

CODE ANALYSIS

APPLICABLE CODES

	Year		Year
International Building Code	2006	National Electrical Code	2005
International Mechanical Code	2006	Uniform Code for	
International Plumbing Code	2006	Building Conservation	
International Fire Code	2006	ADA Accessibility	
International Energy Conservation Code	2006	Guidelines	EXISTING

A. Occupancy and Group: EXISTING CLASSROOM BUILDING *
 Change in Use: Yes No Mixed Occupancy: Yes No
 Special Use and Occupancy (e.g. High Rise, Covered Mall): CLASSROOMS & SHOPS

B. Seismic Design Category: N/A Design Wind Speed: N/A mph

C. Type of Construction(circle one): EXISTING BUILDING OF BLOCK AND FACE BRICK.
 STEEL JOISTS, BUILT UP ROOF.

I I II II III III IV V V
A B A B A B HT A B

D. Fire Resistance Rating Requirements for the Exterior Walls based on the fire separation distance (in hours): N/A

North: _____ South: _____ East: _____ West: _____

E. Mixed Occupancies: Nonseparated Uses: _____

F. Sprinklers:

Required: YES Provided: YES Type of Sprinkler System: WET PIPE

G. Number of Stories: TWO Building Height: N/A

H. Actual Area per Floor (square feet): N/A

I. Tabular Area: N/A

J. Area Modifications: N/A

$$a) A_a = A_t + \left[\frac{A_t I_f}{100} \right] + \left[\frac{A_t I_s}{100} \right] \quad I_f = 100 \left[\frac{F}{P} - 0.25 \right] \frac{W}{30}$$

b) Sum of the Ratio Calculations for Mixed Occupancies:

$$\frac{\text{Actual Area}}{\text{Allowable Area}} \leq 1$$

c) Total Allowable Area for:

- 1) One Story: _____
- 2) Two Story: $A_a(2)$ _____
- 3) Three Story: $A_a(3)$ _____

d) Unlimited Area Building: Yes No Code Section: _____

K. Fire Resistance Rating Requirements for Building Elements (hours): N/A

Element	Hours	Assembly Listing	Element	Hours	Assembly Listing
Exterior Bearing Walls			Floors - Ceiling Floors		
Interior Bearing Walls			Roofs - Ceiling Roofs		
Exterior Non-Bearing Walls			Exterior Doors and Windows		
Structural Frame			Shaft Enclosures		
Partitions - Permanent			Fire Walls		
Fire Barriers			Fire Partitions		
			Smoke Partitions		

L. Design Occupant Load: N/A

Exit Width Required: N/A Exit Width Provided: N/A

M. Minimum Number of Required Plumbing Facilities: N/A

- a) Water Closets - Required (m) _____ (f) _____ Provided (m) _____ (f) _____
- b) Lavatories - Required (m) _____ (f) _____ Provided (m) _____ (f) _____
- c) Bath Tubs or Showers: _____
- d) Drinking Fountains: _____ Service Sinks: _____

FOOTNOTES:

- 1) In case of conflict with the U.S. Department of Justice Federal Registers Parts I through V - ADA Guidelines and specific reference to the International Building Code Accessibility Chapters, the more restrictive requirement shall govern.
- 2) Additional Code Information shall be provided at the discretion of the Building Official for Complex Buildings. Including, but not limited to:
 - a) High Rise Requirements.
 - b) Atriums.
 - c) Performance Based Criteria.
 - d) Means or Egress Analysis.
 - e) Fire Assembly Locator Sheet.
 - f) Exterior and Interior Accessibility Route.
 - g) Fire Stopping, Including Tested Design Number.

* THIS PROJECT SCOPE IS TO REMOVE AND REPLACE TWO EXISTING ROOF MOUNTED MULTIZONE UNITS AND TO PROVIDE AN INTERIOR ACCESS TO THE ROOF. EXISTING INTERIOR OF THE BUILDING WILL NOT BE EFFECTED.

SOUTHERN UTAH UNIVERSITY TECHNOLOGY BLDG. AIR HANDLER REPLACEMENT DFCM #08109730



State of Utah—Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

4110 State Office Building / Salt Lake City, Utah 84114 / 538-3018



WHW
ENGINEERING INC.
 PROFESSIONAL MECHANICAL ENGINEERING
 8619 Sandy Parkway Suite 101
 SANDY, UTAH 84070
 (801) 466-4021, FAX 466-8536
 EMAIL: excellence@whw-engineering.com



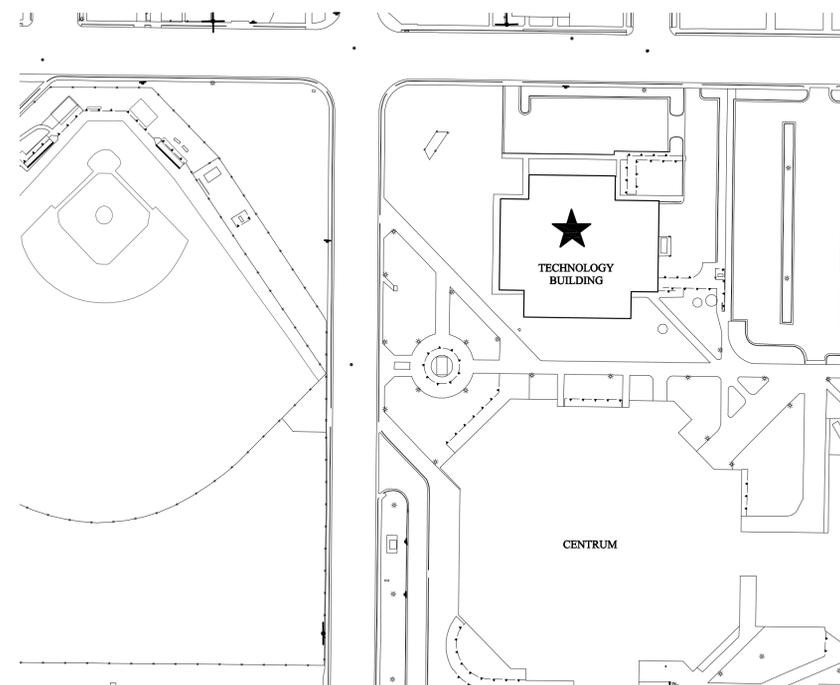
MECHANICAL ENGINEER
 WHW ENGINEERING, INC.
 8619 SANDY PARKWAY
 SUITE 101
 SANDY, UTAH 84075
 PHONE: (801) 466-4021 FAX: (801) 466-8536

STRUCTURAL ENGINEER
 BHB CONSULTING ENGINEERS
 2766 SO. MAIN STREET
 SALT LAKE CITY, UTAH 84115
 PHONE: (801) 355-5656 FAX: (801) 355-5950

ELECTRICAL ENGINEER
 SPECTRUM ENGINEERS
 175 SO. MAIN STREET
 SUITE 300
 SALT LAKE CITY, UTAH 84111
 PHONE: (801) 328-5151 - 1-(800)-678-7077
 FAX: (801) 328-5155

DRAWING INDEX:

- M000 - TITLE SHEET
- S-101-- FTG & FDN PLAN & STAIR FRAMING PLAN
- S-501-- FTG & FDN DETAILS & STAIR FRAMING DETAILS
- MG001- MECHANICAL GENERAL NOTES AND LEGEND
- MD401- LARGE SCALE AIR HANDLERS DEMOLITION PLAN
- MD402- AIR HANDLERS AND PIPING DEMOLITION PHOTOGRAPHS
- ME401- LARGE SCALE AIR HANDLERS AND PIPING PLAN
- ME501- MECHANICAL DETAILS AND SCHEDULES
- ME502- AIR HANDLER DETAIL
- ME503- ZONE LAY-OUT AND CFM REQUIREMENTS AH-1
- ME504- ZONE LAY-OUT AND CFM REQUIREMENTS AH-1
- ME505- ZONE LAY-OUT AND CFM REQUIREMENTS AH-2
- E-001-- SYMBOL LEGEND LIST AND SHEET INDEX
- E-401-- ELECTRICAL DEMOLITION PLAN
- E-402-- ELECTRICAL PLAN



GENERAL STRUCTURAL NOTES

GENERAL

- The structural notes are intended to complement the project specifications. Specific notes and details in the drawings shall govern over the structural notes and typical details.
- Typical details and sections shall apply where specific details are not shown.
- The contractor shall verify all site conditions and dimensions. If actual conditions differ from those shown in the contract drawings, the contractor shall immediately notify the architect/engineer before proceeding with the fabrication or construction of any effected elements.
- Omissions or conflicts between the contract drawings and/or specifications shall be brought to the attention of the architect/engineer before proceeding with any work involved. In case of conflict, follow the most stringent requirement as directed by the architect/engineer at no additional cost to the owner.
- The contractor shall submit a written request to the architect/engineer before proceeding with any changes, substitutions or modifications. Any work done by the contractor before receiving written approval will be at the contractor's risk.
- The contractor shall coordinate with all trades any items that are to be integrated into the structural system such as openings, penetrations, mechanical and electrical equipment, etc. Sizes and locations of mechanical and other equipment that differs from those shown on the contract drawings shall be reported to the architect/engineer.
- The contractor shall provide adequate shoring and bracing as required for his method of erection. Shoring and bracing shall remain in place until final connections for the permanent members are completed. The building shall not be considered stable until all connections are completed. Walls shall not be considered self-supporting and shall be braced until the roof system is completed.
- Site observations by BHB Consulting Engineers, P.C.'s field representative shall not be construed as approval of construction procedures nor special inspection.
- Detailing and shop drawing production for structural elements will require information (including dimensions) contained in the architectural, structural and/or other consultants' drawings. The structural drawings shall be used in conjunction with the architectural and other consultants' drawings. Some dimensions and elements such as elevations, depressions, slopes, mechanical housekeeping pads, etc. are not shown in the structural drawings. All dimensions shown on structural drawings shall be verified by contractor with architectural, mechanical and electrical drawings.
- Review of shop drawing submittals by BHB Consulting Engineers, P.C. is for general compliance only and is not intended for approval. The shop drawing review shall not relieve the contractor from the responsibility of completing the project according to the contract documents.
- Shop drawings made from reproductions of the contract drawings will be rejected unless the contractor signs a release agreement prior to the shop drawings being reviewed.
- Only an authorized representative of BHB Consulting Engineers, P.C. may make changes to these contract drawings. BHB Consulting Engineers, P.C. shall not be held responsible or liable for any claims arising directly or indirectly from changes made without written authorization by an authorized representative of BHB Consulting Engineers, P.C.

BASIS OF DESIGN

- Governing Building Code: International Building Code 2006
- Roof Snow Load
 - Ground Snow Load: $P_g = 43$ psf
 - Snow Importance Factor: $I_s = 1.0$
 - Snow Exposure Coefficient: $C_e = 1.0$
 - Thermal Exposure Coefficient: $C_t = 1.0$
 - Roof Snow Load: $P_f = 0.7 \cdot C_e \cdot C_t \cdot I_s \cdot P_g = 30$ psf plus Snow Drift
- Seismic Loads
 - Short Period Mapped Spectral Acceleration: $S_S = 0.704$
 - Soil Site Class: D
 - Short Period Site Coefficient: $F_a = 1.237$
 - 5% Damped Design Spectral Response Acceleration: $S_{DS} = 2/3 \cdot F_a \cdot S_S = .58$
 - Seismic Importance Factor: $I_p = 1.00$
 - Component Response Modification Coefficient: $R_p = 2.5$
 - Component Amplification Factor: $a_p = 2.5$
 - Basic Seismic-Force-Resisting System: Light Framed Shear Walls
 - Seismic Response Coefficient: $C_s = \{0.4a_p S_{DS} I_p / R_p\} (1+2[z/h])$
 - W: Dead Loads of Structure
 - Building Seismic Design Category: D
 - Base Shear: $V = C_S \cdot W = 0.696 W$ (Strength Design)
- Wind Loads
 - Wind Velocity (3 Second Gust): 90 mph
 - Exposure Type: C
 - Wind Importance Factor: 1.00

COLD-FORMED STEEL

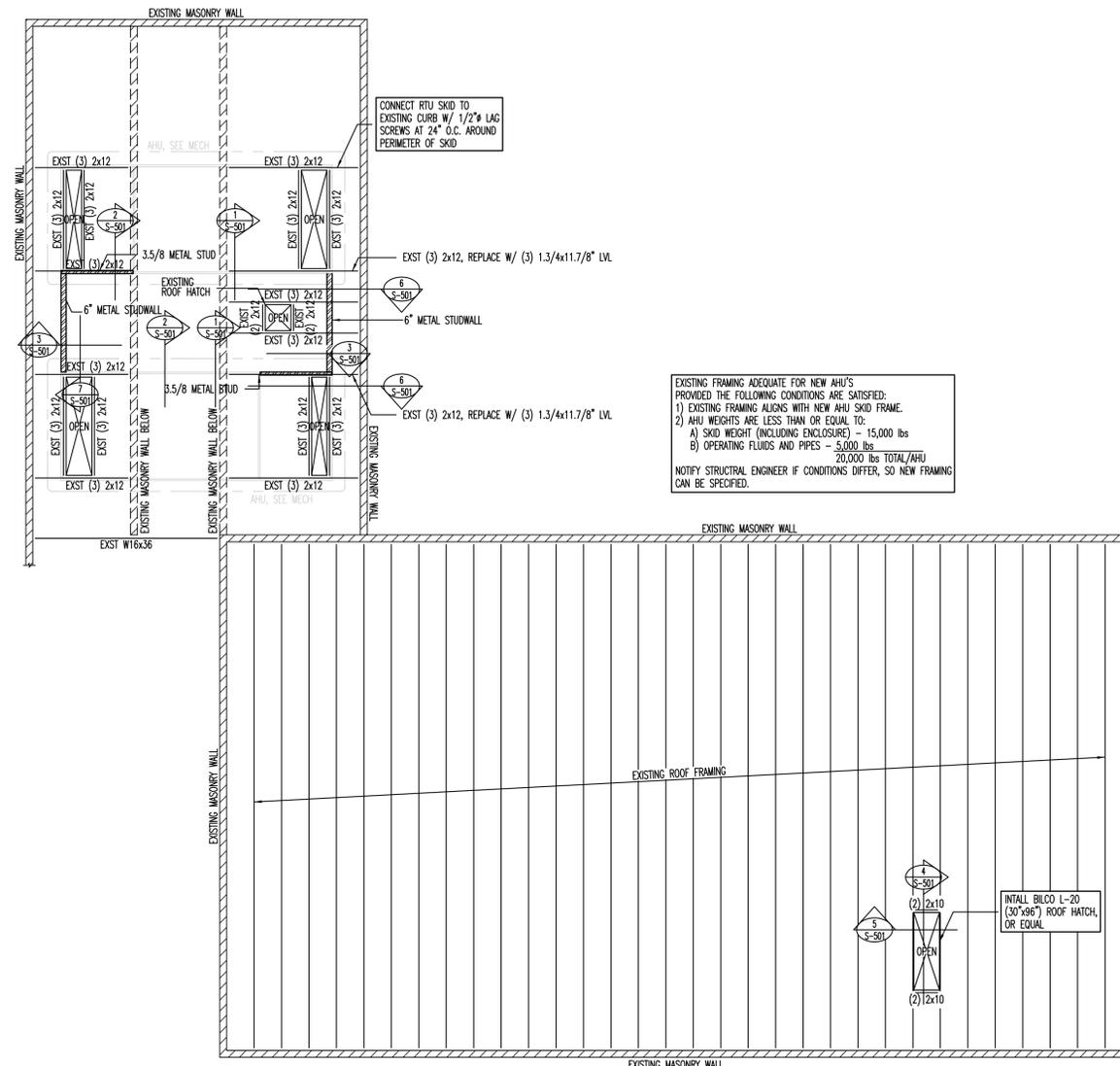
- All cold-formed steel shall meet the requirements of "Specifications for the Design of Cold-Formed Steel Structural Members" by American Iron and Steel Institute (AISI).
- Light Gauge Steel Framing:
 - Galvanized steel shall meet the minimum requirements of ASTM A653 ($F_y = 50$ ksi) for 97 mil (12 gauge), 68 mil (14 gauge) and 54 mil (16 gauge). For 43 mil (18 gauge) and lighter galvanized steel shall meet and ASTM A653 ($F_y = 33$ ksi). Galvanized coatings must meet the ASTM A924.
 - Follow all manufacturers' recommendations for the use of these products.
 - Unless noted otherwise, all welded connections shall be done according to AWS standards.
 - All interior non-bearing steel-stud walls that extend above the ceiling but do not attach to the structure above shall be brace with diagonal metal-stud braces (45 degrees). The k/l_r ratio of the brace shall not exceed 200 and shall not be spaced further apart than 10'-0" o.c. Connect diagonal braces to the top of the steel stud walls and to the top flange of the steel beams with two #10 tek screws minimum. Where a concrete deck occurs above, use two powder-driven fasteners per diagonal brace. Other approved methods may be used.

