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No.	Description	Date
	Demolition Package	08.17.2021

[illegible]

## SCALE: NTS



TOTAL BUILDING AREA: 28,839SF

08.16.2021  
date

A-000

ABBREVIATIONS

AC	AIR CONDITIONING	EQ	EQUAL	INSUL	INSULATION	RAD	RADIUS
ACT	ACOUSTICAL CEILING TILE	EQUIP	EQUIPMENT	INT	INTERIOR	RC	RESILIENT CHANNEL
AFB	ABOVE FINISHED FLOOR	EST	ESTIMATE	JBOX	JUNCTION BOX	RD	ROOF DRAIN
AFG	ABOVE FINISHED GRADE	EW	ELECTRIC WATER COOLER	JCT	JUNCTION	REF	REFRIGERATOR
AHU	AIR HANDLING UNIT	EXH	EXHAUST	KD	KNOCK DOWN	REINF	REINFORCED
ALT	ALTERNATE	EXIST	EXISTING	KO	KNOCK OUT	REQD	REQUIRED
ALUM	ALUMINUM	EXT	EXTERIOR	LAV	LAVATORY	REV	REVISION
AVG	AVERAGE	FA	FIRE ALARM	LT	LIGHT	RM	ROOM
BD	BOARD	FAB	FABRICATE	LVL	LAMINATED VENEER LUMBER	RO	ROUGH OPENING
BLDG	BUILDING	FACP	FIRE ALARM CONTROL PANEL	LVT	LUXURY VINYL TILE	RSF	RESILIENT SHEET FLOORING
BLKG	BLOCKING	FCO	FLOOR CLEAN OUT	MATL	MATERIAL	SC	SEALED CONCRETE
BO	BOTTOM OF	FD	FLOOR DRAIN	MAX	MAXIMUM	SCHED	SCHEDULE
CCTV	CLOSED CIRCUIT TELEVISION	FDC	FIRE DEPARTMENT CONNECTION	MECH	MECHANICAL	SF or SQFT	SQUARE FEET
CFM	CUBIC FEET PER MINUTE	FDN	FOUNDATION	MED	MEDIUM	SIM	SIMILAR
CJ	CONTROL JOINT	FE	FIRE EXTINGUISHER	MFG	MANUFACTURING	SP	SPEAKER
CK	CORK	FEC	FIRE EXTINGUISHER CABINET	MFR	MANUFACTURER	SPECS	SPECIFICATIONS
CL or CL	CENTER LINE	FHC	FIRE HOSE CABINET	MIN	MINIMUM	SQIN	SQUARE INCHES
CLS	CEILING	FIN	FINISH	MISC	MISCELLANEOUS	SQYD	SQUARE YARDS
CLR	CLEAR	FL	FLOOR	MO	MASONRY OPENING	SS	SOLID SURFACE
CMU	CONCRETE MASONRY UNIT	FLUOR	FLUORESCENT	MTL	METAL	SSTL	STAINLESS STEEL
CO	CLEAN OUT	FO	FACE OF	MW	MICROWAVE	ST	STONE
COL	COLUMN	FRT	FIRE RETARDANT TREATED	N	NEW	STC	SOUND TRANSMISSION CLASS
CONC	CONCRETE	FS	FLOOR SINK	NC	NOT IN CONTRACT	STD	STANDARD
CONST	CONSTRUCTION	FTG	FOOTING	NO	NUMBER	STL	STEEL
CONT	CONTINUOUS	FURN	FURNISH	NOM	NOMINAL	STNC	STAINED CONCRETE
CPT	CARPET	FWP	FABRIC WRAPPED PANEL	NRC	NOISE REDUCTION COEFFICIENT	SUSP	SUSPENDED
CT	CERAMIC TILE	GA	GAUGE	OC	ON CENTER	SYM	SYMMETRICAL
DBL	DOUBLE	GALV	GALVANIZED	OD	OUTSIDE DIAMETER	SYS	SYSTEM
DED	DEDICATED	GC	GENERAL CONTRACTOR	OH	OVERHEAD	TBB	TILE BACKER BOARD
DEMO	DEMOLITION	GFI	GROUND FAULT INTERRUPTER	OPP	OPPOSITE	TO	TOP OF
DF	DRINKING FOUNTAIN	GL	GLASS	ORD	OVERFLOW ROOF DRAIN	TS	TUBE STEEL
DIA or Ø	DIAMETER	GR	GROUT	P	PAINT	TYP	TYPICAL
DIM	DIMMER	GYP BD	GYPSUM BOARD	PERF	PERFORATED	TZ	TERRAZZO
DN	DOWN	HB	HOSE BIB	PERP	PERPENDICULAR	UNO	UNLESS NOTED OTHERWISE
DS	DOWN SPOUT	HC	HAT CHANNEL	PL	PROPERTY LINE	VB	VINYL BASE
DW	DISHWASHER	HDW	HARDWARE	PLAM	PLASTIC LAMINATE	VCT	VINYL COMPOSITION TILE
EA	EACH	HGT	HEIGHT	PLY	PLYWOOD	VERT	VERTICAL
EJ	EXPANSION JOINT	HM	HOLLOW METAL	PSF	POUNDS PER SQUARE FOOT	VIF	VERIFY IN FIELD
EL	ELEVATION	HOR	HORIZONTAL	PT	PORCELAIN TILE	WB	WOOD BASE
ELECT	ELECTRIC, ELECTRICAL	HTR	HEATER	PVC	POLYVINYL CHLORIDE	WC	WALL COVERING
ELEV	ELEVATOR	HVAC	HEATING, VENTILATION, + AIR CONDITIONING	PWR	POWER	WDW	WINDOW
EMER	EMERGENCY CIRCUIT or BATTERY BACK-UP	HW	HOT WATER	QT	QUARRY TILE	WH	WATER HEATER
		ID	INSIDE DIAMETER	QTY	QUANTITY	WT	WEIGHT
		INCL	INCLUDE, INCLUSIVE	QZ	QUARTZ SURFACE	W/	WITH
				R	RELOCATED	W/O	WITHOUT
						WWM	WINDOW WALL MANUFACTURER
						YD	YARD

LEGEND

	EXISTING PARTITION
	EXISTING DOOR
	EXISTING DOOR TO BE REMOVED
	EXISTING PARTITION TO BE REMOVED

I. GENERAL NOTES

1. ANY REFERENCE TO "ARCHITECT" MEANS GRAY DESIGN GROUP. ANY REFERENCE "OWNER" OR "BUILDING MANAGER" MEANS MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY. ANY REFERENCE TO G.C. MEANS GENERAL CONTRACTOR AND/OR SUBCONTRACTORS AND ANY REFERENCE TO TENANT MEANS MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY.
2. ALL WORK IN THESE CONSTRUCTION DOCUMENTS SHALL BE PERFORMED BY THE GENERAL CONTRACTOR OR ASSIGNED TO SUBCONTRACTORS EMPLOYED BY THE GENERAL CONTRACTOR AS PART OF THE GENERAL CONTRACT FOR CONSTRUCTION, UNLESS NOTED OTHERWISE. REFER TO COVER SHEET FOR INDEX OF DRAWINGS THAT ARE INCLUDED IN THE CONSTRUCTION DOCUMENTS.
3. BY SUBMITTING A BID, THE GENERAL CONTRACTOR INDICATES THAT HE/SHE AND HIS/HER SUBCONTRACTORS HAVE REVIEWED ALL GENERAL NOTES, SPECIFICATIONS AND DRAWINGS, VISITED THE SITE AND ARE FAMILIAR WITH THE INTENDED SCOPE OF WORK AND EXISTING CONDITIONS.
4. ALL SHALL FAMILIARIZE THEMSELVES WITH ALL BUILDING RULES AND REGULATIONS AS SET BY OWNER AND BUILDING MANAGER FOR CONSTRUCTION. COORDINATE WITH BUILDING MANAGER PRIOR TO BID AND COMMENCEMENT OF WORK.
5. COORDINATE WITH OWNER FOR ALL INSPECTIONS. INSPECTIONS SHOULD BE CONDUCTED THROUGHOUT THE PROJECT, SPECIFICALLY FOR TERMINATED UTILITES.
6. HAVE ON SITE AT ALL TIMES, THE APPROVED AND MOST CURRENT CONTRACT DOCUMENTS, INCLUDING APPROVED CHANGE ORDERS.
7. PROVIDE SEPARATE TRASH REMOVAL SERVICES DURING DEMOLITION AND PROVIDE THOROUGH CLEANING OF ANY SOILED PUBLIC SPACES BEFORE LEAVING THE PREMISES EACH DAY. ALL MATERIALS SHALL BE DISPOSED OF IN A PROPER AND CODE COMPLIANT MANNER.

PROJECT GENERAL NOTES

- A. ALL SHADED AREAS INDICATE "NO WORK" OR "NOT IN CONTRACT" UNLESS OTHERWISE NOTED ON PLAN.
- B. WORK SHALL COMPLY WITH APPLICABLE CODES, REGULATIONS AND ORDINANCES SUCH AS ADA.
- C. ANY DISCREPANCIES AS TO LOCATION BETWEEN THE ARCHITECTURAL AND ENGINEERING DRAWINGS OR BETWEEN THE DRAWINGS AND EXISTING FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATIONS. WORK INSTALLED IN CONFLICT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND SHALL NOT IMPACT THE SCHEDULE.

GRAY DESIGN GROUP

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Reviewed By: Laurie Williams

No.	Description	Date
	Demolition Package	08.17.2021

Preliminary Drawings for:

Kummer Foundation Executive Boardroom - Phase One

Missouri S&T Job Number: FC000488  
300 W. 13th Street  
Rolla, MO 65409

ABBREVIATIONS/ LEGEND/ GENERAL NOTES



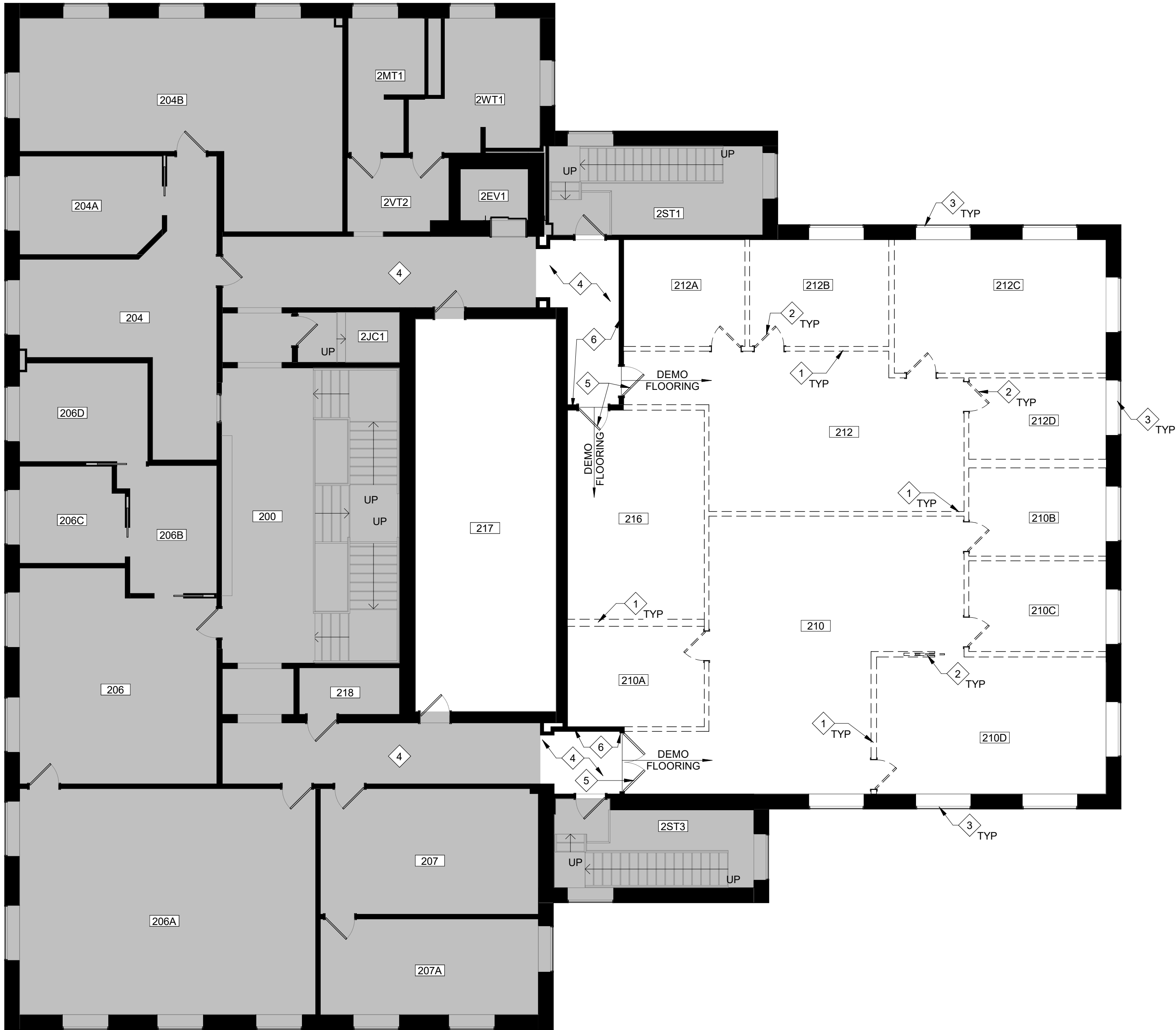
Toby Heddinghaus  
Architect  
A-2007011296

