MCC LONGVIEW COMMUNITY COLLEGE
METROPOLITAN COMMUNITY COLLEGE
500 SW LONGVIEW ROAD
LEE SUMMIT, MO 64081

Construction Documents

INDEX OF DRAWINGS

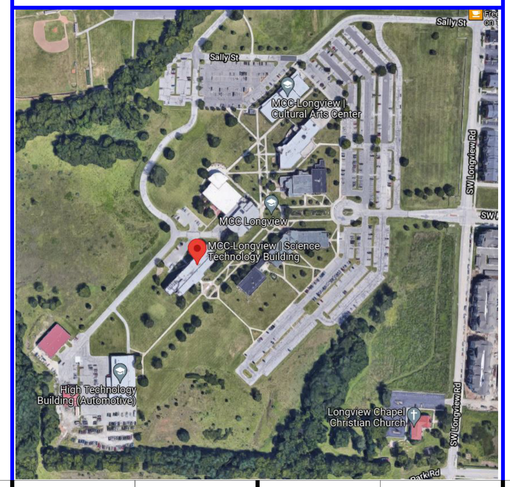
ALTERNATES

ALTERNATE 1: EXTERIOR WINDOWS

1. Base Bid: Do not provide the exterior windows shown. No exterior work except for new mechanical units and devices on the roof.
2. Add Alternate: Provide the exterior storefront windows as shown in the documents.

VICINITY MAP

SCIENCE AND TECHNOLOGY BUILDING



DESIGN TEAM

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MCC Longview Community College Lab Refresh
Metropolitan Community College
500 SW LONGVIEW ROAD,
LEE SUMMIT, MO - 64081

Construction Documents

REVISIONS:

#	Description	Date

STATE OF MISSOURI
JOHN GILBERT BROWN
NUMBER A-6538
REGISTERED ARCHITECT
10-6-23
John Gilbert Brown
A-6538

JOB NO: 23011.00
DRAWN BY: MC
CHECKED BY: AR/NY
DATE: 10/06/2023

G000

COVER SHEET

10/5/2023 8:17:27 AM

PROJECT INFORMATION

PROJECT NUMBER	23011.00
PROJECT NAME	MCC Longview Community College Lab Refresh
OWNER	Metropolitan Community College 500 SW Longview Rd Lee's Summit, MO 64081
AUTHORITY HAVING JURISDICTION	City of Lee's Summit, Missouri 220 SE Green Lee's Summit, MO 64063
RESPONDING FIRE SERVICE	Lee's Summit Fire Department
ANTICIPATED OCCUPANCY	8/1/2024 12:00:00 AM
ADOPTED CODES AND ORDINANCES	2018 International Building Code 2018 International Existing Building Code 2017 National Electric Code (NFPA 70) 2018 International Mechanical Code 2018 International Plumbing Code 2018 International Fuel Gas Code 2018 International Fire Code 2009 ICC A117.1 Accessible and Usable Buildings and Facilities

BUILDING INFORMATION

OCCUPANCY CLASSIFICATION:	Business, Group B (304.1)
CONSTRUCTION TYPE:	II-B (602.2, Non-combustible, non-protected) Renovation of existing structure
BUILDING HEIGHT:	
Allowable Height (Table 504.3):	75' above grade plane
Building Height:	Existing; 43' - 4"
Allowable Stories (Table 504.4):	4 stories above grade plane
Building Stories:	Existing; 3 stories
BUILDING AREA:	
Sprinkler qualifier (Table 506.2):	SM: Building 2 or more stories above grade plane with automatic sprinkler system
Allowable Area	69,000 without frontage increase, 362,250 with frontage.
Building Area	52,150 sf
OCCUPANCY SEPARATION:	No separation requirement (Table 508.4)
FIRE RESISTANCE RATINGS:	(Per Table 601, 602)
Primary Structural Frame:	0-Hour fire-resistance rating
Exterior Bearing Walls:	0-Hour fire-resistance rating
Interior Bearing Walls:	0-Hour fire-resistance rating
Exterior Nonbearing Walls:	0-Hour fire-resistance rating
Interior Nonbearing Walls:	0-Hour fire-resistance rating
Floor Construction / Secondary Members:	0-Hour fire-resistance rating
Roof Construction / Secondary Members:	0-Hour fire-resistance rating
Fire Walls:	No fire walls
Fire Barriers:	No fire barriers
Fire Partitions:	No fire partitions
Smoke Barriers / Partitions:	No smoke barriers / partitions
Shafts:	No shaft enclosures

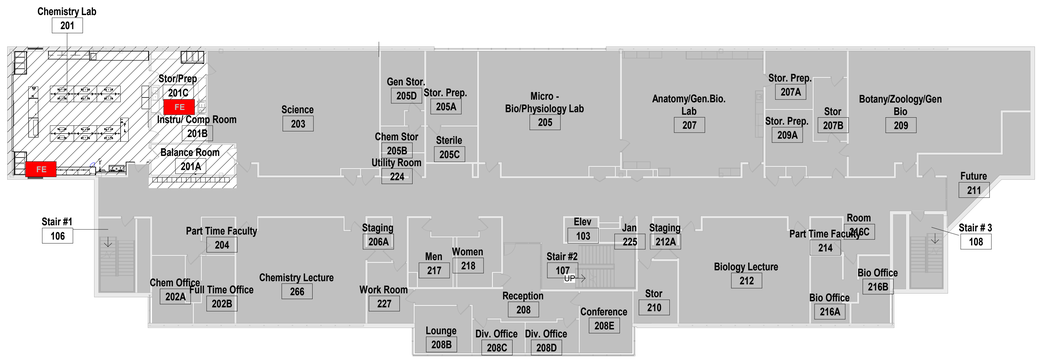
EGRESS COMPONENTS

NUMBER OF EXITS:	2 per space greater than 49 occupants (Table 1006.2.1) 3 per space with load 501 to 1,000; 4 per space over 1,000
DEAD-END CORRIDORS:	50' Max. with automatic sprinkler system in groups B, E, F, I-1, M, R-1, R-2, R-4, S, U (1020.4, Exception 2)
COMMON PATH OF TRAVEL:	100' (Table 1006.2.1)
TRAVEL DISTANCE TO EXIT:	250' Maximum for A, E, F-1, I-1, M, R, S-1 with sprinkler (Table 1017.2)
CORRIDOR CONSTRUCTION:	0-hour fire rating in A, B, E, F, I-2, I-4, M, S, U occupancies with sprinkler (1020.1)
CORRIDOR WIDTH:	44" minimum corridor width (Table 1020.2)
MEANS OF EGRESS CAPACITY:	0.2" for stairways (1005.3.1) / 0.15" for doors / other (1005.3.2) (sprinklered bldg)

FIRE SAFETY FEATURES

SPRINKLER:	Existing, Automatic sprinkler system provided throughout
FIRE ALARM SIGNALING:	Existing
EMERGENCY LIGHTING / POWER:	Existing
SMOKE CONTROL SYSTEM:	Existing

SHEET KEYNOTE LEGEND



MATH AND SCIENCE BUILDING - LEVEL 2

NO WORK ON OTHER FLOORS. NEW DOAS UNIT AND RELATED EXHAUST ON ROOF TO SERVE THIS CLASSROOM.
NO CHANGE TO OCCUPANCY, OCCUPANT LOAD, EXITING, OR SPATIAL CONFIGURATION.

PLAN NORTH TRUE NORTH

CODE NOTES

1. SCOPE OF PROJECT IS TO REPLACE EXISTING CASEWORK, FUME HOODS, AND RELATED COMPONENTS, 1:1.
2. NO CHANGE TO EXISTING OCCUPANT LOAD.
3. REFERENCE MECHANICAL AND STRUCTURAL SPECS AND DRAWINGS FOR RTU PLACEMENT AND SUPPORT.
4. FIRE EXTINGUISHERS AND RELATED EQUIPMENT HAVE ONLY BEEN VERIFIED IN ROOMS RECEIVING WORK.
5. ONLY ROOMS RECEIVING WORK HAVE BEEN VERIFIED.

CODE LEGEND

EXISTING BUILDING - NO WORK

EXISTING BUILDING - ALTERATION LEVEL 1
ALTERATIONS DO NOT INVOLVE SPACE RECONFIGURATION

FE — FIRE EXTINGUISHER:
ON BRACKET: MOUNT HANDLE 48" MAX AFF
IN CABINET: BOTTOM OF CABINET 32" AFF

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G021

OVERALL CODE PLAN

A1 Scale 1/16" = 1'-0" — Level 2 - Code Plan

16' 8' 0' 16'

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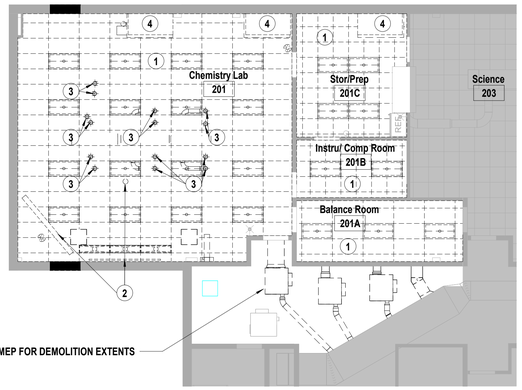


K1 | Scale 1/8" = 1'-0" | Level 2 - Demolition Ceiling Plan | PLAN NORTH | TRUE NORTH

SOUTH WALL, LOOKING PLAN WEST

LOOKING PLAN WEST

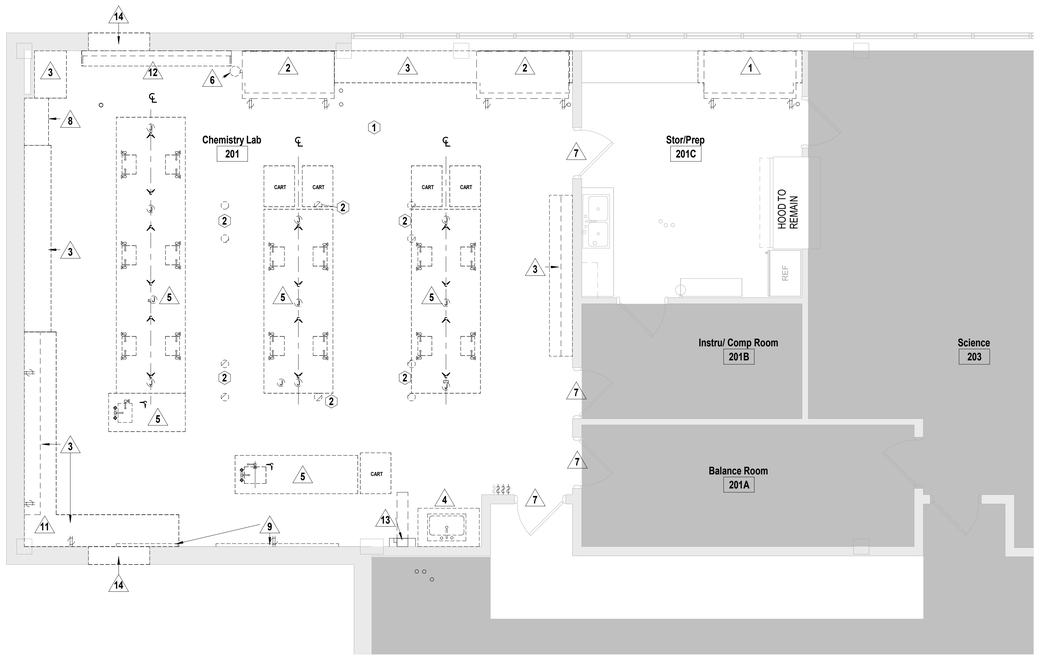
LOOKING PLAN NORTHWEST

NORTH WALL

LOOKING PLAN EAST

PREP 201C, PLAN NORTHEAST

K6 | Scale | Existing Images for Reference



A1 | Scale 1/4" = 1'-0" | Level 2 - Demolition | PLAN NORTH | TRUE NORTH

SHEET KEYNOTE LEGEND

DEMOLITION NOTES

FLOORS & BASE

1. REMOVE EXISTING BASE INCLUDING ADHESIVE. PREP FOR NEW BASE (ENTIRE ROOM).
2. REMOVE EXISTING CONCRETE SLAB AS REQUIRED FOR UNDER SLAB MECHANICAL, ELECTRICAL AND PLUMBING WORK. SAW CUT OR CORE CONCRETE PRIOR TO REMOVAL. DO NOT SAW CUT OR CORE INTO EXISTING FOUNDATIONS OR OTHER STRUCTURAL MEMBERS, SUCH AS EXISTING STRUCTURAL JOISTS. REF. STRUCT FOR FURTHER INFO. COORDINATE WITH MEP SHEETS FOR NEW WORK AND CAPPING OF ABANDONED SERVICES. ALL CORES, DEBRIS, AND SPOILS TO BE REMOVED.

WALLS

1. REMOVE EXISTING FUME HOOD AND RELATED CASEWORK, REFINISHING COUNTER AND END FACE WHERE CASEWORK REMAINS. PREP SPACE AS REQUIRED FOR NEW FUME HOOD AND BASES. REF MEP FOR FURTHER DIRECTION.
2. REMOVE EXISTING FUME HOOD AND RELATED COMPONENTS. REF MEP AND NEW PLANS FOR FURTHER DIRECTION.
3. REMOVE EXISTING CASEWORK, SHELVING, & RELATED COMPONENTS.
4. REMOVE EXISTING SINK AND BASE. REF MEP FOR FURTHER DIRCTION ON PLUMBING. RETAIN TOILET ACCESSORIES TO BE REINSTALLED.
5. REMOVE EXISTING LAB CASEWORK, SINKS, AND ALL RELATED FIXTURES. REF MEP FOR DIRECTION ON RELOCATION OR CAPPING OF WATER AND GAS LINES.
6. RELOCATED EXISTING FIRE EXTINGUISHER AS SHOWN ON NEW PLANS AND ELEVATIONS.
7. REMOVE EXISTING DOOR KNOB/HANDLE. REF DOOR HARDWARE SPECIFICATIONS FOR NEW HARDWARE AND DOOR FUNCTION.
8. REMOVE EXISTING EYEWASH AND SHOWER UNIT. REF MEP FOR FURTHER DIRECTION ON CAPPING/REUSE OF WATER LINE.
9. REMOVE EXISTING MARKERBOARDS/TACKBOARDS INCLUDING ADHESIVE AND BRACKETS.
10. REMOVE EXISTING PROJECTION SCREEN AND PROJECTOR.
11. EXISTING COUNTER TOP LAB EQUIPMENT TO BE RETURNED TO THE OWNER.
12. REMOVE EXISTING RAIL OF COAT HOOKS & SUPPORTS.
13. DEMO DISCONNECT PER MEP'S DIRECTIONS.
14. REF SECTIONS AND DETAILS ON A001 FOR DIRECTION ON CUTTING NEW OPENING FOR WINDOW.

CEILINGS

1. REMOVE EXISTING LAY-IN ACOUSTICAL TILE, SUSPENSION SYSTEM, AND LIGHTING FXITURES. EXISTING HANGER WIRE MAY BE REUSED FOR NEW SUSPENSION SYSTEM. REF MEP FOR ADDITIONAL DIRECTION ON FIXTURES AND CEILING DEVICES.
2. REMOVE EXISTING PROJECTOR AND PROJECTION SCREEN. VERIFY W/ OWNER IF ITEMS SHALL BE RETURNED OR DISPOSED OF.
3. REMOVE EXISTING ELEPHANT TRUNKS. REF MEP FOR FURTHER DIRECTION.
4. REF MEP FOR DUCT/ ADDITIONAL DEMOLITION INSTRUCTIONS AT DEMOLISHED FUME HOOD.

GENERAL

ALL TOILET ACCESSORIES (SOAP AND PAPER TOWEL DISPENSERS) TO BE REINSTALLED.

ALL WAPs, CEILING MOUNTED CAMERAS, CLOCKS, AND FIRE PROTECTION DEVICES TO BE REINSTALLED.

REFER TO MEP SHEETS FOR EXISTING PLUMBING, GAS, AND ELECTRICAL CONDUIT TO BE CAPPED

ALL EXISTING FIRE EXTINGUISHERS TO REMAIN. REF PLANS AND ELEVATIONS FOR ITEMS TO BE RELOCATED.

REPLACE ALL DAMAGED CEILING TILES IN AREAS WHERE CEILINGS ARE DISTUBED TO PERFROM OVERHEAD WORK.

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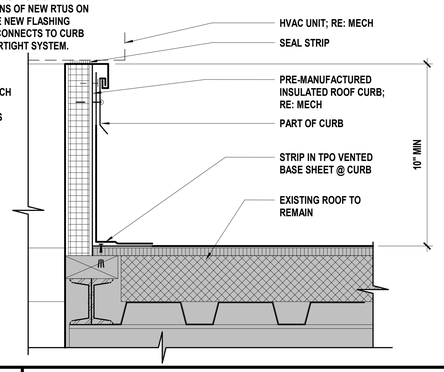
DA101

10/5/2023 9:17:30 AM

DEMOLITION PLAN - OVERALL LEVEL 2

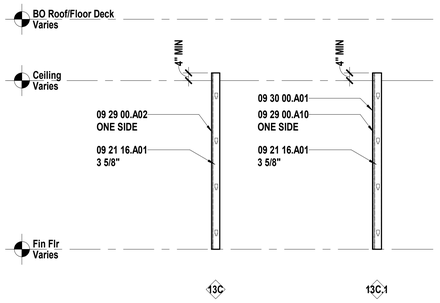
REF MECHANICAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF NEW RTUS ON EXISTING ROOF. PROVIDE NEW FLASHING WHERE EXISTING ROOF CONNECTS TO CURB FOR A COMPLETE, WATERTIGHT SYSTEM.

VERIFY EXISTING ROOF WARRANTY STATUS, MATCH MANUFACTURER, AND FOLLOW MANUF. DETAILS TO MAINTAIN WARRANTY.



N1 Scale 3" = 1'-0" — Premanufactured Curb @ Single Ply Roof

WALL TYPE LEGEND



SYMBOL LEGEND

- BRICK (in section)
- CONCRETE MASONRY UNIT - CMU (in section)
- CONCRETE (in section)
- GYP BD (in section)
- PLYWOOD (in section)
- RIGID INSUL & EIFS (in section)
- BATT INSUL (in section)
- ACOUSTICAL TILE (in section)
- STUCCO (in section)
- SOIL
- SAND
- CONTINUOUS LUMBER
- BLOCKING/SHIM
- FINISH LUMBER/ HARDWOOD
- STEEL OR METAL

Classroom A101 — RM NAME / RM NUMBER

A123 — DOOR NUMBER

A — WALL TYPE

A — FRAME TYPE

1 — GLASS TYPE

A10 / A000 — SECTION CUT LINE

A1 / N1 / A001 / E1 / J1 — ELEVATION SYMBOL / ELEV NUMBER / SHEET NUMBER

A9 / A120 — ENLARGED DETAIL

Joist Bearing 100'-0" — DATUM MARKER

AREA "A" / AREA "B"

MATERIAL JOINT

BUILDING EXPANSION JOINT

KEYNOTES

04 20 00.A31	METAL DRIP EDGES
04 20 00.A39	WEEP HOLE/VENT
06 10 00.A22	PRESERVATIVE TREATED PLYWOOD BLOCKING
06 20 23.A03	MOLDINGS - TRANSPARENT
07 27 26.A03	TRANSITION MEMBRANE
07 62 00.A35	PRE-FINISHED MISC METAL FLASHING
07 92 00.A01	SEALANT
07 92 00.A02	SEALANT W/BACKER ROD
08 41 13.A01	THERMAL BROKEN STOREFRONT FRAMING (4.5")
08 41 13.A21	ALUMINUM SUBSILL
09 21 16.A01	NON-STRUCTURAL FRAMING
09 29 00.A02	GYPSUM BOARD - TYPE X
09 29 00.A06	MOLD AND MOISTURE RESISTANT GYPSUM BOARD
09 29 00.A10	CEMENTITIOUS BACKER UNITS
09 30 00.A01	TILE
09 51 13.A01	ACOUSTICAL CEILING PANELS

ABBREVIATIONS

A

ACT	acoustical
ADJ	adjustable/adjacent
AFF	above finish floor
ALUM	aluminum
ALT	alternate
ANOD	anodized
APPROX	approximate(ly)
ARCH	architect(ural)

B

BLDG	building
BLKG	blocking
BM	beam
BOT	bottom of
BRG	bearing
BRKT	bracket
BTM	bottom
BSMT	basement
BTWN	between

C

CAB	cabinet
CC	center to center
CEM	cement(itious)
CG	corner guard
CJ	control joint
CLG	ceiling
CLR	clear(ance)
CM	contruction manager
CMU	concrete masonry unit
COL	column
CONC	concrete
CONST	construction
CONT	continuous
CTR	center
CY	cubic yard(s)

D

DF	drinking fountain
DIA	diameter
DIM	dimension(s)
DN	down
DS	downspout
DTL	detail
DWG	drawing

E

E	east
EA	each
EF	each face
EIFS	exterior insulation finish system
EJ	expansion joint
ELEC	electrical
ELEV	elevation
EQ	equal
EQUIP	equipment
ETR	existing to remain
EW	each way
EXIST	existing
EXP	expansion
EXT	exterior

