2026.07.16
100% SUBMITTAL

REVISIONS

SHEET
MECHANICAL LEGEND

M-001

DESIGN: WAW
DRAWN: JO
REVIEW: RHF

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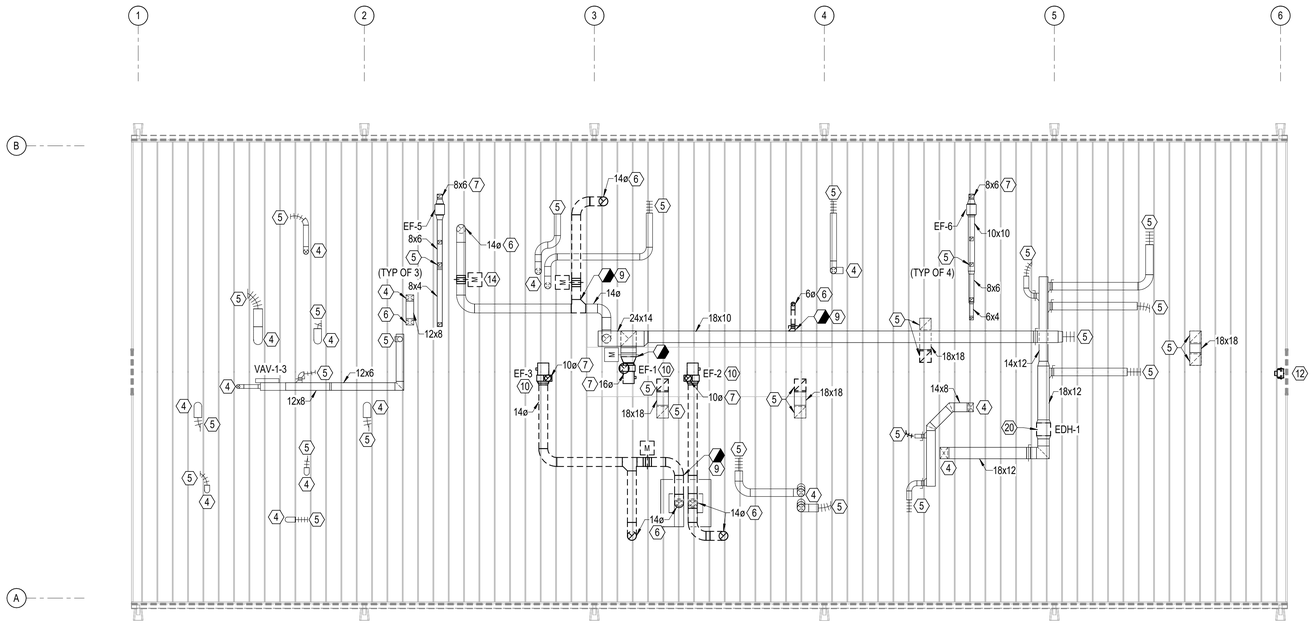
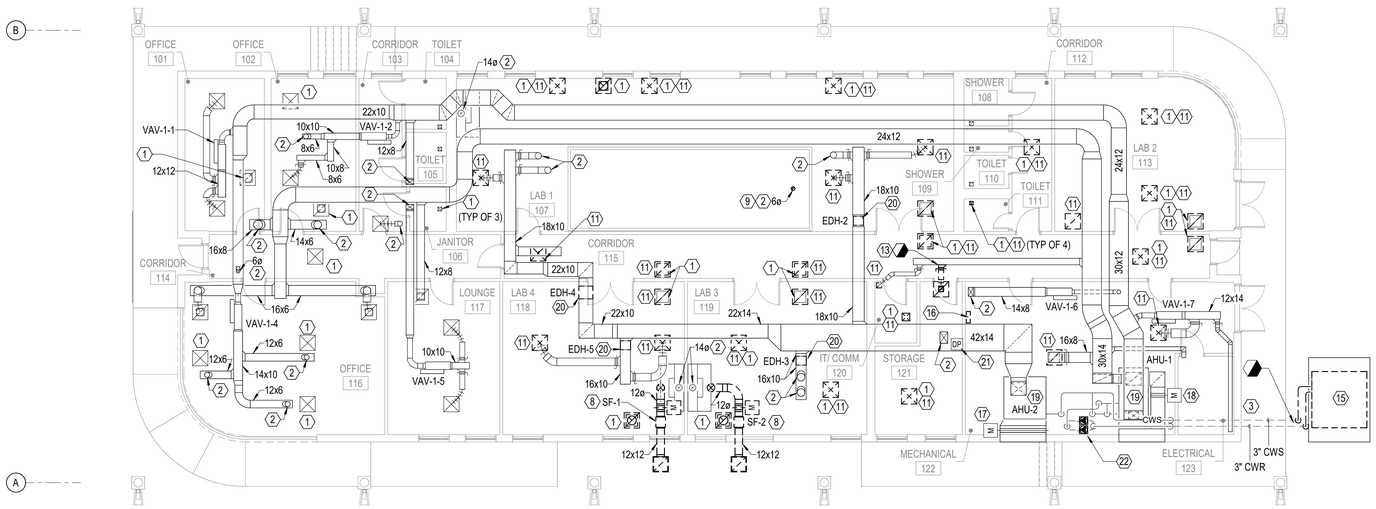


C1 ATTIC - MECHANICAL DEMOLITION PLAN

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



A1 LEVEL ONE - MECHANICAL DEMOLITION PLAN

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

GENERAL NOTES

1. SEE SHEET M-001 FOR LEGEND AND GENERAL NOTES.
2. REMOVE ALL DUCT INSULATION, CLEAN AND SEAL DUCTWORK, AND MAKE DCUT READY FOR INSULATION.
3. REMOVE ALL MANUAL VOLUME DAMPERS. MAKE DUCTWORK READY FOR NEW DAMPER.
4. REMOVE ALL ZONE TEMPERATURE SENSORS, DUCT MOUNTED SENSORS, AND PIPE MOUNTED SENSORS.

DEMOLITION NOTES

1. SEE ATTIC PLAN FOR DUCT CONNECTION.
2. DUCTWORK UP TO ATTIC.
3. UNDERGROUND CHILLED WATER PIPING TO CHILLER.
4. DUCTWORK UP FROM LEVEL 1.
5. SEE DIFFUSER / GRILLE ON LEVEL 1.
6. DUCTWORK DOWN TO LEVEL 1.
7. UP TO EXHAUST STACK ON ROOF.
8. REMOVE SUPPLY FAN AND ASSOCIATED DUCTWORK, GRILLES, SUPPORTS, DAMPERS, AND CONTROLS.
9. REMOVE DAMPERS AND DUCTWORK TO LIMITS SHOWN.
10. REMOVE EXHAUST FAN AND EXHAUST STACK. SEE ARCHITECTURAL DRAWINGS FOR ROOF REPAIR.
11. REMOVE AIR DEVICE. LEAVE DUCTWORK READY FOR RECONNECTION.
12. REMOVE ATTIC EXHAUST FAN.
13. REMOVE AIR DEVICE AND DUCTWORK TO LIMITS SHOWN.
14. REMOVE DAMPER AND ACTUATOR. REPAIR DUCTWORK.
15. REMOVE CHILLER AND EXTERIOR CHILLED WATER PIPING TO POINT SHOWN.
16. REMOVE HVAC CONTROL PANEL.
17. REMOVE OUTDOOR AIR DAMPER AND ACTUATOR.
18. REMOVE DAMPER ACTUATOR. LEAVE DAMPER READY FOR RECONNECTION.
19. REMOVE AHU'S CHILLED WATER CONTROL VALVE AND ACTUATOR.
20. REMOVE ELECTRIC DUCT HEATER.LEAVE DUCTWORK READY FOR RECONNECTION.
21. REMOVE DUCT MOUNTED PRESSURE SENSOR.
22. REMOVE CHILLED WATER PUMPS.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

USDA

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100% SUBMITTAL

REVISIONS

SHEET

MECHANICAL DEMOLITION PLANS

MD101

DESIGN: WAW
DRAWN: JO
REVIEW: RHF

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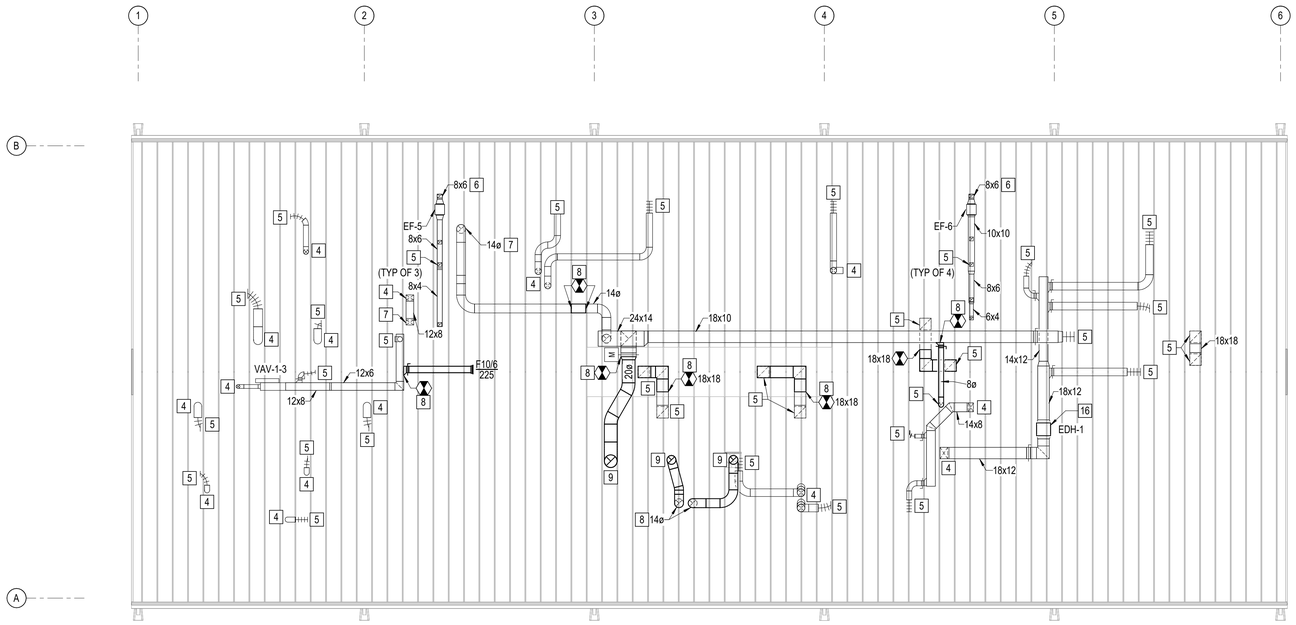
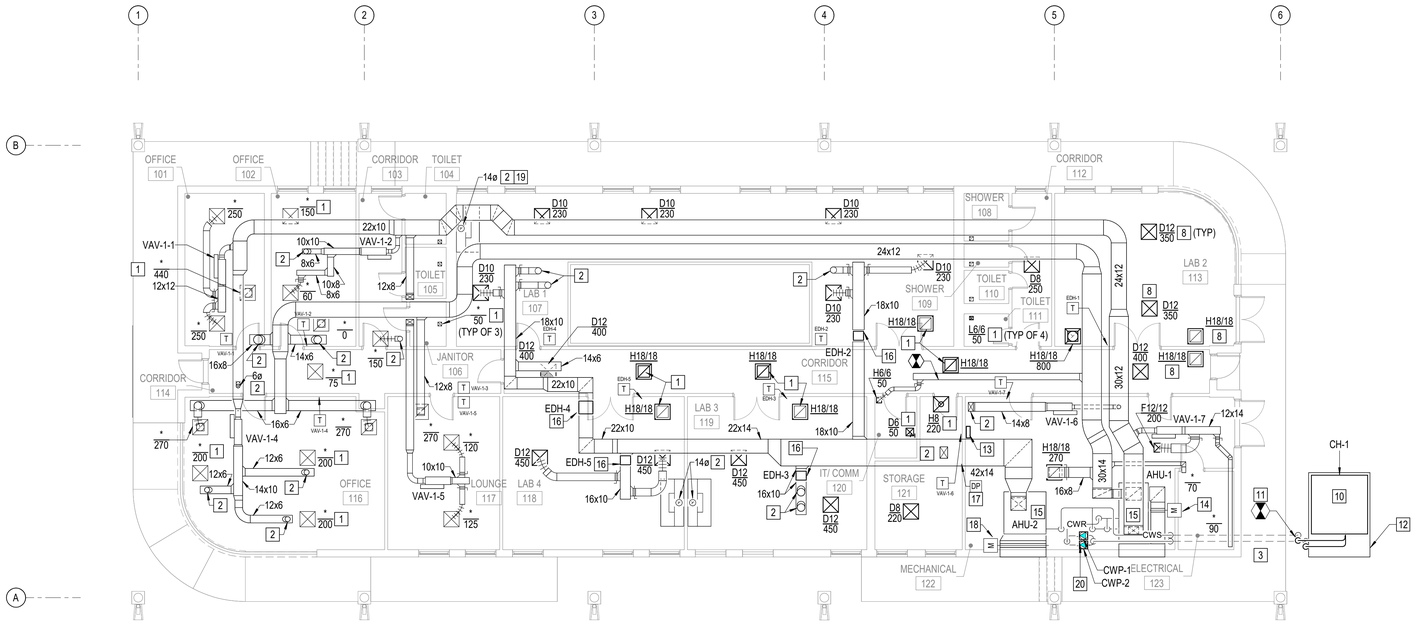


C1 ATTIC / MEZZANINE - MECHANICAL PLAN

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



A1 LEVEL ONE - MECHANICAL PLAN

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

GENERAL NOTES

1. SEE SHEET M-001 FOR LEGEND AND GENERAL NOTES.
2. SEAL AND REINSULATE DUCTWORK. SEE SPECIFICATIONS FOR INSULATION REQUIREMENTS
3. REBALANCE HVAC SYSTEM TO VALUES SHOWN.
4. REPLACE ALL MANUAL VOLUME DAMPERS.
5. REPLACE ALL ZONE TEMPERATURE SENSORS, DUCT MOUNTED SENSORS, AND PIPE MOUNTED SENSORS.
6. SERVICE THE AHUs, CLEAN THE COILS AND CONDENSATE DRAINS, REPLACE FAN BELTS, CHANGE FILTERS, LUBRICATE FAN BEARINGS, VACUUM AND WIPE DOWN INTERIOR CASING SURFACES, REPLACE FLEXIBLE DUCT CONNECTIONS BETWEEN THE FAN AND THE UNIT CASING, AND REPAIR RUST DAMAGE.

KEY NOTES

1. SEE ATTIC PLAN FOR DUCT CONNECTION.
2. DUCTWORK UP TO ATTIC.
3. UNDERGROUND CHILLED WATER PIPING TO CHILLER.
4. DUCTWORK UP FROM LEVEL 1.
5. SEE DIFFUSER / GRILLE ON LEVEL 1.
6. UP TO EXHAUST STACK ON ROOF.
7. DUCTWORK DOWN TO LEVEL 1.
8. CONNECT TO EXISTING DUCTWORK.
9. DUCTWORK UP TO EXHAUST FAN ON ROOF. COORDINATE ROUTING TO GO BETWEEN EXISTING ROOF TRUSSES.
10. PROVIDE AIR COOLED CHILLER. CHILLER TO BE INSTALLED ON EXISTING CONCRETE PAD.
11. INSTALL CHILLED WATER PIPES, FIELD VERIFY SIZE, FROM POINT WHERE PIPING EXITS THE GROUND TO THE CHILLER. SEE CHILLER INSTALLATION DETAIL FOR REQUIRED COMPONENTS.
12. EXTEND CHILLER CONCRETE PAD AS NECESSARY TO SUPPORT CHILLER INSTALLATION.
13. DDC PANEL LOCATION. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER AND DATA.
14. PROVIDE ACTUATOR ON EXISTING DAMPER.
15. PROVIDE CONTROL VALVE AND COIL PIPING ACCESSORIES. SEE DETAIL FOR COIL PIPING COMPONENTS AND CONTROL VALVE SCHEDULE.
16. PROVIDE ELECTRIC DUCT HEATER. DUCT HEATER SHALL BE SAME SIZE AND CAPACITY AS HEATER THAT WAS REMOVED. FIELD DOCUMENT SIZE AND CAPACITY BEFORE ORDERING.
17. PROVIDE DUCT MOUNTED PRESSURE SENSOR.
18. PROVIDE OUTDOOR AIR DAMPER AND ACTUATOR.
19. BALANCE FUME HOOD TO 1,400 CFM.
20. PROVIDE CHILLED WATER PUMPS. SEE DETAIL FOR REQUIRED COMPONENTS.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

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U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

OLD CUTLER ROAD
CORAL GABLES, FL 33158

DESIGNER

CLARKNEXSEN
A JMT Company
3920 ARKWRIGHT ROAD, SUITE 385
MACON, GEORGIA 31210
478-743-8415

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL

2026.07.16

100% SUBMITTAL

REVISIONS

SHEET

MECHANICAL PLANS

MH101

DESIGN: WAW
DRAWN: JO
REVIEW: RHF

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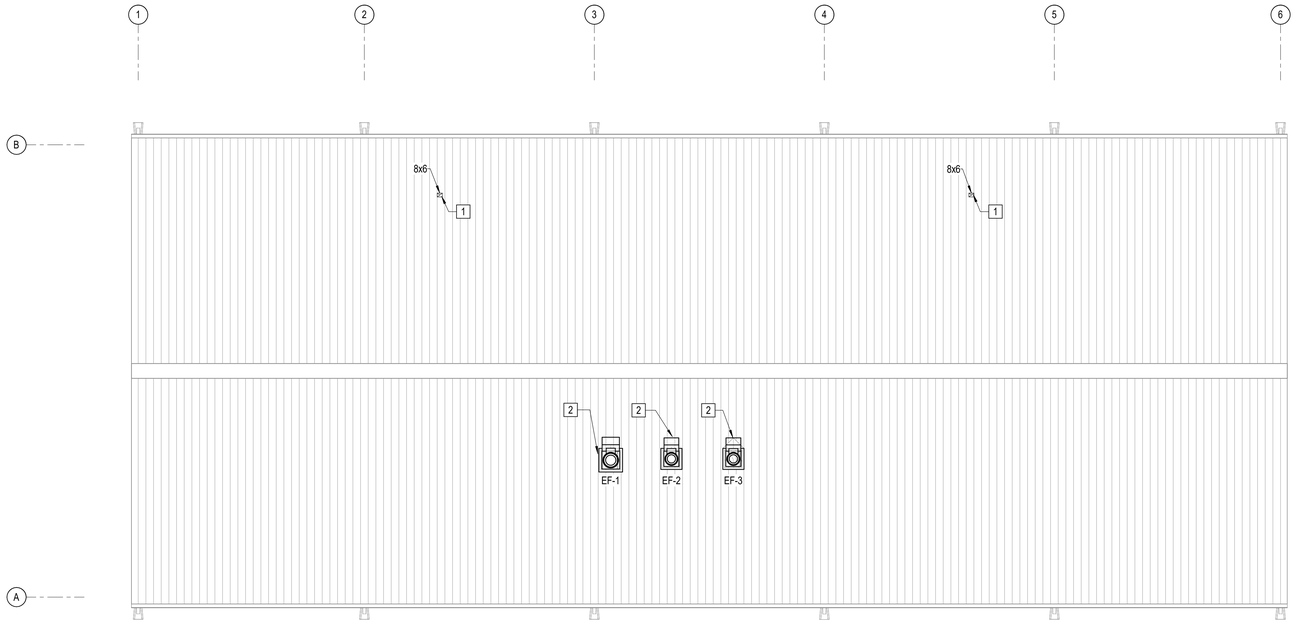

C1 ROOF - MECHANICAL PLAN

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

BUILDING AIR BALANCE							
AHU-1							
ROOM NAME	ROOM NUBMER	VAV / EDH	SUPPLY	RETURN	EXHAUST	OUTSIDE AIR	ROOM ACH
OFFICE	101	VAV-1-1	500	500			
OFFICE	102	VAV-1-2	210	210			
CORRIDOR	103	VAV-1-3	150				
TOILET	104	-			50		
TOILET	105	-			50		
JANITOR	106	-			50		
CORRIDOR	114	VAV-1-3	75				
OFFICE	116	VAV-1-4	600	600			
LOUNGE	117	VAV-1-5	245	245			
IT	120	VAV-1-6	50	50			
STORAGE / PI LAB	121	VAV-1-6	220		220		
MECHANICAL	122	VAV-1-7	200	200			8.0
ELECTRICAL	123	VAV-1-7	90	50			
ATTIC		VAV-1-3	225	70			
TOTAL - AHU-1			2,565	1,925	370	640	
AHU-2							
ROOM NAME	ROOM NUBMER		SUPPLY	RETURN	EXHAUST	OUTSIDE AIR	ROOM ACH
LAB 1	107	EDH-2	690		1400		9.8
		EDH-4	690				
CORRIDOR	112	EDH-1	250				
SHOWER	108				50		
SHOWER	109				50		
TOILET	110				50		
TOILET	111				50		
LAB 2	113	EDH-1	700		800		12
CORRIDOR	115	EDH-1	800				
LAB 4	118	EDH-5	900		1,400		20.8
LAB 3	119	EDH-3	900		1,400		20.5
TOTAL - AHU-2			4,930		5,200	4,930	
BUILDING TOTAL					5,570	5,570	