gray®

Job: 27121172.00

A-001

11 SECOND FLOOR DEMOLITION PLAN  
A-101 1/8" = 1'-0"



DEMOLITION PLAN GENERAL NOTES

- A. ALL DEMOLITION WORK SHALL CONFORM TO APPLICABLE CODES FOR DEMOLITION WORK, INCLUDING BUT NOT LIMITED TO DUST CONTROL, ELECTRICAL DISCONNECTION AND RE-CONNECTION OF EQUIPMENT. ALL EGRESS PATHS SHALL BE MAINTAINED DURING DEMOLITION.
- B. ALL DEMOLITION WORK SHALL CONFORM TO APPLICABLE BUILDING CODE FOR LOADS AND OTHER CRITERIA FOR DESIGN OF SHORING AND BRACING.
- C. GENERAL CONTRACTOR SHALL CEASE DEMOLITION OPERATIONS IMMEDIATELY IF STRUCTURE APPEARS TO BE IN DANGER AND NOTIFY THE ARCHITECT AND/OR ENGINEER. DO NOT RESUME OPERATIONS UNTIL DIRECTED BY THE ARCHITECT AND/OR ENGINEER.
- D. GENERAL CONTRACTOR SHALL COORDINATE ALL SEQUENCING OF DEMOLITION WORK WITH THE OWNER. GENERAL CONTRACTOR SHALL PROVIDE TO THE OWNER ALL PROCEDURES AND SCHEDULE DESCRIBING DEMOLITION REMOVAL AND PHASING.
- E. GENERAL CONTRACTOR SHALL OBTAIN REQUIRED DEMOLITION PERMITS FROM AUTHORITIES PRIOR TO COMMENCEMENT OF DEMOLITION WORK.
- F. DO NOT CLOSE OR OBSTRUCT EGRESS WIDTH TO ANY BUILDING OR SITE EXIT.
- G. REMOVE ALL EXISTING AREAS INDICATED AS DEMOLITION TO PROVIDE LAYOUT SHOWN. CONSTRUCT AND/ OR PROVIDE PROTECTION BARRIERS AS NEEDED FOR SAFETY AND TO CONTAIN DUST DUE TO DEMOLITION AND KEEP BUILDING SECURE AND WEATHER TIGHT DURING THE CONSTRUCTION PERIOD.
- H. PATCH AND REPAIR REMAINING SURFACES AS NEEDED DUE TO THE DEMOLITION OR THE REMOVAL OF CONSTRUCTION.
- I. REPAIR HOLES IN EXISTING PARTITIONS DESIGNATED TO REMAIN WHERE PARTITION MOUNTED ITEMS ARE TO BE REMOVED. REFER TO FINISH PLAN FOR SCHEDULED FINISH. WHERE PARTITION, EQUIPMENT OR ACCESSORIES, ETC. ARE REMOVED AND NO REPLACEMENT FINISH IS CALLED FOR, PATCH AND REPAIR TO MATCH ADJACENT FINISH.
- J. REMOVE ALL DEMOLISHED MATERIALS FROM THE BUILDING AND THE SITE. ALL DEMOLISHED MATERIALS, EXCEPT AS NOTED, ARE THE PROPERTY OF THE GENERAL CONTRACTOR.
- K. GENERAL CONTRACTOR SHALL LOCATE, MARK, TERMINATE, DISCONNECT AND CAP ALL EXISTING UTILITIES TO BE REMOVED AND NOT USED IN NEW CONSTRUCTION WITHIN AREA OF DEMOLITION WORK. REMOVE ANY AND ALL EXISTING ELECTRICAL AND COMMUNICATION EQUIPMENT, SWITCHES, RECEPTACLES, NOT SHOWN ON THE DRAWINGS AND HAVE BEEN ABANDONED IN AREAS OF WORK FROM WITHIN PARTITIONS AND ABOVE THE SCHEDULED CEILING. ALL WIRING SHALL BE REMOVED BACK TO ITS' SOURCE PANEL. COORDINATE WITH THE BUILDING CONSTRUCTION MANAGER.
- L. DO NOT DISABLE OR DISRUPT BUILDING FIRE OR LIFE SAFETY SYSTEMS WITHOUT 3 DAYS PRIOR WRITTEN NOTICE TO OWNER.
- M. SMOKE AND FIRE DETECTION EQUIPMENT MUST BE SHIELDED TO AVOID FALSE ALARMS. COORDINATE WITH FIRE PROTECTION CONTRACTOR.
- N. REMOVE ALL FLOOR COVERINGS, WALL COVERINGS AND BASE THROUGHOUT AREA AND PREPARE AS REQUIRED FOR NEW FINISHES. (INCLUDING THE REMOVAL OF ALL EXISTING ADHESIVES)
- O. REFER TO MEP DEMOLITION DRAWINGS FOR OTHER REQUIRED DEMOLITION.

DEMOLITION KEYED NOTES

- 1. DEMO/ REMOVE EXISTING PARTITION AND ASSOCIATED DEVICES (SHOWN DASHED).
- 2. DEMO / REMOVE AND SALVAGE EXISTING DOOR, FRAME AND HARDWARE FOR RE-USE (SHOWN DASHED). COORDINATE WITH OWNER.
- 3. EXISTING WINDOWS AND TRIM TO REMAIN. PROTECT DURING CONSTRUCTION.
- 4. EXISTING FLOORING TO REMAIN. PROTECT DURING CONSTRUCTION.
- 5. EXISTING DOOR TO REMAIN. PROTECT DURING CONSTRICITION. COVER DOOR GLASS WITH CRAFT PAPER.
- 6. EXISTING WALL TO REMAIN. PROTECT DURING CONSTRUCTION.

GRAY DESIGN GROUP

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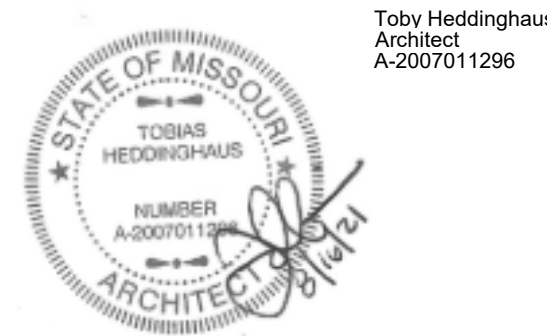
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Contact: Laurie Williams  
Produced By: Allison Barkoviak  
Reviewed By: Laurie Williams

No. Description Date  
Demolition Package 08.17.2021

Preliminary Drawings for:  
**Kummer Foundation Executive  
Boardroom - Phase One**  
Missouri S&T Job Number: FC000488  
300 W. 13th Street  
Rolla, MO 65409

2ND FLOOR DEMOLITION PLAN



gray®

Job: 27121172.00

A-101

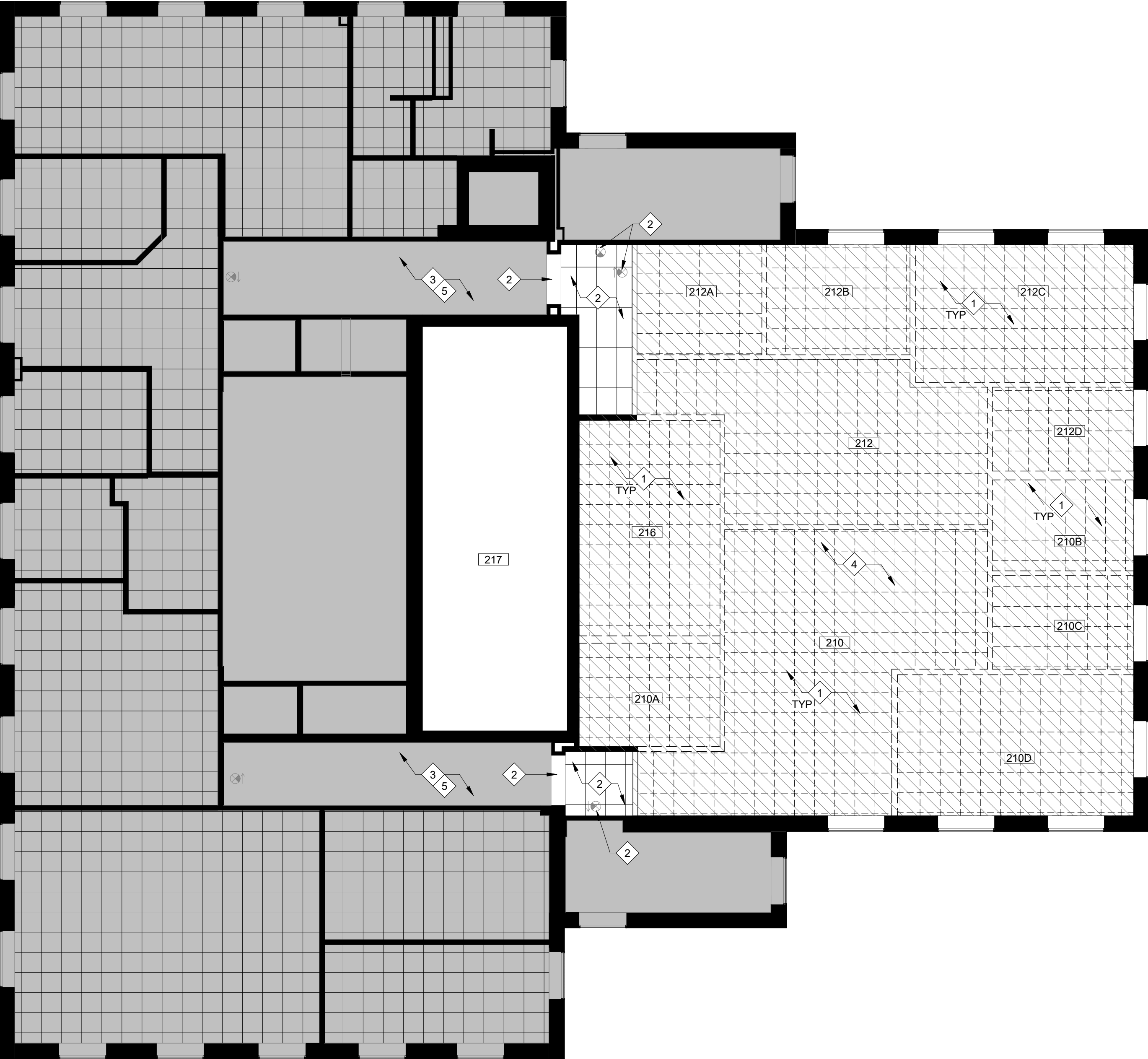


PHOTO - EXISTING PLASTER CEILING PLENUM

DEMO RCP GENERAL NOTES

- A. ALL DEMOLITION WORK SHALL CONFORM TO APPLICABLE CODES FOR DEMOLITION WORK, INCLUDING BUT NOT LIMITED TO DUST CONTROL, ELECTRICAL DISCONNECTION AND RE-CONNECTION OF EQUIPMENT
- B. ALL DEMOLITION WORK SHALL CONFORM TO APPLICABLE BUILDING CODE FOR LOADS AND OTHER CRITERIA FOR DESIGN OF SHORING AND BRACING.
- C. GENERAL CONTRACTOR SHALL CEASE DEMOLITION OPERATIONS IMMEDIATELY IF STRUCTURE APPEARS TO BE IN DANGER AND NOTIFY THE ARCHITECT AND/ OR ENGINEER. DO NOT RESUME OPERATIONS UNTIL DIRECTED BY THE ARCHITECT AND/ OR ENGINEER.
- D. GENERAL CONTRACTOR SHALL COORDINATE ALL SEQUENCING OF DEMOLITION WORK WITH THE OWNER. GENERAL CONTRACTOR SHALL PROVIDE TO THE OWNER ALL PROCEDURES AND SCHEDULE DESCRIBING DEMOLITION REMOVAL AND PHASING.
- E. GENERAL CONTRACTOR SHALL OBTAIN REQUIRED DEMOLITION PERMITS FROM AUTHORITIES PRIOR TO COMMENCEMENT OF DEMOLITION WORK.
- F. DO NOT CLOSE OR OBSTRUCT EGRESS WIDTH TO ANY BUILDING OR SITE EXIT.
- G. REMOVE ALL EXISTING AREAS INDICATED AS DEMOLITION TO PROVIDE LAYOUT SHOWN. CONSTRUCT AND/ OR PROVIDE PROTECTION BARRIERS AS NEEDED FOR SAFETY AND TO CONTAIN DUST DUE TO DEMOLITION AND KEEP BUILDING SECURE AND WEATHER TIGHT DURING THE CONSTRUCTION PERIOD.
- H. PATCH AND REPAIR REMAINING SURFACES AS NEEDED DUE TO THE DEMOLITION OR THE REMOVAL OF CONSTRUCTION.
- I. REPAIR HOLES IN EXISTING CEILING DESIGNATED TO REMAIN WHERE CEILING MOUNTED ITEMS ARE TO BE REMOVED. REFER TO FINISH PLAN FOR SCHEDULED FINISH. WHERE PARTITION, EQUIPMENT OR ACCESSORIES, ETC. ARE REMOVED AND NO REPLACEMENT FINISH IS CALLED FOR. PATCH AND REPAIR TO MATCH ADJACENT FINISH.
- J. REMOVE ALL DEMOLISHED MATERIALS FROM THE BUILDING AND THE SITE. ALL DEMOLISHED MATERIALS, EXCEPT AS NOTED, ARE THE PROPERTY OF THE GENERAL CONTRACTOR.
- K. GENERAL CONTRACTOR SHALL LOCATE, MARK, TERMINATE, DISCONNECT AND CAP ALL EXISTING UTILITIES TO BE REMOVED AND NOT USED IN NEW CONSTRUCTION WITHIN AREA OF DEMOLITION WORK. REMOVE ANY AND ALL EXISTING ELECTRICAL AND COMMUNICATION EQUIPMENT, SWITCHES, RECEPTACLES, NOT SHOWN ON THE DRAWINGS AND HAVE BEEN ABANDONED IN AREAS OF WORK FROM WITHIN PARTITIONS AND ABOVE THE SCHEDULED CEILING. ALL WIRING SHALL BE REMOVED BACK TO ITS' SOURCE PANEL. COORDINATE WITH THE BUILDING CONSTRUCTION MANAGER.
- L. REPAIR ANY DAMAGE ON ALL EXISTING SURFACES AND ITEMS BEING SALVAGED FOR REUSE. RETURN UNUSED MATERIALS TO BUILDING STORAGE AS DIRECTED BY BUILDING MANAGEMENT.

DEMO RCP KEYED NOTES

- 1. DEMO / REMOVE ACOUSTICAL CEILING TILE AND GRID IN THIS AREA (SHOWN DASHED).
- 2. EXISTING CEILING, BULKHEAD, LIGHT FIXTURES AND EMERGENCY LIGHTING TO REMAIN THIS AREA.
- 3. EXISTING CEILING TO REMAIN. PROTECT DURING CONSTRUCTION.
- 4. DEMO / REMOVE EXISTING PLASTER AND LATH CEILING AND ASSOCIATED SUPPORT STRUCTURE ABOVE EXISTING ACT (HATCHED AREA) DEMO / REMOVE ABANDONED DUCTWORK. EXISTING ROOF STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
- 5. EXISTING LIGHT FIXTURE(S) TO REMAIN. PROTECT DURING CONSTRUCTION.