F

FA	fire alarm
FD	floor drain
FND	foundation
FE	fire extinguisher
FEC	fire extinguisher cabinet
FF	finish floor
FH	fire hose
FIN	finish(ed)
FIXT	fixture
FLR	floor
FLEX	flexible
FOM	face of masonry
FOPC	face of precast
FOS	face of stud
FT (')	foot
FTG	footing
FV	field verify

G

GA	gauge
GALV	galvanized
GC	general contractor
GEN	general
GL	glass
GR	grade
GYP	gypsum
GYP BD	gypsum board

H

HC	handicapped
HD	head
HDWD	hardwood
HDWR	hardware
HM	hollow metal
HORIZ	horizontal
HR	hour
HT	height
HVAC	heating, ventilation & air conditioning

I

ID	inside diameter
IN (")	inch(es)
INDIV	individual
INFO	information
INSUL	insulation
INT	interior

J

JST	joist
JT	joint

K

KIT	kitchen

L

LKR	locker
LT	light

M

MAS	masonry
MATL	material
MAX	maximum
MB	markerboard
MECH	mechanical
MEP	mechanical/electrical/plumbing
MFR	manufacturer
MIN	minimum
MISC	miscellaneous
MO	masonry opening
MTD	mounted
MTG HT	mounting height
MTL	metal
MULL	mullion

N

N	north
NIC	not in contract
NO (#)	number
NOM	nominal
NRC	noise reduction coefficient
NTS	not to scale

O

OC	on center
OD	outside diameter
OTS	open to structure
OPNG	opening
OPP	opposite

P

PAR	parallel
PCP	portland cement plaster
PERP	perpendicular
PL	property line
PLBG	plumbing
PLYWD	plywood
PNL	panel
PR	pair
PREFAB	prefabricated
PTD	painted
PVC	polyvinyl chloride

R

RAD	radius
RD	roof drain
RE:	refer to
REINF	reinforcing (ed)
REV	reversed
REQ'D	required
RFG	roofing

S

S	south
SCHED	schedule
SECT	section
SF	square foot
SHT	sheet
SHWR	shower
SIM	similar
SPEC	specification
SQ	square
SSTL	stainless steel
STC	sound transmission coeficient
STD	standard
STL	steel
STRUCT	structure(al)
SUSP	suspend(ed)
SY	square yard
SYM	symmetrical

T

T&B	top & bottom
T&G	tongue & groove
TO	top of
TOC	top of curb
TOM	top of masonry
TOS	top of slab/steel
TOW	top of wall
TS	tube steel
TYP	typical

U

UNO	unless noted otherwise

V

VERT	vertical
VTR	vent thru roof

W

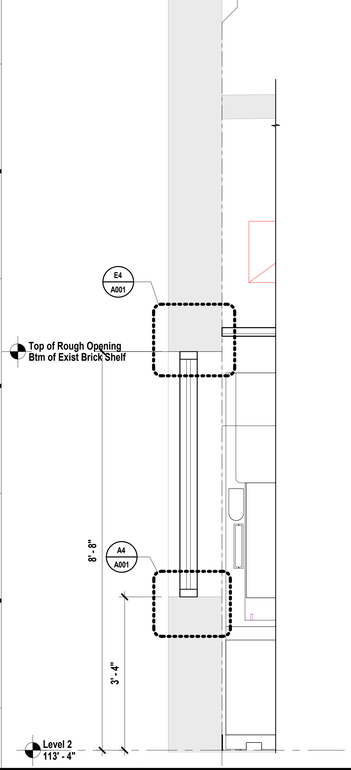
W	west
WD	wood
WDO	window
W/	with
W/O	without

Y

YD	yard

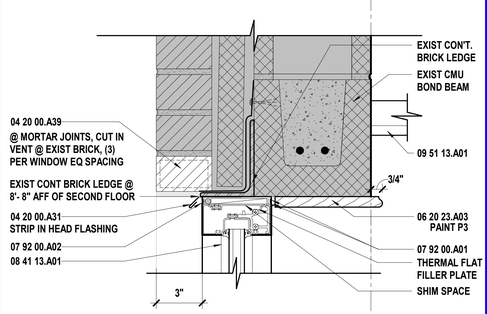
SYMBOLS

/	per (or by)
&	and
@	at
[	channel
℄	centerline
Ø	diameter/round
±	plus/minu

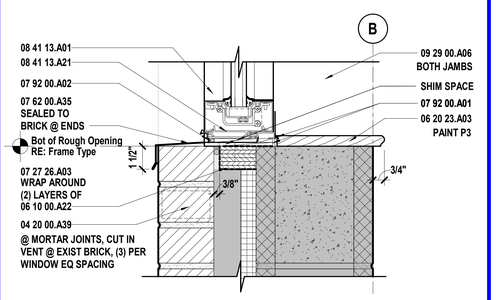


A1 Scale 3/4" = 1'-0" — Wall Section @ New Window Opening

NOTE: PRIOR TO CMU DEMOLITION, CONTRACTOR TO CONFIRM THE LOCATION OF THE RELIEF ANGLE AND BOND BEAM.



E4 Scale 3" = 1'-0" — Exterior Detail - Window Head @ New Opng



A4 Scale 3" = 1'-0" — Exterior Detail - Window Sill @ New Opng

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A001

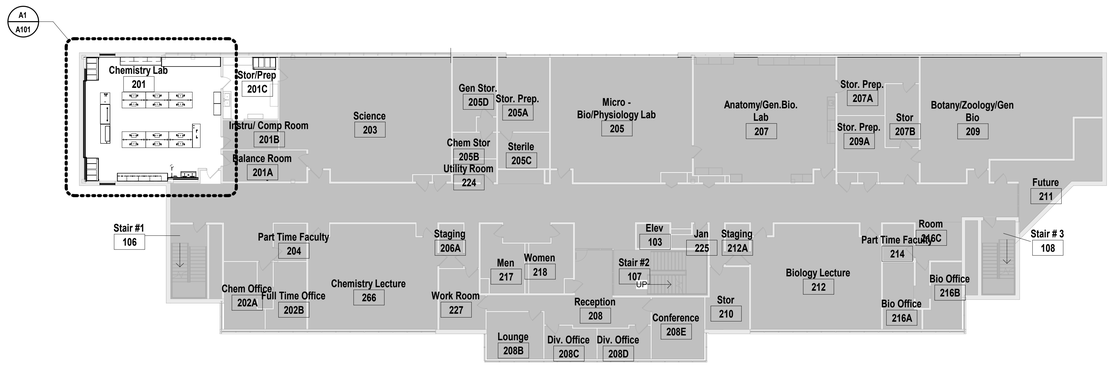
GENERAL ARCHITECTURAL INFORMATION

10/5/2023 9:17:31 AM

GENERAL NOTES:

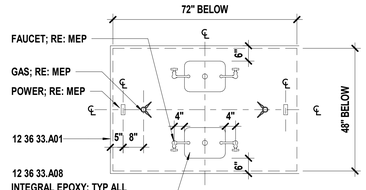
- FIELD VERIFY AND MATCH EXISTING CEILING HEIGHTS.
- REINSTALL ALL EXISTING CEILING MOUNTED DEVICES U.N.O.
- RE: MEP FOR ALL DEVICES TO BE DEMO'ED OR REINSTALLED.

M1 | Scale 1/8" = 1'-0" | Level 2 - Partial Ceiling Plan | PLAN NORTH | TRUE NORTH



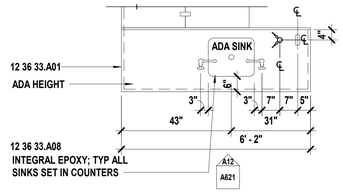
MATH AND SCIENCE BUILDING

PLAN NORTH | TRUE NORTH



GENERAL NOTE: COORD SPACING OF ALL COUNTER TOP ELEMENTS W/ CASEWORK MANUFACTURER AND STANDARD LAB FIXTURE REQUIREMENTS.

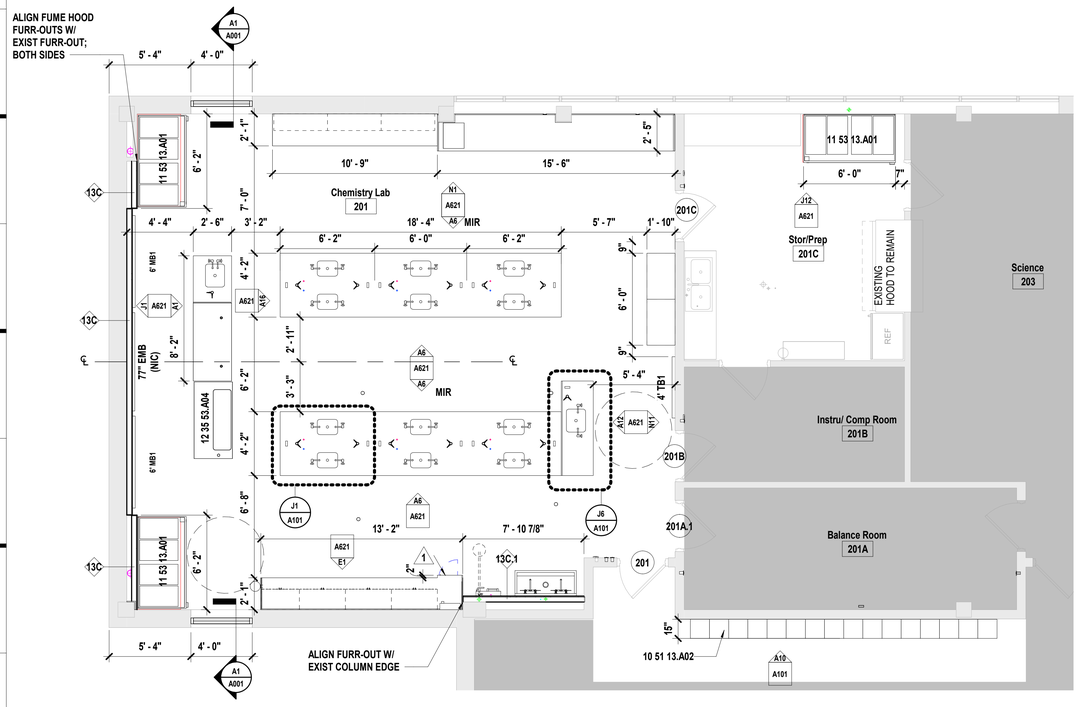
J1 | Scale 1/2" = 1'-0" | Enlarged Plan - Student Station Top Typ Module



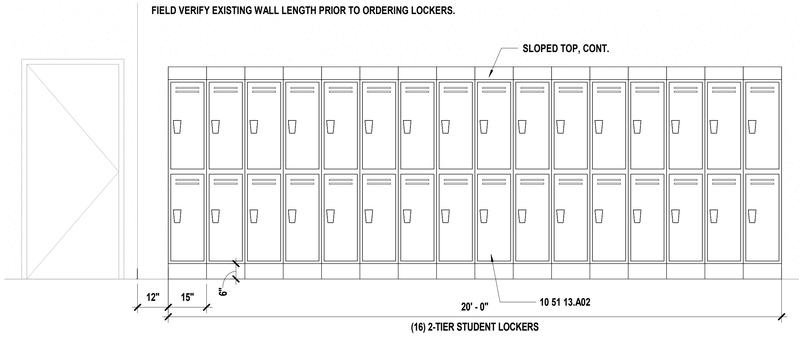
J6 | Scale 1/2" = 1'-0" | Enlarged Plan - Student Station ADA

SHEET KEYNOTE LEGEND

09 51 13.A01	ACOUSTICAL CEILING PANELS
10 51 13.A02	WELDED CORRIDOR LOCKERS
11 53 13.A01	LABORATORY FUME HOODS
12 35 53.A04	INSTRUCTORS DESK
12 36 33.A01	EPOXY RESIN COUNTERTOP
12 36 33.A08	EPOXY RESIN SINK



A1 | Scale 1/4" = 1'-0" | Level 2 - Chem 201 | PLAN NORTH | TRUE NORTH



A10 | Scale 1/2" = 1'-0" | Interior Elevation - Corridor Lockers

SHEET NOTES

1. REFER TO SHEET G000 FOR SHEET INDEX
2. DO NOT SCALE THIS DRAWING
3. ALL NEW INTERIOR WALLS ARE WALL TYPE 13C UNLESS NOTED OTHERWISE.
4. INTERIOR DIMENSIONS ARE TO THE FOLLOWING, UNLESS NOTED OTHERWISE:
   A. TO FACE OF STUD
   B. TO FACE OF MASONRY UNIT
   C. TO FACE OF DOOR AND WINDOW ROUGH OPENINGS
5. COORDINATE LOCATIONS WHERE BACKING IS REQUIRED FOR WALL HUNG CASEWORK, MARKERBOARDS, WALL HUNG ACCESSORIES AND TECHNOLOGY
6. "MIR" STANDS FOR MIRRORED LAYOUT.
7. COORDINATE WALL REPAIR AND INSTALLATION OF NEW DOORS AND WINDOWS WITH DEMOLITION SHEETS
8. COORDINATE FINISHES TO REMAIN WITH DEMOLITION SHEET
9. NEW STUDENT LAB CASEWORK AND DEMO STATION TO BE PLACED IN THE SAME LOCATION AS DEMOLISED CASEWORK.

1 VERIFY FULL DEPTH OF WATER BOX + ICE MAKER. COUNTER BUMPS OUT AND SHOULD HAVE 1" OVERHANG PLUS THE TOTAL DEPTH.

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Construction Documents

REVISIONS:

#	Description	Date

STATE OF MISSOURI
JOHN GILBERT BROWN
NUMBER A-6538
REGISTERED ARCHITECT
10-6-23
John Gilbert Brown
A-6538

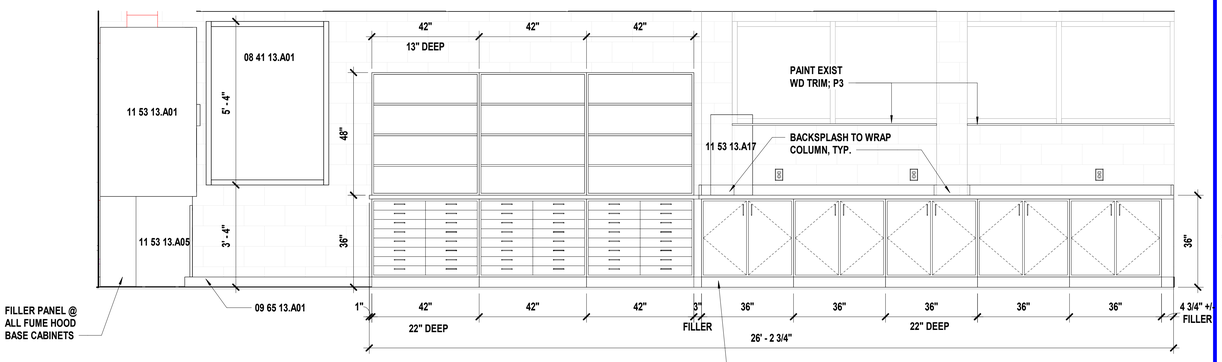
JOB NO: 23011.00
DRAWN BY: MC
CHECKED BY: AR/NY
DATE: 10/06/2023

A101

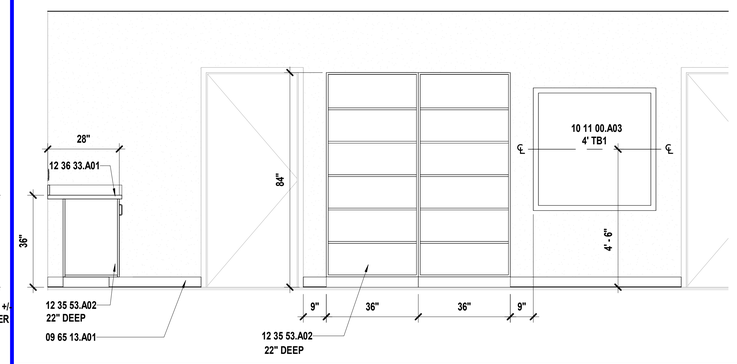
FLOOR & REFLECTED CEILING PLANS - LEVEL 2

10/5/2023 9:17:34 AM

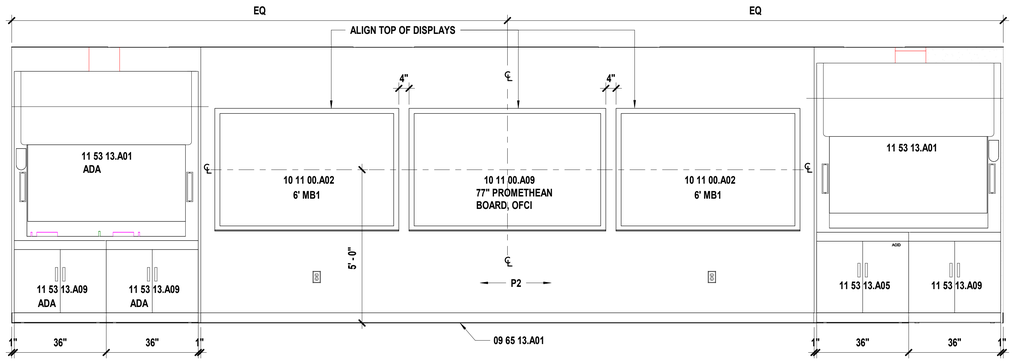
Please consider the environment before printing this.



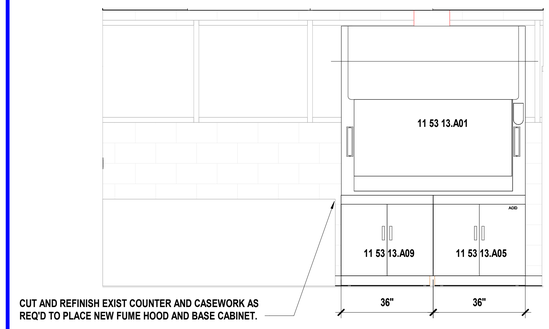
N1 Scale 1/2" = 1'-0" — Interior Elevation - 201 North



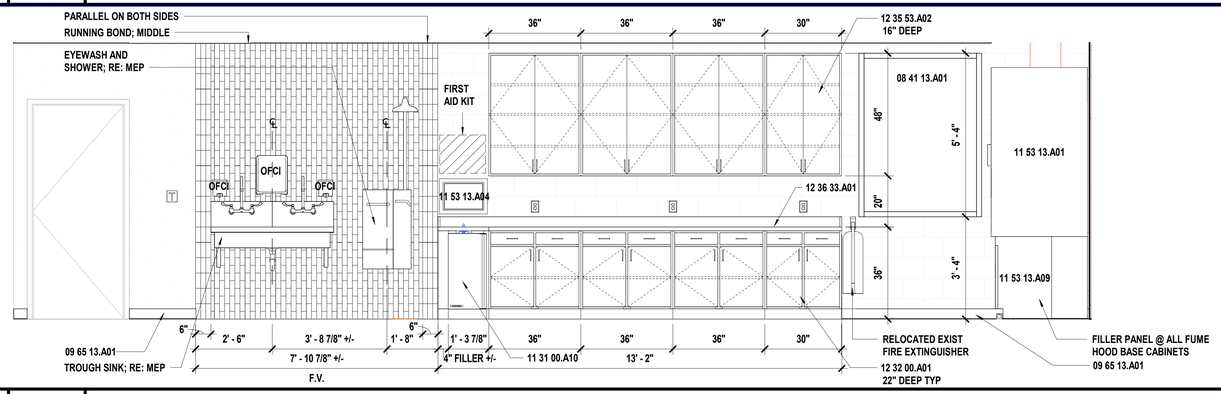
N11 Scale 1/2" = 1'-0" — Interior Elevation - 201 East



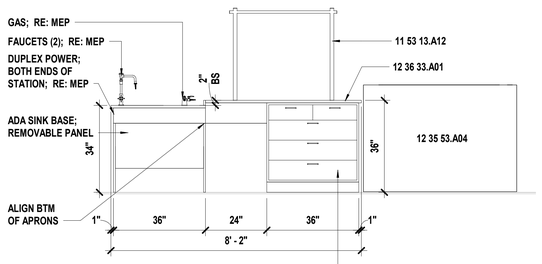
J1 Scale 1/2" = 1'-0" — Interior Elevation - 201 West



J12 Scale 1/2" = 1'-0" — Interior Elevation - Prep 201C North



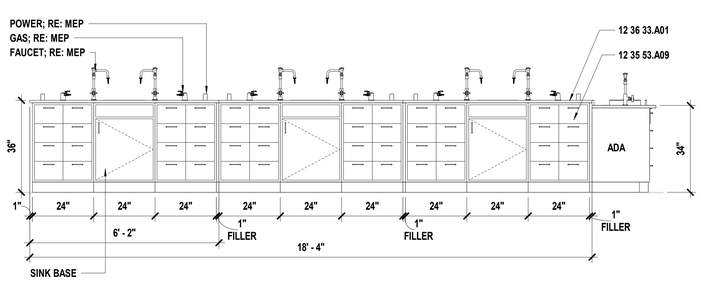
E1 Scale 1/2" = 1'-0" — Interior Elevation - 201 South



WOOD, TYP ALL STUDENT AND DEMO STATIONS

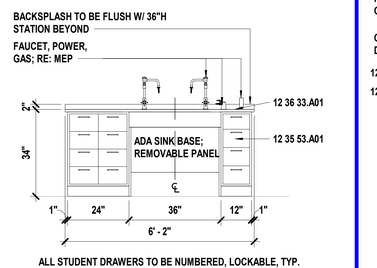
11 53 13.A15
ALL DRAWERS TO BE NUMBERED,
LOCKABLE, TYP.
DRAWERS TO BE 5 1/2" CLEAR INTERIOR
HEIGHT, MIN.

