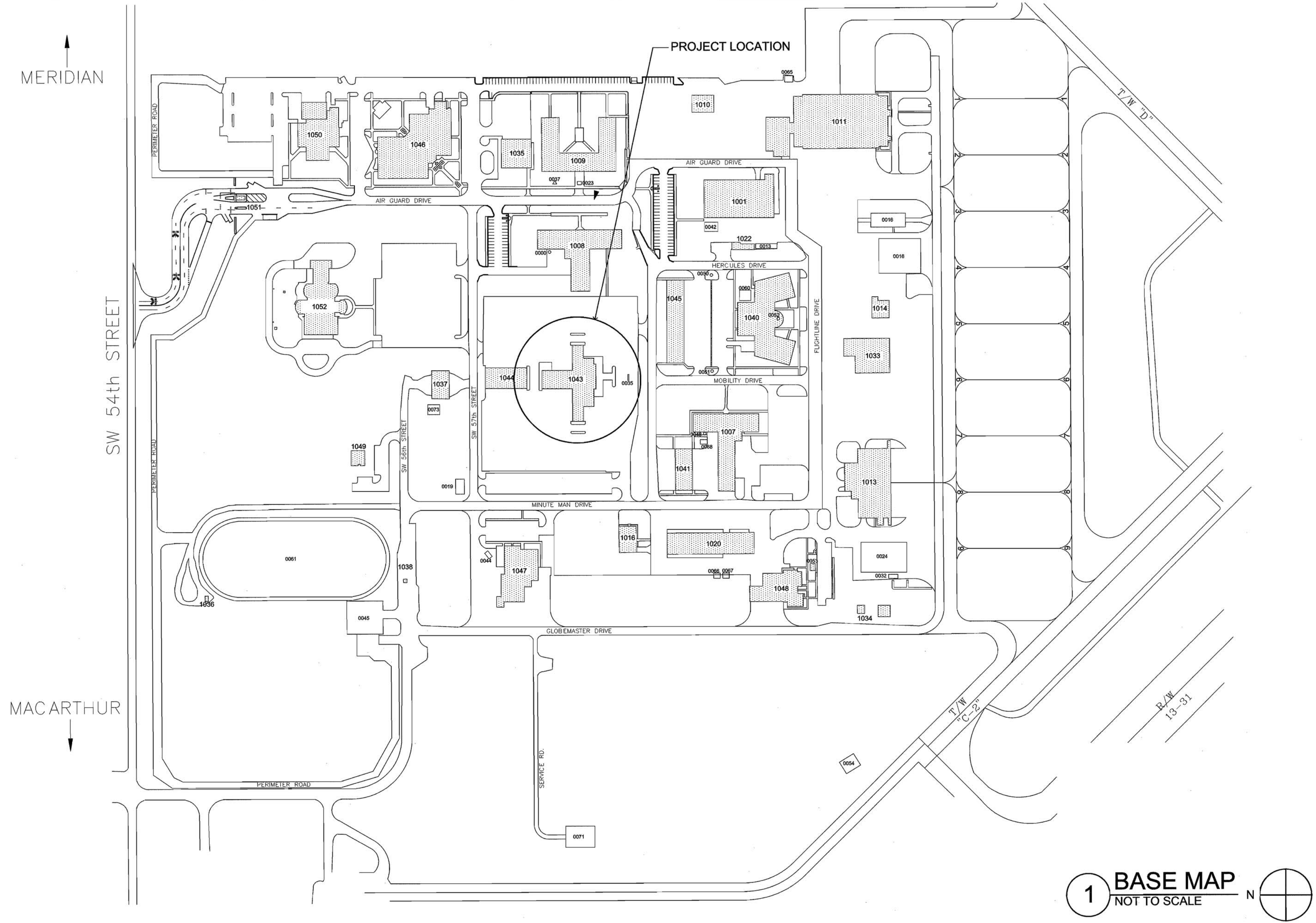


OKLAHOMA AIR NATIONAL GUARD
YZEU142015 REPLACE MAKEUP AIR UNITS, BUILDING 1043
ISSUED FOR FINAL TYPE B-2 REPORT



SHEET INDEX

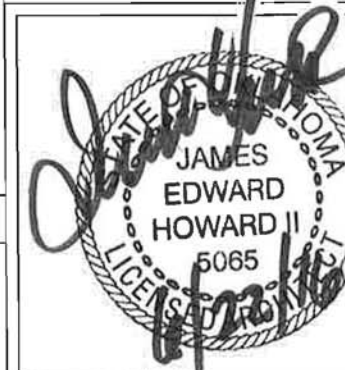
GENERAL	
T-001	COVER SHEET
STRUCTURAL	
S-101	ROOF PLAN AREA A - STRUCTURAL
S-102	ROOF PLAN AREA B - STRUCTURAL
S-501	GENERAL NOTES DETAILS - STRUCTURAL
ARCHITECTURAL	
A-112	ROOF PLAN AREA B
A-501	ROOFING DETAILS
MECHANICAL	
M-000	MECHANICAL SYMBOLS AND ABBREVIATIONS
MD-101	FLOOR PLAN AREA A - MECHANICAL DEMOLITION
MD-102	FLOOR PLAN AREA B - MECHANICAL DEMOLITION
MD-111	ROOF PLAN AREA A - MECHANICAL DEMOLITION
MD-112	ROOF PLAN AREA B - MECHANICAL DEMOLITION
M-101	FLOOR PLAN AREA A - MECHANICAL
M-102	FLOOR PLAN AREA B - MECHANICAL
M-111	ROOF PLAN AREA A - MECHANICAL
M-112	ROOF PLAN AREA B - MECHANICAL
M-200	MECHANICAL DETAILS AND SCHEDULES
M-201	MECHANICAL DETAILS AND SCHEDULES
ELECTRICAL	
E-000	ELECTRICAL SYMBOLS AND ABBREVIATIONS
ED-010	ROOF PLAN - DEMOLITION
E-200	FLOOR PLAN - POWER
E-201	ROOF PLAN - POWER
E-600	ELECTRICAL SCHEDULES

OKLAHOMA AIR NATIONAL GUARD
YZEU142015 REPLACE MAKEUP AIR UNITS, BUILDING 1043

WILL ROGERS WORLD AIRPORT
OKLAHOMA CITY, OKLAHOMA

DESIGNED BY:
ARCHITECTS IN PARTNERSHIP
DRAWN BY:
CSM
DATE:
05.18.2016
JOB NO:
1504

REVISIONS



COVER SHEET

G-001

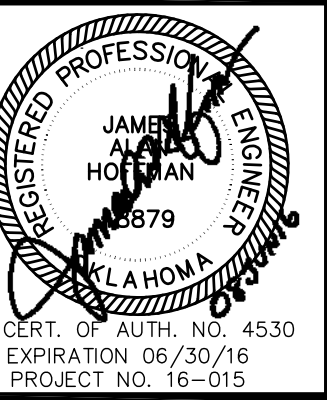
137TH SPECIAL OPERATIONS WING
WILL ROGERS AIR GUARD BASE
OKLAHOMA CITY, OKLAHOMA
PROJECT NO. YZEU142015

M.R. Spruk 19 May 16
BASE CIVIL ENGINEER DATE
M.R. Spruk 2 Jun 16
FIRE CHIEF DATE
Angela B. Baker 25 May 2016
ATFP OFFICER DATE
M.R. Spruk 2 Jun 16
ENVIRONMENTAL MANAGER DATE

Don L. Wren 2 June 2016
BIO ENVIRONMENTAL DATE
Don L. Wren 23 May 16
COMMUNICATION DATE
Don L. Wren 2 June 16
BUILDING MANAGER DATE
Don L. Wren 23 May 16
REAL PROPERTY DATE



20 MARSHALL AVENUE
TULSA, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



YZE0142013
REPLACE MAKEUP AIR UNITS
BUILDING 1043
 WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

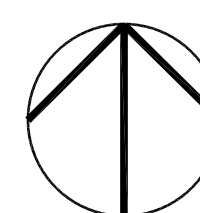
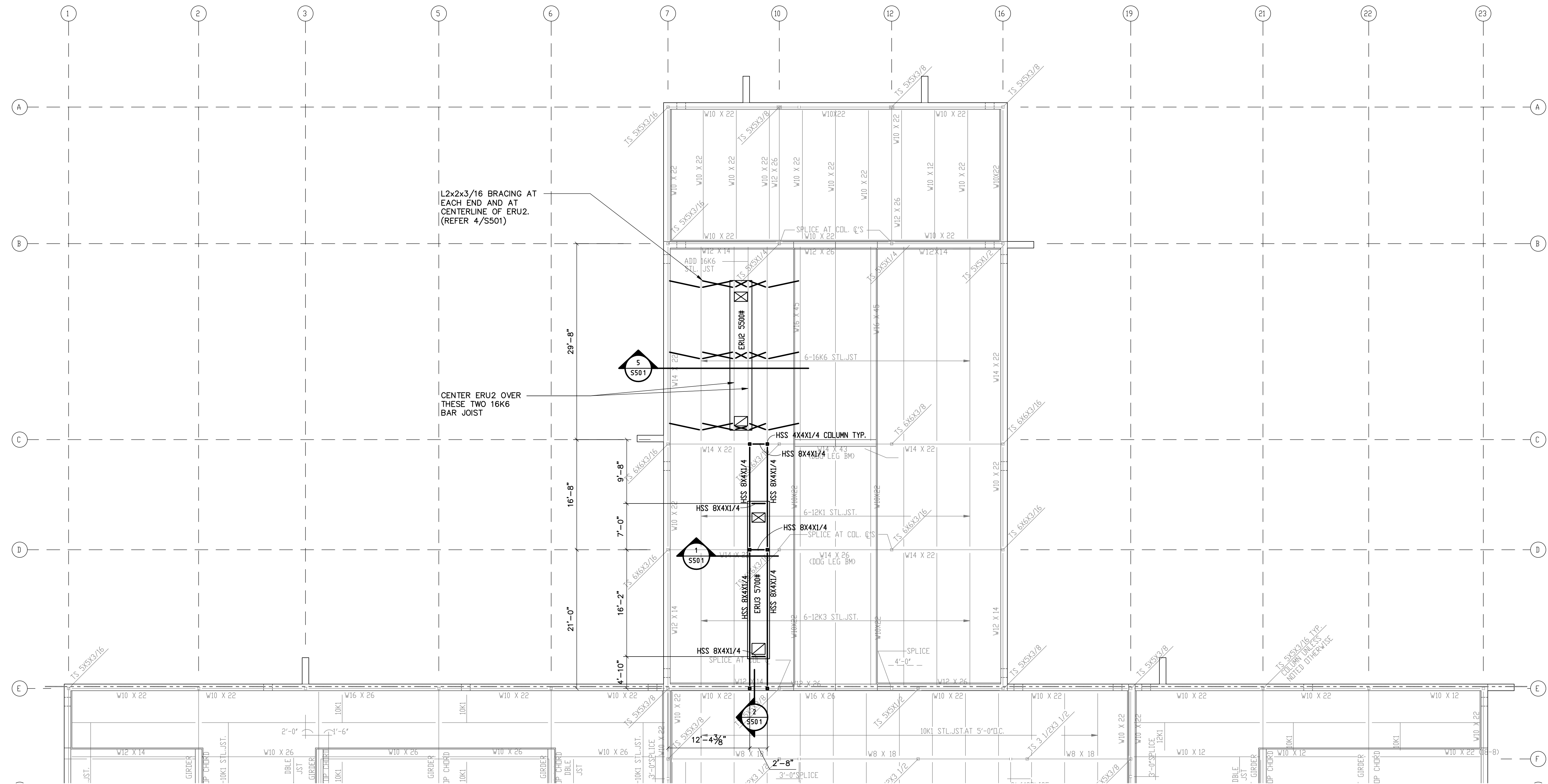
REVISIONS	
DATE	DESCRIPTION

MANAGER:
IN BY:
WORKED BY:

06/08/2016
ECT NO.: 1504

TITLE:
ROOF PLAN
AREA A -
STRUCTURAL

S-111



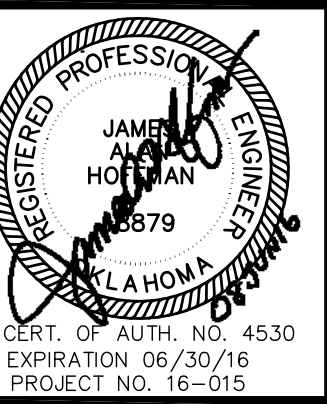
ROOF PLAN AREA A - STRUCTURAL

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



ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

20 MARSHALL AVENUE
TULSA, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



YZE0142013
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

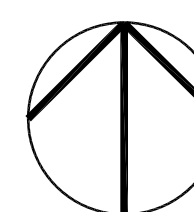
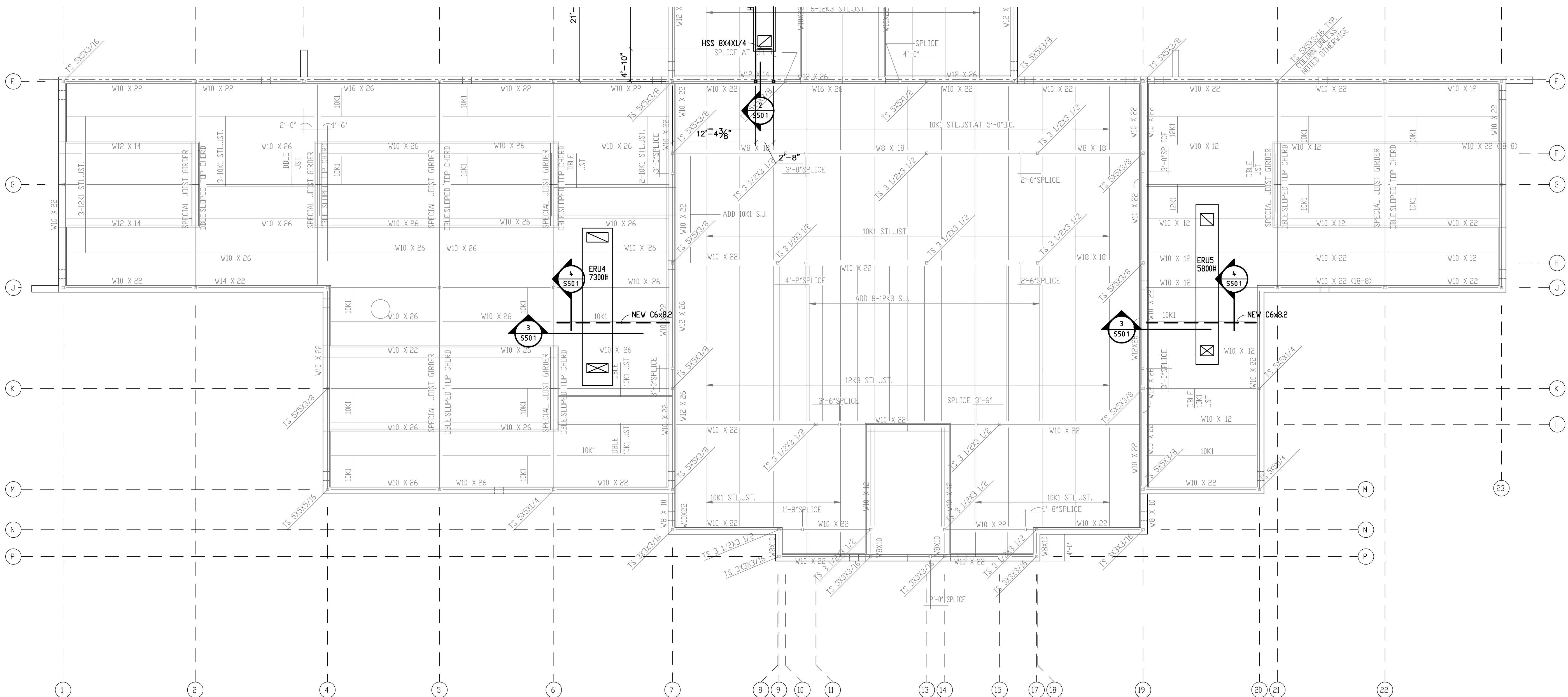
REVISIONS	
DATE	DESCRIPTION

MANAGER:
IN BY:
LEAVED BY:

06/08/2016
ECT NO.: 1504

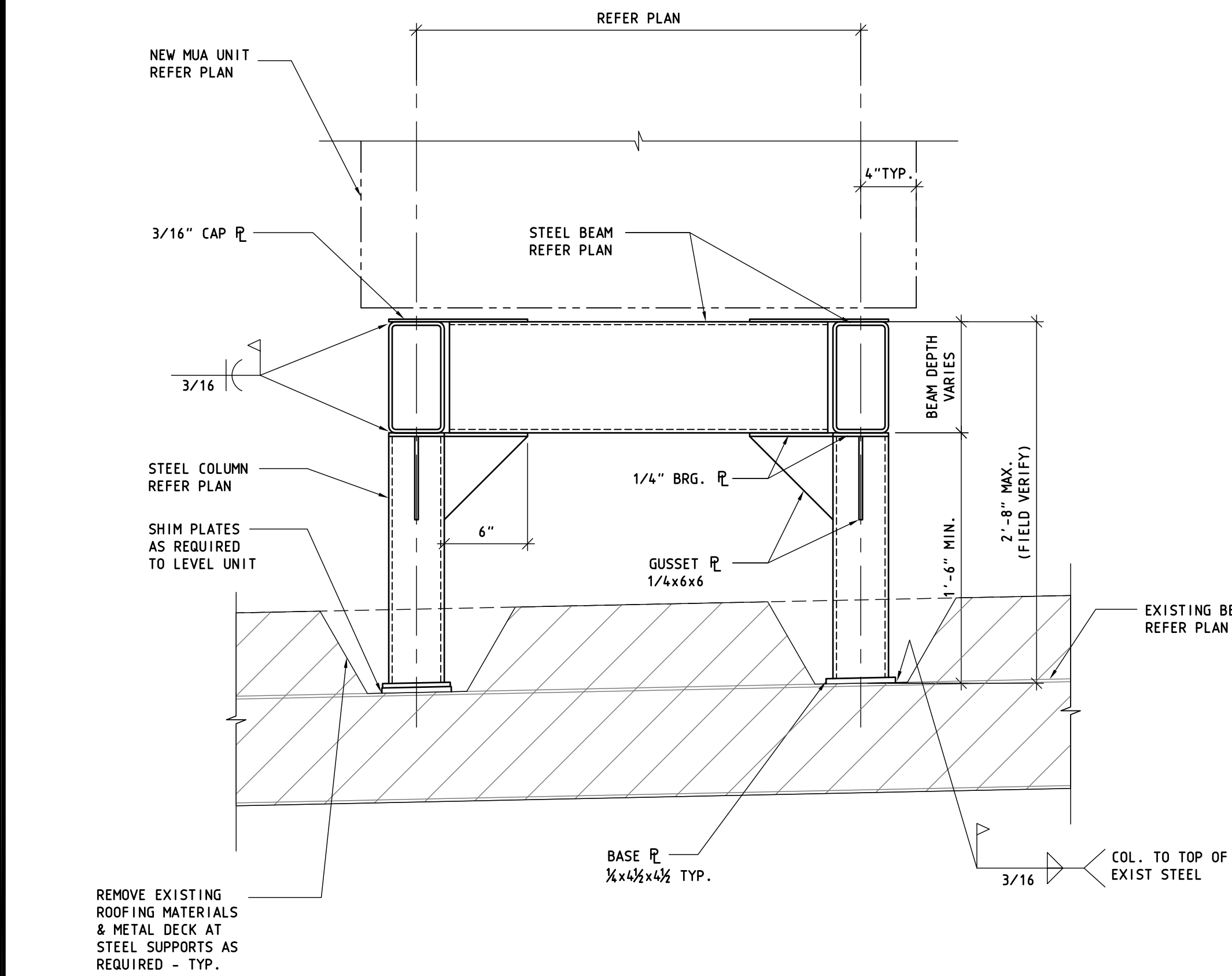
TITLE:
ROOF PLAN
AREA B -
STRUCTURAL

S-112

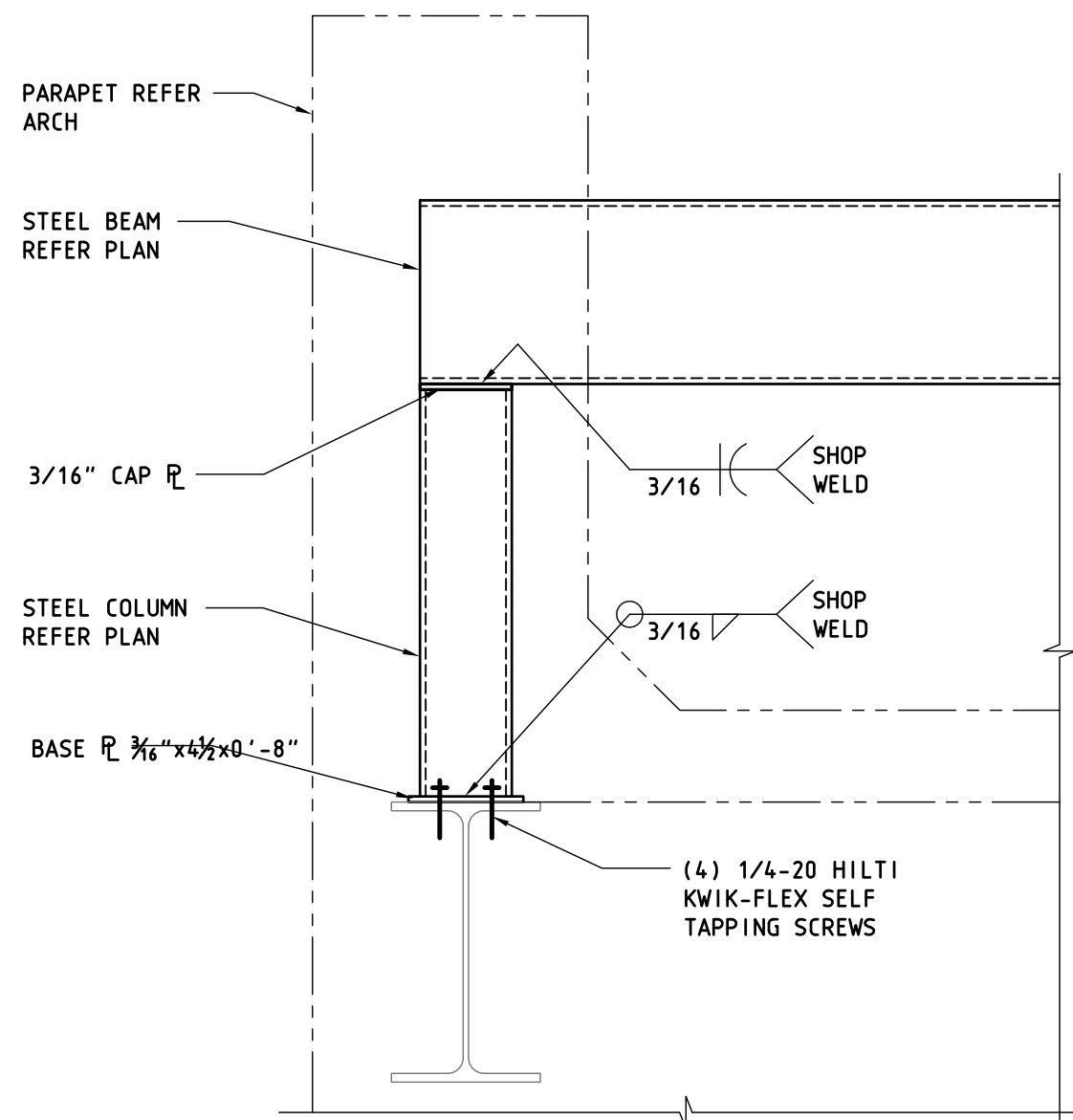


ROOF PLAN AREA B -
STRUCTURAL

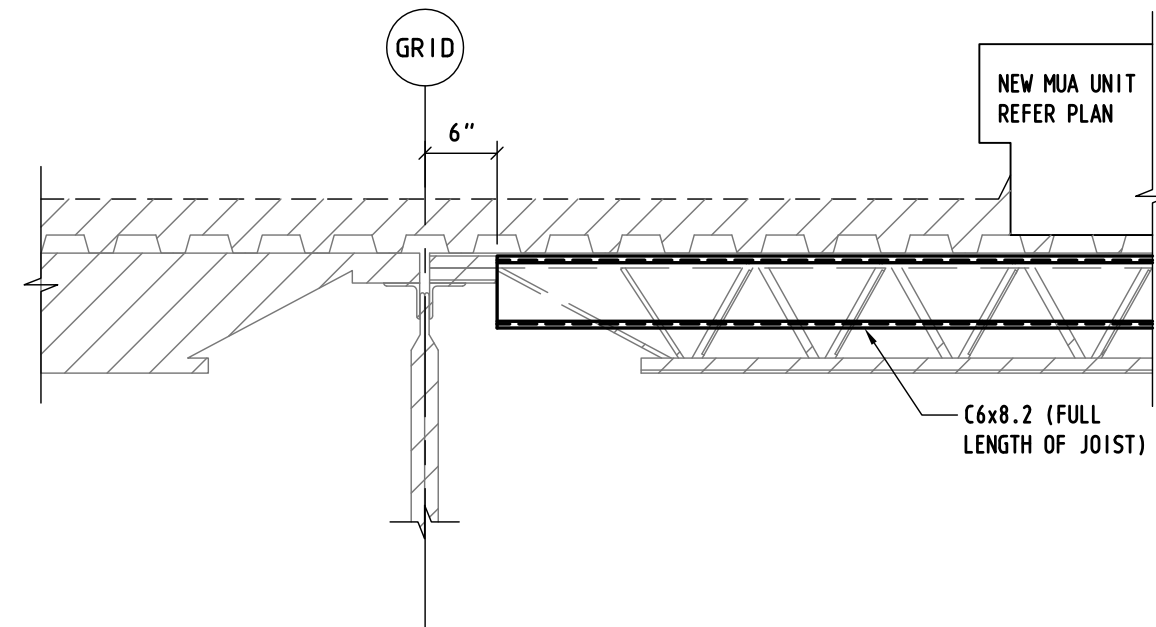
SCALE: 1/8" = 1'-0"