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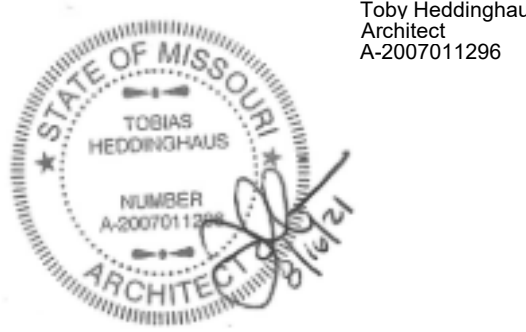
Contact: Laurie Williams  
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Reviewed By: Laurie Williams

No.	Description	Date
	Demolition Package	08.17.2021

Preliminary Drawings for:

Kummer Foundation Executive  
Boardroom - Phase One

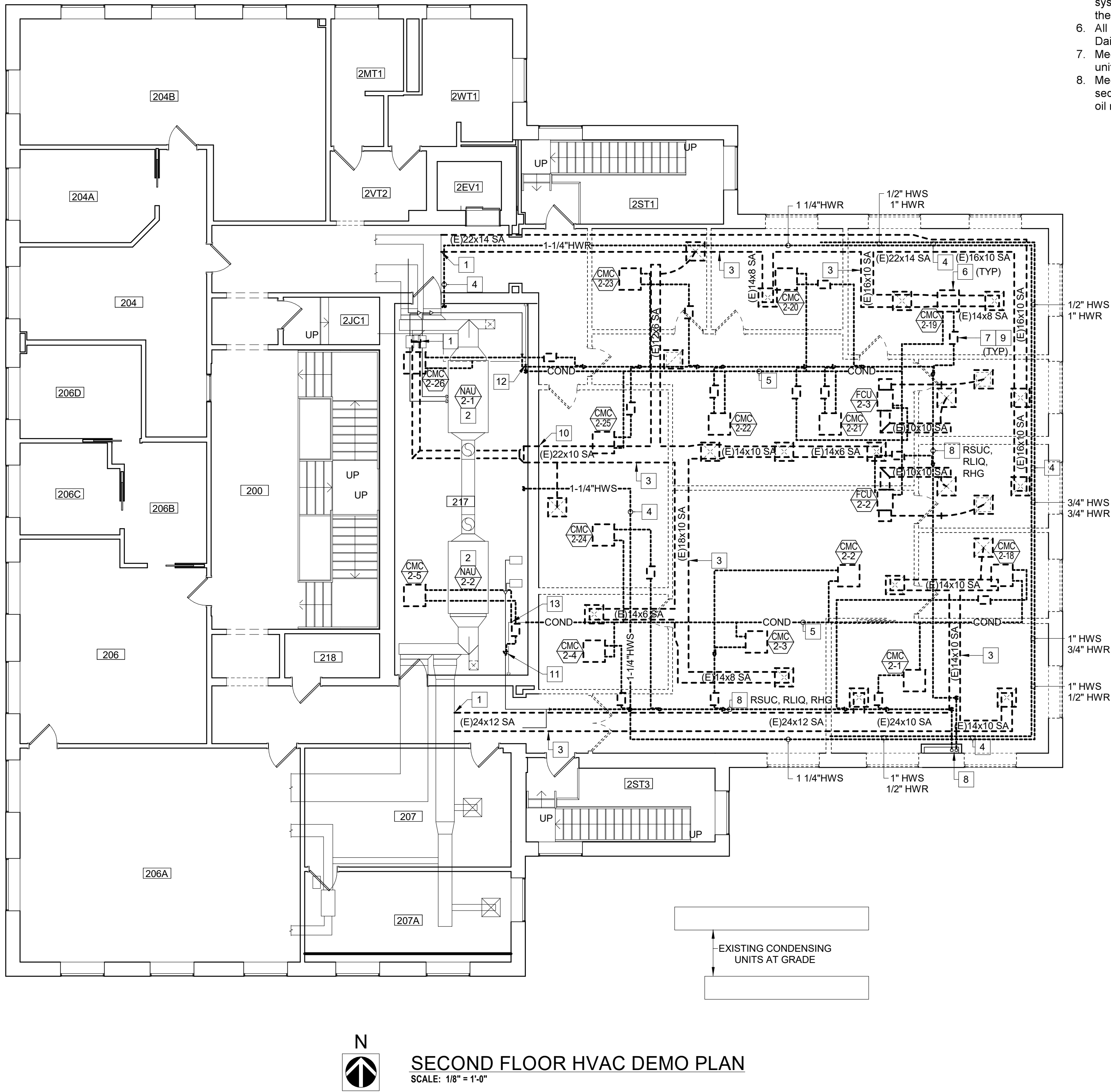
Missouri S&T Job Number: RC000488  
300 W. 13th Street  
Rolla, MO 65409



2ND FLOOR DEMOLITION REFLECTED CEILING PLAN







- Mechanical Contractor (MC) shall follow the phasing as stated below:
1. After installation, the manufacturer shall provide the services of a technical representative of the manufacturer (TMI Representative Chris Swallow or Chad Wunsch at (636) 532-1110) to inspect the completed installation including all piping, wiring and control connections. The manufacturer's technician shall work with the installing contractor in purging, pulling vacuum, charging, piping limitations and other start-up processes. The manufacturer's technician shall also run the systems to determine that the systems are functional, and that the controls are functioning properly.
  2. Hang the new refrigerant piping as shown on the new mechanical plans. Install and insulate new piping and route up to 18" of existing pipe ready for new connection. Prepare and protect new pipe for future connection and maintain clean.
  3. Mechanical contractor shall coordinate with the owner on the shutdown timeline as well as which system (North vs South) will be shut down and when.
  4. Once the timeline is coordinated, then the coordinated North or South or both units can be shut down.
  5. Mechanical contractor shall note and verify the amount of charge removed from the system and how much is added during charge. These two values are to be reported to the engineer within 2 days.
  6. All installers for the mechanical contractor are required to show proof of having attended Daikin VRV install training within in the last 2 years.
  7. Mechanical contractor shall reprogram the I-Touch manager to remove the demolished units.
  8. Mechanical contractor shall reprogram the I-Touch manager to reprogram the sequences of both NAU 2-1 & NAU 2-2 to shut down the supply fan on both units during oil return and defrost scenarios.

GENERAL NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK NOTED HEREIN WITH BUILDING OWNER / GENERAL CONTRACTOR.
2. PATCH ALL HOLES IN FLOORS AND REMAINING WALLS OCCURRING FROM DEMOLITION TO MATCH EXISTING AND MAINTAIN FIRE RATING, UNLESS NOTED OTHERWISE FOR NEW WORK.
3. PROVIDE FIRECAULK AS REQUIRED TO MATCH FIRE RATING AT ALL NEW AND/OR RE-USED PENETRATION SURROUNDS.
4. SELECTIVE DEMOLITION, INCLUDING ASSOCIATED ABATEMENT, HAS ALREADY OCCURRED IN AREAS THROUGHOUT FLOOR. GENERAL AND SUBCONTRACTORS ARE REQUIRED TO WALK THROUGH TO DETERMINE SCOPE OF ABATEMENT AND DEMOLITION PRIOR TO BID, NO EXCEPTIONS.

KEYED NOTES:

- 1 DEMOLISH DUCT BACK TO TAP ON MAIN DUCT. PATCH/SEAL TAP AIRTIGHT. REPAIR INSULATION TO MAINTAIN VAPOR BARRIER ON MAIN DUCT.
- 2 RE-BALANCE EXISTING NAU TO NEW CFM AS SCHEDULED; THIS WILL REQUIRE ALL DAMPERS IN ALL ZONES SERVED BY THE NAU TO BE RE-BALANCED TO THE NEW CFM. SEE SHEETS M4.00 AND M4.01 FOR EXISTING AS-BUILT DRAWINGS.
- 3 DEMOLISH DUCTS, HANGERS, FLEX DUCT, DIFFUSERS AND ALL ASSOCIATED ENTITIES TO ALLOW DEMOLITION OF THE UPPER PLASTER CEILING.
- 4 DEMOLISH HWS/HWR PIPING, HANGERS AND ALL ASSOCIATED ENTITIES ABOVE CEILING. DEMOLISH ALL ABANDONED PIPING IN THE EXTERIOR WALLS.
- 5 DEMOLISH CONDENSATE PIPING, HANGERS AND ALL ASSOCIATED ENTITIES ABOVE CEILING AS INDICATED. CAP PIPING AT LAST CONNECTION TO EQUIPMENT TO REMAIN.
- 6 REMOVE AND SALVAGE THE CASSETTES, FAN COIL UNITS, BRANCH SELECTOR BOXES, HANGERS, PIPING AND ALL ASSOCIATED ENTITIES AS NOTED. ALL SALVAGED EQUIPMENT IS TO BE TURNED OVER TO THE OWNER.
- 7 DEMOLISH INTERCONNECTING (DAISY CHAINED) WIRING FOR BOXES BACK TO OUTSIDE UNIT. REMOVE AND SALVAGE SPACE THERMOSTAT AND WIRING. ALL SALVAGED THERMOSTATS ARE TO BE TURNED OVER TO THE OWNER.
- 8 DEMOLISH REFRIGERANT PIPING BACK TO MAINS IN EXTERIOR WALL, DOWN TO 6" ABOVE 2ND FLOOR LINE; CAP AND MAKE READY FOR NEW CONNECTION. DO NOT PERFORM THIS WORK UNTIL NEW MAINS HAVE BEEN INSTALLED; SEE NEW WORK SHEETS FOR PIPING TO BE INSTALLED. ALL SHUTDOWNS AND OUTAGES ARE TO BE STAGED AND COORDINATED WITH THE GC; 2 WEEKS NOTICE TO BE GIVEN PRIOR TO SHUTDOWN OF THE SYSTEM.
- 9 AFTER MECHANICAL EQUIPMENT IS DEMOLISHED, THE MECHANICAL CONTROLS CONTRACTOR SHALL RECONFIGURE THE I-TOUCH MANAGER TO NOT SHOW THE DEMOLISHED EQUIPMENT.
- 10 DO NOT PATCH THE HOLE IN THE WALL FROM THE DEMOLISHED DUCTWORK; IT SHALL BE RE-USED IN NEW WORK DESIGN.
- 11 REMOVE REF-NET FITTINGS FROM REFRIGERANT PIPING MAINS. RECONNECT MAINS AND REPAIR INSULATION TO MAINTAIN A CONTINUOUS VAPOR BARRIER.
- 12 DEMOLISH CONDENSATE DRAIN AT TEE. INSTALL NEW CLEAN-OUT ON SOUTH SIDE OF TEE.
- 13 DEMOLISH TEE. RE-WORK DRAIN FROM NAU TO TRANSITION DIRECTLY TO THE MAIN DRAIN LINE.

GRAY DESIGN GROUP

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Produced By: | FH  
Reviewed By: | SM

No. | Description | Date  
1 | ISSUED FOR BID | 8/17/2021

Preliminary Construction Drawings for:

Kummer Foundation Executive Boardroom

Missouri S&T Job Number RC000488  
300 W. 13th Street  
Rolla, MO 65409

McCLURE  
ENGINEERING

1000 Clark Avenue  
Saint Louis, Missouri 63102  
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SECOND FLOOR HVAC DEMO PLAN

gray®

Job: | 27121172.00

DM3.01

PLUMBING

AD	AREA DRAIN
AP	ACCESS PANEL
AW	ACID WASTE
AV	ACID VENT
BV	BALANCE VALVE
CB	CATCH BASIN
CFS	CUBIC FEET PER SECOND
CO	CLEANOUT
CUSP	CUSPIDORS
CHV	CHECK VALVE
CW	COLD WATER
DF	DRINKING FOUNTAIN
DN	DOWN
DS	DOWNSPOUT
DV	DRAIN VALVE
DWH	DOMESTIC WATER HEATER
ET	EXPANSION TANK
EW	ELECTRIC WATER COOLER
EX	EXISTING PIPING OR EQUIPMENT
F	FLANGE CONNECTION
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
GA	GAUGE
GC	GAUGE COCK
HB	HOSE BIBB
HW	HOT WATER
HWC	HOT WATER CIRCULATING
ICW	ICE COLD WATER
IDW	INDIRECT WASTE
INV	INVERT
L	LAVATORY
LV	LOOP VENT
MH	MANHOLE
MSB	MOP SERVICE BASIN
NP	NON-POTABLE COLD WATER
NPH	NON-POTABLE HOT WATER
OD	OVER FLOW DRAIN
ODS	OVERFLOW DRAIN SYSTEM
PR	PRESSURE REGULATOR
PRV	PRESSURE REDUCING VALVE
RD	ROOF DRAIN
RI	ROUGH-IN (ONLY)
RI & C	ROUGH-IN AND CONNECT
RPBF	REDUCE PRESSURE BACKFLOW PREVENTER
S	SOIL
SAN	SANITARY SEWER
SBD	SHOWER BASINS AND DRAIN
SCW	SOFT COLD WATER
SD	SHOWER DRAIN
SH	SHOWER HEAD
SS	SERVICE SINK
SSD	SUBSOIL DRAIN
ST	STORM SEWER
SV	SERVICE VALVE
TD	TRENCH DRAIN
TH	THERMOMETER
TT	TEST TEE
U	UNION
UR	URINAL
V	VENT
VTR	VENT THROUGH ROOF
W	WASTE
WC	WATER CLOSET
WCO	WALL CLEANOUT
WF	WASH FOUNTAIN
WH	WALL HYDRANT
WM	WATER MAIN
YCO	YARD CLEANOUT
YD	YARD DRAIN

FIRE PROTECTION

F	FIRE LINE
SPR	SPRINKLER MAIN
SIV	SUPERVISED INDICATING VALVE
WFI	WATER FLOW INDICATOR
DRY	DRY SPRINKLER PIPE
URH	UPRIGHT HEAD
PH	PENDENT HEAD
CH	CONCEALED HEAD
SWH	SIDEWALL HEAD

LABORATORY

O	OXYGEN
NO	NITROUS OXIDE
N	NITROGEN
CO	CARBON DIOXIDE
DI	DEIONIZED WATER

TEMPERATURE CONTROLS

AHU	AIR HANDLING UNIT
CD	CONTROL DAMPER
CMD	COMMAND
CS	CURRENT SWITCH
CWV	CHILLED WATER VALVE
D	DAMPER
DA	DISCHARGE AIR
DP	DIFFERENTIAL PRESSURE SWITCH
EF	EXHAUST FAN
ES	END SWITCH
F	FLOW METER
FDBK	FEEDBACK
FM	FLOW METER
H	HUMIDITY
HWV	HEATING WATER VALVE
MXA	MIXED AIR
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
OA	OUTSIDE AIR
OAD	OUTSIDE AIR DAMPER

SAN	SANITARY SEWER (SOIL, WASTE) BELOW GRAD
SAN	SANITARY SEWER (SOIL, WASTE) ABOVE GRADE
ST	STORM SEWER BELOW GRADE
ST	STORM SEWER ABOVE GRADE SLOPE IN DIRECTION OF ARROW (SEE PLANS FOR % OF SLOPE)
V	VENT
SSD	SUBSOIL DRAIN
CW	COLD WATER
ICW	ICE COLD WATER
SCW	SOFT COLD WATER
HW	HOT WATER
HWC	HOT WATER CIRCULATING
WM	WATER MAIN (OUTSIDE OF BUILDING)
RV	TEMPERATURE & PRESSURE RELIEF VALVE
TPV	TEMPERATURE & PRESSURE RELIEF VALVE
UP	PIPE LINE, TURN UP
DN	PIPE LINE, TURN DOWN
BV	BALANCE VALVE
CHV	CHECK VALVE
DV	DRAIN VALVE
GA	GAUGE
GC	GAUGE COCK
PR	PRESSURE REGULATOR
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
SV	SERVICE VALVE
TH	THERMOMETER
U	UNION
1	CONNECT TO EXISTING EQUIPMENT, SYMBOL
2	PLUMBING RISER DESIGNATION
3	KEYED NOTE DESIGNATION

DPV	DRY PIPE VALVE
FEC	FIRE EXTINGUISHER CABINET
FVC	FIRE VALVE CABINET
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
WG	WATER GONG
FH	FIRE HYDRANT
SC	SIAMESE CONNECTION

C	COLD WATER OUTLET
H	HOT WATER OUTLET
M	COLD & HOT WATER OUTLET
G	NATURAL GAS OUTLET
V	LAB VACUUM GAS OUTLET
A	LAB COMPRESSED AIR OUTLET
DI	DEIONIZED WATER OUTLET
E	EMERGENCY EYEWASH
S	SAFETY SHOWER

P	PRESSURE
PWM	PULSE WIDTH MODULATOR
RA	RETURN AIR
RAD	RETURN AIR DAMPER
RF	RETURN FAN
RLAD	RELIEF AIR DAMPER
SA	SUPPLY AIR
SF	SUPPLY FAN
SPD	SPEED
T	TEMPERATURE
VAV	VARIABLE AIR VOLUME BOX
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE
+	ANALOG OUTPUT
=	DIGITAL OUTPUT
Δ	HARD WIRED SAFETY
•	NETWORKED DEVICE



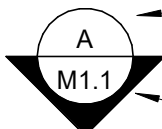
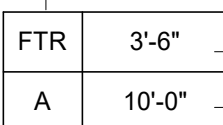