A1 Scale 1/2" = 1'-0" — Interior Elevation - Teacher's Demo Station



WOOD, TYP ALL STUDENT AND DEMO STATIONS. ALL DRAWERS AND NON-SINK BASE CABINETS TO BE LOCKABLE.

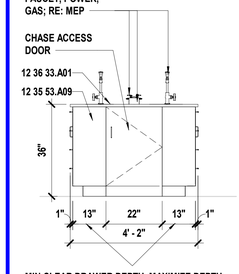
A6 Scale 1/2" = 1'-0" — Interior Elevation - Student Island Typ



ALL STUDENT DRAWERS TO BE NUMBERED, LOCKABLE, TYP.
DRAWERS TO BE 5 1/2" CLEAR INTERIOR HEIGHT, MIN.

AT ADA SINK BASES, COORDINATE EPOXY SINK DEPTH WITH APRON AND ADA REQUIREMENTS.

A12 Scale 1/2" = 1'-0" — Interior Elevation - Student Station 4 Top w/ ADA Station



MIN CLEAR DRAWER DEPTH. MAXIMIZE DEPTH WHILE ALLOWING FOR ACID NEUTRALIZER AND PLUMBING TO FIT IN SINK BASE AND CHASE.

A16 Scale 1/2" = 1'-0" — Interior Elevation - Station Chase

SHEET KEYNOTE LEGEND

08 41 13.A01	THERMAL BROKEN STOREFRONT FRAMING (4.5")
09 65 13.A01	RESILIENT BASE
10 11 00.A02	MARKERBOARDS
10 11 00.A03	TACKBOARDS
10 11 00.A09	ELECTRONIC MARKERBOARDS
11 31 00.A10	ICEMAKER
11 53 13.A01	LABORATORY FUME HOODS
11 53 13.A04	FIRE BLANKET CABINET
11 53 13.A05	ACID/CORROSIVE STORAGE CABINET
11 53 13.A09	STORAGE CABINET
11 53 13.A12	UPRIGHT ROD AND CROSS BAR ASSEMBLY
11 53 13.A15	SCIENCE DEMONSTRATION TABLE
11 53 13.A17	LABORATORY OVEN
12 32 00.A01	BASE CABINET
12 35 53.A01	WOOD LABORATORY CASEWORK
12 35 53.A02	METAL LABORATORY CASEWORK
12 35 53.A04	INSTRUCTORS DESK
12 35 53.A09	ISLAND WORKSTATION
12 36 33.A01	EPOXY RESIN COUNTERTOP

SHEET MATERIAL FINISH LEGEND

ID	MATERIAL	COLOR/FINISH
P1	Paint	REPOSE GRAY SW7015
P2	Paint	BLUEBLOOD SW6966
P3	Paint	CAVIAR SW 6990
RB1	Resilient Base & Accessories	BLACK
T1	Tile	AZUR GLOSS

SHEET NOTES

1. REFER TO SHEET G000 FOR SHEET INDEX
2. COORDINATE LOCATIONS WHERE BACKING REQUIRED FOR WALL HUNG CASEWORK, MARKERBOARDS, AND TECHNOLOGY
3. COLOR/MATERIAL TRANSITIONS ARE NOTED WHEN THEY DO NOT OCCUR AT INSIDE CORNERS
4. ALL EXPOSED SURFACES TO BE FINISHED.
5. ALL STUDENT STATIONS AND DEMO STATIONS TO BE WOOD LABORATORY CASEWORK. ALL PERIMETER CASEWORK TO BE WHITE METAL LABORATORY CASEWORK.
6. ALL BACKSPLASH MATERIAL TO MATCH COUNTERTOP MATERIAL, UNO. ALL COUNTERTOPS TO BE EPOXY RESINOUS LAB COUNTERTOPS.
7. PROVIDE 4" BACKSPLASH, UNO
8. PROVIDE 1" OVERHANG AT ALL COUNTERTOPS, UNO
9. PROVIDE ONE 2" DIAMETER GROMMET PER 30 INCH OF KNEE-SPACE AT COUNTERS – COORDINATE EXACT LOCATION WITH OWNER
10. REFER TO PLUMBING DRAWINGS FOR LOCATIONS OF SINKS, GAS, AND OTHER PLUMBING FIXTURES LOCATED WITHIN CASEWORK
11. ALL WOOD BASE CABINETS ARE TO BE 22 1/2" DEEP, UNO (STANDARD FOR BOD).
12. ALL METAL BASE CABINETS ARE TO BE 22" DEEP, UNO (STANDARD FOR BOD).
13. ALL UPPER CABINETS ARE TO BE 16" DEEP, UNO
14. ALL TALL STORAGE AND WARDROBE CABINETS ARE TO BE 22" DEEP, UNO
15. ALL SCIENCE CASEWORK TO HAVE LOCKS.
16. PROVIDE WOOD CLEAT AT BACK AND SIDE WALLS OF ALL COUNTERTOPS WITH NO BASE CABINET BELOW.
17. REFER TO MEP SHEETS FOR LOCATION DIAGRAM OF SWITCHES, THERMOSTATS, FIRE ALARM STROBES TO BE MOUNTED ADJACENT TO ENTRY DOORS OR AT OUTSIDE CORNERS WITHIN ROOMS
18. COORDINATE WITH ELECTRICAL SHEETS FOR HEIGHT OF OUTLETS A.F.F. AND/OR ABOVE COUNTERTOPS
19. COORDINATE WITH MECHANICAL SHEETS FOR LOCATIONS OF WALL MOUNTED GRILLES AND REGISTERS
20. ALL FUME HOOD BASES TO BE PROVIDED BY FUME HOOD MANUF. FUME HOODS TO BE STANDARD GRAY.

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John Gilbert Brown
A-6538

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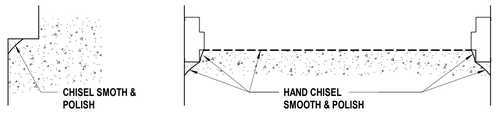
A621

INTERIOR ELEVATIONS

10/5/2023 9:17:37 AM

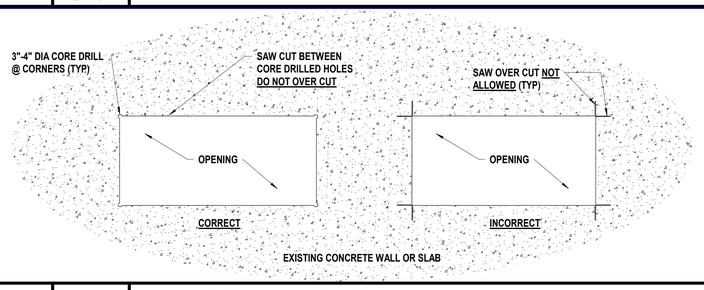


INSIDE CORNERS TYPICAL

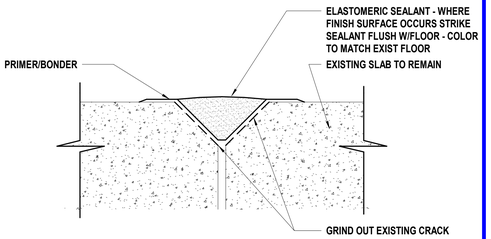
DOOR JAMBS TYPICAL

COORDINATE EACH CONDITION W/LOCATION OF METAL TRANSITION STRIPS

P1 Scale 1 1/2" = 1'-0" — Details @ Polished Concrete



L1 Scale 1/2" = 1'-0" — Typical Saw-Cut Opening in Existing Detail



H1 Scale 12" = 1'-0" — Flooring Crack Repair Detail

MATERIAL FINISH LEGEND

MATERIAL	ID	KEYNOTE	MANUFACTURER	STYLE/MODEL NO	COLOR/FINISH	COMMENTS
Ceiling	CLG1	09 51 13.A01	ARMSTRONG	ULTIMA #1915, BEVELED, 86185	WHITE	24"X 48", TYPICAL, NRC .75. USE WITH 9/16" SUPERFINE SUSPENSION SYSTEM
Concrete Finish	CON1	03 30 00.A26	HI-TECH SYSTEMS, PROSOCO LS	HT SPALL-TX3; FOLLOWED BY CONSOLIDECK, POLISH GUARD & CONCRETE PROTECTOR SB	CLEAR	GROUT COAT WITH DENSIFIER AND SEALER
Paint	P1	09 91 23.A02	SHERWIN WILLIAMS	REFER TO MASTER SPEC	REPOSE GRAY SW7015	FIELD
Paint	P2	09 91 23.A02	SHERWIN WILLIAMS	REFER TO MASTER SPEC	BLUEBLOOD SW6966	ACCENT, TEACHING WALL
Paint	P3	09 91 23.A02	SHERWIN WILLIAMS	REFER TO MASTER SPEC	CAVIAR SW 6990	HOLLOW METAL DOORS AND FRAMES
Resilient Base & Accessories	RB1	09 65 13.A01	ROPPE	STANDARD TOE BASE	BLACK	4"
Tile	T1	09 30 00.A01	WOW CERAMIC TILE, VIRGINIA TILE	BEJMAT	AZUR GLOSS	5X15 cm (2"X6")

ROOM FINISH SCHEDULE

ROOM		FLOOR		WALLS				CEILING	
NO	Name	Finish	Base	North	East	South	West	Finish	Finish Remarks
201	Chemistry Lab	CON1	RB1	P1	P1	P1	P2	CLG1	1
201A	Balance Room							CLG1	3
201B	Instru/ Comp Room							CLG1	3
201C	Stor/Prep			P1				CLG1	2

DOOR SCHEDULE

DOOR				Frame			
Number	Size	Type	Glass	Type	Material	Fire Rating	Remarks
201	3'-0" x 7'-0" x 1 3/4"	--	--	--	HM	--	Existing, new HW
201A.1	3'-0" x 7'-0" x 1 3/4"	--	--	--	HM	--	Existing, new HW
201B	3'-0" x 7'-0" x 1 3/4"	--	--	--	HM	--	Existing, new HW
201C	3'-0" x 7'-0" x 1 3/4"	--	--	--	HM	--	Existing, new HW

REF SPEC 087100 FOR NEW DOOR HARDWARE SETS. NO OTHER CHANGES TO THE DOORS THEMSELVES.

ROOM SCHEDULE REMARKS

1. DOOR FRAMES TO BE PAINTED P3. REFINISH ALL WOOD DOORS WITH A CLEAR COAT, REF 099300.
2. PATCH AND REFINISH WALL WHERE EXISTING FUME HOOD WAS REMOVED.
3. CEILING WORK ONLY. RE: MEP FOR ADDITIONAL INFO.

GENERAL FINISH NOTES

1. REFER TO FINISH FLOOR PLANS, REFLECTED CEILING PLANS, ELEVATIONS, AND DETAILS FOR EXTENT OF MULTIPLE FINISHES.
2. DO NOT PAINT NATURAL OR MANUFACTURED STONE, BRICK, GLAZED BLOCK OR ANY OTHER PREFINISHED MATERIALS.
3. DO NOT PAINT ALUMINUM OR OTHER NON-FERROUS METALS THAT ARE PREFINISHED.
4. MATCH VERTICAL FINISH OF ALL INTERIOR GYPSUM BOARD SOFFITS TO HORIZONTAL FINISH AS NOTED ON RCP OR ROOM FINISH SCHEDULE, UNO.
5. PAINT ALL EXPOSED CEILINGS DESIGNATED AS 'OTS' AS INDICATED ON ROOM FINISH SCHEDULE. PAINTING INCLUDES, BUT IS NOT LIMITED TO: EXPOSED STRUCTURE, JOISTS, METAL DECKING, EXISTING TECTUM PANELS, DUCTWORK AND MECHANICAL EQUIPMENT.
6. PAINT ALL EXPOSED STEEL, UNO.
7. PAINT ALL INTERIOR HOLLOW METAL DOORS AND FRAMES COLOR P3, UNO.
8. PAINT OR FINISH THE FOLLOWING ITEMS TO MATCH ADJACENT PAINT OR FINISH:
   a. ELECTRICAL PANELS IN FINISHED ROOMS
   b. GRILLES, LOUVERS ETC. PRIMED OR SPECIFIED TO BE PAINTED
   c. UNFINISHED SPEAKER OUTLET GRILLES
   d. VISIBLE PORTIONS OF DUCTWORK AND MECH EQUIPMENT BEHIND VENTS, GRILLES AND DIFFUSERS

SHEET KEYNOTE LEGEND

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John Gilbert Brown
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DRAWN BY: MC
CHECKED BY: AR/NY
DATE: 10/06/2023

A681

MATERIAL FINISH LEGEND

10/5/2023 9:17:39 AM

NOTES - STEEL

1. ALL STRUCTURAL STEEL TO BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE GOVERNING EDITION OF THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

2. BOLTED CONNECTIONS: ALL BOLTED CONNECTIONS SHALL BE SNUG-TIGHT IN ACCORDANCE WITH THE "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM F3125 GRADE A325 OR A490 BOLTS" PUBLISHED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.

3. WELDED CONNECTIONS: ALL WELDING SHALL BE IN ACCORDANCE WITH THE "STRUCTURAL WELDING SOCIETY CODE" (AWS D1.1) PUBLISHED BY THE AMERICAN WELDING SOCIETY. ELECTRODES FOR WELDING SHALL COMPLY WITH THE REQUIREMENTS OF TABLE 3.1 OF AWS D1.1. ALL WELDING TO BE DONE BY QUALIFIED WELDERS CONFORMING TO THE AMERICAN WELDING SOCIETY STANDARDS.

4. SPLICING OF STEEL MEMBERS, UNLESS SHOWN ON THE DRAWINGS, IS PROHIBITED WITHOUT THE WRITTEN APPROVAL OF APEX ENGINEERS, INC.

5. CHANGES IN SIZE OR POSITION OF THE STRUCTURAL ELEMENTS, AND HOLES, SLOTS, CUTS, ETC. THROUGH ANY MEMBER, ARE NOT PERMITTED UNLESS THEY ARE DETAILED ON THE APPROVED SHOP DRAWINGS.

6. NO FINAL BOLTING OR WELDING SHALL BE MADE UNTIL AS MUCH OF THE STRUCTURE AS WILL BE STIFFENED THEREBY HAS BEEN PROPERLY ALIGNED.

7. FABRICATE ALL BEAMS WITH THE MILL CAMBER UP UNO.

8. ALL VISIBLE WELDED CONNECTIONS ON ARCHITECTURAL ELEMENTS TO BE GROUND SMOOTH. DO NOT REDUCE THROAT SIZE OF WELD.

9. THE FABRICATOR SHALL BE RESPONSIBLE FOR THE DESIGN AND PERFORMANCE OF ALL CONNECTIONS NOT FULLY DESIGNED OR DETAILED IN THE CONTRACT DOCUMENTS. FABRICATOR TO PROVIDE ENGINEERED STAMPED SHOP DRAWINGS AND CALCULATIONS FOR ALL CONNECTIONS THAT DO NOT COMPLY WITH AISC STEEL CONSTRUCTION MANUAL CHAPTER 10 SIMPLE SHEAR CONNECTIONS.

10. STEEL MEMBERS ON THE EXTERIOR OF THE BUILDING OR EXPOSED TO SOIL MUST BE, AT A MINIMUM, PROPERLY PRIMED WITH RUST INHIBITING PRIMER AND PAINTED. STEEL MEMBERS COMPLETELY ENCLOSED IN BUILDING ENVELOPE DO NOT REQUIRE PRIMER OR PAINT, UNO. REFER TO ARCHITECTURAL DOCUMENTS FOR ADDITIONAL REQUIREMENTS OF EXPOSED STEEL.

NOTES - STEEL JOIST & GIRDERS

1. DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE STEEL JOIST INSTITUTE AND THE GOVERNING EDITION OF IBC SECTION 2206.

2. PROVIDE BRIDGING AT ALL JOISTS PER SJI REQUIREMENTS (TYP). PROVIDE ADDITIONAL BOTTOM CHORD BRIDGING FOR STRESS REVERSAL NECESSARY TO RESIST UPLIFT AS SPECIFIED IN DESIGN INFORMATION.

3. ALL BAR JOISTS SHALL HAVE ONE SHOP COAT OF RUST INHIBITOR PRIMER PAINT CONFORMING TO SPECIFICATIONS. FIELD TOUCH UP ALL UNPAINTED AREAS AND WELD AREAS.

4. JOIST GIRDER PANEL LOADS INCLUDE LOADS FROM MECHANICAL ZONES.

5. JOIST GIRDER SELF WEIGHT IS NOT INCLUDED IN PANEL POINT LOADS. JOIST SUPPLIER TO ADD SELF WEIGHT INTO GIRDER DESIGN.

6. MECHANICAL SUPPLIER TO PROVIDE CURB DETAIL/DESIGN TO SPAN BETWEEN SUPPORTING JOISTS. IT IS THE RESPONSIBILITY OF THE MECHANICAL SUPPLIER TO VERIFY IF CURB NEEDS ADDITIONAL SUPPORTS BETWEEN JOISTS.

7. REFER TO PLAN FOR ANY ADDITIONAL LOADS. POINT LOADS SHOWN IN PLAN SHOULD BE DESIGNED AS AN ADD-LOAD AND BEND-CHECK LOAD.

8. ADD-LOADS ARE A SINGLE CONCENTRATED LOAD WHICH CAN OCCUR AT ANY PANEL POINT ALONG THE JOIST IN THE DESIGNATED AREA. THIS LOAD IS IN ADDITION TO ALL GRAVITY LOADS INDICATED ON PLANS.

9. BEND-CHECK LOADS ARE A SINGLE CONCENTRATED LOAD USED IN THE DESIGN OF THE JOIST TOP CHORD FOR THE ADDITIONAL BENDING STRESSES RESULTING FROM APPLYING THIS LOAD AT ANY LOCATION BETWEEN JOIST PANEL POINTS.

10. DEAD LOAD SHOWN IN THE DESIGN INFORMATION ACCOUNTS FOR A 5 PSF LOAD FOR WEIGHT OF JOISTS.

11. JOIST EXTENSIONS TO BE DESIGNED FOR SAME UNIFORM LOAD AS JOIST INCLUDING ANY ADDITIONAL DRIFT LOAD SHOWN IN THESE PLANS.

12. HANGING EQUIPMENT LOADS MUST BE SUPPORTED FROM TOP CHORD. EACH POINT LOAD ON THE JOIST MUST BE LESS THAN THE BEND CHECK LOAD SHOWN IN STEEL JOIST DESIGNER NOTES. WHERE HANGING EQUIPMENT IS OUTSIDE OF MECHANICAL ZONE, AN ADDITIONAL SUPPORT ANGLE SHALL BE PROVIDED TO TRANSFER LOAD TO NEAREST PANEL POINT.

13. COMBINED LOAD ON EACH JOIST FROM ROOF TOP EQUIPMENT AND INTERIOR HANGING EQUIPMENT SHALL NOT EXCEED THE ADD LOAD CALLED OUT IN THE STEEL JOIST DESIGNER NOTES

NOTES - GENERAL

1. THESE DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS AND WORK.

2. NO OPENING SHALL BE MADE IN ANY STRUCTURAL MEMBER WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

3. NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

4. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.

5. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES.

6. FOUNDATION WALLS SHALL NOT BE BACKFILLED UNTIL LOWER AND UPPER SLABS ARE IN PLACE AND REACH FULL STRENGTH UNLESS ADEQUATE BRACING IS PROVIDED. USE ONLY HAND OPERATED TOOLS FOR COMPACTION ADJACENT TO FOUNDATION WALLS AND FOOTINGS. FOOTINGS SHALL BE BACKFILLED EVENLY ON BOTH SIDES.

7. UNLESS OTHERWISE NOTED, FIREPROOFING METHODS AND MATERIALS FOR STRUCTURAL MEMBERS ARE NOT SHOWN ON STRUCTURAL DRAWINGS. REFERENCE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FIRE RATING REQUIREMENTS, FIRE PROOFING METHODS AND MATERIALS.

8. DO NOT SCALE THESE DRAWINGS. USE DIMENSIONS SHOWN ON PLANS.

9. THE CONTRACTOR SHALL INFORM THE ARCHITECT/ENGINEER OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR SUCH DEVIATION BY THE ARCHITECT/ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS HE HAS SPECIFICALLY INFORMED THE ARCHITECT/ENGINEER OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE ARCHITECT/ ENGINEER HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

10. ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. PLANS AND/OR SPECIFICATIONS WILL BE CORRECTED, OR WRITTEN INTERPRETATION OF THE ALLEGED DEFICIENCY, OMISSION, CONTRADICTION OR AMBIGUITY WILL BE MADE BY THE ARCHITECT/ENGINEER BEFORE THE AFFECTED WORK PROCEEDS.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERRORS OF DETAILING, FABRICATION AND INSTALLATION. THE CONTRACTOR SHALL MAKE ALL MEASUREMENTS IN THE FIELD NECESSARY TO VERIFY OR SUPPLEMENT DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS AND HE SHALL VERIFY THAT ALL DIMENSIONS SHOWN ON THE SHOP DRAWINGS ARE COORDINATED WITH THE DIMENSIONS AND REQUIREMENTS OF THE CONTRACT DRAWINGS. REVIEW OF THE SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLETING THE WORK SUCCESSFULLY IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.