WOOD

- Materials:
 - Framing Lumber shall be # 2 Douglas Fir-Larch or better unless noted otherwise.
 - Wood sheathing shall be interior grade with exterior glue, span index ratio, unless noted otherwise, 4/8/24 Roof & Walls (19/32 inch thick)
 - Nails: Standard Common with the following properties:

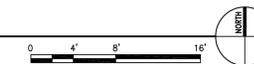
Nail Size	Shank Diameter	Min. Penetration into Support Member
6d	0.113"	1.25"
8d	0.131"	1.50"
10d	0.148"	1.63"
12d	0.148"	1.63"
16d	0.162"	1.75"

 Fasteners other than common nails are not permitted without prior written approval from the engineer.
- All fasteners, including nails, for preservative-treated and fire retardant-treated wood shall be hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper.
- Bolts shall be ASTM A36 or equal with ASTM A563 heavy hex nuts and hardened washers, Grade A, unless noted otherwise.
- All laminated veneer lumber (LVL) shall be furnished by Trus-Joist Corporation or Versa-Lam by Boise Cascade Corporation.
- All wood in contact with concrete, masonry or soil shall be pressure treated or be redwood.
- All framing anchors, post caps, hold downs, column bases, etc. shall be provided by Simpson Strong-Tie or approved equal.
- Provide solid shaped blocking at least 2 in. (nominal) thick and full depth of joist at ends and at each support of joist. Provide approved bridging at a 8'-0" o.c. maximum between joist end supports. Solid blocking between joists shall be nailed to the wood plate at the top of the wall with one Simpson "A35" framing anchor per each piece of blocking. Fill all holes in the framing anchors with 8-d x 1-1/2" nails (12 nails per A35).
- Built-up beams of 2X-member 12 in. or less in depth shall be spiked together with not less than 16-d spikes at twelve-inch (12 in.) centers, staggered. If the depth of beam is more than twelve inches (12 in.), the members shall be connected together with 1/2" \varnothing bolts @ 24 in. o.c. staggered. Bolts shall be placed 1/4 the depth of the member from the top and bottom of the member.

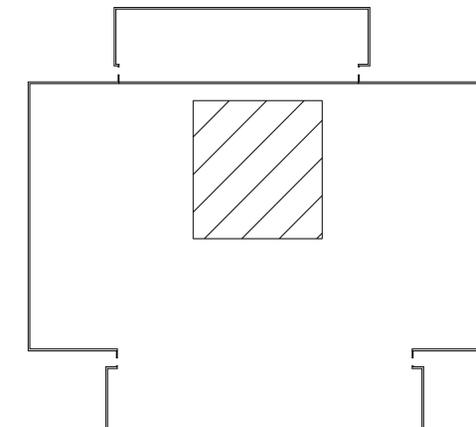


AHU ROOF SUPPORT FRAMING

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



KEYPLAN



CONSULTANTS

WHW
ENGINEERING INC.
PROFESSIONAL MECHANICAL ENGINEERING
8619 Sandy Parkway Suite 101
SANDY, UTAH 84070
(801)466-4021, FAX 466-6536
EMAIL: acallence@whw-engineering.com

BHB
"Engineering Results"
BHB Consulting Engineers
A Professional Corporation
2766 South Main Street
Salt Lake City, Utah 84115
Phone: 801.355.5656
Fax: 801.355.5956
Email: bbh@bhbengineers.com

PROJECT NAME & ADDRESS

SUU TECHNOLOGY
BUILDING AIR
HANDLERS
REPLACEMENT

DFCM No. #08109730

Cedar City, Utah

MARK	DATE	REVISION

PROJECT MANAGER:
DB
DRAWN BY:
AKN
CHECKED BY:
GM
DATE:
09/10/08
WHW JOB NO.:
08370

SHEET TITLE
FTG & FDN PLAN
& STAIR FRAMING
PLAN

SHEET NO.
S-101

CONSULTANTS

WHW
ENGINEERING INC.
PROFESSIONAL MECHANICAL ENGINEER
8619 Sandy Parkway Suite 101
SANDY, UTAH 84070
(801)466-4021, FAX 466-8536
EMAIL: excellence@whw-engineering.com

"Engineering Results"
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Phone: 801.355.5656
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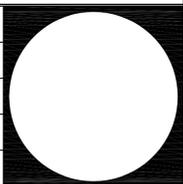
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Cedar City, Utah

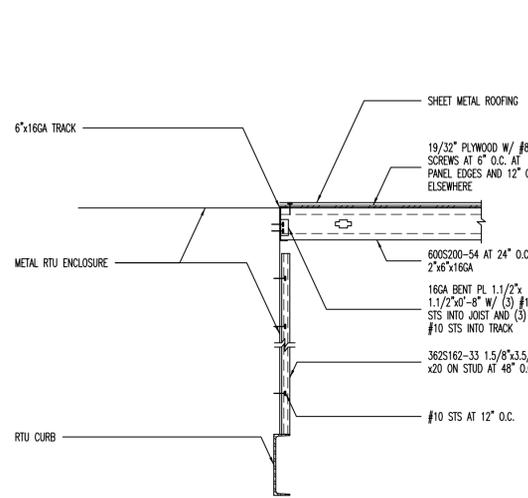
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WHW JOB NO:
08370

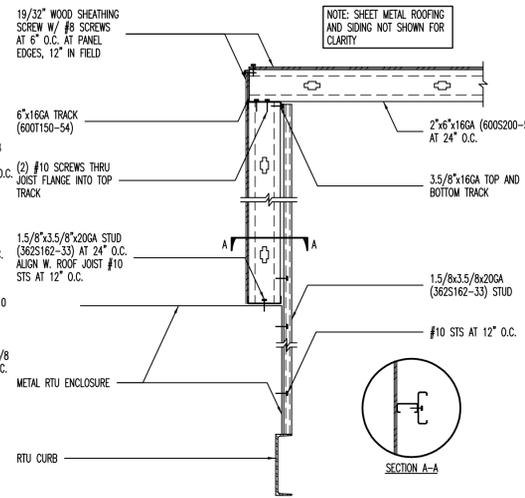


SHEET TITLE
**FTG & FDN DETAILS
& STAIR FRAMING
DETAILS**

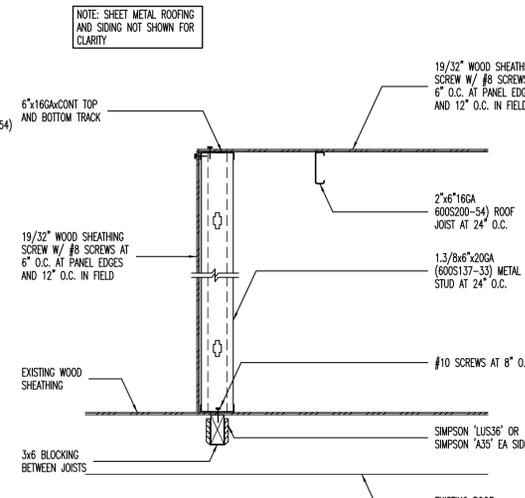
SHEET NO.
S-501



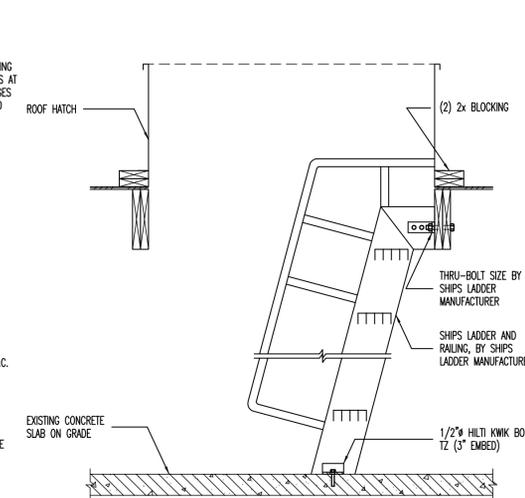
1 PENTHOUSE ROOF BEARING AT RTU ENCLOSURE
NO SCALE



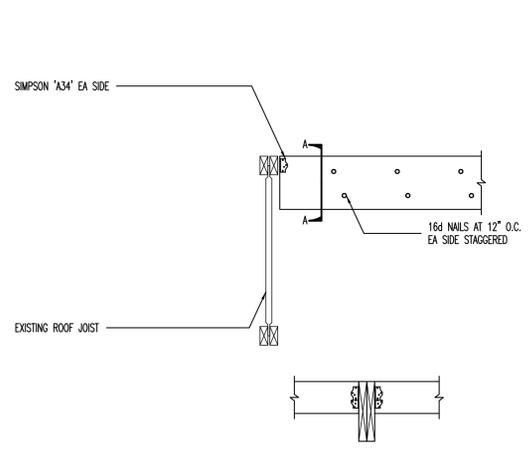
2 METAL STUDWALL ON TOP OF RTU ENCLOSURE
NO SCALE