MECHANICAL

A	COMPRESSED AIR
AD	ACCESS DOOR
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
AV	AIR VENT
B	BOILER
BV	BALANCE VALVE
BAP	BUILDING ACCESS PANEL
COM	COMMON
CH	CHILLER
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CHS	CHILLED HOT SUPPLY
CHR	CHILLED HOT RETURN
CWL	CHILLED WATER LOOP
CHV	CHECK VALVE
CT	COOLING TOWER
CU	CONDENSER UNIT
CV	CONTROL VALVE
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
D	DAMPER
DISCH	DISCHARGE
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DR	DRAIN LINE
DV	DRAIN VALVE
EF	EXHAUST FAN
ET	EXPANSION TANK
EX	EXISTING
EXH	EXHAUST
F	FLANGE CONNECTION
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
FPT	FAN POWERED TERMINAL UNIT
FRD	FIRE RATED DAMPER
T	STEAM TRAP
FTR	FIN TUBE RADIATION
G	GAS
GA	GAUGE
GC	GAUGE COCK
GYS	GLYCOL CHILLED WATER SUPPLY
GYR	GLYCOL CHILLED WATER RETURN
H	HUMIDIFIER
HPS	HIGH PRESSURE SUPPLY
HPC	HIGH PRESSURE CONDENSATE
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
HEAT EX	HEAT EXCHANGER
LPS	LOW PRESSURE SUPPLY
LPC	LOW PRESSURE CONDENSATE
MA	MAKE-UP AIR
MBH	1000 BTU/HR
MC	MECHANICAL COUPLING
MPS	MEDIUM PRESSURE STEAM
MPC	MEDIUM PRESSURE CONDENSATE
MXA	MIXED AIR
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NP	NON-POTABLE COLD WATER
OA	OUTSIDE AIR
OV	OV
P	PETE'S PLUG
PC	PUMPED CONDENSATE
PD	PUMP DISCHARGE
PR	PRESSURE REGULATOR
PRV	PRESSURE REDUCING VALVE
PWS	POOL WATER SUPPLY
PWR	POOL WATER RETURN
RA	RETURN AIR
RF	RETURN FAN
RLA	RELIEF AIR
RLF	RELIEF FAN
RTU	ROOF TOP UNIT
RV	RELIEF VALVE
SA	SUPPLY AIR
SD	SMOKE DAMPER
SF	SUPPLY FAN
STR	STRAINER
SUC	SUCTION
SUD	SUCTION DIFFUSER
SV	SERVICE VALVE
TH	THERMOMETER
TW	THERMOMETER WELL
U	UNION
UH	UNIT HEATER
UV	UNIT VENTILATOR
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME UNIT

A	COMPRESSED AIR
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CHS	CHILLED-HOT SUPPLY
CHR	CHILLED-HOT RETURN
CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
CWL	CHILLED WATER LOOP
DR	DRAIN LINE
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
G	GAS
GYS	GLYCOL CHILLED WATER SUPPLY
GYR	GLYCOL CHILLED WATER RETURN
HPS	HIGH PRESSURE STEAM
HPC	HIGH PRESSURE CONDENSATE
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
LPS	LOW PRESSURE STEAM
LPC	LOW PRESSURE CONDENSATE
MPS	MEDIUM PRESSURE STEAM
MPC	MEDIUM PRESSURE CONDENSATE
PC	PUMPED CONDENSATE
RSUC	REFRIGERANT SUCTION
RLIQ	REFRIGERANT LIQUID
RHG	REFRIGERANT HOT GAS
PWS	POOL WATER SUPPLY
PWR	POOL WATER RETURN

UP	PIPE LINE, TURNED UP
DN	PIPE LINE, TURNED DOWN
BV	BALANCE VALVE
CV	2 WAY CONTROL VALVE
3CV	3 WAY CONTROL VALVE
CHV	CHECK VALVE
DV	DRAIN VALVE
F	FLANGE CONNECTION
GA	GAUGE AND GAUGE COCK
GC	GAUGE AND GAUGE COCK
MC	MECHANICAL COUPLING
P	PETE'S PLUG
PFC	PIPE FLEXIBLE CONNECTOR
PR	PRESSURE REGULATOR
PRV	PRESSURE REDUCING VALVE
RV	RELIEF VALVE
SV	SERVICE VALVE
STR	STRAINER
T	STEAM TRAP
TH	THERMOMETER
TW	THERMOMETER WELL
U	UNION
M	METER
CAP	CAP
CONCENTRIC REDUCER	CONCENTRIC REDUCER
ECCENTRIC REDUCER (BOTTOM & TOP LEVEL)	ECCENTRIC REDUCER (BOTTOM & TOP LEVEL)
PA	PIPE ANCHOR
PG	PIPE GUIDE
PIPING WITH HEAT TRACING	PIPING WITH HEAT TRACING

FLEXIBLE DUCTWORK
SUPPLY AIR DUCT, DOWN
SUPPLY AIR DUCT, UP
RETURN, OUTSIDE, RELIEF OR EXH DUCT DN
RETURN, OUTSIDE, RELIEF OR EXH DUCT UP
DROP IN DIRECTION OF ARROW
DAMPER
AUTOMATIC CONTROL DAMPER
FIRE RATED DAMPER
BACK DRAFT DAMPER
FLEXIBLE DUCT BOOT CONNECTION WITH DAMPER (SEE DETAIL)
ACCESS DOOR/PANEL
ROUND DUCTWORK
OV
TURNING VANES
EXISTING PIPING OR EQUIPMENT TO REMAIN
EXISTING PIPING OR EQUIPMENT TO BE REMOVED
NEW PIPING OR EQUIPMENT

	TYPE OF EQUIPMENT
	EQUIPMENT DESIGNATION
	NUMBER OF EQUIPMENT
	TYPE
	AIR DEVICE DESIGNATION
	CFM
	SECTION REFERENCE
	SECTION DESIGNATION
	SHEET WHERE SECTION IS SHOWN
CONVECTOR DESIGNATION	
<u>4" x 36" x 26" (ST)</u> 4.4 MBH	<u>DEPTH x LENGTH x HEIGHT (CABINET TYPE)</u> MBH
	FINNED TUBE DESIGNATION
	LENGTH OF ELEMENT
	LENGTH OF COVER (WT/WT = WALL TO WALL)
	SYMBOL
	CONNECT TO EXISTING EQUIPMENT
	KEYED NOTE DESIGNATION

GRAY DESIGN GROUP

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Contact: McClure Engineering  
Produced By: FH  
Reviewed By: SM

No.	Description	Date
1	ISSUED FOR BID	8/17/2021

Preliminary Construction Drawings for:

Kummer Foundation Executive Boardroom

Missouri S&T Job Number RC000488  
300 W. 13th Street  
Rolla, MO 65409

McClure Engineering  
1000 Clark Avenue  
Saint Louis, Missouri 63102  
T 314-645-6232  
Missouri State Certificate of Authority #000087

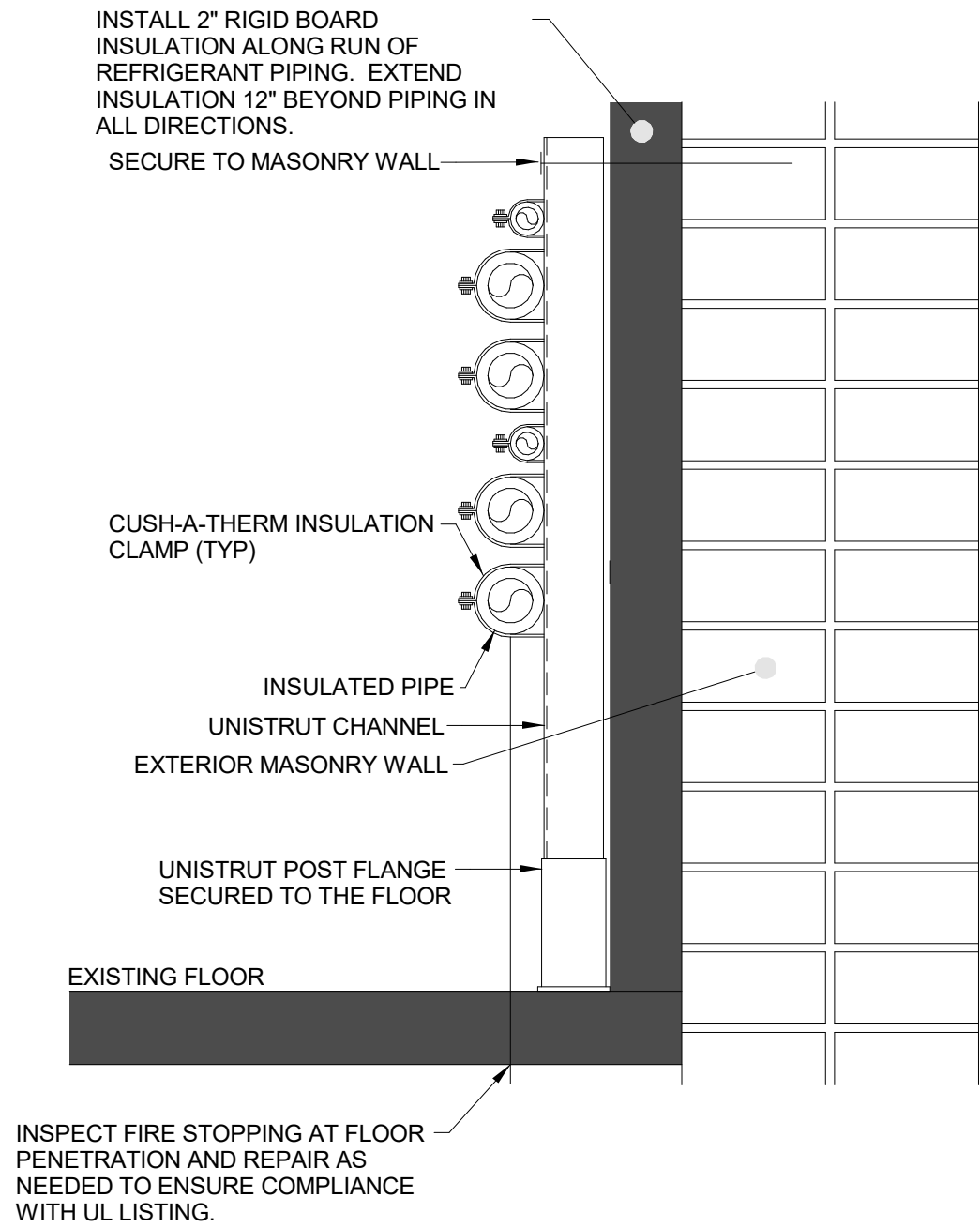


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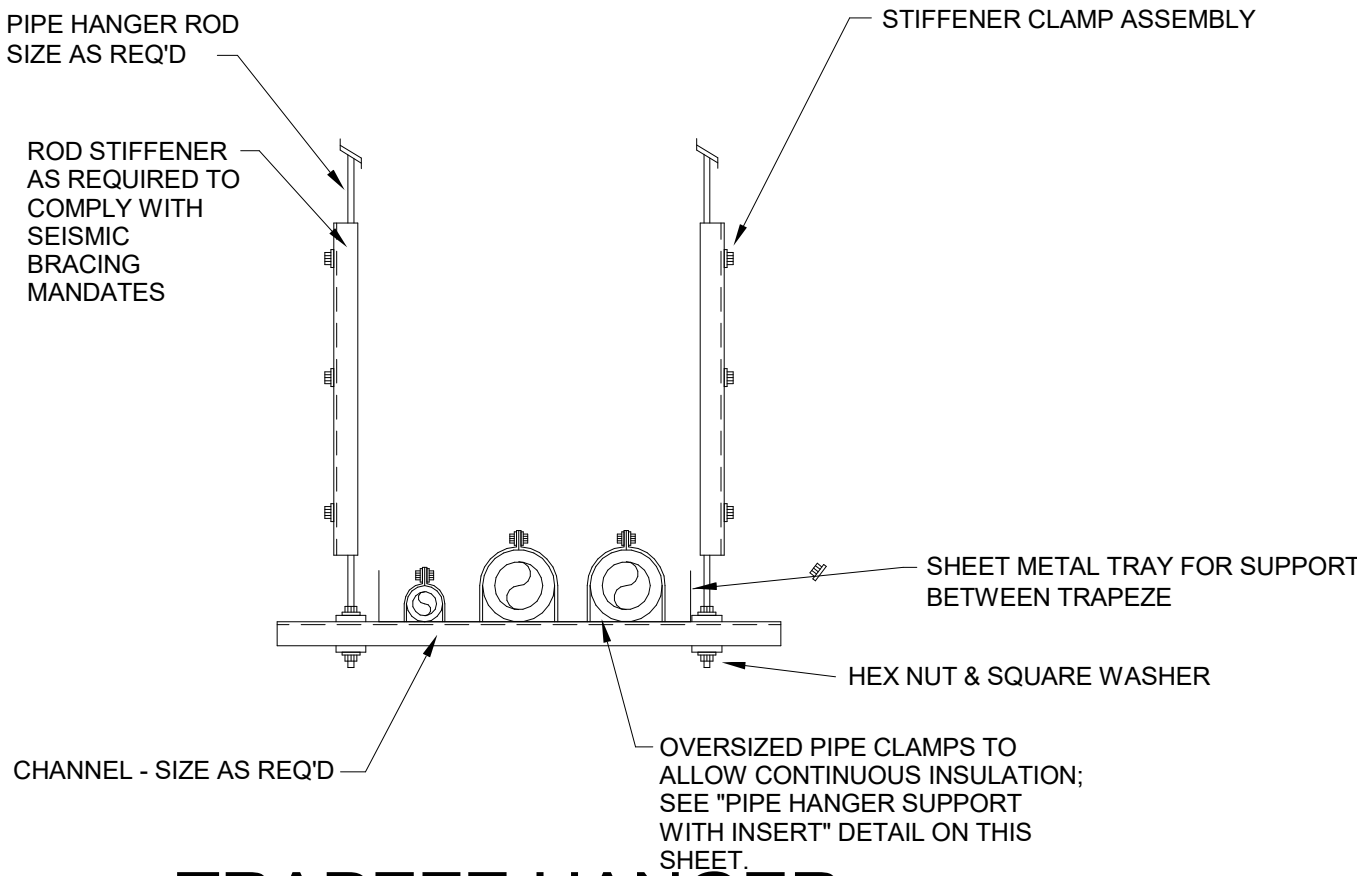
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M1.00



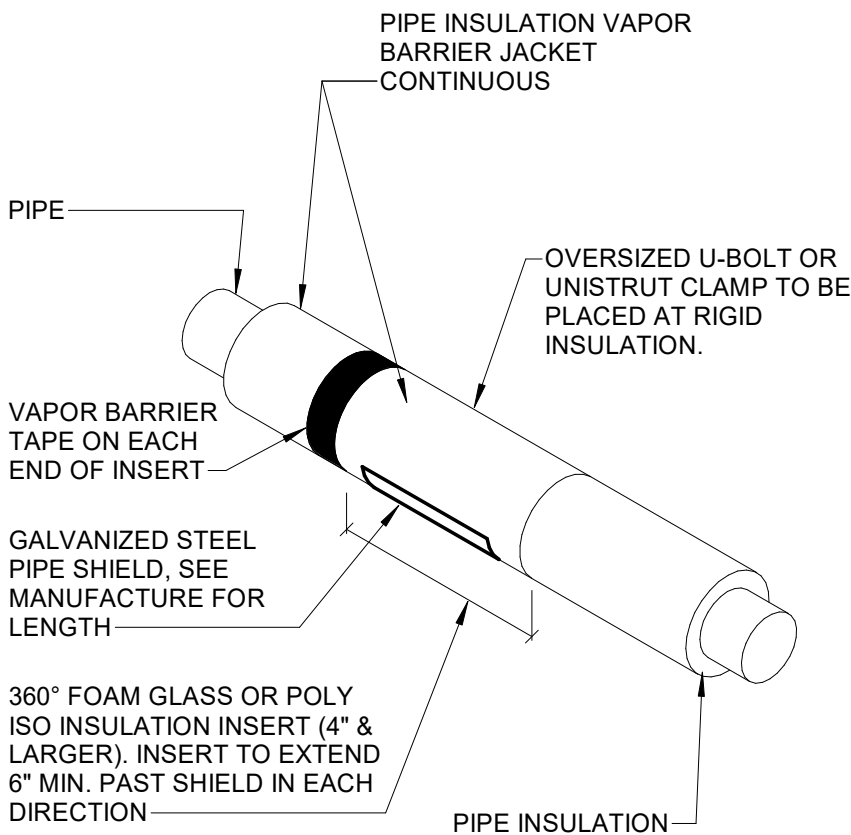


WALL PIPING BRACE



TRAPEZE HANGER  
NO SCALE

- NOTES:
1. ALL SEISMIC BRACING NEEDS TO BE DETERMINED BY A LICENSED ENGINEER.