GENERAL NOTES

1 SEE SHEET M-001 FOR LEGEND AND GENERAL NOTES.

KEY NOTES

1 GOOSENECK FOR BATHROOM ROOM EXHAUST. REMOVE EXISTING AND INSTALL NEW WITH ROOF CURB FOR ROOF/DUCT PENETRATION.

2 ROOF MOUNTED FUME HOOD EXHAUST FAN.PROVIDE CURB, MATCH ROOF SLOPE AND STYLE. COORDINATE MINIMUM HEIGHT WITH ROOF MANUFACTURER FOR FLASHING.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

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MECHANICAL ROOF PLAN

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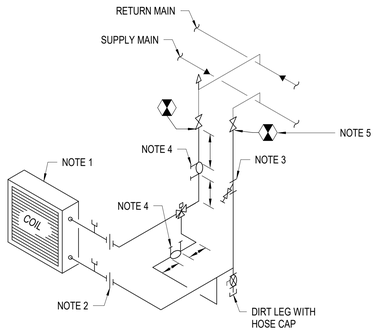
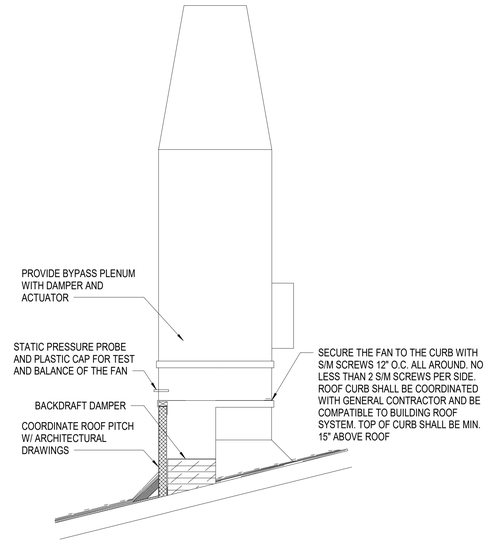


NOTES:
1. PIPING TYPICAL FOR AHU CHILLED WATER COIL.
2. LOCATE FLANGE OR UNION TO FACILITATE COIL REMOVAL.
3. Y-TYPE STRAINER WITH BLOWDOWN VALVE.
4. INSTALL BALANCING VALVE WITH A MINIMUM UNRESTRICTED STRAIGHT RUN OF 5 PIPE DIAMETERS UPSTREAM AND 2 PIPE DIAMETERS DOWNSTREAM, OR AS REQUIRED BY VALVE MANUFACTURER.
5. CONNECT TO EXISTING CHILLED WATER PIPING.

D3 TYPICAL WATER COIL PIPING DETAIL (3-WAY CONTROL VALVE)

NOT TO SCALE



D5 ROOF MOUNTED FAN CURB DETAIL

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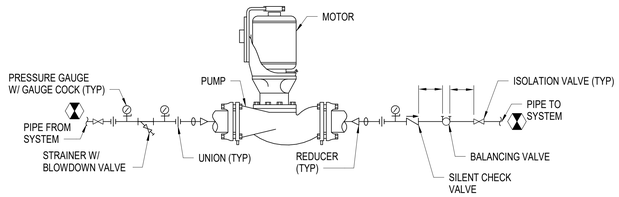

NOTES:
1. SUPPORT PUMP FROM PIPING ONLY. DO NOT SUPPORT PUMP FROM MOTOR. PROVIDE DOUBLE DEFLECTION NEOPRENE PIPE HANGERS ON EACH SIDE OF PUMP.
2. INSTALL BALANCING VALVE WITH A MINIMUM UNRESTRICTED STRAIGHT RUN AS REQUIRED BY VALVE MANUFACTURER.

B5 INLINE CENTRIFUGAL PUMP DETAIL (HORIZONTAL MOUNTED)

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DETAILS

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AIR DEVICE SCHEDULE

MARK	MODULE SIZES (IN)	MNFR: TITUS	MNFR: RUSKIN	MODEL NO.	TYPE	MATERIAL: STEEL (STL)	MATERIAL: ALUMINUM (AL)	MATERIAL: AL WITH STL FRAME	FINISH: OFF WHITE	FINISH: PRIMER	FINISH: CLR BY ARCH	ACCESSORIES: OPP BLADE DAMPER	ACCESSORIES: AIR SCOOP	ACCESSORIES: BUTTERFLY DAMPER	ACCESSORIES: FIRE DAMPER	ACCESSORIES: EQUALIZING GRID	MOUNTING: LAY-IN	MOUNTING: SURFACE	MOUNTING: DUCT	MAX NC	MAX. LOSS IN W.G.	NOTES
D	24 X 24	X		OMNI-AA	PLAQUE		X				X	X						X		25	0.10	1,2,3,4,5,6
F	NECK SIZE + 1.75	X		300FL	LOUVERED FACE, DOUBLE DEFLECTION, 3/4" BLADE SPACEING		X				X	X						X		25	0.10	1,2,6
H	24 X 24	X		PAR-AA	PERFORATED FACE		X				X	X						X		25	0.10	1,2,3,6
L	NECK SIZE + 1.75	X		350FL	LOUVERED FACE, 35° FIXED SINGLE		X				X	X						X		25	0.10	1,2,6

NOTES:
1. FINISH TO BE STANDARD COLOR AS SELECTED BY THE ARCHITECT.
2. COORDINATE BORDER TYPES AND MOUNTING FRAMES WITH ARCHITECTURE.
3. MOLDED INSULATION BLANKET (R-6 MINIMUM).
4. 4-WAY THROW PATTERN UNLESS OTHERWISE NOTED ON FLOOR PLANS.
5. PROVIDE AIR BAFFLES AS NECESSARY TO ACHIEVE THROW PATTERN INDICATED ON PLANS.
6. PAINT ALL INTERIOR SURFACED VISIABLE THROUGH AIR DEVICE FACE FLAT BLACK.

AIR COOLED CHILLER SCHEDULE

MARK	CAPACITY: TONS	CAPACITY: MIN EER	CAPACITY: MIN IPLV	CHILLED WATER: EWT (F)	CHILLED WATER: LWT (F)	CHILLED WATER: GPM	CHILLED WATER: FOULNG FACTOR	CHILLED WATER: MAX PRESSURE DROP FT WG	FLUID	NOTES
CH-1	60	10.29	15.53	44	45	99	0.0001	20	WATER	1:2:3:

NOTES:

1. UNIT SHALL UTILIZE R-32 REFRIGERANT

2. PROVIDE WITH DIGITAL SCROLL COMPRESSORS (WITH SOUND BLANKETS), MIRCO CHANEL CONDENSER COIL WITH CORROSION PROTOTECTION, NON FUSED DISCONNECT, BRAZED PLATE HEAT EXCHANGER, FULL HAIL GUARDS, VOLUMN TANK, AND LOW SOUND FANS.
3. UNIT SHALL HAVE A MINIMUM OF 2 INDEPENDENT REFRIGERANT CIRCUITS.

FAN SCHEDULE

MARK	CFM	ESP IN WG	MNFR: COOK	MNFR: GREENHECK	MODEL NO.	MOTOR: MAX. HP.	MAX OPER WEIGHT (LBS)	MAX FAN SPEED (RPM)	MAX. NOISE SONES	DRIVE: DIRECT	DRIVE: BELT	ACCESSORIES: MOTORIZED BYPASS DAMPER	ACCESSORIES: ROOF CURB	ACCESSORIES: ENERGY STAR RATED	ACCESSORIES: DELAY TIMER	ACCESSORIES: CEILING GRILLE	ACCESSORIES: BIRD SCREEN	ACCESSORIES: EC MOTOR	ACCESSORIES: EQUIPMENT RAILS	NOTES
EF-1	2,200	2.00		X	VK-H	2	700	2,000	21	X		X	X							1:2:
EF-2	1,400	1.00		X	VK-H	1	500	2,200	20	X		X	X							1:2:
EF-3	1,400	1.00		X	VK-H	1	500	2,200	20	X		X	X							1:2:
EF-5	150	0.125	X		70 SQN	1/4	-	-	-											3:
EF-6	200	0.125	X		70 SQN	1/4														3:

NOTES:
1. PROVIDE MIAMI DADE APPROVED FAN.
2. TUBULAR CENTRIFUGAL FAN WITH HIGH PLUME CONICAL NOZZLE.
3. EXISTING FAN. INFORMATION PROVIDED FOR BALANCING.

HYDRONIC CONTROL VALVE SCHEDULE

MARK	GPM	MAX PRESSURE DROP (FT)	MIN Cv	TYPE	CONFIGURATION	FLUID	FAIL POSITION
CV-1	19	10	6	BALL	3-WAY	WATER	CLOSED
CV-2	80	10	25	BALL	3-WAY	WATER	CLOSED

1. CV-1 SERVES AHU-1
2. CV-2 SERVES AHU-2

AIR HANDLING UNIT SCHEDULE

MARK	MNFR: CARRIER	MNFR: JCI	MNFR: DAIKIN	MODEL SERIES	SUPPLY FAN: MAX CFM	SUPPLY FAN: MIN OA CFM	SUPPLY FAN: MIN CFM	SUPPLY FAN: EXTERNIAL IN WG	MOTOR: MAX MOTOR HP	MOTOR: MAX RPM	COOLING COIL: TOTAL MBH CLG	COOLING COIL: SENS MBH CLG	COOLING COIL: EAT db F	COOLING COIL: EAT wb F	COOLING COIL: LAT db F	COOLING COIL: LAT wb F	COOLING COIL: GPM	NOTES
AHU-1	X			39MN	2,565	640	-	3.5	5	3,500	106.2	64.5	78.3	66.5	55	54	19	1:2:3
AHU-2	X			39MN	4,930	4,930	4,200	3.25	15	1,800	461.4	191.7	91	79	55	54	80	1:2:

NOTES:
1. EXISTING UNIT. INFORMATION PROVIDED FOR BALANCING.
2. CLEAN ALL COILS, REPLACE FAN BELTS, AND DAMPER ACTUATORS. ENSURE DAMPER ARE IN OPERATING CONDITION.
3. REPLACE BROKEN FLEXIBLE DUCT CONNECTION BETWEEN THE SUPPLY FAN AND THE OUTLET.
4: MINIMUM CFM IS IN UNOCCUPIED MODE.

VAV TERMINAL SCHEDULE

MARK	PRIMARY AIR: MAX CFM	PRIMARY AIR: MIN CFM	TYPE: SHUTOFF	TYPE: REHEAT	DUCT CONN: INLET	AIR HANDLING SYSTEM	HEATING COIL: HOT WATER	HEATING COIL: ELECTRIC	HEATING COIL: kW	NOTES
VAV-1-1	500	250		X	8"	AHU-1		X	2.0	1:
VAV-1-2	210	125		X	6"	AHU-1		X	1.0	1:
VAV-1-3	450	200		X	6"	AHU-1		X	1.5	1:
VAV-1-4	600	300		X	8"	AHU-1		X	2.5	1:
VAV-1-5	245	150		X	6"	AHU-1		X	1.0	1:
VAV-1-6	270	110		X	6"	AHU-1		X	1.0	1:
VAV-1-7	290	290		X	8"	AHU-1		X	2.0	1:

NOTES:
1. EXISTING VAV UNIT. INFORMATION PROVIDED FOR BALANCING.

CHILLED WATER PUMP

MARK	GPM	HEAD (ft WG)	MOTOR HP	FLUID	NOTES
CWP-1	99	35	2	WATER	1:
CWP-2	99	35	2	WATER	1:

NOTES:
1. REPLACE PUMP. COORDINATE ALL DOWN TIME WITH USER A MINIMUM OF 14 DAYS PRIOR.

ELECTRIC DUCT HEATER

MARK	CFM	TYPE: PREHEAT	TYPE: REHEAT	AIR HANDLING SYSTEM	kW	NOTES
EDH-1	1,750		X	AHU-2	10.0	1:
EDH-2	690		X	AHU-2	8.0	1:
EDH-3	900		X	AHU-2	8.0	1:
EDH-4	690		X	AHU-2	10.0	1:
EDH-5	900		X	AHU-2	8.0	1:

NOTES:
1. PROVIDE DUCT HEATER WITH A MINIMUM OF THREE STAGES.

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SCHEDULES

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VARIABLE FREQUENCY DRIVE BACNET INTERFACE SCHEDULE

NAME	DESCRIPTION	TREND	ALARM	GRAPHIC
AI1	FREQUENCY SETPOINT REFERENCE (HZ)	•		•
AI2	FREQUENCY STATUS (HZ)	•		•
AI3	MOTOR SPEED (RPM)	•		•
AI4	OUTPUT VOLTAGE (V)	•		•
AI5	OUTPUT CURRENT (A)	•		•
AI6	OUTPUT POWER (KW)	•		•
AI7	TORQUE (%)	•		•
AO1	SPEED COMMAND (%)	•		•
AV1	MINIMUM FREQUENCY (HZ)	•		•
AV2	MAXIMUM FREQUENCY (HZ)	•		•
AV3	ACCELERATION TIME (S)	•		•
AV4	DECELERATION TIME (S)	•		•
BI1	VFD STATUS	•	•	•
BI2	VFD FAULT	•	•	•
BI3	VFD ALARM	•	•	•
BO1	START / STOP COMMAND	•		•
BO2	FAULT RESET	•		•
MI1	HOA MODE STATUS	•	•	•

NOTES:
1. POINTS ARE TYPICAL FOR EACH VARIABLE FREQUENCY DRIVE (VFD).

ALARMS:
THE FOLLOWING ALARMS SHALL BE ANNUNCIATED TO THE DDC SYSTEM FOR EACH VFD:
- VFD FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- VFD IN-HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- VFD FAULT PRESENT.
- VFD ALARM PRESENT.

CONTROL DEVICE LEGEND

	2-WAY CONTROL VALVE
	3-WAY CONTROL VALVE
AFMS	AIRFLOW MEASUREMENT STATION
– –BACNET– –	BACNET NETWORK CONNECTION
CO	CARBON MONOXIDE SENSOR
C	COMMON
– – –	CONTROL WIRING (SIGNAL PATH)
CT	CURRENT TRANSMITTER
DP	DIFFERENTIAL PRESSURE SENSOR
DP	DIFFERENTIAL PRESSURE SWITCH
DSD	DUCT SMOKE DETECTOR
ECM	ELECTRONICALLY COMMUTATED MOTOR
ES	END SWITCH
F	FAN ON-OFF SWITCH
FL	FLOAT SWITCH
FS	FLOW SWITCH
HL	HIGH LIMIT TEMPERATURE SENSOR
H	HUMIDISTAT
H	HUMIDITY SENSOR
HT	HUMIDITY TRANSMITTER
M	MOTOR
MS	MOTOR STARTER
M	MOTORIZED DAMPER - OPPOSED BLADE
M	MOTORIZED DAMPER - PARALLEL BLADE
M	MOTORIZED DAMPER - SINGLE BLADE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OS	OCCUPANCY SENSOR
P	PRESSURE SENSOR
	PUMP
S	SENSOR
S	SWITCH
TCP	TEMPERATURE CONTROL PANEL
T	TEMPERATURE SENSOR
T	TEMPERATURE SENSOR - AVERAGING
T	TEMPERATURE SENSOR - SINGLE POINT PROBE
T	TEMPERATURE SENSOR WITH THERMOWELL
TT	TEMPERATURE TRANSMITTER
T	THERMOSTAT
VFD	VARIABLE FREQUENCY DRIVE
C C	COOLING COIL
M	FAN
	FILTER
	GRAVITY BACKDRAFT DAMPER
H C	HEATING COIL

GENERAL NOTES: CONTROLS SCOPE OF WORK

1. **EXISTING CONDITIONS:** THE FACILITY CURRENTLY UTILIZES A DIRECT DIGITAL CONTROL (DDC) SYSTEM OPERATING ON A DELTA CONTROLS PLATFORM (INSTALLED AND MAINTAINED BY SOUTH FLORIDA CONTROLS), WITH THE MAIN CONTROLLER LOCATED IN THE MECHANICAL ROOM. THE EXISTING SETUP PROVIDES LIMITED VIEW-ONLY ACCESS FOR MAINTENANCE PERSONNEL VIA AN HUMAN-MACHINE INTERFACE (HMI), ALLOWING ONLY MODIFICATIONS TO ROOM AND DISCHARGE AIR TEMPERATURE SETPOINTS WITH NO FULL SYSTEM ACCESS.
2. **NEW DDC SYSTEM:** THE CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE, NEW, FULLY ACCESSIBLE BACNET-NATIVE DDC SYSTEM TO ASSUME CONTROL OF THE FACILITY'S MECHANICAL EQUIPMENT.
3. **FRONT END AND HMI:** PROVIDE A NEW SYSTEM FRONT-END. A NEW HMI SCREEN SHALL BE PROVIDED AND MOUNTED DIRECTLY ON THE FRONT OF THE MAIN CONTROL PANEL.
4. **SENSORS AND WIRING:** PROVIDE AND INSTALL ALL NEW CONTROL SENSORS AND ASSOCIATED CONTROL WIRING REQUIRED FOR A COMPLETE, OPERATIONAL SYSTEM, EXCEPT WHERE EXPLICITLY NOTED FOR REUSE.
5. **VAV BOX CONTROLS:** EXISTING VAV BOX CONTROLLERS SHALL REMAIN AND BE REUSED. THE CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL NEW SPACE TEMPERATURE SENSORS (THERMOSTATS) AND NEW DISCHARGE AIR TEMPERATURE SENSORS FOR ALL EXISTING VAV BOXES TO INTEGRATE WITH THE NEW SYSTEM.
6. **NETWORK ARCHITECTURE:** THE NEW DDC SYSTEM SHALL BE ENGINEERED, CONFIGURED, AND SET UP WITH THE CAPABILITY FOR SECURE REMOTE MONITORING AND CONTROL. PROVIDE WEB-BASED REMOTE ACCESS TO SYSTEM GRAPHICS (HTML5 COMPLIANT, ACCESSIBLE VIA STANDARD WEB BROWSERS WITHOUT REQUIRING ADDITIONAL PLUGINS). THE CONTROLS CONTRACTOR SHALL COORDINATE EXTENSIVELY WITH USDA IT PERSONNEL TO ESTABLISH DEDICATED IP ADDRESSES, NETWORK DROPS, FIREWALL PORT EXCEPTIONS, AND APPROVED SECURE ACCESS PROTOCOLS (E.G., VPN ROUTING, VIRTUAL LOCAL AREA NETWORK (VLAN) INTEGRATION, AND MULTI-FACTOR AUTHENTICATION (MFA)). THE REMOTE ACCESS ARCHITECTURE MUST COMPLY WITH ALL CURRENT USDA AND FEDERAL CYBERSECURITY GUIDELINES. ADDITIONALLY, THE CONTRACTOR SHALL CONFIGURE ROLE-BASED ACCESS CONTROL (RBAC) TO ENSURE SPECIFIC PERMISSIONS AND SECURITY LEVELS ARE ESTABLISHED FOR VARIOUS USERS (E.G., VIEW-ONLY, MAINTENANCE, AND ADMINISTRATOR).