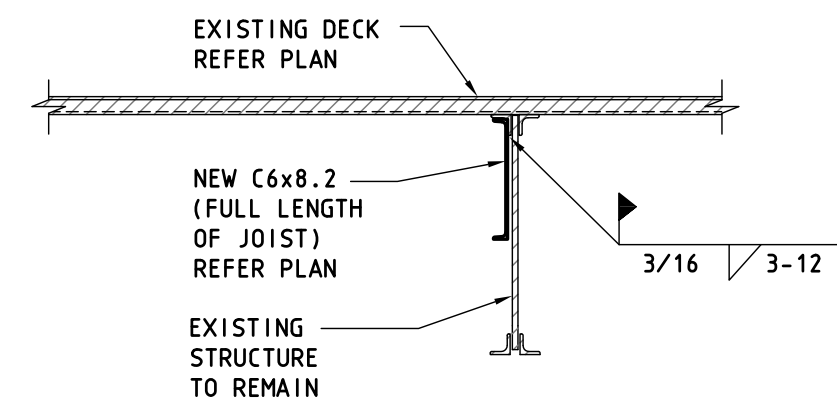
1
S-501
FRAMING DETAIL
SCALE: 1 1/2" = 1'-0"



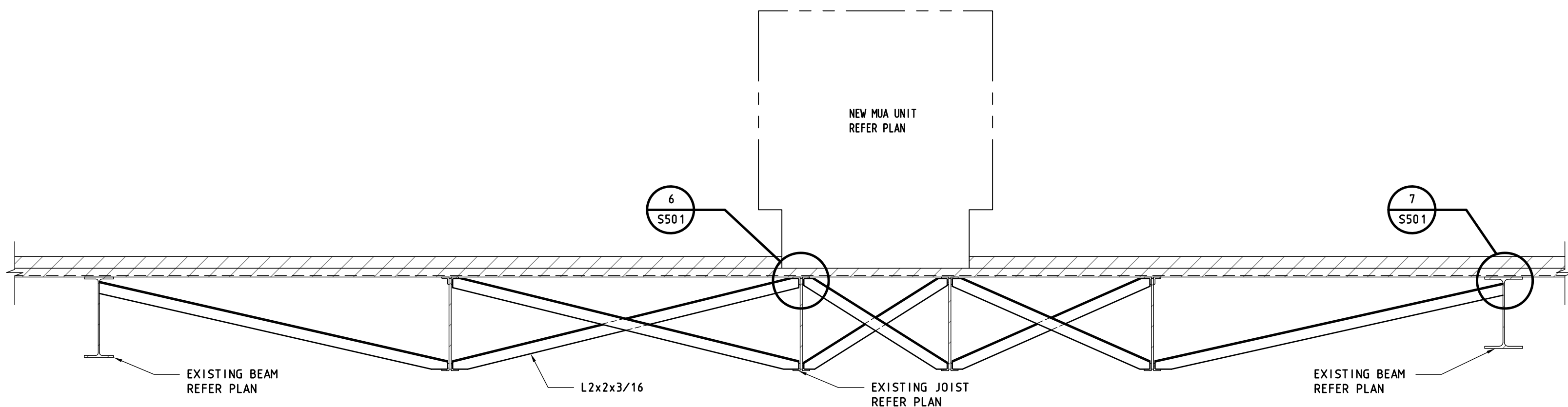
2
S-501
FRAMING DETAIL
SCALE: 1 1/2" = 1'-0"



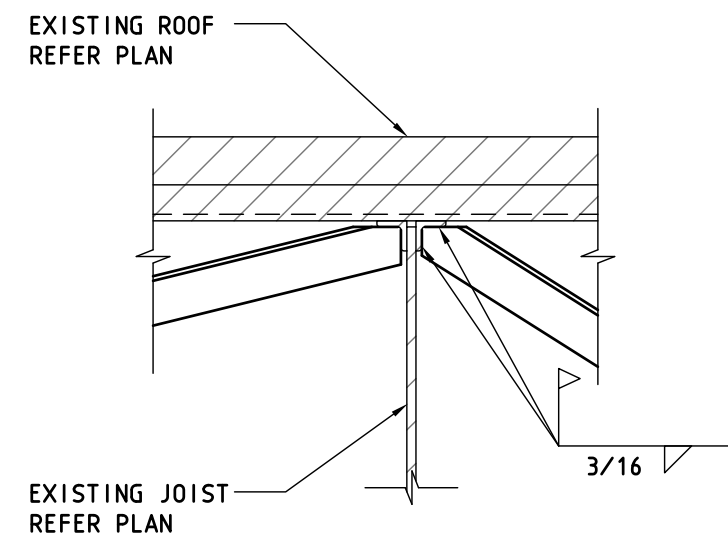
3
S-501
FRAMING DETAIL
SCALE: 3/4" = 1'-0"



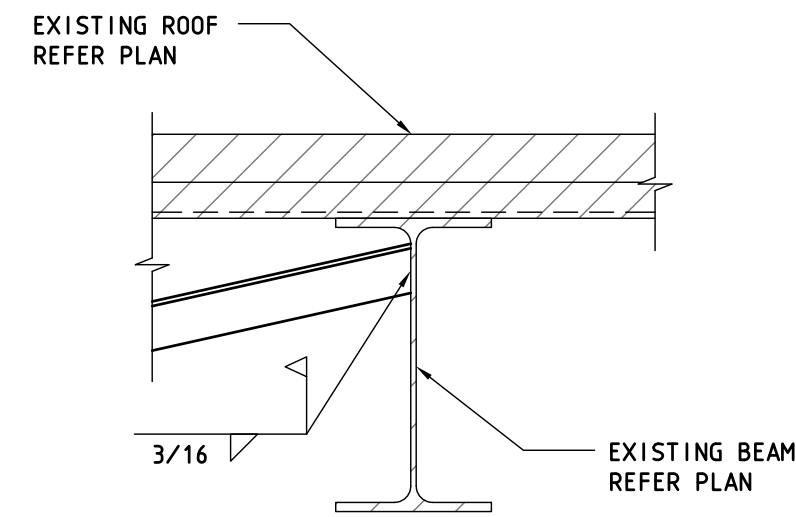
4
S-501
FRAMING DETAIL
SCALE: 3/4" = 1'-0"



5
S-501
FRAMING DETAIL
SCALE: 3/4" = 1'-0"



6
S-501
FRAMING DETAIL
SCALE: 1 1/2" = 1'-0"



7
S-501
FRAMING DETAIL
SCALE: 1 1/2" = 1'-0"

GENERAL NOTES:

STRUCTURAL STEEL NOTES:

- STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND THE AISC CODE OF STANDARD PRACTICE.
- STRUCTURAL STEEL MATERIAL SHALL MEET THE REQUIREMENTS OF THE FOLLOWING ASTM STANDARDS:
WIDE FLANGE SHAPES: A992 GRADE 50
STEEL TUBES: A500 GRADE B
PIPE COLUMNS: A53, TYPES E OR S, GRADE B OR A501
MISCELLANEOUS SHAPES: A36
- ALL STEEL CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE STANDARD AISC WELDED OR BOLTED CONNECTIONS. BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIA. A-325 BOLTS UNLESS NOTED OTHERWISE.
- ALL WELDING SHALL BE DONE IN ACCORDANCE WITH AWS D1.1 (LATEST EDITION) "STRUCTURAL WELDING CODE."
- STEEL BOLTED CONNECTIONS SHALL HAVE NUTS TIGHTENED AND COLUMNS SHALL BE PLUMBED AND GROUTED IN PLACE BEFORE DECKING IS ATTACHED TO FRAMING.
- ALL STEEL COLUMN BASE PLATES SHALL BE 3/4" THICK AND SHALL HAVE FOUR 3/4" DIA. ANCHOR BOLTS WITH WASHERS AND DOUBLE NUTS, UNLESS NOTED OTHERWISE. ANCHOR BOLTS SHALL EXTEND TO 3 INCHES CLEAR OF THE BOTTOM OF CONCRETE OR 18 INCHES WITH A MINIMUM 3 INCH HOOK.
- THE STEEL FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL AS REQUIRED BY THE SPECIFICATIONS. THESE SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS WHICH ASSIGN A PIECE-MARK TO EACH STRUCTURAL MEMBER. THE SHOP DRAWINGS SHALL ALSO INCLUDE STRUCTURAL SECTIONS WHICH IDENTIFY PLACEMENT OF ALL STEEL COMPONENTS WHOSE PLACEMENT IS NOT CLEARLY SHOWN ON THE ERECTION DRAWINGS.
- THE STEEL FABRICATOR SHALL RETAIN A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF OKLAHOMA, WHO SHALL DESIGN AND BE RESPONSIBLE FOR ALL CONNECTIONS NOT SHOWN OR ONLY PARTIALLY DETAILED ON THE DRAWINGS. THE FABRICATOR SHALL SUBMIT CONNECTION DRAWINGS WITH CALCULATIONS, SEALED BY HIS ENGINEER, WHICH WILL BE RETAINED FOR THE ARCHITECT'S FILE AND WILL NOT BE RETURNED.

MISCELLANEOUS NOTES:

- ALL DIMENSIONS ON STRUCTURAL DRAWINGS TO BE CHECKED AGAINST ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS BY THE GENERAL CONTRACTOR BEFORE PROCEEDING WITH CONSTRUCTION AND ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT IMMEDIATELY.
- THE CONTRACTOR SHALL ASSUME RESPONSIBILITY, UNRELIEVED BY REVIEW OF SHOP DRAWINGS OR PERIODIC OBSERVATION OF CONSTRUCTION, FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, FOR FABRICATION PROCESSES AND CONSTRUCTION TECHNIQUES, AND FOR SAFE CONDITIONS ON THE JOB SITE.
- THE STEEL FABRICATOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MISCELLANEOUS STEEL SHOWN ON THE ARCHITECTURAL DRAWINGS.
- BUILDING CODE AND DESIGN CRITERIA ARE AS FOLLOWS:
BUILDING CODE: 2009 IBC
GRAVITY LOADS: SELF WT
ROOF DEAD LOAD: AS GIVEN BY MECHANICAL ENGR
ROOF LIVE LOAD: AS GIVEN BY MECHANICAL ENGR
WIND LOADS: BASIC WIND SPEED: 90 MPH
EXPOSURE: C
IMPORTANCE FACTOR: 1.0
SEISMIC LOADS: ACCELERATION COEFFICIENT, S_s: 0.40
ACCELERATION COEFFICIENT, S₁: 0.095
SEISMIC DESIGN CATEGORY: B
SOIL SITE CLASS: C
RESPONSE MODIFICATION FACTOR, R: 3.0
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

SHOP DRAWING NOTES:

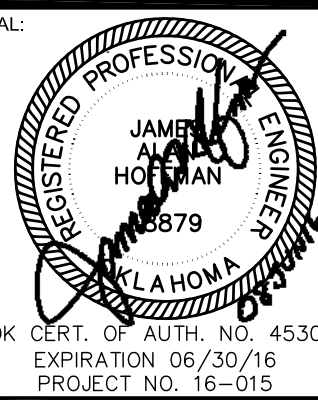
- REPRODUCTION OF THESE DRAWINGS FOR USE AS SHOP DRAWINGS, FABRICATION DRAWINGS OR ERECTION DRAWINGS IS NOT AUTHORIZED AND, IF SUBMITTED, WILL BE REJECTED WITHOUT BEING CHECKED. A LICENSE TO USE ANY PORTION OR ALL OF THE STRUCTURAL CAD FILES FOR THE LIMITED PURPOSE OF ASSISTING THE CONTRACTOR'S PREPARATION OF SHOP DRAWINGS FOR SUBMITTAL UNDER THE CONSTRUCTION CONTRACT MAY BE PURCHASED FROM THE STRUCTURAL ENGINEER UNDER A STANDARD FORM OF AGREEMENT FOR A FEE OF \$150.00. UNDER SUCH AN AGREEMENT, THESE FILES WILL BE PROVIDED IN AUTOCAD VERSION 2011.
- SHOP DRAWING SUBMITTALS SHALL CONSIST OF A MINIMUM OF 1 REPRODUCIBLE AND 1 BLUE PRINT OF EACH DRAWING.



ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS

REV.	DATE	DESCRIPTION

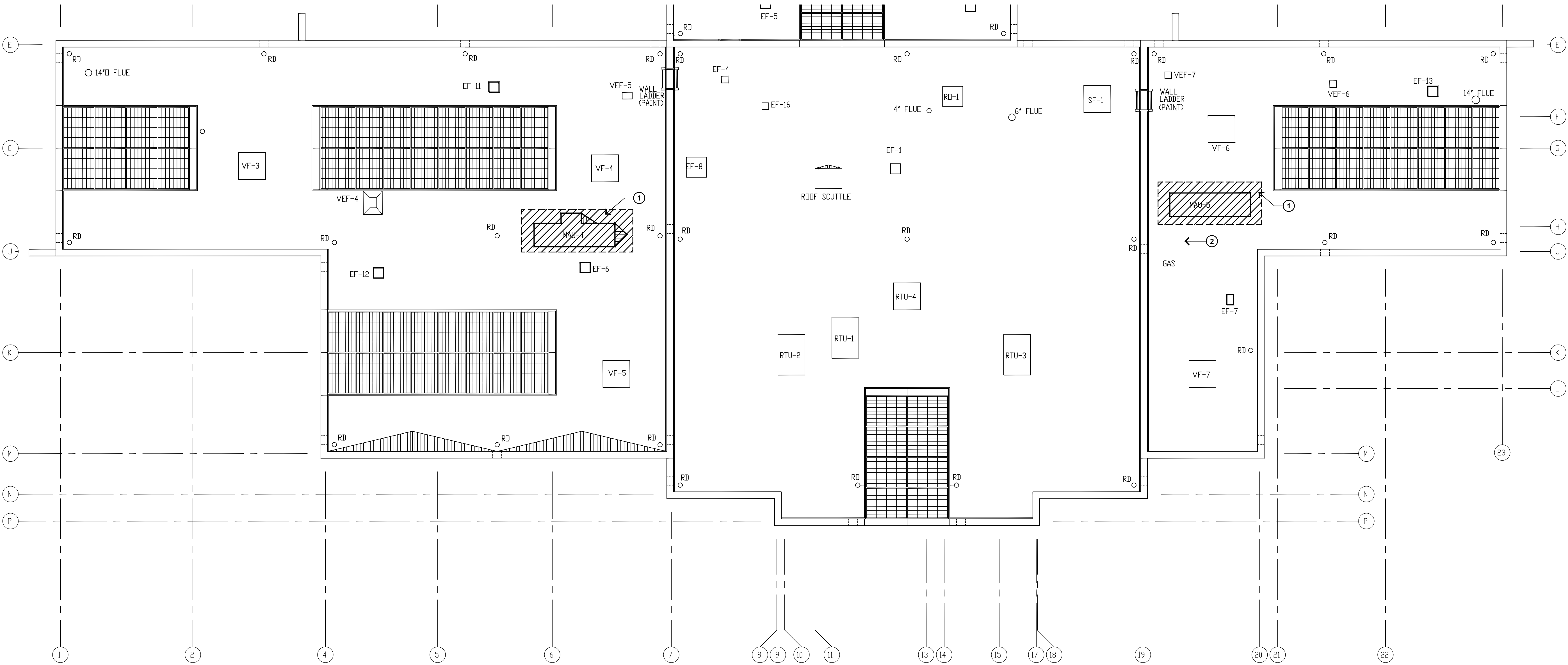
PROJ. MANAGER:
DRAWN BY:
CHECKED BY:

DATE: 06/08/2016
PROJECT NO.: 1504

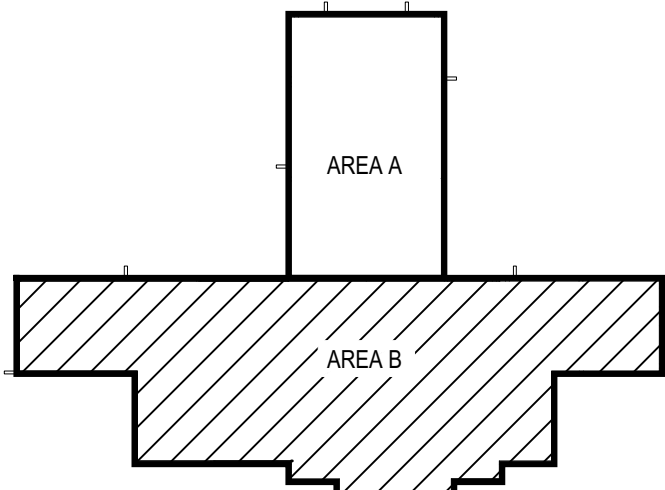
SHEET TITLE:
GENERAL NOTES
DETAILS -
STRUCTURAL

SHEET NO.:
S-501

KEY NOTES: ④	
①	INFILL ABANDONED PENETRATION WITH METAL DECK TO MATCH EXISTING - PAINT INTERIOR SURFACE. PROVIDE RIGID INSULATION TO MATCH ADJACENT, AND COVER WITH MULTIPLY BUILT-UP ROOFING - FLASH TO ADJACENT.
②	ROOF TOP ANCHOR MODEL 2100142 MANUFACTURED BY DBI SALA OR APPROVED EQUAL. ATTACH TO METAL ROOF DECK PER MANUFACTURER'S INSTRUCTIONS - FLASH TO ADJACENT MULTIPLY BUILT-UP ROOFING.



01 **ROOF PLAN**
SCALE: 1/8"=1'-0"



KEY PLAN
NO SCALE

**ARCHITECTS
IN
PARTNERSHIP**

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS
3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431

SEAL:

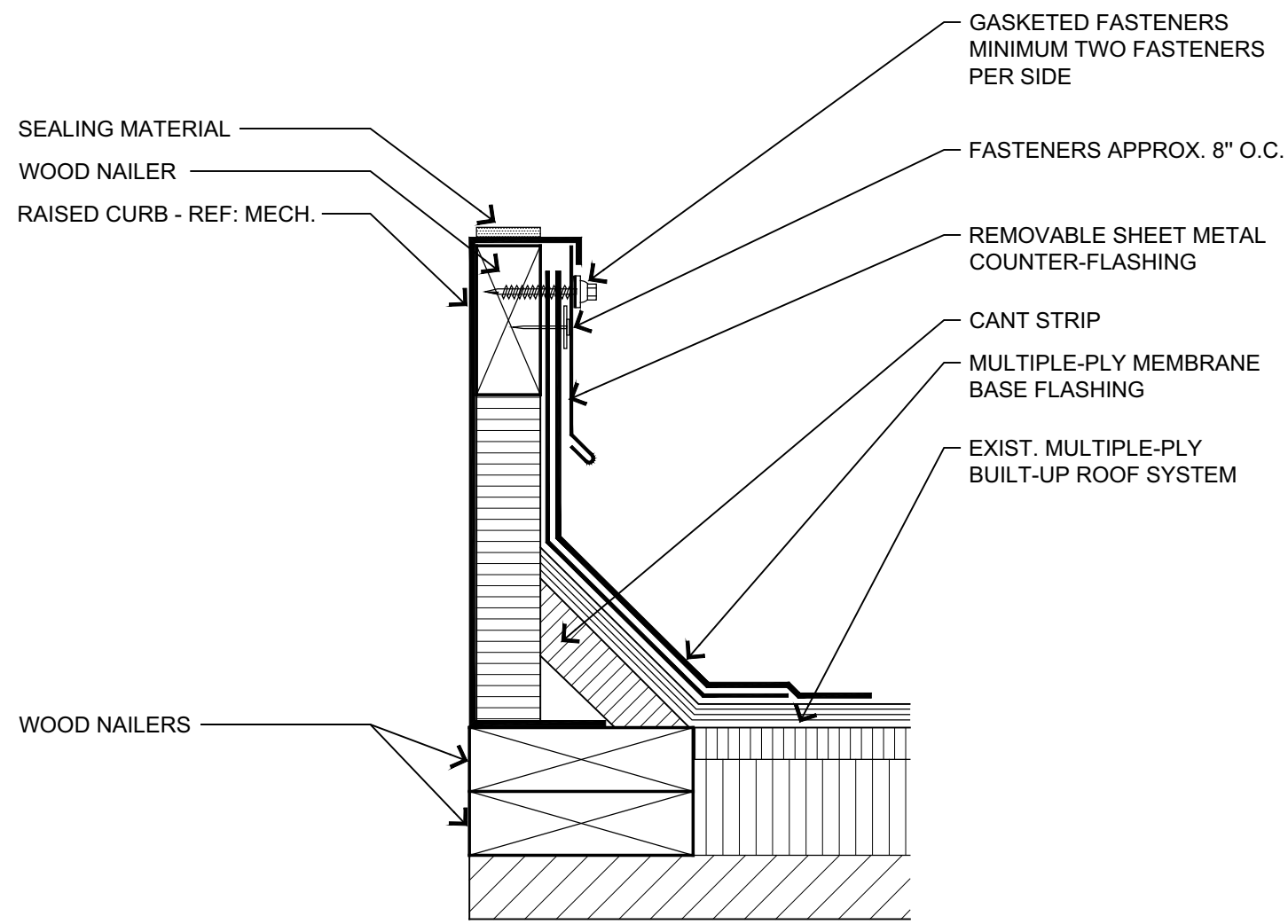
YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS		
REV.	DATE	DESCRIPTION

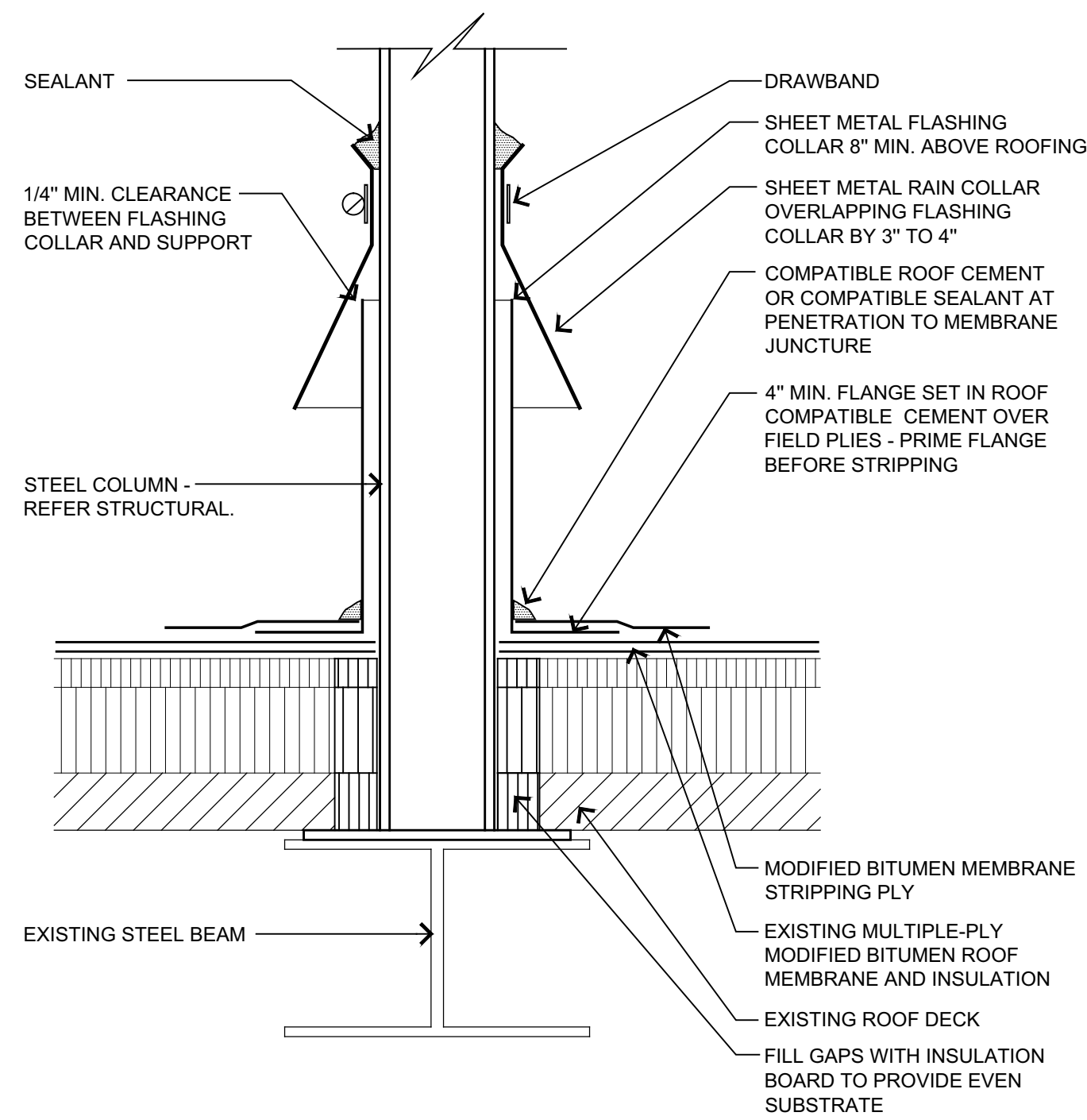
PROJ. MANAGER:	CSM
DRAWN BY:	SPS
CHECKED BY:	JEH
DATE:	06/22/2016
PROJECT NO.:	1504