NOTE: SEE SPECIFICATION FOR APPLICABLE PIPE SIZES AND SERVICES

PIPE HANGER SUPPORT WITH INSERT



DEBRIS IN ATTIC



DEBRIS IN ATTIC



DEBRIS IN ATTIC

NOTE: THESE ATTEMPT ONLY TO SHOW THE TYPICAL AMOUNT OF DEBRIS AND DO NOT REFLECT ALL PIECES OF DEBRIS TO BE REMOVED UNDER THIS CONTRACT.

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Telephone 314.646.0400  
www.graydesigngroup.com

Contact: McClure  
ENGINEERING  
FH

Produced By:

Reviewed By: SM

No.	Description	Date
1	ISSUED FOR BID	8/17/2021

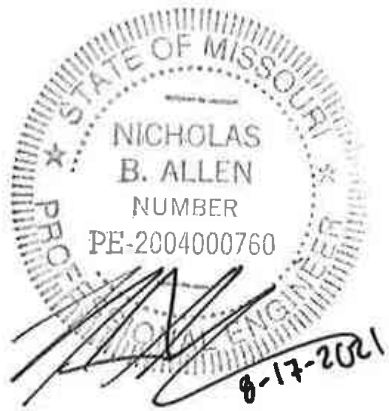
Preliminary Construction Drawings for:

Kummer Foundation Executive Boardroom

Missouri S&T Job Number RC0000488  
300 W. 13th Street  
Rolla, MO 65409

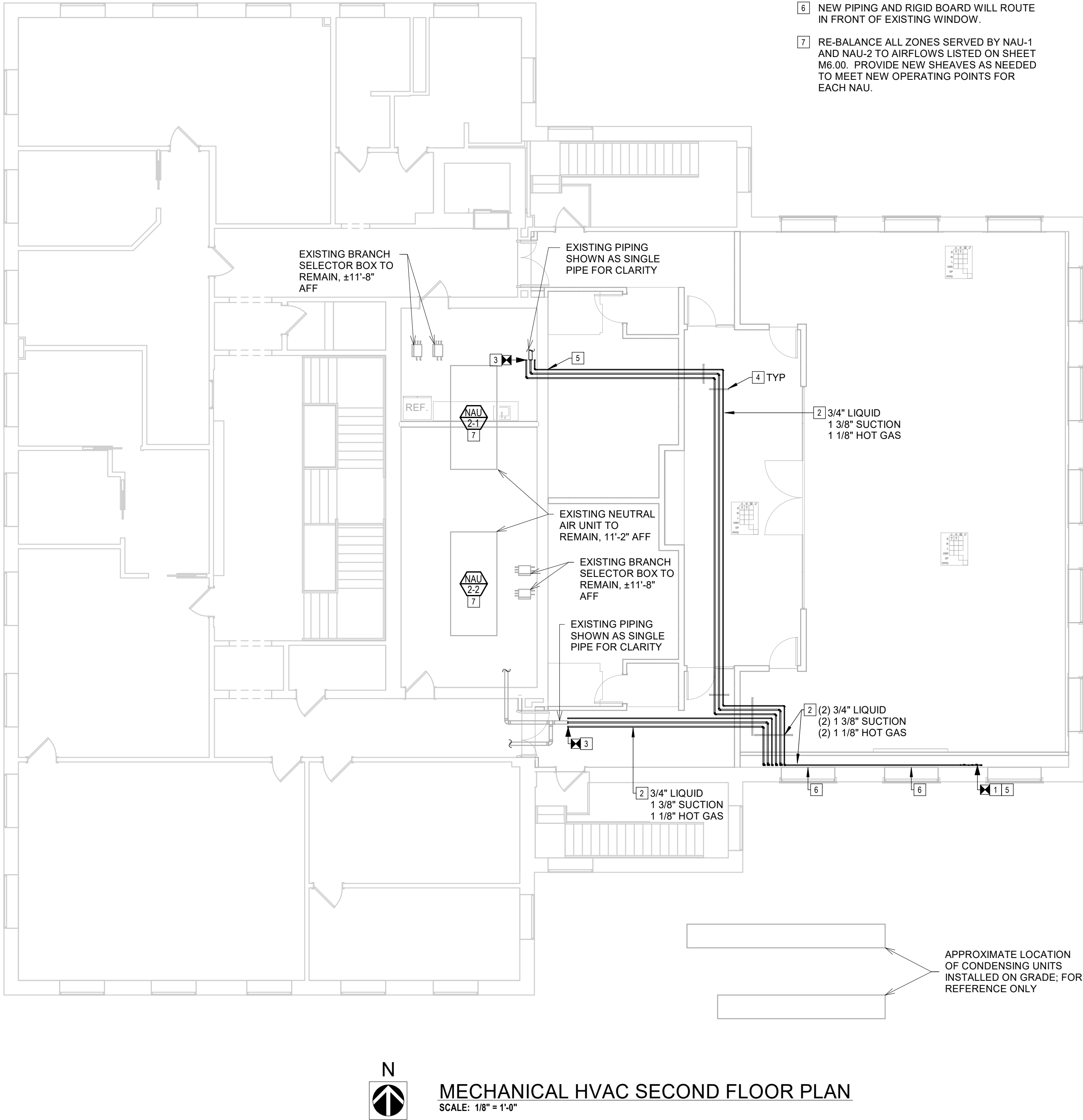
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ENGINEERING

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T 314-645-6232  
Missouri State Certificate of  
Authority #000087



MECHANICAL DETAILS

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GENERAL NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK NOTED HEREIN WITH BUILDING OWNER / GENERAL CONTRACTOR.
2. PROVIDE FIRE CAULK AS REQUIRED TO MATCH FIRE RATING OF ALL NEW AND/OR RE-USED PENETRATION SURROUNDS.
3. SELECTIVE DEMOLITION, INCLUDING ASSOCIATED ABATEMENT, HAS OCCURRED IN AREAS THROUGHOUT FLOOR. GENERAL AND SUBCONTRACTORS ARE REQUIRED TO WALK THROUGH TO DETERMINE SCOPE OF ABATEMENT AND DEMOLITION PRIOR TO BID, NO EXCEPTIONS.
4. PATCH ALL HOLES IN FLOORS AND REMAINING WALLS OCCURRING FROM DEMOLITION TO MATCH EXISTING AND MAINTAIN FIRE RATING, UNLESS NOTED OTHERWISE FOR NEW WORK.

KEYED NOTES:

- 1 CONNECT TO EXISTING REFRIGERANT PIPING 6" ABOVE FLOOR LINE.
- 2 NEW REFRIGERANT PIPING SECURED TO RACKS ALONG EXTERIOR WALL; SEE DETAIL. USE INSULATED CLAMPS TO ASSURE CONTINUOUS INSULATION ALONG PIPE.
- 3 ROUTE AND CONNECT NEW REFRIGERANT PIPING TO EXISTING; VERIFY INSTALLATION HEIGHT OF EXISTING PIPING. PROVIDE PIPE SUPPORTS AS NEEDED TO SECURE NEW AND EXISTING PIPING AT POINT OF CONNECTION. PROVIDE INSULATION WITH A VAPOR BARRIER, SEALED AT ALL JOINTS.
- 4 INSTALL TRAPEZE SUPPORTS WITHIN 12" OF ALL CHANGES IN DIRECTION.
- 5 ALL PENETRATIONS OF RATED FLOOR OR WALL ASSEMBLIES ARE TO BE FIRE-STOPPED IN ACCORDANCE WITH AN APPROVED UL LISTING.
- 6 NEW PIPING AND RIGID BOARD WILL ROUTE IN FRONT OF EXISTING WINDOW.
- 7 RE-BALANCE ALL ZONES SERVED BY NAU-1 AND NAU-2 TO AIRFLOWS LISTED ON SHEET M6.00. PROVIDE NEW SHEAVES AS NEEDED TO MEET NEW OPERATING POINTS FOR EACH NAU.

Mechanical Contractor (MC) shall follow the phasing as stated below:

1. After installation, the manufacturer shall provide the services of a technical representative of the manufacturer (TMI Representative Chris Swallow or Chad Wunsch at (636) 532-1110) to inspect the completed installation including all piping, wiring and control connections. The manufacturer's technician shall work with the installing contractor in purging, pulling vacuum, charging, piping limitations and other start-up processes. The manufacturer's technician shall also run the systems to determine that the systems are functional, and that the controls are functioning properly.
2. Hang the new refrigerant piping as shown on the new mechanical plans. Install and insulate new piping and route up to 18" of existing pipe ready for new connection. Prepare and protect new pipe for future connection and maintain clean.
3. Mechanical contractor shall coordinate with the owner on the shutdown timeline as well as which system (North vs South) will be shut down and when.
4. Once the timeline is coordinated, then the coordinated North or South or both units can be shut down.
5. Mechanical contractor shall note and verify the amount of charge removed from the system and how much is added during charge. These two values are to be reported to the engineer within 2 days.
6. All installers for the mechanical contractor are required to show proof of having attended Daikin VRV install training within in the last 2 years.
7. Mechanical contractor shall reprogram the I-Touch manager to remove the demolished units.
8. Mechanical contractor shall reprogram the I-Touch manager to reprogram the sequences of both NAU 2-1 & NAU 2-2 to shut down the supply fan on both units during oil return and defrost scenarios.

Contractor shall complete the following during installation of the refrigerant lines.

1. Always purge nitrogen when brazing.
2. Do not over tighten pipe clamps. Piping must be able to move for expansion and contraction.
3. Run new control 18/2 gauge stranded non-shielded wiring to last remaining BS box.
4. Pressurize the suction gas pipe, high/low pressure gas pipe and liquid pipe from the service ports of each stop valve to 550 PSI. If the pressure does not drop within 24 hours, the system passes the test. If there is a pressure drop, check for leaks, make repairs, and perform the airtight test again.

Contractor shall complete the following once the refrigerant pipe is installed and ready to be charged.

1. Make sure your outdoor multi connection kits are not above stop valves.
2. Due to Warranties MC is required to contact TMI Representative Chris Swallow or Chad Wunsch at (636) 532-1110, to set up a field coordination visit for a check, testing, and start-up.
3. Pressurize the suction gas pipe, high/low pressure gas pipe and liquid pipe from the service ports of each stop valve to 550 PSI. If the pressure does not drop within 24 hours, the system passes the test. If there is a pressure drop, check for leaks, make repairs and perform the airtight test again.
4. Evacuate the system from the suction gas pipe, high/low pressure gas pipe and liquid pipe stop valve service ports by using a vacuum pump for more than 2 hours and bring the system to 500 microns or less. After keeping the system under that condition for more than 1 hour, check if the vacuum gauge rises or not. If it rises, the system may either contain inside or have leaks.

GRAY DESIGN GROUP

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Contact: | McClURE  
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Produced By:

Reviewed By: | SM

No.	Description	Date
1	ISSUED FOR BID	8/17/2021

Preliminary Construction Drawings for:

Kummer Foundation Executive Boardroom

Missouri S&T Job Number RC000488  
300 W. 13th Street  
Rolla, MO 65409

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SECOND FLOOR HVAC PLAN

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Job: | 27121172.00

M3.01



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Produced By:	ENGINEERING
	FH
Reviewed By:	SM

### Preliminary Construction Drawings for:

# Kummer Foundation Executive Boardroom

Missouri S&I Job Number RC000488  
300 W. 13th Street  
Rolla, MO 65409

**McCLURE  
ENGINEERING**  
1000 Clark Avenue  
Saint Louis, Missouri 63102  
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Missouri State Certificate of  
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EXISTING FIRST FLOOR HVAC PLAN

gray®

Obj: 27121172.00

M4.00

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Phone: 314-884-7600  
Fax: 314-884-7601

PROJECT NAME: **MISSOURI MISSOURI UNIVERSITY  
OF SCIENCE & TECHNOLOGY**  
1870 Miner Circle • Rolla, MO 65409

DRAWING TITLE:  
**PARKER HALL  
FIRST FLOOR PLAN**

**MECHANICAL**

DATE ISSUED:	07/22/2013
SCALE:	1/4"=1'-0"
PROJ. NO.:	222673
ENGINEER:	DLH
DRAWN BY:	DSD
CHECKED BY:	DLH

SHEET NO.:

**P-M2.1**

- A. COORDINATE WITH ALL TRADES PRIOR TO ANY WORK. CMC'S SHALL BE ABLE TO BE REMOVED FROM CEILING. ALLOW MINIMUM 18" CLEAR SPACE AT ACCESS PANELS FOR SERVING.
- B. SEE VRV PIPING DIAGRAM SHEET FOR ALL REFRIGERANT PIPE SIZES AND BRANCH SELECTORS.
- C. SEE AIR DEVICE SCHEDULE FOR ALL FLEX/DUCT SIZES.
- D. SEE CMC DETAIL ON DETAIL SHEET FOR ALL PIPING, CONTROLS AND DUCT CONNECTIONS.
- E. ALL CONDENSATE DRAIN PIPING SHALL BE 1/2" UNLESS OTHERWISE NOTED.
- F. ALL FIRE DAMPERS SHOWN ON PLANS ARE NEW. INSTALL IN EXISTING AND NEW DUCTWORK.

1 PROVIDE 2" HIGH POWDER COATED WHITE SHROUD TO ALLOW CMC TO EXTEND OUT OF CEILING.

1 1½" DRAIN DOWN TO FLOOR DRAIN.

THESE DRAWINGS WERE PROVIDED BY THE OWNER TO BE USED ONLY FOR REFERENCE OF THE EXISTING NEUTRAL AIR UNIT DUCTS AND AIR DISTRIBUTION. McCLURE ENGINEERING MAKES NO PROMISES TO THE ACCURACY OR MECHANICAL DESIGN INTENT OF THESE DRAWINGS. THE OWNER IS RESPONSIBLE FOR BALANCING DIFFUSERS.