CONTROL POINT LEGEND

AI#2	CONTROL POINT IDENTIFIER
	POINT NUMBER
	BACNET OBJECT TYPE
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AV	ANALOG VALUE
BI	BINARY INPUT
BO	BINARY OUTPUT
BV	BINARY VALUE
MI	MULTI-STATE INPUT
MO	MULTI-STATE OUTPUT
MV	MULTI-STATE VALUE

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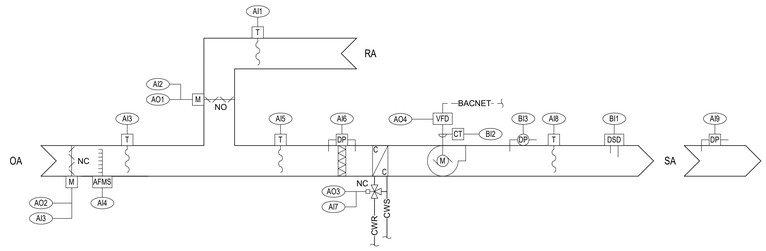


AHU-1 (VAV SYSTEM) SEQUENCE OF OPERATIONS

1. GENERAL & SYSTEM INTERLOCKS
   - SYSTEM STATUS: THE EXISTING AHU-1 SHALL BE INDEXED TO RUN BY THE ENERGY MANAGEMENT SYSTEM (EMS/DDC) ACCORDING TO THE OWNER'S OCCUPANCY SCHEDULE.
   - EXHAUST INTERLOCK: TOILET EXHAUST FAN EF-5 SHALL BE STRICTLY INTERLOCKED TO RUN WHENEVER AHU-1 IS OPERATING.
   - OFF MODE: WHENEVER THE SUPPLY FAN IS OFF, ALL CONTROL ACTUATORS (VALVES AND DAMPERS) SHALL BE PLACED IN THEIR NORMAL (FAIL-SAFE) POSITIONS.
2. SAFETY CONTROLS
   - THE SUPPLY FAN OPERATING AND SAFETY CONTROLS SHALL INCLUDE A WALL-MOUNTED DISCONNECT, A VARIABLE FREQUENCY DRIVE (VFD), A RETURN AIR SMOKE DETECTOR, AND A SUPPLY DUCT OVER-PRESSURE SWITCH.
   - HARDWIRED SAFETIES: THE SMOKE DETECTORS AND DUCT OVER-PRESSURE SWITCH SHALL BE HARDWIRED IN THE FAN MOTOR CONTROL CIRCUIT TO IMMEDIATELY SHUT DOWN THE FAN UPON ACTIVATION. THEY SHALL ALSO SEND AN AUXILIARY SIGNAL TO THE DDC SYSTEM AND THE BUILDING FIRE ALARM SYSTEM.
   - FIRE ALARM INTERLOCK: THE AHU AND ITS ASSOCIATED AIR-MOVING EQUIPMENT (INCLUDING EF-5) SHALL SHUT DOWN UPON A GENERAL SIGNAL FROM THE FIRE ALARM SYSTEM.
3. UNOCCUPIED (NIGHT SETBACK) & OVERRIDE MODES
   - UNOCCUPIED SETBACK: DURING SCHEDULED OFF TIMES, THE SUPPLY FAN SHALL AUTOMATICALLY START IF ANY SPACE TEMPERATURE DROPS BELOW 60°F OR RISES ABOVE 90°F.
   - WHEN STARTED IN THIS MODE, THE ENTIRE SYSTEM (ALL VAV BOXES) SHALL BE PLACED IN OCCUPIED MODE.
   - THE SYSTEM SHALL RUN FOR A MINIMUM OF 30 MINUTES OR UNTIL ALL SPACE TEMPERATURES ARE BACK WITHIN THE NORMAL SETPOINT RANGE.
   - OCCUPANT OVERRIDE: DURING SCHEDULED OFF TIMES, AN OCCUPANT CAN INITIATE A 2-HOUR (ADJUSTABLE) OVERRIDE VIA A PUSH-BUTTON INTEGRAL TO THE SPACE-MOUNTED VAV TEMPERATURE SENSOR.
4. SUPPLY FAN & STATIC PRESSURE CONTROL
   - VFD MODULATION: THE DDC SYSTEM SHALL MODULATE THE SUPPLY FAN VFD OUTPUT TO MAINTAIN THE SUPPLY DUCT STATIC PRESSURE AT SETPOINT (SENSED BY THE EXISTING DOWNSTREAM PRESSURE SENSOR).
   - STATIC PRESSURE RESET (TRIM & RESPOND): EVERY 15 MINUTES (ADJUSTABLE), THE DDC SYSTEM SHALL POLL THE VAV BOXES AND ADJUST THE STATIC PRESSURE SETPOINT TO OPTIMIZE FAN ENERGY:
   - IF AT LEAST ONE VAV TERMINAL IS AT FULL SCHEDULED COOLING AIRFLOW, INCREASE THE SETPOINT BY 0.05" W.C. (ADJUSTABLE).
   - IF NO VAV TERMINALS ARE AT FULL SCHEDULED AIRFLOW, AND AT LEAST ONE IS AT MINIMUM AIRFLOW, DECREASE THE SETPOINT BY 0.05" W.C. (ADJUSTABLE).
5. MIXED AIR (OUTSIDE/RETURN AIR) CONTROL
   - WHEN THE SUPPLY FAN IS PROVEN ON, THE DDC SYSTEM SHALL OPEN THE AUTOMATIC OUTSIDE AIR (OA) DAMPER.
   - THE SYSTEM SHALL PLACE THE OA AND RETURN AIR DAMPERS IN THEIR OPERATING POSITIONS, CALIBRATED FOR THE SCHEDULED MINIMUM OUTSIDE AIRFLOW.
   - THE DDC SYSTEM SHALL ACTIVELY MODULATE THE OA DAMPER TO MAINTAIN THE OUTDOOR AIRFLOW AT THE REQUIRED SETPOINT.
6. HYDRONIC COOLING COIL CONTROL
   - THE DDC SYSTEM SHALL MODULATE THE EXISTING CHILLED WATER VALVE TO MAINTAIN A SUPPLY AIR TEMPERATURE (SAT) SETPOINT OF 55°F (ADJUSTABLE).
8. MONITORING & ALARMS
   - FILTER MONITORING: THE SYSTEM SHALL TRIGGER A MAINTENANCE ALARM ON THE USER INTERFACE WHEN THE PRESSURE DROP ACROSS THE AHU FILTERS EQUALS OR EXCEEDS 0.8" W.C. (ADJUSTABLE).
   - CRITICAL ALARMS: THE CONTROL SYSTEM SHALL IMMEDIATELY TURN OFF THE SUPPLY FAN AND ALARM THE USER INTERFACE IF ANY OF THE FOLLOWING OCCUR:
   - NO AIRFLOW PROVEN FOR 2 MINUTES OR LONGER AFTER THE FAN IS COMMANDED ON.
   - SMOKE DETECTED IN THE AIR HANDLING UNIT.
   - SUPPLY DUCT PRESSURE EXCEEDS 3.0" W.C.
   - COOLING COIL LEAVING AIR TEMPERATURE (SAT) DEVIATES FROM SETPOINT FOR 5 MINUTES (ADJUSTABLE) OR LONGER.
   - SUPPLY DUCT STATIC PRESSURE DEVIATES FROM SETPOINT FOR 5 MINUTES (ADJUSTABLE) OR LONGER.

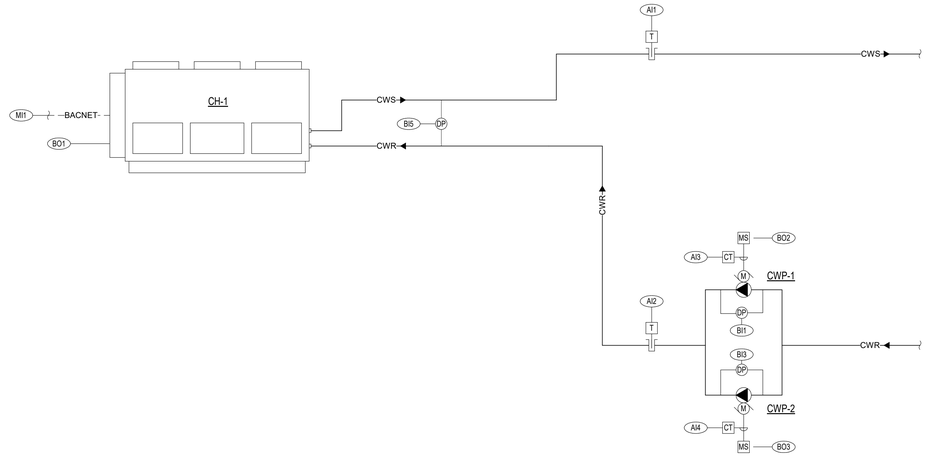
AHU-1 DDC POINTS LIST

NAME	DESCRIPTION	TREND	ALARM	GRAPHIC
AI1	RETTURN AIR TEMPERATURE (°F)	•		•
AI2	RETURN AIR DAMPER POSITION (%)	•		•
AI3	OUTDOOR AIR DAMPER POSITION (%)	•		•
AI3	OUTDOOR AIR TEMPERATURE (°F)	•		•
AI4	OUTDOOR AIRFLOW (CFM)	•	•	•
AI5	MIXED AIR TEMPERATURE (°F)	•		•
AI6	FILTER DIFFERENTIAL PRESSURE (IN WG)	•	•	•
AI7	CHILLED WATER CONTROL VALVE POSITION (%)	•		•
AI8	SUPPLY AIR TEMPERATURE (°F)	•	•	•
AI9	DOWN DUCT STATIC PRESSURE (IN WG)	•	•	•
AO1	RETURN AIR DAMPER COMMAND (%)	•		•
AO2	OUTDOOR AIR DAMPER COMMAND (%)	•		•
AO3	CHILLED WATER CONTROL VALVE COMMAND (%)	•		•
AO4	FAN SPEED COMMAND (%)	•		•
BI1	DUCT SMOKE DETECTOR	•	•	•
BI2	SUPPLY FAN STATUS	•	•	•
BI3	DISCHARGE STATIC PRESSURE SWITCH	•	•	•

NOTES:
1. REFER TO THE VFD BACNET INTERFACE SCHEDULE ON M-801 FOR ADDITIONAL POINTS FOR EACH FAN.

C1 AHU-1 CONTROLS

NOT TO SCALE



CHILLED WATER PLANT: SEQUENCE OF OPERATION

SYSTEM OVERVIEW: THE CHILLER PLANT, CONSISTING OF ONE AIR-COOLED CHILLER AND TWO CHILLED WATER PUMPS (EXISTING TO BE REUSED). THE SYSTEM IS DESIGNED AS A PRIMARY-ONLY CONFIGURATION WHERE ONE PUMP ACTS AS THE LEAD AND THE OTHER ALWAYS ACTS AS STANDBY (LAG).

1. HARDWARE & MONITORING CONTROLS

THE PUMP AND CHILLER OPERATING, SAFETY, AND MONITORING CONTROLS SHALL INCLUDE:
- **WALL-MOUNTED DISCONNECTS**
- **HAND-OFF-AUTO (HOA) SELECTOR SWITCHES**
- **MOTOR CURRENT TRANSDUCERS**
- **PUMP DIFFERENTIAL PRESSURE SWITCHES**

2. SYSTEM ENABLE & PUMP OPERATION

THE CHILLED WATER PLANT SHALL BE INDEXED TO RUN BY THE ENERGY MANAGEMENT SYSTEM (EMS) IF ANY AIR HANDLING UNIT (AHU) IS CALLING FOR COOLING FOR 5 MINUTES (ADJUSTABLE) OR LONGER.
- **START SEQUENCE: WITH THE HOA SWITCH IN THE "AUTO" POSITION, THE LEAD CHILLED WATER PUMP SHALL START TO ESTABLISH FLOW.**
- **STOP SEQUENCE: THE PUMP SHALL BE TURNED OFF WHEN NONE OF THE COOLING COILS/AHUS ARE CALLING FOR COOLING FOR 15 MINUTES (ADJUSTABLE) OR LONGER.**
- **ALTERNATION: THE EMS CONTROL SYSTEM SHALL ALTERNATE THE TWO PUMPS AS LEAD AND STANDBY (LAG) ON A WEEKLY BASIS (ADJUSTABLE) TO ENSURE EVEN WEAR.**

3. CHILLER OPERATION & CONTROL

THE EMS AND THE CHILLER'S INTERNAL FACTORY CONTROLS SHALL WORK TOGETHER TO ACCOMPLISH THE FOLLOWING:
- **START-UP: THE EMS SHALL VERIFY THE START OF CHILLED WATER FLOW (VIA DIFFERENTIAL PRESSURE SWITCH). UPON PROOF OF FLOW AND VERIFICATION THAT ALL OTHER OPERATING SAFETIES ARE SATISFIED, THE EMS SHALL ENABLE THE CHILLER CONTROLS, AND THE CHILLER SHALL START.**
- **TEMPERATURE CONTROL: THE CHILLER'S FACTORY-FURNISHED CONTROL SYSTEM SHALL OPERATE THE CHILLER, MODULATE CAPACITY, AND MAINTAIN THE CHILLED WATER TEMPERATURE AT SETPOINT.**
- **TEMPERATURE RESET: THE EMS SHALL ACTIVELY RESET THE CHILLED WATER TEMPERATURE SETPOINT BASED ON A CHILLED WATER RESET SCHEDULE AND THE CURRENT OUTSIDE AIR TEMPERATURE (OAT).**
- **SHUTDOWN: UPON LOSS OF THE COOLING CALL, THE EMS SHALL VERIFY THE STOP OF CHILLED WATER FLOW AND DISABLE THE CHILLER CONTROLS. THE CHILLER SHALL SHUT DOWN IN RESPONSE TO ITS FACTORY-FURNISHED CONTROLS.**

4. SYSTEM SAFETIES & ALARMS

THE EMS SHALL MONITOR SYSTEM OPERATIONS, EXECUTE THE FOLLOWING SAFETY ACTIONS, AND ISSUE ALARMS TO THE USER INTERFACE COMPUTER:
- **PUMP FAILURE (GENERAL): IN THE EVENT OF A LEAD PUMP FAILURE, THE EMS SHALL GENERATE AN ALARM AND AUTOMATICALLY START THE STANDBY (LAG) PUMP TO MAINTAIN SYSTEM FLOW.**
- **PUMP CURRENT ANOMALY: IF THE EMS DETECTS PUMP CURRENTS AT ±10% (ADJUSTABLE) OF FULL LOAD AMPERAGE (FLA) FOR 2 MINUTES OR LONGER (ADJUSTABLE), IT SHALL TRIGGER AN ALARM, TURN OFF THE LEAD PUMP, AND START THE STANDBY PUMP. *(NOTE: FLA SHALL BE DETERMINED DURING THE FINAL TEST AND BALANCE PHASE).***
- **CHILLER FAILURE: AN ALARM SIGNAL SHALL BE GENERATED IMMEDIATELY IN THE EVENT OF A TOTAL CHILLER FAILURE.**
- **TEMPERATURE DEVIATION: THE EMS SHALL ALARM THE USER INTERFACE IF THE ACTUAL CHILLED WATER TEMPERATURE DEVIATES FROM THE ACTIVE SETPOINT FOR 15 MINUTES OR LONGER.**
- **DATA POINT MONITORING: THE EMS SHALL MONITOR ALL CHILLER DATA POINTS LISTED IN THE CHILLER DATA POINT SCHEDULE. AN ALARM SHALL BE ISSUED IF ANY PARAMETER FALLS OUT OF TOLERANCE, AS ESTABLISHED BY THE CHILLER MANUFACTURER.**

CHILLER PLANT DDC POINTS LIST

NAME	DESCRIPTION	TREND	ALARM	GRAPHIC
AI1	CHILLED WATER SUPPLY TEMPERATURE (°F)	•	•	•
AI2	CHILLED WATE RETURN TEMPERATURE (°F)	•		•
AI3	PUMP MOTOR CURRENT	•	•	•
AI4	PUMP MOTOR CURRENT	•	•	•
BI1	PUMP STATUS	•	•	•
BI3	PUMP STATUS	•	•	•
BI5	CHILLER DIFFERENTIAL PRESSURE (PSI)	•	•	•
BO1	CHILLER ENABLE / DISABLE	•		•
BO2	PUMP START/STOP	•		•
BO3	PUMP START/STOP	•		•
MI1	CHILLER INTERGRATION POINTS		•	•

NOTES:
1. REFER TO THE CHILLER BACNET INTERFACE SCHEDULE ON M-801 FOR ADDITIONAL POINTS FOR EACH CHILLER.
2. CHILLED WATER PUMPS ARE EXISTING, PROVIDE NEW MOTOR STARTERS AND HOAs.
3. CHILLER REPLACEMENT IS BID ALTERNATE #1.

A1 CONSTANT VOLUME AIR-COOLED CHILLER PLANT CONTROLS

NOT TO SCALE

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

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NOT FOR CONSTRUCTION

SUBMITTAL

2026.07.16

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REVISIONS

KEY PLAN

SHEET

CONTROLS

M-802

DESIGN: WAW
DRAWN: JO
REVIEW: RHF

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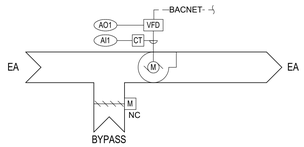


LABORATORY EXHAUST FANS SEQUENCE OF OPERATIONS

1. GENERAL & OPERATING STATUS
   - SYSTEM STATUS: WITH THE SAFETY CONTROLS IN THE NORMAL POSITION AND THE VARIABLE FREQUENCY DRIVE (VFD) IN THE "AUTO" POSITION, THE EXHAUST FAN MOTOR SHALL OPERATE CONTINUOUSLY TO MAINTAIN REQUIRED LABORATORY EXHAUST AND PRESSURIZATION.
2. SAFETY CONTROLS & INTERLOCKS
   - HARDWARE: THE EXHAUST FAN OPERATING AND SAFETY CONTROLS SHALL INCLUDE A WALL-MOUNTED DISCONNECT, A VARIABLE FREQUENCY DRIVE (VFD), AND A MOTOR CURRENT TRANSDUCER.
   - FAIL-SAFE POSITION: WHENEVER THE EXHAUST FAN IS OFF, ALL ASSOCIATED CONTROL ACTUATORS (SUCH AS ISOLATION DAMPERS) SHALL AUTOMATICALLY BE PLACED IN THEIR NORMAL (FAIL-SAFE) POSITIONS.
3. EXHAUST FAN FLOW CONTROL.
   - VFD SPEED CONTROL: THE DDC SYSTEM SHALL MODULATE THE EXHAUST FAN MOTOR SPEED ACCORDING TO THE ACTIVE OCCUPANCY MODE (AS COMMANDED BY THE SYSTEM SCHEDULE AND TIED TO AHU-2).
   - OCCUPIED MODE: THE FAN SHALL OPERATE AT THE OCCUPIED DESIGN SPEED, DETERMINED AND SET DURING THE TEST AND BALANCE (TAB) PHASE.
   - UNOCCUPIED MODE: THE FAN SHALL OPERATE AT THE UNOCCUPIED REDUCED SPEED, DETERMINED DURING TAB. *(REFERENCE THE AHU-2 UNOCCUPIED SEQUENCE: THE EXHAUST FAN VFD PERCENTAGE SETPOINT MUST ENSURE THE RESULTING EXHAUST AIRFLOW IS NO LESS THAN 110% OF THE REDUCED LAB SUPPLY AIRFLOW TO MAINTAIN CONTINUOUS NEGATIVE PRESSURE).*
4. MONITORING & ALARMS
   - MOTOR CURRENT ALARM: THE DDC CONTROL SYSTEM SHALL MONITOR THE MOTOR CURRENT TRANSDUCER AND TRIGGER A MAINTENANCE ALARM ON THE USER INTERFACE WHENEVER THE FOLLOWING CONDITION OCCURS:
   - THE MOTOR CURRENT DEVIATES BY ±10% OF THE FULL LOAD AMPS (FLA) FOR 2 MINUTES OR LONGER.
   - *NOTE: THE BASELINE FULL LOAD CURRENT (FLA) SETPOINT SHALL BE STRICTLY DEFINED AS THE OPERATING AMPERAGE DETERMINED DURING THE FINAL TEST AND BALANCE (TAB) PHASE, RATHER THAN THE MOTOR NAMEPLATE RATING.*

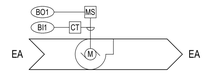
D1 LAB EXHAUST FAN CONTROLS (EF-1, 2, & 3)

NOT TO SCALE

LAB EXHAUST FANS DDC POINTS LIST

NAME	DESCRIPTION	TREND	ALARM	GRAPHIC
AI1	FAN STATUS	•	•	•
AO1	FAN SPEED COMMAND	•		•

NOTES:
1. FANS PROVIDED WITH BYPASS DAMPERS FOR FUTURE CONVERSION TO VARIABLE FLOW FUME HOODS. PROVIDE BLANK OFF PLATE OVER DAMPER.



SEQUENCE OF OPERATIONS:
THE EXHAUST FAN SHALL BE CONTROLLED BY THE BUILDING DDC SYSTEM AND SHALL OPERATE ACCORDING TO A USER DEFINABLE OCCUPANCY SCHEDULE AND SHALL BE INTERLOCKED WITH THEIR ASSOCIATED AHU..

UPON BEING ENTERING OCCUPIED MODE, THE EXHAUST FAN SHALL START.

UPON BEING ENTERING UNOCCUPIED MODE, THE EXHAUST FAN SHALL STOP .