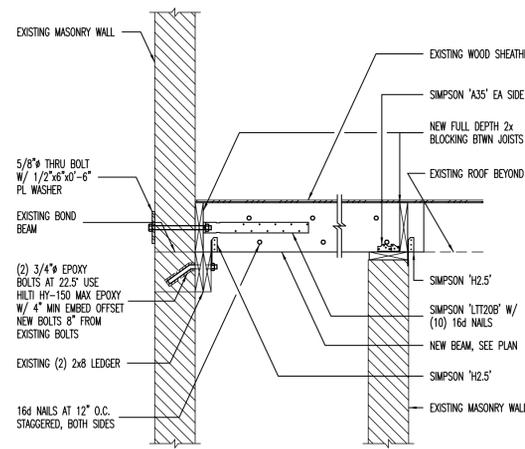
3 PENTHOUSE METAL STUDWALL BEARING AT EXISTING ROOF
NO SCALE



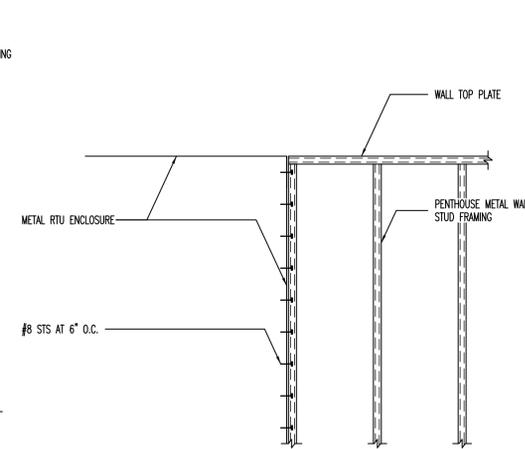
4 STEEL LADDER DETAIL
NO SCALE



5 DETAIL
NO SCALE



6 REPLACEMENT BEAM CONNECTION DETAIL
NO SCALE



7 PENTHOUSE END OF WALL CONNECTION TO RTU ENCLOSURE
NO SCALE

MECHANICAL LEGEND

SYMBOL	ABR.	DESCRIPTION	SYMBOL	ABR.	DESCRIPTION	SYMBOL	ABR.	DESCRIPTION	SYMBOL	ABR.	DESCRIPTION
GENERAL TERMINOLOGY			AIR SIDE			WET SIDE			WET SIDE CONT		
		SECTION LETTER DESIGNATION SECTION DRAWN ON THIS SHEET		AP	ACCESS PANEL			UNION			PITCH DOWN
		DETAIL NUMBER DESIGNATION CORRESPONDING WITH GRID LOCATION			EXISTING EQUIPMENT TO BE REMOVED			MANUAL ACTUATOR (BALL, BUTTERFLY, NEEDLE, ETC. VALVES)			ELBOW UP
		MECHANICAL EQUIPMENT DESIGNATION EQUIPMENT ITEM DESIGNATION			EXISTING EQUIPMENT TO REMAIN			MANUAL ACTUATOR (GATE, GLOBE, S&D, OS&Y, ETC. VALVES)			ELBOW DOWN
		REGISTER, GRILL OR DIFFUSER DESIGNATION WITH BALANCING CFM LISTED BELOW		MVD	MOTORIZED VOLUME DAMPER			THREADED OR SWEAT VALVE CONNECTION			TEE UP
		GRILLE, OR LOUVER DESIGNATION WHERE BALANCING NOT REQUIRE		BD	BACKDRAFT DAMPER			FLANGED VALVE CONNECTION			TEE DOWN
		REVISION DESIGNATOR AND NUMBER		FD	FIRE DAMPER			BUTTERFLY VALVE			EXISTING PIPING TO BE REMOVED
		KEY NOTE DESIGNATOR AND NUMBER		SD	SMOKE DAMPER			GATE VALVE			EXISTING PIPING TO REMAIN
	POC	POINT OF CONNECTION		FS	FIRE & SMOKE DAMPER			GLOBE VALVE - STRAIGHT PATTERN			NEW PIPING
	POR	POINT OF REMOVAL		T-STAT	WALL MOUNTED THERMOSTAT MECHANICAL EQUIPMENT CONTROLLED			GLOBE VALVE - ANGLE PATTERN			PIPE CAP OR PLUG
	AFF	ABOVE FINISHED FLOOR		SA	SUPPLY AIR			MOTORIZED 2-WAY CONTROL VALVE			FLEXIBLE CONNECTION
	AP	ACCESS PANEL		RA	RETURN AIR			MOTORIZED 3-WAY CONTROL VALVE			ANCHOR POINT
	EL	CENTER LINE ELEVATION		EA	EXHAUST AIR			CHECK VALVE			EQUIPMENT DRAIN
	INV. ELEV.	INVERT ELEVATION		OA	OUTSIDE AIR			CIRCUIT BALANCING VALVE			CHILLED WATER SUPPLY
	GC	GENERAL CONTRACTOR		MA	MIXED AIR			BALL VALVE			CHILLED WATER RETURN
	MC	MECHANICAL CONTRACTOR		FA	FRESH AIR			NEEDLE VALVE			LOW PRESSURE STEAM
	ATC	CONTROL CONTRACTOR		RF	RELIEF AIR			AUTOMATIC AIR VENT			LOW PRESSURE STEAM RETURN
	EC	ELECTRICAL CONTRACTOR						MANUAL AIR VENT			PUMPED CONDENSATE
	FPC	FIRE PROTECTION CONTROL						STRAINER			
	NIC	NOT IN CONTRACT						STRAINER W/ PLUGGED BLOW OFF			
	NTS	NOT TO SCALE						VTI VENTURI			
	C	COMMON						PRESSURE GAUGE AND GAUGE COCK - WATER			
	NC	NORMALLY CLOSED						PRESSURE GAUGE AND GAUGE COCK - STEAM			
	NO	NORMALLY OPEN						THERMOMETER AND THERMOWELL			
								WATER TEMPERATURE SENSOR AND THERMOWELL			
								TW THERMOWELL			
								PRESSURE AND TEMPERATURE TAP			
								INVERTED BUCKET STEAM TRAP			
								FLOAT & THERMOSTATIC STEAM TRAP			
								DIRECTION OF FLOW			

GENERAL NOTES:

- G-1** MECHANICAL INFORMATION IS NOT LIMITED TO THE MECHANICAL DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS INCLUDING DRAWINGS BY OTHER DISCIPLINES AND SPECIFICATIONS.
- A** - EACH DRAWING SHEET AND THE SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH ITEMS SHOWN AND NOTED ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN ALL PLACES. ITEMS IN SPECIFICATIONS OR DRAWINGS LISTED WHICH ARE DIFFERING IN EFFICIENCY OR QUALITY SHALL BE HELD TO THE GREATEST OF: EFFICIENCY, QUALITY OR GOVERNING CODE.
- B** - THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE INSTALLATION OF THE SYSTEMS ACCORDING TO THE TRUE INTENT AND MEANING OF THE CONTRACT DOCUMENTS.
- C** - THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT WITH PROPER SERVICE ACCESS AND CLEARANCES ACCORDING TO MANUFACTURERS RECOMMENDATIONS. THE CONTRACTOR SHALL REVIEW SUPPLIERS BID PACKAGES FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS, SCHEDULES, AND DESIGN INTENT (ALL EQUIPMENT AND METHODS). THE CONTRACTOR SHALL REMOVE AND REINSTALL CORRECTLY AT HIS OWN EXPENSE ANY EQUIPMENT NOT IN COMPLIANCE.
- D** - THE CONTRACTOR SHALL CONSULT MANUFACTURERS INSTALLATION INSTRUCTIONS FOR SIZES, METHODS, ACCESSORIES, AND CLEARANCES IN SPACE AVAILABLE PRIOR TO BIDDING PROJECT.
- E** - ANYTHING NOT CLEAR OR IN CONFLICT WILL BE EXPLAINED BY MAKING APPLICATION TO THE ENGINEER IN WRITING.
- G-2** ANY AND ALL ALTERATIONS TO THE SYSTEM SHOWN SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO CHANGES FOR APPROVAL. CONTRACTOR SHALL NOT START ANY CHANGES UNTIL NOTIFIED IN WRITING. IF CHANGES ARE MADE PRIOR TO APPROVAL CONTRACTOR SHALL TAKE ALL RESPONSIBILITY FOR THE CHANGES MADE AND ALL COSTS RELATING TO FAILURE OR REPLACEMENT OF ALTERATIONS.
- G-3** CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS.
- G-4** THE WORKING DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND, OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR MECHANICAL EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL DRAWINGS.
- G-5** THE INSTRUCTION TO "PROVIDE" ALSO INCLUDES INSTALLATION.
- G-6** THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY IN HANDLING AND DISPOSING OF HAZARDOUS MATERIAL SUCH AS REFRIGERANTS, OILS, ETC. ALL SUCH MATERIALS SHALL BE HANDLED, DISPOSED, AND USED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS. ASBESTOS REMOVAL, IF ROUND, SHALL BE REMOVED BY OTHERS.
- G-7** THE MECHANICAL CONTRACTOR SHALL VERIFY MOTOR VOLTAGES WITH THE ELECTRICAL DRAWINGS BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.
- G-8** SUPPLIERS SHALL REVIEW ALL DRAWINGS AND THE SPECIFICATIONS PRIOR TO SUBMITTING PRICES TO THE CONTRACTOR. ALL QUESTIONS AND DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BIDDING.
- G-9** CONTRACTOR SHALL THOROUGHLY REVIEW AND SIGN SUBMITTALS FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS PRIOR TO ENGINEERS REVIEW. SUPPLIERS SHALL HIGHLIGHT OR MARK ALL INFORMATION REQUIRED TO SHOW COMPLIANCE TO THE SPECIFICATIONS, OR SCHEDULES SHALL BE CLEARLY NOTED AND EXPLAINED. SUBMITTAL REVIEW AND ACCEPTANCE IS FOR DESIGN CONCEPT ONLY, AND DOES NOT AT ANY TIME RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO MEET SPECIFICATIONS, CAPACITIES, OR DESIGN INTENT.
- G-10** ALL MECHANICAL SHALL BE INSTALLED AND CONFORM TO THE 2006 EDITION OF THE IMC AND IPC WITH UTAH ANNOTATIONS AND LOCAL AUTHORITY REQUIREMENTS.
- G-11** THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE DRAINING DOWN AND RE-FILLING OF ALL SYSTEMS NECESSARY TO COMPLETE THE WORK OUTLINED BY THIS PROJECT. THIS INCLUDES PROVIDING THE REQUIRED CHEMICAL TREATMENT WHEN RE-FILLING THE SYSTEM.
- G-12** ALL PIPING, MATERIALS, ETC. SHALL BE NEW AND DOMESTIC MADE UNLESS SPECIFICALLY AUTHORIZED IN WRITING PRIOR TO BID.



Internet: <http://www.dfcv.state.ut.us>

CONSULTANTS



PROJECT NAME & ADDRESS

**SUU TECHNOLOGY
BUILDING AIR
HANDLERS
REPLACEMENT**

DFCM No. #08109730

Cedar City, Utah

MARK	DATE	REVISION

PROJECT MANAGER: WP	
DRAWN BY: LGD	
CHECKED BY: SLW	
DATE: 07/03/08	
WHW JOB NO.: 08016	

SHEET TITLE
**MECHANICAL GENERAL
NOTES AND LEGEND**

SHEET NO.
MG001

CONSULTANTS



PROJECT NAME & ADDRESS

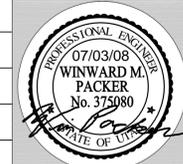
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Cedar City, Utah

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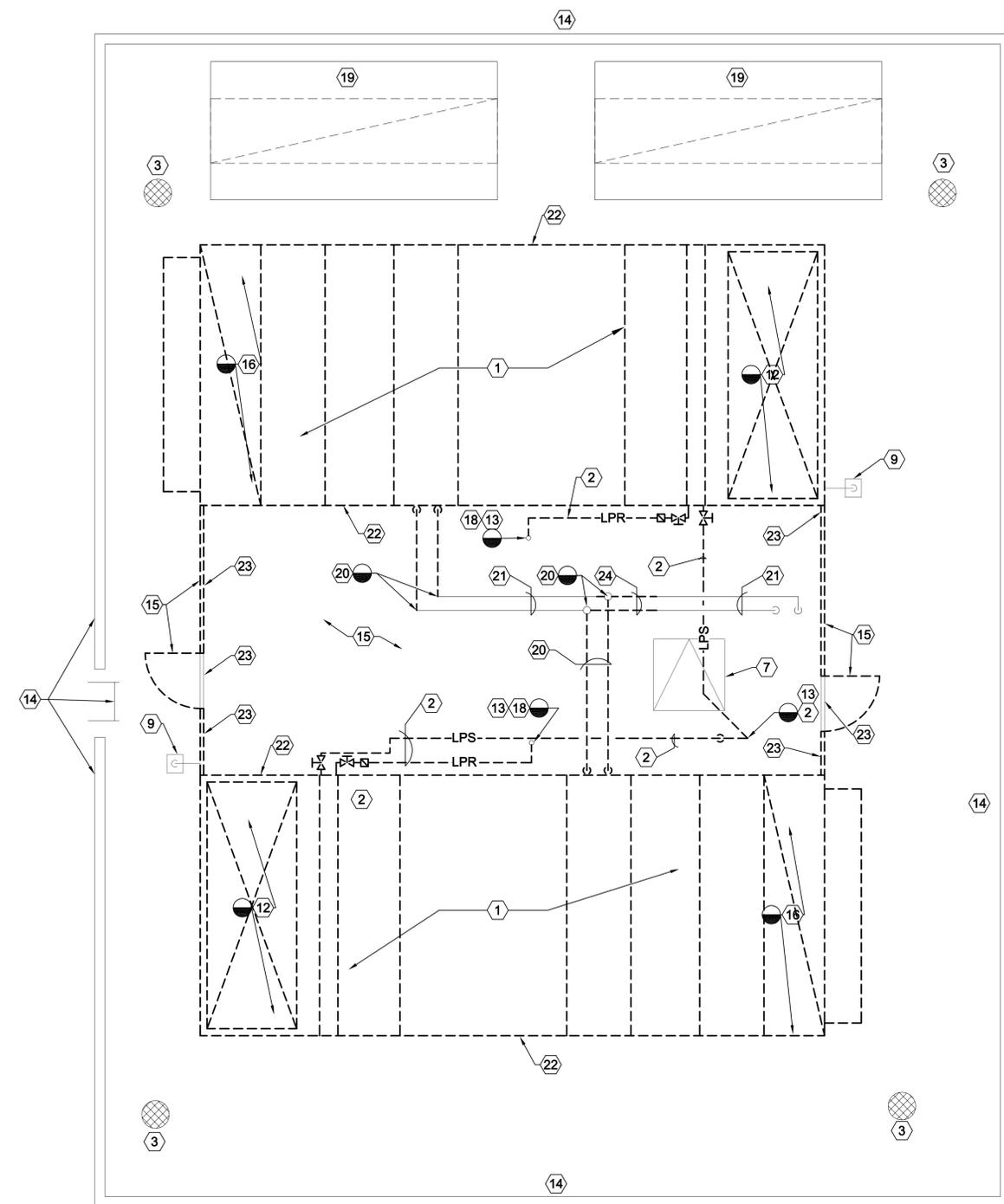
PROJECT MANAGER:
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07/03/08
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08016
SHEET TITLE



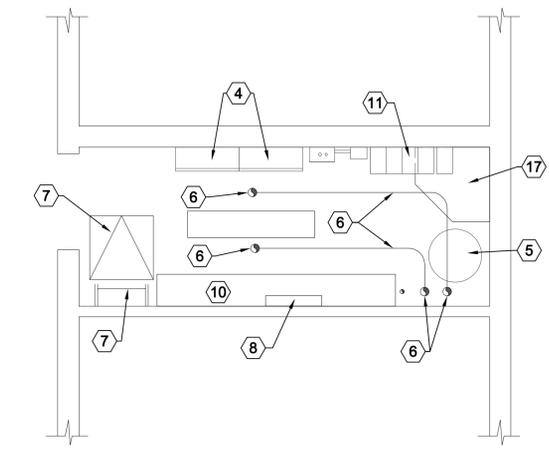
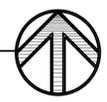
**LARGE SCALE AIR
HANDLERS DEMOLITION
PLAN**

SHEET NO.
MD401

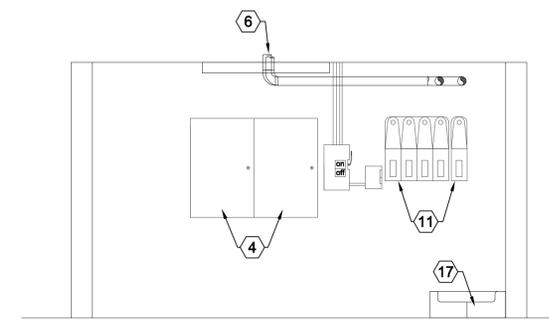
- SHEET NOTES:
- REMOVE EXISTING MULTIZONE AIR HANDLERS AND ALL ASSOCIATED ITEMS, ELECTRICAL, CONTROLS, ETC.
 - REMOVE ALL EXISTING STEAM AND CONDENSATE PIPING BACK TO WHERE PIPING ENTERS THE PENTHOUSE.
 - EXISTING ROOF DRAINS SHALL REMAIN.
 - EXISTING CONTROL PANELS SHALL REMAIN AND BE REUSED.
 - EXISTING HOT WATER HEATER SHALL REMAIN.
 - EXISTING CHWS AND CHWR FROM BELOW AND TO THE PENTHOUSE SHALL REMAIN.
 - EXISTING LADDER AND ROOF ACCESS PANEL SHALL REMAIN.
 - EXISTING SIMPLEX PANEL SHALL REMAIN.
 - EXISTING POWER SOURCE FROM BELOW. SEE ELECTRICAL DRAWINGS.
 - EXISTING STORAGE SHELVES SHALL REMAIN.
 - EXISTING SOAP DISPENSERS SHALL REMAIN.
 - DISCONNECT AND REMOVE EXISTING S.A. ZONE DUCTS, ZONE DAMPERS AND OPERATORS BETWEEN REMOVED UNIT AND FLOOR OPENING.
 - LEAVE ENOUGH PIPING ABOVE FLOOR IN PENTHOUSE FOR NEW PIPING CONNECTIONS TO EXISTING.
 - EXISTING WALL AND ACCESS STAIRS SHALL REMAIN.
 - EXISTING ROOF WALLS AND DOORS BETWEEN THE TWO MULTIZONE UNITS SHALL BE REMOVED. DISCONNECT ALL ITEMS, ELECTRICAL, CONTROLS ETC. ATTACHED TO THE WALLS AND ROOF. PROTECT FOR RE-ATTACHMENT TO NEW WALLS. SEE ELECTRICAL DRAWINGS.
 - REMOVE ANY R.A. DUCTWORK BETWEEN EXISTING UNIT AND FLOOR OPENING.
 - EXISTING FLOOR MOUNTED SERVICE SINK SHALL REMAIN.
 - EXISTING CONDENSATE RETURN THRU FLOOR SHALL REMAIN.
 - EXISTING RELIEF AIR PENTHOUSES SHALL REMAIN.
 - REMOVE THIS SECTION OF EXISTING CHWS AND CHWR. PROTECT CHILLED WATER PIPING, INSULATION ETC. FOR ATTACHMENT TO NEW UNITS. SUPPORT EXISTING PIPING TEMPORARY FROM FLOOR UNTIL NEW HOUSING IS INSTALLED.
 - EXISTING CHWS AND CHWR SHALL REMAIN, BE PROTECTED AND MODIFIED FOR RE-USE AND CONNECTION TO NEW MULTIZONE UNITS CHILLED WATER COILS. PROVIDE TEMPORARY FLOOR SUPPORTS UNTIL NEW HOUSING IS INSTALLED, THEN SUPPORT FROM ROOF.
 - EXISTING EQUIPMENT ROOF CURBS SHALL REMAIN.
 - EXISTING BASE AND FLASHING SHALL REMAIN.
 - REMOVE EXISTING 3-WAY VALVE, PIPING, STRAINER, BY-PASS ETC. PROVIDE STRAIGHT SPOOL PIECES TO FILL IN VOIDS.