**PARKER HALL  
FIRST FLOOR PLAN - MECHANICAL**

SCALE



Condition	Percentage of correct responses
0	85
2	95
4	100

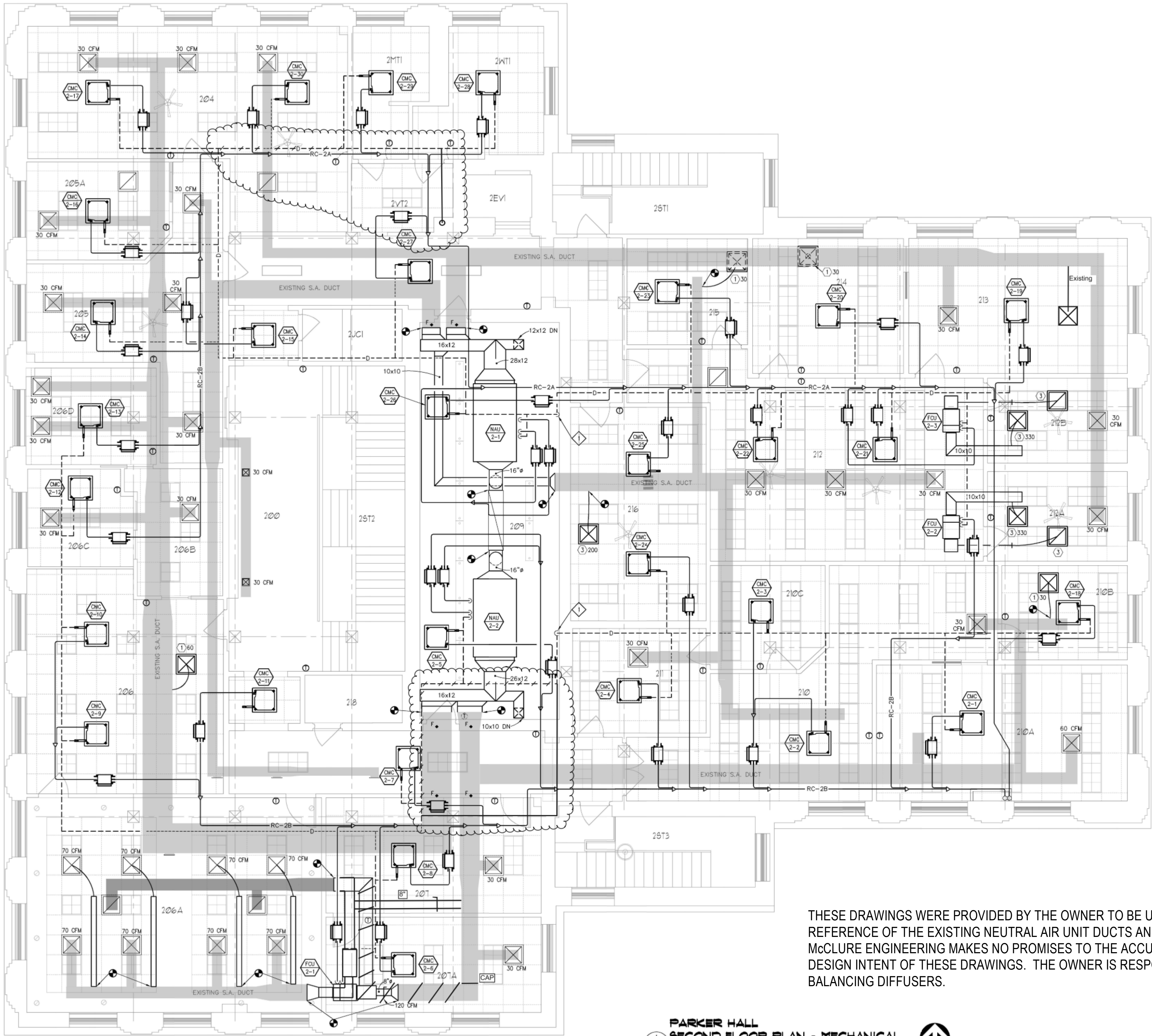
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8/16/2021 2:57:45 PM

NOT FOR  
CONSTRUCTION





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GENERAL NOTES:

- A. COORDINATE WITH ALL TRADES PRIOR TO ANY WORK. CMC'S SHALL BE ABLE TO BE REMOVED FROM CEILING. ALLOW MINIMUM 18" CLEAR SPACE AT ACCESS PANELS FOR SERVICING.
- B. SEE VRF PIPING DIAGRAM SHEET FOR ALL REFRIGERANT PIPE SIZES AND BRANCH SELECTORS.
- C. SEE AIR DEVICE SCHEDULE FOR ALL FLEX/DUCT SIZES.
- D. SEE CMC DETAIL ON DETAIL SHEET FOR ALL PIPING, CONTROLS AND DUCT CONNECTIONS.
- E. ALL CONDENSATE DRAIN PIPING SHALL BE 1/2" UNLESS OTHERWISE NOTED.
- F. ALL FIRE DAMPERS SHOWN ON PLANS ARE NEW. INSTALL IN EXISTING AND NEW DUCTWORK.

KEYED NOTES:

- 1/2" DRAIN DOWN TO FLOOR DRAIN.

PARKER HALL  
SECOND FLOOR PLAN - MECHANICAL



As-built Drawings  
Environmental Engineering Inc.  
10/6/14

REV	DATE	DESCRIPTION	APPD

THESE DRAWINGS WERE PROVIDED BY THE OWNER TO BE USED ONLY FOR REFERENCE OF THE EXISTING NEUTRAL AIR UNIT DUCTS AND AIR DISTRIBUTION. McCLURE ENGINEERING MAKES NO PROMISES TO THE ACCURACY OR MECHANICAL DESIGN INTENT OF THESE DRAWINGS. THE OWNER IS RESPONSIBLE FOR BALANCING DIFFUSERS.

STATE OF MISSOURI  
Professional Engineer  
No. 115-115  
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Fax: (314) 832-3340

PROJECT NAME:  
MISSOURI UNIVERSITY  
OF SCIENCE & TECHNOLOGY  
S&T  
1870 Miner Circle · Rolla, MO 65409

DRAWING TITLE:  
PARKER HALL  
SECOND FLOOR PLAN  
MECHANICAL

DATE ISSUED: 07/22/2013  
SCALE: 1/4"=1'-0"  
PROJ. NO.: 222673  
ENGINEER: DLH  
DRAWN BY: DSD  
CHECKED BY: DLH

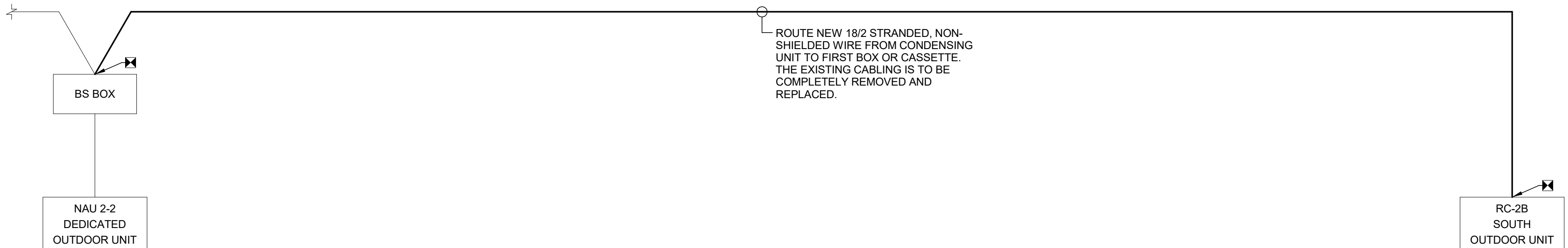
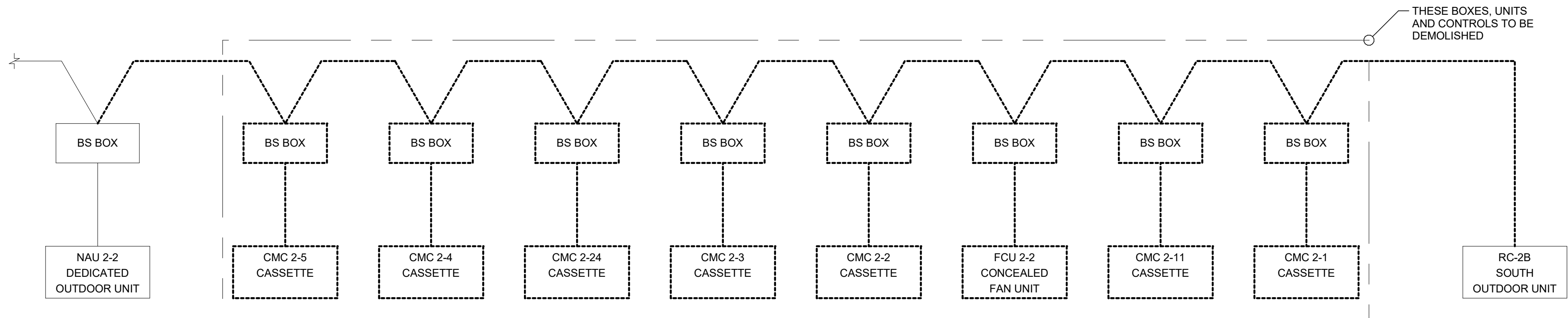
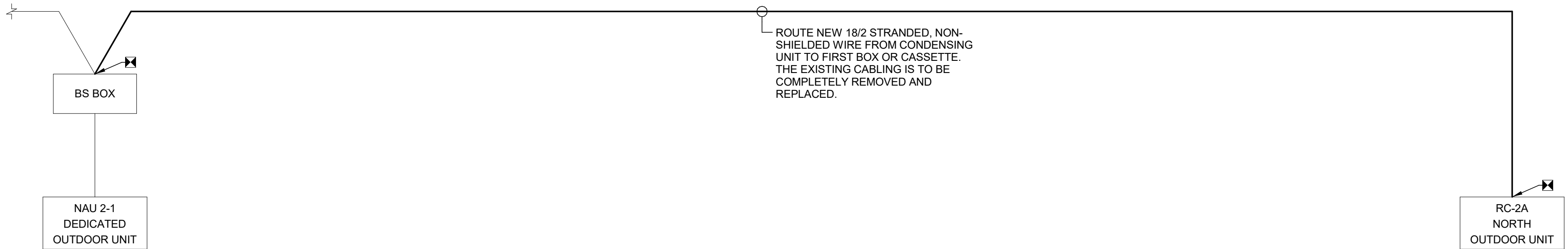
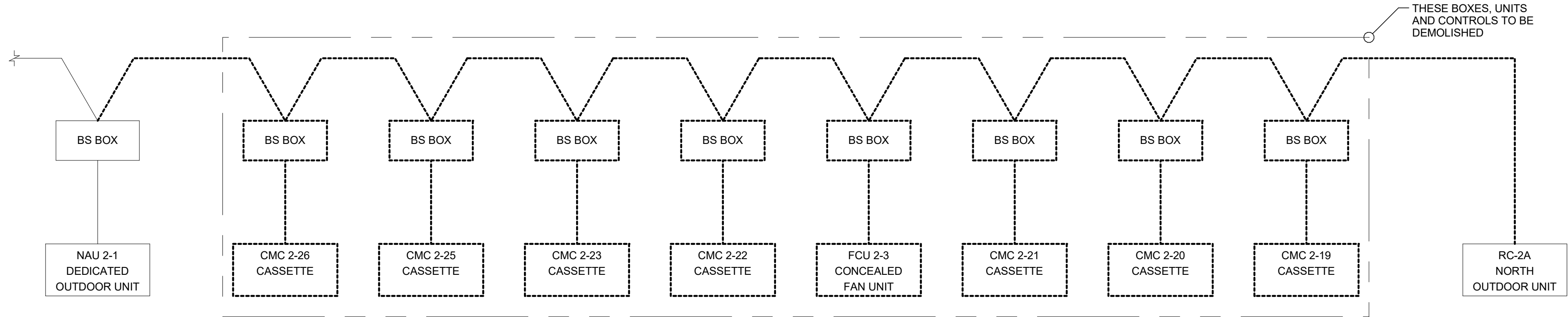
SHEET NO.:  
P-M2.2

Preliminary Construction Drawings for:

Kummer Foundation Executive Boardroom

Missouri S&T Job Number RC000488  
300 W. 13th Street  
Rolla, MO 65409

EXISTING SECOND FLOOR HVAC PLAN



NAU 2-1 SPACE AIRFLOW		
ROOM TAG	EXISTING AIRFLOW (CFM)	NEW AIRFLOW (CFM)
100	30	100
101	60	100
103B	60	80
103C	60	80
103D	30	45
103E	30	45
103F	30	45
106	60	60
106A	30	30
106B	40	40
106C	30	30
106D	30	30
200	60	200
204	30	60
205	30	65
NOTES: A. EXISTING ROOM NAMES ARE BASED ON THE EXISTING RECORD DRAWINGS PROVIDED IN THIS DRAWING PACKAGE.		

NAU 2-2 SPACE AIRFLOW		
ROOM TAG	EXISTING AIRFLOW (CFM)	NEW AIRFLOW (CFM)
1WT2	30	30
100	30	30
102	60	60
102A	30	30
102B	30	30
102C	30	30
103	120	150
103G	30	30
103H	30	30
204	60	60
205	90	90
205A	30	40
206	60	90
206A	120	150
206B	30	40
206C	30	40
206D	60	60
207	30	30
207A	30	30
NOTES: A. EXISTING ROOM NAMES ARE BASED ON THE EXISTING RECORD DRAWINGS PROVIDED IN THIS DRAWING PACKAGE.		

MECHANICAL, ELECTRICAL, AND PLUMBING EQUIPMENT COMPONENTS EARTHQUAKE LOAD RESISTANCE					Seismic Design Category: D			
					Seismic Site Class: D			
					Occupancy Category: III			
Listing of Equipment and System Components	Anchorage to Floors, Roofs, etc.		Sway Bracing		Location of Professionally Sealed Anchorage and Sway...		EXEMPTIONS	COMMENTS / NOTES
	Not Provided for Project	Provided for Project	Not Provided for Project	Provided for Project	On Const. Documents Drawing No. or Spec. Section	SUBSEQUENT SUBMITTAL Separate Permit & Plans		
<u>Piping Suspended From Structure:</u>								
Steel / Copper / Cast Iron / PVC - hangers ≤ 12"	X		X				4	
<u>(High Deformability Piping Systems)</u> <u>Welded, Brazed, Soldered and Flanged Steel and Copper Piping Suspended From Structure</u>								
Steel / Copper Piping - larger than 3" - hangers > 12"	X			X		X		
Steel / Copper Piping - 3" and smaller - hangers >...	X		X				4	
<u>(Limited Deformability Piping Systems)</u> <u>Threaded and Grooved Steel and Copper Pipin...</u>								
Steel / Copper Piping - larger than 3" - hangers > 12"	X			X		X		
Steel / Copper Piping - 3" and smaller - hangers >...	X		X				4	
<u>(Low Deformability Piping Systems)</u> <u>Cast Iron and Nonductile Plastic Piping Systems</u> <u>or Any System Joined with Cast Iron Fittings</u>								
Cast Iron / PVC Piping - hangers > 12"	X			X		X		