**ROOF PLAN
AREA B**

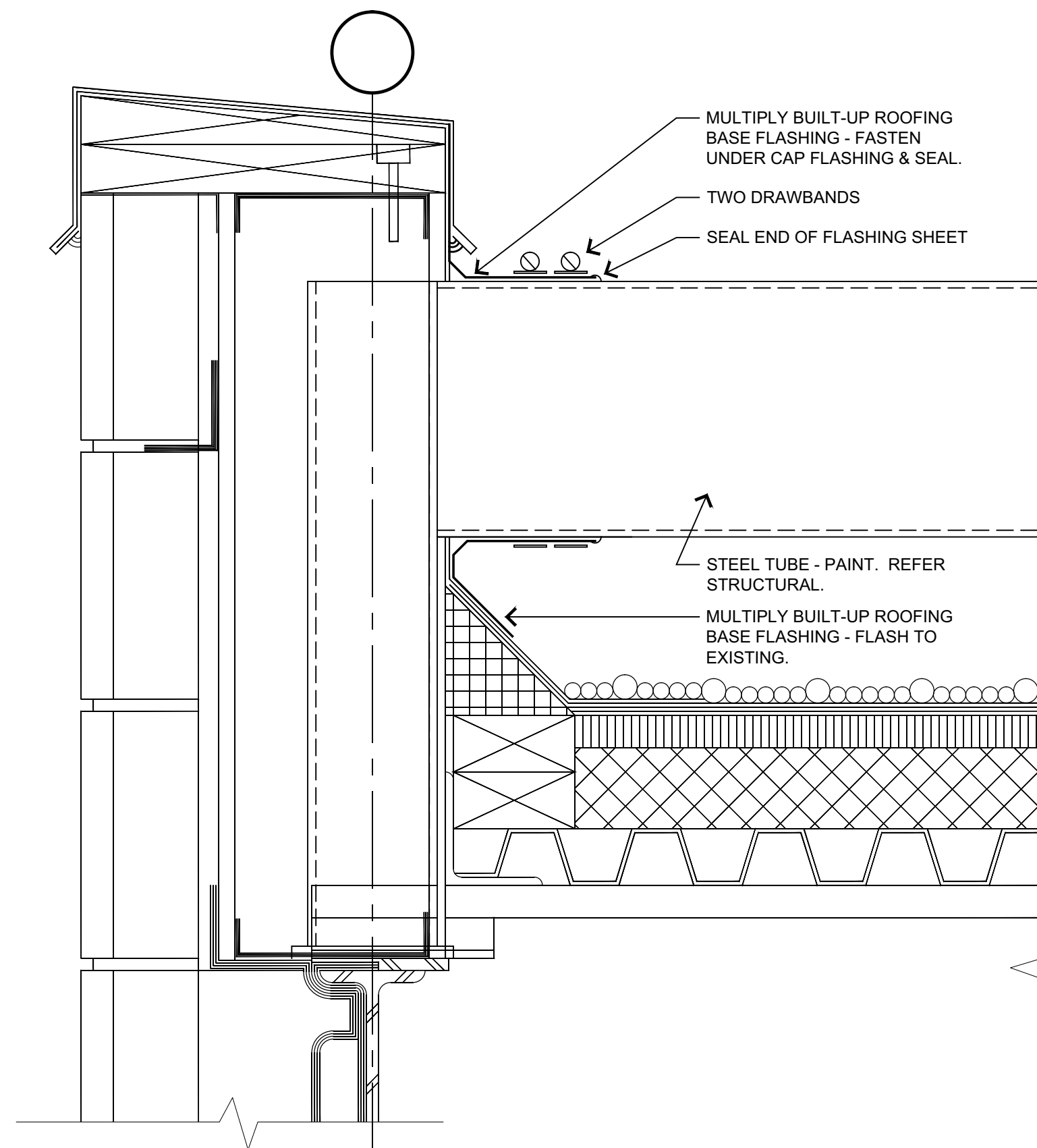
SHEET NO.:
A-112



01 **TYPICAL MECHANICAL CURB DETAIL**
SCALE: 3"=1'-0"



02 **TYPICAL COLUMN PENETRATION ROOFING DETAIL**
SCALE: 3"=1'-0"



03 **TYPICAL BEAM PENETRATION ROOFING DETAIL**
SCALE: 3"=1'-0"

GENERAL NOTES:

1. ALTERATIONS TO THE ROOF WILL BE MADE IN COMPLIANCE WITH UNIFIED FACILITIES CRITERIA (UFC) 3-110-04, ROOFING MAINTENANCE AND REPAIR.
 - A. MEMBRANE REPAIRS. REFER TO SECTION 2, PARTS 1 THROUGH 13 OF ROOF REPAIR MANUAL FOR LOW-SLOPE MEMBRANE ROOF SYSTEMS.
 - B. FLASHING REPAIRS. REFER TO SECTIONS 2, PARTS 14 THROUGH 23 OF ROOF REPAIR MANUAL FOR LOW-SLOPE MEMBRANE ROOF SYSTEMS.
 - C. SHEET METAL AND PENETRATION REPAIRS. REFER TO SECTION 2, PARTS 24 THROUGH 32 OF ROOF REPAIR MANUAL FOR LOW-SLOPE MEMBRANE ROOF SYSTEMS. IF SHEET METAL COMPONENTS ARE DETERMINED TO BE NON-REPAIRABLE, REFER TO ARCHITECTURAL SHEET METAL MANUAL FOR TECHNICAL INFORMATION, SPECIFICATIONS AND DRAWINGS RELATED TO REPLACEMENT SHEET METAL COMPONENTS.

REVISIONS		
REV.	DATE	DESCRIPTION

PROJ. MANAGER:	CSM
DRAWN BY:	SPS
CHECKED BY:	JEH

DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:	ROOFING DETAILS
SHEET NO.:	A-501

Rev'd Mechanical 2014-02-27

MECHANICAL SYMBOLS					
PLUMBING					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	ACID VENT		HOT WATER 140°		CLEAN OUT
	ACID WASTE (ABOVE FLOOR)		HOT WATER CIRCULATING 140°		GRADE CLEAN OUT
	ACID WASTE (BELOW FLOOR)		NATURAL GAS		DOUBLE GRADE CLEAN-OUT
	COLD WATER (CW)		OVERFLOW STORM DRAIN (ABOVE FLOOR)		HOSE BIBB
	COLD SOFT WATER		OVERFLOW STORM DRAIN (BELOW FLOOR)		WALL HYDRANT (NON-FREEZE TYPE)
	COMPRESSED AIR		SANITARY DRAIN (ABOVE FLOOR)		YARD HYDRANT
	EXISTING SANITARY DRAIN (ABOVE FLOOR)		SANITARY SEWER (BELOW FLOOR)		BACK FLOW PREVENTER
	EXISTING SANITARY SEWER (BELOW FLOOR)		SITE SANITARY SEWER		FLOOR DRAIN SIZE-TYPE
	EXISTING STORM DRAIN (ABOVE FLOOR)		SITE STORM SEWER		FLOOR SINK SIZE-TYPE
	EXISTING STORM DRAIN (BELOW FLOOR)		STORM DRAIN (ABOVE FLOOR)		ROOF DRAIN SIZE-TYPE
	EXISTING SUB SOIL DRAIN		STORM DRAIN (BELOW FLOOR)		DOWN SPOUT
	EXISTING ACID WASTE (ABOVE FLOOR)		SUB SOIL DRAIN		MANHOLE
	EXISTING ACID WASTE (BELOW FLOOR)		VENT		VENT THROUGH ROOF ON RISER
	HOT WATER (HW)		SITE WATER PIPING		PLUMBING RISER NUMBER
	HOT WATER CIRCULATING (HWC)		VACUUM BREAKER		
	HOT SOFT WATER		GAS COCK		
	HOT SOFT WATER RECIRCULATING		RUNNING TRAP		
PIPING					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	TEE		GLOBE VALVE		CONCENTRIC REDUCER
	ELBOW		PRESS / TEMP TEST PORT		ECCENTRIC REDUCER
	UNION		GATE VALVE		PRESSURE GAUGE WITH GAUGE COCK
	STRAINER WITH BLOW-OFF VALVE		CHECK VALVE (ARROW INDICATES FLOW)		THERMOMETER, SIDE FEED
	BALANCING VALVE		FLEXIBLE PIPING		THERMOMETER, BOTTOM FEED
	ISOLATION VALVE (BALL OR BUTTERFLY)		AUTOMATIC AIR VENT		ARROW INDICATES FLOW DIRECTION
	PRESSURE RELIEF VALVE			ARROW INDICATES DOWNWARD PIPE PITCH	
	ELBOW UP		MANUAL AIR VENT WITH ISOLATION VALVE		WATER METER
	ELBOW DOWN				

ABBREVIATIONS

A AMP	BICSI BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL	CSS CLINICAL SERVICE SINK	EOA ECONOMIZER OUTDOOR AIR	FPTU FAN POWERED TERMINAL UNIT	HWC HOT WATER CIRCULATING	MERV MINIMUM EFFICIENCY REPORTING	OR OPERATOR ROOM	REOD REQUIRED	SSI SECURITY SYSTEMS INTEGRATOR	UG UNDERGROUND
AC AIR CONDITIONER	BUILDING	CT COOLING TOWER, CABLE TRAY	EPO EMERGENCY POWER OFF	FRO FIRE DAMPER	HX HEAT EXCHANGER	MIN VALUE	OVERFLOW ROOF DRAIN	RF RETURN FAN	SSS SURGEON SCRUB SINK	UH UNIT HEATER
ACC ALTERNATING CURRENT	BDG BATHTUB	CV CONSTANT VOLUME	EQU EQUIPMENT	FSD FIRE SMOKE DAMPER	HZ HERTZ	MH MANHOLE	OUTSIDE PLANT	RGS RIGID GALVANIZED STEEL	ST STORM	UL UNDERWRITERS LABORATORY
ACCU AIR COOLED CONDENSER	BTC BONDING CONDUCTOR FOR	CW COLD WATER	ER EQUIPMENT ROOM	FT FEET, FINNED TUBE	IC INTERCOM	MM MINIMUM	P PUMP	RH RELATIVE HUMIDITY	STD STANDARD	UNO UNLESS NOTED OTHERWISE
ACEG AC EQUIPMENT GROUND	BTU BRITISH THERMAL UNIT	DD DOUBLE DUCT	ERV ENERGY RECOVERY UNIT	FURN FURNACE	IDC INSULATION DISPLACEMENT CONNECTOR	MISC MISCELLANEOUS	PABX PRIVATE AUTOMATIC BRANCH EXCHANGE	RHC REHEAT COIL	STP SHIELDED TWISTED PAIR	UPS UNINTERRUPTIBLE POWER SUPPLY
AFF ABOVE FINISHED FLOOR	C CABLE TELEVISION	DF DRINKING FOUNTAIN	ES ENERGY RECOVERY VENTILATOR	FW FURNISHED	IDF INTERMEDIATE DISTRIBUTION FRAME	MLO MAIN LUGS ONLY	PB PULLBOX	RLFA RELIEF AIR ROOM	SW SWITCH	UR URINAL
AHU AUTHORITY HAVING JURISDICTION	CB CABLE BREAKER	DO DOUBLE DUCT	EUH ELECTRIC UNIT HEATER	GA GAUGE	IDS INTRUSION DETECTION SYSTEM	MOA MINIMUM OUTDOOR AIR	PBO PROVIDE BY OTHERS	RM ROOM	SWBD SWITCHBOARD	US UTILITY SINK
AHU AIR HANDLING UNIT	CC COOLING COIL	DP DEMARCATION POINT	EW ELECTRIC WATER COOLER	GEN GENERATOR	IP INTERNET PROTOCOL	MPDE MAIN POINT OF ENTRANCE	PBX PRIVATE BRANCH EXCHANGE	ROE REQUEST TO EXIT	T TANK, TRANSFORMER	UTP UNSHIELDED TWISTED PAIR
ALF ALUMINUM FRAME DOOR	CCTV CLOSED CIRCUIT TELEVISION	DPS DOOR POSITION SWITCH	EXH EXHAUST	EXST EXISTING	IE INVERT ELEVATION	MOP SINK	POU POWER DISTRIBUTION UNIT	TUR TRENCH	UV UNIT VENTILATOR	V VOLT VENT
APPROX APPROXIMATELY	CD CONDENSATE DRAIN	DS DOWNSPOUT	FA FIRE ALARM	F FIRE WATER	ISF INSIDE PLANT	MTD MOUNTED	PERP PERPENDICULAR	RTU ROOFTOP UNIT	TBB TELECOMMUNICATIONS	VD VOLUME DAMPER
ASHRAE AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS	CFH CUBIC FEET PER HOUR	DS DOWNSPOUT	FAA FIRE ALARM ANNUNCIATOR PANEL	FAA FIRE ALARM ANNUNCIATOR PANEL	J-BOX JUNCTION BOX	MTG MOUNTING	PH PREHEAT COIL	S SINK	TBBBC TELECOMMUNICATIONS BONDING	VERT VERTICAL
ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS	CFM CUBIC FEET PER MINUTE	DS DOWNSPOUT	FACF FIRE ALARM CONTROL PANEL	FACF FIRE ALARM CONTROL PANEL	KCMIL THOUSAND CIRCULAR MILS	NC NORMALLY CLOSED	SA SUPPLY AIR, SOUND ATTENUATOR	SCN SCREENED TWISTED PAIR	TC TELECOMMUNICATIONS CLOSET	VFC VARIABLE FREQUENCY CONTROL
ASTM STANDARD SPECIFICATIONS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS	CH CHILLER	DS DOWNSPOUT	FCU FAN COIL UNIT	FCU FAN COIL UNIT	KV KILOVOLT	NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	SAN SANITARY	SD SOFT COLD WATER	TD TRENCH DRAIN	VOP VOICE OVER INTERNET PROTOCOL
ATS AUTOMATIC TRANSFER SWITCH	CLG CEILING	DS DOWNSPOUT	FD FLOOR DRAIN	FD FLOOR DRAIN	KVA KILOVOLT AMPERE	NFPA NATIONAL FIRE PROTECTION ASSOCIATION	SCH SCHEDULE	SO SMOKE DAMPER	TELECOM TELECOMMUNICATIONS	W WATER, WATT, WALL HUNG
ATU AIR TERMINAL UNIT REHEAT	CLR CLEAR	DS DOWNSPOUT	FDC FIRE DEPARTMENT CONNECTION	FDC FIRE DEPARTMENT CONNECTION	KW KILOWATT	NIC NOT IN CONTRACT	SH SHOWER	SP SUPPLY FAN	TEMP TEMPERATURE	WAP WIRELESS ACCESS POINT
AUX AUXILIARY	CM COMMUNICATIONS CABLE	DS DOWNSPOUT	FHC FIRE HOSE CABINET	FHC FIRE HOSE CABINET	LAN LOCAL AREA NETWORK	NO NORMALLY OPEN	SHW SOFT HOT WATER	SWF WASH FOUNTAIN	TGB TELECOMMUNICATIONS MAIN	WG WATER GAUGE
AV ACID VENT, AUDIOVISUAL	CMP COMMUNICATIONS PLENUM CABLE	DS DOWNSPOUT	FL FLOOR	FL FLOOR	LBM LATCH BOLT MONITOR	NOM NOMINAL	SLB SEALED LEAD ACID BATTERY	WC WATER CLOSET	TR TELECOMMUNICATIONS ROOM	WH WALL HUNG, WATER HEATER
AVG AVERAGE	CMR COMMUNICATIONS RISER CABLE	DS DOWNSPOUT	FLA FULL LOAD AMPS	FLA FULL LOAD AMPS	LEC LOCAL EXCHANGE CARRIER	NPW NON-POTABLE WATER	SPR SPRINKLER MAIN, SINGLE MODE	WFO WASH FOUNTAIN	TTB TELEPHONE TERMINAL BOARD	WMP WIRE MANAGEMENT PANEL
AVI AUTOMATIC VEHICLE IDENTIFICATION	CO COAXIAL CABLE	DS DOWNSPOUT	FM FACTORY MUTUAL	FM FACTORY MUTUAL	LTG LIGHTING	NTS NOT TO SCALE	SSA SHEET METAL AND AIR CONDITIONING CONTRACTORS' ASSOCIATION	WF WATER FOUNTAIN	TU TERMINAL UNIT	WSA WIRE SIZING AMPS
AW ACID WASTE	COAX COAXIAL CABLE	DS DOWNSPOUT	ENG ENGINEERING CORPORATION	ENG ENGINEERING CORPORATION	MA MAKEUP AIR	OA OUTSIDE AIR	SP SUMP PUMP, STATIC PRESSURE	WG WATER GAUGE	TV TELEVISION	WSP WATER SOURCE HEAT PUMP
AWG AMERICAN WIRE GAUGE	CO-OSP CUSTOMER OWNER-OUTSIDE PLANT	DS DOWNSPOUT	EMI ELECTROMAGNETIC INTERFERENCE	EMI ELECTROMAGNETIC INTERFERENCE	MAU MAKEUP AIR UNIT	OB OUTLET BOX	SPD SURGE PROTECTIVE DEVICE	WH WALL HYDRANT, WALL HEATER	TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION	WTH WIRE TRANSFER HINGE
BAS BUILDING AUTOMATION SYSTEM	CPVC CHLORINATED POLYVINYL CHLORIDE	DS DOWNSPOUT	EMS ENERGY MANAGEMENT SYSTEM	EMS ENERGY MANAGEMENT SYSTEM	MAX MAXIMUM	OC ON CENTER	SS SPECIFICATIONS	WY YARD WATERS	YH YARD HYDRANT	
BD BIDET	CRAC COMPUTER ROOM AIR CONDITIONER	DS DOWNSPOUT	EMI ELECTRICAL METALLIC TUBING	EMI ELECTRICAL METALLIC TUBING	MBH 1000 BTU/HOUR	RA RETURN AIR	SSS STAINLESS STEEL, SERVICE SINK			
BFP BACKFLOW PREVENTER		DS DOWNSPOUT			MECH MECHANICAL	RD ROOF DRAIN	SSD SUB SOIL DRAIN			

GENERAL NOTES

- COORDINATE LOCATION OF DUCTWORK AND PIPING WITH ELECTRICAL CABLE TRAY. PROVIDE A MINIMUM OF 6" OF CLEAR ACCESS ABOVE CABLE TRAY FOR INSTALLATION OF CABLES.
- THIN LINE ITEMS INDICATE EXISTING TO REMAIN. BOLD LINE ITEMS INDICATE NEW WORK.
- CONTRACTOR IS RESPONSIBLE FOR ANY CUTTING AND PATCHING NEEDED FOR MECHANICAL INSTALLATION. PATCHINGS MUST MATCH EXISTING.

HVAC GENERAL NOTES:

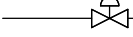
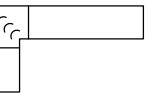

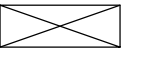

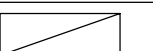
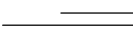
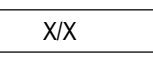

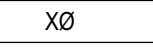

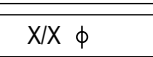



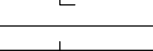



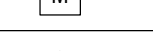



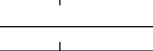

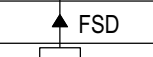
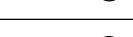
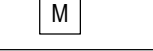

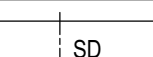

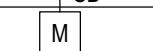
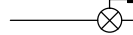



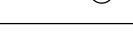



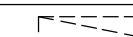
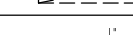
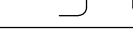
- SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR DIFFUSER, REGISTER, GRILLE, AND CEILING MOUNTED DEVICE LOCATIONS.
- DO NOT RUN DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR IN CODE REQUIRED CLEARANCE SPACES. COORDINATE ALL ROUTING WORK WITH ALL TRADES. DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL OFFSETS REQUIRED FOR COMPLETE SYSTEM.
- CONTRACTOR SHALL COORDINATE LOCATION OF DUCTWORK IN CEILING SPACE WITH ALL TRADES PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK.
- FOR GENERAL DUCTWORK CONSTRUCTION, SEE DUCT FITTING DETAILS.
- DUCTWORK AND EQUIPMENT SHOWN WITH THIN LINES INDICATES EXISTING TO REMAIN. DUCTWORK AND EQUIPMENT SHOWN WITH BOLD LINES INDICATES NEW.
- PROVIDE VOLUME DAMPER IN ALL BRANCH TAKEOFFS CONNECTING TO DIFFUSERS, REGISTERS, OR GRILLES AND IN LOCATIONS INDICATED.
- PROVIDE CLEARANCES TO ALL EQUIPMENT AS REQUIRED BY MANUFACTURERS' INSTALLATION AND OPERATION REQUIREMENTS AND/OR BY CODE.
- INSTALL ALL DUCT AND PIPING IN MECHANICAL ROOMS AS HIGH AS POSSIBLE. PROVIDE 7'-0" MINIMUM HIGH ACCESS PATHWAYS TO ALL EQUIPMENT.
- COORDINATE LOCATIONS OF ALL EQUIPMENT HOUSEKEEPING PADS WITH GENERAL CONTRACTOR. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF EQUIPMENT HOUSEKEEPING PADS.
- LOCATE ALL WALL MOUNTED HVAC EQUIPMENT AT A MINIMUM 7'-0" ABOVE FINISHED FLOOR OR AS REQUIRED FOR SERVICE PER MANUFACTURERS' RECOMMENDATIONS.
- DUCTWORK SHALL NOT BE FABRICATED UNTIL ALL COORDINATION CONFLICTS HAVE BEEN RESOLVED.
- CAP ENDS OF ALL INSTALLED DUCTWORK DURING CONSTRUCTION TO MINIMIZE DIRT, DEBRIS, AND FOREIGN OBJECTS FROM ENTERING THE DUCT SYSTEM.

- COORDINATE SCHEDULE OF SHUTDOWN FOR EXISTING HVAC SYSTEMS, FOR INSTALLATION OF NEW HVAC SYSTEMS, WITH THE OWNER'S REPRESENTATIVE PRIOR TO SHUTDOWN.
- COORDINATE LOCATION OF DUCTWORK WITH ELECTRICAL CABLE TRAYS.
- ALL WORK SHALL COMPLY WITH LOCAL CODES, INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, AND NFPA.
- ALL DUCT INSULATION SHALL MEET THE ENERGY CODE'S INSTALLED R VALUE REQUIREMENTS.

DEMOLITION NOTES

- THE OWNER SHALL HAVE THE FIRST RIGHT OF SALVAGE FOR ALL MECHANICAL, ELECTRICAL, AND PLUMBING ITEMS BEING REMOVED OR DEMOLISHED. IF OWNER DESIRES, THE CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF PROPERLY. VERIFY OWNERS' INTENT PRIOR TO REMOVAL OR DEMOLITION.
- INFORMATION PERTAINING TO THE EXISTING BUILDING HAS BEEN OBTAINED THROUGH THE BUILDINGS ORIGINAL DRAWINGS WHERE AVAILABLE. REPORT DISCREPANCIES TO THE ARCHITECT/ENGINEER PRIOR TO ANY DEMOLITION. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
- COORDINATE SHUT DOWN OF ALL UTILITIES FOR DEMOLITION WORK WITH THE OWNER.
- DISCONNECT, DEMOLISH, AND REMOVE MECHANICAL SYSTEMS, EQUIPMENT, AND COMPONENTS SHOWN HATCHED.
PIPING TO BE REMOVED: REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP REMAINING PIPING WITH THE SAME OR COMPATIBLE PIPING MATERIAL.
PIPING TO BE ABANDONED IN PLACE: DRAIN PIPING AND CAP WITH THE SAME OR COMPATIBLE PIPING MATERIAL.
DUCTS TO BE REMOVED: REMOVE PORTIONS OF DUCT AND CAP REMAINING DUCTS WITH THE SAME OR COMPATIBLE DUCTWORK MATERIAL.
DUCTS TO BE ABANDONED IN PLACE: CAP DUCTS WITH THE SAME OR COMPATIBLE DUCTWORK MATERIAL.
EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT.
EQUIPMENT TO BE REMOVED AND REINSTALLED: DISCONNECT AND CAP SERVICES AND REMOVE, CLEAN, AND STORE EQUIPMENT. WHEN APPROPRIATE, REINSTALL, RECONNECT, AND MAKE EQUIPMENT FULLY OPERATIONAL.
EQUIPMENT TO BE REMOVED AND SALVAGED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT AND DELIVER TO OWNER.