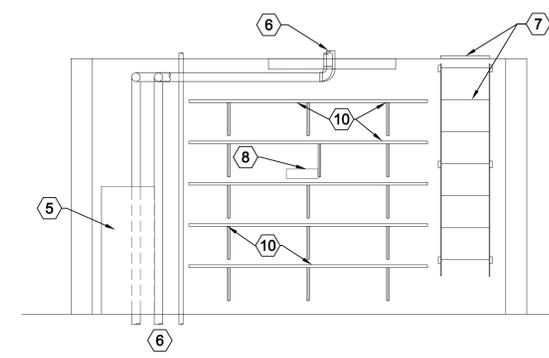
LARGE SCALE AIR HANDLER DEMOLITION PLAN
SCALE: 3/8" = 1'-0"



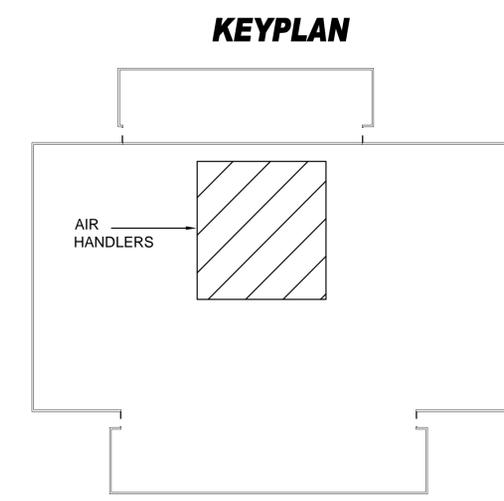
C3 PLAN VIEW JANITOR'S CLOSET
SCALE: 3/8" = 1'-0"



**B3 ELEVATION NORTH WALL
JANITOR'S CLOSET**
SCALE: 3/8" = 1'-0"



**A3 ELEVATION SOUTH WALL
JANITOR'S CLOSET**
SCALE: 3/8" = 1'-0"



KEYPLAN

CONSULTANTS



PROJECT NAME & ADDRESS

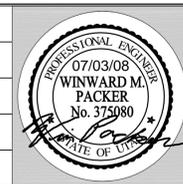
**SUU TECHNOLOGY
BUILDING AIR
HANDLERS
REPLACEMENT**

DFCM No. #08109730

Cedar City, Utah

MARK	DATE	REVISION

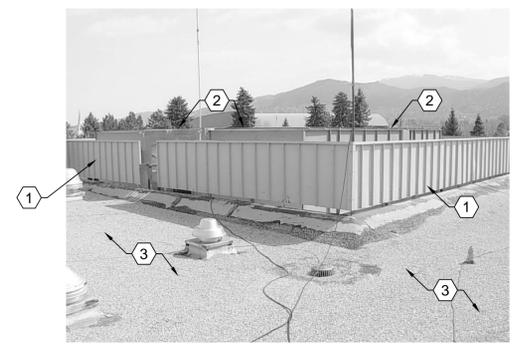
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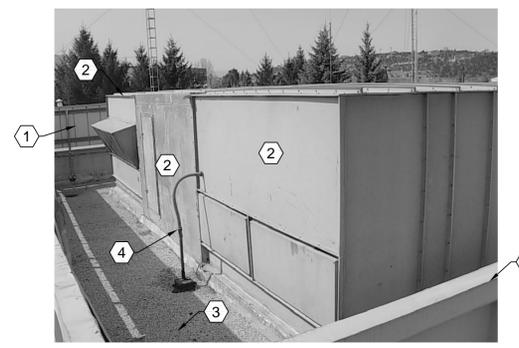
SHEET TITLE
**AIR HANDLERS AND PIPING
DEMOLITION PHOTOGRAPHS**

SHEET NO.
MD402

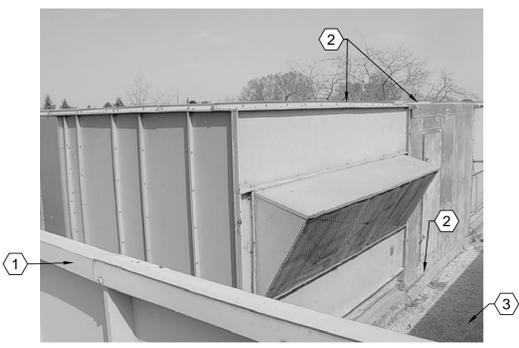
- SHEET NOTES:
- 1 EXISTING WALL SURROUNDING EXISTING MULTI-ZONE UNITS SHALL REMAIN.
 - 2 REMOVE EXISTING ROOFTOP MULTI-ZONE UNITS AND HOUSING BETWEEN THE TWO UNITS. ROOF CURBS AND BASE SHALL REMAIN.
 - 3 EXISTING BUILT-UP ROOF.
 - 4 EXISTING ELECTRICAL ROOF PENETRATION SHALL REMAIN. SEE ELECTRICAL DRAWINGS.
 - 5 EXISTING RELIEF AIR PENTHOUSE SHALL REMAIN AND BE RE-USED.
 - 6 EXISTING CHILLED WATER IN JANITOR'S CLOSET SHALL REMAIN.
 - 7 EXISTING WATER HEATER SHALL REMAIN.
 - 8 EXISTING FLOOR MOUNTED SERVICE SINK SHALL REMAIN.
 - 9 EXISTING STEAM SUPPLY ROOF PENETRATION SHALL REMAIN TO POINT SHOWN. REMOVE INSULATION FOR REPLACEMENT.
 - 10 REMOVE THIS SECTION OF STEAM PIPING, VALVES, CONTROL VALVES, TRAPS AND CONDENSATE PIPING.
 - 11 EXISTING ROOF HATCH SHALL REMAIN.
 - 12 EXISTING CHILLED WATER PIPING SHALL REMAIN.
 - 13 EXISTING CHILLED WATER ROOF PENETRATION SHALL REMAIN.
 - 14 REMOVE ALL CHILLED WATER EQUIPMENT CONNECTIONS AND PIPING.
 - 15 EXISTING CONDUIT AND WIRING SHALL REMAIN. DISCONNECT AT REMOVED MULTI-ZONE UNITS. (TYPICAL) SEE ELECTRICAL DRAWINGS
 - 16 REMOVE ALL EXISTING EVAPORATIVE WATER PIPING, DRAINS ETC. (TYPICAL BOTH UNITS.)
 - 17 EXISTING SOAP DISPENSERS SHALL REMAIN.
 - 18 EXISTING CONTROL PANELS SHALL REMAIN.
 - 19 EXISTING LADDER AND HATCH TO PENTHOUSE SHALL REMAIN.
 - 20 REMOVE EXISTING 3-WAY VALVE, VALVES, STRAINERS, BY-PASS ETC. AND PROVIDE SPOOL PIECE IN THE SPACE LEFT.



**C1 AIR HANDLERS
LOOKING NORTHEAST**
SCALE: NONE



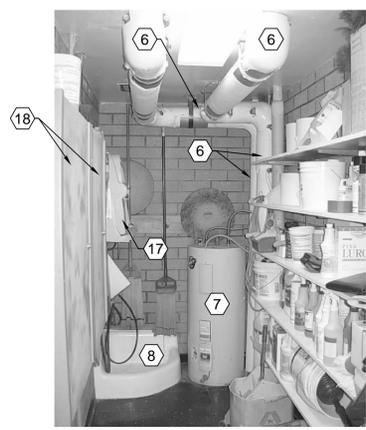
**C2 AIR HANDLERS
LOOKING SOUTHWEST**
SCALE: NONE



**C3 AIR HANDLERS
LOOKING NORTHWEST**
SCALE: NONE



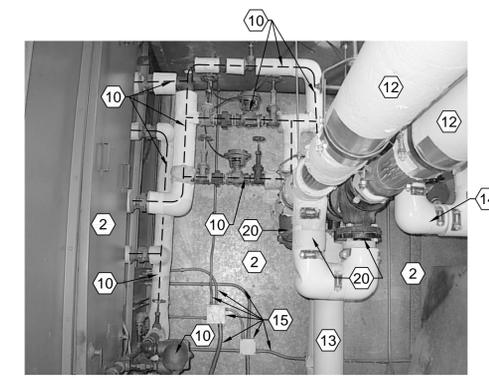
**B1 AIR HANDLERS AND RELIEF
PENTHOUSES LOOKING WEST**
SCALE: NONE



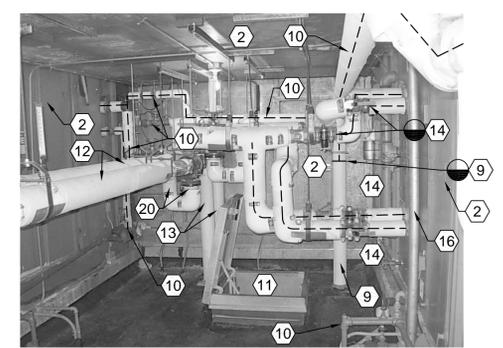
B2 JANITOR'S ROOM
SCALE: NONE



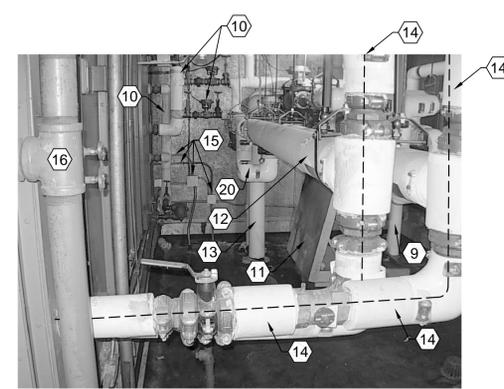
**B3 JANITOR'S ROOM
ROOF ACCESS**
SCALE: NONE



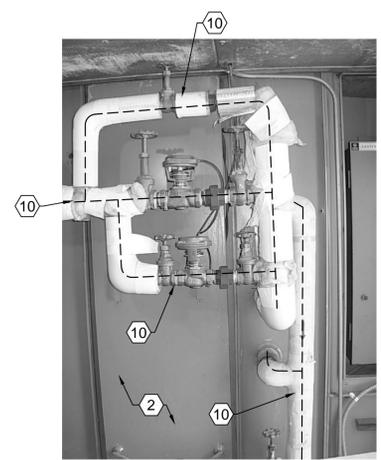
**B4 AIR HANDLERS
PIPING DEMOLITION**
SCALE: NONE