PROVIDE THE FOLLOWING ALARMS:
- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

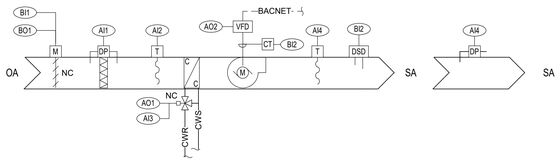
SCHEDULED EXHAUST FAN DDC POINTS LIST

NAME	DESCRIPTION	TREND	ALARM	GRAPHIC
BI1	FAN STATUS	•	•	•
BO1	START / STOP COMMAND	•		•

NOTES:
1. EF-5 & 6 ARE EXISTING FANS. PROVIDE STARTERS AND CURRENT SWITCHES.

C4 SCHEDULED EXHAUST FAN CONTROLS (EF-5 &6)

NOT TO SCALE



AHU-2 (CONSTANT VOLUME LAB SYSTEM) RECOMMENDED SEQUENCE OF OPERATIONS

1. GENERAL & SYSTEM INTERLOCKS
   - SYSTEM STATUS: THE DDC/EMS SYSTEM SHALL INDEX THE UNIT TO RUN ACCORDING TO THE OWNER'S OCCUPANCY SCHEDULE.
   - EXHAUST/SUPPLY INTERLOCK: TOILET EXHAUST FAN EF-6, MAIN EXHAUST FAN EF-1, AND FUME HOOD EXHAUST FANS EF-2 AND EF-3 SHALL BE INTERLOCKED TO RUN WITH AHU-2 AS DICTATED BY THE ACTIVE OPERATING MODE.
   - FIRE ALARM & SAFETIES: THE SUPPLY FAN OPERATING CONTROLS SHALL INCLUDE A WALL-MOUNTED DISCONNECT, A VARIABLE FREQUENCY DRIVE (VFD), AND A SUPPLY AIR SMOKE DETECTOR.
   - HARDWIRED SHUTDOWN: THE SMOKE DETECTOR SHALL BE HARDWIRED INTO THE FAN MOTOR CONTROL CIRCUIT TO IMMEDIATELY SHUT DOWN THE FAN UPON ACTIVATION, SENDING AUXILIARY SIGNALS TO THE DDC AND BUILDING FIRE ALARM SYSTEMS. ALL ASSOCIATED AIR-MOVING EQUIPMENT SHALL SHUT DOWN UPON A GENERAL FIRE ALARM SIGNAL.
   - FAIL-SAFE POSITION: WHENEVER THE SUPPLY FAN IS OFF, ALL CONTROL ACTUATORS SHALL BE PLACED IN THEIR NORMAL (FAIL-SAFE) POSITIONS.
2. OCCUPIED MODE CONTROL (100% FLOW)
   - DAMPER CONTROL: UPON INDEXING TO OCCUPIED MODE, THE OUTSIDE AIR INTAKE DAMPER SHALL OPEN FULLY.
   - SUPPLY FAN / VFD CONTROL: AHU-2 OPERATES AS A CONSTANT VOLUME SYSTEM. THE VFD SHALL MODULATE TO MAINTAIN A STATIC PRESSURE REFERENCE POINT (DETERMINED BY THE TAB AGENCY).
   - HYDRONIC COOLING COIL: THE CHILLED WATER VALVE SHALL MODULATE TO MAINTAIN THE SCHEDULED LEAVING/SUPPLY AIR TEMPERATURE AT 55°F (ADJUSTABLE).
3. FUME HOOD & LABORATORY PRESSURIZATION (OCCUPIED)
   - NORMAL OPERATION: FUME HOODS SHALL BE EXHAUSTED BY THE MAIN EXHAUST SYSTEM (EF-1) OR THEIR DEDICATED EXHAUST FANS (EF-2, EF-3). EACH FUME HOOD OPERATES CONTINUOUSLY.
   - EXHAUST FAN VFDS: VFDS PROVIDED WITH EF-1, EF-2, AND EF-3 SHALL BE SET AT FIXED SPEEDS DETERMINED DURING TAB TO ACHIEVE DESIGN FLOW.
4. UNOCCUPIED MODE CONTROL (50% TURNDOWN)
   - *THIS MODE SAFELY REDUCES AIRFLOW TO 50% DURING SCHEDULED UNOCCUPIED HOURS TO SAVE ENERGY WHILE MAINTAINING NEGATIVE LAB PRESSURIZATION.*
   - EQUIPMENT SHUTDOWN: THE DDC SYSTEM SHALL SHUT OFF TOILET EXHAUST EF-6.
   - AHU-2 SUPPLY AIR TURNDOWN: THE AHU-2 VFD SHALL BE COMMANDED TO A FIXED PERCENTAGE SETPOINT DETERMINED BY THE TAB AGENCY TO DELIVER EXACTLY 50% OF THE TOTAL DESIGN SUPPLY AIRFLOW TO LABS 1 THROUGH 4.
   - EXHAUST FAN TURNDOWN (NEGATIVE PRESSURIZATION): EF-1, EF-2, AND EF-3 VFDS SHALL BE COMMANDED TO FIXED PERCENTAGE SETPOINTS DETERMINED BY THE TAB AGENCY. THESE SETPOINTS MUST ENSURE THE RESULTING EXHAUST AIRFLOW IS NO LESS THAN 110% OF THE REDUCED AHU-2 SUPPLY AIRFLOW INTO THE LABS TO MAINTAIN CONTINUOUS NEGATIVE PRESSURE.
5. NIGHT SETBACK & OVERRIDE CONTROL
   - TEMPERATURE OVERRIDE: DURING SCHEDULED UNOCCUPIED TIMES, IF ANY LAB SPACE TEMPERATURE DROPS BELOW 60°F OR RISES ABOVE 90°F, THE ENTIRE SYSTEM (INCLUDING REQUIRED EXHAUST FANS TO MAINTAIN PRESSURIZATION) SHALL INDEX TO OCCUPIED MODE. IT SHALL RUN FOR A MINIMUM OF 30 MINUTES OR UNTIL ALL SPACES ARE AT SETPOINT.
   - OCCUPANT OVERRIDE: AN OCCUPANT-OPERATED DDC OVERRIDE SWITCH, INTEGRAL TO THE SPACE TEMPERATURE SENSORS, SHALL INDEX THE SYSTEM TO OCCUPIED MODE FOR 2 HOURS (ADJUSTABLE).
   - ZONE CONTROLS: SPACE TEMPERATURE SETPOINTS AND DUCT HEATER COOLING/HEATING MODES SHALL REMAIN ACTIVE AND UNAFFECTED BY THE 50% AIRFLOW REDUCTION. *NOTE: THE MECHANICAL CONTRACTOR MUST VERIFY THAT THE ELECTRIC DUCT HEATER SAFETY AIRFLOW SWITCHES STILL PROVE SAFELY AT THE 50% REDUCED AIRFLOW.*
6. MONITORING & CRITICAL ALARMS
   - FILTER MONITORING: THE SYSTEM SHALL ALARM THE USER INTERFACE WHEN THE PRESSURE DROP ACROSS THE AHU FILTERS EQUALS OR EXCEEDS 0.8" W.C. (ADJUSTABLE).
   - CRITICAL SYSTEM SHUTDOWN ALARMS: THE CONTROL SYSTEM SHALL TURN OFF THE AHU SUPPLY FAN AND ALARM THE USER INTERFACE WHENEVER ANY OF THE FOLLOWING OCCURS:
   - NO AIRFLOW PROVEN FOR 2 MINUTES OR LONGER.
   - SMOKE DETECTED IN THE SUPPLY AIR STREAM.
   - COOLING COIL LEAVING AIR TEMPERATURE DEVIATES FROM THE 55°F SETPOINT FOR 5 MINUTES (ADJUSTABLE) OR LONGER.
   - SUPPLY DUCT STATIC PRESSURE DEVIATES FROM SETPOINT FOR 5 MINUTES (ADJUSTABLE) OR LONGER.

AHU-2 DDC POINTS LIST

NAME	DESCRIPTION	TREND	ALARM	GRAPHIC
AI1	FILTER DIFFERENTIAL PRESSURE (IN WG)	•	•	•
AI2	OUTDOOR AIR TEMPERATURE (°F)	•		•
AI3	CHILLED WATER CONTROL VALVE POSITION (%)	•		•
AI4	SUPPLY AIR TEMPERATURE (°F)	•	•	•
AI4	DOWN DUCT STATIC PRESSURE (IN WG)	•	•	•
AO1	CHILLED WATER CONTROL VALVE COMMAND (%)	•		•
AO2	SUPPLY FAN SPEED (%)	•		•
BI1	OUTDOOR AIR DAMPER END SWITCH	•	•	•
BI2	SUPPLY FAN STATUS	•		•
BI2	DUCT SMOKE DETECTOR	•	•	•
BO1	OUTDOOR AIR DAMPER OPEN/CLOSE	•		•

NOTES:
1. REFER TO THE VFD BACNET INTERFACE SCHEDULE ON M-801 FOR ADDITIONAL POINTS FOR EACH FAN.

A2 AHU-2 CONTROLS

NOT TO SCALE

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

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PROFESSIONAL SEAL
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SUBMITTAL
2026.07.16
100% SUBMITTAL

REVISIONS

KEY PLAN

SHEET
CONTROLS

M-803

DESIGN: WAW
DRAWN: JO
REVIEW: RHF

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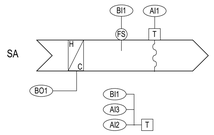


SEQUENCE OF OPERATIONS:

1. GENERAL OPERATION THE ELECTRIC DUCT HEATER SHALL BE CONTROLLED BY THE DDC SYSTEM TO MAINTAIN THE LOCAL ZONE TEMPERATURE SETPOINT. THE HEATER SHALL BE AUTOMATICALLY SCHEDULED FOR OPERATION BASED ON THE ASSOCIATED AIR HANDLING UNIT (AHU) OCCUPANCY SCHEDULE.

2. SAFETY INTERLOCKS (HARDWIRED) THE ELECTRIC DUCT HEATER SHALL BE EQUIPPED WITH THE FOLLOWING HARDWIRED SAFETIES. IF ANY OF THESE CONDITIONS ARE NOT MET, THE HEATER SHALL BE INSTANTLY AND COMPLETELY DISABLED, REGARDLESS OF THE DDC COMMAND:

- **SUPPLY FAN INTERLOCK:** THE ASSOCIATED AHU SUPPLY FAN MUST BE PROVEN ON.
- **AIRFLOW PROVING SWITCH:** A DIFFERENTIAL PRESSURE SWITCH (OR SAIL SWITCH) MUST PROVE SUFFICIENT AIRFLOW ACROSS THE HEATING ELEMENTS.
- **PRIMARY HIGH-LIMIT CUTOUT:** AN AUTO-RESET THERMAL CUTOUT SWITCH MUST BE CLOSED.
- **SECONDARY HIGH-LIMIT CUTOUT:** A MANUAL-RESET THERMAL CUTOUT SWITCH MUST BE CLOSED.

3. OCCUPIED MODE DURING SCHEDULED OCCUPIED PERIODS, THE ZONE TEMPERATURE SETPOINTS SHALL BE INDEXED TO THEIR OCCUPIED VALUES:

- **OCCUPIED HEATING SETPOINT:** 70°F (ADJ.)
- **OCCUPIED COOLING SETPOINT:** 75°F (ADJ.)

4. UNOCCUPIED MODE DURING SCHEDULED UNOCCUPIED PERIODS, THE ZONE TEMPERATURE SETPOINTS SHALL BE INDEXED TO THEIR UNOCCUPIED VALUES:

- **UNOCCUPIED HEATING SETPOINT:** 60°F (ADJ.)
- **UNOCCUPIED COOLING SETPOINT:** 85°F (ADJ.)

5. HEATING CONTROL (SCR / MODULATING) ON A FALL IN ZONE TEMPERATURE BELOW THE ACTIVE HEATING SETPOINT, AND PROVIDED ALL HARDWIRED SAFETIES ARE PROVEN, THE DDC SYSTEM SHALL SEND A 0-10 VDC (OR 4-20 MA) SIGNAL TO THE SILICON CONTROLLED RECTIFIER (SCR) CONTROLLER. THE SCR SHALL MODULATE THE ELECTRIC HEATER FROM 0% TO 100% CAPACITY TO PRECISELY MAINTAIN THE ACTIVE ZONE TEMPERATURE SETPOINT.
NOTE: IF THE HEATER IS STAGED RATHER THAN SCR MODULATING, THE DDC SYSTEM SHALL SEQUENTIALLY ENERGIZE THE HEATING STAGES BASED ON THE CALCULATED PID LOOP HEATING DEMAND, WITH A MINIMUM TIME DELAY BETWEEN STAGES TO PREVENT SHORT-CYCLING.

6. COOLING / DEADBAND CONTROL ON A RISE IN ZONE TEMPERATURE ABOVE THE ACTIVE HEATING SETPOINT, THE HEATING CONTROL SIGNAL SHALL MODULATE DOWN. ONCE THE ZONE TEMPERATURE ENTERS THE DEADBAND (BETWEEN THE HEATING AND COOLING SETPOINTS), THE HEATING SIGNAL SHALL BE AT 0% AND THE ELECTRIC HEATER SHALL BE COMPLETELY DISABLED. THE CONSTANT VOLUME 55°F (ADJ.) SUPPLY AIR FROM THE AHU SHALL INHERENTLY PROVIDE THE REQUIRED SPACE COOLING.

7. MISCELLANEOUS MONITORING & ALARMS THE DDC SYSTEM SHALL CONTINUOUSLY MONITOR THE ZONE TEMPERATURE, DISCHARGE AIR TEMPERATURE DOWNSTREAM OF THE HEATER, AND THE HEATER COMMAND SIGNAL.
PROVIDE THE FOLLOWING ALARMS ON THE USER INTERFACE:

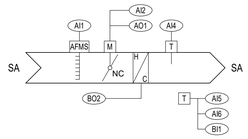
- **LOW ZONE TEMPERATURE:** THE ZONE TEMPERATURE IS MORE THAN **5°F** (ADJ.) BELOW THE ACTIVE HEATING SETPOINT FOR LONGER THAN 15 MINUTES (ADJ.).
- **HEATER SAFETY LOCKOUT:** THE DDC SYSTEM IS COMMANDING THE HEATER TO OPERATE, BUT A LOSS OF AIRFLOW OR HIGH-LIMIT TRIP HAS DISABLED THE UNIT.
- **HIGH DISCHARGE AIR TEMPERATURE:** THE DISCHARGE AIR TEMPERATURE DOWNSTREAM OF THE COIL EXCEEDS **120°F** (ADJ.) FOR LONGER THAN 5 MINUTES (ADJ.).

ELECTRIC UNIT HEATER DDC POINTS LIST

NAME	DESCRIPTION	TREND	ALARM	GRAPHIC
AI1	ELECTRIC HEAT DISCHARGE AIR TEMPERATURE	•		•
AI2	SPACE TEMPERATURE (°F)	•	•	•
AI3	ZONE LOCAL SETPOINT ADJUST (°F)	•	•	•
BI1	AIRFLOW SWITCH	•		•
BI1	LOCAL OCCUPANCY OVERRIDE	•	•	•
BO1	ELECTRIC HEAT STAGE (ON/OFF)	•		•

D3 ELECTRIC UNIT HEATER CONTROLS

NOT TO SCALE



SEQUENCE OF OPERATION:

1. GENERAL OPERATION THE VAV TERMINAL UNIT SHALL BE CONTROLLED BY THE DDC SYSTEM AND SHALL BE AUTOMATICALLY SCHEDULED FOR OPERATION BASED ON AN OWNER PROVIDED ADJUSTABLE OCCUPANCY SCHEDULE. A MINIMUM 5°F (ADJ.) DEAD-BAND BETWEEN HEATING AND COOLING MODES MUST BE MAINTAINED AT ALL TIMES.
2. OCCUPIED MODE UPON ENTERING OCCUPIED MODE, THE PRIMARY AIR DAMPER SHALL MODULATE TO MINIMUM POSITION AND THE ZONE TEMPERATURE SETPOINTS SHALL BE INDEXED TO THEIR OCCUPIED VALUES:
   - OCCUPIED COOLING SETPOINT: 75°F (ADJ.)
   - OCCUPIED HEATING SETPOINT: 70°F (ADJ.)
3. UNOCCUPIED MODE UPON ENTERING UNOCCUPIED MODE, THE PRIMARY AIR DAMPER SHALL MODULATE TO MINIMUM POSITION AND THE ZONE TEMPERATURE SETPOINTS SHALL BE INDEXED TO THEIR UNOCCUPIED VALUES:
   - UNOCCUPIED COOLING SETPOINT: 85°F (ADJ.)
   - UNOCCUPIED HEATING SETPOINT: 60°F (ADJ.)
4. ZONE OPTIMAL START THE ZONE SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING WARM-UP / COOL-DOWN IN CONJUNCTION WITH ITS ASSOCIATED AIR HANDLING UNIT. THE ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING OCCUPIED ZONE TEMPERATURE SETPOINTS BY THE START OF THE SCHEDULED OCCUPIED PERIOD.
5. COOLING MODE ON A RISE IN ZONE TEMPERATURE ABOVE THE ACTIVE COOLING SETPOINT, THE PRIMARY AIR DAMPER SHALL MODULATE OPEN TO MAINTAIN THE ZONE TEMPERATURE SETPOINT. ON A FALL IN ZONE TEMPERATURE BELOW THE ACTIVE COOLING SETPOINT, THE REVERSE SHALL OCCUR UNTIL THE PRIMARY AIR DAMPER IS AT ITS MINIMUM POSITION.
COOLING ALARMS:
   - HIGH ZONE TEMPERATURE: THE ZONE TEMPERATURE IS MORE THAN 5°F (ADJ.) ABOVE THE ACTIVE COOLING SETPOINT FOR LONGER THAN 15 MINUTES (ADJ.).
6. HEATING MODE ON A FALL IN ZONE TEMPERATURE BELOW THE ACTIVE HEATING SETPOINT, THE ELECTRIC HEATER SHALL MODULATE (OR STAGE) TO MAINTAIN THE ACTIVE ZONE TEMPERATURE SETPOINT WHILE THE PRIMARY AIR DAMPER REMAINS AT MINIMUM POSITION. ON A RISE IN ZONE TEMPERATURE ABOVE THE ACTIVE HEATING SETPOINT, THE ELECTRIC HEATER SHALL BE FULLY DISABLED.
SAFETY INTERLOCK: THE ELECTRIC HEATER SHALL BE STRICTLY INTERLOCKED WITH AN AIRFLOW PROVING SWITCH TO ENSURE THE HEATER LOCKS OUT IF MINIMUM SAFE AIRFLOW IS LOST.
HEATING ALARMS:
   - LOW ZONE TEMPERATURE: THE ZONE TEMPERATURE IS MORE THAN 5°F (ADJ.) BELOW THE ACTIVE HEATING SETPOINT FOR LONGER THAN 15 MINUTES (ADJ.).
   - HIGH SUPPLY AIR TEMPERATURE: SUPPLY AIR TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE THE MAXIMUM DISCHARGE HEATING SETPOINT FOR LONGER THAN 15 MINUTES (ADJ.).
7. ZONE LOCAL SETPOINT ADJUST THE OCCUPANT SHALL BE ABLE TO LOCALLY ADJUST THE OCCUPIED ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE TEMPERATURE SENSOR BY +/- 2°F (ADJ.).
8. UNOCCUPIED OVERRIDE WHEN THE UNOCCUPIED OVERRIDE BUTTON IS DEPRESSED ON THE ZONE TEMPERATURE SENSOR, THE ZONE TEMPERATURE SETPOINTS SHALL BE INDEXED TO THEIR OCCUPIED VALUES FOR 60 MINUTES (ADJ.). AFTER WHICH NORMAL UNOCCUPIED OPERATION SHALL RESUME.
9. MISCELLANEOUS MONITORING THE DDC SYSTEM SHALL CONTINUOUSLY MONITOR THE FOLLOWING POINTS:
   - ZONE PRIMARY AIRFLOW
   - PRIMARY AIR DAMPER POSITION
   - ELECTRIC HEATER COMMAND / STAGE STATUS
   - SUPPLY (DISCHARGE) AIR TEMPERATURE
   -

VAV TERMINAL DDC POINTS LIST

NAME	DESCRIPTION	TREND	ALARM	GRAPHIC
AI1	ZONE PRIMARY AIRFLOW (CFM)	•		•
AI2	PRIMARY AIR DAMPER STATUS (%)	•		•
AI4	SUPPLY AIR TEMPERATURE (°F)	•	•	•
AI5	ZONE TEMPERATURE (°F)	•	•	•
AI6	ZONE LOCAL SETPOINT ADJUST (°F)	•		•
AO1	PRIMARY AIR DAMPER COMMAND (%)	•		•
BI1	LOCAL OCCUPANCY OVERRIDE	•		•
BO2	ELECTRIC HEAT STAGE (ON/OFF)	•		•

NOTES:
1. VAV CONTROLS ARE EXISTING TO REMAIN, ENSURE THEY ARE INTEGRATED INTO DDC GRAPHICS, PROVIDE SPACE AND DISCHARGE AIR SENSORS.