12. SUBMIT PRINTS OR ELECTRONIC COPIES OF EACH SHOP DRAWINGS. REPRODUCIBLE COPIES OF CONTRACT DOCUMENTS SHALL NOT BE USED AS SHOP DRAWINGS. SHOP DRAWINGS SHALL BE REVIEWED BY CONTRACTOR PRIOR TO SUBMISSION. CONTRACTOR STAMP SHOP DRAWINGS ACCEPTING RESPONSIBILITY FOR COORDINATION OF DIMENSIONS SHOWN IN THE CONTRACT DOCUMENTS, QUANTITIES AND COORDINATION WITH OTHER TRADES. DRAWINGS NOT BEARING CONTRACTOR'S STAMP MAY BE REJECTED AT THE DISCRETION OF THE ARCHITECT OR STRUCTURAL ENGINEER.

13. REVIEW AND RETURN OF SHOP DRAWINGS SHALL BE BASED ON A MINIMUM OF TEN (10) WORKING DAYS IN THE STRUCTURAL ENGINEER'S OFFICE FROM RECEIPT OF SUBMISSION TO RETURN TO THE NEXT PARTY FOR THEIR ACTION. SHOP DRAWINGS SHOULD BE SUBMITTED INCREMENTALLY AS APPROPRIATE PACKAGES ARE PREPARED TO EQUALIZE THE WORKLOAD FOR REVIEW OF THE DRAWINGS. SUBMISSION OF A LARGE VOLUME OF SHOP DRAWINGS AT ONE TIME MAY RESULT IN REVIEW TIMES WHICH WILL EXCEED THOSE NOTED ABOVE. DEFINITION OF A "LARGE VOLUME" OF SHOP DRAWINGS IS SUBJECT TO INTERPRETATION.

NOTES - DEFERRED SUBMITTALS

1. THE ARCHITECT OR ENGINEER OF RECORD SHALL LIST THE DEFERRED SUBMITTALS ON THE PLANS FOR REVIEW BY THE BUILDING OFFICIAL.

2. DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN THE GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING.

3. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

4. DEFERRED SUBMITTALS ARE DEFINED AS THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION AND THAT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIED PERIOD.

5. DEFERRAL OF ANY SUBMITTAL ITEMS SHALL HAVE THE PRIOR APPROVAL OF THE BUILDING OFFICIAL.

6. SUBMITTALS SHALL INCLUDE DETAILED DRAWINGS OF EACH MEMBER AND ITS CONNECTIONS ALONG WITH SUPPORTING CALCULATIONS PREPARED UNDER THE SUPERVISION, BEARING THE SEAL AND SIGNATURE, OF A LICENSED PROFESSIONAL ENGINEER IN THE PROJECT JURISDICTION.

NOTES - SHOP DRAWING SUBMITTALS

1. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS IN ADDITION TO ITEMS REQUIRED BY ARCHITECTURAL SPECIFICATIONS. SHOP DRAWING REVIEW IS INTENDED FOR VERIFICATION OF DESIGN CONCEPT CONVEYANCE AND GENERAL CONFORMANCE TO CONTRACT DOCUMENTS ONLY.

2. CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE CLOUDED BY MANUFACTURER/FABRICATOR. ANY OF THE AFOREMENTIONED WHICH ARE NOT CLOUDED OR FLAGGED BY SUBMITTING PARTIES SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW, UNO.

3. SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS. ITEMS SHOWN INCORRECTLY OR OMITTED AND NOT FLAGGED BY THE ENGINEER DURING REVIEW ARE NOT TO BE CONSIDERED CHANGES TO THE CONTRACT DOCUMENTS.

4. THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING AUTHORITY. DESIGNED SHOP DRAWINGS SHALL BE PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER.

5. SHOP DRAWINGS MUST BE ORIGINAL DOCUMENTS. REPRODUCTION OF ANY PORTION OF THE CONTRACT DOCUMENTS FOR USE IN SUBMITTALS IS NOT PERMITTED AND MAY RESULT IN REJECTION.

6. THE ENGINEER HAS THE RIGHT TO APPROVE OR DISAPPROVE ANY CHANGES TO CONTRACT DOCUMENTS AT ANY TIME BEFORE OR AFTER SHOP DRAWING REVIEW.

7. CONTRACTOR SHALL SUBMIT STRUCTURAL SHOP DRAWINGS FOR THE FOLLOWING:

- STRUCTURAL STEEL FRAMING
- STEEL JOISTS AND DECKING

STATEMENT OF SPECIAL INSPECTION

IBC CODE REFERENCE	CONSTRUCTION TYPE	FREQUENCY	
		CONT.	PER.
1705.2	**STEEL CONSTRUCTION**		
1705.2.1	**STRUCTURAL STEEL**		
1. SPECIAL INSPECTION FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF AISC 360. (**REFER TO AISC CHARTS ON THIS SHEET**)			
1705.2.2	**COLD-FORMED STEEL DECK**		
1. SPECIAL INSPECTIONS AND QUALIFICATIONS OF WELDING SPECIAL INSPECTORS FOR COLD-FORMED STEEL FLOOR AND ROOF DECK SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF SDI QA/QC. **(REFER TO SDI CHARTS ON THIS SHEET)**			
1705.2.3	**OPEN-WEB STEEL JOIST AND JOIST GIRDERS**		
1. INSTALLATION OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS:			
A. END CONNECTIONS - WELDING OR BOLTED			X
B. BRIDGING - HORIZONTAL OR DIAGONAL			
1. STANDARD BRIDGING			X
2. BRIDGING THAT DIFFERS FROM THE SJI SPECIFICATIONS LISTED IN SECTION 2207.1			X

AISC TABLE N5.4-1

INSPECTION TASKS PRIOR TO WELDING	QC	QA
1. WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	P	P
2. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P
3. MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
4. WELDER IDENTIFICATION SYSTEM[1]	O	O
5. FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) • JOINT PREPARATION • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION) • BACKING TYPE AND FIT (IF APPLICABLE)	O	O
6. CONFIGURATION AND FINISH OF ACCESS HOLES	O	O
7. FIT-UP OF FILLET WELDS • DIMENSIONS (ALIGNMENT, GAPS AT ROOT) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	O	O
8. CHECK WELDING EQUIPMENT	O	-

[1] THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE

AISC TABLE N5.4-2

INSPECTION TASKS DURING WELDING	QC	QA
1. USE OF QUALIFIED WELDERS	O	O
2. CONTROL AND HANDLING OF WELDING CONSUMABLES • PACKAGING • EXPOSURE CONTROL	O	O
3. NO WELDING OVER CRACKED TACK WELDS	O	O
4. ENVIRONMENTAL CONDITIONS • WIND SPEED WITHIN LIMITS • PRECIPITATION AND TEMPERATURE	O	O
5. WPS FOLLOWED • SETTINGS ON WELDING EQUIPMENT • TRAVEL SPEED • SELECTED WELDING MATERIALS • SHIELDING GAS TYPE/FLOW RATE • PREHEAT APPLIED • INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) • PROPER POSITION (F, V, H, OH)	O	O
6. WELDING TECHNIQUES • INTERPASS AND FINAL CLEANING • EACH PASS WITHIN PROFILE LIMITATIONS • EACH PASS MEETS QUALITY REQUIREMENTS	O	O

AISC TABLE N5.4-3

INSPECTION TASKS AFTER WELDING	QC	QA
1. WELDS CLEANED	O	O
2. SIZE, LENGTH AND LOCATION OF WELDS	P	P
3. WELDS MEET VISUAL ACCEPTANCE CRITERIA • CRACK PROHIBITION • WELD/BASE-METAL FUSION • CRATER CROSS SECTION • WELD PROFILES • WELD SIZE • UNDERCUT • POROSITY	P	P
4. ARC STRIKES	P	P
5. K-AREA[1]	P	P
6. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P
7. REPAIR ACTIVITIES	P	P
8. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P

[1] WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN. (75 MM) OF THE WELD

AISC TABLE N5.6-1

INSPECTION TASKS PRIOR TO BOLTING	QC	QA
1. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P
2. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O
3. PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O
4. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O
5. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O
6. PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O
7. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O

AISC TABLE N5.6-2

INSPECTION TASKS DURING BOLTING	QC	QA
1. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	O	O
2. JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O
3. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O

AISC TABLE N5.6-3

INSPECTION TASKS AFTER BOLTING	QC	QA
1. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P

AISC TABLE N6.1

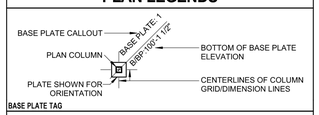
INSPECTION OF STEEL ELEMENTS OF COMPOSITE CONSTRUCTION PRIOR TO CONCRETE PLACEMENT	QC	QA
1. PLACEMENT AND INSTALLATION OF STEEL DECK	P	P
2. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	P	P
3. DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	P	P

SYMBOLS & ABBREVIATIONS

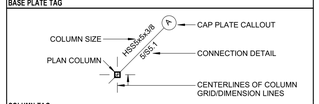
X SX.X	DETAIL ON SHEET SHEET NUMBER	DETAILS, SECTIONS, AND ELEVATIONS
T.O.W. = XXX' - XX" B.O.W. = XXX' - XX"	ELEVATION (TOP) ELEVATION (BOTTOM)	FOUNDATION WALLS AND LEDGES (SIM)
T.O.X. XXX' - XX"	ELEVATION MARK	LEVELS, SPOT ELEVATIONS & PLAN ELEVATIONS
X	REVISION MARK	SHEET REVISIONS

ABV	DEFINITION	ABV	DEFINITION
ARCH	ARCHITECT	LLV	LONG LEG VERTICAL
BO	BOTTOM OF	LONG	LONGITUDINAL
BOF	BOTTOM OF FOOTING	MECH	MECHANICAL
BOS	BOTTOM OF STEEL	MEP	MECH, ELECTRICAL, PLUMBING
BOT | [B]	BOTTOM	MFR	MANUFACTURER
BOW	BOTTOM OF WALL	NA	NOT APPLICABLE
BRG	BEARING	NS	NEAR SIDE
CTR | [C]	CENTER	NTS	NOT TO SCALE
CGS	CENTER OF GRAVITY STRAND	OC	ON CENTER
CIP	CAST-IN-PLACE	OPP	OPPOSITE
CJ	CONTRACTION/CONTROL JOINT	PAF	POWDER ACTUATED FASTENER
CL	CENTERLINE	PARL	PARALLEL
CLR	CLEAR	PERP	PERPENDICULAR
COL	COLUMN	PI	POST-INSTALLED
CONT	CONTINUOUS	PT	POST-TENSION
DIA	DIAMETER	RAD	RADIUS
DT	DRAG TRUSS	REF	REFERENCE
EA	EACH	RTU	ROOF TOP UNIT
EL	ELEVATION	SIM	SIMILAR
EOD	EDGE OF DECK	SOG	SLAB ON GRADE
EOR	ENGINEER OF RECORD	STD	STANDARD
EOS	EDGE OF STEEL	[T]	TOP
EQ	EQUAL	T&B	TOP AND BOTTOM
EW	EACH WAY	TO	TOP OF
[E]	EXISTING	TOC	TOP OF CONCRETE
EXT	EXTERIOR	TOD	TOP OF DECK
FS	FAR SIDE	TOF	TOP OF FOOTING
FRT	FIRE RETARDANT TREATED	TOL	TOP OF LEDGE
FV	FIELD VERIFY	TOM	TOP OF MASONRY
GA	GAUGE	TOS	TOP OF STEEL
GC	GENERAL CONTRACTOR	TOW	TOP OF WALL
GT	GIRDER TRUSS	TR	TREATED
HAS	HEADED ANCHOR STUD	TRANS	TRANSVERSE
HORZ	HORIZONTAL	TYP	TYPICAL
INT	INTERIOR	UNO	UNLESS NOTED OTHERWISE
ISO	ISOMETRIC	VERT	VERTICAL
LLH	LONG LEG HORIZONTAL	WP	WORK POINT

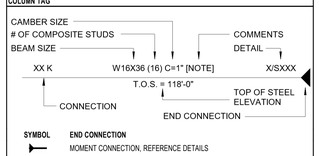
PLAN LEGENDS



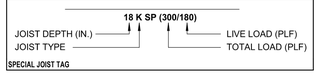
BASE PLATE TAG



COLUMN TAG



STEEL BEAM TAGS



SPECIAL JOIST TAG

MATERIAL SPECIFICATIONS

STEEL MATERIAL SPECIFICATIONS

MATERIAL	SPECIFICATION
WIDE FLANGE SHAPES (W)	ASTM A992
CHANNELS (C), ANGLES (L)	ASTM A36
PLATES	ASTM A36
HOLLOW STRUCTURAL SHAPES (HSS)	ASTM A500, GRADE C
HEADED ANCHOR STUDS	AWS D1.1 TYPE B / ASTM A29
HIGH STRENGTH BOLTS	ASTM F3125, GRADE A325
ANCHOR BOLTS (HEX-HEAD UNO)	ASTM F1554 (55 KSI) "S1"
EPOXY ANCHOR RODS	ASTM A36
POWDER-ACTUATED FASTENERS	HILTI 0.157" DIA X-U OR SIMPSON 0.157" DIA PDPA
STEEL DECK, PLAIN STEEL	ASTM A1008, (33 ksi)
STEEL DECK, GALVANIZED	ASTM A653, (33 ksi)
NON-SHRINK GROUT, COLUMN BASES	5000 psi (28 DAY STRENGTH)

DESIGN INFORMATION

BUILDING CODE:

2018 INTERNATIONAL BUILDING CODE AS ADOPTED AND/OR AMENDED BY LOCAL BUILDING CODES

WIND DESIGN DATA:	**Main Building**
OCCUPANCY CATEGORY	III
ULTIMATE WIND SPEED (3 SECOND GUST), V	115 mph
WIND EXPOSURE CATEGORY	C
VELOCITY PRESSURE, q_z	30.0 psf
INTERNAL PRESSURE COEFFICIENT, GC_{pi}	+/-0.18
WIND DESIGN COMPONENTS & CLADDING DATA:	**Main Building**
EDGE REGION, a	8' - 1"

WALL ZONES	**10 SF**	**20 SF**	**50 SF**	**100 SF**	**200 SF**
4 & 5	35 psf	34 psf	32 psf	30 psf	29 psf
4	-38 psf	-37 psf	-35 psf	-33 psf	-32 psf
5	-47 psf	-44 psf	-40 psf	-37 psf	-34 psf
ROOF ZONES	**10 SF**	**20 SF**	**50 SF**	**100 SF**	**200 SF**
All Zones	16 psf	16 psf	16 psf	16 psf	16 psf
1'	-32 psf	-32 psf	-32 psf	-32 psf	-28 psf
1	-56 psf	-53 psf	-48 psf	-44 psf	-40 psf
2	-74 psf	-70 psf	-63 psf	-59 psf	-54 psf
3	-102 psf	-92 psf	-79 psf	-70 psf	-60 psf
1' & 1 OH	-51 psf	-50 psf	-49 psf	-48 psf	-40 psf
2 OH	-69 psf	-63 psf	-54 psf	-48 psf	-41 psf
3 OH	-96 psf	-85 psf	-70 psf	-59 psf	-48 psf

SEISMIC DESIGN SITE DATA:		
SPECTRAL RESPONSE COEFFICIENTS		S_S = 0.094 S_1 = 0.068
SITE CLASS (ASSUMED)		D
DESIGN SPECTRAL RESPONSE ACCELERATIONS		S_{DS} = 0.100 S_{D1} = 0.109
SEISMIC ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE	
SEISMIC DESIGN BUILDING DATA:		**Main Building**
LATERAL SYSTEM: B. BUILDING FRAME SYSTEMS, No. 2. STEEL SPECIAL CONCENTRICALLY BRACED FRAMES		
RESPONSE MODIFICATION, R		6.00
DEF. AMPLIFICATION FACTOR, C_d		5.00
OVERSTRENGTH FACTOR, Ω		2.00
SEISMIC RESPONSE COEF., C_s		0.021
SEISMIC BASE SHEAR, V		94.2 kip
SEISMIC DESIGN CATEGORY		B
SEISMIC RISK CATEGORY		III

ROOF SNOW LOAD DATA:	Main Building
GROUND SNOW LOAD, P_g	20 psf
SNOW LOAD IMPORTANCE FACTOR, I_s	1.10
SNOW EXPOSURE FACTOR, C_e	1.00
THERMAL FACTOR, C_t	1.00
FLAT ROOF SNOW LOAD, P_f	15 psf
SLOPE FACTOR, C_s	1.00
SLOPED ROOF SNOW LOAD, P_s	15 psf
MINIMUM SNOW LOAD, P_m	22 psf

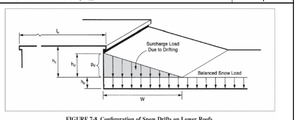


FIGURE 7-8 Configuration of Snow Drifts on Lower Roofs.

NOTE: DESIGNER MUST CONSIDER ALL SNOW LOAD CASES PER ASCE 7

COMMENTS	DRIFT DATA	
	LOAD, Pd	WIDTH, W
GRAVITY LOAD DATA:	30.4 psf	7' - 6"

OCCUPANCY OR USE	**LOADS**	
	UNIFORM	**POINT**
FLOOR DEAD LOADS		
• TYPICAL FLOOR	127 psf	N/A
FLOOR LIVE LOADS		
• CLASSROOMS	40 psf	1000 lbs
• CORRIDORS ABOVE FIRST FLOOR	80 psf	1000 lbs
• FIRST-FLOOR CORRIDORS	100 psf	1000 lbs
• STAIRS AND EXIT WAYS	100 psf	300 lbs
ROOF DEAD LOADS		
• TYPICAL ROOF	21 psf	N/A
ROOF LIVE LOADS		
• ROOF AREAS NOT INTENDED FOR OCCUPANCY	20 psf	
• ROOF AREAS USED FOR ASSEMBLY PURPOSES	100 psf	
• ROOF AREAS USED FOR ASSEMBLY PURPOSES	100 psf	
• ROOF AREAS USED FOR OCCUPANTS	SAME AS OCCUPANCY SERVED	
• ROOF AREAS USED FOR OTHER OCCUPANCIES	SAME AS OCCUPANCY SERVED	
• ROOF FABRIC AWNINGS AND CANOPIES SUPPORTED BY A SKELETON STRUCTURE	5 psf	
• ROOF SCREEN ENCLOSURE SUPPORT FRAME	5 BASED ON TRIBUTARY AREA OF ROOF SUPPORTED BY THE FRAME MEMBER	200 lbs
• ROOF: ALL OTHER CONSTRUCTION	20 psf	
• ROOF: ORDINARY FLAT, PITCHED, AND CURVED	20 psf	
• VEGETATIVE AND LANDSCAPED ROOFS	100 psf	

SHEET LIST - STRUCTURAL

SHEET NUMBER	SHEET NAME
S100	GENERAL NOTES AND SPECIFICATIONS
S200	RTU FRAMING
S500	TYPICAL STEEL DETAILS

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www.apex-engineers.com

Metropolitan Community College - Longview
Metropolitan Community College

2601 NE Barry Rd
Kansas City, MO 64156

Construction Documents

REVISIONS:

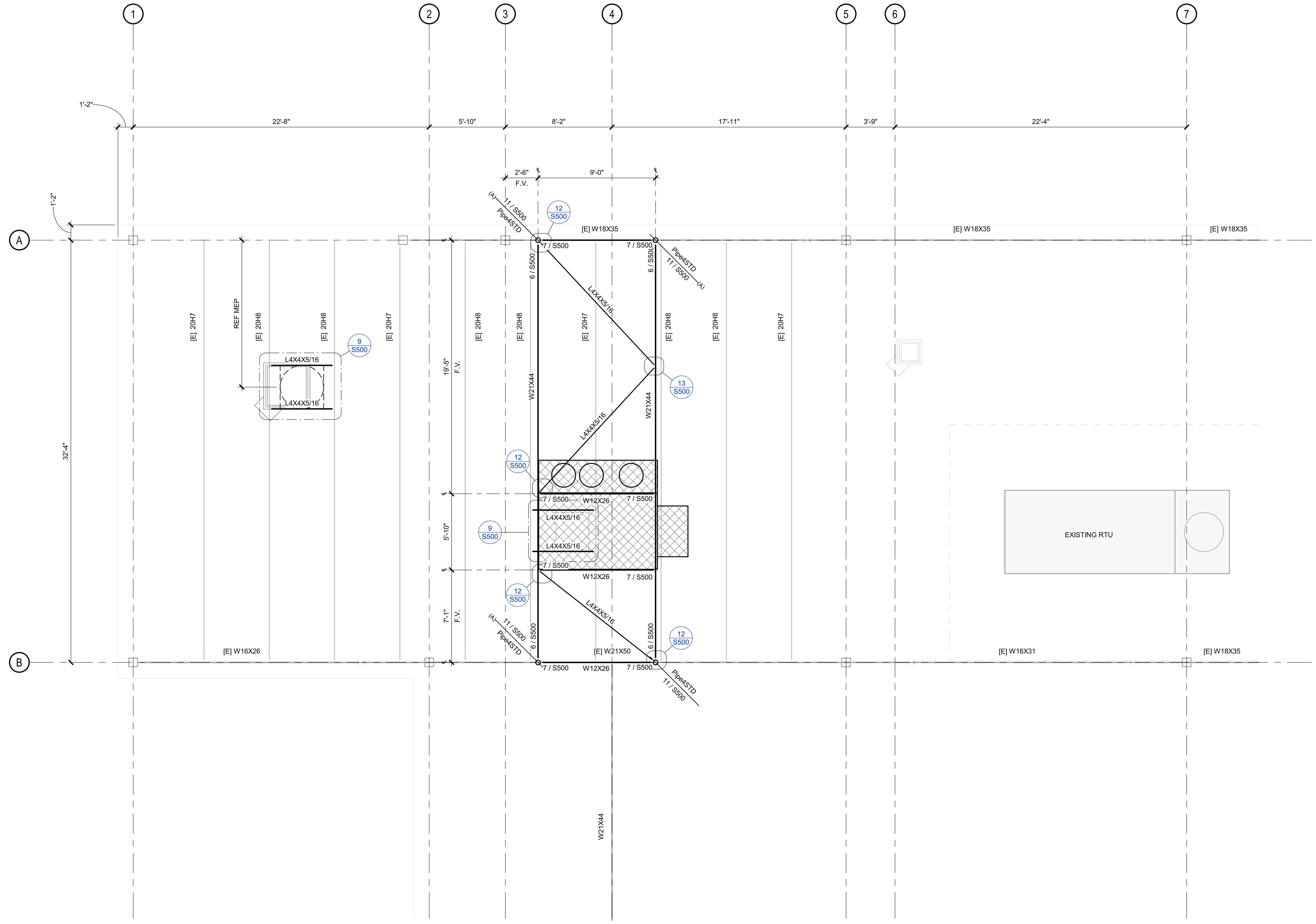
#	Description	Date

LOGAN K. CHAMBERLAIN
NUMBER
PE-2023000069
10/06/23

JOB NO: 23011.00
DRAWN BY: APEX
CHECKED BY: AGK
DATE: 10/06/23

S100

GENERAL NOTES AND SPECIFICATIONS



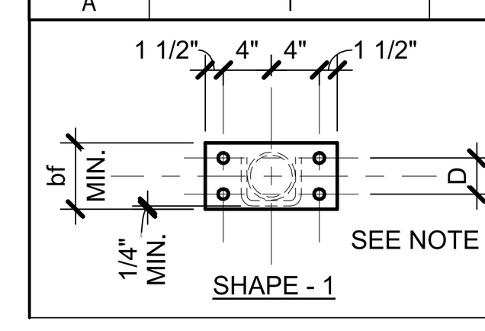
PLAN NOTES - STEEL ROOF FRAMING

1. FIELD VERIFY TOP OF STEEL ELEVATIONS TO PROVIDE MINIMUM 12" CLEARANCE BETWEEN NEW FRAME AND ROOF MEMBRANE.
2. BEAMS SHALL NOT BE CAMBERED UNLESS INDICATED IN BEAM CALLOUT.

SCHEDULE - CAP PLATES

NOTES:
1. BOLT SIZE NOTE: FOR BEAMS WITH A FLANGE WIDTH LESS THAN 5", 5/8" BOLTS MAY BE USED FOR DETAILING TOLERANCES.
2. bf = WIDTH OF BEAM FLANGE.
3. D = VARIES, COORDINATE WITH BEAM FLANGE WIDTH.
4. W = JOIST GIRDER SEAT WIDTH PLUS 1" FOR FILLET WELD CONNECTION. VERIFY SEAT WIDTH WITH JOIST SUPPLIER PRIOR TO FABRICATION.
5. VERIFY BOLT PLACEMENT WITH JOIST SUPPLIER.

PLATE TYPE	SHAPE	PLATE THICKNESS	BOLT SIZE
A	1	1/2"	3/4"



SHAPE - 1

ROOF FRAMING PLAN

1/4" = 1'-0"

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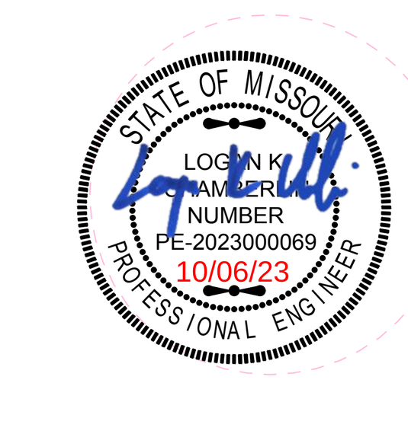
REVISIONS:

#	Description	Date



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S200

RTU FRAMING

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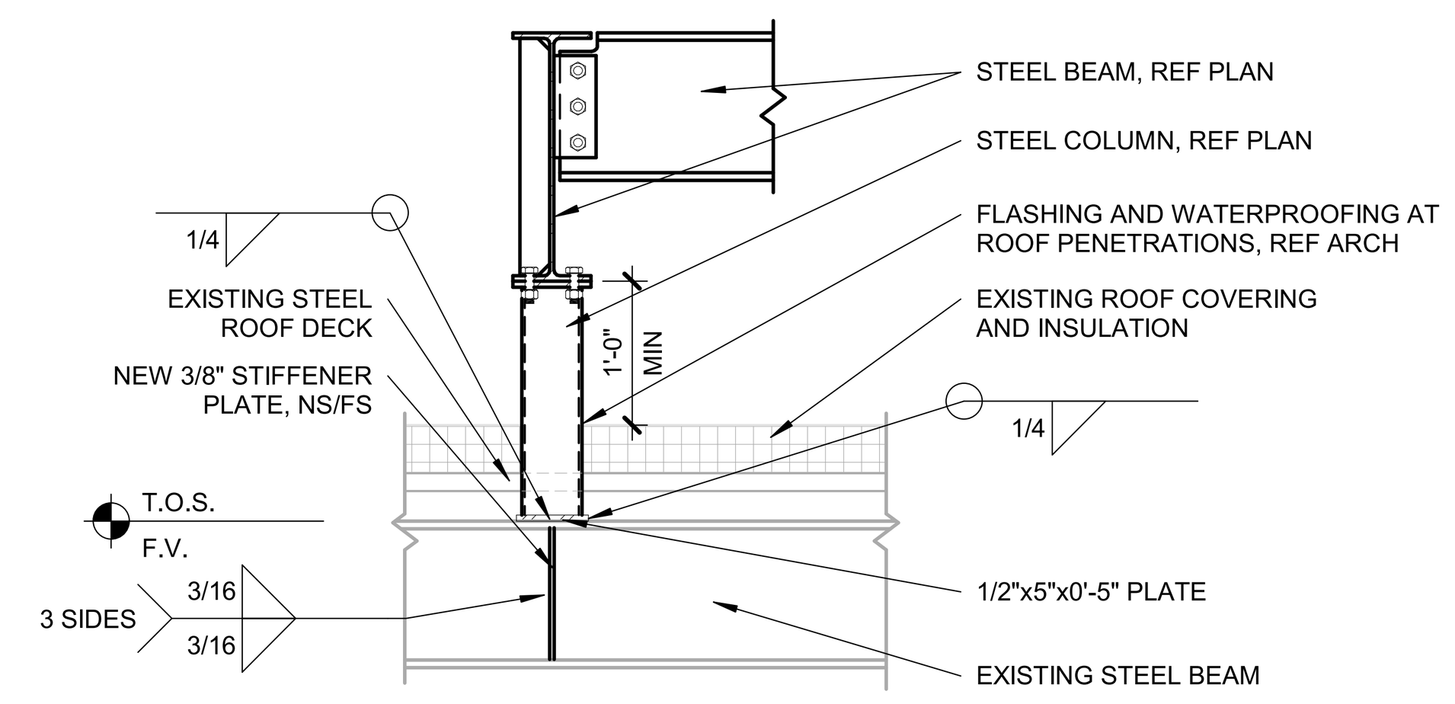
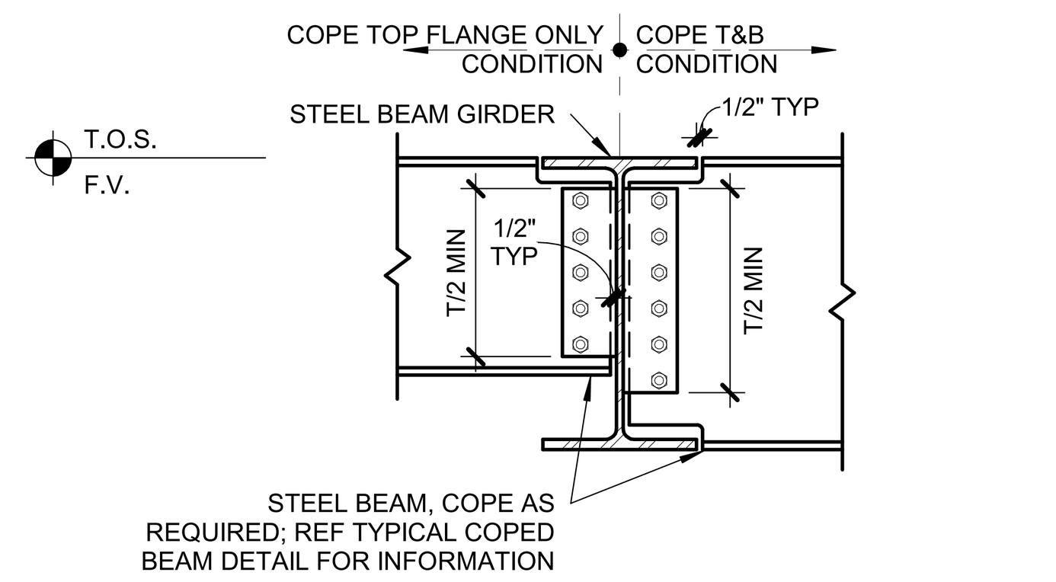
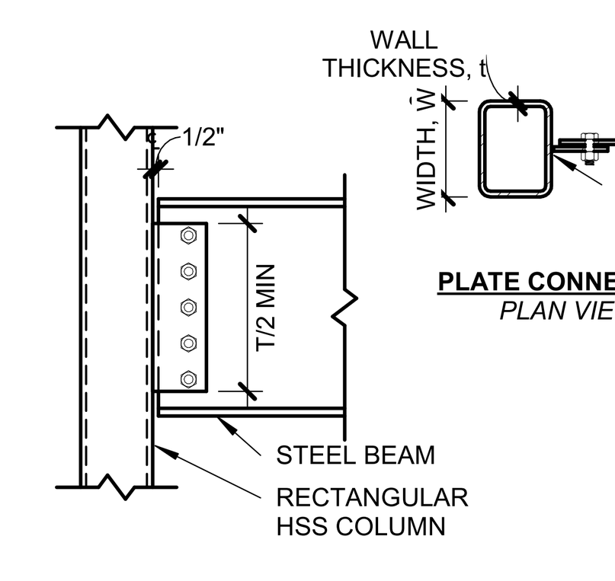


11 | POST BEARING ON BEAM
S500 | 3/4" = 1'-0"

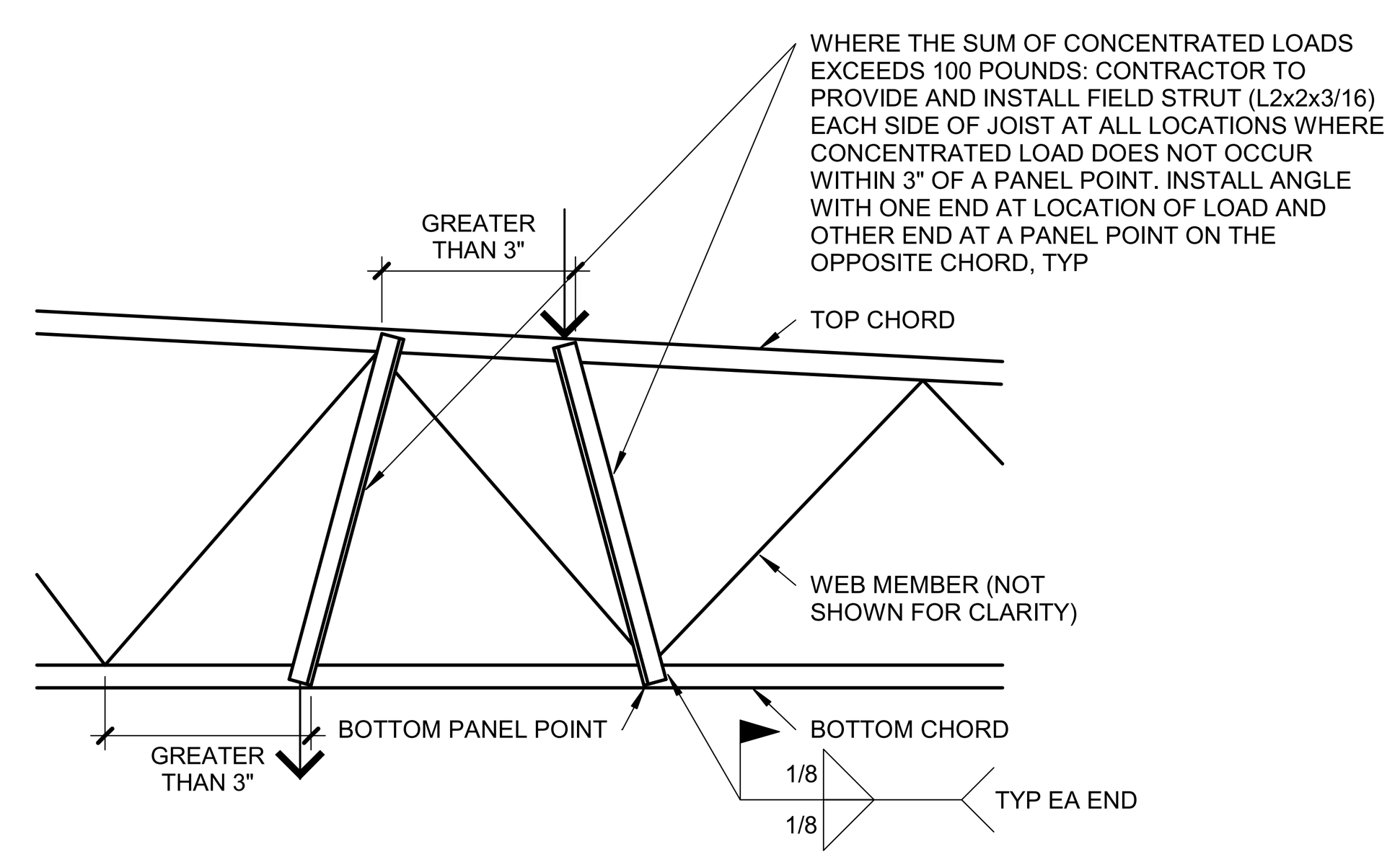


7 | 3/8" SINGLE PLATE CONNECTION - BEAM TO GIRDER
S500 | 3/4" = 1'-0"

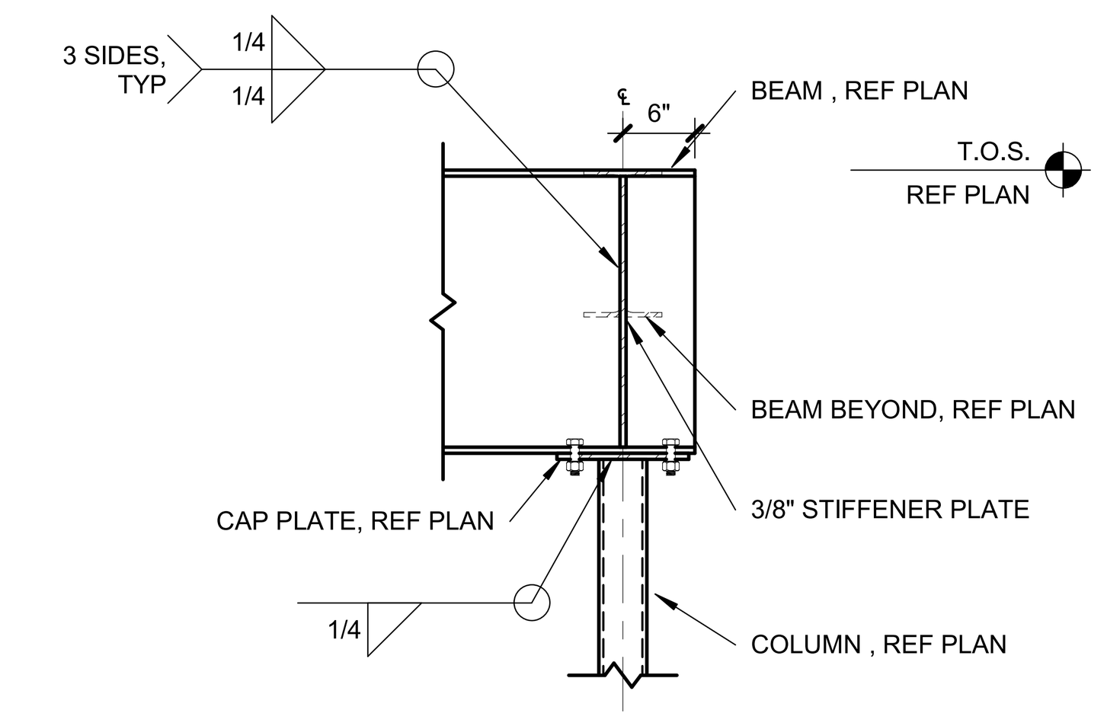


MIN HSS WALL THICKNESS, t	
W	t
3"-8"	1/4"
9"-10"	5/16"
12"	3/8"
14"-16"	1/2"

4 | 3/8" SINGLE PLATE CONNECTION - BEAM TO HSS COLUMN
S500 | 3/4" = 1'-0"

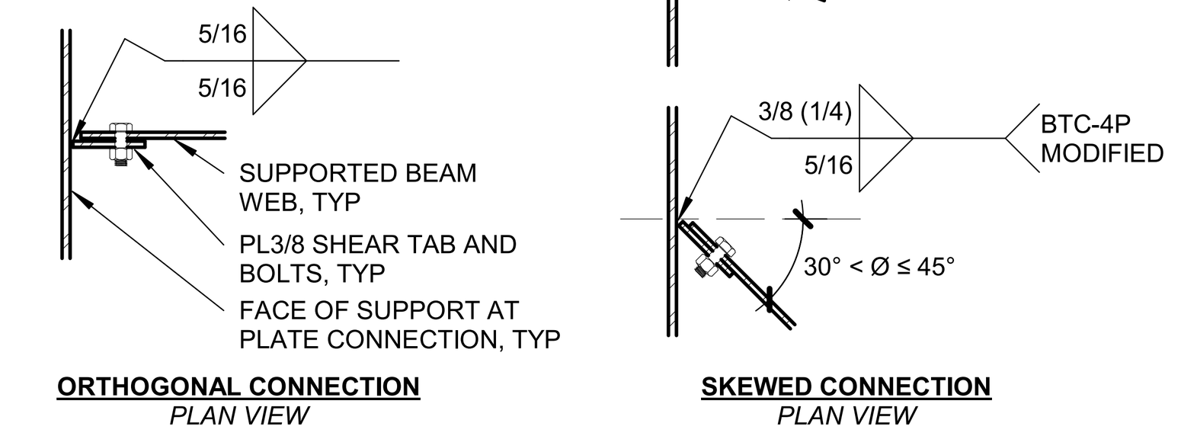


10 | TYPICAL JOIST REINFORCEMENT DETAIL
S500 | 3/4" = 1'-0"