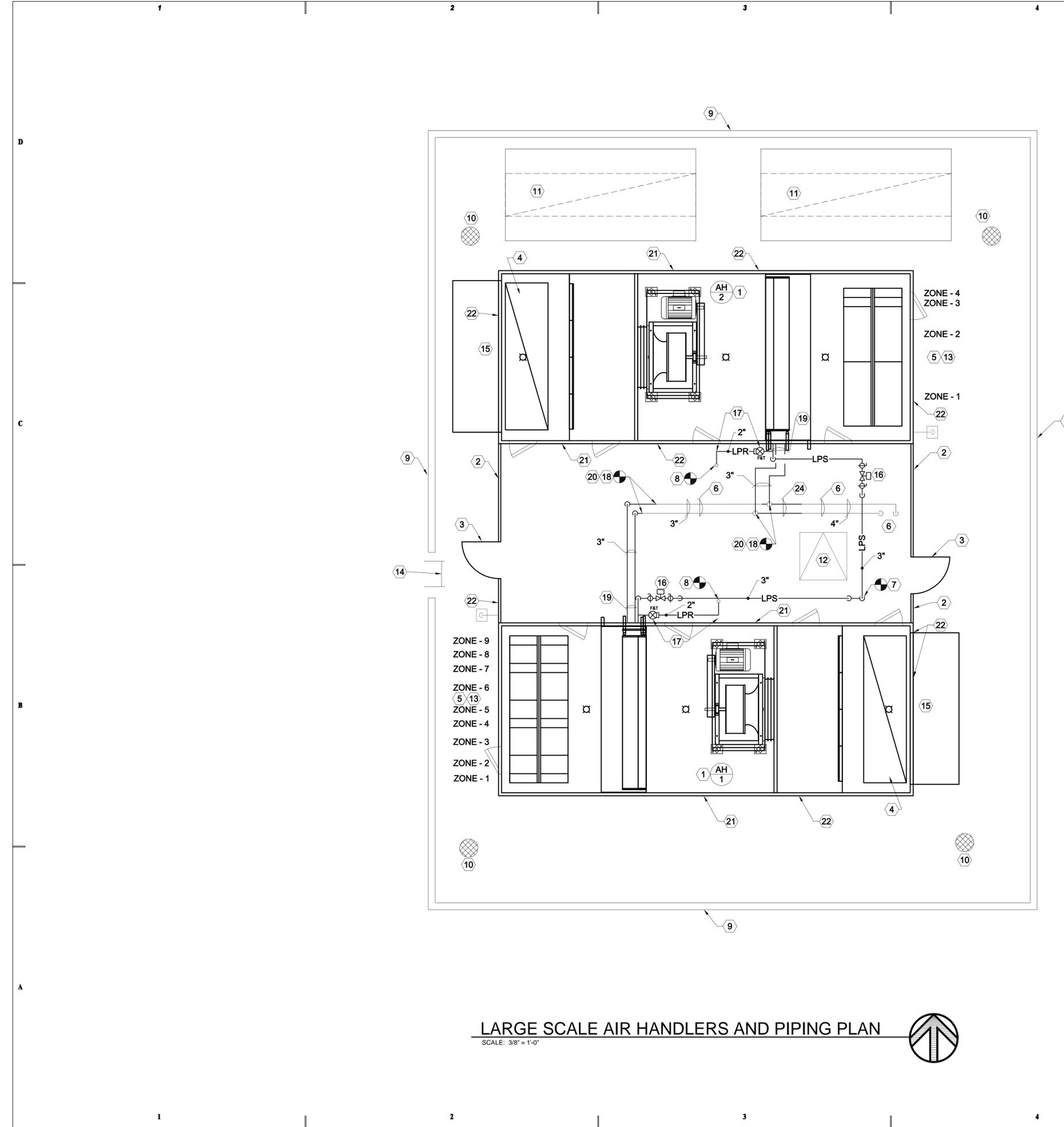
**A1 AIR HANDLERS
PIPING DEMOLITION**
SCALE: NONE



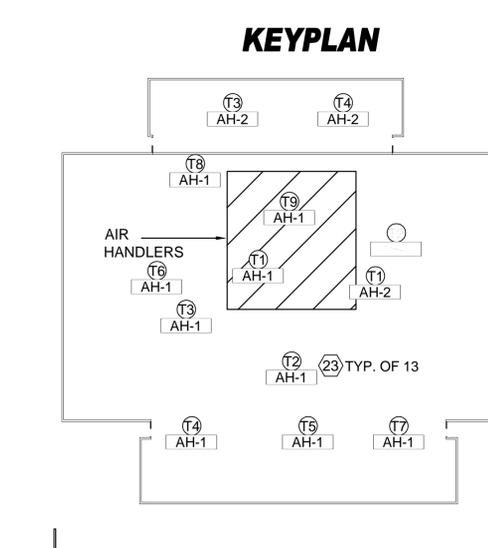
**A2 AIR HANDLERS
PIPING DEMOLITION**
SCALE: NONE



**A3 AIR HANDLERS
PIPING DEMOLITION**
SCALE: NONE



- SHEET NOTES:**
- ① PROVIDE NEW ROOF MOUNTED MULTIZONE AIR HANDLER UNITS AH-1 AND AH-2. MOUNT ON EXISTING ROOF CURBS. MODIFY EXISTING ROOF CURBS TO ACCEPT THE FOOTPRINT OF THE NEW AIR HANDLERS. FIELD VERIFY EXISTING ROOF CURBS.
 - ② PROVIDE NEW INSULATED METAL PENTHOUSE HOUSING WITH WALLS, ROOF, DOORS, SUPPORT, LIGHTS, AND WEATHERPROOF JOINTS TO MATCH EXISTING REMOVED HOUSING. CONTRACTOR SHALL PROVIDE PENTHOUSE AND ATTACH TO NEW AIR HANDLING UNITS. MOUNT ON EXISTING FRAME AND FLASHING. ROOF SHALL BE AS HIGH AS HIGHEST PART OF AIR HANDLING UNITS. SEE STRUCTURAL DETAILS.
 - ③ 24"x72" DOORS INSULATED WITH LEVER HANDLE AND KEY LOCK. MATCH SUU KEY AND LOCKING STANDARD.
 - ④ CONNECT TO EXISTING RETURN AIR DUCT FROM BELOW. FIELD VERIFY LOCATION. PROVIDE NEW FLEX CONNECTIONS TO BOTTOM OF NEW AIR HANDLING UNITS.
 - ⑤ CONNECT TO EXISTING ZONE DUCTS FROM BELOW. FIELD VERIFY LOCATION. PROVIDE NEW FLEX CONNECTIONS TO BOTTOM OF NEW AIR HANDLING UNITS. SEE ZONE DISTRIBUTION DUCTS ME503, ME504, AND ME505.
 - ⑥ CHILLED WATER SUPPLY AND RETURN PIPING FROM BELOW. RE-USE EXISTING PIPING, VALVES ETC. PROVIDE NEW PIPING FROM CONNECTIONS TO NEW EQUIPMENT.
 - ⑦ EXISTING 3" STEAM SUPPLY FROM BELOW. PROVIDE NEW CONNECTION AND ROUTE NEW PIPING TO NEW STEAM COILS.
 - ⑧ EXISTING CONDENSATE RETURN PIPING RISER. CONNECT NEW CONDENSATE PIPING AT TOP OF RISERS.
 - ⑨ EXISTING WALL SHALL REMAIN.
 - ⑩ EXISTING ROOF DRAINS.
 - ⑪ EXISTING RELIEF AIR PENTHOUSE SHALL REMAIN.
 - ⑫ EXISTING PENTHOUSE ACCESS HATCH SHALL REMAIN.
 - ⑬ SEE SHEET ME502 FOR ZONE LAYOUTS AND CFM REQUIREMENTS FOR AH-1 AND AH-2.
 - ⑭ EXISTING WALL OPENING AND LADDER SHALL REMAIN.
 - ⑮ OUTSIDE AIR DAMPER WITH HOODS.
 - ⑯ STEAM DUAL CONTROL STATION. SEE DETAIL D1/ME501..
 - ⑰ LOW PRESSURE RETURN PIPING COMPLETE WITH TRAPS, VALVES, ETC. SEE STEAM TRAP ASSEMBLY B1/ME501.
 - ⑱ CONNECT NEW CHWS AND CHWR PIPING TO EXISTING IN THIS APPROXIMATE LOCATION. FIELD VERIFY LOCATION. EXTEND TO NEW CHILLER WATER COIL IN NEW AIR HANDLERS.
 - ⑲ SEE DETAIL B3/ME501 FOR CHILLED WATER COIL PIPING.
 - ⑳ RISE-UP AS HIGH AS POSSIBLE FOR ACCESS UNDER PIPING.
 - ㉑ EXISTING CURB USED FOR EXISTING REMOVED AH-1 AND AH-2 SHALL BE REUSED FOR NEW AH-1 AND AH-2.
 - ㉒ PROVIDE CONTINUOUS 26 GAUGE FLASHING AROUND BASE OF EQUIPMENT AND EXTENDING DOWN CURB INTO ROOF FLASHING IF REMOVED DURING DEMOLITION OF EXISTING UNITS.
 - ㉓ REPLACE EXISTING PNEUMATIC THERMOSTATS AND REPLACE WITH NEW ELECTRONIC SENSORS.
 - ㉔ PROVIDE SPOOL PIECES TO FILL IN WHERE CONTROL VALVE, BY-PASS, VALVES, STRAINERS ETC. WERE REMOVED.



Internet: <http://www.dfc.state.ut.us>

CONSULTANTS

WHW ENGINEERING INC.
PROFESSIONAL MECHANICAL ENGINEERING
8619 Sandy Parkway Suite 101
SANDY, UTAH 84070
(801) 466-4021, FAX 466-8536
EMAIL: excellence@whw-engineering.com

PROJECT NAME & ADDRESS

**SUU TECHNOLOGY
BUILDING AIR
HANDLERS
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DFCM No. #08109730

Cedar City, Utah

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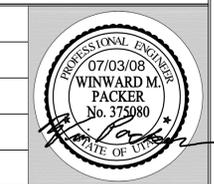
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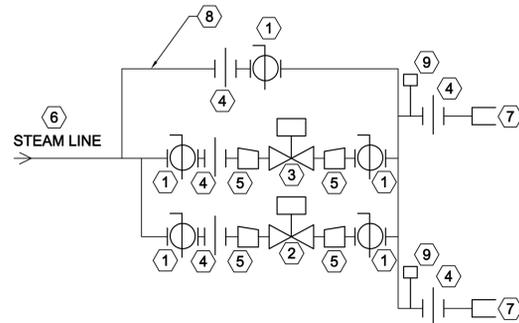
SHEET TITLE



**LARGE SCALE AIR HANDLERS
AND PIPING PLAN**

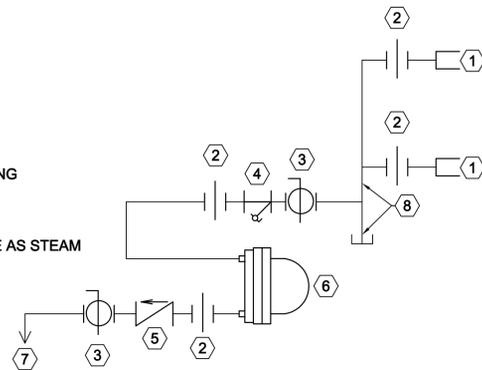
SHEET NO.
ME401

- 1 BALL VALVE (TYP.)
- 2 1/3 ELECTRONIC CONTROL VALVE
- 3 2/3 ELECTRONIC CONTROL VALVE
- 4 UNION
- 5 REDUCERS IF REQUIRED ECCENTRIC WITH FLAT SIDE ON BOTTOM
- 6 STEAM SUPPLY
- 7 COIL CONNECTIONS
- 8 BY-PASS FULL SIZE

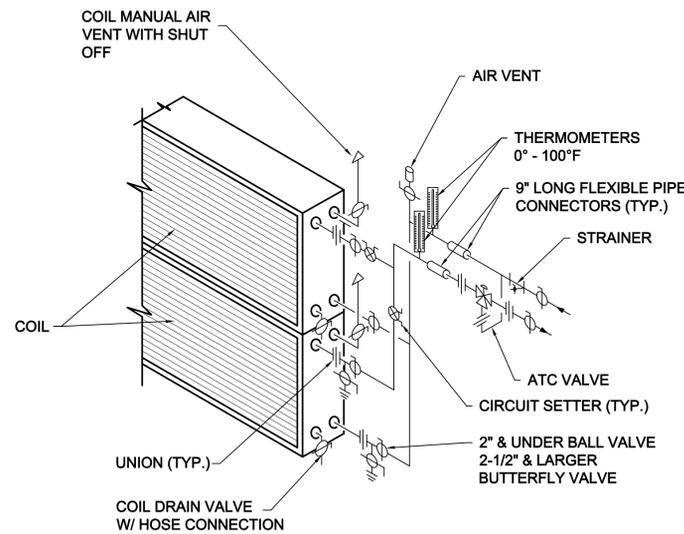


D1 STEAM COIL PIPING DETAIL
SCALE: NONE

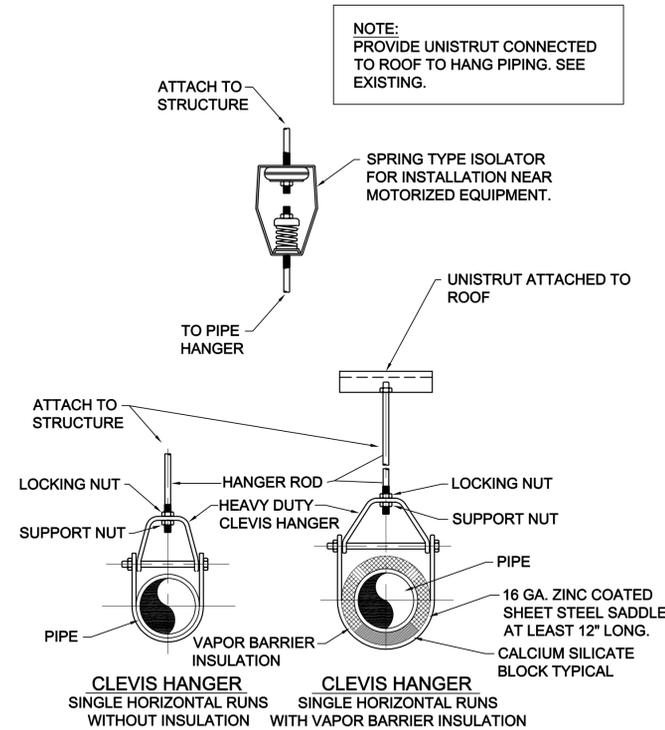
- 1 COIL CONNECTION
- 2 UNION
- 3 BALL VALVE
- 4 STRAINER
- 5 CHECK VALVE
- 6 F & T TRAP
- 7 CONNECT TO EXISTING CONDENSATE THRU-FLOOR
- 8 DRIP LEG, SAME SIZE AS STEAM PIPING. CAP END.



B1 CONDENSATE COIL PIPING DETAIL
SCALE: NONE



B3 CHILLED WATER COIL PIPING DETAIL
SCALE: NONE



C4 PIPE HANGER DETAIL
SCALE: NONE

AIR HANDLING UNIT SCHEDULE - MULTIZONE UNITS

SYMBOL	LOCATION	CFM	O.A. CFM	MAX. WEIGHT	ESP ARR.	FAN MOTOR				CW COOLING COIL CAPACITY							STEAM HEATING COIL				MANUF. & MODEL #	SCHEDULE NOTES		
						HP	VOLT	PHASE	CYCLE	MAX AIR PD. IN WG.	TOTAL MBH	TONS COOL	GPM	EWT	LWT	EADB	EAWB	LADB	MAX AIR PD.	MBH			LBS./HR.	AIR TEMP RISE
AHU 1	ROOF	22,960	4,600	15,000	2.75	25	208	3	60	.24	549	58	140	44	54	80	65	55	0.2	1070	1,100	50	TRANE CUSTOM	1,2,4
AHU 2	ROOF	23,110	4,600	15,000	2.75	25	208	3	60	.24	552	58	140	44	54	80	65	55	0.2	1070	1,100	50	TRANE CUSTOM	1,3,4

1. ALL UNITS OVER 2000 CFM MUST BE EQUIPPED WITH SMOKE DETECTORS.

2. AHU-1 ZONE 1- 5" x 30" COLD /HOT DECK 1,000 CFM
 ZONE 2- 12" x 30" COLD /HOT DECK 2,700 CFM
 ZONE 3- 18" x 30" COLD /HOT DECK 5,040 CFM
 ZONE 4- 5" x 30" COLD /HOT DECK 1,050 CFM
 ZONE 5- 10" x 30" COLD /HOT DECK 2,250 CFM
 ZONE 6- 17" x 30" COLD /HOT DECK 4,700 CFM
 ZONE 7- 7" x 30" COLD /HOT DECK 1,610 CFM
 ZONE 8- 14" x 30" COLD /HOT DECK 3,260 CFM
 ZONE 9- 6" x 30" COLD /HOT DECK 1,350 CFM

3. AHU-2 ZONE 1- 42" x 30" COLD /HOT DECK 10,105 CFM
 ZONE 2- 38" x 30" COLD /HOT DECK 9,100 CFM
 ZONE 3- 8" x 30" COLD /HOT DECK 1,795 CFM
 ZONE 4- 10" x 30" COLD /HOT DECK 2,100 CFM