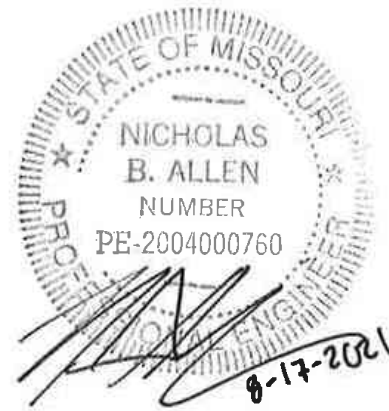
SEISMIC DESIGN REQUIREMENT EXEMPTIONS FOR MECHANICAL, ELECTRICAL, AND PLUMBING COMPONENTS	
1 - General Exemptions	Seismic Design Category A, B.
	Seismic Design Category C and the component importance factor IP = 1.0.
	Seismic Design Category D, E, or F, and the component importance factor IP = 1.0, and components have approved flexible connections no less than 3 ft in length to the associated ductwork, piping, and conduit, and the components are either: a. Mounted 4 ft or less above the floor level and weigh 400 lbs or less; or b. Weigh 20 lbs or less, or for distribution systems weighing 5lb/ft or less2.
2 - Light Fixture, Sign and Ceiling Fan Exemptions	Not connected to ducts or piping, supported by chains or otherwise suspended from the structure, provided all of the following criteria are met: a. The design load for such items shall be equal to 1.4 times the operating weight acting down with a simultaneous horizontal load equal to 1.4 times the operating weight. The horizontal load shall be applied in the direction that results in the most critical loading for design. b. Seismic interaction effects shall be considered per Section 13.2.3 of ASCE 7-10. c. The connection to the structure shall allow a 360 degree range of motion in the horizontal plane.
3 - Duct Exemptions	Ducts not part of hazardous exhaust systems or fire protection systems such as smoke control or evacuation systems when either: a. HVAC ducts suspended from hangers 12" or less in length; when rod hangers are used they shall be equipped with swivels to prevent inelastic bending in the rod; or b. HVAC ducts having a cross-sectional area of less than 6 ft2.
4 - Piping System Exemptions (not including piping systems installed per NFPA 13)	Piping or trapeze carrying pipes that are supported by rod hangers; hangers in the pipe/trapeze run are 12" or less in length from the top of the pipe/trapeze to the supporting structure; when rod hangers are used they shall be equipped with swivels, eyenuts, or other devices to prevent inelastic bending in the rod.
	Trapeze assemblies are used to support piping whereby no single pipe exceeds the limits set below under a, b or below. Note in order to use this exception, the total weight of the piping supported by the trapeze assembly shall be less than 10 lb/ft (all pipe sizes are nominal): a. 1" or less for Seismic Design Category D, E, or F, and IP > 1.0. b. 2" or less for Seismic Design Category C, and IP > 1.0. c. 3" or less for Seismic Design Category D, E, or F, and IP = 1.0.
	Piping constructed of high- or limited-deformability material (see Table 4.3) meeting the limits set below under a, b, or . Note: Provision shall be made to avoid the impact of the pipe with other structural or nonstrctural components or to protect the pipe in the event of a seismic impact. All pipe sizes are nominal a. 1" or less for Seismic Design Category D, E, or F, and IP > 1.0. b. 2" or less for Seismic Design Category C, and IP > 1.0. c. 3" or less for Seismic Design Category D, E, or F, and IP = 1.0.
5 - Gas Piping System Exemptions	All types of exterior gas piping installed on roofs in seismic design category C, D, E, or F, when such piping will supply gas under no more than 2 psi and is protected by one of the two following methods3,4: a. An approved seismic shut-off valve is installed within 5 ft of the beginning of the run of gas pipe on the roof, or other approved location; or b. Approved flexible piping no less than 3 ft in length is installed within 5 ft of the beginning of the run of gas pipe on the roof and at the connection to the equipment served by the pipe and at intervals along the run of no more than 42 ft.

Preliminary Construction Deawings for:

Kummer Foundation Executive Boardroom

Missouri S&T Job Number RC000488  
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Rolla, MO 65409

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SCHEDULES



Job: 27121172.00

M6.00

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No. Description Date  
1 ISSUED FOR BID 8/17/2021



ELECTRICAL SYMBOLS

LIGHTING FIXTURES

	LIGHTING FIXTURE
	EMERGENCY LIGHTING FIXTURE
	DOWN LIGHT
	EMERGENCY DOWN LIGHT
	WALL WASH DOWN LIGHT
	EMERGENCY WALL WASH DOWN LIGHT
	EXIT SIGN CEILING MOUNTED, SHADING INDICATES ILLUMINATED FACE(S), SEE PLANS FOR ARROWS
	EXIT SIGN WALL MOUNTED, SHADING INDICATES ILLUMINATED FACE(S), SEE PLANS FOR ARROWS
	EXIT SIGN WALL END MOUNTED, SHADING INDICATES ILLUMINATED FACE(S), SEE PLANS FOR ARROWS
	TRACK LIGHT - SEE PLANS FOR LENGTHS

LIGHT FIXTURE SYMBOLS VARY - SEE LUMINAIRE SCHEDULE

LIGHTING CONTROL

	WALL SWITCH +48" AFF
	CEILING MOUNTED OCCUPANCY SENSOR
	CEILING MOUNTED WIRELESS OCCUPANCY SENSOR
	CEILING MOUNTED DAYLIGHT SENSOR
	CEILING MOUNTED WIRELESS DAYLIGHT SENSOR
	PHOTOCELL, WALL OR CEILING MOUNTED
	LIGHTING TRANSFER SWITCH, BYPASSES CONTROL, MOUNTED ABOVE ACCESSIBLE CEILING SPACE
	LIGHTING TRANSFER SWITCH, SWITCHES POWER SOURCE, MOUNTED ABOVE ACCESSIBLE CEILING SPACE
	LIGHTING CONTACTOR
	CEILING MOUNTED PARTITION WALL SENSOR, PARTITION CLOSED BREAKS LINE OF SIGHT BETWEEN 2 SENSORS
	1 ZONE 0-10V LIGHTING CONTROLLER
	2 ZONE 0-10V LIGHTING CONTROLLER
	3 ZONE 0-10V LIGHTING CONTROLLER
	1 ZONE FORWARD PHASE LIGHTING CONTROLLER
	2 ZONE FORWARD PHASE LIGHTING CONTROLLER
	1 ZONE REVERSE PHASE LIGHTING CONTROLLER
	1 ZONE ON/OFF LIGHTING CONTROLLER
	2 ZONE ON/OFF LIGHTING CONTROLLER

LIGHTING CONTROL SUBSCRIPT TAGS

* =	BLANK = SINGLE POLE TOGGLE SWITCH
3	3-WAY TOGGLE SWITCH
4	4-WAY TOGGLE SWITCH
CP	ROOM CONTROL PANEL
CS#	DIGITAL LIGHTING CONTROL STATION # = NUMBER OF BUTTONS, UP TO 8
D	DIMMER
3D	3-WAY DIMMER SWITCH
DT	DIGITAL TIMER
K	KEY OPERATED TOGGLE SWITCH
LV	LOW VOLTAGE MOMENTARY SWITCH
LVD	LOW VOLTAGE SWITCH WITH DIMMER
OS	OCCUPANCY SENSOR
OSD	OCCUPANCY SENSOR WITH DIMMER
PL	PILOT LIGHTED TOGGLE SWITCH
R	RELAY SWITCH, SINGLE POLE DOUBLE THROW CENTER OFF MOMENTARY SWITCH
SHC	SHADE CONTROLLER
SPC	FAN SPEED CONTROLLER
T	MANUAL TIMER SWITCH
VS	VACANCY SENSOR
VSD	VACANCY SENSOR WITH DIMMER
WL	WIRELESS
DEVICE HEIGHTS AS ABOVE UNLESS OTHERWISE NOTED ON DRAWINGS.	

RECEPTACLES

	SINGLE CONVENIENCE OUTLET, RECESSED WALL MOUNTED +18" AFF
	DUPLEX CONVENIENCE OUTLET, RECESSED WALL MOUNTED +18" AFF
	DUPLEX CONVENIENCE OUTLET, RECESSED WALL MOUNTED AT +44" AFF, UNLESS OTHERWISE NOTED
	DUPLEX RECEPTACLE WITH ONE SWITCHED BOSS, CONTROLLED BY CEILING OCC SENSOR IN ROOM RECESSED WALL MOUNTED +18" AFF
	CEILING MOUNTED OCCUPANCY SENSOR FOR CONTROL OF SWITCHED RECEPTACLES
	SWITCHED DUPLEX RECEPTACLE, CONTROLLED BY SWITCHED CIRCUIT, RECESSED WALL MOUNTED +18" AFF
	DOUBLE DUPLEX CONVENIENCE OUTLET, RECESSED WALL MOUNTED +18" AFF
	DOUBLE DUPLEX CONVENIENCE OUTLET, RECESSED WALL MOUNTED ABOVE COUNTER +44" AFF
	DUPLEX RECEPTACLE, RECESSED CEILING MOUNTED
	SPECIAL PURPOSE OUTLET, RECESSED WALL MOUNTED +18" AFF SEE PLAN FOR SIZE
	DUPLEX RECEPTACLE, RECESSED FLOOR MOUNTED
	DOUBLE DUPLEX RECEPTACLE, RECESSED FLOOR MOUNTED
	DEAD FRONT GFI DEVICE +18" AFF, PROTECTS DOWNSTREAM DEVICE
	JUNCTION BOX WITH FINISHED BLANK COVER
	POWER POLE WITH DEVICES - FLOOR TO CEILING

RECEPTACLE SUBSCRIPT TAGS

CR	CORD REEL, SUPPORTED FROM STRUCTURE SUPPLIED BY FURNITURE MANUFACTURER, INSTALLED AND CONNECTED BY E.C.
F	F
G	GROUND FAULT CIRCUIT INTERRUPTING HORIZONTALLY ORIENTED
H	HOSPITAL GRADE
HG	HOSPITAL GRADE
IG	ISOLATED GROUND
P	'DOWNSTREAM PROTECTED' BY GFCI DEVICE ON SAME CIRCUIT
TR	TAMPER RESISTANT
U	DUPLEX WITH 2 USB PORTS
WP	WEATHERPROOF COVER
WPI	WEATHERPROOF 'WHILE IN USE' COVER
WR	WEATHER RESISTANT
DEVICE HEIGHTS AS ABOVE UNLESS OTHERWISE NOTED ON DRAWINGS.	

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
ARC	ALUMINUM RIGID CONDUIT
AUX	AUXILIARY
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
COF	CENTER OF FIXTURE
CU	COPPER
EC	ELECTRICAL CONTRACTOR
EMT	ELECTRICAL METALLIC TUBING
EW	ELECTRIC WATER COOLER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRC	GALVANIZED RIGID CONDUIT
GRD	GROUND
IMC	INTERMEDIATE METAL CONDUIT
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
NC	NORMALLY CLOSED
NF	NON FUSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
PVC	PVC CONDUIT
TOF	TOP OF FIXTURE
UCR	UNDER CABINET RECESSED
UNO	UNLESS NOTED OTHERWISE
WP	WEATHERPROOF

COMMUNICATION DEVICES

	COMMUNICATIONS OUTLET, RECESSED WALL MOUNTED AT 18" AFF. SEE PLANS FOR NUMBER OF AND TYPES OF JACKS
	COMMUNICATIONS OUTLET, RECESSED WALL MOUNTED AT 44" AFF. SEE PLANS FOR NUMBER OF AND TYPES OF JACKS
	COMMUNICATIONS OUTLET, RECESSED FLOOR MOUNTED. SEE PLANS FOR NUMBER OF AND TYPES OF JACKS
	COMMUNICATIONS OUTLET, RECESSED IN CEILING OR SURFACE AT STRUCTURE. SEE PLANS FOR NUMBER OF AND TYPES OF JACKS
COMMUNICATIONS SUBSCRIPT TAGS	
* =	AOR AREA OF REFUGE INTERCOM STATION
CAM	CAMERA ROUGH-IN
D	DATA
F	SUPPLIED BY FURNITURE MANUFACTURER, INSTALLED AND CONNECTED BY E.C.
ICS	INTERCOM
M	INTERCOM CALL-IN STATION
M	MICROPHONE
T	TELEPHONE
TV	TELEVISION
WAP	WIRELESS ACCESS POINT
DEVICE HEIGHTS AS ABOVE UNLESS OTHERWISE NOTED ON DRAWINGS.	
	PUSH-BUTTON RECESSED WALL MOUNTED +48" AFF
	MUSHROOM HEAD/EMERGENCY PUSH BUTTON RECESSED WALL MOUNTED +48" AFF
	SPEAKER RECESSED CEILING MOUNTED
	SPEAKER, WALL MOUNTED - REFER TO AUDIO/VISUAL DETAIL SHEET
	SPEAKER VOLUME CONTROL RECESSED WALL MOUNTED +54" AFF
	PROGRAM BELL WALL MOUNTED +90" AFF
	CLOCK WALL MOUNTED +90" AFF
	CLOCK OUTLET WALL MOUNTED +90" AFF
	SOUND MASKING SPEAKER, CHAIN HUNG ABOVE CEILING
	SOUND MASKING SYSTEM OPERATING PLATFORM, SECURED TO STRUCTURE AT 11'-0" AFF
	SOUND MASKING SYSTEM POWER SUPPLY, WALL MOUNTED AT 8'-0" AFF

MOUNTING HEIGHTS

ALL MOUNTING HEIGHTS ARE AS GIVEN UNLESS OTHERWISE NOTED ON PLANS.  
ALL MOUNTING HEIGHTS ARE TO CENTER OF DEVICE UNLESS OTHERWISE NOTED.

WIRING SYMBOLS

	CONDUIT DOWN
	CONDUIT UP
	CONDUIT CAPPED
	CONDUIT BREAK/CONTINUED
	CONDUIT STUB WITH GROMMET
	EXISTING
	DEMOLITION WORK
	NEW WORK
	CONDUIT CONCEALED IN SLAB OR IN ACCESSIBLE SPACE BELOW
	CONDUIT EXPOSED
	CONDUIT CONCEALED IN WALL OR ABOVE CEILING
	WIREWAY / WIREMOLD
	WIREMOLD WITH DUPLEX RECEPTACLE (DUPLEX RECEPTACLE SYMBOL INDICATES MOUNTING HEIGHT, +18" AFF SHOWN) UNO
	DIVIDED WIREMOLD WITH DATA/TELEPHONE (TOP CELL) AND DUPLEX RECEPTACLE (BOTTOM CELL) OUTLETS AS INDICATED (DEVICE SYMBOLS INDICATES MOUNTING HEIGHT, +44" AFF SHOWN) UNO
	VERTICAL WIREWAY
	CABLE TRAY
	CONDUIT SLEEVE (SIZED TO 40% FILL, 2" MINIMUM) UNLESS NOTED OTHERWISE

POWER EQUIPMENT

	SINGLE SECTION PANELBOARD
	TWO SECTION PANELBOARD
	DISTRIBUTION PANEL
	SWITCHBOARD
	PAD MOUNTED TRANSFORMER, SEE PLAN FOR TYPE AND SIZE
	AUTOMATIC TRANSFER SWITCH
	FACTORY WIRE CONTROL PANEL
	VARIABLE FREQUENCY DRIVE
	SINGLE PHASE MANUAL MOTOR STARTER WITH PILOT LIGHT
	RELAY IN BOX
	DISCONNECT SWITCH
	MAGNETIC STARTER 1 PHASE
	COMBINATION MAGNETIC STARTER/ MAGNETIC STARTER 3 PHASE
	DISCONNECT SWITCH 3 PHASE
	LINE VOLTAGE THERMOSTAT
	208V, 3 PHASE MOTOR
	480V, 3 PHASE MOTOR
	120V, 1 PHASE MOTOR
	208V, 1 PHASE MOTOR
	DC MOTOR
	GROUND BUS BAR AT 18" AFF
	CONTACTOR AT 48" AFF