MECHANICAL SYMBOLS

HEATING - VENTILATING - AIR-CONDITIONING					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—CWS—	CHILLED WATER SUPPLY		AUTOMATIC CONTROL VALVE, 2-WAY		TURNING VANES
—CWR—	CHILLED WATER RETURN		AUTOMATIC CONTROL VALVE, 3-WAY		SUPPLY, OUTDOOR, OR MIXED AIR DUCT END OR RISER (SA) (OA) (MA)
—PC—	CONDENSATE OR BOILER FEED PUMP DISCHARGE		PRESSURE REGULATING VALVE (PRV)		RETURN EXHAUST OR RELIEF AIR DUCT END OR RISER (RA) (EA) (RLF-A)
—CS—	CONDENSER WATER SUPPLY FROM TOWER		PIPE IN SLEEVE		RECTANGULAR DUCTWORK (FIRST NUMBER IS SIDE SHOWN)
—CR—	CONDENSER WATER RETURN TO TOWER		VALVE IN VERTICAL PIPE		ROUND DUCT
—CD—	COIL OR EQUIPMENT DRAIN		F AND T TRAP CAP LBS/HR		FLAT OVAL (FIRST NUMBER IS THE SIDE SHOWN)
—GS—	GLYCOL SUPPLY		BUCKET TRAP CAP LBS/HR		VOLUME DAMPER
—GR—	GLYCOL RETURN		AIR QUALITY SENSOR		MOTORIZED DAMPER
—FOS—	FUEL OIL SUPPLY		AQUASTAT		FIRE DAMPER WITH ACCESS DOOR
—FOR—	FUEL OIL RETURN		CO2 SENSOR		COMBINATION FIRE AND SMOKE DAMPER WITH ACCESS DOOR
—FOV—	FUEL OIL VENT		HUMIDISTAT		SMOKE DAMPER WITH ACCESS DOOR
—G—	NATURAL GAS		REMOTE SENSOR		SOUND ATTENUATOR
—HPWS—	HEAT PUMP WATER SUPPLY		THERMOSTAT		FLEX CONNECTION
—HPWR—	HEAT PUMP WATER RETURN		THERMOSTAT WITH REMOTE SENSOR		SUPPLY REGISTER OR GRILLE
—HPR—	HIGH PRESSURE CONDENSATE RETURN		SOLENOID VALVE (REFRIGERANT)		RETURN REGISTER OR GRILLE
—HPS—	HIGH PRESSURE STEAM		THERMOSTATIC EXPANSION VALVE (REFRIGERANT)		TYP DIFFUSER
—HWS—	HOT WATER SUPPLY		SIGHT GLASS		TYP EXHAUST/RETURN GRILLE
—HWR—	HOT WATER RETURN		MANUAL AIR VENT		
—LPR—	LOW PRESSURE CONDENSATE RETURN		PRESSURE OR TEMPERATURE MEASURING POINTS		
—LPS—	LOW PRESSURE STEAM		FLOW SWITCH		
—MPR—	MEDIUM PRESSURE CONDENSATE RETURN		HEATING RISER		
—MPS—	MEDIUM PRESSURE STEAM		ACCESS DOOR - SIZE AS SHOWN OR PER SPEC.		
—RL—	REFRIGERANT LIQUID		EXPANSION LOOP, LENGTH AND DEPTH		
—RS—	REFRIGERANT SUCTION		FIN/TUBE-TYPE CAPACITY MBH		
—RD—	REFRIGERANT HOT GAS DISCHARGE		(SHADED AREA INDICATES ELEMENT LOCATION)		
B.D.D.	BACK-DRAFT DAMPER (COUNTER BALANCED)		NEW TO EXISTING CONNECTION		

© COPYRIGHT 2015
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



Omaha: 1122 Douglas on the Mall
Omaha, Nebraska 68102
Phone: (402) 346-7007
Fax: (402) 346-9576

Lincoln: 1802 O Street, Suite 104
Lincoln, Nebraska 68503
Phone: (402) 477-6161
Fax: (402) 477-9616

Oklahoma City: 15431 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 936-3480
Fax: (405) 931-6567

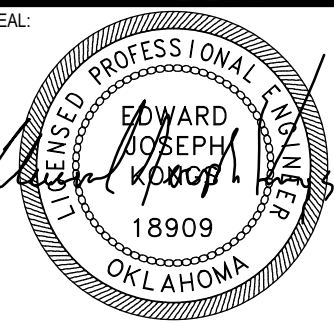
Des Moines: 480 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 263-5669
Fax: (515) 263-1755



ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



C.A. NO. 842
EXPIRES 30/JUNE/2016 6/22/16

YZEU142015

REPLACE MAKEUP AIR UNITS

BUILDING 1043

OKLAHOMA CITY, OKLAHOMA

WILL ROGERS ANGB

REVISIONS

REV.	DATE	DESCRIPTION

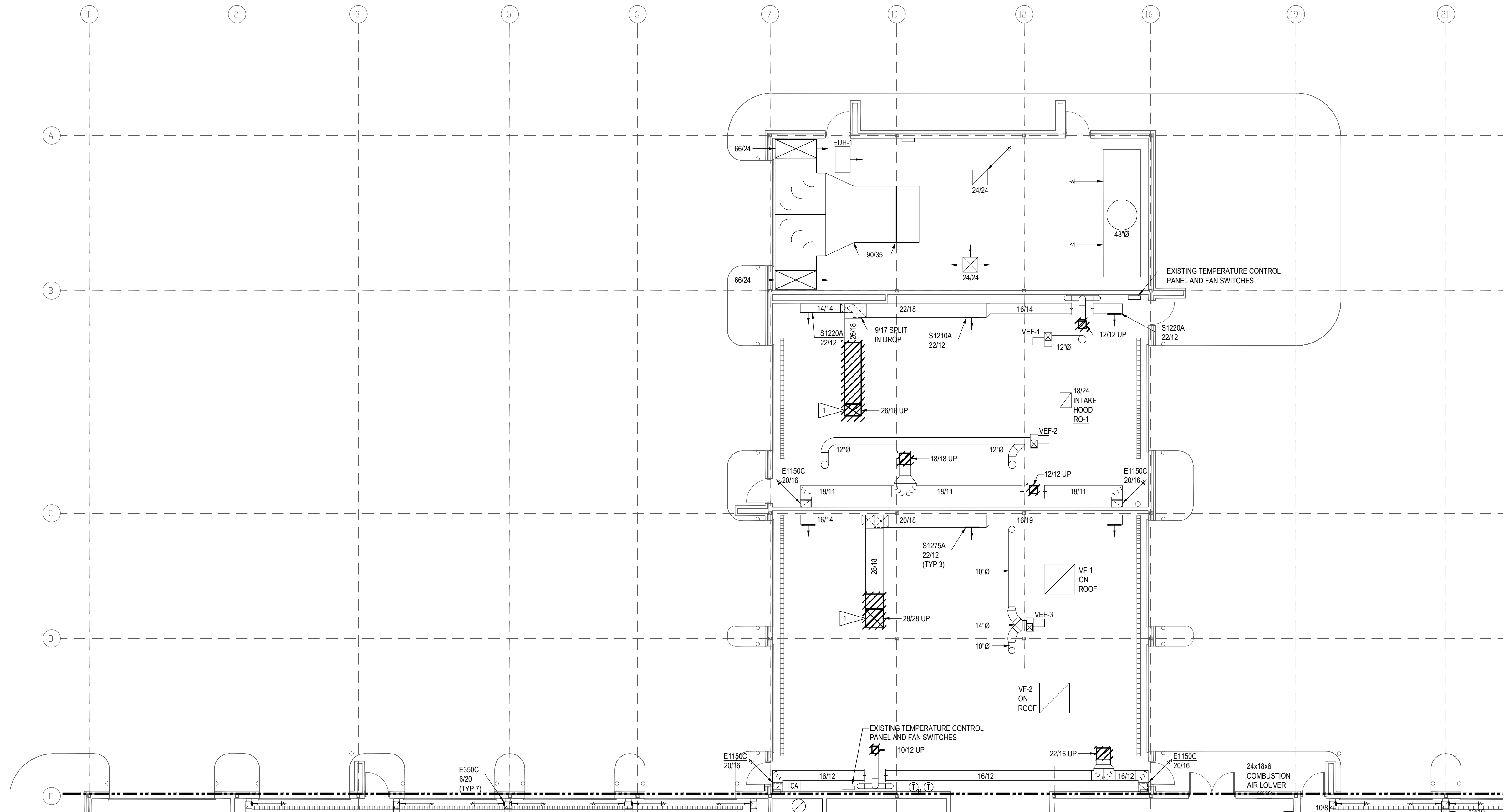
PROJ. MANAGER:	EJK
DRAWN BY:	SEA
CHECKED BY:	EJK

DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:
MECHANICAL
SYMBOLS AND
ABBREVIATIONS

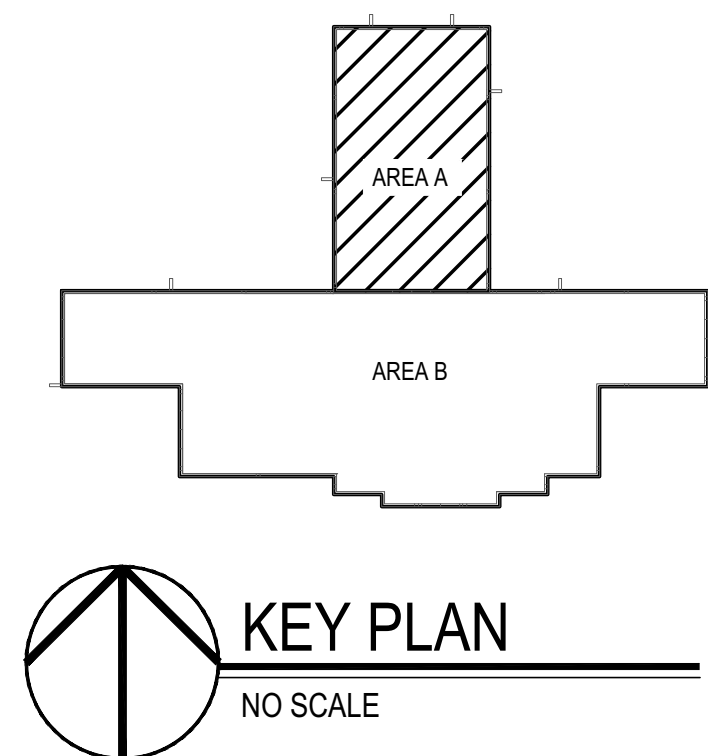
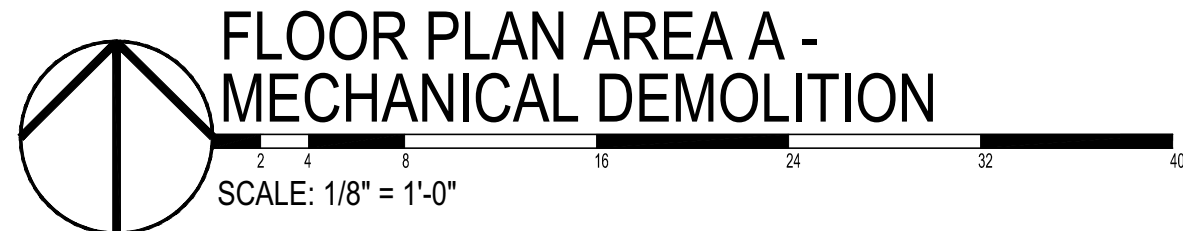
SHEET NO.:

M-000



FLAG NOTES

1 EXISTING ROOF PENETRATIONS, ROOF DECK, AND ROOF TO BE REPAIRED TO MATCH EXISTING.



Alvine Engineering

Omaha: 1102 Douglas on the Hill
Omaha, Nebraska 68107
Phone: (402) 346-7007
Fax: (402) 346-9576

Lincoln: 1800 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616

Oklahoma City: 1343 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 936-3488
Fax: (405) 751-6567

Des Moines: 400 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 283-5669
Fax: (515) 283-1735

AIP
ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431

SEAL

EDWARD JOSEPH
18909
OKLAHOMA

C.A. NO. 842
EXPIRES 30/JUNE/2016 6/22/16

YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS		
REV.	DATE	DESCRIPTION

PROJ. MANAGER: **EJK**
DRAWN BY: **SEA**
CHECKED BY: **EJK**

DATE: **06/22/2016**
PROJECT NO.: **1504**

SHEET TITLE: **FLOOR PLAN AREA A - MECHANICAL DEMOLITION**

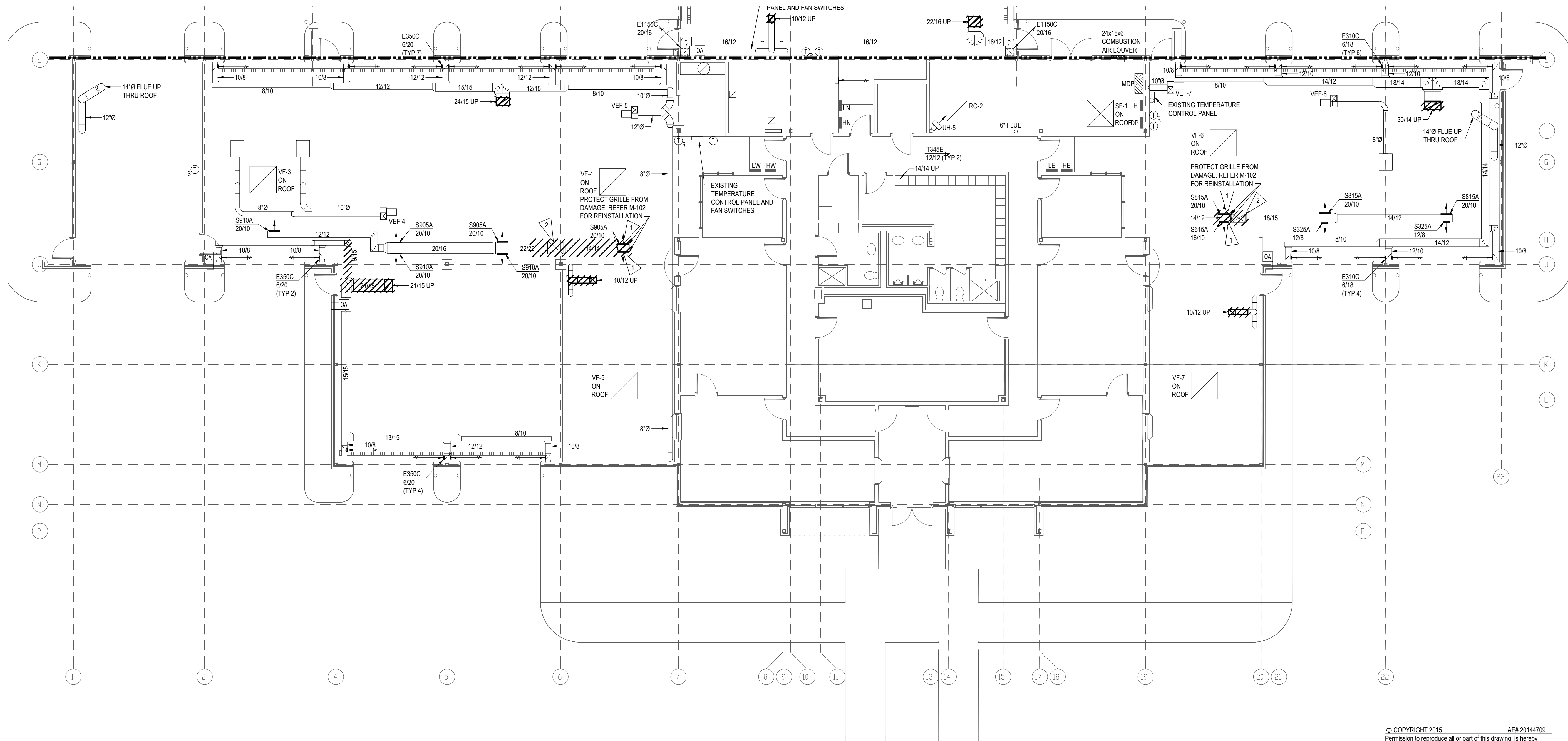
SHEET NO.: **MD-101**

REVISIONS		
REV.	DATE	DESCRIPTION

PROJ. MANAGER:	EJK
DRAWN BY:	SEA
CHECKED BY:	EJK

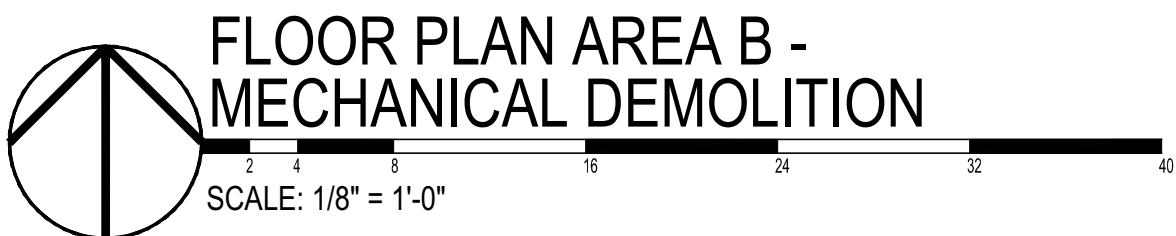
DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:	FLOOR PLAN AREA B - MECHANICAL DEMOLITION
SHEET NO.:	MD-102

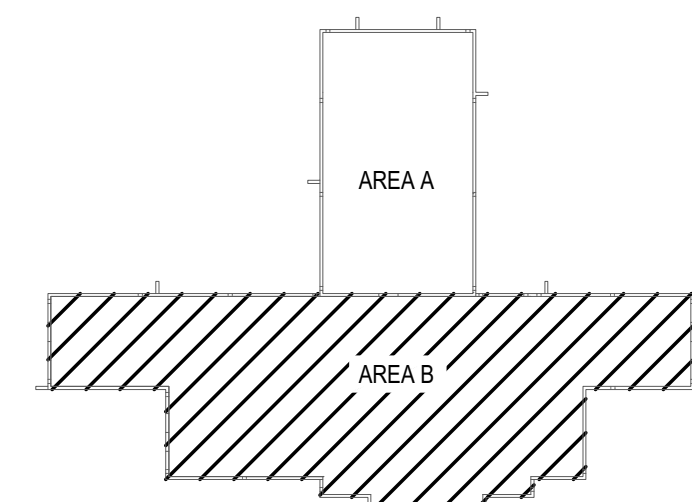


FLAG NOTES

- EXISTING SA AIR GRILLES TO BE REUSED, RELOCATED.
- EXISTING ROOF PENETRATIONS, ROOF DECK, AND ROOF TO BE REPAIRED TO MATCH EXISTING.



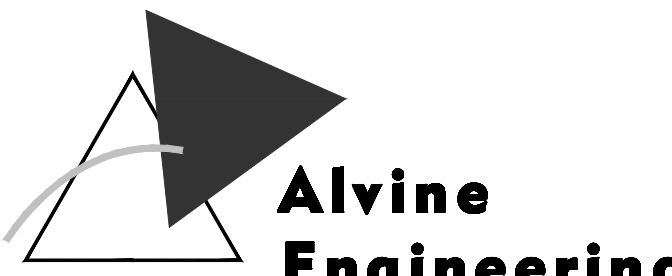
FLOOR PLAN AREA B -
MECHANICAL DEMOLITION



KEY PLAN
NO SCALE

© COPYRIGHT 2015 AEP# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



Omaha: 1102 Douglas on the Hill
Omaha, Nebraska 68107
Phone: (402) 346-7007
Fax: (402) 346-9576

Lincoln: 1800 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616

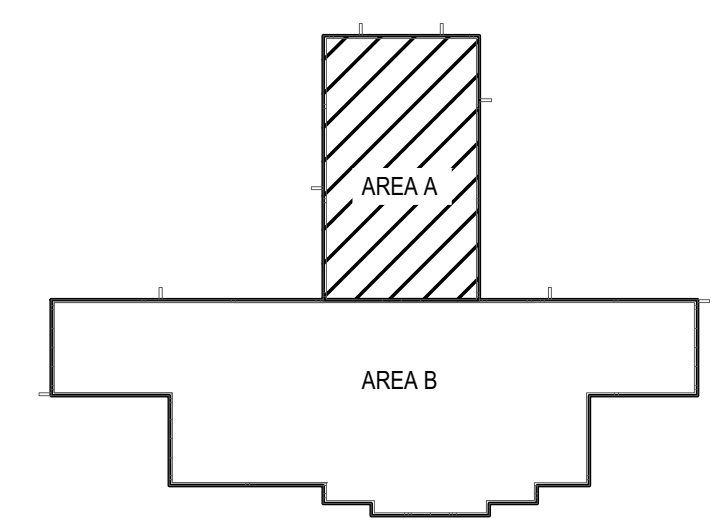
Oklahoma City: 1343 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 936-3488
Fax: (405) 751-6567

Des Moines: 400 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 263-5569
Fax: (515) 263-1755



- FLAG NOTES**
- 1 REMOVE EXISTING EXHAUST FAN AND CAP CURB PER DETAIL 1/M2.01.
 - 2 REMOVE EXISTING MAKE-UP AIR UNIT AND CURB. DISCONNECT EXISTING GAS AND ELECTRICAL CONNECTIONS. PROTECT FROM DAMAGE FOR CONNECTION OF NEW ENERGY RECOVERY UNIT.
 - 3 REMOVE EXHAUST FAN AND CURB TO ALLOW FOR INSTALLATION OF NEW MAKE-UP AIR UNIT.

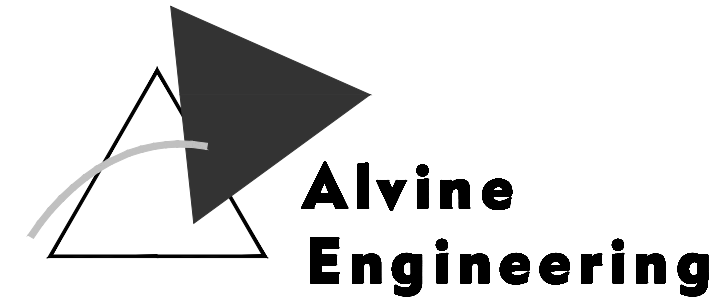
ROOF PLAN AREA A - MECHANICAL DEMOLITION
SCALE: 1/8" = 1'-0"



KEY PLAN
NO SCALE

© COPYRIGHT 2015 AE# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



Offices:
1102 Douglas on the Hill
Owasso, Oklahoma 74057
Phone: (405) 346-7007
Fax: (405) 346-9516

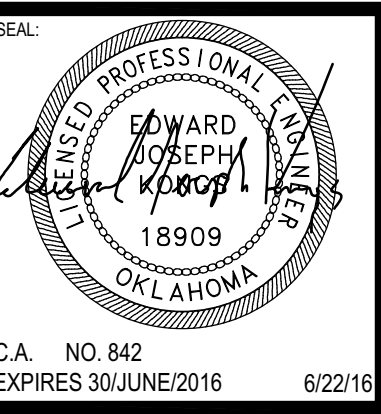
Lincoln:
1800 O Street, Suite 104
Lincoln, Oklahoma 73308
Phone: (405) 477-6161
Fax: (405) 477-9616

Oklahoma City:
13431 Broadway Boulevard, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 936-3480
Fax: (405) 751-8567

Des Moines:
400 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 263-8569
Fax: (515) 263-1735



**ARCHITECTS
INTERIOR DESIGNERS
PLANNERS**
3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS		
REV.	DATE	DESCRIPTION

PROJ. MANAGER: **EJK**
DRAWN BY: **SEA**
CHECKED BY: **EJK**

DATE: **06/22/2016**
PROJECT NO.: **1504**

SHEET TITLE:
ROOF PLAN AREA A - MECHANICAL DEMOLITION

SHEET NO.:
MD-111

REVISIONS		
REV.	DATE	DESCRIPTION

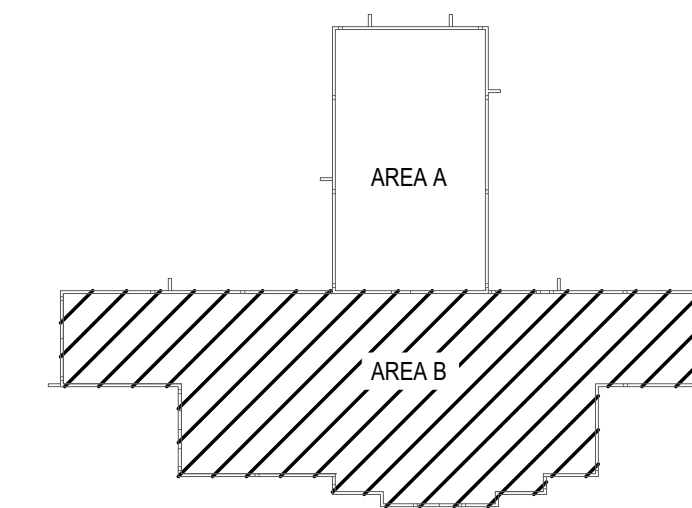
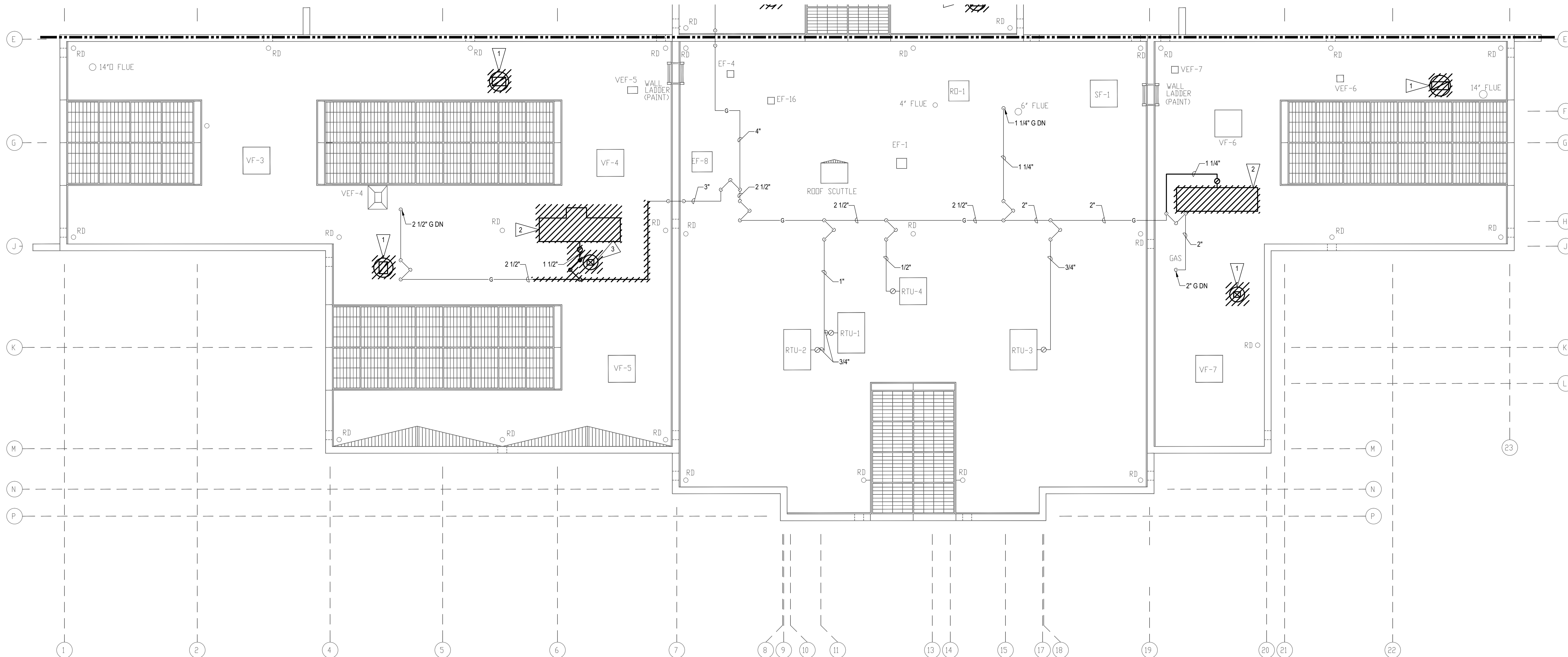
PROJECT MANAGER:	EJK
DRAWN BY:	SEA
CHECKED BY:	EJK

DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:	ROOF PLAN AREA B - MECHANICAL DEMOLITION
SHEET NO.:	MD-112

FLAG NOTES

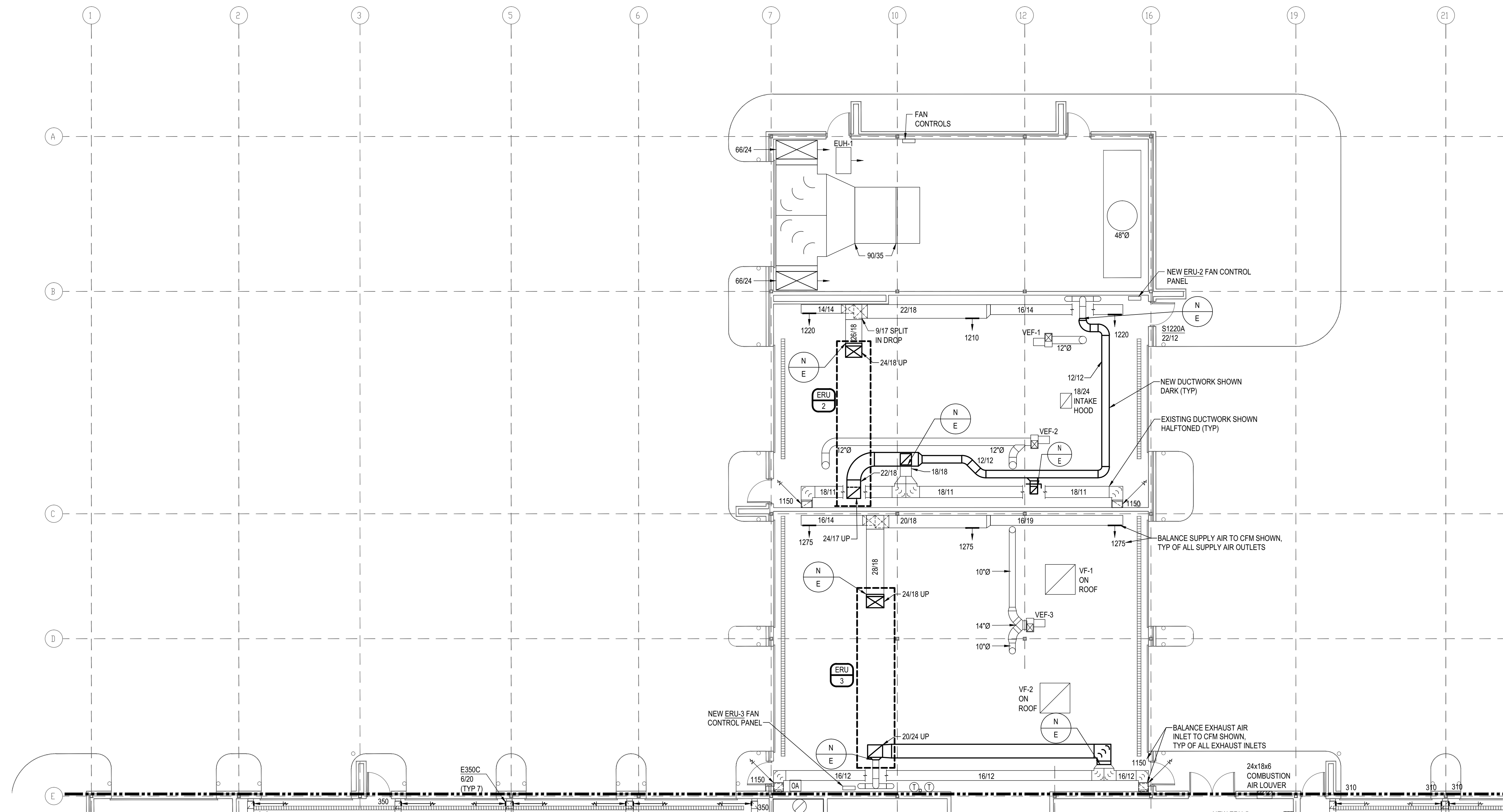
- 1 REMOVE EXISTING EXHAUST FAN AND CAP CURB PER DETAIL 1M-201
- 2 REMOVE EXISTING MAKE-UP AIR UNIT AND CURB. DISCONNECT EXISTING GAS AND ELECTRICAL CONNECTION. PROTECT FROM DAMAGE FOR CONNECTION TO NEW ENERGY RECOVERY UNIT.
- 3 REMOVE EXISTING EXHAUST FAN AND CURB FOR PLACEMENT OF NEW ENERGY RECOVERY UNIT.



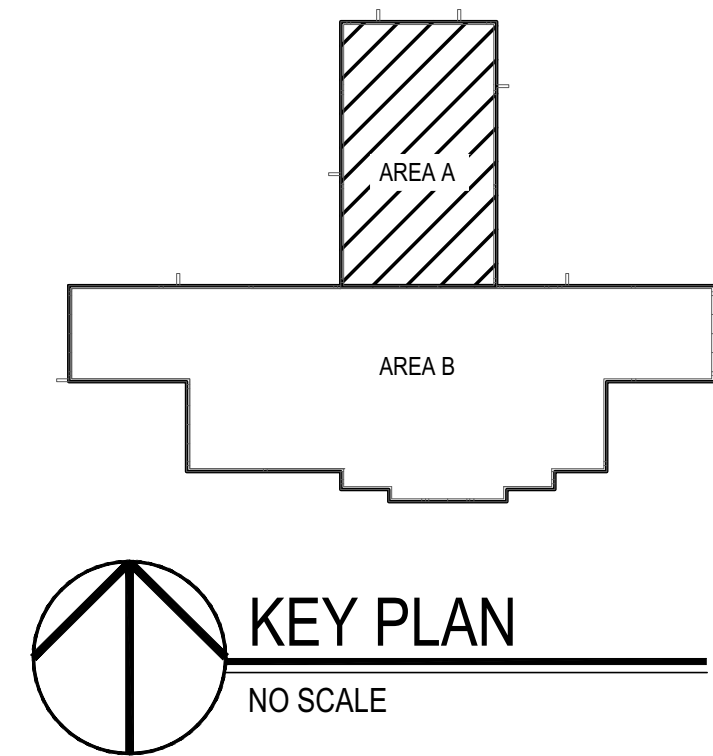
© COPYRIGHT 2015 AE# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

Alvine Engineering
Omaha: 1102 Douglas Hwy. Ste. 101
Omaha, Nebraska 68107
Phone: (402) 346-7027
Fax: (402) 346-9516
Lincoln: 1800 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616
Oklahoma City: 13431 Broadway Blvd., Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 936-3480
Fax: (405) 751-6567
Des Moines: 400 East Court Ave., Suite 100
Des Moines, Iowa 50309
Phone: (515) 263-9569
Fax: (515) 263-1755



FLOOR PLAN AREA A - MECHANICAL
SCALE: 1/8" = 1'-0"



© COPYRIGHT 2015 AER 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

Alvine Engineering

Omaha: 1102 Douglas on the Hill
Omaha, Nebraska 68107
Phone: (402) 346-7007
Fax: (402) 346-9576

Lincoln: 1800 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616

Oklahoma City: 1543 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 958-3488
Fax: (405) 751-6567

Des Moines: 400 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 283-5669
Fax: (515) 283-1755

REVISIONS		
REV.	DATE	DESCRIPTION

PROJ. MANAGER:	EJK
DRAWN BY:	SEA
CHECKED BY:	EJK

DATE:	06/22/2016
PROJECT NO.:	1504

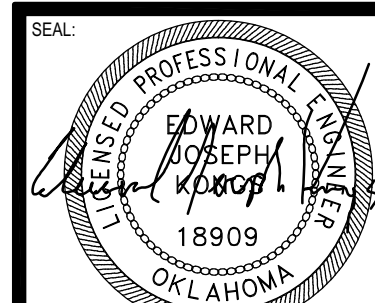
SHEET TITLE:	FLOOR PLAN AREA A - MECHANICAL
SHEET NO.:	M-101



ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



C.A. NO. 842
EXPIRES 30/JUNE/2016 6/22/16

YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANG OKLAHOMA CITY, OKLAHOMA

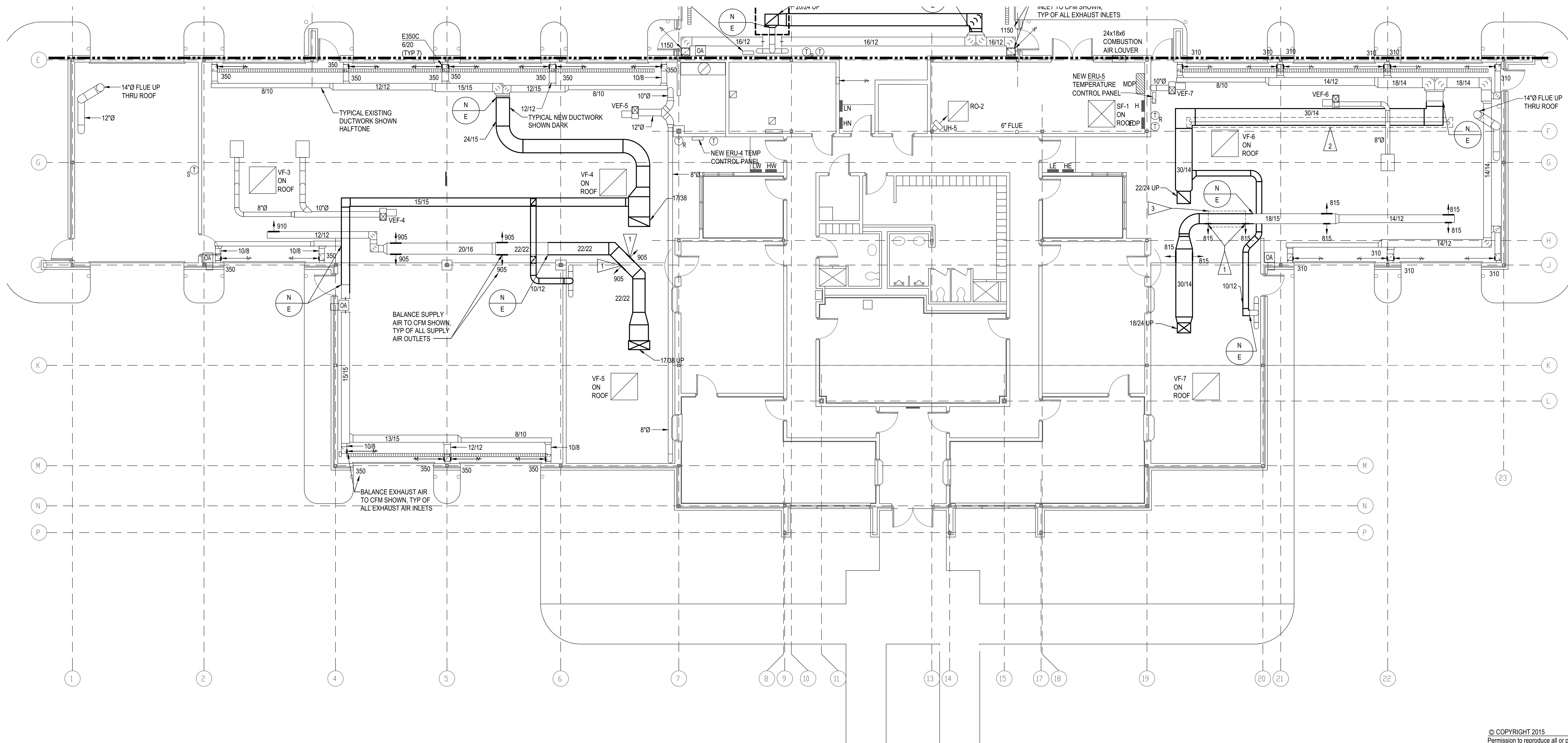
REVISIONS

REV.	DATE	DESCRIPTION

PROJECT MANAGER:	EJK
DRAWN BY:	SEA
CHECKED BY:	EJK

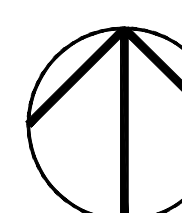
DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:	FLOOR PLAN AREA B - MECHANICAL
SHEET NO.:	M-102



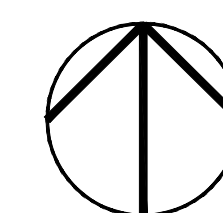
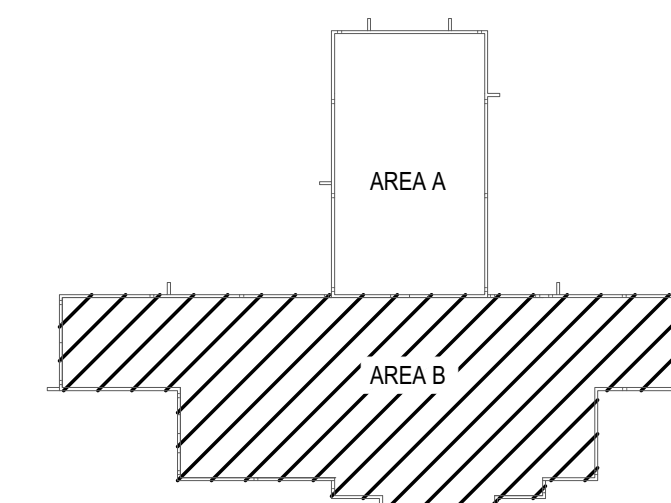
FLAG NOTES

- 1 INSTALL EXISTING SA GRILLES IN NEW SA DUCTWORK AT LOCATION SHOWN, BALANCE TO AIRFLOW SHOWN.
- 2 EXISTING RADIANT TUBE SYSTEM TO BE RELOCATED BY OTHERS.
- 3 PROVIDE SHEET METAL SHIELD TO PROTECT NEW DUCTWORK.



FLOOR PLAN AREA B -
MECHANICAL

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

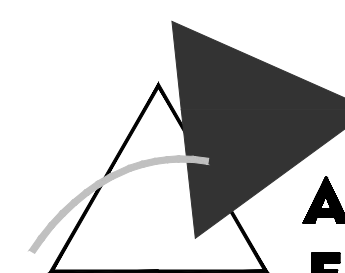


KEY PLAN

NO SCALE

© COPYRIGHT 2015 AE# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

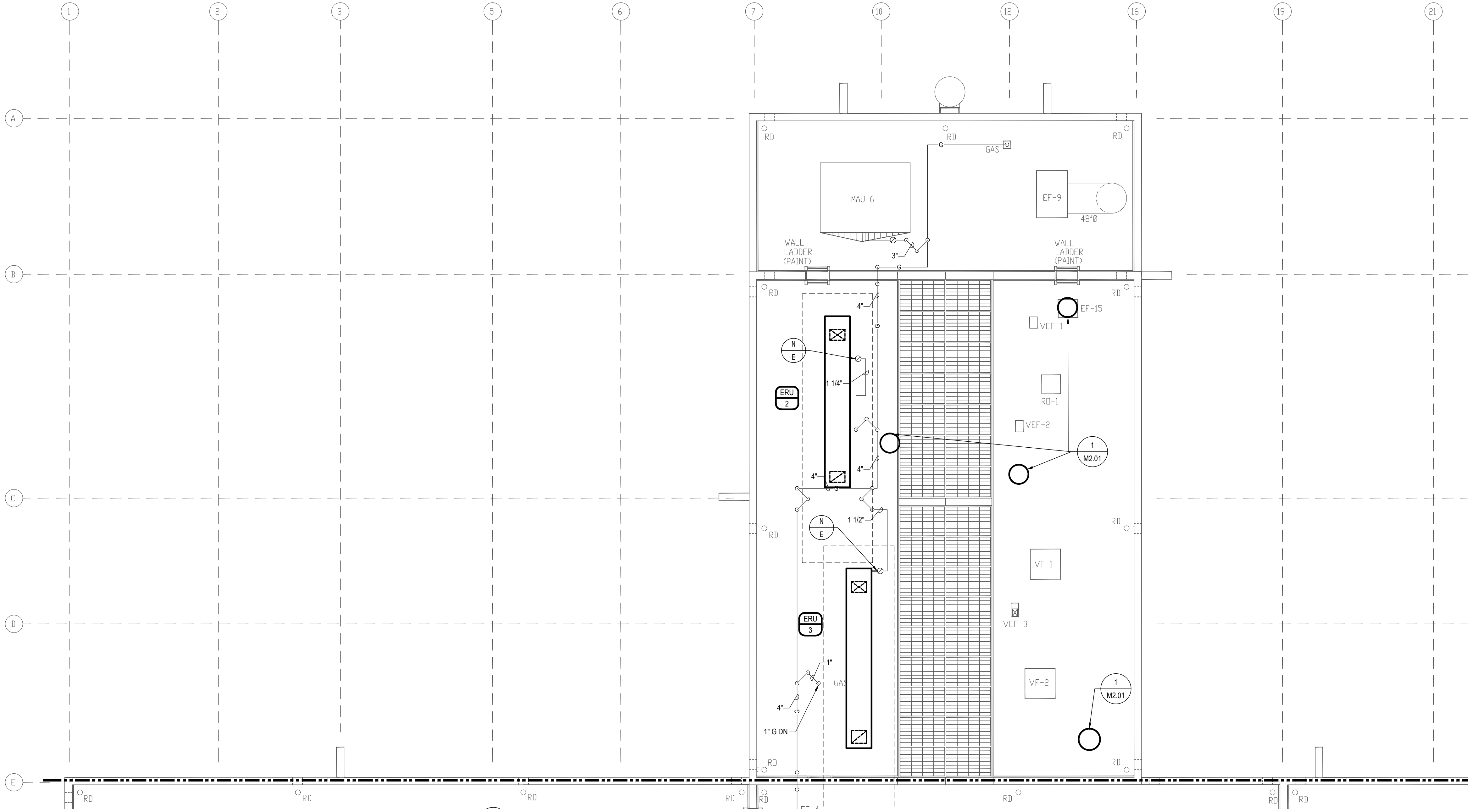
NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



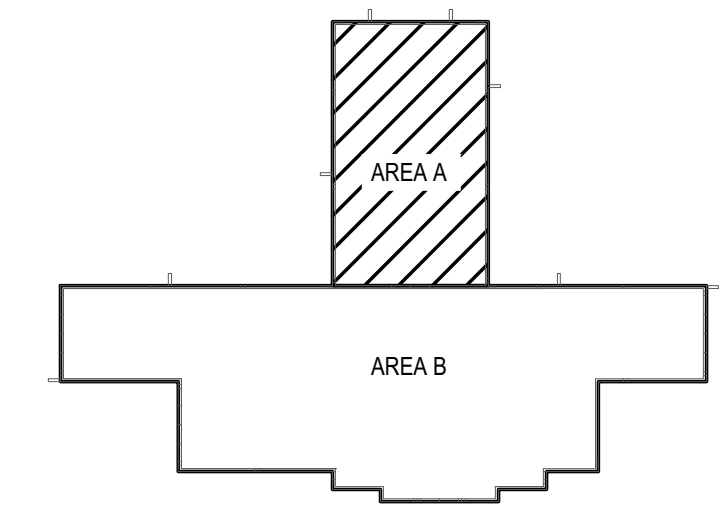
**Alvine
Engineering**

Omaha: 1102 Douglas Ave. 1st Fl. Omaha, NE 68102 Phone: (402) 346-7027 Fax: (402) 346-9516
Lincoln: 1800 O Street, Suite 104 Lincoln, NE 68508 Phone: (402) 477-6161 Fax: (402) 477-9616
Oklahoma City: 13431 Broadway, Suite 101 Oklahoma City, OK 73144 Phone: (405) 936-3480 Fax: (405) 751-6567
Des Moines: 400 East Coast Ave. Suite 100 Des Moines, Iowa 50309 Phone: (515) 263-9569 Fax: (515) 263-1755

June 22, 2016 8:40am 20160703 11052 M111.dwg Jharshing



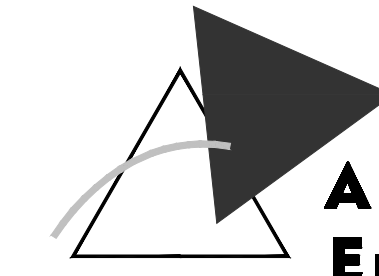
 **ROOF PLAN AREA A - MECHANICAL**
SCALE: 1/8" = 1'-0"



 **KEY PLAN**
NO SCALE

© COPYRIGHT 2015 AE# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

**Alvine Engineering**

Omaha:
1185 Douglas on the Hill
Omaha, Nebraska 68102
Phone: (402) 346-7007
Fax: (402) 346-9576

Lincoln:
1802 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616

Oklahoma City:
1343 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (402) 958-3480
Fax: (402) 751-6567

Des Moines:
400 East Court Ave, Suite 300
Des Moines, Iowa 50309
Phone: (515) 293-0599
Fax: (515) 293-1755

**ARCHITECTS
IN
PARTNERSHIP**

**ARCHITECTS
INTERIOR DESIGNERS
PLANNERS**
3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431

SEAL



CA - NO. 842
EXPIRES 30/JUNE/2016 6/22/16

YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS		
REV.	DATE	DESCRIPTION

PROJ. MANAGER:	EJK
DRAWN BY:	SEA
CHECKED BY:	EJK

DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:

**ROOF PLAN
AREA A -
MECHANICAL**

SHEET NO.:

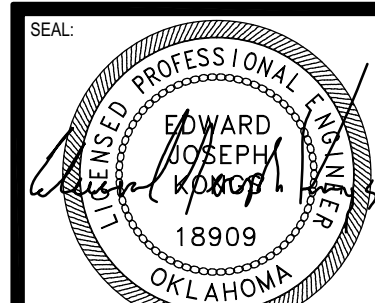
M-111



ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



CA. NO. 842
EXPIRES 30/JUNE/2016 6/22/16

YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS

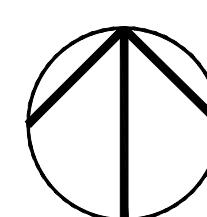
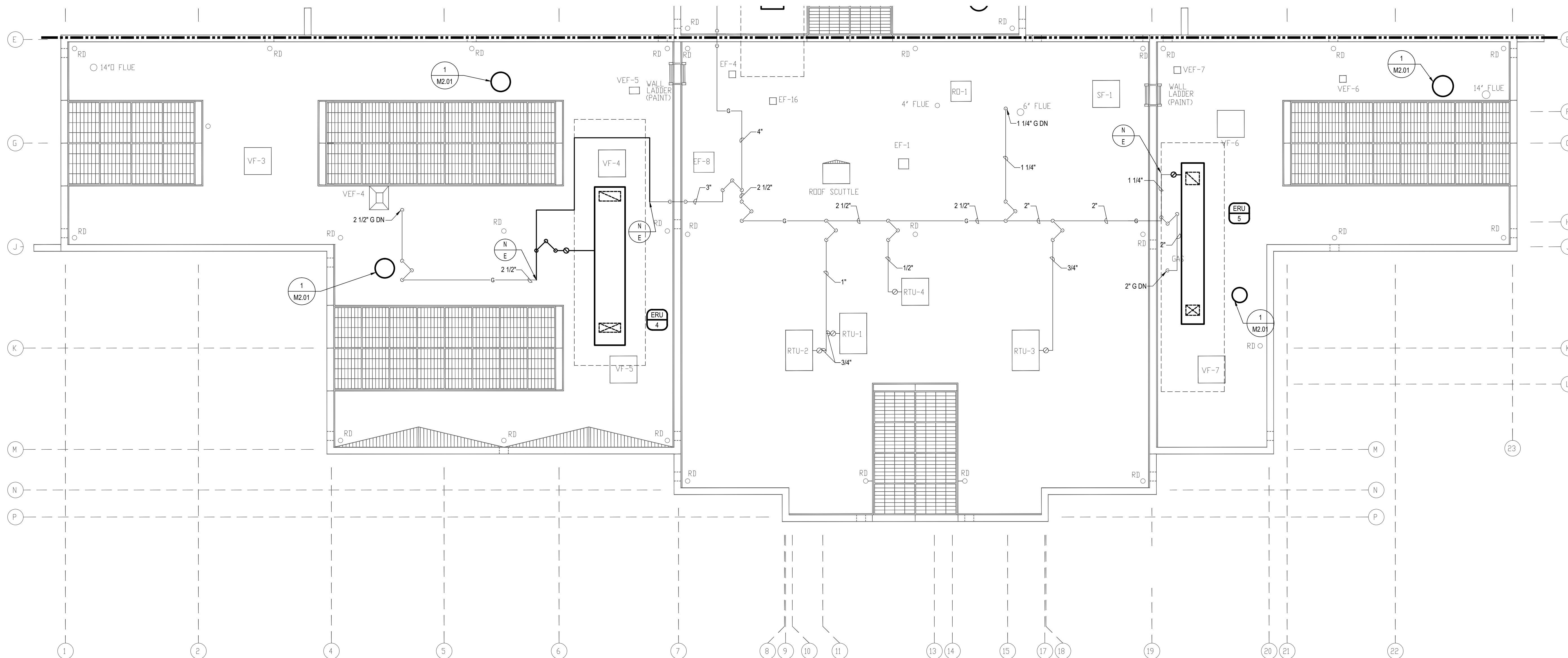
REV.	DATE	DESCRIPTION