4. INSTALL ON EXISTING CURBS. FIELD MEASURE EXACT DIMENSIONS BEFORE ORDERING.

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SHEET TITLE
**MECHANICAL DETAILS
AND SCHEDULES**

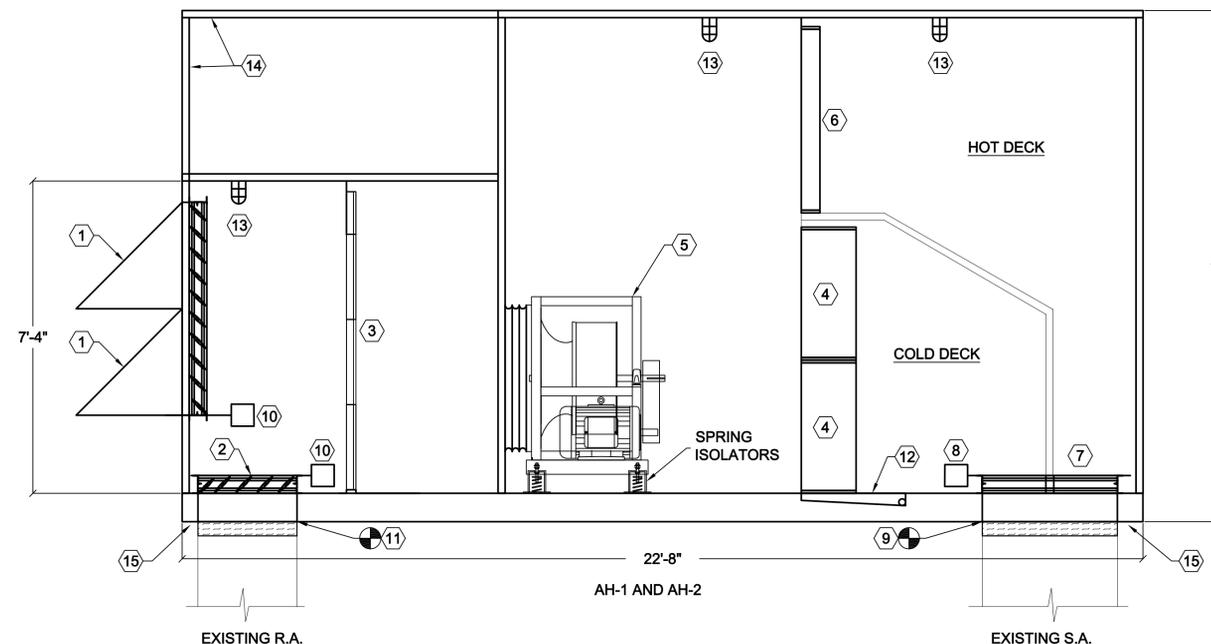
SHEET NO.
ME501

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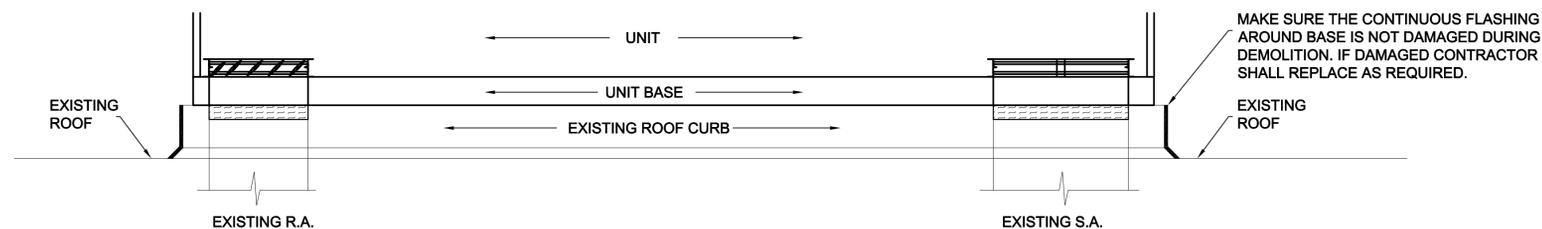


WHW
ENGINEERING INC.
PROFESSIONAL MECHANICAL ENGINEERING
8619 Sandy Parkway Suite 101
SANDY, UTAH 84070
(801) 466-4021, FAX 466-8636
EMAIL: excellence@whw-engineering.com

- SHEET NOTES:
- ① OUTSIDE AIR DAMPER WITH HOOD - 100" W x 60" H.
 - ② RETURN AIR DAMPER - 96" H x 28" H.
 - ③ FILTER SECTION - 2" 30% PREFILTER
 - ④ CHILLED WATER COOLING COIL SECTION - 36" H x 99" W.
 - ⑤ SUPPLY FAN SECTION - 33" PLENUM FAN W/ 25HP MOTOR. MOUNT ON SPRING ISOLATORS.
 - ⑥ STEAM HEATING COIL SECTION - (1) 51" H x 99" W.
 - ⑦ ZONE DAMPERS - 9 FOR AH-1, 4 FOR AH-2.
 - ⑧ PROVIDE AUTO DAMPER OPERATORS ON DAMPERS PROVIDED BY AIR HANDLING UNIT MANUFACTURER. PROVIDE 9 FOR AH-1 AND 4 FOR AH-2.
 - ⑨ CONNECT TO EXISTING SUPPLY AIR ZONE DUCTS. PROVIDE FLEX CONNECTIONS.
 - ⑩ PROVIDE AUTO DAMPER OPERATORS FOR F.A. AND R.A.
 - ⑪ CONNECT TO EXISTING RETURN AIR DUCTWORK. PROVIDE FLEX CONNECTIONS.
 - ⑫ DRAIN PAN UNDER ENTIRE CHILLED WATER COIL SECTION. PROVIDE EXTERIOR DRAIN AND BALL VALVE. EXTEND DRAIN TO FLOOR DRAIN.
 - ⑬ PROVIDE CEILING MOUNTED LIGHTS AND CONTROL SWITCH.
 - ⑭ NEW PENTHOUSE HOUSING BETWEEN BOTH MULTIZONE AIR HANDLING UNITS.
 - ⑮ MOUNT ON EXISTING ROOF CURBS.



B2 NEW MULTIZONE AIR HANDLER SECTION
SCALE: 1/2" = 1'-0"



A2 EXISTING ROOF CURB SUPPORT FOR NEW UNITS SECTION
SCALE: 1/2" = 1'-0"

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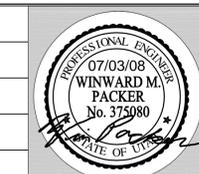
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SHEET TITLE

AIR HANDLER DETAIL

SHEET NO.

ME502



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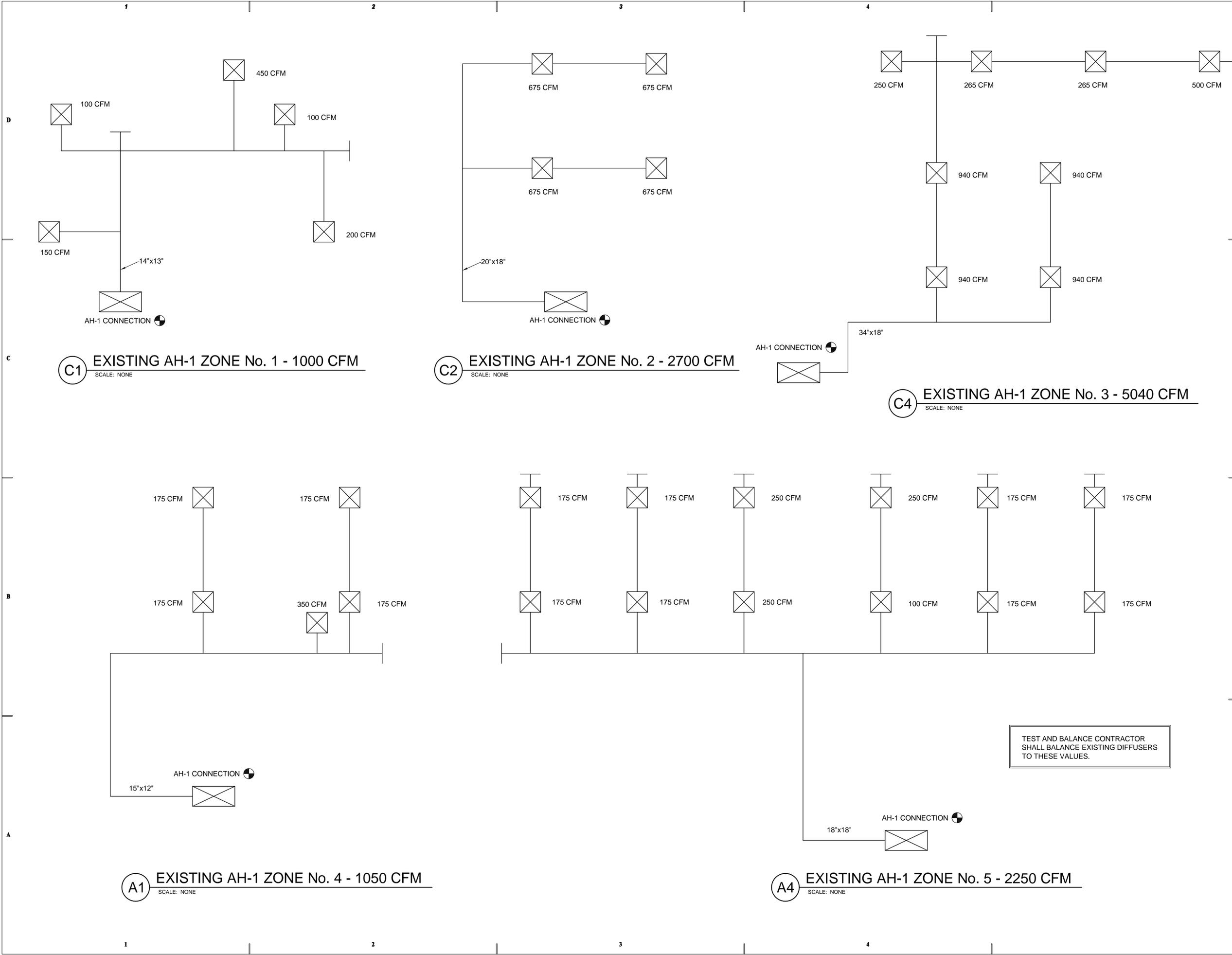
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SHEET TITLE

**ZONE LAY-OUT AND CFM
REQUIREMENTS AH-1**

SHEET NO.

ME503



C1 EXISTING AH-1 ZONE No. 1 - 1000 CFM
SCALE: NONE

C2 EXISTING AH-1 ZONE No. 2 - 2700 CFM
SCALE: NONE

C4 EXISTING AH-1 ZONE No. 3 - 5040 CFM
SCALE: NONE

A1 EXISTING AH-1 ZONE No. 4 - 1050 CFM
SCALE: NONE

A4 EXISTING AH-1 ZONE No. 5 - 2250 CFM
SCALE: NONE

TEST AND BALANCE CONTRACTOR
SHALL BALANCE EXISTING DIFFUSERS
TO THESE VALUES.

CONSULTANTS



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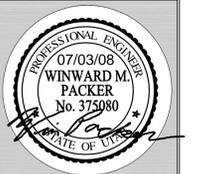
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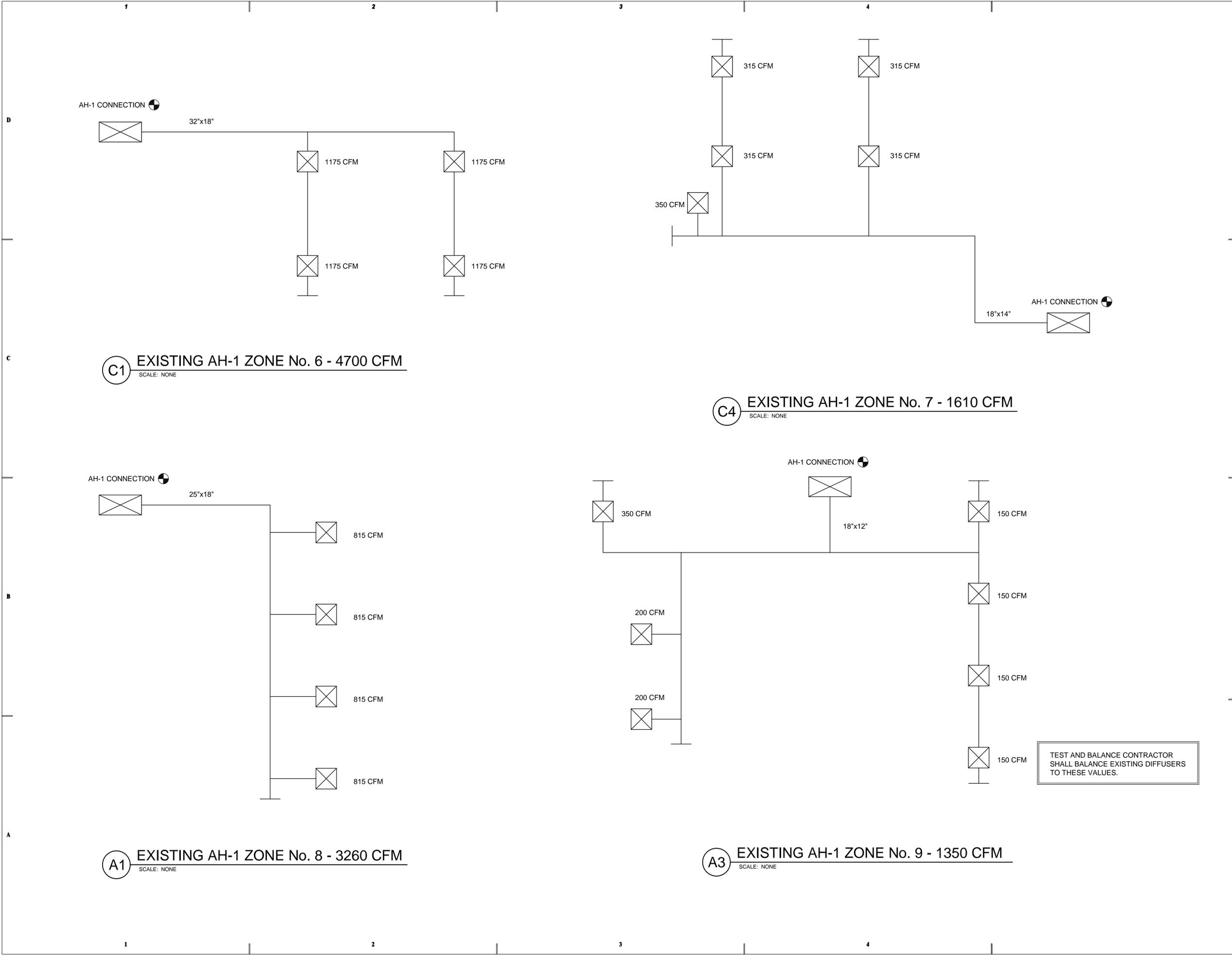
SHEET TITLE



**ZONE LAY-OUT AND CFM
REQUIREMENTS AH-1**

SHEET NO.