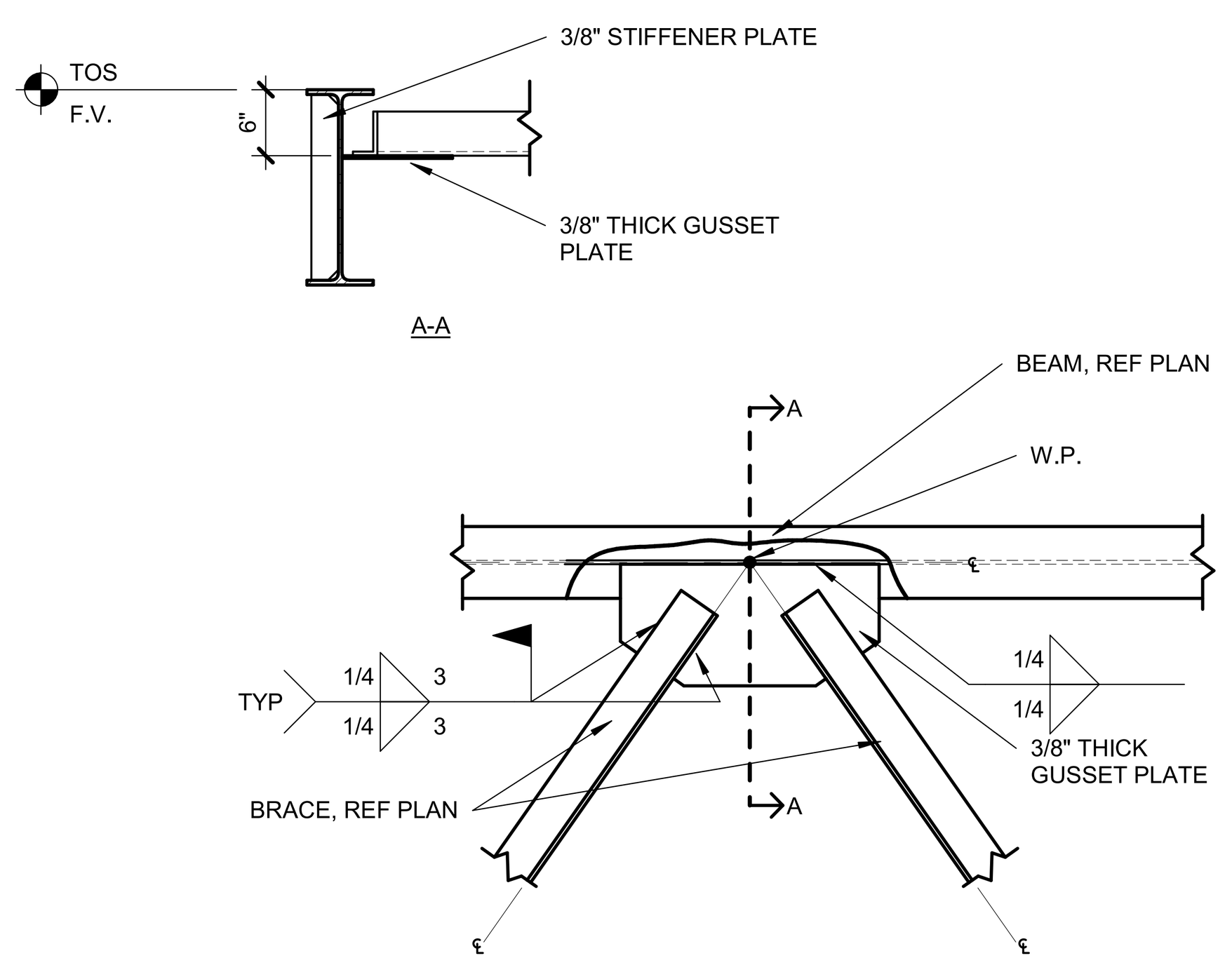


6 | TYP STEEL BEAM TO STEEL HSS COLUMN CONNECTION
S500 | 3/4" = 1'-0"

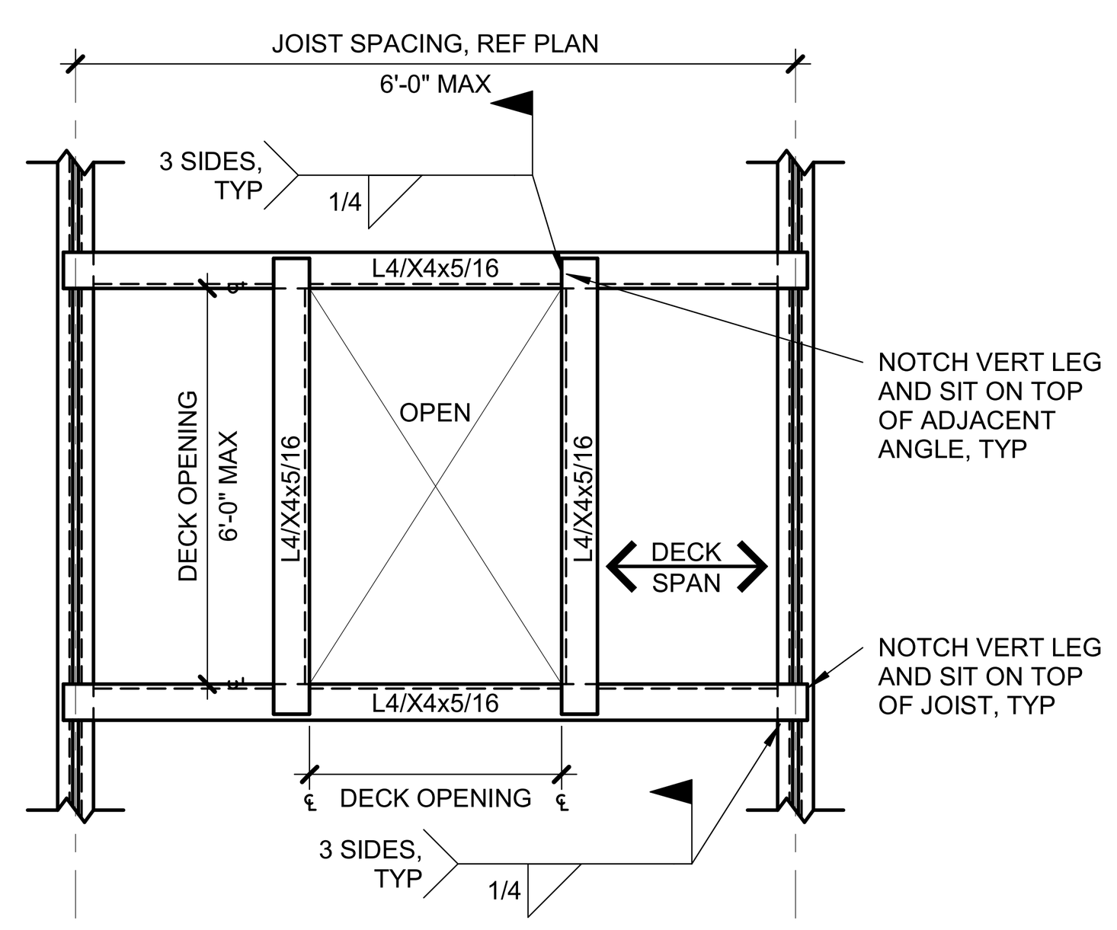
SKEW ANGLE Ø	NEAR SIDE WELD "A"
Ø ≤ 7.2°	5/16
7.2° < Ø ≤ 14.7°	3/8
14.7° < Ø ≤ 22.5°	7/16
22.5° < Ø ≤ 30°	1/2"



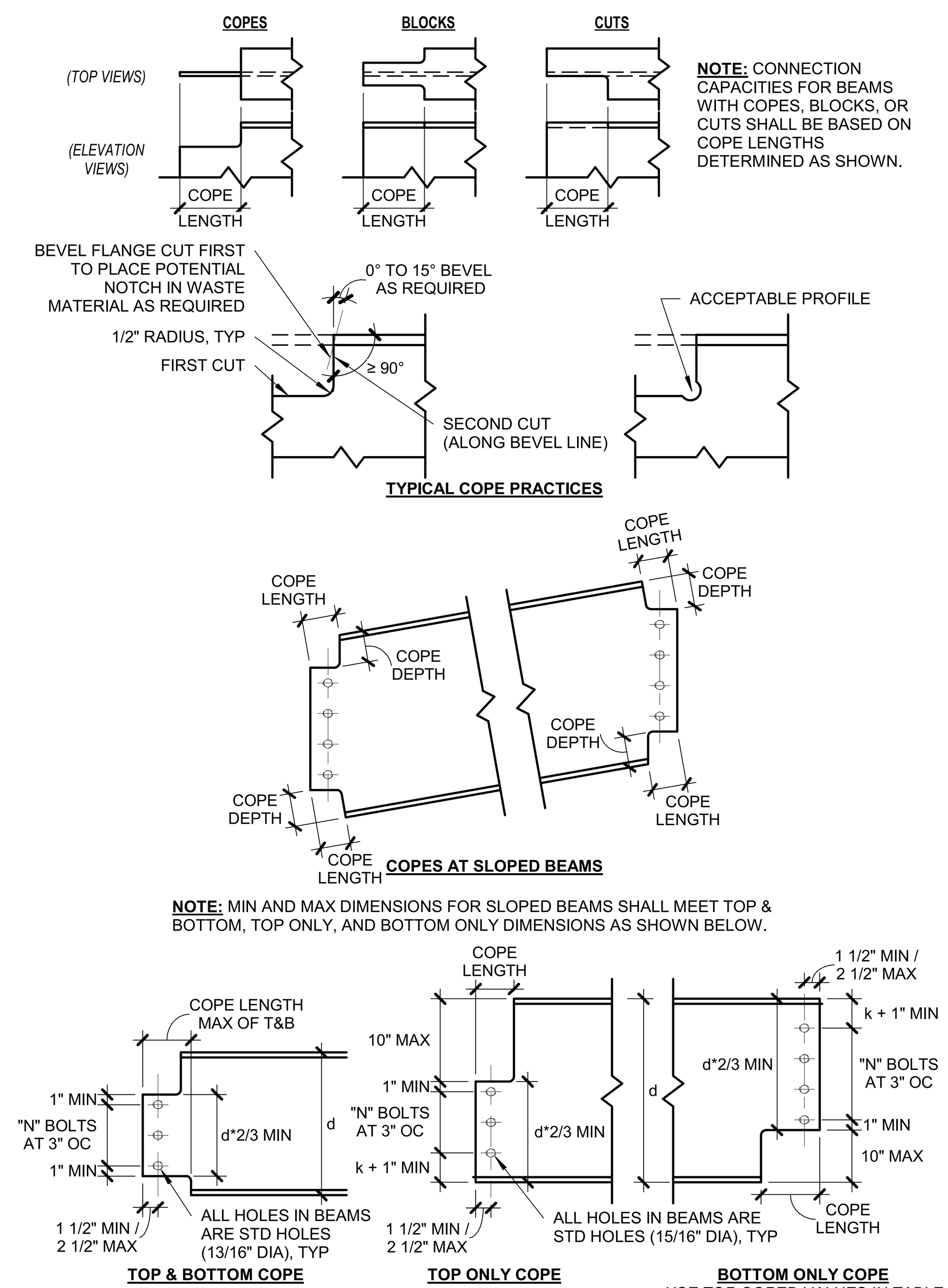
3 | 3/8" SINGLE PLATE CONNECTION - PLATE WELD CONNECTION
S500 | 1" = 1'-0"



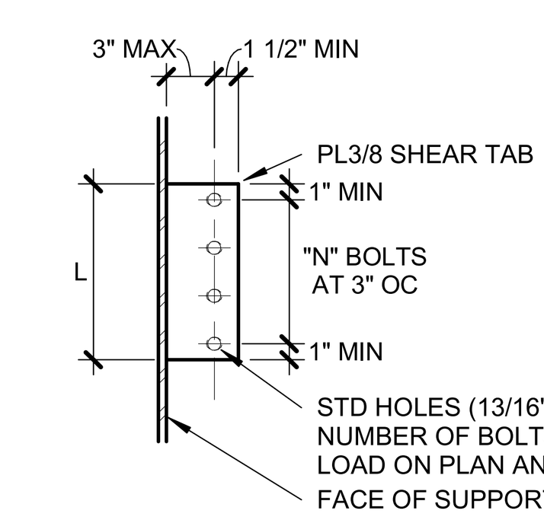
13 | STEEL ANGLE BRACE CONNECTION INTO BEAM WEB
S500 | 3/4" = 1'-0"



9 | TYPICAL METAL DECK OPENING
S500 | 3/4" = 1'-0"



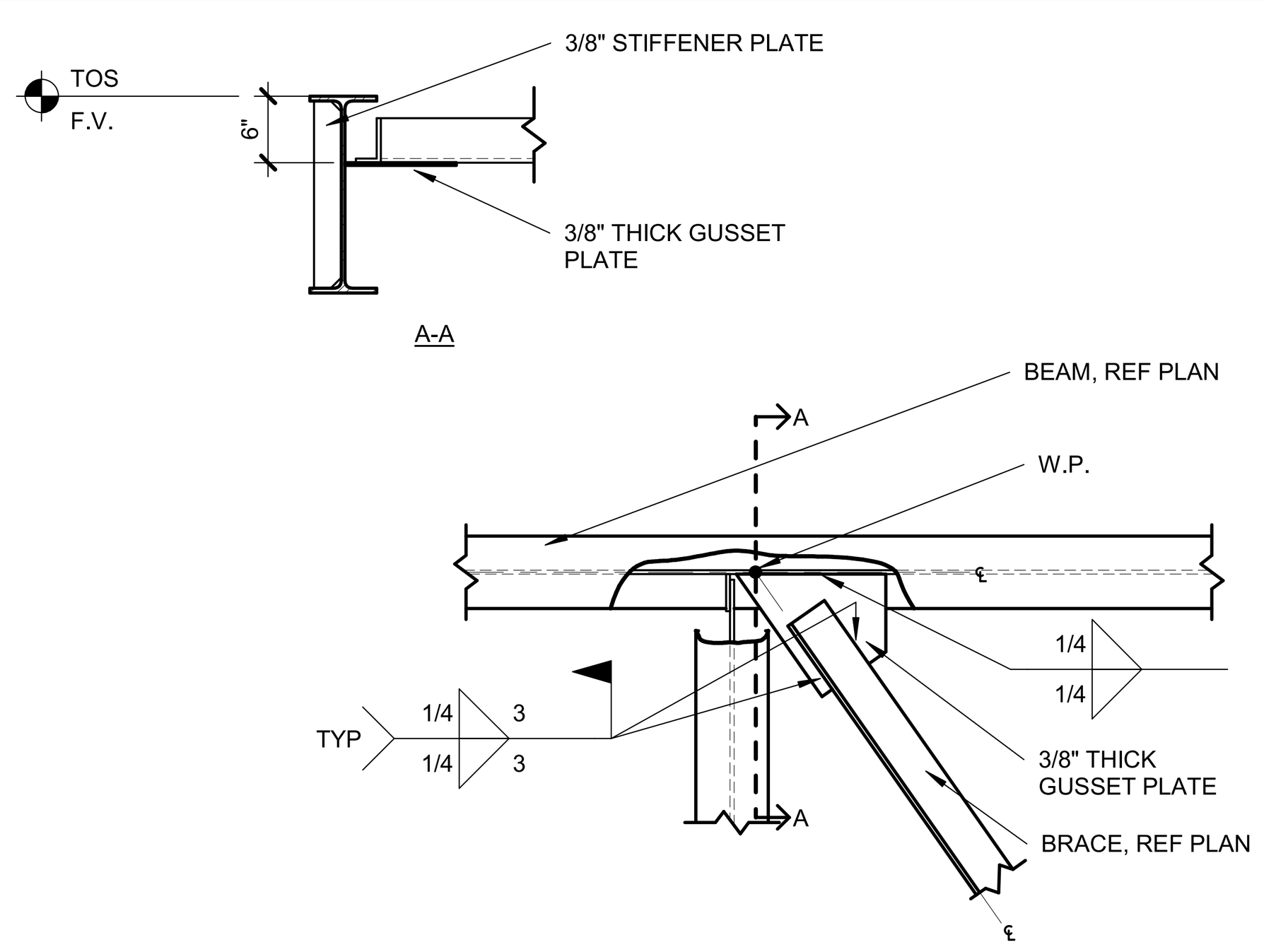
5 | 3/8" SINGLE PLATE 3/4" BOLT CONNECTION - TYPICAL BEAM COPE
S500 | 1" = 1'-0"



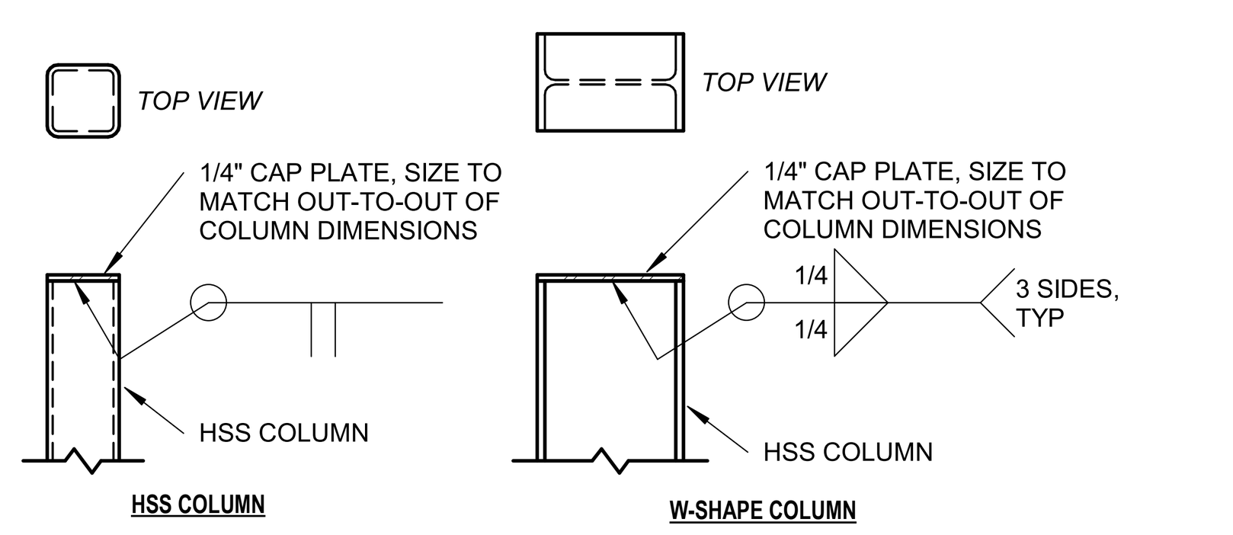
"N" BOLTS	PLATE LENGTH, L
2	5 1/2"
3	8 1/2"
4	11 1/2"
5	14 1/2"
6*	17 1/2"
7*	20 1/2"
8*	23 1/2"
9*	26 1/2"
10*	29 1/2"

*NUMBER OF BOLTS REQUIRE SSLT HOLES FOR CONNECTION

2 | 3/8" SINGLE PLATE 3/4" BOLT CONNECTION - SHEAR TAB DIMENSIONS
S500 | 1" = 1'-0"



12 | STEEL ANGLE BRACE CONNECTION INTO BEAM WEB
S500 | 3/4" = 1'-0"



8 | TYPICAL COLUMN CAP PLATE
S500 | 3/4" = 1'-0"

SCHEDULE - 3/8" PLATE CONNECTION

NOMINAL BEAM DEPTH, d	NUMBER OF 3/4" DIA A325N BOLTS
8" - 10"	2
12" - 14"	3
16"	4
18"	5
21"	6
24"	7

NOTES:
1. d = DEPTH OF THE CARRIED BEAM.
2. LISTED NUMBER OF BOLTS ARE APPLICABLE TO SIMPLE SHEAR CONNECTIONS DEFINED AS, "CONVENTIONAL CONFIGURATION," PER AISC STEEL CONSTRUCTION MANUAL, CHAPTER 10. INCLUDED SUPPLEMENTAL DETAILS SPECIFY REQUIRED DIMENSIONAL REQUIREMENTS TO MEET THIS CONNECTION TYPE AND SHALL BE FOLLOWED FOR USE OF THIS TABLE.
3. TYPICAL SINGLE PLATE CONNECTIONS AS SPECIFIED BY THIS TABLE AND SUPPORTING TYPICAL DETAILS ARE UNO BY PLAN NOTES OR SPECIFIC CUT DETAILS ON PLAN, SECTION, ETC.
4. IT IS THE RESPONSIBLY OF THE CONTRACTOR AND/OR FABRICATOR TO CONTACT THE EOR IF BEAM TO SUPPORT DIMENSION CONSTRAINTS DO NOT MEET TYPICAL SINGLE PLATE CONNECTION CRITERIA FOR ALTERNATE CONNECTION INFORMATION.