PROJ. MANAGER: **EJK**
DRAWN BY: **SEA**
CHECKED BY: **EJK**

DATE: **06/22/2016**
PROJECT NO.: **1504**

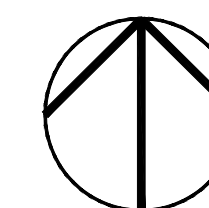
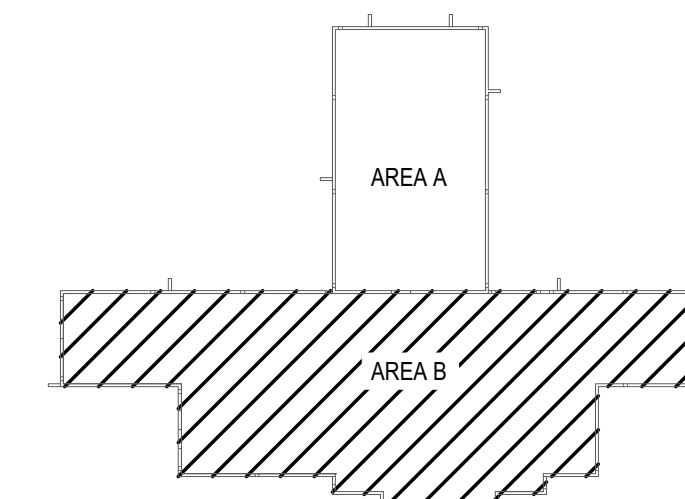
SHEET TITLE: **ROOF PLAN
AREA B -
MECHANICAL**

SHEET NO.: **M-112**



**ROOF PLAN AREA B -
MECHANICAL**

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

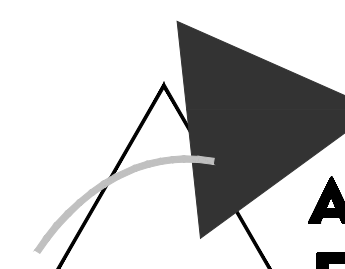


KEY PLAN

NO SCALE

© COPYRIGHT 2015 AE# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



**Alvine
Engineering**

Omaha: 1102 Douglas on the Mall
Omaha, Nebraska 68102
Phone: (402) 346-7027
Fax: (402) 346-9516

Lincoln: 1800 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616

Oklahoma City: 13431 Broadway Commons, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (402) 936-3480
Fax: (402) 751-6567

Des Moines: 400 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 263-9569
Fax: (515) 263-1755



ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS

REV.	DATE	DESCRIPTION

PROJ. MANAGER:	EJK
DRAWN BY:	SEA
CHECKED BY:	EJK

DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:	MECHANICAL SEQUENCE OF OPERATION
SHEET NO.:	M-200

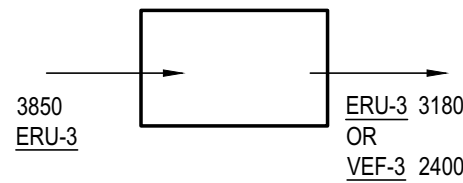
ERU-3, VEF-3, AND VF-1 AND 2

SEQUENCE OF OPERATION

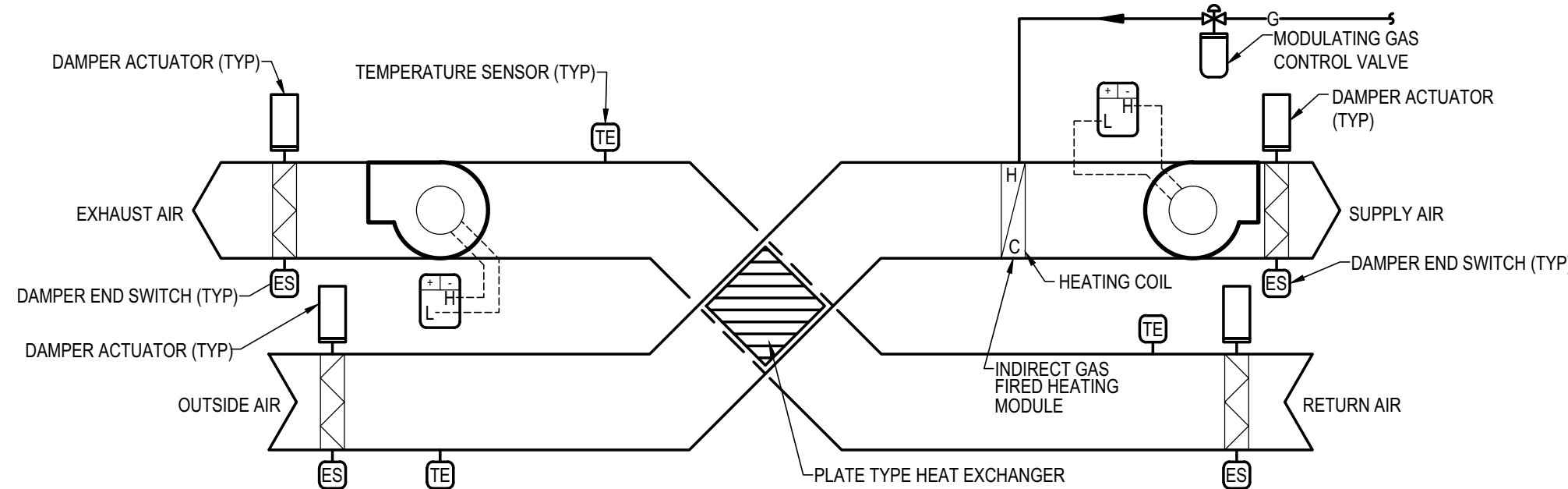
GENERAL: ENERGY RECOVERY UNIT 3 IS ACTIVATED FROM THE HAND/OFF/AUTOMATIC SWITCH LOCATED ON WALL. ERU-3 WILL OPERATE IN 100 PERCENT OUTSIDE AIR MODE IN THE EVENT VEHICLE EXHAUST FAN VEF-3 IS STARTED (RETURN AIR DAMPERS CLOSE).

TEMPERATURE CONTROL: ROOM THERMOSTAT AT ERU-3 MODULATES THE GAS VALVE AS REQUIRED TO MAINTAIN ITS SET POINT.

VENT FANS VF-1 AND 2: EXISTING VENT FANS VF-1 AND 2 ARE STARTED AND STOPPED BY THEIR EXISTING RESPECTIVE WALL SWITCHES.



SPACE AIRFLOW DIAGRAM



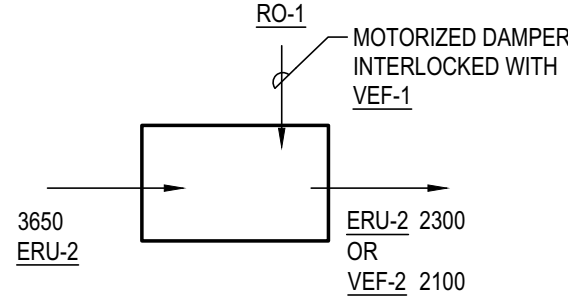
NOTE:
ALL CONTROL SENSORS, VALVES AND ACTUATORS TO BE PROVIDED BY THE CONTROLS CONTRACTOR. CONTROL SENSORS, VALVES AND ACTUATORS TO BE INSTALLED AND WIRED WITHIN THE UNIT BY THE AIR HANDLING UNIT MANUFACTURER.

ERU-2 AND VEF-1 AND 2

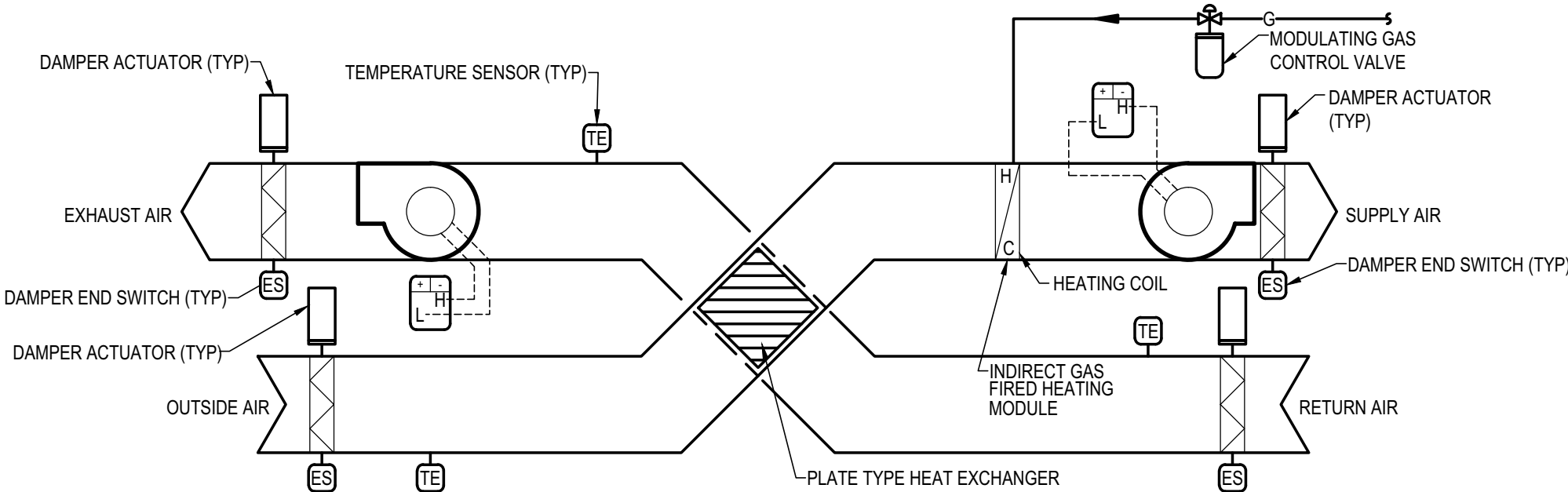
SEQUENCE OF OPERATION

GENERAL: ENERGY RECOVERY UNIT ERU-2 IS ACTIVATED AND DEACTIVATED FROM THE HAND/OFF/AUTOMATIC SWITCH LOCATED ON WALL. ERU-2 SHALL RUN IN 100 PERCENT OUTSIDE AIR MODE IN THE EVENT VEHICLE EXHAUST FAN VEF-2 IS STARTED (RETURN AIR DAMPERS CLOSE). ERU-2 AND ROOM THERMOSTAT SHALL MODULATE THE GAS VALVE AS REQUIRED TO MAINTAIN ITS SET POINT.

VEHICLE EXHAUST FAN VEF-1: EXISTING FAN MOTOR VEF-1 IS STARTED MANUALLY. WHEN THE FAN STARTS THE EXISTING DAMPER ON ROOFTOP INTAKE HOOD RO-1 OPENS. WHEN THE FAN STOPS THE DAMPER CLOSES.



SPACE AIRFLOW DIAGRAM



NOTE:
ALL CONTROL SENSORS, VALVES AND ACTUATORS TO BE PROVIDED BY THE CONTROLS CONTRACTOR. CONTROL SENSORS, VALVES AND ACTUATORS TO BE INSTALLED AND WIRED WITHIN THE UNIT BY THE AIR HANDLING UNIT MANUFACTURER.

ERU-5, VEF-6 AND 7, AND VF-6 AND 7

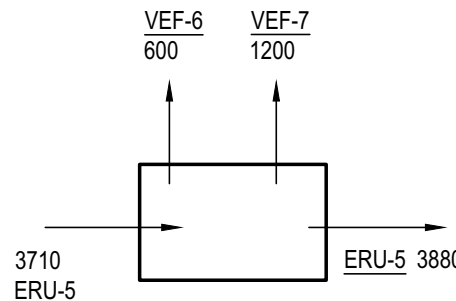
SEQUENCE OF OPERATION

GENERAL: ENERGY RECOVERY UNIT ERU-5 IS ACTIVATED AND DEACTIVATED FROM THE HAND/OFF/AUTOMATIC SWITCH LOCATED ON WALL.

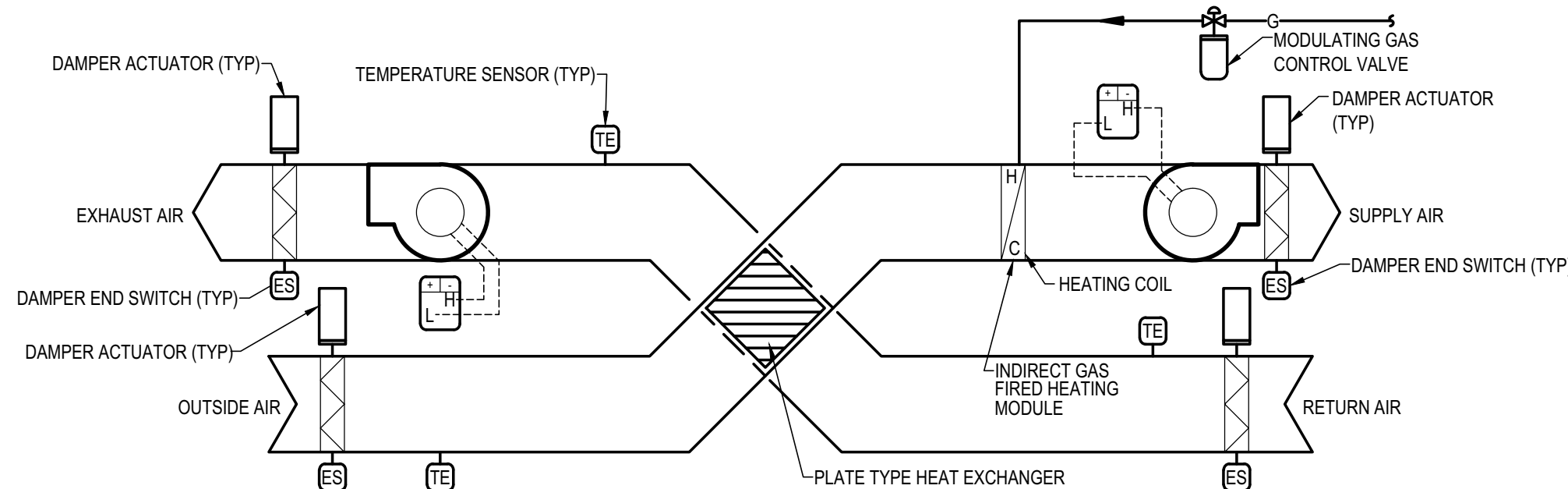
TEMPERATURE CONTROL: ROOM THERMOSTAT AT ERU-5 MODULATES THE GAS VALVE AS REQUIRED TO MAINTAIN ITS SET POINT.

VENT FANS VF-6 AND 7: EXISTING VENT FANS VF-6 AND 7 ARE STARTED AND STOPPED BY THEIR EXISTING RESPECTIVE WALL SWITCHES.

VEHICLE FANS VEF-6 AND 7: EXISTING VEHICLE FANS VEF-6 AND 7 ARE STARTED AND STOPPED BY THEIR EXISTING RESPECTIVE WALL SWITCHES.



SPACE AIRFLOW DIAGRAM



NOTE:
ALL CONTROL SENSORS, VALVES AND ACTUATORS TO BE PROVIDED BY THE CONTROLS CONTRACTOR. CONTROL SENSORS, VALVES AND ACTUATORS TO BE INSTALLED AND WIRED WITHIN THE UNIT BY THE AIR HANDLING UNIT MANUFACTURER.

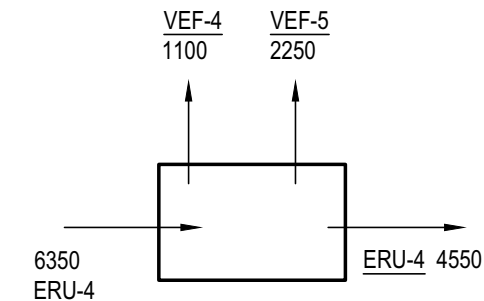
ERU-4, VEF-4 AND 5, AND VF-3, 4, AND 5

GENERAL: ENERGY RECOVERY UNIT ERU-4 IS ACTIVATED AND DEACTIVATED FROM THE HAND/OFF/AUTOMATIC SWITCH LOCATED ON WALL.

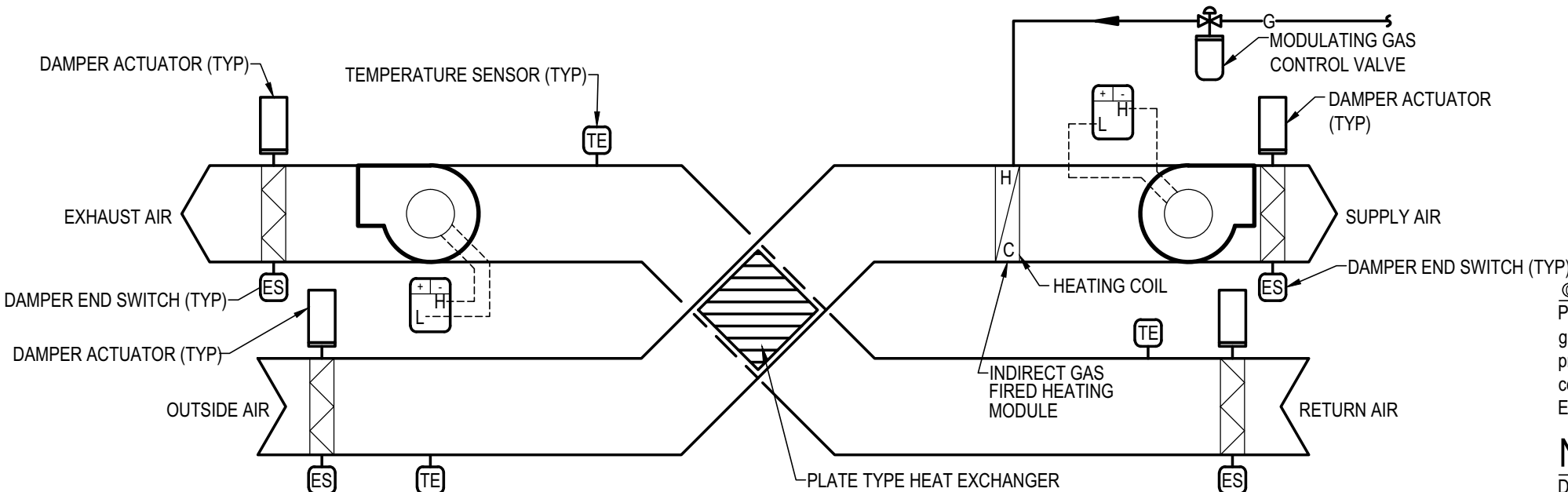
SPACE TEMPERATURE CONTROL: ROOM THERMOSTAT MODULATES ERU-4 GAS VALVE AS REQUIRED TO MAINTAIN ITS SET POINT.

VENT FANS VF-4 AND 5: EXISTING VENT FANS VF-4 AND 5 ARE STARTED AND STOPPED BY THEIR EXISTING RESPECTIVE WALL SWITCHES.

VEHICLE FANS VEF-4 AND 5: EXISTING VEHICLE FANS VEF-4 AND 5 ARE STARTED AND STOPPED BY THEIR EXISTING RESPECTIVE WALL SWITCHES.



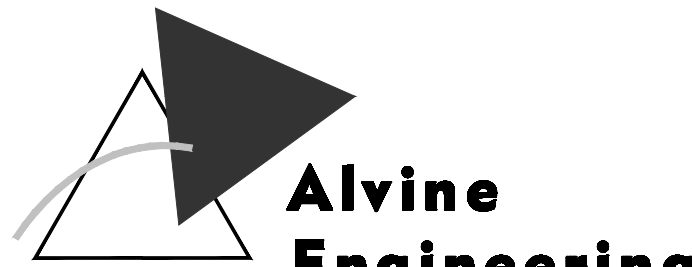
SPACE AIRFLOW DIAGRAM



NOTE:
ALL CONTROL SENSORS, VALVES AND ACTUATORS TO BE PROVIDED BY THE CONTROLS CONTRACTOR. CONTROL SENSORS, VALVES AND ACTUATORS TO BE INSTALLED AND WIRED WITHIN THE UNIT BY THE AIR HANDLING UNIT MANUFACTURER.

© COPYRIGHT 2015
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



Omaha: 1102 Douglas on the Hill
Omaha, Nebraska 68102
Phone: (402) 346-7007
Fax: (402) 346-9576

Lincoln: 1800 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616

Oklahoma City: 13431 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 938-5480
Fax: (405) 751-6567

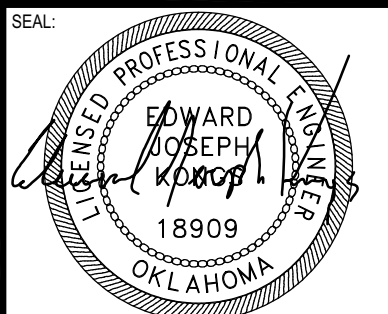
Des Moines: 400 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 263-6569
Fax: (515) 263-1755



ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



C.A. NO. 842
EXPIRES 30 JUNE 2016 6/22/16

YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
OKLAHOMA CITY, OKLAHOMA
WILL ROGERS ANGB

REVISIONS

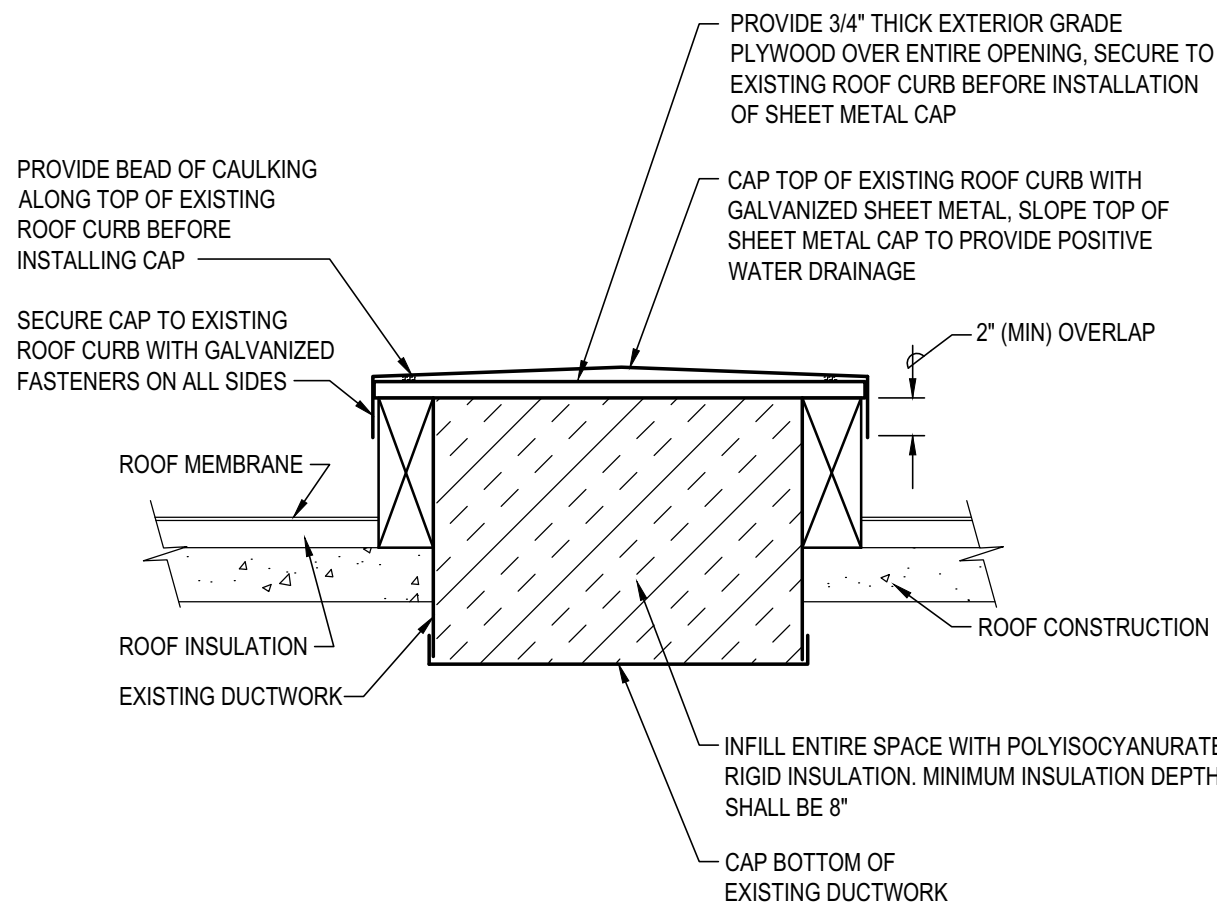
REV.	DATE	DESCRIPTION

PROJ. MANAGER:	EJK
DRAWN BY:	SEA
CHECKED BY:	EJK

DATE:	06/22/2016
PROJECT NO.:	1504

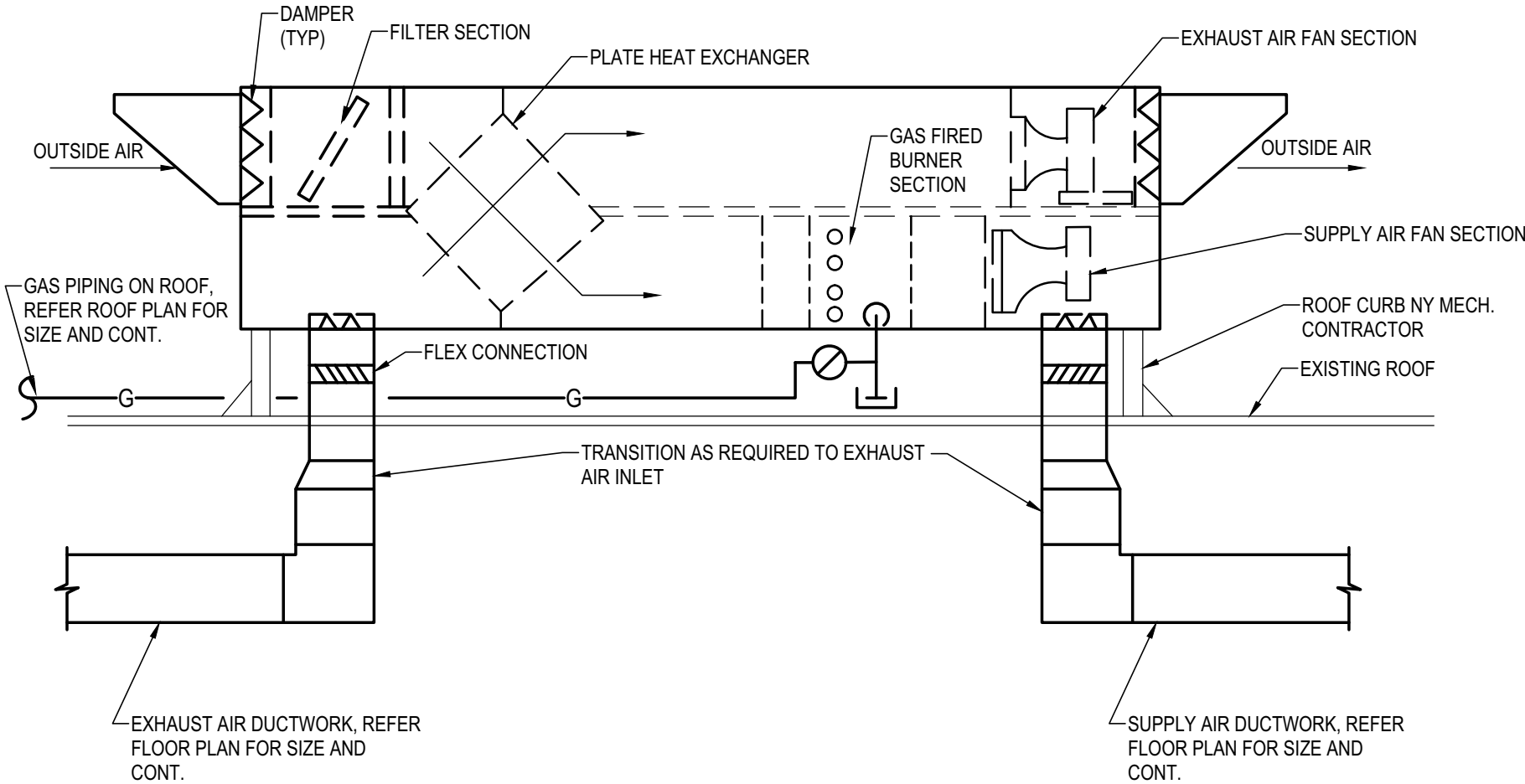
SHEET TITLE:
MECHANICAL
DETAILS AND
SCHEDULES