ME504



C1 EXISTING AH-1 ZONE No. 6 - 4700 CFM
SCALE: NONE

C4 EXISTING AH-1 ZONE No. 7 - 1610 CFM
SCALE: NONE

A1 EXISTING AH-1 ZONE No. 8 - 3260 CFM
SCALE: NONE

A3 EXISTING AH-1 ZONE No. 9 - 1350 CFM
SCALE: NONE

TEST AND BALANCE CONTRACTOR
SHALL BALANCE EXISTING DIFFUSERS
TO THESE VALUES.

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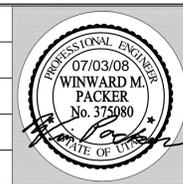
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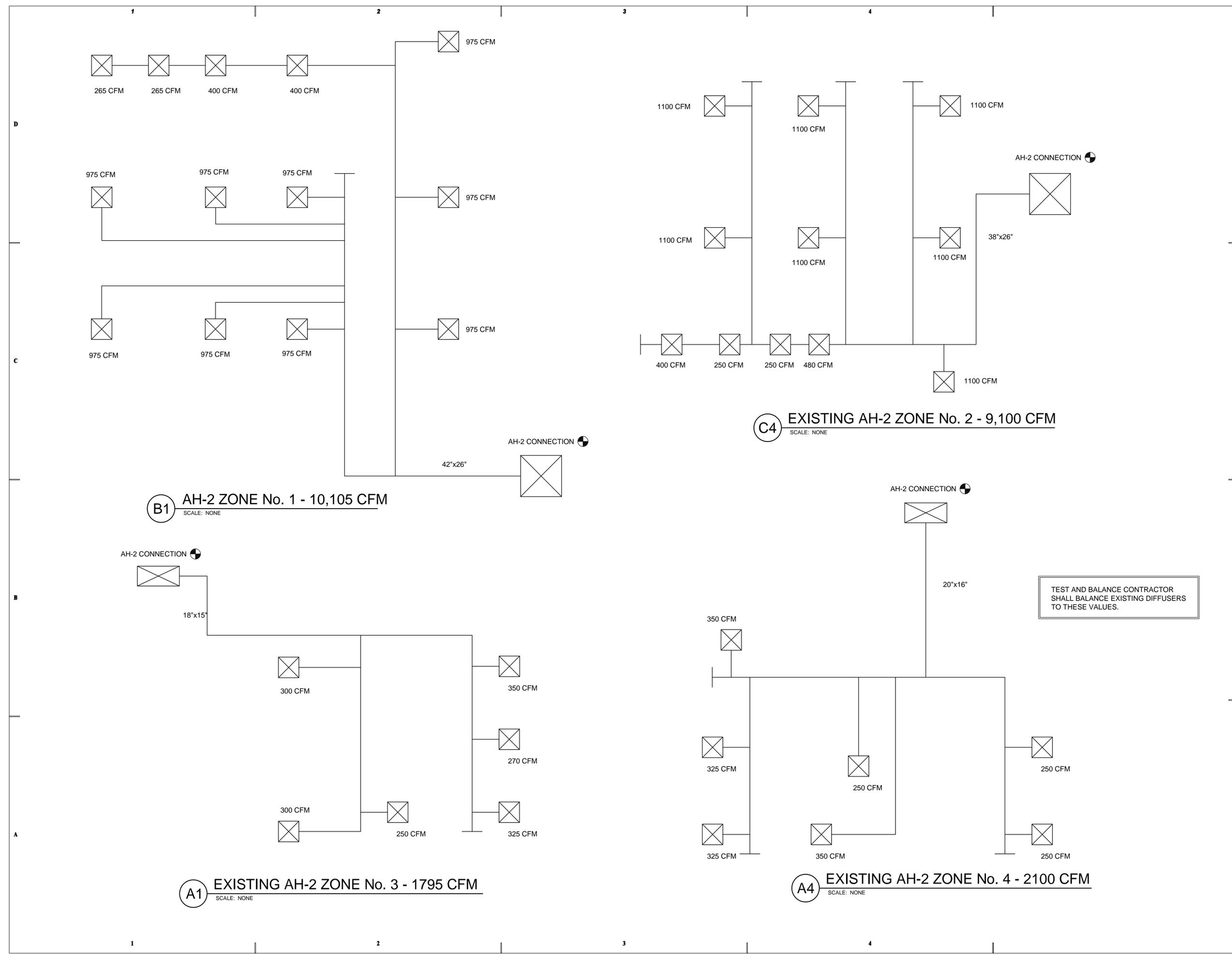
DATE:
 07/03/08

WHW JOB NO.:
 08016



SHEET TITLE
**ZONE LAY-OUT AND CFM
 REQUIREMENTS AH-2**

SHEET NO.
ME505



SYMBOL LEGEND	
SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
	KEYNOTE INDICATOR.
	REVISION INDICATOR.
	EQUIPMENT INDICATOR.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING.
	NEW LINE: MEDIUM LINE.
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE.
WIRING METHODS	
	WIRING.
	WIRING TURNED UP OR TOWARDS OBSERVER.
	WIRING TURNED DOWN OR AWAY FROM OBSERVER.
	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN SECTION 16120.
	FLEXIBLE WIRING.
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.
	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER TO ONE-LINE DIAGRAM.
	JUNCTION BOX.
	EARTH GROUND (ONE-LINE DIAGRAM).
WIRING DEVICES	
	RECEPTACLE, DUPLEX: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WET LABEL, "WEATHERPROOF IN USE": NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.
	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED).
	SWITCH, THREE-WAY ("x" INDICATES FIXTURES CONTROLLED).
	SWITCH, PILOT LIGHT.
	SWITCH, WEATHERPROOF.
ELECTRICAL POWER AND DISTRIBUTION	
	FUSE WITH RATING (ONE-LINE DIAGRAM).
	DISCONNECT, FUSED (ONE-LINE DIAGRAM).
	DISCONNECT, NONFUSED (ONE-LINE DIAGRAM).
	DISCONNECT WITH FUSE AND MOTOR STARTER COMBINATION (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE (ONE-LINE DIAGRAM).
	MOTOR.
	TRANSFORMER (ONE-LINE DIAGRAM).
	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).

VARIABLE FREQUENCY MOTOR CONTROLLER (ONE-LINE DIAGRAM).	
	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED.
	STARTER, COMBINATION WITH DISCONNECT SWITCH.
	STARTER OR MOTOR CONTROLLER.
	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
	DISTRIBUTION PANEL OR SWITCHBOARD.
LIGHTING (REFER TO FIXTURE SCHEDULE FOR SYMBOLS)	
	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
	EMERGENCY.
FIRE ALARM	
	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.
	CONTROL MODULE.
	MONITOR MODULE.
	FIRE ALARM MANUAL PULL STATION.
	SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCUIT OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.
	DETECTOR, SMOKE.
	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.
	DETECTOR, HEAT.
	ALARM, HORN/STROBE, ONE ASSEMBLY. SUBSCRIPT INDICATES CANDELA RATING.
	SMOKE DAMPER.
	FIRE AND SMOKE DAMPER.

DEFINITIONS	
NOTE: ALL DEFINITIONS MAY NOT BE USED.	
INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.	
DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", "AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.	
APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.	
FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."	
INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."	
PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."	
INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.	
TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...	

ABBREVIATIONS			
NOTE: ALL ABBREVIATIONS MAY NOT BE USED.			
1P	SINGLE POLE	kW	KILOWATT
1PH	SINGLE-PHASE	kWh	KILOWATT HOUR
3PH	THREE-PHASE	LED	LIGHT EMITTING DIODE
4W	FOUR-WIRE	LFTM	LIQUID TIGHT FLEXIBLE METAL CONDUIT
A	ABOVE COUNTER	LRA	LOCKED ROTOR AMPS
ADA	AMERICANS WITH DISABILITIES ACT	LTV	LOW VOLTAGE
ADJ	ADJACENT	LV	LOW VOLTAGE
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
AIC	AMPERE INTERRUPTING CAPACITY	MC	METAL CLAD
ALUM	ALUMINUM	MCA	MINIMUM CIRCUIT AMPS
AMP	AMPERE	MCB	MAIN CIRCUIT BREAKER
ANN	ANNUNCIATOR	MCC	MOTOR CONTROL CENTER
AR	AS REQUIRED	MCP	MOTOR CIRCUIT PROTECTION
ASC	AMPS SHORT CIRCUIT AUTOMATIC TRANSFER SWITCH	MDP	MAIN DISTRIBUTION PANEL
ATS	SWITCH	MH	MANHOLE
AV	AUDIO VISUAL	MIN	MINIMUM
AWG	AMERICAN WIRE GAGE	MLO	MAIN LUGS ONLY
C	CENTRAL MOUNTED	MOC	MAXIMUM OVERCURRENT PROTECTION
CATV	COMMUNITY ANTENNA TELEVISION	MOC	MAXIMUM OVERCURRENT PROTECTION
CB	CIRCUIT BREAKER	NA	NOT APPLICABLE
CCTV	CLOSED CIRCUIT TELEVISION	NC	NORMALLY CLOSED
CKT	CIRCUIT	NEC	NATIONAL ELECTRICAL CODE
CND	CONDUIT	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CO	CONVENIENCE OUTLET	NFC	NATIONAL FIRE CODE
CP	CONTROL PANEL	NFFA	NATIONAL FIRE PROTECTION ASSOCIATION
CT	CURRENT TRANSFORMER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CTV	CABLE TELEVISION	NIC	NOT IN CONTRACT
CU	COPPER	NL	NIGHT LIGHT
DPDT	DOUBLE POLE DOUBLE THROW	NO	NORMALLY OPEN
EA	EACH	NTS	NOT TO SCALE
EM	EMERGENCY	OC	ON CENTER
EMT	ELECTRICAL METALLIC TUBING	OCP	OVER CURRENT PROTECTION
EQUIP	EQUIPMENT	OH DR	OVERHEAD (COILING) DOOR
EXIST	EXISTING	OL	OVERLOAD
F	FURNITURE MOUNTED	PB	PUSHBUTTON
FA	FIRE ALARM	PF	POWER FACTOR
FCP	FIRE ALARM CONTROL PANEL	PH	PHASE
FLA	FULL LOAD AMPS	PNL	PANEL
FVNR	FULL VOLTAGE NON-REVERSING	PT	POTENTIAL TRANSFORMER
FVR	FULL VOLTAGE REVERSING	QTY	QUANTITY
G	GROUND	R	REMOVE
GEN	GENERATOR	RCP	REFLECTED CEILING PLAN
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SCA	SHORT CIRCUIT AMPS
GFP	GROUND FAULT PROTECTION	SPEC	SPECIFICATION
HD	HEAVY DUTY	S/S	START/STOP
HID	HIGH INTENSITY DISCHARGE	ST	SINGLE THROW
HOA	HAND-OFF-AUTOMATIC	SWBD	SWITCHBOARD
HP	HORSE POWER	TL	TWIST LOCK
HPF	HIGH POWER FACTOR	TP	TWISTED PAIR
HPS	HIGH PRESSURE SODIUM	TTB	TELEPHONE TERMINAL BOARD
HV	HIGH VOLTAGE	TV	TELEVISION
HZ	HERTZ	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
IG	ISOLATED GROUND	TYP	TYPICAL
IN/IS	INSULATED/ISOLATED	UF	UNDERFLOOR
I/O	INPUT/OUTPUT	UGND	UNDERGROUND
IR	INFRARED	V	VOLTS
J-BOX	JUNCTION BOX	VA	VOLT AMPERE
KV	KILOVOLT	VFC	VARIABLE FREQUENCY CONTROLLER
KVA	KILOVOLT AMPERE	W/	WITH
kVAR	KILOVOLT AMPERE REACTIVE	W/O	WITHOUT
		WP	WEATHERPROOF
		XFMR	TRANSFORMER

GENERAL ELECTRICAL NOTES

- CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.
- EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
- SUBMITTALS: PROVIDE SUBMITTALS IN THREE RING BINDERS WITH JOB NAME, SUBCONTRACTOR, AND VOLUME ON THE BINDING. PREPARE TABS FOR EACH SPECIFICATION SECTION REQUIRING SUBMITTALS. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.

ELECTRICAL SHEET INDEX	
SHEET NO	SHEET TITLE
E-001	SYMBOL LEGEND LIST AND SHEET INDEX
E-401	ELECTRICAL DEMOLITION PLAN
E-402	ELECTRICAL PLAN

State of Utah

Department of Administrative Services

Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

Internet: <http://www.dfcm.state.ut.us>



State of Utah—Department of Administrative Services
DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
4110 State Office Building Salt Lake City, Utah 84114 1208-2018

CONSULTANTS

WHW
ENGINEERING INC.
PROFESSIONAL MECHANICAL ENGINEERING
8619 Sandy Parkway Suite 101
SANDY, UTAH 84070
(801) 466-4021, FAX 466-8536
EMAIL: excellence@whw-engineering.com

SPECTRUM
ENGINEERS
175 South Main Street, Suite 300
Salt Lake City, Utah 84111
801-328-5151
800-678-7077
FAX 801-328-5155
www.spectrum-engineers.com