1 | 3/8" SINGLE PLATE 3/4" BOLT CONNECTION - BOLT SCHEDULE
S500 | 12" = 1'-0"

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Construction Documents

REVISIONS:

#	Description	Date

STATE OF MISSOURI
NUMBER PE-2023000069
10/06/23
PROFESSIONAL ENGINEER

JOB NO: 23011.00
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CHECKED BY: LKC
DATE: 10/06/23

S500

TYPICAL STEEL DETAILS

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PLUMBING PIPES:

	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRCULATION
140	DOMESTIC HOT WATER - 140 DEGREES
180	DOMESTIC HOT WATER - 180 DEGREES
T	DOMESTIC TEMPERED WATER
DW	DOMESTIC CHILLED DRINKING WATER
W	DOMESTIC WATER SERVICE
	WASTE PIPING - ABOVE FLOOR
	WASTE PIPING - BELOW FLOOR
RD	ROOF DRAIN - ABOVE FLOOR
RD	ROOF DRAIN - BELOW FLOOR
AW	ACID WASTE - ABOVE FLOOR
AW	ACID WASTE - BELOW FLOOR
GW	GREASE WASTE - ABOVE FLOOR
GW	GREASE WASTE - BELOW FLOOR
	VENT PIPING
AV	ACID VENT PIPING
CA	COMPRESSED AIR
G	NATURAL GAS
DI	DEIONIZED WATER

FIRE PROTECTION PIPES:

F	FIRE SERVICE
SP	FIRE PROTECTION STANDPIPE
F	FIRE SPRINKLER - WET
FD	FIRE SPRINKLER - DRY
FP	FIRE SPRINKLER - PREACTION
FG	FIRE SPRINKLER - GASEOUS

MEDICAL GAS PIPES:

V	MEDICAL VACUUM PIPING
O	MEDICAL OXYGEN PIPING
NO	MEDICAL NITROUS OXIDE PIPING
N	MEDICAL NITROGEN PIPING
A	MEDICAL AIR PIPING
WAGD	MEDICAL WAGD PIPING

HVAC PIPES:

CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
CHS	CHILLED / HOT WATER SUPPLY
CHR	CHILLED / HOT WATER RETURN
C	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HWR	HEATING HOT WATER RETURN
HTWS	HIGH TEMPERATURE WATER SUPPLY
HTWR	HIGH TEMPERATURE WATER RETURN
HPS	HEAT PUMP SUPPLY
HPR	HEAT PUMP RETURN
LP	STEAM - LOW PRESSURE SUPPLY
LP	STEAM - LOW PRESSURE CONDENSATE RETURN
MP	STEAM - MEDIUM PRESSURE SUPPLY
MP	STEAM - MEDIUM PRESSURE CONDENSATE RETURN
HP	STEAM - HIGH PRESSURE SUPPLY
HP	STEAM - HIGH PRESSURE CONDENSATE RETURN
FW	BOILER FEEDWATER PUMP DISCHARGE
PC	CONDENSATE PUMP DISCHARGE
D	CONDENSATE (DRAIN) PIPING
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RD	REFRIGERANT DISCHARGE (HOT GAS)
RDB	REFRIGERANT DISCHARGE (BYPASS)
IN	INTAKE PIPING
EX	EXHAUST PIPING

PIPE FITTINGS AND VALVES:

	SHUT-OFF VALVE (BALL OR GATE AS SPECIFIED)
	CHECK VALVE
	BALANCING VALVE WITH PRESSURE PORTS
	TRIPLE DUTY VALVE WITH PRESSURE PORTS
	PLUG VALVE
	SOLENOID VALVE
M	MOTORIZED TWO-WAY VALVE
M	MOTORIZED THREE-WAY VALVE
F	AUTOMATIC FLOW CONTROL VALVE
MV	DOMESTIC WATER MIXING VALVE
	TEMPERATURE REGULATING VALVE
	PRESSURE REDUCING VALVE
R	RELIEF VALVE
	TEMPERATURE AND PRESSURE RELIEF VALVE
	THERMOMETER
TS	TEMPERATURE SENSOR
	PRESSURE GAUGE
FS	FLOW SWITCH
	STRAINER
F	FLOAT TRAP
	FLOAT AND THERMOSTATIC TRAP
	BUCKET TRAP
	IMPULSE TRAP
	SLIDING EXPANSION JOINT
	BELLOWS EXPANSION JOINT
	PIPE GUIDE
PA	PIPE ANCHOR
	PIPING SUPPORT ON ROOF
	UNION
	REDUCER
	CAP
	BREAK
	ELBOW UP
	ELBOW DOWN
	TEE UP
	TEE DOWN
	SIAMESE CONNECTION
S	SHOCK ABSORBER
M	METER
BP	BACKFLOW PREVENTER

PIPE PHASING:

	IMPROVEMENT - SERVICE AS NOTED ABOVE
	IMPROVEMENT - SERVICE AS NOTED ABOVE
	IMPROVEMENT - SERVICE AS NOTED ABOVE
	IMPROVEMENT - SERVICE AS NOTED ABOVE
	IMPROVEMENT - SERVICE AS NOTED ABOVE
	IMPROVEMENT - SERVICE AS NOTED ABOVE
	IMPROVEMENT - SERVICE AS NOTED ABOVE
	EXISTING - SERVICE AS NOTED ABOVE
	EXISTING - SERVICE AS NOTED ABOVE
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	EXISTING - SERVICE AS NOTED ABOVE
	EXISTING - SERVICE AS NOTED ABOVE
	EXISTING - SERVICE AS NOTED ABOVE
	DEMOLISHED - SERVICE AS NOTED ABOVE
	FUTURE - SERVICE AS NOTED ABOVE

PLUMBING FIXTURES:

X	PLUMBING FIXTURE PLAN MARK TAG (REFERENCE PLUMBING FIXTURE SCHEDULE)
	FLUSH TANK WATER CLOSET
	FLOOR MOUNT FLUSH VALVE WATER CLOSET
	WALL MOUNT FLUSH VALVE WATER CLOSET
	URINAL
	WALL MOUNTED LAVATORY
	COUNTERTOP LAVATORY
	SINGLE BOWL SINK
	DOUBLE BOWL SINK
	TRIPLE BOWL SINK
	BATHTUB
	SHOWER
	SHOWER HEADS
	DRINKING FOUNTAIN OR ELECTRIC WATER COOLER
	JANITOR'S BASIN
	EMERGENCY EYEWASH
	EMERGENCY EYEWASH & SHOWER
	EMERGENCY SHOWER
	LAUNDRY SINK
	ROUGH-IN BOX (LAUNDRY OR CONDENSATE DRAIN)
	ROUGH-IN BOX (ICE-MAKER)
	HOSE BIBB
	WALL HYDRANT

PIPE SPECIALTIES:

X x"	DRAINAGE PIPE SPECIALTY TAG X DENOTES PLAN MARK x" DENOTES INLET PIPE SIZE (REFERENCE DRAINAGE PIPE SPECIALTY SCHEDULE)
	FLUSH FLOOR CLEANOUT
	FLUSH GRADE CLEANOUT
	FINISH WALL CLEANOUT
	ROOF DRAIN
	FLOOR DRAIN
	FLOOR SINK
	FLOOR TROUGH / TRENCH DRAIN

DUCTWORK:

	BRANCH DUCT WITH 45 DEGREE BOOT FITTING
	BRANCH DUCT WITH BELLMOUTH SPIN-IN FITTING
	BRANCH DUCT WITH HIGH EFFICIENCY TAKE-OFF
	EQUIPMENT WITH FLEXIBLE DUCT CONNECTION
	ELBOW WITH TURNING VANES
	RETURN, EXHAUST OR FRESH AIR DUCT UP
	RETURN, EXHAUST OR FRESH AIR DUCT DOWN
	SUPPLY AIR DUCT UP
	SUPPLY AIR DUCT DOWN
	INSULATED FLEXIBLE DUCT
	LINEAR SLOT DIFFUSER, TYPE, SIZE, & CFM
SA 8x8 200	SUPPLY GRILLE- SQUARE CONNECTION, TYPE, SIZE, & CFM
SA 8x8 200	SUPPLY GRILLE - ROUND CONNECTION, TYPE, SIZE, & CFM
RA 8x8 200	RETURN GRILLE - SQUARE CONNECTION, TYPE, SIZE, & CFM
RA 8x8 200	RETURN GRILLE - ROUND CONNECTION, TYPE, SIZE, & CFM
RA 8x8 200	RETURN GRILLE - DUCTLESS, TYPE, SIZE, & CFM
EA 8x8 200	EXHAUST GRILLE - SQUARE CONNECTION, TYPE, SIZE, & CFM
EA 8x8 200	EXHAUST GRILLE - ROUND CONNECTION, TYPE, SIZE, & CFM
SA 8x8 200	LOUVER - INTAKE, TYPE, SIZE, & CFM
EA 8x8 200	LOUVER - EXHAUST, TYPE, SIZE, & CFM

DAMPERS:

	VOLUME DAMPER WITH LOCKING QUADRANT
FD	FIRE DAMPER
SD	SMOKE DAMPER
FS	FIRE / SMOKE DAMPER
MD	MOTORIZED DAMPER
CD	CONTROL DAMPER
RD	RELIEF DAMPER
BD	BACKDRAFT DAMPER

TEMPERATURE CONTROLS:

"RTU-X" T	THERMOSTAT AT 4'-0" A.F.F. U.N.O. SERVING "UNIT"
S	TEMPERATURE SENSOR AT 4'-0" A.F.F. U.N.O.
H	HUMIDITY SENSOR AT 4'-0" A.F.F. U.N.O.
C	CARBON DIOXIDE SENSOR AT 4'-0" A.F.F. U.N.O.
● FS	FREEZE STAT

LUMINAIRES:

"A" (x)	RECESSED LIGHT FIXTURE, TYPE & CONTROL ZONE
"A" (x)	LIGHT FIXTURE, TYPE & CONTROL ZONE - EMERGENCY

HORIZONTAL LINE IN SYMBOL INDICATES ORIENTATION OF CENTER "BASKET" IN ARCHITECTURAL FIXTURES WHERE APPLICABLE.

"A"	RECESSED ROUND CAN LIGHT FIXTURE AND TYPE
"A"	SUSPENDED ROUND LIGHT FIXTURE AND TYPE
"A"	WALL MOUNTED LIGHT FIXTURE AND TYPE
"A"	SURFACE MOUNTED LINEAR LIGHT FIXTURE AND TYPE
"A"	SUSPENDED LINEAR LIGHT FIXTURE AND TYPE
"X" "X"	CEILING AND WALL MOUNTED EXIT LIGHT AND TYPE -ARROW INDICATES CHEVRON DIRECTION(S) -FILLED SEGMENT INDICATES FACE DIRECTION(S)
"X"	CEILING MOUNTED COMBINATION EXIT / EMERGENCY LIGHT AND TYPE
"X1"	WALL MOUNTED COMBINATION EXIT / EMERGENCY LIGHT AND TYPE
(x)	DESIGNATION OF CONTROL ZONE FOR LUMINARE. DESIGNATION IS ASSOCIATED WITH BOTH CONTROL DEVICES AND LUMINAIRES.

RACEWAYS:

	CONDUIT OR CIRCUIT CONCEALED IN CEILING OR WALL
	CONDUIT OR CIRCUIT CONCEALED IN FLOOR SLAB
	EXPOSED CONDUIT OR CIRCUIT
	EXPOSED METAL RACEWAY - WIREMOLD
HOT NEUTRAL GROUND	HOME RUN - LINES INDICATE NUMBER OF WIRES, ARROWS INDICATE NUMBER OF CIRCUITS.
UGE	UNDERGROUND ELECTRIC

POWER EQUIPMENT:

	LIGHTING AND APPLIANCE PANEL
	DISTRIBUTION, FEEDER OR POWER PANEL
	DISCONNECT SWITCH
	MAGNETIC MOTOR CONTROLLER
T	TIME SWITCH
	TRANSFORMER - THIN OUTLINE INDICATES EQUIPMENT PAD WHERE FLOOR MOUNTED.

WIRING DEVICES AND OUTLETS:

REFER TO SPECIFICATION SECTION 260533 RACEWAYS AND BOXES FOR INSTALLATION HEIGHTS AND COORDINATION OF LOCATION REQUIREMENTS.

$\$$	20 AMP, SINGLE POLE, 120/277 VOLT SWITCH
$\$_{3}$	THREE-WAY 120/277 VOLT SWITCH
$\$_{4}$	FOUR-WAY 120/277 VOLT SWITCH
$\$_{P}$	120/277 VOLT SWITCH WITH PILOT LIGHT
$\$_{K}$	KEYED 120/277 VOLT SWITCH
$\$_{WP}$	WEATHERPROOF 120/277 VOLT SWITCH
$\$_{2}$	DOUBLE POLE, 120/277 VOLT SWITCH
$\$_{D}$	120/277 VOLT DIMMER SWITCH
$\$_{M}$	MOMENTARY CONTACT 120/277 VOLT SWITCH
$\$_{HOA}$	HAND-OFF-AUTO SELECTOR SWITCH
$\$_{TO}$	MANUAL STARTER WITH THERMAL OVERLOADS
$\$_{OT}$	120/277 VOLT SPRING WOUND TIMER SWITCH
$\$_{ET}$	120/277 VOLT ELECTRIC TIMER SWITCH
$\$_{N}$	120/277 VOLT NARROW SWITCH
$\$_{LV}$	LOW VOLTAGE SWITCH - REFER TO LIGHTING DEVICE SCHEDULE
$\$_{V1 / O1}$	WALL MOUNT VACANCY SENSOR SWITCH AND TYPE
VA1	WALL MOUNT VACANCY SENSOR AND TYPE
VA1	CEILING MOUNT VACANCY SENSOR AND TYPE
RC1	ROOM CONTROL DEVICE FOR DISTRIBUTED LIGHTING CONTROLS
PP1	POWER PACK FOR LIGHTING CONTROLS
	SWITCHED RECEPTACLE, HALF OF OUTLETS SWITCHED, NEMA TYPE AS INDICATED
	SIMPLEX, 20 A, 125 V, 2 P, 3 W, GROUNDING RECEPTACLE - NEMA 5-20R
	CEILING MOUNTED DUPLEX, 20 A, 125 V, 2 P, 3 W, GROUNDING RECEPTACLE - NEMA 5-20R
	DUPLEX, 20 A, 125 V, 2 P, 3 W, GROUNDING RECEPTACLE - NEMA 5-20R
	DOUBLE DUPLEX, 20 A, 125 V, 2 P, 3 W, GROUNDING RECEPTACLE - NEMA 5-20R
	DUPLEX, 20 A, 125 V, 2 P, 3 W, GROUND FAULT INTERRUPTER TYPE GROUNDING RECEPTACLE - NEMA 5-20R
	DOUBLE DUPLEX, 20 A, 125 V, 2 P, 3 W, GROUND FAULT INTERRUPTER TYPE GROUNDING RECEPTACLE - NEMA 5-20R
	DUPLEX, 20 A, 125 V, 2 P, 3 W, GROUNDING TYPE RECEPTACLE WITH DUAL USB PORTS
	20AMP, 125V, 2P, 3W GROUNDING 4-PORT USB CHARGING OUTLET
A 20	ADDITIONAL SPECIAL RECEPTACLE DESIGNATORS - REFER TO RECEPTACLE SCHEDULE OR PLAN NOTES FOR RECEPTACLE REQUIREMENTS.
FB1	RECESSED RECTANGULAR FLOOR BOX - MAY INCLUDE DATA AND POWER - REFER TO FLOOR BOX SCHEDULE FOR DETAILS
FB1	RECESSED ROUND FLOOR BOX - MAY INCLUDE DATA AND POWER - REFER TO FLOOR BOX SCHEDULE FOR DETAILS
FB1	SURFACE MOUNTED FLOOR BOX - MAY INCLUDE DATA AND POWER - REFER TO FLOOR BOX SCHEDULE FOR DETAILS
C	CLOCK OUTLET (RECEPTACLE)
	APPROPRIATE RECEPTACLE(S) ON STUBBED UP CONDUIT, OUTLET BOX TO BE FS BOX
J	JUNCTION BOX 4" SQUARE UNLESS NOTED OTHERWISE
J	JUNCTION BOX ON STUBBED UP CONDUIT
	PRE-FABRICATED MULTI-OUTLET ASSEMBLY - OUTLETS 12" O.C. UNLESS OTHERWISE NOTED - REFER TO SCHEDULE FOR ADDITIONAL REQUIREMENTS
PB	PUSHBUTTON STATION

PLAN NOTATIONS:

NORTH	INDICATES DIRECTION OF NORTH
1 / M1	DETAIL REFERENCE - UPPER NUMBER INDICATES DETAIL NUMBER, LOWER NUMBER INDICATES SHEET NUMBER
1	PLAN NOTE REFERENCE
	INDICATES CONNECTION TO EXISTING SYSTEM
1 / M1	SECTION REFERENCE - UPPER NUMBER INDICATES DETAIL NUMBER, LOWER NUMBER INDICATES SHEET NUMBER

FIRE ALARM:

	FIRE ALARM STROBE - WALL MOUNTED
	FIRE ALARM STROBE - CEILING MOUNTED
	FIRE HORN AND STROBE - WALL MOUNTED
	FIRE HORN
C S	FIRE SPEAKER - CEILING MOUNTED
S	FIRE SPEAKER - WALL MOUNTED
	FIRE SPEAKER AND STROBE - WALL MOUNTED
C	FIRE SPEAKER AND STROBE - CEILING MOUNTED

INSTALLATION HEIGHT OF ALL FIRE ALARM DEVICES SHALL BE AS REQUIRED BY THE LATEST EDITION OF NFPA 72. COORDINATE WITH EQUIPMENT MANUFACTURER BASED ON ACTUAL PROVIDED EQUIPMENT.

FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
CO	CARBON DIOXIDE SENSOR
S D	DUCT SMOKE DETECTOR
S	CEILING SMOKE DETECTOR
	THERMAL DETECTOR (HEAT)
DH	ELECTRIC DOOR HOLDER
F	FIREMAN'S TELEPHONE OUTLET

COMMUNICATIONS:

1	**TELEPHONE OUTLET - NUMBER INDICATES QTY OF CABLE AND JACK OUTLETS. WHERE NO NUMBER IS INDICATED, ONE CABLE AND JACK OUTLET IS STANDARD.
3/2	**DATA / TELEPHONE COMBINATION OUTLET - NUMBERS INDICATES QTY OF CABLE AND JACK OUTLETS FOR DATA/TELEPHONE. WHERE NO NUMBER IS INDICATED, TWO CABLES AND JACK OUTLETS IS STANDARD.
3	**DATA OUTLET - NUMBER INDICATES QTY OF CABLE AND JACK OUTLETS. WHERE NO NUMBER IS INDICATED, ONE CABLE AND JACK OUTLET IS STANDARD.
WAP	**WIRELESS ACCESS POINT.
TV	**TELEVISION OUTLET - WALL MOUNT

** THESE OUTLETS REQUIRE 4/S - 3/4 BOX WITH SINGLE GANG PLASTER RING AND 0.75" CONDUIT WITH 90 DEGREE SWEEP ABOVE CEILING WITH DE-BURRED END

	TELEPHONE TERMINAL CABINET ("TTC")
TP	TELEPHONE - POWER POLE
	MASTER CLOCK
ACU	INTERCOM ADMINISTRATIVE CONTROL UNIT
MA	MUSIC SYSTEM AMP
PA	PAGING SYSTEM AMP
	WALL SPEAKER
C	COMBINATION CLOCK SPEAKER
S	CEILING SPEAKER
	COLUMN SPEAKER
	HORN TYPE SPEAKER
M	MICROPHONE OUTLET - WALL
M	MICROPHONE OUTLET - FLOOR
A	LOCAL AMPLIFIER
V	REMOTE VOLUME CONTROL
©	CALL-IN STATION
	CABLE TRAY

ELECTRICAL NOTATIONS:

AC	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATE DEVICE BOTTOM TO BE 4" ABOVE COUNTERTOP BACKSPLASH
IG	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATE ISOLATED GROUND DEVICE
SS	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATE SURGE SUPPRESSION DEVICE
TR	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATE TAMPER RESISTANT DEVICE
WP	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATE WEATHER-PROOF ENCLOSURE
WPI	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATE WEATHER-PROOF IN-USE ENCLOSURE
XP	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATE EXPLOSION-PROOF ENCLOSURE
60"	DIMENSIONS ADJACENT TO ANY SYMBOL INDICATE MOUNTING HEIGHT TO CENTER OF DEVICE
(TIE)	INDICATES HOMERUNS WITH SAME CIRCUIT NUMBER TO BE WIRED TOGETHER ON SAME CIRCUIT.

ABBREVIATIONS:

AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
C	CONDUIT
CO	CLEANOUT
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
DF	DRINKING FOUNTAIN
DN	DOWN
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FFCO	FINISHED FLOOR CLEANOUT
FGCO	FINISHED GRADE CLEANOUT
FTR	FIN TUBE RADIATION
FWCO	FINISHED WALL CLEANOUT
G	GROUND WIRE
HHP	HYDRONIC HEAT PUMP
HP	HEAT PUMP
HW	DOMESTIC HOT WATER
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
OA	OUTSIDE AIR
OC	ON CENTER
RA	RETURN AIR
SA	SUPPLY AIR
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UV	UNIT VENTILATOR
V	VENT
VTR	VENT THROUGH ROOF
W	WASTE

GENERAL NOTES PLUMBING:

A. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE 20XX EDITION OF THE INTERNATIONAL PLUMBING CODE AS ADOPTED BY THE CITY OF KC, MO.

B. FOR ALL MECHANICAL QUESTIONS ON THIS PROJECT, CONTACT RTM ENGINEERING CONSULTANTS AT (913) 322-1400. CONTACT: KEITH HAMMERSCHMIDT.

C. CONTRACTOR SHALL SECURE AND PAY FOR NECESSARY MEP PERMITS AND CERTIFICATES OF INSPECTION REQUIRED BY GOVERNMENTAL ORDINANCES, LAWS, RULES, OR REGULATIONS.

D. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO THE CONDITION THAT ALL SYSTEMS, EQUIPMENT, APPARATUS, AND APPLIANCES OPERATE SATISFACTORILY AS DESIGNED AND INTENDED; WORK SHALL INCLUDE REQUIRED REPLACEMENT, ADJUSTMENT OF SYSTEMS AND CONTROL EQUIPMENT AND ALL REQUIRED PROGRAMMING INSTALLED. PROVIDE FOR ALL WORK INDICATED ON DRAWINGS OR AS REASONABLY IMPLIED.

E. TEST ALL LINES, SYSTEMS, EQUIPMENT BEFORE THEY ARE INSULATED, PAINTED, OR CONCEALED BY CONSTRUCTION OR BACKFILLING. PROVIDE FUEL, WATER, ELECTRICITY, MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR TESTS. REPAIR OR REPLACE DEFECTS, LEAKS, AND MATERIALS FAILURES REVEALED BY TESTS AND THEN RETESTED UNTIL SATISFACTORY. MAKE REPAIRS WITH NEW MATERIALS.