A3 SHUTOFF VAV TERMINAL UNIT CONTROLS

NOT TO SCALE

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

OLD CUTLER ROAD
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CONSULTANT

CONSULTANT NAME (NO LOGO)

STREET ADDRESS
CITY, STATE ZIPCODE
PHONE NUMBER

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL

2026.07.16

100% SUBMITTAL

REVISIONS

KEY PLAN

SHEET

CONTROLS

M-804

DESIGN: WAW
DRAWN: JO
REVIEW: RHF

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GENERAL

- DEMOLITION NOTE IDENTIFICATION
- CONSTRUCTION NOTE IDENTIFICATION
- HALFTONE SOLID INDICATES EXISTING ITEM AND/OR NO WORK ON SHEET
- DARK AND DASHED INDICATES ITEM TO BE REMOVED (SEE LEGEND NOTE 6)
- DARK AND SOLID INDICATES NEW ITEM
- POINT OF DEMOLITION
- POINT OF CONNECTION, NEW-TO-EXISTING (SEE LEGEND NOTE 3)
- BREAK ROOM 101 — ROOM NAME/NUMBER

ABBREVIATIONS

	[POWER COMPANY NAME]
A	AMPERE
A/C	AIR CONDITIONING
AF	AMPERE FRAME
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
ASD	ADJUSTABLE SPEED DRIVE
AT	AMPERE TRIP
ATC	AUTOMATIC TEMPERATURE CONTROL
AWG	AMERICAN WIRE GAUGE
BG	BELOW GRADE
BLDG	BUILDING
BRKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CCT	CORRELATED COLOR TEMPERATURE
CKT	CIRCUIT
CRI	COLOR RENDERING INDEX
DISC SW	DISCONNECT SWITCH
DT	DRY TYPE
DWG	DRAWING
EA	EACH
EC	EMPTY CONDUIT
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FCU	FAN COIL UNIT
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METAL CONDUIT
FT	FEET
GFI	GROUND FAULT INTERRUPTER GROUND FAULT CIRCUIT INTERRUPTER GROUND FAULT PROTECTION OF PERSONNEL (CLASS A DEVICE)
GND	GROUND
GRS	GALVANIZED RIGID METAL CONDUIT
HDPE	HIGH DENSITY POLYETHYLENE CONDUIT
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
ICCB	INSULATED-CASE CIRCUIT BREAKER
IMC	INTERMEDIATE METAL CONDUIT
KAIC	THOUSAND AMP CAPACITY, RMS SYMMETRICAL
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
KWH	KILOWATT HOUR
LCP	LIGHTING CONTROL PANEL
LED	LIGHT EMITTING DIODE
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LTG	LIGHTING

LTS	LUMINAIRE
MC	METAL-CLAD CABLE
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCCB	MOLDED-CASE CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUG ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MSB	MAIN SWITCHBOARD
MT	MOUNT
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MV	MEDIUM VOLTAGE
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NAC	NOTIFICATION APPLIANCE CIRCUIT
NEC	NATIONAL ELECTRICAL CODE
NESC	NATIONAL ELECTRICAL SAFETY CODE
NEU	NEUTRAL
NF	NON FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OC	OCCUPANCY SENSOR
P	POLE
PH	PHASE
PNL	PANEL
PVC	RIGID POLYVINYL CHLORIDE CONDUIT
QTY	QUANTITY
RCPT, RECEPT	RECEPTACLE
REQ'D	REQUIRED
RFI	RADIO FREQUENCY INTERFERENCE
RM	ROOM
RMC	RIGID METAL CONDUIT
S.E., SE	SERVICE ENTRANCE
S/N	SOLID NEUTRAL
SC	SPLIT CIRCUIT (SEE LEGEND NOTE 2)
SF	SUPPLY FAN
SPD	SURGE PROTECTIVE DEVICE
SW	SWITCH
TEL	TELEPHONE
TELECOM	TELECOMMUNICATIONS
TTB	TELEPHONE TERMINAL
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UP	UNDERGROUND PRIMARY POWER
US	UNDERGROUND SECONDARY POWER
V	VOLTAGE OR VOLTS
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
WH	WATER HEATER
WP	WEATHERPROOF
X	IN SCHEDULES, ITEM NOT APPLICABLE
XFMR	TRANSFORMER
Ø	PHASE

GENERAL NOTES

A. WIRING IN CONDUIT, MINIMUM SIZE ONE-HALF (1/2) INCH WITH LARGER SIZES AS INDICATED OR REQUIRED BY NEC.
B. WIRE AND CABLE MUST BE #12 AWG MINIMUM.
C. OPENINGS CREATED IN A FIRE OR SMOKE RATED WALL OR FLOOR BY PROVISION OF ANY ELECTRICAL DEVICE OR CONDUIT MUST BE SEALED AFTER THE WORK IS COMPLETED WITH A UL APPROVED FIRE/SMOKE SEALANT TO RE-ESTABLISH THE PREVIOUS RATING OF THE WALL OR FLOOR. SEE ARCHITECTURAL PLANS FOR FIRE RATED WALLS/FLOORS AND THEIR RATING.
D. COORDINATE EXACT LOCATION OF CEILING MOUNTED LIGHTING FIXTURES AND SPEAKERS WITH ARCHITECTURAL REFLECTED CEILING PLANS.
E. 20A, 120V BRANCH CIRCUIT VOLTAGE DROP MINIMUM SIZES:
   a. #10 AWG FROM 100' TO 150'
   b. #8 AWG FROM 151' TO 250'
F. ELECTRICAL CIRCUITING IS BASED ON EXISTING DRAWING AND VISUAL FIELD SURVEYS OF EXISTING PANELBOARDS. CONTRACTOR SHALL CONFIRM ALL CIRCUITS BEFORE BEGINNING WORK AND NOTE ANY DISCREPANCIES OR CHANGES ON THE AS-BUILT DRAWINGS.

LEGEND NOTES

1. WIRE AND CONDUIT FOR MOTOR AND EQUIPMENT LOADS MUST BE CONTINUOUS IN SIZE AND COUNT FROM SOURCE TO FINAL CONNECTION. SIZE AND COUNT AS INDICATED ON THE CIRCUIT HOMERUN UNLESS OTHERWISE NOTED.
2. WHERE BRANCH CIRCUIT HOMERUNS ARE LABELED "SPLIT CIRCUIT" (SC), THE BRANCH CIRCUIT NUMBER INDICATED HAS BEEN USED ON MORE THAN ONE HOMERUN INDICATOR. ONE CONDUCTOR PER CIRCUIT BREAKER POLE WITHIN THE PANELBOARD ENCLOSURE. SPLICES NECESSARY TO COMPLY WITH THIS REQUIREMENT MUST BE MADE IN A SEPARATE SPLICE BOX OUTSIDE OF THE PANELBOARD ENCLOSURE.
3. WHERE A NEW-TO-EXISTING CONNECTION IS INDICATED, PROVIDE MATERIALS AND LABOR REQUIRED TO MAKE THE CONNECTION.
4. BRANCH CIRCUIT WIRING TO EXIT LIGHT FIXTURES. PROVIDE EMERGENCY LUMINAIRES POWERED BY GENERATOR FROM PANEL ELP WITH AN "INTEGRATED EMERGENCY DRIVER" FOR SWITCHING TO THE EMERGENCY (GENERATOR) SOURCE DURING POWER OUTAGE AND MUST BE UNSWITCHED, CONNECTED AHEAD OF ANY CONTROL SWITCHES.
5. AN (*) IN THE FUSE RATING OR TRIP RATING POSITION FOR THIS SYMBOL INDICATES TO PROVIDE FUSE OR BREAKER TRIP RATING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
6. WHERE EQUIPMENT OR DEVICES ARE NOTED AS "REMOVE", REMOVE CONDUCTORS ASSOCIATED WITH THESE ITEMS TO THE LAST ACTIVE ITEM ON THE CIRCUIT, OR TO THE BRANCH CIRCUIT BREAKER IF ALL ITEMS ON THE CIRCUIT ARE REMOVED. REMOVE CONDUITS FOR THESE CIRCUITS WHERE THEY RUN EXPOSED OR IN CEILING OR FLOOR PLENUMS. CONDUITS RUN CONCEALED IN WALLS OR FLOOR SLABS MUST BE CUT OFF FLUSH WITH THE SURFACE AND ABANDONED. VOIDS IN WALLS OR FLOOR SLABS LEFT BY THE REMOVAL OF ELECTRICAL EQUIPMENT OR CONDUITS MUST BE FILLED WITH NON-SHRINK GROUT AND FINISHED TO MATCH ADJACENT SURFACES.

LIGHTING

LIGHTING FIXTURE TAGS.
- 'A' UPPERCASE LETTER INDICATES LIGHTING FIXTURE TYPE, SEE LIGHTING FIXTURE SCHEDULE ON SHEET ____.
- 'a' LOWERCASE LETTER INDICATES LIGHTING CONTROL ZONE.
- 'z1' INDICATES DAYLIGHT HARVESTING ZONE (1 OR 2).
- +9'-6" INDICATES MOUNTING HEIGHT AFF.
  1. PENDANT MOUNTING HEIGHT TO BOTTOM OF FIXTURE.
  2. WALL MOUNTING HEIGHT TO CENTER OF FIXTURE.

LIGHTING FIXTURE (⊣ INDICATES BRACKET, WALL MOUNTED FIXTURES).

EMERGENCY LIGHTING FIXTURE (⊣ INDICATES BRACKET, WALL MOUNTED FIXTURES). (SEE LEGEND NOTE 4).

EXIT LIGHTING FIXTURE TYPE X, UON. ARROW, WHEN USED, INDICATES DIRECTION (⊣ INDICATES BRACKET, WALL MOUNTED FIXTURES). FILLED IN QUADRANT(S) OF SYMBOL INDICATES NUMBER AND ORIENTATION OF ILLUMINATED FACES (SEE LEGEND NOTE 4).

S — LOW VOLTAGE ON/OFF SWITCH. MOUNT 46" AFF UON.

$OS — LINE VOLTAGE DUAL OCCUPANCY SENSOR CONTROLLER SWITCH (ULTRASONIC AND INFRARED), 20 A, 120-277 V. MOUNT 46" AFF UON.

$ — LINE VOLTAGE SINGLE POLE SWITCH, 20A, 120/277V. MOUNT 46" AFF UON.

$3 — LINE VOLTAGE THREE-WAY SWITCH, 20A, 120/277V. MOUNT 46" AFF UON.

$4 — LINE VOLTAGE FOUR-WAY SWITCH, 20A, 120/277V. MOUNT 46" AFF UON.

OS — LOW VOLTAGE DUAL TECHNOLOGY OCCUPANCY/VACANCY SENSOR CONTROLLER, CEILING MOUNTED

P — PHOTO SENSOR

POWER DISTRIBUTION EQUIPMENT

ELECTRICAL EQUIPMENT AND TAGS
- DASHED AREA INDICATES CLEARANCE ZONE AROUND EQUIPMENT, AS INDICATED.
- 'ATS' INDICATES EQUIPMENT NAME
- LIGHT OUTLINE INDICATES MOUNTED ON CONCRETE PAD.

ATS

LA — PANELBOARD - LESS THAN OR EQUAL TO 208V, UON.

DS SW — DISCONNECT SWITCH, SIZE AND TYPE AS INDICATED.

ECB — ENCLOSED CIRCUIT BREAKER, SIZE AND TYPE AS INDICATED.

UTIL XFMR — FLUID-FILLED UTILITY TRANSFORMER; FRONT

ATS — AUTOMATIC TRANSFER SWITCH, SEE RISER DIAGRAM FOR CHARACTERISTICS

GEN — GENERATOR, SEE RISER DIAGRAM FOR CHARACTERISTICS

WIRE, CONDUIT AND RACEWAY

BRANCH CIRCUIT OR FEEDER WIRING IN CONDUIT. NO LABEL INDICATES 2#12 CONDUCTORS & 1#12 GND IN 1/2" CONDUIT. CONDUIT LARGER THAN 1/2" CONDUIT, CONDUCTOR QUANTITY MORE THAN 3, OR WIRE SIZE LARGER THAN #12 SHALL BE AS INDICATED (SEE LEGEND NOTE 1). PROVIDE SWITCH LEG CONDUCTORS FOR LIGHTING FIXTURES CONTROLS WHERE REQUIRED.

L2A-1,3 — HOMERUNS TO PANEL. PANEL AND CIRCUIT DESIGNATIONS AS INDICATED.

EQUIPMENT CONNECTIONS

AHU-1 — EQUIPMENT MARK - SEE EQUIPMENT CONNECTION SCHEDULE SHEET EP701.

E — EQUIPMENT CONNECTION AS NOTED. [FOR MECHANICAL/PLUMBING EQUIPMENT: DISCONNECT SWITCHES, STARTERS, ASD'S AND OTHER REQUIRED COMPONENTS FOR THE OPERATION OF THE EQUIPMENT MUST BE FURNISHED BY THE MECHANICAL/PLUMBING CONTRACTOR. PROVIDE CONDUIT AND WIRING FROM THE POWER SOURCE TO THE DISCONNECT SWITCH, FROM THE DISCONNECT SWITCH TO THE STARTER/ASD, AND FROM THE STARTER/ASD TO THE FINAL EQUIPMENT CONNECTION.

J — JUNCTION BOX

3P 60/40 — DISCONNECT SWITCH. REFER TO EQUIPMENT CONNECTION SCHEDULE SHEET EP701 FOR SIZE AND TYPE. OTHERWISE, PROVIDE 600V IN NEMA 1 ENCLOSURE UON. 3P = NO. OF POLES, 60 = SWITCH RATING, 40 = FUSE RATING (NF INDICATES NON-FUSIBLE) (SEE LEGEND NOTE 5).

C 3P 60/40 — ENCLOSED CIRCUIT BREAKER IN NEMA 1 ENCLOSURE, 10 MINIMUM KAIC UON. 3P = NO. OF POLES, 60 = FRAME RATING, 40 = TRIP RATING (SEE LEGEND NOTE 5).

DISCONNECT SWITCH PROVIDED INTEGRAL WITH EQUIPMENT

T — LINE VOLTAGE THERMOSTAT CONNECTION (THERMOSTAT FURNISHED WITH EQUIPMENT).

ASD — ADJUSTABLE SPEED DRIVE (FORMERLY VARIABLE FREQUENCY DRIVE (VFD)) (DRIVE FURNISHED WITH EQUIPMENT).

SF — FAN CONTROL SWITCH (FURNISHED WITH EQUIPMENT). MOUNT 46" AFF UON.

SM — MOTOR RATED SWITCH. MOUNT 46" AFF UON.

CONTROL PANEL AS INDICATED (ATS/GENERATOR ANNUNCIATOR, ETC)

POWER DEVICES

RECEPTACLE DEVICE TAG:
- +60 INDICATES MOUNTING HEIGHT IN INCHES AFF.
- 'WP' INDICATES WEATHER-RESISTANT OUTLET WITH WHILE-IN-USE WEATHERPROOF COVER.
- 'AFI' INDICATES ARC-FAULT CIRCUIT-INTERRUPTER PROTECTION.
- 'AF' INDICATES AFI PROTECTION IS REMOTE OF THE OUTLET.
- 'GFI' INDICATES GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION.
- 'GF' INDICATES GFI PROTECTION IS REMOTE OF THE OUTLET.
- 'C' INDICATES OUTLET IS CEILING MOUNTED.
- 'H' INDICATES OUTLET IS MOUNTED HORIZONTALLY.
- 'EWC' INDICATES OUTLET FOR ELECTRIC WATER COOLER.

+60 WP

C — SIMPLEX L5-20R CEILING MOUNTED TWIST LOCK RECEPTACLE OUTLET

DUPLEX CONVENIENCE RECEPTACLE, 20A, 125VAC. MOUNT 18" AFF UON.

QUADRUPLEX CONVENIENCE RECEPTACLE MOUNTED IN TWO-GANG OUTLET BOX - EACH RATED 20A, 125 VOLTS WITH SINGLE COVER PLATE. MOUNT 18" AFF UON.

DEVIATIONS OF THE ABOVE RECEPTACLE TYPES
- INTERNAL GROUND FAULT (GFI) PROTECTION.
- INTERNAL ARC FAULT (AFI) PROTECTION.

SPECIAL PURPOSE RECEPTACLE (TYPE OR NEMA CONFIGURATION AS NOTED). MOUNT 18" AFF UON.

SF — FAN CONTROL SWITCH (BY EQUIPMENT MANUFACTURER)

+46 S — POWER SWITCH, ON/OFF, 20A, 125 V.
- +46 INDICATES MOUNT 46" AFF.

TELEPHONE & DATA SYSTEMS

W — WIRELESS ACCESS POINT LOCATION, CEILING MOUNTED

FIRE ALARM

D — DUCT SMOKE DETECTOR

S — SMOKE DETECTOR, CEILING MOUNTED

LIGHTNING PROTECTION AND GROUNDING

A — LPS AIR TERMINAL. 'A' INDICATES TYPE. SEE DETAILS ON SHEET EG501

EXISTING LPS AIR TERMINAL

T1 — THROUGH-ROOF ASSEMBLY. 'T1' INDICATES TYPE. SEE DETAIL SHEET EG501

R — LPS ROOF CONDUCTOR

D — LPS MAIN DOWN CONDUCTOR

G — GROUND RING (EARTH ELECTRODE SUBSYSTEM) CONDUCTOR

DRIVEN GROUND ROD

DRIVEN GROUND ROD WITH INSPECTION PIT / TEST WELL

CONNECTION TO CONDUCTOR

CONNECTION TO STRUCTURE

GB — GROUND BAR. SEE GROUNDING ELECTRODE SYSTEM DETAIL
SUBSCRIPT INDICATES THE FOLLOWING:
- 'IBTB' INDICATES INTERSYSTEM BONDING TERMINAL BAR
- 'GB' INDICATES GROUND BAR
- 'ESD' INDICATES ELECTROSTATIC DISCHARGE
- 'PBB' INDICATES PRIMARY BONDING BUSBAR
- 'SBB' INDICATES SECONDARY BONDING BUSBAR

GROUNDING ELECTRODE

USDA

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

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PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL
2026.07.16
100% SUBMITTAL