PROJECT NAME & ADDRESS

**SUU TECHNOLOGY
BUILDING AIR
HANDLERS
REPLACEMENT**

DFCM No. #08109730

Cedar City, Utah

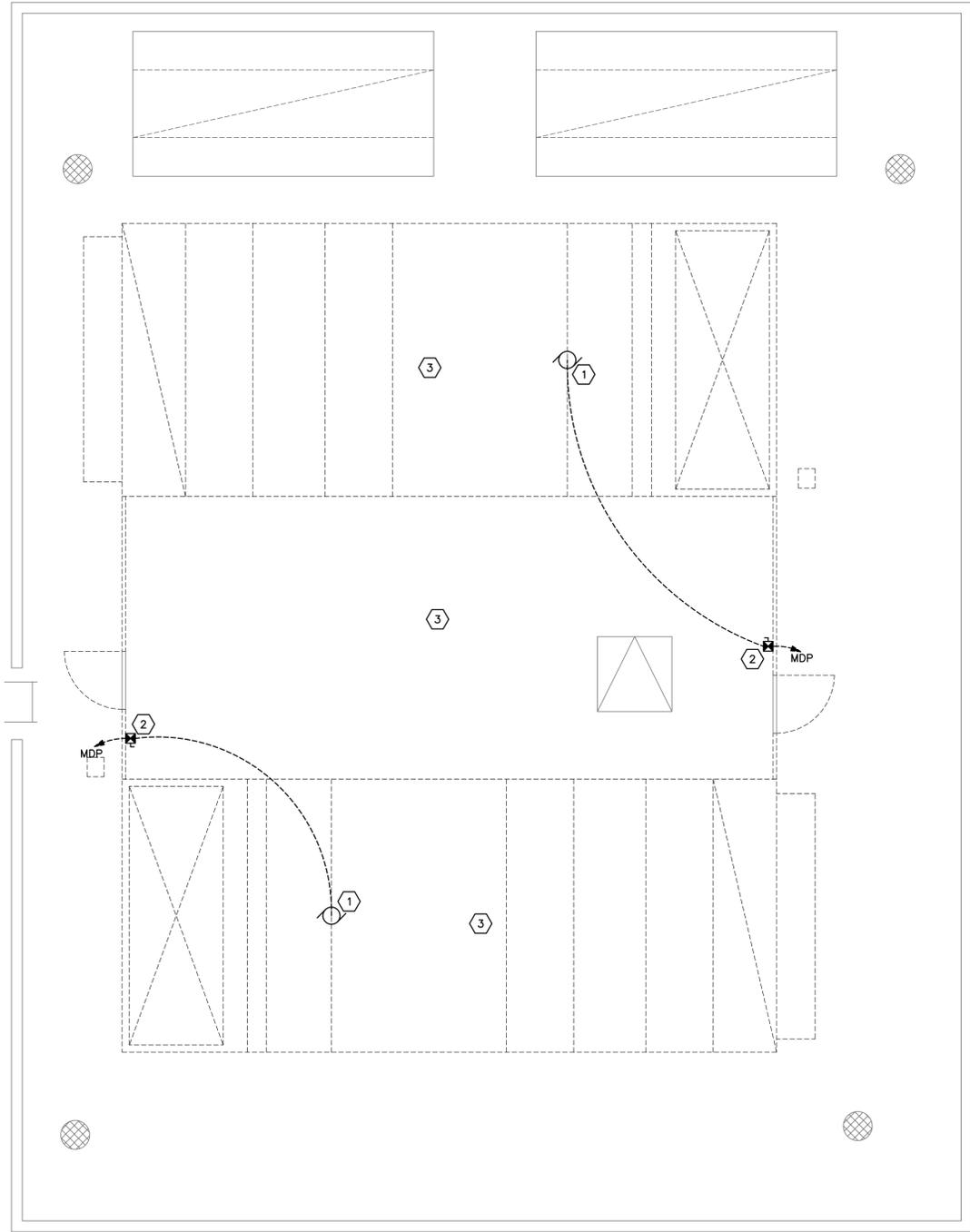
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PROJECT MANAGER: DEW	
DRAWN BY: DLM	
CHECKED BY: DEW	
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WHW JOB NO: 08016	

SYMBOL LEGEND LIST AND SHEET INDEX

SHEET NO. **E-001**

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A1 ELECTRICAL DEMOLITION PLAN

SCALE: 3/8" = 1'-0"

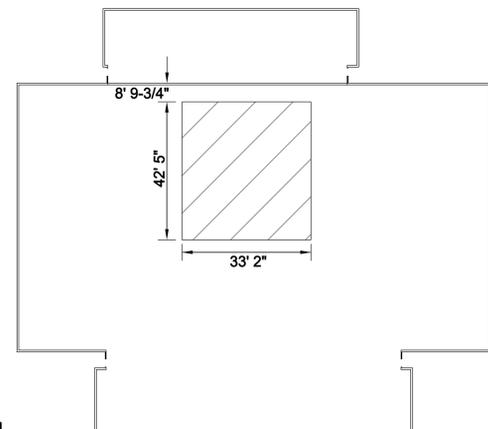
GENERAL SHEET NOTES

1. PRIOR TO SUBMITTING BID, VISIT THE PROJECT SITE TO FIELD VERIFY EXISTING CONDITIONS THAT ARE INDICATED OR THAT WILL BE AFFECTED BY THE WORK OF THIS PROJECT. REPORT ANY DISCREPANCIES OR QUESTIONS TO THE ENGINEER BEFORE THE BID.
2. COORDINATE WITH THE MECHANICAL CONTRACTOR TO PROVIDE ALL REQUIRED ELECTRICAL DEMOLITION RELATING TO THE REPLACEMENT OF THE AIR HANDLING UNITS. REMOVE ALL RACEWAY, WIRING, AND EQUIPMENT THAT BECOME ABANDONED AS PART OF THIS PROJECT.
3. EXISTING RACEWAYS MAY BE REUSED TO THE EXTENT POSSIBLE PROVIDING THE RACEWAYS MEET THE SPECIFICATIONS AND REQUIREMENTS OF THIS PROJECT.
4. DO NOT KILL POWER TO THE BUILDING WITHOUT THE PERMISSION OF THE CAMPUS FACILITIES PERSONNEL. COORDINATE POWER OUTAGES 2- WEEKS IN ADVANCE WITH THE CAMPUS.

SHEET KEYNOTES

1. DISCONNECT AND REMOVE CONDUIT AND WIRING TO AIR HANDLERS TO BE REMOVED.
2. DISCONNECT AND REMOVE EXISTING COMBO STARTERS THAT SERVE REMOVED AIR HANDLERS. REMOVE WIRING BACK TO SOURCE (PANEL MDP LOCATED IN BASEMENT MAIN ELECTRICAL ROOM). REMOVE PORTION OF THE CONDUIT TO ACCOMMODATE THE DEMOLITION WORK AND INSTALLATION OF THE NEW AIR HANDLERS. THE REMAINDER OF THE CONDUIT MAY BE REUSED FOR THE NEW WIRING PROVIDING IT MEETS CURRENT PROJECT SPECIFICATIONS. OTHERWISE, REMOVE AND REPLACE CONDUIT.
3. REMOVE MISCELLANEOUS ELECTRICAL CONNECTIONS, CONDUIT AND WIRING THAT ARE ASSOCIATED WITH THE DEMOLITION AND REMOVAL OF THE AIR HANDLERS.

KEYPLAN



State of Utah
Department of Administrative Services

Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

Internet: <http://www.dfcm.state.ut.us>



State of Utah—Department of Administrative Services
DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
4110 State Office Building | Salt Lake City, Utah 84114 | 538-3018

CONSULTANTS

WHW ENGINEERING INC.
PROFESSIONAL MECHANICAL ENGINEERING
8819 Sandy Parkway Suite 101
SANDY, UTAH 84070
(801) 466-4021, FAX 466-8536
EMAIL: excellence@whw-engineering.com

SPECTRUM ENGINEERS
775 South Main Street, Suite 300
Salt Lake City, Utah 84111
801-328-5151
800-678-7077
FAX 801-328-5155
www.spectrum-engineers.com

PROJECT NAME & ADDRESS

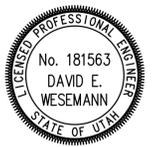
SUU TECHNOLOGY BUILDING AIR HANDLERS REPLACEMENT

DFCM No. #08109730

Cedar City, Utah

MARK	DATE	REVISION

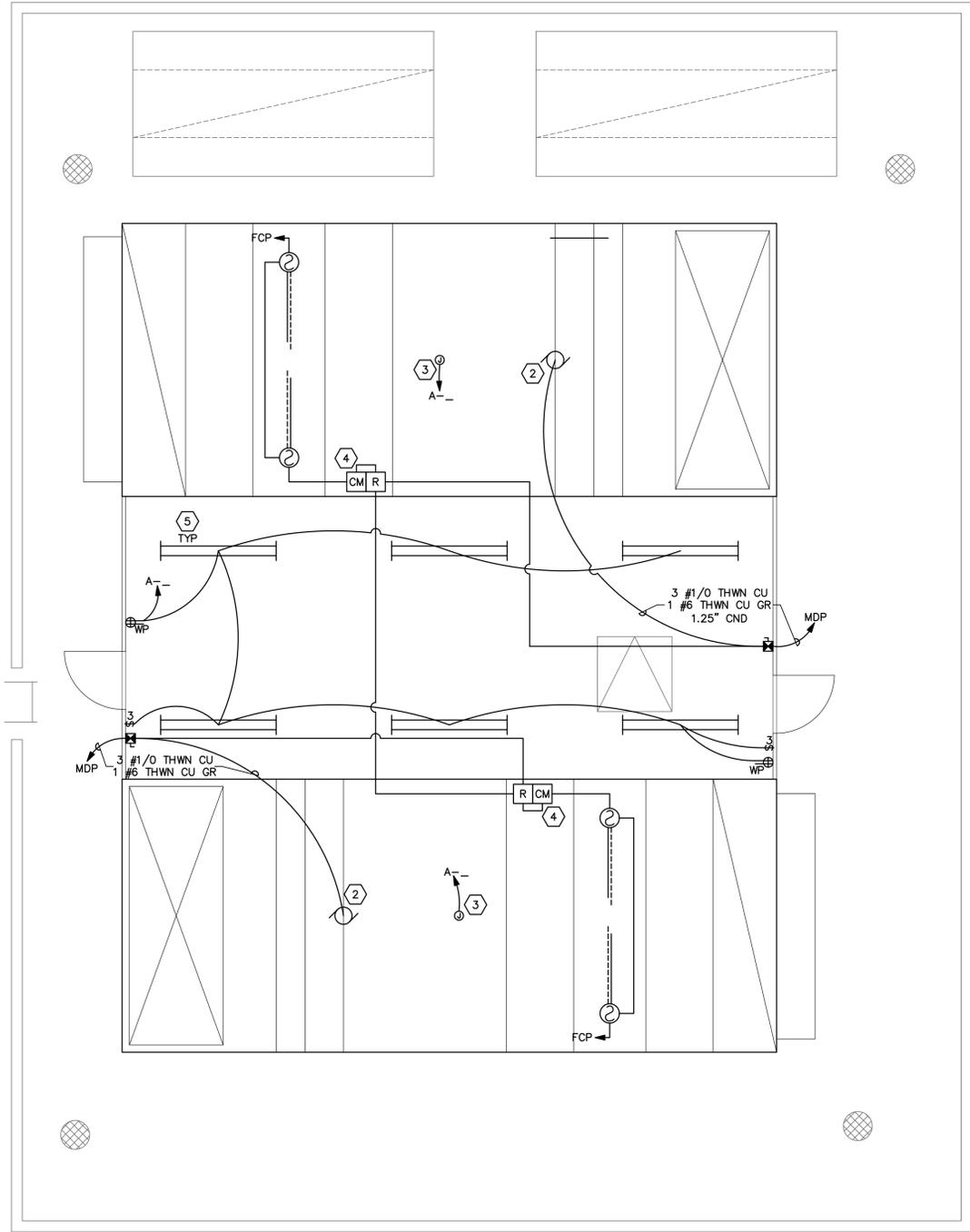
PROJECT MANAGER:
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DRAWN BY:
DLM
CHECKED BY:
DEW
DATE:
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WHW JOB NO.:
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ELECTRICAL DEMOLITION PLAN

SHEET NO. **E-401**

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A1 ELECTRICAL PLAN
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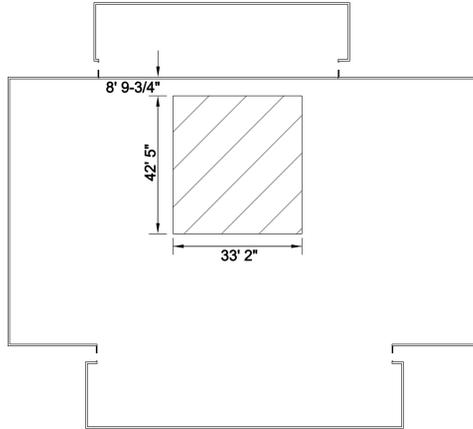
GENERAL SHEET NOTES

1. PRIOR TO BID, FIELD VERIFY LOCATIONS OF EXISTING EQUIPMENT THAT IS BEING USED FOR THIS PROJECT (ELECTRICAL PANELS, FIRE ALARM PANELS, ETC.). ALSO VERIFY ROUTING PATHS FOR NEW CONDUIT RUNS AND INCLUDE ALL COSTS IN BID FOR A COMPLETE INSTALLATION.
2. COORDINATE ALL ELECTRICAL CONNECTIONS WITH THE DIV.15 INSTALLER, SUBMITTALS AND SHOP DRAWINGS. PROVIDE ELECTRICAL WORK REQUIRED FOR THE INSTALLATION OF THE NEW AIR HANDLERS.
3. DO NOT KILL POWER TO THE BUILDING WITHOUT THE PERMISSION OF THE CAMPUS FACILITIES PERSONNEL. COORDINATE POWER OUTAGES 2- WEEKS IN ADVANCE WITH THE CAMPUS.

SHEET KEYNOTES

1. PROVIDE NEW COMBO STARTERS: 100A/3P, SIZE 3 FUSIBLE STARTER SWITCH WITH FRN-100A FUSES. PROVIDE NEW WIRING BACK TO ORIGINAL SOURCE (EXISTING 125A/3P CIRCUIT BREAKERS IN PANEL MDP IN BASEMENT). EXTEND EXISTING CONDUIT TO NEW COMBO STARTERS.
2. PROVIDE WIRING AND ELECTRICAL CONNECTIONS TO NEW AIR HANDLER MOTORS: 25HP/208V/3-PHASE.
3. PROVIDE 120V/20A CIRCUIT AND CONNECTIONS FOR AIR HANDLER LIGHTS AND CONVENIENCE OUTLETS. CIRCUIT TO EXISTING PANEL "A" LOCATED ON FLOOR BELOW. PROVIDE NEW 20A/1P CIRCUIT BREAKERS EXISTING PANEL FOR THE NEW CIRCUITS.
4. PROVIDE NEW SMOKE DUCT DETECTORS, CONTROL MODULES AND RELAYS TO SHUT DOWN AIR HANDLERS UPON ACTIVATION. FIELD-VERIFY EXACT PLACEMENT AND QUANTITY TO MEET NFPA REQUIREMENTS. CONNECT DEVICES TO NEW SIMPLEX FIRE ALARM CONTROL PANEL THAT IS BEING PROVIDED UNDER A SEPARATE CONTRACT. PROVIDE NEW DEVICES THAT MATCH AND ARE COMPATIBLE WITH NEW SYSTEM. COORDINATE THIS WORK WITH THE FIRE ALARM INSTALLER OF OTHER CONTRACT: SIMPLEX GRINNEL OUT OF LAS VEGAS, (702) 303-3513.
5. PROVIDE NEW PROTECTED FLUORESCENT STRIP LIGHTS: LITHONIA # C232-MVOLT-AL-CEB W/WIRE GUARD (OR APPROVED EQUIVALENT). CIRCUIT TO EXISTING PANEL "A" AND PROVIDE 20A/1P CB FOR CIRCUIT.

KEYPLAN



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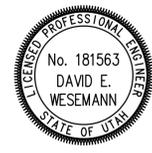
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Cedar City, Utah

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ELECTRICAL PLAN

SHEET NO. **E-402**