SHEET NO.:
M-201



EXISTING ROOF CURB CAP

NO SCALE



EXISTING ROOF CURB CAP

NO SCALE



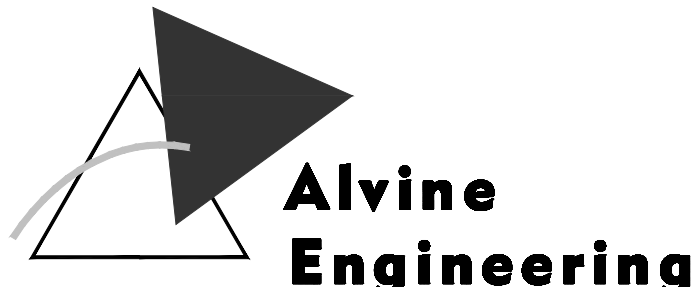
PACKAGED ENERGY RECOVERY VENTILATOR - GAS HEAT SCHEDULE

MARK	SERVES	LOCATION	AMBIENT AIR (°F DB)	ENERGY RECOVERY TYPE	ENERGY RECOVERY OUTSIDE/SUPPLY AIR				ENERGY RECOVERY EXHAUST AIR				MIN. EFFECTIVENESS % (WINTER) (1)	HEATING		NATURAL GAS				DIMENSIONS (LxWxH) (IN.)	OPERATING WEIGHT (LBS)	MANUFACTURER	MODEL NUMBER	REMARKS
					CFM	ESP (W.G.)	WINTER		CFM	ESP (W.G.)	WINTER			EAT °F (DB)	LAT °F (DB)	CFH	INPUT (MBH)	OUTPUT (MBH)	INLET PRESSURE (LBS)					
							EAT °F (DB)	LAT °F (DB)			EAT °F (DB)	LAT °F (DB)												
ERU-2	REFUELER BAY 103	ROOF	14.1	PLATE	3,650	1	14.1	43.5	2,800	0.75	70	34.5		0	120	482	482	482	7"-14"	272x40x72	5,500	INNOVENT	ERU-OU-PL-3600 -FF-460	(2)(3)
ERU-3	ROOM TRUCK BAYS 103/104	ROOF	14.1	PLATE	3,850	1	14.1	44.7	3,180	0.75	70	35.1		0	120	381	381	381	7"-14"	286x40x72	5,700	INNOVENT	ERU-OU-PL-3800 -FF-460	(2)(3)
ERU-4	LUBRICATION BAY 109	ROOF	14.1	PLATE	6,350	1	14.1	43.5	2,800	0.75	70	35.4		0	96	670	670	670	7"-14"	281x54x82	7,300	INNOVENT	ERU-OU-PL-6300 -FF-460	(2)(3)
ERU-5	LUB BAYS 115 THRU 117	ROOF	14.1	PLATE	3,710	1	14.1	49.7	4,490	0.75	70	40.5		0	84	343	343	343	7"-14"	286x40x72	5,800	INNOVENT	ERU-OU-PL-3700 -FF-460	(2)(3)

- REMARKS:
- EFFECTIVENESS RATINGS BASED ON ASHRAE 84-91 AND ARI 1060 STANDARDS.
 - PROVIDE WITH:
 - DISCONNECT SWITCH, NONFUSED.
 - SINGLE POINT POWER CONNECTION.
 - 2" EXHAUST AIR/OUTSIDE AIR
 - FILTERS.
 - SPRING ISOLATION HANGERS.
 - DIRECT FIRED HEATING SECTION
 - PROVIDE WITH FACTORY ROOF CURB AND INTAKE/HAUST HOODS.

© COPYRIGHT 2015 AE# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



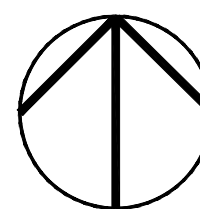
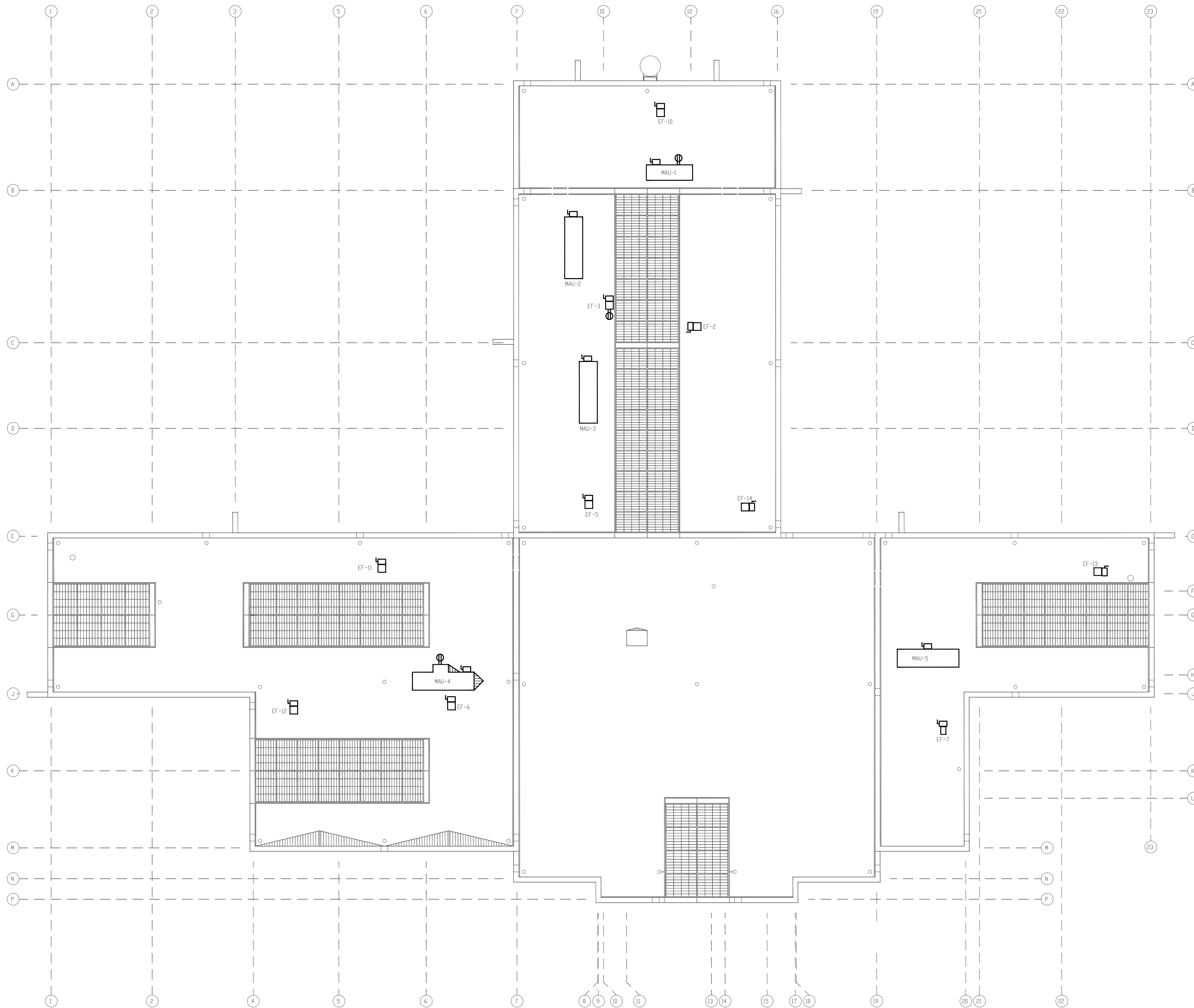
Omaha: 1102 Douglas on the Hill, Omaha, Nebraska 68102, Phone: (402) 346-7807, Fax: (402) 346-4576
Lincoln: 1800 O Street, Suite 104, Lincoln, Nebraska 68508, Phone: (402) 477-6161, Fax: (402) 477-9616
Oklahoma City: 13431 Broadway, Oklahoma City, Oklahoma 73114, Phone: (405) 956-3480, Fax: (405) 751-6567
Des Moines: 400 East Court Ave, Suite 100, Des Moines, Iowa 50309, Phone: (515) 263-5569, Fax: (515) 243-1755

LEGEND 2014-05-17

ELECTRICAL SYMBOLS					
LIGHTING AND POWER					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SURFACE MOUNTED CEILING FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		SURFACE MOUNTED WALL FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		CEILING MOUNTED EXIT LIGHT WITH DIRECTIONAL ARROW, SHADING INDICATES FACE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
	RECESSED MOUNTED CEILING FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		RECESSED MOUNTED WALL FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		WALL OR END MOUNTED EXIT LIGHT WITH ARROW, SHADING INDICATES FACE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
	PENDANT MOUNTED CEILING FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		BRACKET FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		COMBINATION CEILING MOUNTED EXIT/ EMERGENCY BATTERY LIGHT WITH DIRECTIONAL ARROW, SHADING INDICATES FACE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
	IN GRADE/FLOOR FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		FIXTURE TRACK (# INDICATES FIXTURE NUMBER IN SCHEDULE)		COMBINATION WALL MOUNTED EXIT/EMERGENCY BATTERY LIGHT WITH DIRECTIONAL ARROW, SHADING INDICATES FACE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
	TRACK MOUNTED FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		CEILING FAN - NUMBER OF BLADES IN SCHEDULE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		EMERGENCY BATTERY LIGHT (# INDICATES FIXTURE NUMBER IN SCHEDULE)
	SHADING INDICATES FIXTURE ON EMERGENCY CIRCUIT OR WITH BATTERY BACKUP		UNDERCABINET LIGHT (# INDICATES FIXTURE NUMBER IN SCHEDULE)		ABOVE GRADE FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
	POLE LUMINAIRE(S) (# INDICATES FIXTURE NUMBER IN SCHEDULE)		THEATER SPOT LIGHT (# INDICATES FIXTURE NUMBER IN SCHEDULE)		POLE LUMINAIRE(S) (# INDICATES FIXTURE NUMBER IN SCHEDULE)
	ARROW INDICATES WALL WASH FIXTURE		SIMPLEX RECEPTACLE		LIGHTING PANEL - FLUSH MOUNTED
	DOUBLE POLE SWITCH		DUPLEX RECEPTACLE		LIGHTING PANEL - SURFACE MOUNTED
	3-WAY SWITCH		AUTOMATICALLY CONTROLLED DUPLEX RECEPTACLE		DISTRIBUTION PANEL, SWITCHBOARD, OR MOTOR CONTROL CENTER
	4-WAY SWITCH		DUPLEX RECEPTACLE - GFCI TYPE		TRANSFORMER
	DOOR SWITCH		ISOLATED GROUND DUPLEX RECEPTACLE		AUTOMATIC TRANSFER SWITCH
	MOMENTARY CONTACT SWITCH		HOSPITAL GRADE DUPLEX RECEPTACLE		ENCLOSED CIRCUIT BREAKER
	TIMER SWITCH		SAFETY TYPE DUPLEX RECEPTACLE		SINGLE PHASE MAGNETIC MOTOR STARTER
	SINGLE POLE MANUAL MOTOR STARTER WITH THERMAL OVERLOAD AND PILOT LIGHT		RED DUPLEX RECEPTACLE		THREE PHASE MAGNETIC MOTOR STARTER
	SWITCH AND FUSE		DUPLEX RECEPTACLE - SPLIT WIRED		DRYER RECEPTACLE NEMA 14-30 (125/250V 30A)
	MANUAL DIMMER OR FAN SPEED CONTROL (# INDICATES WATTAGE: "6"-800W, "10"-1000W, "15"-1500W, "20"-2000W, "F"-FAN SPEED CONTROL)		SPECIAL PURPOSE RECEPTACLE (NEMA CONFIGURE AS NOTED)		COMBINATION MAGNETIC STARTER/DISCONNECT
	HORIZONTAL MOUNTED DUPLEX RECEPTACLE		MOTOR (# INDICATES HORSEPOWER)		SAFETY SWITCH (FUSED UNLESS OTHERWISE NOTED)
	CEILING MOUNTED OCCUPANCY SENSOR (# INDICATES FIXTURE NUMBER IN SCHEDULE)		RANGE RECEPTACLE NEMA 14-50 (125/250V 50A)		PULL BOX
	WALL MOUNTED OCCUPANCY SENSOR/SWITCH (# INDICATES FIXTURE NUMBER IN SCHEDULE)		WELDER RECEPTACLE NEMA 6-50 (250V 50A)		WALL MOUNTED JUNCTION BOX
	PUSH BUTTON STATION		DOUBLE DUPLEX RECEPTACLE /		JUNCTION BOX ("F" INDICATES FLOOR, "C" INDICATES CEILING)
	PHOTOCELL CEILING MOUNTED		(1) DUPLEX, (1) DUPLEX AUTOMATICALLY CONTROLLED		BRANCH CIRCUIT - EXPOSED
	PHOTOCELL WALL MOUNTED		ISOLATED GROUND DOUBLE DUPLEX RECEPTACLE		BRANCH CIRCUIT - CONCEALED IN CEILING OR WALL
	TIME SWITCH		RED DOUBLE DUPLEX RECEPTACLE		BRANCH CIRCUIT - CONCEALED IN FLOOR (UNDERGROUND IF EXTERIOR)
	RELAY		HOMERUN TO PANEL (NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS)		SPECIAL PURPOSE HOMERUN AS INDICATED
	EMERGENCY LIGHTING RELAY		WALL CLOCK HANGER RECEPTACLE		CEILING MOUNTED DUPLEX RECEPTACLE
	LIGHTING CONTACTOR		CEILING MOUNTED DUPLEX RECEPTACLE		CIRCUIT DOWN
	COMBINATION POWER/DATA OUTLET ("F" INDICATES TYPE IN SCHEDULE)		CEILING MOUNTED DOUBLE DUPLEX RECEPTACLE		CIRCUIT UP
	COMBINATION POWER/AIR OUTLET ("F" INDICATES TYPE IN SCHEDULE)		CEILING MOUNTED RED DUPLEX RECEPTACLE		CONDUIT STUB-OUT
	COMBINATION POWER/DATA/AIR OUTLET ("F" INDICATES TYPE IN SCHEDULE)		CEILING MOUNTED SPECIAL PURPOSE RECEPTACLE		CIRCUIT BREAK
	MULTI-OUTLET ASSEMBLY ~ LENGTH AS INDICATED		CEILING MOUNTED SIMPLEX RECEPTACLE		CORD AND PLUG
	MECH EQUIPMENT WITH ELEC CONNECTION SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE		FLOOR MOUNTED DUPLEX RECEPTACLE		
FIRE DETECTION AND ALARM					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FIRE ALARM AUTOMATIC SMOKE DETECTOR		FIRE SPRINKLER VALVE TAMPER SWITCH		FIRE ALARM BEAM DETECTOR AND REFLECTOR
	FIRE ALARM AUTOMATIC SMOKE DETECTOR WITH SOUNDER BASE		FIRE SPRINKLER FLOW SWITCH		FIRE ALARM ANNUNCIATOR PANEL
	FIRE ALARM AUTOMATIC WALL SMOKE DETECTOR		CEILING FIRE ALARM HORN AND LIGHT COMBINATION (# INDICATES CANDELA RATING)		FIRE ALARM CONTROL PANEL
	FIRE ALARM AUTOMATIC CEILING HEAT DETECTOR		CEILING FIRE ALARM LIGHT (# INDICATES CANDELA RATING)		FIRE FIGHTER'S TELEPHONE JACK
	FIRE ALARM AUTOMATIC WALL HEAT DETECTOR		WALL FIRE ALARM LIGHT (# INDICATES CANDELA RATING)		FIRE ALARM MAGNETIC DOOR HOLDER
	FIRE ALARM MANUAL STATION		CEILING FIRE ALARM SPEAKER AND LIGHT (# INDICATES CANDELA RATING)		COMBINATION FIRE/SMOKE DAMPER
	FIRE ALARM CONTROL MODULE		WALL FIRE ALARM SPEAKER AND LIGHT (# INDICATES CANDELA RATING)		SMOKE DAMPER
	FIRE ALARM MONITOR MODULE		CEILING FIRE ALARM SPEAKER		SAMPLING TUBE TYPE SMOKE DETECTOR
	FIRE ALARM HORN AND LIGHT COMBINATION		WALL FIRE ALARM SPEAKER		
SUBSCRIPTS					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
EP	SUBSCRIPT "EP" APPLIED TO ANY SYMBOL INDICATES EXPLOSION PROOF, CLASS, GROUP AND DIVISION AS NOTED	RT	SUBSCRIPT "RT" APPLIED TO ANY SYMBOL INDICATES RAIN TIGHT NEMA 3R OR EQUIVALENT	WP	SUBSCRIPT "WP" APPLIED TO ANY SYMBOL INDICATES WEATHERPROOF NEMA TYPE 4 OR EQUIVALENT
E	SUBSCRIPT "E" ADDED TO ANY SYMBOL INDICATES EXISTING	K	SUBSCRIPT "K" ADDED TO ANY SYMBOL INDICATES KEY OPERATED	P	SUBSCRIPT "P" ADDED TO ANY SYMBOL INDICATES PILOT LIGHT
PD	SUBSCRIPT "PD" ADDED TO ANY FLOOR OUTLET INDICATES PEDESTAL MOUNTED	WG	SUBSCRIPT "WG" ADDED TO ANY SYMBOL INDICATES WIRE GUARD		
AC	SUBSCRIPT "AC" ADDED TO ANY SYMBOL INDICATES ABOVE COUNTER. LOCATE CENTER OF DEVICE 4" ABOVE COUNTER SURFACE OR WHERE PRESENT, 4" ABOVE BACKSPLASH. WHERE INDICATED ADJACENT TO LAVATORY WITHOUT COUNTER, LOCATE CENTER OF DEVICE 8" ABOVE RIM OF LAVATORY.				