REVISIONS

SHEET
ELECTRICAL LEGEND, NOTES AND ABBREVIATIONS

E-001

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

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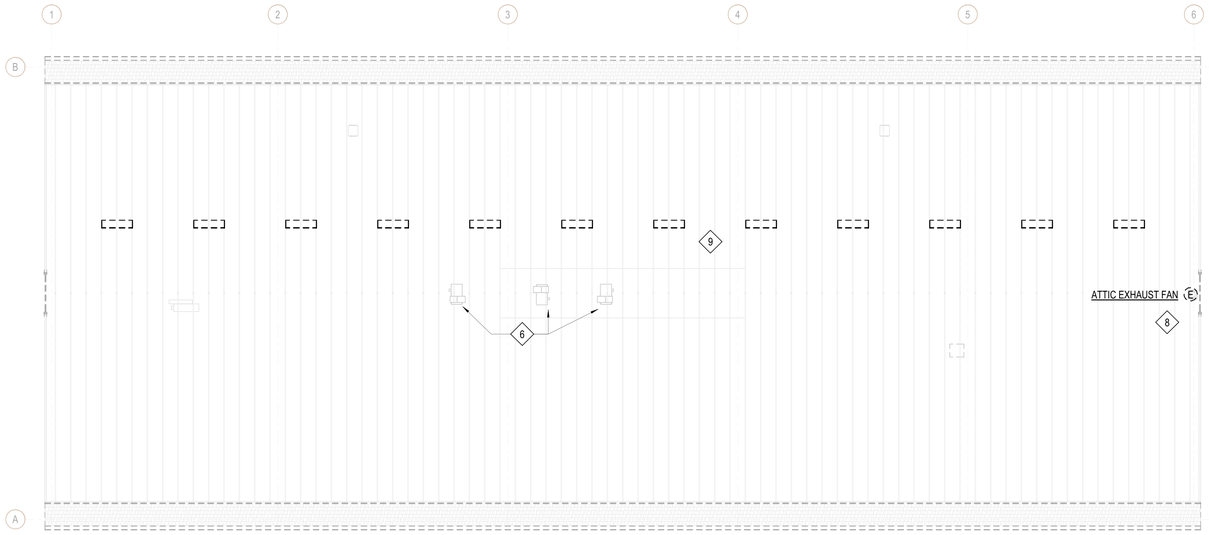
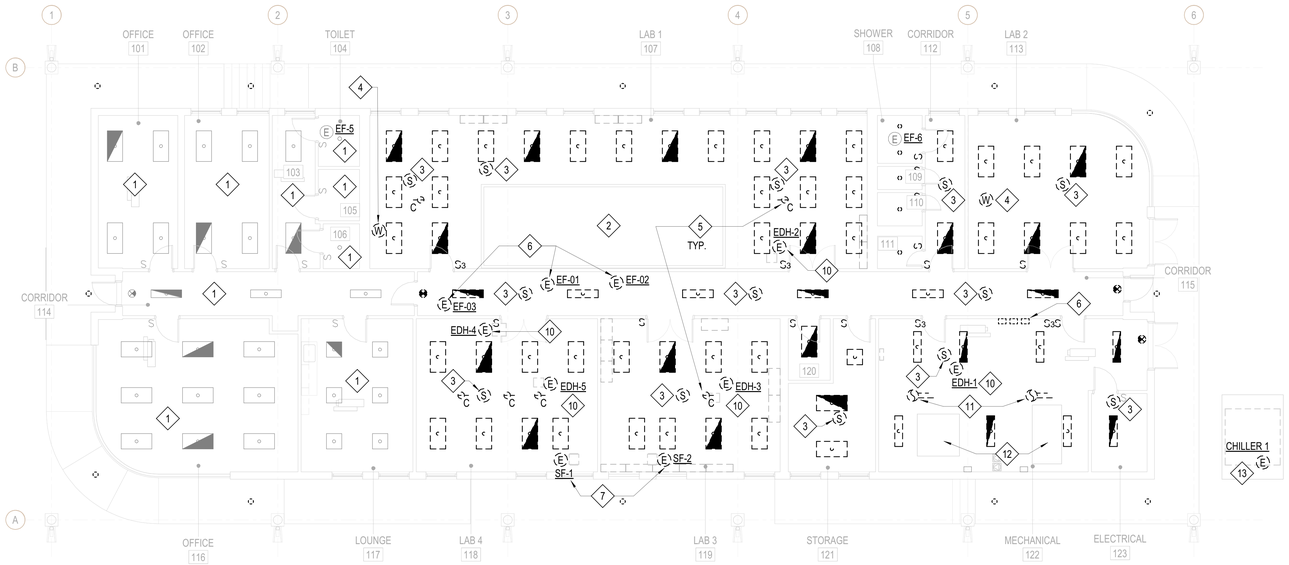


C1 ELECTRICAL DEMOLITION PLAN - ATTIC

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



A1 ELECTRICAL DEMOLITION PLAN - FIRST FLOOR

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

GENERAL NOTES

A. SEE SHEET E-001 FOR ELECTRICAL LEGEND AND ABBREVIATIONS.

DEMOLITION NOTES

1 NO RENOVATION WORK IN THIS AREA, TO REMAIN AS IS.

2 THIS AREA REPRESENTED BY THE OUTLINED BOX IS AN ENCLOSED COOLER STRUCTURE, NO ELECTRICAL WORK IN THIS AREA.

3 REMOVE SMOKE DETECTOR DEVICE AND RETAIN DEVICE FOR REINSTALLATION IN NEW CEILING. TEST SYSTEM PRIOR TO REMOVAL AND REPORT DEFECTS IN DEVICE OR SYSTEM TO ARCHITECTURAL.

4 REMOVE WIRELESS ACCESS POINT AND RETAIN DEVICE FOR REINSTALLATION IN NEW CEILING. TEST SYSTEM PRIOR TO REMOVAL AND REPORT DEFECTS IN DEVICE OR SYSTEM TO ARCHITECTURAL.

5 REMOVE CEILING MOUNTED RECEPTACLES AND RETAIN DEVICE FOR REINSTALLATION IN NEW CEILING. TEST SYSTEM PRIOR TO REMOVAL AND REPORT DEFECTS IN DEVICE OR SYSTEM TO ARCHITECTURAL.

6 EXISTING LABORATORY EXHAUST FANS AND VFDS TO BE REMOVED. REMOVE EXISTING DISCONNECTS, WIRING AND CONDUIT BACK TO PANEL LP2.

7 EXISTING SUPPLY FANS TO BE REMOVED. REMOVE EXISTING DISCONNECTS, WIRING AND CONDUIT BACK TO PANEL LP2.

8 EXISTING ATTIC EXHAUST FAN TO BE REMOVED. REMOVE EXISTING DISCONNECTS, WIRING AND CONDUIT BACK TO PANEL ELP.

9 EXISTING ATTIC LIGHTING, CONDUIT, AND WIRING MOUNTED TO EXISTING TRUSSES TO BE REMOVED. REMOVE BACK TO EXISTING LIGHTING SWITCH AT ATTIC ENTRANCE, PRESERVE LIGHTING SWITCH AND CIRCUIT FOR NEW ATTIC LIGHTING.

10 EXISTING DUCT HEATERS TO BE REMOVED. DISCONNECT POWER FROM EXISTING HEATERS AND REMOVED EXISTING DISCONNECT, PRESERVE EXISTING WIRE AND CONDUIT FOR RECONNECTION TO NEW HEATERS.

11 REMOVE EXISTING DUCT SMOKE DETECTOR DEVICE IN THIS AREA AND RETAIN DEVICE FOR REINSTALLATION IN NEW DUCTWORK. TEST SYSTEM PRIOR TO REMOVAL AND REPORT DEFECTS IN DEVICE OR SYSTEM TO ARCHITECTURAL.

12 REMOVE EXISTING POWER CONNECTION FROM CHILLED WATER PUMPS #1 & #2 TO BE REMOVED. REMOVE EXISTING DISCONNECTS. PRESERVE AND PROTECT EXISTING CONDUIT AND WIRE AT PUMP LOCATIONS FOR REUSE WITH NEW PUMPS.

13 REMOVE EXISTING POWER CONNECTION FROM CHILLER #1 TO BE REMOVED. REMOVE EXISTING 400A DISCONNECT. PRESERVE AND PROTECT EXISTING CONDUIT AND WIRE AT CHILLER LOCATION FOR REUSE WITH NEW CHILLER.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

USDA

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

OLD CUTLER ROAD
CORAL GABLES, FL 33158

DESIGNER

CLARKNEXSEN
A JMT Company
3920 ARKWRIGHT ROAD, SUITE 385
MACON, GEORGIA 31210
478-743-8415

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL

2026.07.16

100% SUBMITTAL

REVISIONS

SHEET

ELECTRICAL DEMOLITION PLAN

ED101

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

7/16/2026 10:09:59 AM
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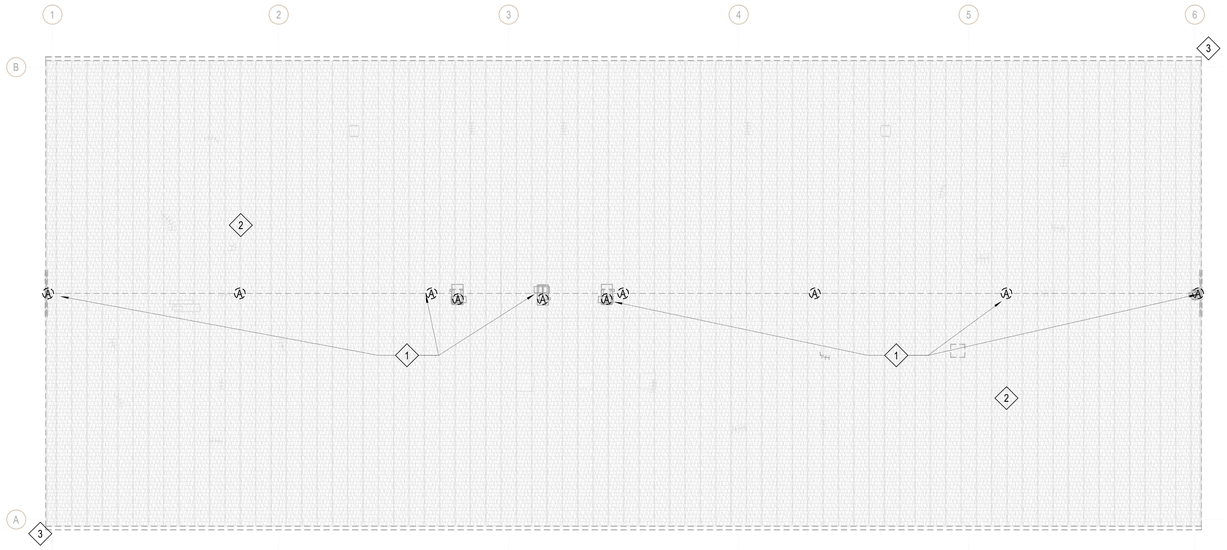
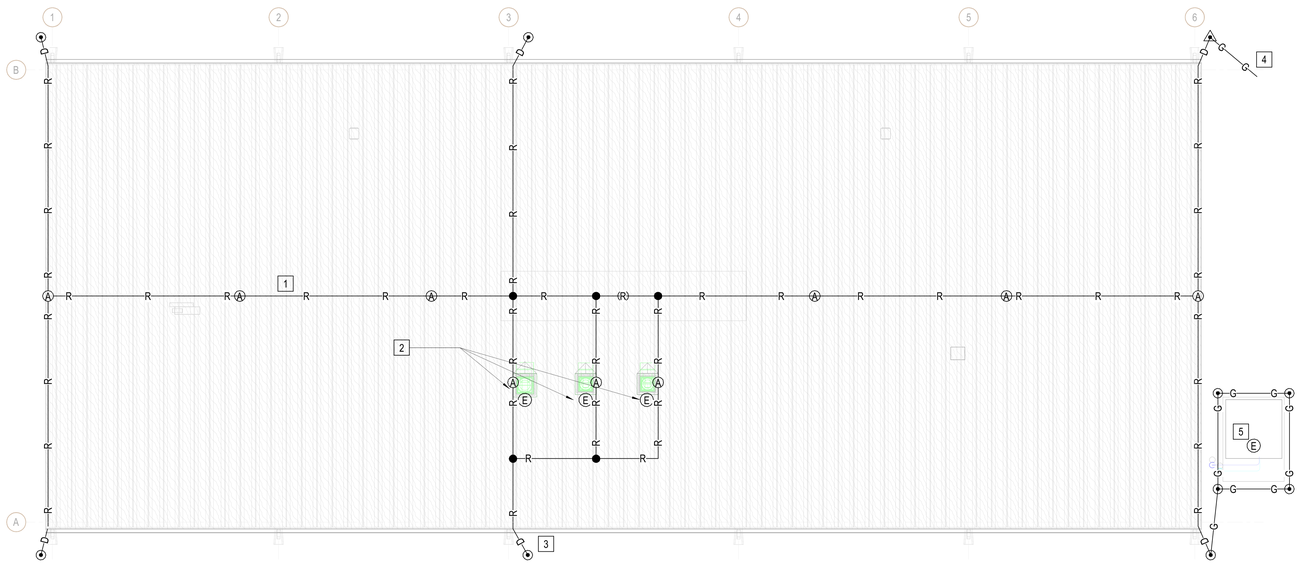


C1 LIGHTNING PROTECTION - DEMO

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



A1 LIGHTNING PROTECTION - NEW

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

GENERAL NOTES

A. THE EXISTING LIGHTNING PROTECTION SYSTEM WILL BE REMOVED IN ITS ENTIRETY. A NEW LIGHTNING PROTECTION SYSTEM WILL BE INSTALLED AFTER THE NEW ROOF IS INSTALLED AND NEW ROOF MOUNTED EQUIPMENT IS IN PLACE. THE LIGHTNING PROTECTION SYSTEM INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE SYSTEM TO MEET UL96A AND NFPA 780 REQUIREMENTS, INCLUDING MATERIALS AND WORKMANSHIP. THE COMPLETE LIGHTNING PROTECTION SYSTEM SHALL BE UL MASTER LABEL CERTIFIED.
B. EXCEPT FOR LIGHTNING PROTECTION TEST WELL CONNECTION POINTS, ALL GROUND BURIED CONNECTIONS SHALL BE EXOTHERMICALLY WELDED.
C. LIGHTNING PROTECTION SYSTEM COMPONENTS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.
D. LIGHTNING PROTECTION SYSTEM COMPONENTS SHALL BE CORROSION RESISTANT.
E. LIGHTNING PROTECTION MATERIALS IN DIRECT CONTACT WITH THE ROOF SHALL NOT AFFECT OR VOID THE ROOF WARRANTY.
F. BI-METALLIC CONNECTORS SHALL BE PROVIDED WHERE COPPER TO ALUMINUM CONNECTIONS ARE MADE WHETHER SHOWN ON THIS DRAWING OR NOT.
G. MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR ENSURING THAT CONDUCTOR BENDS ARE NOT LESS THAN 90 DEGREES NOR LESS THAN 8' RADIUS AND FREE FROM "U" OR "V" (DOWN AND UP) POCKETS.
H. METAL BODIES OF INDUCTANCE LOCATED ABOUT THE ROOF SUCH AS; METAL FLASHING, GRAVEL STOPS, ROOF DRAINS, PIPE VENTS, INSULATION VENTS, LOUVERS AND DOOR FRAMES SITUATED WITHIN 6'-0" OF A LIGHTNING CONDUCTOR OR BONDED METAL BODY SHALL BE INTERCONNECTED TO THE LIGHTNING PROTECTION SYSTEM.
I. CONDUCTORS SHALL INTERCONNECT ALL AIR TERMINALS AND SHALL FORM A TWO-WAY PATH FROM EACH AIR TERMINAL HORIZONTALLY OR DOWNWARD TO CONNECTIONS WITH GROUND TERMINALS.
J. ALL LIGHTNING PROTECTION CONDUCTORS SHALL BE FASTENED NOT MORE THAN 3'-0" MAXIMUM SPACING.
K. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED IN A NEAT AND INCONSPICUOUS MANNER SO THAT ALL COMPONENTS WILL BLEND IN WITH THE APPEARANCE OF THE BUILDING.
L. WORK SHALL BE PERFORMED BY A UL CERTIFIED LIGHTNING PROTECTION SYSTEM CONTRACTOR.
M. BARE COPPER MATERIALS SHALL NOT BE INSTALLED ON ALUMINUM SURFACES, AND ALUMINUM MATERIALS SHALL NOT BE INSTALLED ON COPPER SURFACES.
N. ADHESIVE TYPE FITTINGS SHALL BE SET IN PLACE WITH AN APPLICATION OF CHEM LINK M-1 STRUCTURAL SEALANT OR EQUIVALENT ON NON-BALLASTED ROOFS.
O. GROUNDED MEDIA AND BURIED METALLIC CONDUCTORS (INCLUDING UNDERGROUND METALLIC PIPING SYSTEMS) THAT CAN ASSIST IN PROVIDING A PATH FOR LIGHTNING CURRENTS IN OR ON A STRUCTURE SHALL BE INTERCONNECTED TO THE LIGHTNING PROTECTION SYSTEM WITHIN 12'-0" VERTICALLY OF THE BASE OF THE STRUCTURE TO PROVIDE A COMMON GROUND POTENTIAL. THIS INTERCONNECTION SHALL INCLUDE ALL BUILDING GROUNDING ELECTRODE SYSTEMS.
P. BOLTED CONNECTIONS SHALL PROVIDE THE NECESSARY FORCE TO MAINTAIN 1,200 - 1,500 POUNDS PER SQUARE INCH PRESSURE REQUIRED BETWEEN THE CONTACT SURFACES FOR SATISFACTORY BONDING.
Q. SEE TYPICAL LIGHTNING PROTECTION DETAILS ON SHEET EG501.

DEMOLITION NOTES

1 REMOVE EXISTING LIGHTNING PROTECTION FROM EXISTING ROOF INCLUDING ALL AIR TERMINALS, THRU CONNECTIONS AND CONDUCTORS
2 REMOVE EXISTING LIGHTNING PROTECTION CONDUCTORS RUN THROUGH THE ATTIC SPACE
3 REMOVE EXISTING LIGHTNING PROTECTION DOWN CONDUCTORS FROM EXTERIOR OF BUILDING

KEY NOTES

1 PROVIDE CLASS I LIGHTNING PROTECTION SYSTEM FOR FACILITY ON NEW ROOF SYSTEM
2 PROVIDE LIGHTNING PROTECTION FOR NEW EXHAUST FANS AND EXHAUST FAN STACKS
3 PROVIDE NEW DOWN CONDUCTORS TO NEW GROUNDING RODS
4 PROVIDE NEW BONDING TO EXISTING SERVICE TRANSFORMER GROUNDING
5 PROVIDE NEW BONDING TO CHILLER

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

USDA

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PROFESSIONAL SEAL

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SUBMITTAL

2026.07.16

100% SUBMITTAL

REVISIONS

SHEET

LIGHTNING PROTECTION PLAN

EG101

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

7/16/2026 10:10:03 AM
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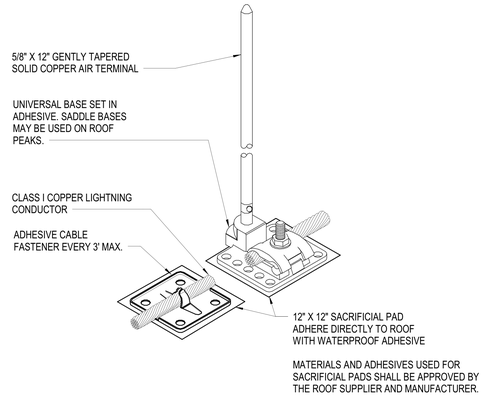
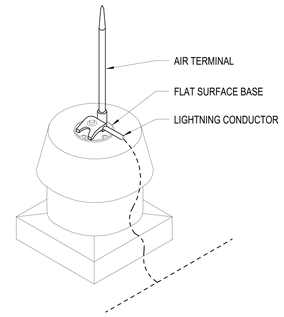
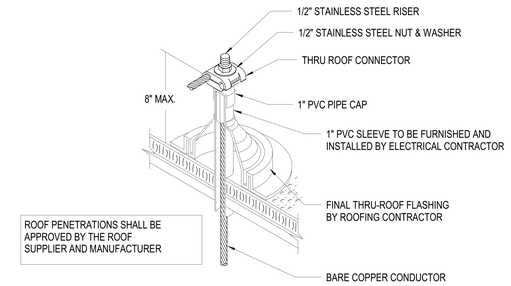


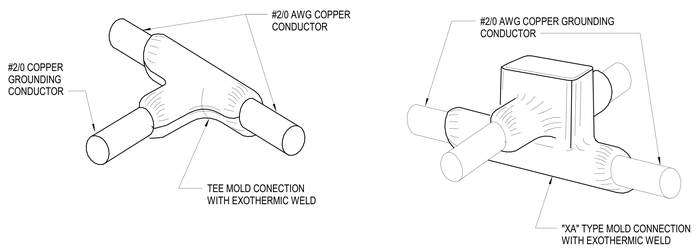
D1 AIR TERMINAL DETAIL
NOT TO SCALE



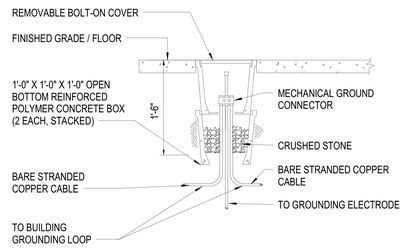
D3 EXHAUST FAN AIR TERMINAL INSTALLATION DETAIL
NOT TO SCALE



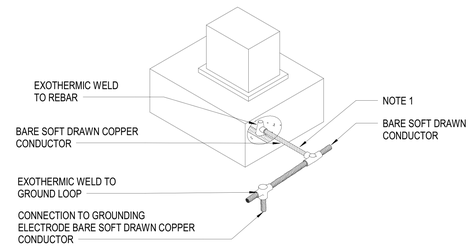
D5 ROOF PENETRATION
NOT TO SCALE



C1 MOLD CONNECTIONS WITH EXOTHERMIC WELDS
NOT TO SCALE

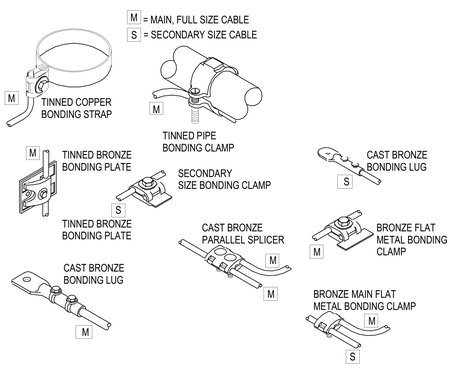


C3 GROUND TEST WELL DETAIL
NOT TO SCALE

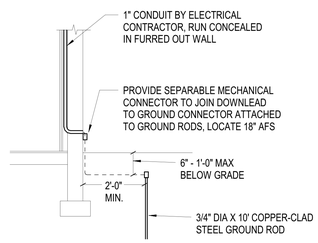


NOTE:
1. PROVIDE ADEQUATE CONDUCTOR SLACK DURING ROUGH-IN TO CONNECT FOOTING TO BUILDING GROUND LOOP ONCE INSTALLED.