SECURITY

	DOOR CONTACT/DOOR POSITION
	DOOR POSITION SENSOR
	DOOR UNLOCK ILLUMINATED SELECTOR SWITCH
	CARD READER
	CAMERA WALL MOUNTED +9'-0" AFF F=FIXED, PTZ=PAN-TILT-ZOOM
	CAMERA CEILING MOUNTED F=FIXED, PTZ=PAN-TILT-ZOOM
	MOTION DETECTOR
	LONG RANGE MOTION DETECTOR
	MAGNETIC LOCK
	EXIT REQUEST
	ELECTRIC STRIKE
	CCTV VIDEO MONITOR
	PANIC BUTTON
	EXIT ALARM
	ELECTRIC EXIT
	DELAY EGRESS
	KEY SWITCH
	NUMERIC KEYPAD
	POWER TRANSFER
	TEMPERATURE SENSOR
	GLASS BREAKAGE DETECTOR

FIRE ALARM

	PULL STATION WALL MOUNTED +48" AFF
	ALARM BELL, WALL MOUNTED +80" AFF TO BOTTOM
	ALARM HORN, WALL MOUNTED +80" AFF TO BOTTOM
	FIRE ALARM HORN, CEILING MOUNTED
	COMBINATION ALARM HORN AND VISUAL DEVICE WALL MOUNTED +80" AFF TO BOTTOM ## = INTENSITY OF STROBE
	COMBINATION ALARM HORN AND VISUAL DEVICE CEILING MOUNTED, ## = INTENSITY OF STROBE
	ALARM SPEAKER, WALL MOUNTED +80" AFF TO BOTTOM
	ALARM SPEAKER, CEILING MOUNTED
	COMBINATION ALARM SPEAKER AND VISUAL DEVICE WALL MOUNTED +80" AFF TO BOTTOM ## = INTENSITY OF STROBE
	COMBINATION ALARM SPEAKER AND VISUAL DEVICE CEILING MOUNTED, ## = INTENSITY OF STROBE
	VISUAL DEVICE, WALL MOUNTED +80" AFF TO BOTTOM ## = INTENSITY OF STROBE
	VISUAL DEVICE, CEILING MOUNTED ## = INTENSITY OF STROBE
	FIRE FIGHTER'S TELEPHONE JACK
	FIRE ALARM RELAY
	CARBON MONOXIDE DETECTOR
	MAGNETIC DOOR HOLD-OPEN
	MAGNETIC DOOR HOLD-OPEN WITH BUILT IN SMOKE DETECTOR
	HEAT DETECTOR FIXED TEMPERATURE
	HEAT DETECTOR RATE OF RISE
	WATER FLOW SWITCH
	TAMPER SWITCH
	FIRE ALARM SIGNAL EXTENDER / POWER SUPPLY
	SMOKE DETECTOR
	SMOKE DETECTOR WITH RELAY BASE
	SMOKE DETECTOR WITH SOUNDER BASE
	SMOKE DETECTOR DUCT MOUNTED
	REMOTE TEST SWITCH - CEILING MOUNTED
	REMOTE TEST SWITCH - NON-CEILING MOUNTED
	SMOKE DETECTOR DUCT MOUNTED WITH RELAY BASE
	MOTORIZED SMOKE DAMPER
	FIRE ALARM CONTROL MODULE
	FIRE ALARM MONITOR MODULE
	FIRE ALARM DUAL MONITOR MODULE
	POWER SUPERVISION RELAY
	MOTORIZED SMOKE DAMPER
	FIRE ALARM CONTROL PANEL
	FIRE ALARM ANNUNCIATOR
	END OF LINE RESISTOR

BRANCH CIRCUITNG LEGEND

	PANEL DESIGNATION
	CIRCUIT NUMBERS TO SINGLE POLE 20 AMP CB UNLESS OTHERWISE NOTED
	NEUTRALS
	GROUND
NOTE: HASH MARKS INDICATE #12 AWG CONDUCTORS IN 3/4" CONDUIT UNLESS OTHERWISE NOTED. SEE FLOOR PLANS AND SCHEDULES FOR OTHER FEEDER CONDUCTORS AND CONDUIT SIZES.	
20A BRANCH CIRCUIT HOMERUNS SHALL BE SIZED AS FOLLOWS: 120V: 0-100 FEET SHALL BE #12 AWG MINIMUM 101-200 FEET SHALL BE #10 AWG MINIMUM IN EXCESS OF 200 FEET SHALL BE #8 AWG MINIMUM 277V: 0-250 FEET SHALL BE #12 AWG MINIMUM IN EXCESS OF 250 FEET SHALL BE #10 AWG MINIMUM	
	LIGHT SWITCH
	VS
	a
	SWITCH GROUP OR RELAY NUMBER
	TYPE OF SWITCH
	FLOOR BOX
	2
	FB-B
	TYPE OF FLOOR BOX SEE FLOOR BOX SCHEDULE
	2D
	TYPE OF DATA JACK(S) SEE FLOOR BOX SCHEDULE
	POKE-THRU DEVICE
	PT-A
	DEVICE TYPE / CONFIGURATION SEE POKE-THRU DEVICE SCHEDULE
	MOUNTING HEIGHT
	+44" AFF
	NEMA 5-20R
	TYPE
	LIGHTING FIXTURE
	A
	2 b
	FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE)
	BRANCH CIRCUIT NUMBER
	SWITCH DESIGNATION OR RELAY NUMBER (ab) - INDICATES DUAL LEVEL SWITCHING (NO SUBSCRIPT) - INDICATES UNSWITCHED, OR CONTROLLED BY ONE SWITCH AT DOOR INTO THAT ROOM NL - INDICATES FIXTURE ON NIGHT LIGHT CIRCUIT
	RELAY FOR EMERGENCY OR NIGHT LIGHT OPERATION OF FIXTURE
	EL1 - 28
	EMERGENCY PANEL AND CIRCUIT NUMBER FOR RELAY
	DISCONNECT SWITCH
	WP
	WEATHER PROOF
	3P
	# OF POLES
	60A
	AMPERAGE RATING
	45AF
	FUSE SIZE (NF-NON FUSIBLE)
	MOTOR STARTER
	COMBINATION MAGNETIC STARTER/DISCONNECT SWITCH
	1'
	45AF
	STARTER SIZE
	FUSE SIZE (NF-NON FUSIBLE)
	S
	S1
	5W
	R1
	WATTAGE OF SPEAKER
	PUBLIC ADDRESS ZONE #
	NO NUMBER INDICATES ONE (1) CABLE/JACK PER OUTLET
	NUMBER OF CABLES/JACKS PER OUTLET
	T2D
	TYPE OF CABLES/JACKS PER OUTLET
	EXIT SIGN
	INDICATES DOUBLE FACE WITH ARROWS
	INDICATES WALL BRACKET MOUNTING
	INDICATES FACE SIDE WITH ARROWS

GRAY DESIGN GROUP

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Reviewed By: NICHOLAS GING

No.	Description	Date
1	DEMOLITION PACKAGE	8/17/2021

Preliminary Construction Drawings for:

Kummer Foundation Executive Boardroom

Missouri S&T Job Number: RC000488  
300 W. 13th Street  
Rolla, MO 65409

ELECTRICAL SYMBOLS AND ABBREVIATIONS

McCLURE ENGINEERING

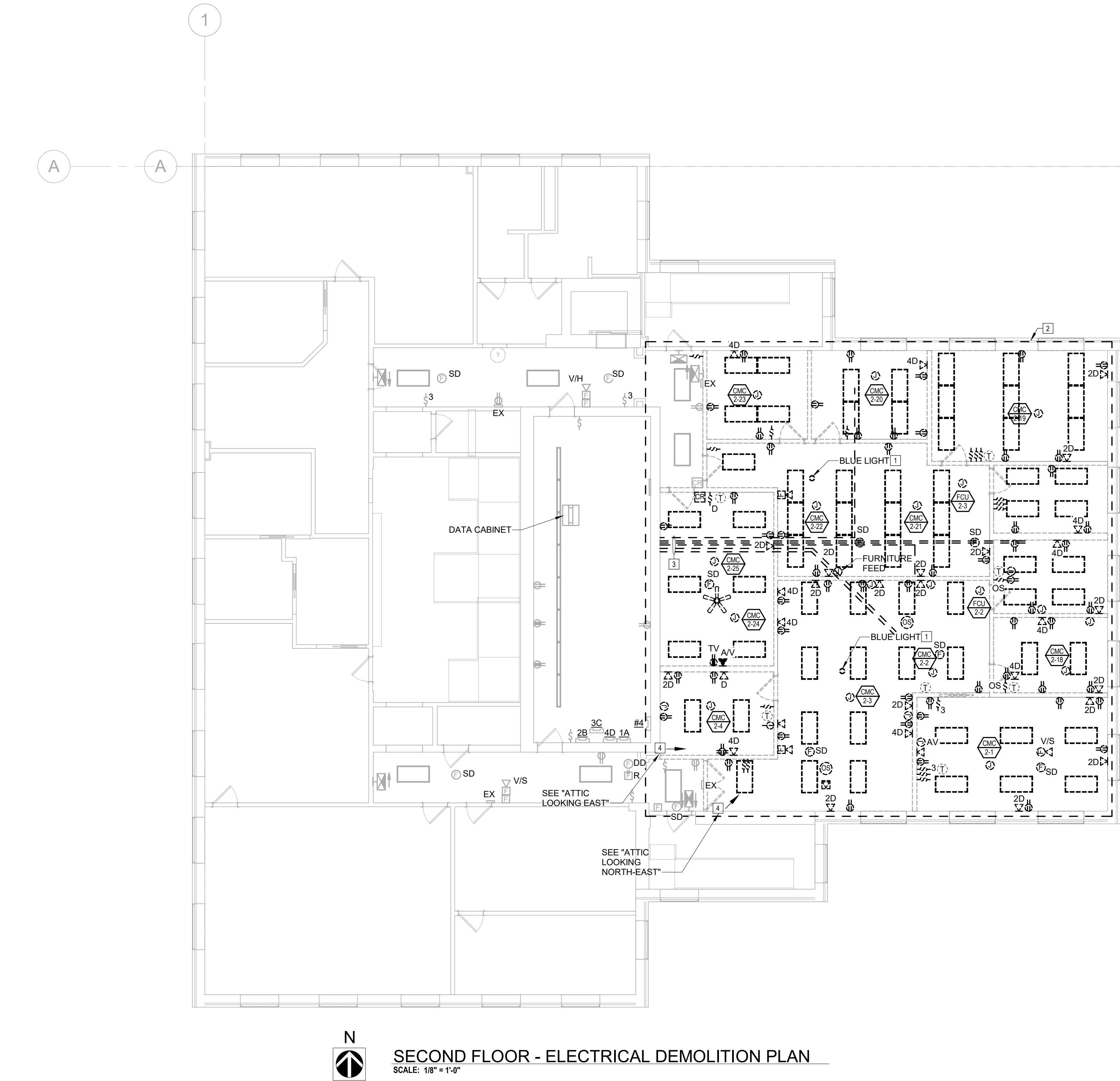
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GENERAL NOTES

1. ALL SYMBOLS SHOWN DASHED HEAVY ARE EXISTING ELECTRICAL DEVICES TO BE REMOVED OR HANDLED AS NOTED. ALL SYMBOLS SHOWN HALF-TONE LIGHT LINE ARE EXISTING ELECTRICAL DEVICES TO REMAIN. EXISTING ELECTRICAL DEVICES WHICH ARE TO REMAIN SHALL BE EXTENDED TO BE FLUSH WITH NEW FINISH OR FURRING ON EXISTING WALLS WHERE REQUIRED.
2. ALL EXISTING ELECTRICAL DEVICES IN A WALL THAT IS TO BE REMOVED; ELECTRICAL CONTRACTOR SHALL DISCONNECT POWER, CUT OFF CONDUCTORS AND CAP CONDUIT IN FLOOR OR CEILING AS REQUIRED. DEVICES ARE TO BE REMOVED ALONG WITH WALL BY GENERAL CONTRACTOR UNLESS OTHERWISE NOTED. IF CONDUIT AND CONDUCTORS CANNOT BE DEMOED BACK TO SOURCE, THE CAPPED CONDUITS AND CONDUCTORS SHALL BE LABELED WITH PANEL AND CIRCUIT IDENTIFICATION.
3. ALL EXISTING ELECTRICAL DEVICES TO BE REMOVED FROM WALLS WHICH ARE TO REMAIN; ELECTRICAL CONTRACTOR SHALL DISCONNECT POWER, REMOVE CONDUCTORS, REMOVE DEVICE AND PROVIDE BLANK COVERPLATES AS REQUIRED. UNLESS OTHERWISE NOTED.
4. FOR A PORTION OF A CIRCUIT WHICH IS REMOVED OR ABANDONED, RE-ESTABLISH CIRCUIT CONTINUITY FOR THE PORTION OF THE CIRCUIT WHICH IS TO REMAIN.
5. ALL EXISTING CONDUITS, RACEWAYS AND WIRING ROUTED IN EXISTING WALLS AND CEILING SPACES (WHICH ARE TO BE DEMOLISHED) WHICH SERVE OTHER AREAS SHALL BE REROUTED AS REQUIRED WITH PERMISSION OF OWNER.
6. PROVIDE AND INSTALL SUPPORTS FOR EXISTING CABLES AND CONDUITS ABOVE CEILINGS THAT ARE CURRENTLY UNSUPPORTED IN ALL AREAS WHERE CEILING IS BEING REMOVED.
7. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL DEMOLITION AND NEW WORK WITH OWNER AND OTHER TRADES.
8. ALL DEVICES TO BE DEMOED SHALL HAVE ALL CONDUIT, CONDUCTORS, AND SUPPORTS REMOVED BACK TO SOURCE.
9. DISCONNECT, REMOVE, AND RETURN ALL LIGHT FIXTURES TO OWNER.
10. DEMO DATA CABLES BACK TO CABINET ON THIS FLOOR UNLESS OTHERWISE NOTED. COORDINATE DATA DEMOLITION IN CABINET WITH OWNER.
11. DEMO ELECTRICAL CIRCUITS BACK TO PANELS LOCATED ON THIS FLOOR UNLESS OTHERWISE NOTED.
12. INSTALL SIX (6) HEAT DETECTORS SPACED EVENLY ON UNDERSIDE OF ROOF TO PROVIDE FIRE PROTECTION IN TEMPORARY SHELLED SPACE CREATED AT THE END OF DEMOLITION. FIRE ALARM PANEL LOCATED ON 1ST FLOOR.

KEYED NOTES

- 1 DISCONNECT BLUE LIGHT AND INSURE EXISTING BLUE LIGHT NOTIFICATIONS SYSTEM IS FULLY OPERATIONAL.
- 2 COORDINATE THE DEMOLITION OF THE EXISTING VRF MECHANICAL SYSTEM WITH MECHANICAL CONTRACTOR. RELOCATE, EXTEND, AND RECONNECT VRF SYSTEM CIRCUIT TO MAINTAIN CIRCUIT CONTINUITY TO REMAINING VRF EQUIPMENT SERVING THE 2ND FLOOR. ALL ADDITIONAL CONDUIT AND WIRE REQUIRED MUST BE ROUTED OUTSIDE THE DEMOLITION SCOPE OF WORK AREA.
- 3 DEMO ABANDONED CONDUIT AND TELECOM DEVICE AND WIRING BACK TO SOURCE IN BASEMENT.
- 4 DEMO ALL ABANDONED CONDUITS AND RE-SUPPORT ALL EXISTING CONDUITS AND WIRES IN ATTIC. COORDINATE ALL WORK WITH THE REMOVAL OF PLASTER CEILING.



ATTIC LOOKING EAST 4



ATTIC LOOKING NORTH-EAST 4

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1	DEMOLITION PACKAGE	8/17/2021

Preliminary Construction Drawings for:

Kummer Foundation Executive  
Boardroom  
Missouri S&T Job Number: RC000488  
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