ABBREVIATIONS											
A	AMP	CSS	CLINICAL SERVICE SINK	FPTU	FAN POWERED TERMINAL UNIT	MERV	MINIMUM EFFICIENCY REPORTING	REQD	REQUIRED	UG	UNDERGROUND
AC	AIR CONDITIONER,	CT	COOLING TOWER, CABLE TRAY	FRD	FIRE DAMPER		VALUE	RF	RETURN FAN	UH	UNIT HEATER
	ALTERNATING CURRENT	CU	CABINET UNIT HEATER	FS	FLOOR SINK	MH	MANHOLE	RGS	RIGID GALVANIZED STEEL	UL	UNDERWRITERS LABORATORY
ACC	AIR COOLED CONDENSING UNIT	CV	COLD WATER	FSD	FIRE SMOKE DAMPER	MIN	MINIMUM	RHS	RELATIVE HUMIDITY	UNO	UNLESS NOTED OTHERWISE
ACEG	AC EQUIPMENT GROUND	CW	COLD WATER	FT	FEET, FINNED TUBE	MISC	MISCELLANEOUS	RHC	REHEAT COIL	UPS	UNINTERRUPTIBLE POWER SUPPLY
AFF	ABOVE FINISHED FLOOR	D	DIFFUSER	FUR	FURNACE	MM	MAIN LUGS ONLY	RIFA	RELIEF AIR	UR	URINAL
AHJ	AUTHORITY HAVING JURISDICTION	DAS	DISTRIBUTION ANTENNA SYSTEM	FURN	FURNISHED	MT	MULTIMODE	RM	ROOM	US	UTILITY SINK
AHU	AIR HANDLING UNIT	DD	DOUBLE DUCT	FW	FILTERED WATER	MOA	MINIMUM OUTDOOR AIR	RO	REDUCED PRESSURE	UTP	UNSHIELD TWISTED PAIR
ALF	ALUMINUM FRAME DOOR	DF	DRINKING FOUNTAIN	G	GAS, GRILLE	MPQE	MAIN POINT OF ENTRANCE	RBPFP	REDUCED PRESSURE BACKFLOW	UV	UNIT VENTILATOR
APPROX	APPROXIMATELY	DIA	DIAMETER	GA	GAGE	MS	MOP SINK	PREV	PREVENTER	V	VOL. I, VENT
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS	DISC	DISCONNECT	GC	GENERAL CONTRACTOR	MTG	MOUNTING	ROE	ROSCOLET AIR EXIT	V	VOLUME DAMPER
		DISTR	DISTRIBUTION	GEC	GROUNDING ELECTRODE CONDUCTOR	MUTOA	MULTI USER TELECOMMUNICATIONS	RTU	ROOF UNIT	VERT	VERTICAL
		DN	DOWN	GEC	GROUNDING ELECTRODE CONDUCTOR			S	SINK	VFC	VARIABLE FREQUENCY CONTROL
		DP	DEMARCATION POINT	GEN	GENERATOR			S	SANITARY AIR, SOUND ATTENUATOR	VOIP	VOICE OVER INTERNET PROTOCOL
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	DPS	DOOR POSITION SWITCH	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	MXA	MXA MOUNTING	SNA	SUNLIGHT	VTR	VENT THROUGH ROOF
		DS	DOWNSPOUT	GRND	GROUND	NC	NORMALLY CLOSED	SC	SCHEDULE	W	WATER, WATT, WALL HUNG
ASTM	STANDARD SPECIFICATIONS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS	DSK	DOWNSPOUT NOZZLE	GPM	GALLONS PER MINUTE	NEM	NATIONAL ELECTRICAL CODE	SCTP	SCREENED TWISTED PAIR	WAN	WIDE AREA NETWORK
		DWR	DIGITAL VIDEO RECORDER	GSH	GROUND SURFACE HEAT PUMP	NEC	NATIONAL ELECTRICAL CODE	SC	SCREENED TWISTED PAIR	WAP	WIRELESS ACCESS POINT
		DWG	DRAWING	GW	GAS WATER HEATER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	SD	SMOKE DAMPER	WC	WATER CLOSET
ATS	AUTOMATIC TRANSFER SWITCH	DX	DIRECT EXPANSION	H	HOOD			SFP	SUPPLY FAN	WCO	WATER CLOUSE OUT
ATU	AIR TERMINAL UNIT	EA	EXHAUST AIR	HB	HOSE BIBB			SH	SHOWER	WF	WASH FOUNTAIN
ATUR	AIR TERMINAL UNIT REHEAT	EAC	ELECTRONIC ACCESS CONTROL	HC	HEATING COIL	NIC	NOT IN CONTRACT	SHW	SOFT HOT WATER	WG	WATER GAGE
AUX	AUXILIARY	EC	ELECTRICAL CONTRACTOR	HGT	HEIGHT	NO	NORMALLY OPEN	(SIM)	SIMILAR	WH	WALL HYDRANT, WALL HEATER,
AV	ACID VENT, AUDIOVISUAL	EF	EXHAUST FAN	HN	HANDHOLE	NOM	NOMINAL	SLAB	SEALED LEAD ACID BATTERY	WH	WALL HUNG, WATER HEATER
AVG	AVERAGE	EH	EXHAUST HOOD, ELECTRIC HEATER	HMF	HOLLOW METAL FRAME DOOR	NP	NOT POTABLE WATER	SP	SPRINKLER MAIN, SINGLE MODE	WMP	WIRE MANAGEMENT PANEL
AVI	AUTOMATIC VEHICLE IDENTIFICATION	EHC	ELECTRIC HEATING COIL	HP	HORSEPOWER, HEAT PUMP	NTS	NOT TO SCALE	SMACNA	SEAL METAL AND AIR	WP	WEATHERPROOF
AW	ACID WASTE	EL	ELEVATION	HTG	HEATING	NVE	NATIONAL VIDEO ENCODER		CONDITIONING CONTRACTORS'	WS	WATER SOURCE
AWG	AMERICAN WIRE GAUGE	EMT	ELECTRICAL METALLIC TUBING	HUM	HUMIDIFY	NVA	NATIONAL VIDEO RECORDER		NATIONAL ASSOCIATION	WSPH	WATER SPLITTER HEAT PUMP
B	BOILER	EMD	ESTIMATED MAXIMUM DEMAND	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	OA	OUTSIDE AIR	SP	PUMP, STATIC PRESSURE	WTH	WIRE TRANSFORMER
BAS	BUILDING AUTOMATION SYSTEM	EMI	ELECTROMAGNETIC INTERFERENCE			OB	OUTLET BOX	SPD	SPRUE PROTECTIVE DEVICE	XFMF	TRANSFORMER
BDET	BIDET	EMS	ENERGY MANAGEMENT SYSTEM			OC	ON CENTER	SPECS	SPECIFICATIONS	YH	YARD HYDRANT
BFP	BACKFLOW PREVENTER	EMT	ELECTRICAL METALLIC TUBING	HW	HOT WATER	OP	OPERATOR PROVIDED ELECTRONICS		OPERATOR PROVIDED SERVICE SINK		
BICSI	BUILDING INDUSTRY CONSULTING	EOA	ECONOMIZER OUTDOOR AIR	HWC	HOT WATER CIRCULATING	OR	OPERATOR ROOM	SSD	SOIL SOIL DRAIN		
BLDG	BUILDING	EPO	EMERGENCY POWER OFF EQUIPMENT	HX	HEAT EXCHANGER	ORD	OVERFLOW ROOF DRAIN	SSI	SECURITY SYSTEMS INTEGRATOR		
BT	BATHTUB	EQUIP	EQUIPMENT	IC	INTERCOM	OSD	OUTSIDE PLANT	SSS	SCURGEON SCRUBS SINK		
BTC	BONDING CONDUCTOR FOR TELECOMMUNICATION	ERV	ENERGY RECOVERY UNIT	ISC	INSULATION DISPLACEMENT CONDUCTOR	P	PUMP	ST	STORM		
BTU	BRITISH THERMAL UNIT	ERV	ENERGY RECOVERY VENTILATOR	IND	INTERMEDIATE DISTRIBUTION FRAME	PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE	STD	STANDARD		
BTUH	BRITISH THERMAL UNIT PER HOUR	ET	EXPANSION TANK	IDF	INTERMEDIATE DISTRIBUTION FRAME	PB	PULLBOX	STP	SHIELDED TWISTED PAIR		
C	CONNECTOR, CONDUIT	EUH	ELECTRIC UNIT HEATER	IDS	INTRUSION DETECTION SYSTEM	PB	PROVIDE BY OTHERS	SWBD	SWITCHBOARD		
CAB	CABINET	EUP	ELECTRIC UNIT HEATER	IP	INTERFERENCE PROTOCOL	PBX	PRIVATE BRANCH EXCHANGE	SWGR	SWITCHGEAR		
CATV	CABLE TELEVISION	EWC	ELECTRIC WATER COOLER	IP	INTERFERENCE PROTOCOL	PDP	POWER DISTRIBUTION UNIT	SWR	SWITCH, TRANSFORMER		
CB	CIRCUIT BREAKER	EWI	ELECTRIC WATER HEATER	IP	INTERFERENCE PROTOCOL	PERP	PERPENDICULAR	T-1	TRUNK LINE		
CC	COOLING COIL	EXH	EXHAUST	ISP	INSIDE PLANT	PH	POST HYDRANT	TBB	TELECOMMUNICATIONS		
CCTV	CLOSED CIRCUIT TELEVISION	JHX	JUNCTION BOX	ISB	INSIDE BOX	PH	PREHEAT COIL	TBBBC	BONDS BACKBONE		
CD	CONDENSATE DRAIN	EXIST	EXISTING	KCMIL	KILOCIRCULAR MILS	PI	PLASTIC INSULATED CABLE		TELECOMMUNICATIONS BONDING		
CFH	CUBIC FEET PER HOUR	F	FIRE WATER	KV	KILOVOLT	PIV	PISTON INDICATOR VALVE		BACKBONE INTERCONNECTING		
CFM	CUBIC FEET PER MINUTE	FA	FIRE ALARM	KVA	KILOVOLT AMPERE	PLGB	PLUMBING		BONDING CONDUCTOR		
CH	CHILLER	FACF	FIRE ALARM ANNUNCIATOR PANEL	LA	LAVATORY	PNE	PANEL	TC	TELECOMMUNICATIONS CLOSET		
CKT	CIRCUIT	FB	FLOOR BOX	LAV	LAVATORY	POE	POWER OVER ETHERNET	TEL	TELEPHONE		
CL	CENTER LINE	FL	FLOOR	LAN	LOCAL AREA NETWORK	POP	POINT OF PRESENCE	TELECOM	TELECOMMUNICATIONS		
CLEC	COMPETITIVE LOCAL EXCHANGE CARRIER	FCU	FAN COIL UNIT	LBM	LOAD BOLT MONITOR	PP	PATCH PANEL		TEMPERATURE		
		FCO	FLOOR CLEAN OUT	LBS	POUNDS	PRV	PRESSURE REGULATING VALVE	TGB	TELECOMMUNICATIONS		
CLG	CEILING	LEC	LOCAL EXCHANGE CARRIER	LTG	LIGHTING	PS	PLASTER SINK		GROUNDING BUSBAR		
CLR	CLEAR	FD	FLOOR DRAIN	LTS	LIGHTING	PSF	POUNDS PER SQUARE FOOT	TMGB	TELECOMMUNICATIONS MAIN		
CM	COMMUNICATIONS CABLE	FDC	FIRE DEPARTMENT CONNECTION	MA	MAKEUP AIR	PSTN	PUBLIC SWITCH TELEPHONE NETWORK		GROUNDING BUSBAR		
CMP	COMMUNICATIONS PLENUM CABLE	FL	FLOOR	MATV	MASTER ANTENNA TELEVISION	PTC	PACKAGED TERMINAL AIR CONDITIONER	TR	TELECOMMUNICATIONS ROOM		
CNR	COMMUNICATIONS RISER CABLE	FLA	FLOOR AREA	MAU	MAKEUP AIR UNIT	PTV	PAN-TILT-ZOOM	TR	TELEPHONE TERMINAL BOARD		
CO	CLEAN OUT	FM	FACTORY MUTUAL ENGINEERING CORPORATION	MBSH	100 LB/HOUR	PLV	POLYVINYL CHLORIDE	TR	TERMINAL UNIT		
COAX	COAXIAL CABLE	FMS	FACTORY MUTUAL GLOBAL	MC	MAIN CIRCUIT BREAKER	PWR	POWER	TR	TERMINAL UNIT REHEAT		
CO-OSP	CUSTOMER OWNER-OUTSIDE PLANT	FO	FIELD OF VIEW	MCB	MAIN CIRCUIT BREAKER	R	REGISTER	TV	TELEVISION		
CPVC	CHLORINATED POLYVINYL CHLORIDE	FOF	FIBER OPTIC	MD	MAIN DISTRIBUTION FRAME	RA	RETURN AIR	TVS	TRANSIENT VOLTAGE SURGE SUPPRESSION		
CRAC	COMPUTER ROOM AIR CONDITIONER	FP	FIBER PANEL	MECH	MECHANICAL		ROOF DRAIN	(TYP)	TYPICAL		

June 22, 2016 8:46am 20144709 EJK/clw jrmong

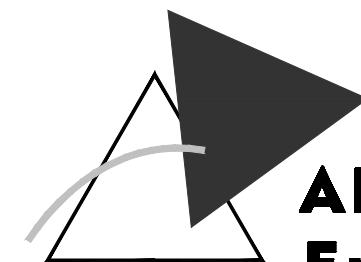


ROOF PLAN - DEMOLITION

SCALE: 3/32" = 1'-0"

© COPYRIGHT 2015 AER# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



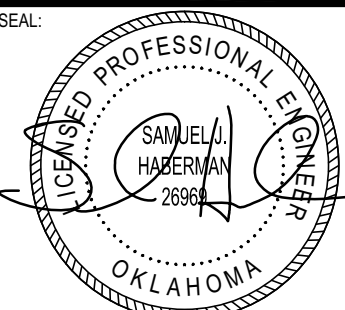
Alvine Engineering
Omaha: 1122 Douglas on the Hill, Omaha, Nebraska 68107, Phone: (402) 346-7007, Fax: (402) 346-9576
Lincoln: 1802 O Street, Suite 104, Lincoln, Nebraska 68508, Phone: (402) 477-6161, Fax: (402) 477-9616
Oklahoma City: 13431 Broadway Extension, Suite 101, Oklahoma City, Oklahoma 73114, Phone: (405) 936-3488, Fax: (405) 751-6567
Des Moines: 400 East Court Ave, Suite 100, Des Moines, Iowa 50309, Phone: (515) 263-5569, Fax: (515) 263-1755



ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



C.A. NO. 842
EXPIRES 30/JUNE/2016 6/22/16

YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS		
REV.	DATE	DESCRIPTION

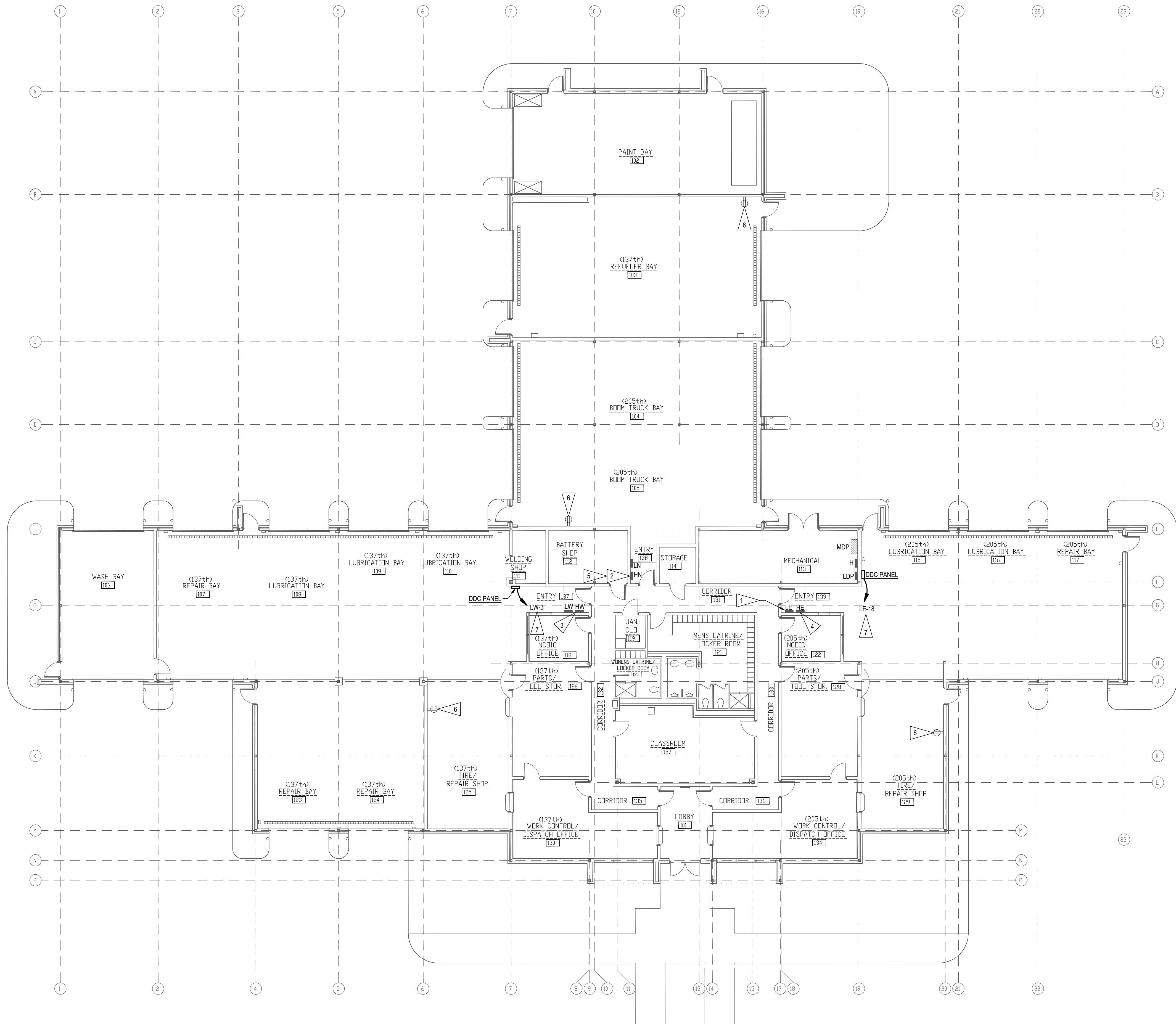
PROJ. MANAGER:	EJK
DRAWN BY:	KLW
CHECKED BY:	ARV

DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:	ROOF PLAN - DEMOLITION
--------------	-----------------------------------

SHEET NO.:	ED-010
------------	---------------

June 22, 2016 16:46m 20144709 E200.dwg jromberg



FLAG NOTES

- 1 PROVIDE (1) NEW 20/1 CIRCUIT IN EXISTING PANEL LE. UPDATE PANEL CIRCUIT DIRECTORY.
- 2 PROVIDE (1) NEW 15/3 CIRCUIT BREAKER IN EXISTING PANEL HN. UPDATE PANEL CIRCUIT DIRECTORY.
- 3 PROVIDE (1) NEW 30/3 CIRCUIT BREAKER IN EXISTING PANEL HW. UPDATE PANEL CIRCUIT DIRECTORY.
- 4 PROVIDE (1) NEW 15/3 CIRCUIT BREAKER IN EXISTING PANEL HE. UPDATE PANEL CIRCUIT DIRECTORY.
- 5 REPLACE (1) EXISTING 20/3 CIRCUIT BREAKER, MADE AVAILABLE BY DEMOLITION, WITH A 15/3 CIRCUIT BREAKER.
- 6 RECEPTACLE IS CONNECTED TO THE SAME CIRCUIT AS AN EXHAUST FAN ON THE ROOF THAT IS BEING REMOVED. MAINTAIN CIRCUIT CONTINUITY TO RECEPTACLE.
- 7 CONNECT TO EXISTING 20/1 CIRCUIT BREAKER IN PANEL INDICATED MADE AVAILABLE BY DEMOLITION.

PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT REQUIRING A NEUTRAL, UNLESS OTHERWISE NOTED.

INSTALL GREEN INSULATED GROUND WIRE WITH EACH LIGHTING, RECEPTACLE AND EQUIPMENT BRANCH CIRCUIT.

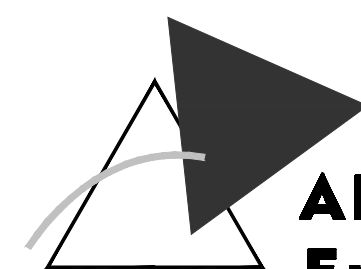
© COPYRIGHT 2015

AER# 20144709

Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



Omaha: 1102 Douglas on the Hill
Omaha, Nebraska 68107
Phone: (402) 346-7007
Fax: (402) 346-9576

Lincoln: 1800 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616

Oklahoma City: 1343 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 936-3480
Fax: (405) 751-6567

Des Moines: 400 East Court Ave, Suite 300
Des Moines, Iowa 50309
Phone: (515) 263-9569
Fax: (515) 263-1755

FLOOR PLAN - POWER
SCALE: 3/32" = 1'-0"

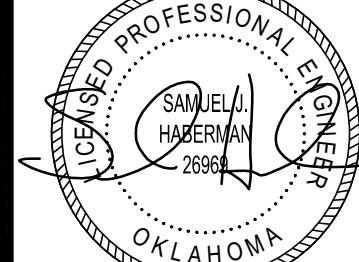


ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431

SEAL:



C.A. NO. 842
EXPIRES 30/JUNE/2016 6/22/16

YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

REVISIONS

REV.	DATE	DESCRIPTION

PROJ. MANAGER:

EJK

DRAWN BY:

KLW

CHECKED BY:

ARV

DATE:

06/22/2016

PROJECT NO.:

1504

SHEET TITLE:

FLOOR PLAN -
POWER

SHEET NO.:

E-200

REVISIONS

REV.	DATE	DESCRIPTION

PROJ. MANAGER:	EJK
DRAWN BY:	KLW
CHECKED BY:	ARV

DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:	ROOF PLAN - POWER
--------------	--------------------------

SHEET NO.:	E-201
------------	--------------

FLAG NOTES

- 1 CONNECT TO EXISTING FIRE ALARM SYSTEM TO SHUT DOWN ERU. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
- 2 MOUNT TO SIDE OF UNIT. COORDINATE WITH MECHANICAL CONTRACTOR.
- 3 PROVIDE INDICATED SIZE CONDUCTORS, INCLUDING GROUND, FOR ENTIRE LENGTH OF CIRCUIT.

PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT REQUIRING A NEUTRAL, UNLESS OTHERWISE NOTED.

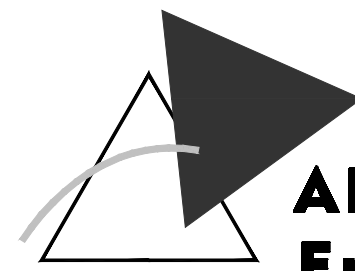
INSTALL GREEN INSULATED GROUND WIRE WITH EACH LIGHTING, RECEPTACLE AND EQUIPMENT BRANCH CIRCUIT.

© COPYRIGHT 2015 AEP# 20144709

Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



Omaha: 1122 Douglas on the Hill
Omaha, Nebraska 68102
Phone: (402) 346-7007
Fax: (402) 346-9576

Lincoln: 1800 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616

Oklahoma City: 13431 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 936-3488
Fax: (405) 751-6567

Des Moines: 400 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 253-5569
Fax: (515) 253-1755

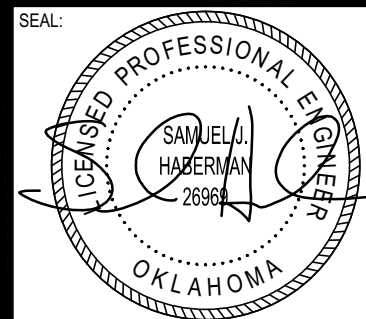
ROOF PLAN - POWER
SCALE: 3/32" = 1'-0"



ARCHITECTS
IN
PARTNERSHIP

ARCHITECTS
INTERIOR DESIGNERS
PLANNERS

3220 MARSHALL AVENUE
NORMAN, OK 73072
TEL: 405.360.1300
FAX: 405.360.1431



C.A. NO. 842
EXPIRES 30/JUNE/2016 6/22/16

YZEU142015
REPLACE MAKEUP AIR UNITS
BUILDING 1043
WILL ROGERS ANGB OKLAHOMA CITY, OKLAHOMA

FEEDER AND BRANCH CIRCUIT SCHEDULE	
MARK	CONDUCTORS AND CONDUIT
3 WIRE PLUS GROUND (MOTORS)	
1M	3 #12, #12 GND. 1/2" C.
3M	3 #10, #10 GND. 3/4" C.

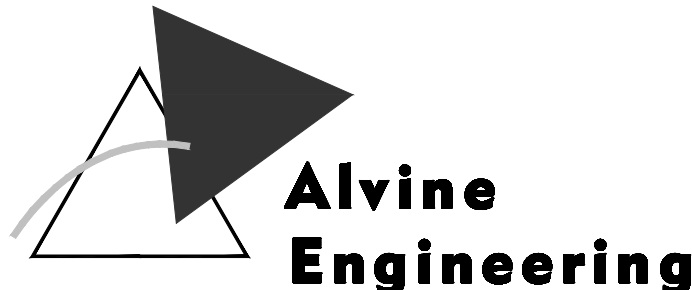
MECHANICAL / ELECTRICAL COORDINATION SCHEDULE														
ABBREVIATIONS:														
A	AMPS	C	COMBINATION STARTER AND SAFETY SWITCH				EC	ELECTRICAL CONTRACTOR				N1	NEMA 1	
ENCL	ENCLOSURE	CB	CIRCUIT BREAKER				MC	MECHANICAL CONTRACTOR				N3R	NEMA 3R	
HP	HORSEPOWER	CP	CONTROL PANEL								N4X	NEMA 4X		
KW	KILOWATTS	I	INTEGRAL WITH EQUIPMENT											
PH	PHASE	S	SWITCH											
V	VOLTAGE	SF	SWITCH AND FUSTAT				NF	NON-FUSED						
W	WATTS	SS	SAFETY SWITCH											
		VFC	VARIABLE FREQUENCY CONTROLLER											
EQUIPMENT			ELECTRICAL SYSTEM				DISCONNECT				CONTROLLER			REMARKS
MARK	DESCRIPTION	LOAD	V	PH	FEEDER OR BRANCH CIRCUIT	PANEL - CIRCUIT	FURNISHED BY/ INSTALLED BY	TYPE	RATING (AMPS)	ENCL	FURNISHED BY/ INSTALLED BY	TYPE	ENCL	
ERU-2	ENERGY RECOVERY UNIT	10.3 A	480	3	1M	HN-26	MC/-	I	-	-	MC/MC	-	-	
ERU-3	ENERGY RECOVERY UNIT	10.3 A	480	3	1M	HN-31	MC/-	I	-	-	MC/MC	-	-	
ERU-4	ENERGY RECOVERY UNIT	17.8 A	480	3	3M	HW-31	MC/-	I	-	-	MC/MC	-	-	
ERU-5	ENERGY RECOVERY UNIT	13.3 A	480	3	1M	HE-25	MC/-	I	-	-	MC/MC	-	-	

GENERAL NOTES:

- ^a VERIFY/COORDINATE RATINGS FOR EQUIPMENT SUPPLIED BY THE SELECTED MANUFACTURER. WHERE RATINGS ARE OTHER THAN AS REQUIRED FOR SPECIFIED UNIT, DISCONNECTS, MOTOR, STARTERS, OVERCURRENT DEVICES AND RELATED REVISIONS SHALL BE PROVIDED ACCORDINGLY. THE CONTRACTOR THAT FURNISHES EQUIPMENT WITH RATINGS OTHER THAN AS NOTED SHALL BE RESPONSIBLE FOR COORDINATION AND COSTS FOR REVISIONS TO ACCOMMODATE SELECTED EQUIPMENT.
- ^b FRACTIONAL HORSEPOWER SINGLE PHASE MOTORS SHALL BE PROVIDED WITH INTEGRAL OVERLOAD PROTECTION.
- ^c DISCONNECTS SHALL BE FUSIBLE UNLESS NOTED OTHERWISE.
- ^d ELECTRICAL CONTRACTOR SHALL PROVIDE CIRCUIT TO EQUIPMENT AS INDICATED.
- ^e WHERE DISCONNECT IS NOT INDICATED ON PLANS, LOCATE AT EQUIPMENT PER NEC.
- ^f EQUIPMENT IDS THAT END IN "X" INDICATE THAT THERE ARE MULTIPLE UNITS THAT ARE IDENTICAL AND PROVIDED ON THE PROJECT. SEE PLANS FOR THE UNIQUE SEQUENTIAL DESIGNATION.

© COPYRIGHT 2015 AER# 20144709
Permission to reproduce all or part of this drawing is hereby granted solely for the limited purpose of construction of this project or archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.

NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SHOP AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, AND CODES AND VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.



Omaha: 1122 Douglas on the Mall
Omaha, Nebraska 68102
Phone: (402) 346-7007
Fax: (402) 346-9576
Lincoln: 1802 O Street, Suite 104
Lincoln, Nebraska 68508
Phone: (402) 477-6161
Fax: (402) 477-9616
Oklahoma City: 13431 Broadway Extension, Suite 101
Oklahoma City, Oklahoma 73114
Phone: (405) 936-3480
Fax: (405) 751-6567
Des Moines: 400 East Court Ave, Suite 100
Des Moines, Iowa 50309
Phone: (515) 263-9569
Fax: (515) 263-1755

REVISIONS		
REV.	DATE	DESCRIPTION

PROJ. MANAGER:	EJK
DRAWN BY:	KLW
CHECKED BY:	ARV

DATE:	06/22/2016
PROJECT NO.:	1504

SHEET TITLE:	ELECTRICAL SCHEDULES
--------------	----------------------

SHEET NO.:	E-600
------------	-------