C5 FOOTING GROUNDING DETAIL
NOT TO SCALE



A1 TYPICAL BONDING AND SPLICING DETAILS
NOT TO SCALE



A3 DOWNLEAD TO GROUND ROD CONNECTION
NOT TO SCALE

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

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DESIGNER

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CONSULTANT

CONSULTANT NAME (NO LOGO)

STREET ADDRESS
CITY, STATE ZIPCODE
PHONE NUMBER

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL
2026.07.16
100% SUBMITTAL

REVISIONS

KEY PLAN

SHEET
LIGHTNING PROTECTION DETAILS

EG501

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

7/16/2026 10:10:04 AM
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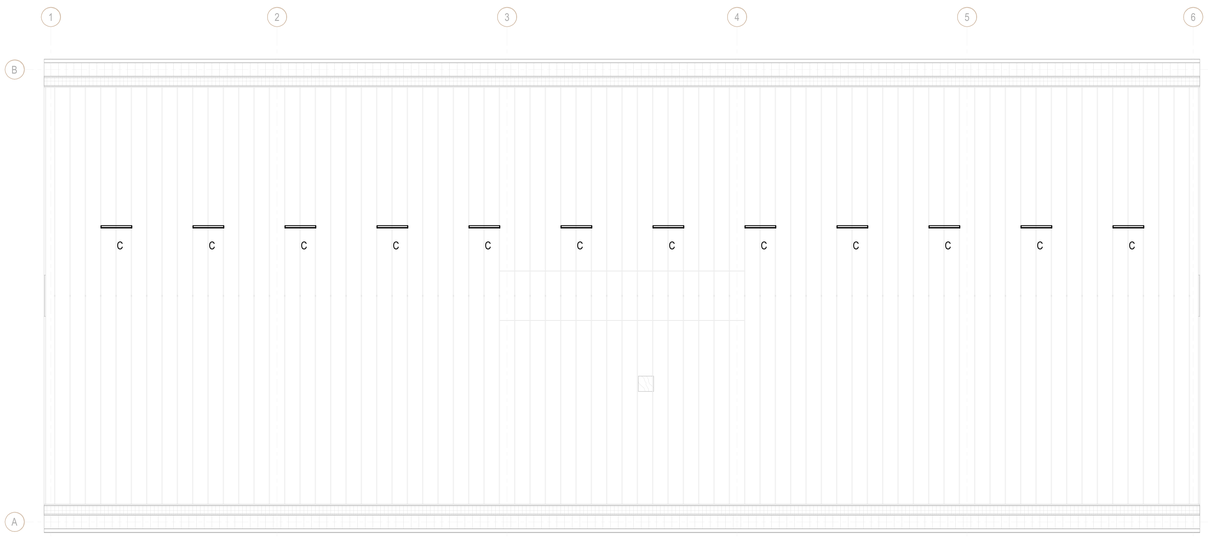
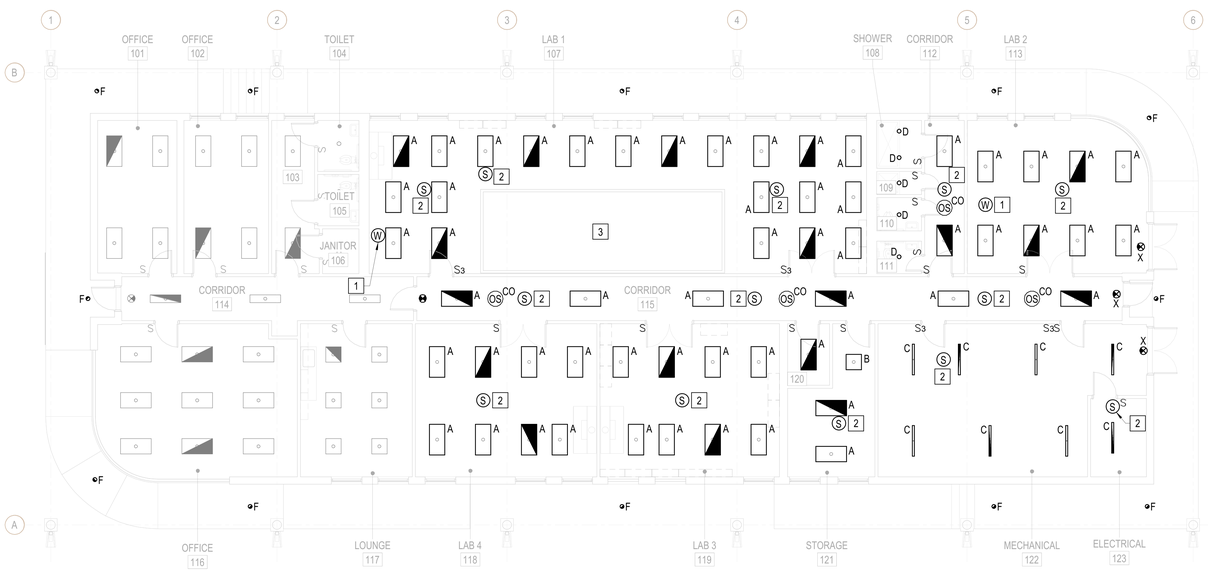


C2 LIGHTING PLAN - ATTIC

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



A2 LIGHTING PLAN - FIRST FLOOR

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

GENERAL NOTES

A. SEE SHEET E-001 FOR ELECTRICAL LEGEND AND ABBREVIATIONS.
B. CONNECT NEW LIGHTING TO EXISTING LIGHTING CIRCUIT PRESERVED DURING DEMOLITION
C. REPLACE EXISTING LIGHTING SWITCHES WITH NEW SWITCHES.

KEY NOTES

1 CLEAN TEST AND REINSTALL WIRELESS ACCESS POINT, CONTRACTOR TO ENSURE A COMPLETE WORKING SYSTEM.
2 CLEAN TEST AND REINSTALL SMOKE DETECTOR, CONTRACTOR TO ENSURE A COMPLETE WORKING SYSTEM.
3 THIS AREA REPRESENTED BY THE OUTLINED BOX IS AN ENCLOSED COOLER STRUCTURE, NO ELECTRICAL WORK IN THIS AREA.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

USDA

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

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2026.07.16
100% SUBMITTAL

REVISIONS

SHEET
LIGHTING PLANS

EL101

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

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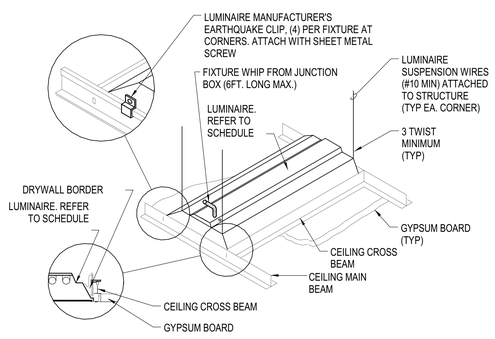
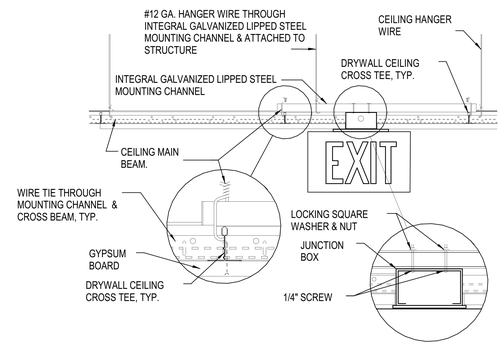
LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL NO.	TYPE	LUMENS	CCT	CRI	DRIVER VOLTAGE	WATTAGE	NOTES
A	2' X 4' RECESSED LED, SOLID SILICONE GASKETED	ACUITY BRANDS/LITHONIA	SRTL X L48 5000LM OAW AFL MVOLT GZ1 40K 80CRI	LED	5,000 lm	4,000 K	80	MVOLT	38 W	NOTE 1
B	2' X 2' RECESSED LED, SOLID SILICONE GASKETED	ACUITY BRANDS/LITHONIA	SRTL X L24 5000LM OAW AFL MVOLT GZ1 40K 80CRI	LED	5,000 lm	4,000 K	80	MVOLT	40 W	NOTE 1
C	4' LINEAR LED STRIP LIGHT, ROUND DIFFUSE LENS	ACUITY BRANDS/LITHONIA	CLX L48 5000LM SEF RDL MVOLT GZ1 40K 80CRI WH	LED	5,000 lm	4,000 K	80	MVOLT	32 W	NOTE 2
D	6" LED DOWNLIGHT, IP66 RATED, WET LOCATION LISTED	ACUITY BRANDS/GOTHAM	EVO6SH 40/15 DFR SOL MVOLT EZ1	LED	1,500 lm	4,000 K	80	MVOLT	15 W	
F	6" LED DOWNLIGHT, IP66 RATED, WET LOCATION LISTED	ACUITY BRANDS/GOTHAM	EVO6SH 40/35 DFR SOL MVOLT EZ1	LED	3,500 lm	4,000 K	80	MVOLT	34 W	
X	EXIT SIGN, UNIVERSAL MOUNT, SELF-DIAGNOSTIC WITH MINIMUM 90-MINUTE BATTERY BACKUP	ACUITY BRANDS/LITHONIA	LQM S W RG MVOLT EL SD	LED				MVOLT	5 W	

1. PROVIDE INDICATED EMERGENCY FIXTURES WITH INTEGRAL SELF-DIAGNOSTIC 1800 LUMEN EMERGENCY BATTERY PACK. BATTERY PACK WILL PROVIDE A MINIMUM OF 90 MINUTES OF ILLUMINATION.
2. FOR FIXTURES IN ATTIC SPACE CHAIN MOUNT FROM STRUCTURE 8" BELOW FINAL LEVEL OF NEW ROOF INSULATION.



A2 LUMINAIRE MOUNTING - GYPBOARD CEILING
NOT TO SCALE



A4 EXIT LIGHT MOUNTING - GYPBOARD CEILING
NOT TO SCALE

GENERAL NOTES

A. SEE SHEET E-001 FOR ELECTRICAL LEGEND AND ABBREVIATIONS.

KEY NOTES

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

USDA

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PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL

2026.07.16

100% SUBMITTAL

REVISIONS

SHEET

LIGHTING DETAILS & LUMINAIRE SCHEDULE

EL501

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

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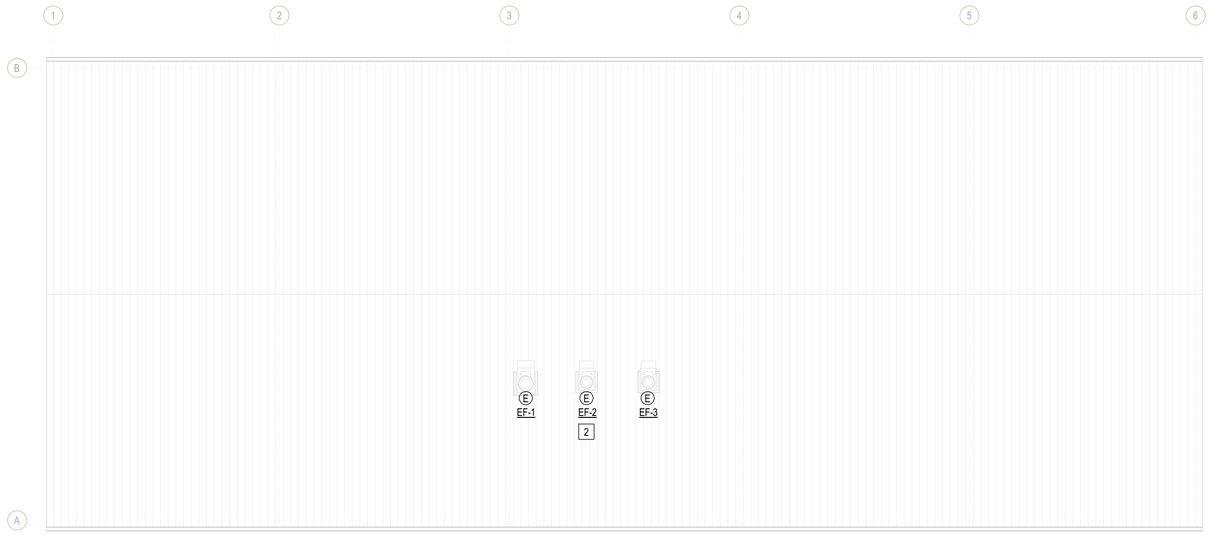
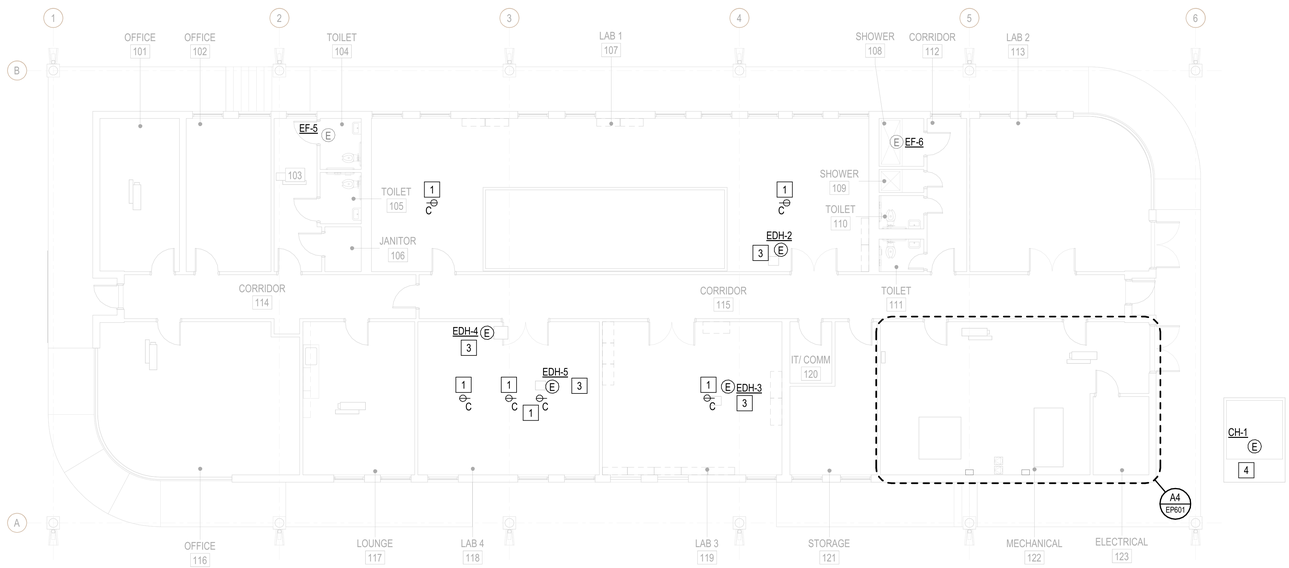


C1 POWER PLAN - ROOF
SCALE: 1/8" = 1'-0"



A1 POWER PLAN - FIRST FLOOR
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. SEE SHEET E-001 FOR ELECTRICAL LEGEND AND ABBREVIATIONS.

KEY NOTES

1. PROVIDE L5-20P, 125VAC, 20A, LOCKING 2-POLE PLUGS. REPLACE EXISTING EQUIPMENT PLUGS TO COORDINATE WITH CEILING RECEPTACLE OUTLET BEING INSTALLED.
2. PROVIDE NEW DISCONNECT, CONDUIT AND WIRE FROM FANS TO NEW VFDS IN MECHANICAL ROOM 122
3. PROVIDE NEW FUSED DISCONNECT SWITCH AT NEW DUCT HEATERS. PROVIDE NEW CONDUIT AND WIRE FROM DISCONNECT TO DUCT HEATER.
4. PROVIDE NEW NEMA 3R 400A/3P FUSED DISCONNECT SWITCH AT NEW CHILER #1, FUSE PER MANUFACTURERS RECOMMENDATIONS. PROVIDE NEW STAINLESS STEEL METAL CHANNEL SUPPORT FRAME. PROVIDE NEW CONDUIT AND WIRE FOR POWER CONNECTION TO NEW CHILLER.

GRAPHIC SCALE(S)

1/8" = 1' - 0" 0 5' 10' 15' 30'

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478·743·8415

PROFESSIONAL SEAL
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SUBMITTAL
2026.07.16
100% SUBMITTAL

REVISIONS

SHEET
POWER PLANS

EP101

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

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EXISTING PANEL MDP SCHEDULE

1,000 A MCB | 208Y/120V | 3PH, 4W, 60 Hz | MIN. 42 KAIC | MOUNTING: SURFACE | S.E. RATED | NEMA 1

CKT	LOAD DESCRIPTION	WIRE	TRIP	A		B		C		TRIP	WIRE	LOAD DESCRIPTION	CKT
1				8.01	0.00								2
3	WATER HEATER MECHANICAL 122	EX	20			8.01	0.00			100	--	SPD	4
5								8.01	0.00				6
7				9.28	26.69								8
9	LP2	EX	200			9.88	26.90			200	EX	LP1	10
11								10.47	25.52				12
13				21.59	--								14
15	LP3	EX	400			18.92	--			--	--	BUSSED SPACE	16
17								20.04	--				18
19		**EXISTING**	**400**	**25.48**	**--**								20
21	**CHILLER CH-1**					**25.48**	**--**			--	--	BUSSED SPACE	22
23								**25.48**	**--**				24
25				--	--								26
27	BUSSED SPACE	--	--			--	--			--	--	BUSSED SPACE	28
29								--	--				30
31				--	--								32
33	BUSSED SPACE	--	--			--	--			--	--	BUSSED SPACE	34
35								--	--				36
37				--	--								38
39	BUSSED SPACE	--	--			--	--			--	--	BUSSED SPACE	40
41								--	--				42
	TOTAL KVA (CONNECTED LOAD)			91.0		89.2		89.5					
	TOTAL KVA (FEED-THRU)			0.0		0.0		0.0					
	TOTAL KVA (CONNECTED LOAD + FEED-THRU)			91.0		89.2		89.5					

SUPPLY FROM: FPL Transformer

PANELBOARD OPTIONS:

PROVIDE EXTERNALLY MOUNTED SPD

PANELBOARD NOTES:

* SEE POWER RISER DIAGRAM(S) FOR SIZE.
** SEE EQUIPMENT CONNECTION SCHEDULE FOR SIZE.
EXISTING SQUARE D I-LINE PANEL

LOCATION: ELECTRICAL 123

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTALS	
LIGHTING	3.8 kVA	125.00%	4.7 kVA		
HVAC	187.9 kVA	100.00%	187.9 kVA	TOTAL CONNECTED LOAD:	269.7 kVA
RECEPTACLE	21.3 kVA	73.47%	15.7 kVA	TOTAL DEMAND:	264.9 kVA
MISCELLANEOUS	57.1 kVA	100.00%	57.1 kVA	TOTAL CONNECTED AMPS:	748.6 A
				TOTAL DEMAND AMPS:	735.3 A
				SPARE CAPACITY:	0%
				TOTAL DEMAND + SPARE:	264.9 kVA
					735.3 A

EXISTING PANEL ELP SCHEDULE

200 A MLO | 208Y/120V | 3PH, 4W, 60 Hz | MIN. | KAIC | MOUNTING: SURFACE | NEMA 1

CKT	LOAD DESCRIPTION	WIRE	TRIP	A (KVA)		B (KVA)		C (KVA)		TRIP	WIRE	LOAD DESCRIPTION	CKT
1	KITCHEN EQUIPMENT - MICRO 117	EX	20	1.00	0.60					20	EX	FIRE ALARM CONTROL PANEL	2
3	KITCHEN EQUIPMENT - REFRIG 117	EX	20			0.84	0.60			20	EX	SECURITY CONTROL PANEL	4
5	SPARE	--	20					0.00	0.00				6
7	SPARE	--	20	0.00	0.00					20	--	SMART METER	8
9	SPARE	--	20			0.00	0.00						10
11	SPARE	--	20					0.00	2.01				12
13	**LIGHTING ROOM 112, 115, 122, 123, 114, 103**	**2#12, 1#12G**	**20**	0.46	2.01					20	EX	NORTH PUMP	14
15	**LIGHTING ROOM 107, 113, 102, 101**	**2#12, 1#12G**	**20**			0.54	2.01						16
17	**LIGHTING ROOM 118, 119, 121, 120, 117, 116**	**2#12, 1#12G**	**20**					0.51	2.01				18
19	RECEPTACLE - TELE 120	EX	20	0.96	2.01					20	EX	SOUTH PUMP	20
21	RECEPTACLE - TELE 120	EX	20			0.96	2.01						22
23	SPARE	--	20					0.00	0.18	20	EX	RECEPTACLE - ELEC 122	24
25	SPARE	--	30	0.00	0.45					**20**	**2#12, 1#12G**	**EXTERIOR LIGHTING**	**26**
27						0.00	0.00			20	--	SMOKE DAMPER	28
29	SPARE	--	80					0.00	0.00	20	--	SPARE	30
31				0.00	0.00					20	--	SPARE	32
33						0.00	--			--	--	BUSSED SPACE	34
35	SPD	--	20					0.00	0.00	20	--	SPARE	36
37				0.00	0.00					20	--	SPARE	38
39	SPARE	--	20			0.00	0.00						40
41	BUSSED SPACE	--	--					--	0.00	**20**	**--**	**SPARE**	**42**
	TOTAL KVA (CONNECTED LOAD)			7.4		6.9		4.7					
	TOTAL KVA (FEED-THRU)			0.0		0.0		0.0					
	TOTAL KVA (CONNECTED LOAD + FEED-THRU)			7.4		6.9		4.7					

SUPPLY FROM: FPL Transformer

PANELBOARD OPTIONS:

PROVIDE EXTERNALLY MOUNTED SPD

PANELBOARD NOTES:

* SEE POWER RISER DIAGRAM(S) FOR SIZE.
** SEE EQUIPMENT CONNECTION SCHEDULE FOR SIZE.
EXISTING SQUARE D NQOD PANEL

LOCATION: ELECTRICAL 123

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTALS	
LIGHTING	2.5 kVA	125.00%	3.1 kVA		
HVAC	12.0 kVA	100.00%	12.0 kVA	TOTAL CONNECTED LOAD:	19.0 kVA
RECEPTACLE	2.1 kVA	100.00%	2.1 kVA	TOTAL DEMAND:	19.6 kVA
MISCELLANEOUS	2.4 kVA	100.00%	2.4 kVA	TOTAL CONNECTED AMPS:	52.6 A
				TOTAL DEMAND AMPS:	54.3 A
				SPARE CAPACITY:	15%
				TOTAL DEMAND + SPARE:	22.5 kVA
					62.4 A

EXISTING PANEL LP1 SCHEDULE

1 A MLO | 208Y/120V | 3PH, 4W, 60 Hz | MIN. | KAIC | MOUNTING: SURFACE | NEMA 1

CKT	LOAD DESCRIPTION	WIRE	TRIP	A (KVA)		B (KVA)		C (KVA)		TRIP	WIRE	LOAD DESCRIPTION	CKT
1				2.01	5.55								2
3	AHU-1 MECHANICAL 122	EX	30			2.01	5.55			60	EX	AHU-2 MECHANICAL 122	4
5								2.01	5.55				6
7				1.92	2.88								8
9	EVAPORATOR #1 ENVIRO GROWTH 126	EX	20			1.92	2.88			30	EX	COND UNIT #1 ENVIRO GROWTH 126	10
11								1.92	2.88				12
13				1.92	2.88								14
15	EVAPORATOR #2 ENVIRO GROWTH 126	EX	20			1.92	2.88			30	EX	COND UNIT #2 ENVIRO GROWTH 126	16
17								1.92	2.88				18
19				1.92	2.88								20
21	EVAPORATOR #3 ENVIRO GROWTH 126	EX	20			1.92	2.88			30	EX	COND UNIT #3 ENVIRO GROWTH 126	22
23								1.92	2.88				24
25	SAFETY CABINET LAB 3 119	EX	20	1.00	0.18					20	EX	RECEPTACLE LAB 1 107	26
27	EXHAUST HOOD LAB 3 119	EX	20			0.60	1.00			20	EX	MICROWAVE LAB 1 107	28
29	EHAUST HOOD LAB 4 118	EX	20					0.60	1.00	20	EX	MICROWAVE LAB 1 107	30
31	INCUBATOR LAB 4 118	EX	20	1.00	1.00					20	EX	MICROWAVE LAB 1 107	32
33	REFRIGERATOR LAB 4 118	EX	20			1.00	1.00			20	EX	MICROWAVE LAB 1 107	34
35	ICE MACHINE LAB 2 113	EX	20					1.00	0.96	20	EX	CONVECTION OVEN LAB 3 119	36
37	EXHAUST HOOD LAB 1 107	EX	20	0.60	0.96								38
39	OZONE GENERATOR LAB 1 107	EX	20			0.75	0.60			20	EX	POWER ALARM	40
41	SPARE	--	20					0.00	0.00	20	--	SPARE	42
	TOTAL KVA (CONNECTED LOAD)			26.7		26.9		25.5					
	TOTAL KVA (FEED-THRU)			0.0		0.0		0.0					
	TOTAL KVA (CONNECTED LOAD + FEED-THRU)			26.7		26.9		25.5					

SUPPLY FROM: MDP

PANELBOARD OPTIONS:

PROVIDE EXTERNALLY MOUNTED SPD

PANELBOARD NOTES:

* SEE POWER RISER DIAGRAM(S) FOR SIZE.
** SEE EQUIPMENT CONNECTION SCHEDULE FOR SIZE.

LOCATION: ELECTRICAL 123

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTALS	
HVAC	22.7 kVA	100.00%	22.7 kVA		
RECEPTACLE	0.2 kVA	100.00%	0.2 kVA	TOTAL CONNECTED LOAD:	79.1 kVA
MISCELLANEOUS	56.3 kVA	100.00%	56.3 kVA	TOTAL DEMAND:	79.1 kVA
				TOTAL CONNECTED AMPS:	219.6 A
				TOTAL DEMAND AMPS:	219.6 A
				SPARE CAPACITY:	15%
				TOTAL DEMAND + SPARE:	91.0 kVA
					252.5 A

EXISTING PANEL LP2 SCHEDULE

1 A MLO | 208Y/120V | 3PH, 4W, 60 Hz | MIN. | KAIC | MOUNTING: SURFACE | NEMA 1

CKT	LOAD DESCRIPTION	WIRE	TRIP	A (KVA)		B (KVA)		C (KVA)		TRIP	WIRE	LOAD DESCRIPTION	CKT
1	**LIGHTING ROOM 103-106, 108-112, 114, 115**	**2#12, 1#12G**	20	0.55	0.63					**20**	**2#12, 1#12G**	**LIGHTING LAB 1 107**	**2**
3	**LIGHTING ROOM 113, 121, 122**	**2#12, 1#12G**	20			0.48	0.91			20	EX	LIGHTING ROOM 117, 102, 101	4
5	**LIGHTING ROOM 118, 119**	**2#12, 1#12G**	20					0.51	0.68	20	EX	LIGHTING OFFICE 116	6
7				0.90	0.00					**20**	**--**	**SPARE**	**8**
9	**VFD STARTER EF-1**	**3#12, 1#12G**	20			0.90	1.10						**10**
11								0.90	1.10	**20**	**3#12, 1#12G**	**VFD STARTER EF-2 & EF-3**	**12**
13	REC AND FAN TOILET 104	EX	20	1.39	1.10								**14**
15	RECEPTACLE OFFICE 101	EX	20			0.72	0.72			20	EX	RECEPTACLE LAB 4 118	16
17	RECEPTACLE OFFICE 102	EX	20					1.08	0.72	20	EX	RECEPTACLE LAB 4 118	18
19	RECEPTACLE OFFICE 101	EX	20	0.36	0.72					20	EX	RECEPTACLE LAB 4 118	20
21	RECEPTACLE CORRIDOR 114	EX	20			0.36	0.72			20	EX	RECEPTACLE LAB 4 118	22
23	RECEPTACLE OFFICE 116	EX	20					0.72	0.72	20	EX	RECEPTACLE LAB 3 119	24
25	EWC CORRIDOR 114	EX	20	0.48	0.72					20	EX	RECEPTACLE LAB 3 119	26
27	REFRIGERATOR LOUNGE 117	EX	20			0.84	0.72			20	EX	RECEPTACLE LAB 3 119	28
29	RECEPTACLE LOUNGE 117	EX	20					0.36	0.72	20	EX	RECEPTACLE LAB 3 119	30
31	RECEPTACLE LAB 1 107	EX	20	0.72	0.72					20	EX	RECEPTACLE LAB 3 119	32
33	RECEPTACLE LAB 1 107	EX	20			0.72	0.90			20	EX	RECEPTACLE STORAGE 121	34
35	RECEPTACLE LAB 1 107	EX	20					0.72	0.90	20	EX	RECEPTACLE ROOM 122, 115, 113	36
37	RECEPTACLE LAB 1 107	EX	20	0.18	0.90					20	EX	RECEPTACLE ROOM 113, 111, 110, 115	38
39	RECEPTACLE LAB 1 107	EX	20			0.90	0.00			20	--	SPARE	40
41	RECEPTACLE LAB 2 113	EX	20					0.72	0.72	20	EX	OFFICE FURNITURE OFFICE 116	42
	TOTAL KVA (CONNECTED LOAD)			9.3		9.9		10.5					
	TOTAL KVA (FEED-THRU)			0.0		0.0		0.0					
	TOTAL KVA (CONNECTED LOAD + FEED-THRU)			9.3		9.9		10.5					

SUPPLY FROM: MDP

PANELBOARD OPTIONS:

PROVIDE EXTERNALLY MOUNTED SPD

PANELBOARD NOTES:

* SEE POWER RISER DIAGRAM(S) FOR SIZE.
** SEE EQUIPMENT CONNECTION SCHEDULE FOR SIZE.

LOCATION: ELECTRICAL 123

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTALS	
LIGHTING	3.8 kVA	125.00%	4.7 kVA		
HVAC	7.4 kVA	100.00%	7.4 kVA	TOTAL CONNECTED LOAD:	29.6 kVA
RECEPTACLE	17.9 kVA	77.87%	14.0 kVA	TOTAL DEMAND:	26.5 kVA
MISCELLANEOUS	0.8 kVA	100.00%	0.8 kVA	TOTAL CONNECTED AMPS:	82.2 A
				TOTAL DEMAND AMPS:	73.7 A
				SPARE CAPACITY:	15%
				TOTAL DEMAND + SPARE:	30.5 kVA
					84.7 A

EXISTING PANEL LP3 SCHEDULE

400 A MLO | 208Y/120V | 3PH, 4W, 60 Hz | MIN. | KAIC | MOUNTING: SURFACE | NEMA 1

CKT	LOAD DESCRIPTION	WIRE	TRIP	A (KVA)		B (KVA)		C (KVA)		TRIP	WIRE	LOAD DESCRIPTION	CKT
1				1.00	3.34								2
3	VAV-1-1 OFFICE 101	EX	20			1.00	3.34			40	EX	EDH-4 LAB 4 118	4
5								1.25	3.34				6
7	VAV-1-4 OFFICE 116	EX	20	1.25	3.34								8
9	VAV-1-2 CORRIDOR 103	EX	20			1.00	3.34			40	EX	EDH-1 MECHANICAL 122	10
11	OVERHEAD RECEPTACLE LAB 1 107	EX	20					0.96	3.34				12
13				2.67	1.15					20	EX	VAV-1-7 MECHANICAL 122	14
15	EDH-2 LAB 1 107	EX	30			2.67	0.00			20	--	SPARE	16
17								2.67	0.00	20	--	SPARE	18
19	VAV-1-3 CORRIDOR 114	EX	20	1.25	0.00					20	--	SPARE	20
21						1.25	0.00			20	--	SPARE	22
23	OVERHEAD RECEPTACLE LAB 1 107	EX	20					0.96	0.00	20	--	SPARE	24
25				2.67	0.00					20	--	SPARE	26
27	EDH-3 LAB 3 119	EX	30			2.67	0.00			20	--	SPARE	28
29								2.67	1.00	20	EX	VAV-1-5 LOUNGE 117	30
31				2.67	1.00					20	EX	VAV-1-6 MECHANICAL 122	32
33	EDH-5 LAB 4 118	EX	30			2.67	1.00						34
35								2.67	1.20	20	EX	AHU-1, AHU-2 VFD CONTROLS MECH 122	36
37	SPARE	--	20	0.00	1.26					20	EX	RECEPTACLE ROOM 118, 107, 119	38
39						0.00	0.00			20	--	SPARE	40
41	SPARE	--	20					0.00	0.00	20	--	SPARE	42
	TOTAL KVA (CONNECTED LOAD)			21.6		18.9		20.0					
	TOTAL KVA (FEED-THRU)			0.0		0.0		0.0					
	TOTAL KVA (CONNECTED LOAD + FEED-THRU)			21.6		18.9		20.0					

SUPPLY FROM: MDP

PANELBOARD OPTIONS:

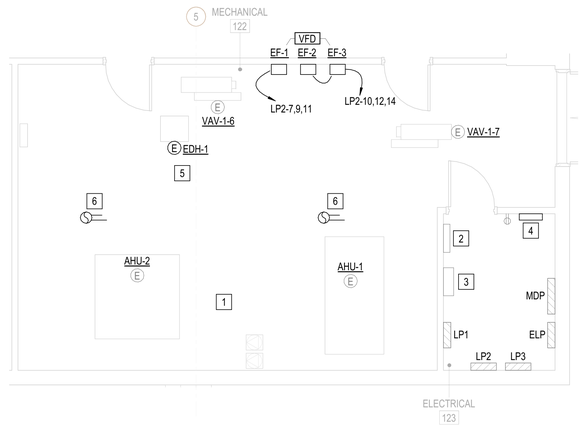
PROVIDE EXTERNALLY MOUNTED SPD

PANELBOARD NOTES:

* SEE POWER RISER DIAGRAM(S) FOR SIZE.
** SEE EQUIPMENT CONNECTION SCHEDULE FOR SIZE.

LOCATION: ELECTRICAL 123

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTALS	
HVAC	57.4 kVA	100.00%	57.4 kVA		
RECEPTACLE	3.2 kVA	100.00%	3.2 kVA	TOTAL CONNECTED LOAD:	60.6 kVA
				TOTAL DEMAND:	60.6 kVA
				TOTAL CONNECTED AMPS:	168.1 A
				TOTAL DEMAND AMPS:	168.1 A
				SPARE CAPACITY:	15%
				TOTAL DEMAND + SPARE:	69.6 kVA
					193.3 A



A4 ENLARGED POWER PLAN RMS 122 & 123
SCALE: 1/4" = 1'-0"

1/4" = 1' - 0" 0 1' 5' 10' 15'

KEY NOTES

1. REPLACE POWER CONNECTION FOR NEW CHILLED WATER PUMPS #1 & #2. PROVIDE NEW DISCONNECTS.
2. EXISTING SIEMENS FS-250 FIRE ALARM CONTROL PANEL.
3. EXISTING TELEPHONE SERVICE EQUIPMENT
4. EXISTING SECURITY PANEL FED BY ELP-4.
5. PROVIDE NEW FUSED DISCONNECT SWITCH AT NEW DUCT HEATERS. PROVIDE NEW CONDUIT AND WIRE FROM DISCONNECT TO DUCT HEATER.
6. REINSTALL EXISTING DUCT DETECTOR, COORDINATE LOCATION WITH NEW DUCTWORK.

USDA

U.S. DEPARTMENT OF AGRICULTURE- ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

BUILDING 63 ENVELOPE AND HVAC MODIFICATIONS

OLD CUTLER ROAD
CORAL GABLES, FL 33158

DESIGNER

CLARKNEXSEN
A JMT Company
3920 ARKWRIGHT ROAD, SUITE 385
MACON, GEORGIA 31210
478-743-8415

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

SUBMITTAL

2026.07.16
100% SUBMITTAL

REVISIONS

SHEET

PANELBOARD SCHEDULES & ENLARGED PLANS

EP601

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

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EQUIPMENT CONNECTION SCHEDULE - EXHAUST FANS

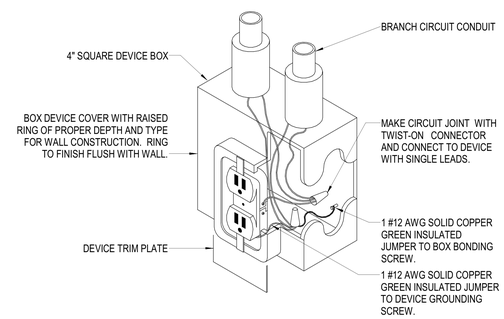
EQUIPMENT DESIGNATION	DESCRIPTION	LOAD RATING (HP, KW)	FLA	MCA	MOCP	VOLTAGE	PHASE	DISCONNECT SWITCH				CIRCUIT INFORMATION		REMARKS
								FRAME SIZE (A)	FUSE SIZE (A)	NEMA TYPE	MIN KAIC	PANEL	CIRCUIT #	
EF-1	LABORATORY EXHAUST FAN	2HP	7.5 A	9.4	15	208 V	3	30	NF	4X	10	LP2	7,9,11	
EF-2	LABORATORY EXHAUST FAN	1HP	4.6 A	5.8	15	208 V	3	30	NF	4X	10	LP2	10,12,14	
EF-3	LABORATORY EXHAUST FAN	1HP	4.6 A	5.8	15	208 V	3	30	NF	4X	10	LP2	10,12,14	

EQUIPMENT CONNECTION SCHEDULE - CHILLERS

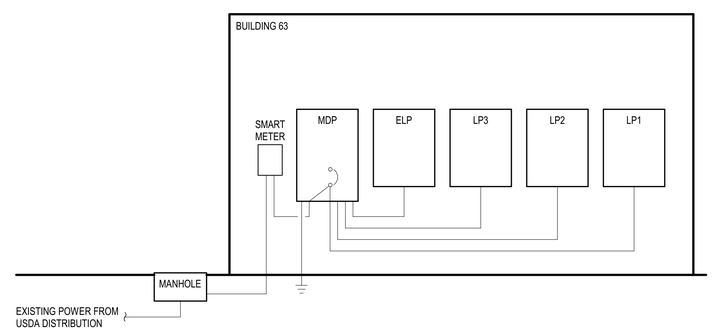
EQUIPMENT DESIGNATION	DESCRIPTION	LOAD RATING (HP, KW)	FLA	MCA	MOCP	VOLTAGE	PHASE	DISCONNECT SWITCH				CIRCUIT INFORMATION		REMARKS
								FRAME SIZE (A)	FUSE SIZE (A)	NEMA TYPE	MIN KAIC	PANEL	CIRCUIT #	
CH-1	AIR COOLED SCROLL CHILLER	24KW	212.2 A	265.2	300	208 V	3	400	300	3R	10	MDP	19,21,23	

EQUIPMENT CONNECTION SCHEDULE - DUCT HEATERS

EQUIPMENT DESIGNATION	DESCRIPTION	LOAD RATING (HP, KW)	FLA	MCA	MOCP	VOLTAGE	PHASE	DISCONNECT SWITCH				CIRCUIT INFORMATION		REMARKS
								FRAME SIZE (A)	FUSE SIZE (A)	NEMA TYPE	MIN KAIC	PANEL	CIRCUIT #	
EDH-1	ELECTRIC DUCT HEATER	10KW	27.8 A	34.7	40	208 V	3	60	*	1	14	LP3	8,10,12	FUSE PER MANUFACTURER INSTRUCTIONS
EDH-2	ELECTRIC DUCT HEATER	8KW	22.2 A	27.8	30	208 V	3	60	*	1	14	LP3	13,15,17	FUSE PER MANUFACTURER INSTRUCTIONS
EDH-3	ELECTRIC DUCT HEATER	8KW	22.2 A	27.8	30	208 V	3	60	*	1	14	LP3	25,27,29	FUSE PER MANUFACTURER INSTRUCTIONS
EDH-4	ELECTRIC DUCT HEATER	10KW	27.8 A	34.7	40	208 V	3	60	*	1	14	LP3	2,4,6	FUSE PER MANUFACTURER INSTRUCTIONS
EDH-5	ELECTRIC DUCT HEATER	8KW	22.2 A	27.8	30	208 V	3	60	*	1	14	LP3	31,33,35	FUSE PER MANUFACTURER INSTRUCTIONS



C4 RECEPTACLE GROUNDING DETAIL
NOT TO SCALE



A4 EXISTING POWER RISER DIAGRAM
NOT TO SCALE

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POWER RISER DIAGRAM

EP701

DESIGN: GWG
DRAWN: MSW
REVIEW: JED

CN 10858

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