F. PROVIDE NECESSARY MATERIALS AND ACCESSORIES FOR INSTALLATION OF FIXTURES, EQUIPMENT, ETC AS REQUIRED FOR COMPLETE AND FUNCTIONAL OPERATION AS NOTED ON DRAWINGS OR IN NOTES.

G. ACCESS PANELS SHALL BE PROVIDED WHEREVER NECESSARY TO PROVIDE ACCESS TO VALVES, JUNCTION BOXES, ETC., LOCATED IN CONCEALED SPACES.

H. ALL EQUIPMENT, FIXTURES, MATERIALS, ETC SHALL BE INSTALLED IN NEAT, PROFESSIONAL MANNER IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

I. THE CONTRACTOR SHALL CONTACT THE OWNER AND COORDINATE ALL OUTAGES 5 DAYS PRIOR TO ANY SHUT-OFF OF SERVICES.

J. PROVIDE ALL FIRE RATED MATERIAL FOR PATCH AND REPAIR FOR ALL FIRE RATED ASSEMBLIES. ALL OPENINGS SHALL BE SEALED AND CLOSED IN APPROVED MANNER. PROVIDE SLEEVE WHERE NEEDED DUE TO SCOPE OF WORK.

K. EXISTING CONDITIONS ON THIS SET OF BID DOCUMENTS WERE TAKEN FROM EXISTING DRAWINGS, LIMITED SITE VISITS, AND VISUAL OBSERVATIONS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CHANGE ORDERS WILL NOT BE PAID DUE TO UNANTICIPATED CONDITIONS TO MEET INTENT OF WORK.

L. CONTRACTOR SHALL SCHEDULE AND EXECUTE ALL WORK WITH REGARD TO THE OWNER'S USE OF THE BUILDING.

M. PLANS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS.

N. ALL WASTE AND VENT PIPING SERVING LABORATORY SINKS SHALL BE ACID WASTE AND VENT PIPING FROM SINK TO INLET OF NEUTRALIZATION BASIN.

GENERAL DEMOLITION NOTES:

A. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL DEMOLISHED MATERIALS AND EQUIPMENT. STORE ITEMS ON SITE AS DIRECTED BY OWNER.

B. EXISTING CONDITIONS ON THIS SET OF BID DOCUMENTS WERE TAKEN FROM EXISTING DRAWINGS, LIMITED SITE VISITS, AND VISUAL OBSERVATIONS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CHANGE ORDERS WILL NOT BE PAID DUE TO UNANTICIPATED CONDITIONS TO MEET INTENT OF WORK.

C. REFER TO ARCHITECTURAL DEMOLITION PLANS FOR PHASING AND EXTENTS OF DEMOLITION.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CORING, PATCH, AND REPAIR OF ALL WALL AND FLOOR SYSTEMS AS REQUIRED DUE TO CONSTRUCTION WORK. MAINTAIN ALL FIRE RATINGS.

E. REMOVE ALL UNUSED PIPING LOCATED WITHIN THE AREA OF CONSTRUCTION. CAP BRANCH PIPING REMOVED NEAR MAIN. FOR DOMESTIC WATER PIPING PROVIDE SHUTOFF VALVE AT TAP AND CAP.

GENERAL NOTES MECHANICAL:

A. ALL MECHANICAL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2018 INTERNATIONAL MECHANICAL CODE AS ADOPTED BY THE CITY OF KC, MO.

B. FOR ALL MECHANICAL QUESTIONS ON THIS PROJECT, CONTACT RTM ENGINEERING CONSULTANTS AT (913) 322-1400. CONTACT: KEITH HAMMERSCHMIDT.

C. CONTRACTOR SHALL SECURE AND PAY FOR NECESSARY MEP PERMITS AND CERTIFICATES OF INSPECTION REQUIRED BY GOVERNMENTAL ORDINANCES, LAWS, RULES, OR REGULATIONS.

D. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO THE CONDITION THAT ALL SYSTEMS, EQUIPMENT, APPARATUS, AND APPLIANCES OPERATE SATISFACTORILY AS DESIGNED AND INTENDED; WORK SHALL INCLUDE REQUIRED REPLACEMENT, ADJUSTMENT OF SYSTEMS AND CONTROL EQUIPMENT AND ALL REQUIRED PROGRAMMING INSTALLED. PROVIDE FOR ALL WORK INDICATED ON DRAWINGS OR AS REASONABLY IMPLIED.

E. TEST ALL LINES, SYSTEMS, EQUIPMENT BEFORE THEY ARE INSULATED, PAINTED, OR CONCEALED BY CONSTRUCTION OR BACKFILLING. PROVIDE FUEL, WATER, ELECTRICITY, MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR TESTS. REPAIR OR REPLACE DEFECTS, LEAKS, AND MATERIALS FAILURES REVEALED BY TESTS AND THEN RETESTED UNTIL SATISFACTORY. MAKE REPAIRS WITH NEW MATERIALS.

F. PROVIDE NECESSARY MATERIALS AND ACCESSORIES FOR INSTALLATION OF FIXTURES, EQUIPMENT, ETC AS REQUIRED FOR COMPLETE AND FUNCTIONAL OPERATION AS NOTED ON DRAWINGS OR IN NOTES.

G. ACCESS PANELS SHALL BE PROVIDED WHEREVER NECESSARY TO PROVIDE ACCESS TO VALVES, JUNCTION BOXES, ETC., LOCATED IN CONCEALED SPACES. PROVIDE ACCESS DOOR FOR ALL FIRE DAMPERS AS REQUIRED FOR SERVICE.

H. ALL EQUIPMENT, FIXTURES, MATERIALS, ETC SHALL BE INSTALLED IN NEAT, PROFESSIONAL MANNER IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

I. THE CONTRACTOR SHALL CONTACT THE OWNER AND COORDINATE ALL OUTAGES 5 DAYS PRIOR TO ANY SHUT-OFF OF SERVICES.

J. PROVIDE ALL FIRE RATED MATERIAL FOR PATCH AND REPAIR FOR ALL FIRE RATED ASSEMBLIES. ALL OPENINGS SHALL BE SEALED AND CLOSED IN APPROVED MANNER. PROVIDE SLEEVE WHERE NEEDED DUE TO SCOPE OF WORK.

K. EXISTING CONDITIONS ON THIS SET OF BID DOCUMENTS WERE TAKEN FROM EXISTING DRAWINGS, LIMITED SITE VISITS, AND VISUAL OBSERVATIONS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CHANGE ORDERS WILL NOT BE PAID DUE TO UNANTICIPATED CONDITIONS TO MEET INTENT OF WORK.

L. CONTRACTOR SHALL SCHEDULE AND EXECUTE ALL WORK WITH REGARD TO THE OWNER'S USE OF THE BUILDING.

M. PLANS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS.

N. ALL METAL DUCTWORK SPECIFIED TO RECEIVE INTERIOR THERMAL AND ACOUSTICAL LINER IS NOT SIZED ON PLANS TO INCLUDE THE PROPER THICKNESS OF INSULATION. ADD 1" OR 2" IN HEIGHT AND WIDTH OF DUCTWORK TO ACCOMMODATE THICKNESS OF INSULATION.

O. BRANCH DUCTS SHALL BE THE SAME SIZE AS DIFFUSER NECK UNLESS NOTED OTHERWISE.

P. PROVIDE TURNING VANES IN ALL RECTANGULAR MITERED ELBOWS.

Q. THERMOSTATS AND CONTROL WIRING SHALL BE SUPPLIED BY THE HVAC CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL THE NECESSARY CONDUIT, BOXES, ETC. FOR THE ISTALLATION OF THERMOSTATS. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR THE NSTALLATION AND CONNECTION OF THERMOSTATS.

R. NEW PIPING AND DUCTWORK SHALL NOT BE ROUTED OVER EXISTING AND NEW ELECTRICAL PANELS.

S. ALL ROOF WORK SHALL BE IN ACCORDANCE WITH ARCHITECTURAL REQUIREMENTS SO THAT ROOF WARRANTY IS NOT VOIDED.

T. ALL EQUIPMENT SHALL BE INSTALLED TO ALLOW FULL MAINTENANCE ACCESS PER MANUFACTURER'S RECOMMENDATIONS.

U. PROVIDE BALANCE DAMPER ON ALL SUPPLY, EXHAUST, AND OUTSIDE AIR BRANCH DUCTS TO OUTLETS, WHETHER INDICATED IN PLANS OR NOT.

V. INSULATE AND SEAL ALL CAPPED DUCTS WHERE NOTED.

W. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSITIONS TO ALL EQUIPMENT OPENING SIZES.

X. MECHANICAL CONTRACTOR SHALL REMOVE AND REPLACE CEILING TILES IN ALL EXISTING AREAS WITH NEW DUCT AND IS RESPONSIBLE FOR REPLACING TILES IF DAMAGED DURING CONSTRUCTION.

Y. REFER TO ARCHITECTURAL PLANS FOR ANY ADDITIONAL CONSTRUCTION PHASING REQUIREMENTS.

Z. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY TEMPORARY EQUIPMENT REQUIRED FOR DUST CONTROL AND TEMPORARY EXHAUST. COORDINATE REQUIREMENTS WITH OWNER.

AA. ALL PENETRATIONS THROUGH THE WALLS, FLOORS, OR STRUCTURE OF LABORATORY AREAS, LABORATORY SUPPORT AREAS, AND CORRIDORS SHALL BE SEALED AIRTIGHT TO MAINTAIN PROPER PRESSURE RELATIONSHIPS.

BB. ALL LAB EXHAUST DUCT SHALL BE 316 STAINLESS STEEL WITH ONE SEAM WELDED ON TOP SIDE. REFER TO SPECIFICATIONS. DUCTWORK NOTED ON PLANS AS LAB EXHAUST.

GENERAL DEMOLITION NOTES:

A. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL DEMOLISHED MATERIALS AND EQUIPMENT. STORE ITEMS ON SITE AS DIRECTED BY OWNER.

B. EXISTING CONDITIONS ON THIS SET OF BID DOCUMENTS WERE TAKEN FROM EXISTING DRAWINGS, LIMITED SITE VISITS, AND VISUAL OBSERVATIONS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CHANGE ORDERS WILL NOT BE PAID DUE TO UNANTICIPATED CONDITIONS TO MEET INTENT OF WORK.

C. REFER TO ARCHITECTURAL DEMOLITION PLANS FOR PHASING AND EXTENTS OF DEMOLITION.

D. PROVIDE TEMPORARY HEATING AND/OR COOLING AS REQUIRED BY THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER AND AS REQUIRED PER THE SPECIFICATIONS.

E. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CORING, PATCH, AND REPAIR OF ALL WALL AND FLOOR SYSTEMS AS REQUIRED DUE TO CONSTRUCTION WORK. MAINTAIN ALL FIRE RATINGS.

F. REMOVE ALL UNUSED SHEETMETAL WORK AND PIPING LOCATED WITHIN THE AREA OF CONSTRUCTION.

GENERAL NOTES ELECTRICAL:

A. THESE GENERAL NOTES APPLY TO ALL ELECTRICAL AND SPECIAL SYSTEMS DRAWINGS. REFER TO DIVISION 26, 27 AND 28 SPECIFICATIONS FOR ADDITIONAL ELECTRICAL AND SPECIAL SYSTEMS SPECIFICATIONS AND REQUIREMENTS.

B. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRIC CODE AND AS ADOPTED BY THE LOCAL AHJ.

C. FOR ALL ELECTRICAL QUESTIONS ON THIS PROJECT, CONTACT RTM ENGINEERING CONSULTANTS AT (913) 322-1400. CONTACT: COLLIN TRETTER.

D. CONTRACTOR SHALL SECURE AND PAY FOR NECESSARY MEP PERMITS AND CERTIFICATES OF INSPECTION REQUIRED BY GOVERNMENTAL ORDINANCES, LAWS, RULES, OR REGULATIONS.

E. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO THE CONDITION THAT ALL SYSTEMS, EQUIPMENT, APPARATUS, AND APPLIANCES OPERATE SATISFACTORILY AS DESIGNED AND INTENDED; WORK SHALL INCLUDE REQUIRED REPLACEMENT, ADJUSTMENT OF SYSTEMS AND CONTROL EQUIPMENT AND ALL REQUIRED PROGRAMMING INSTALLED. PROVIDE FOR ALL WORK INDICATED ON DRAWINGS OR AS REASONABLY IMPLIED.

F. TEST ALL LINES, SYSTEMS, EQUIPMENT BEFORE THEY ARE INSULATED, PAINTED, OR CONCEALED BY CONSTRUCTION OR BACKFILLING. PROVIDE FUEL, WATER, ELECTRICITY, MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR TESTS. REPAIR OR REPLACE DEFECTS, AND MATERIALS FAILURES REVEALED BY TESTS AND THEN RETESTED UNTIL SATISFACTORY. MAKE REPAIRS WITH NEW MATERIALS.

G. PROVIDE NECESSARY MATERIALS AND ACCESSORIES FOR INSTALLATION OF FIXTURES, EQUIPMENT, ETC AS REQUIRED FOR COMPLETE AND FUNCTIONAL OPERATION AS NOTED ON DRAWINGS OR IN NOTES.

H. ACCESS PANELS SHALL BE PROVIDED WHEREVER NECESSARY TO PROVIDE ACCESS TO VALVES, JUNCTION BOXES, ETC., LOCATED IN CONCEALED SPACES.

I. ALL EQUIPMENT, FIXTURES, MATERIALS, ETC SHALL BE INSTALLED IN NEAT, PROFESSIONAL MANNER IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

J. THE CONTRACTOR SHALL CONTACT THE OWNER AND COORDINATE ALL OUTAGES 5 DAYS PRIOR TO ANY SHUT-OFF OF SERVICES.

K. PROVIDE ALL FIRE RATED MATERIAL FOR PATCH AND REPAIR FOR ALL FIRE RATED ASSEMBLIES. ALL OPENINGS SHALL BE SEALED AND CLOSED IN APPROVED MANNER. PROVIDE SLEEVE WHERE NEEDED DUE TO SCOPE OF WORK.

L. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BID. NO EXTRAS WILL BE PAID DUE TO UNANTICIPATED EXISTING CONDITIONS.

M. THE CONTRACTOR SHALL SCHEDULE AND EXECUTE ALL WORK WITH REGARD TO THE OWNER'S USE OF THE BUILDING.

N. PLANS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS.
   a. REFER TO ARCHITECTURAL DRAWINGS FOR TYPICAL ROOM INTERIOR ELEVATIONS. COORDINATE EXACT DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECT PRIOR TO ROUGH-IN.
   b. COORDINATE ALL WIRING DEVICE LOCATIONS SHOWN AT MILLWORK LOCATIONS WITH THE MILLWORK CONTRACTOR AND GENERAL CONTRACTOR PRIOR TO ANY ROUGH-IN OR INSTALLATION. ALL WIRING DEVICES SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS AND SHALL NOT BE CONCEALED.

O. PROVIDE PULL BOXES AS REQUIRED TO PROPERLY INSTALL THE RACEWAYS AND CIRCUITS INDICATED.

P. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH ROT-PROOF PULL-TAPE, LABELED AT EACH END. ALL CONDUITS SHALL BE PROVIDED WITH PLASTIC BUSHINGS WHERE TERMINATED OPEN-ENDED.

Q. SEAL ALL PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES AS NECESSARY TO RESTORE FIRE-RESISTANCE RATING OF ASSEMBLY. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR RATED ASSEMBLIES, FIRE STOPPING MATERIALS, AND REQUIREMENTS.

R. EACH CONTRACTOR AND SUB-CONTRACTOR OR TRADE SHALL REVIEW THE BID DOCUMENTS AS A WHOLE, INCLUDING ALL OTHER TRADES' DRAWINGS AND PROVIDE ANY MISC. ITEMS, MATERIALS, WORK, ETC. REQUIRED TO COMPLETE THE WORK AS SHOWN ON ALL BID DOCUMENTS. THIS REQUIREMENT APPLIES TO ALL TRADES. STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, EQUIPMENT VENDORS, ETC. REQUIREMENTS AND RELATED WORK ARE INDICATED THROUGHOUT THE BID DOCUMENTS AND SHALL BE REVIEWED WITH THE SPECIFIC MEP, STRUCTURAL, ARCHITECTURAL, AND EQUIPMENT DRAWINGS FOR OVERALL SCOPE OF WORK.

S. ELECTRICAL CONTRACTOR SHALL PROVIDE FINAL CONNECTION TO ALL MECHANICAL EQUIPMENT. WHERE EQUIPMENT IS SHOWN ON THE MECHANICAL PLANS, BUT NOT SHOWN ON THE ELECTRICAL PLANS, ELECTRICAL CONTRACTOR SHALL PROVIDE POWER TO THE EQUIPMENT BASED ON EQUIPMENT REQUIREMENTS AND INCLUDE ALL COSTS IN THE BASE BID.
   a. LOCATION SHOWN OF ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT IS SCHEMATIC AND MAY NOT REFLECT ACTUAL CONNECTION POINTS. ROUGH-IN AND CONNECTION TO EQUIPMENT SHALL BE PER THE EQUIPMENT MANUFACTURER'S REQUIREMENTS AND THE NATIONAL ELECTRICAL CODE. PROVIDE STRUCTURAL SUPPORTS AS REQUIRED FOR MOUNTING OF DISCONNECTING MEANS. VERIFY ALL ROUGH-IN REQUIREMENTS WITH THE MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ANY ROUGH-IN.

T. PROVIDE FINAL CONNECTION TO ALL EQUIPMENT, INCLUDING ANY CORD AND PLUG SETS FOR EQUIPMENT NOT PROVIDED WITH IT (WHETHER SPECIFICALLY NOTED OR NOT). COORDINATE ALL WORK WITH THE EQUIPMENT SUPPLIER AND OWNER; AND VERIFY ALL ROUGH-IN LOCATIONS AND REQUIREMENTS PRIOR TO ANY ROUGH-IN.

U. THERMOSTATS AND ALL ASSOCIATED LOW VOLTAGE CONTROL WIRING SHALL BE SUPPLIED AND INSTALLED BY THE HVAC CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL THE NECESSARY CONDUIT, BOXES, ETC. FOR THE INSTALLATION OF THERMOSTATS. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND CONNECTION OF THE THERMOSTATS AND ALL CONTROL WIRING. REFER TO MECHANICAL PLANS FOR THERMOSTAT LOCATIONS.
   a. PROVIDE BACK BOX AND CONDUIT TO ACCESSIBLE CEILING AS REQUIRED FOR THE DIVISION 23 WALL MOUNTED CONTROL DEVICES FOR BUILDING AUTOMATION SYSTEM DEVICES. COORDINATE EXACT LOCATIONS AND OTHER REQUIREMENTS WITH MECHANICAL DRAWINGS AND THE TEMPERATURE CONTROLS CONTRACTOR PRIOR TO ROUGH-IN. THERMOSTATS, TEMPERATURE SENSORS, STATIC PRESSURE SENSORS, HUMIDISTATS, ETC. SHALL BE INSTALLED AT THE SAME ELEVATION AS THE LIGHT SWITCHES UNLESS REQUIRED OTHERWISE.

V. PROVIDE UNSWITCHED/UNCONTROLLED HOT FROM NEAREST CIRCUIT TO EXIT SIGNS AND EMERGENCY FIXTURES WITH INTEGRAL BATTERIES.

W. CONTRACTOR SHALL CONTACT THE LOCAL ELECTRIC UTILITY COMPANY AND ARRANGE FOR ELECTRICAL SERVICE AS INDICATED ON DRAWINGS. INCLUDE ALL COSTS, CHARGES, FEES, ETC. INCURRED BY UTILITY COMPANY INTO BID. PROVIDE ALL MATERIALS AS REQUIRED BY LOCAL AUTHORITIES FOR ELECTRIC SERVICE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL AUTHORITIES.

X. PROVIDE A SEPARATE CODE SIZED GREEN EQUIPMENT GROUND CONDUCTOR IN ALL CONDUITS AND RACEWAYS CONTAINING LINE VOLTAGE CIRCUITS (120V OR HIGHER).

Y. REFER TO SPECIAL SYSTEMS SHEETS FOR APPROXIMATE LOCATIONS OF ALL DATA, TELEPHONE, TV, NURSE CALL, ETC. DEVICES. COORDINATE LOCATION OF ALL ELECTRICAL EQUIPMENT WITH SPECIAL SYSTEMS DEVICES.

Z. PROVIDE ALL RACEWAYS, SLEEVES, BOXES, CABLE TRAY, ETC. AS INDICATED FOR THE OWNER PROVIDED DATA, PHONE, TV CABLING SYSTEM. COORDINATE EXACT REQUIREMENTS WITH OWNER AND OWNER CABLING CONTRACTOR.

GENERAL NOTES ELECTRICAL :

AA. COORDINATE EXACT ROUTE FOR ALL COMMUNICATIONS SYSTEM RACEWAYS AND PULL BOX LOCATIONS WITH THE OWNER AND CABLING CONTRACTOR.

BB. REFER TO ARCHITECTURAL EQUIPMENT DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT. COORDINATE EXACT REQUIREMENTS WITH EQUIPMENT SUPPLIER.

CC. NEUTRALS SHALL NOT BE SHARED FOR ANY CIRCUIT, UNLESS SPECIFICALLY NOTED ON PLANS.

DD. INSTALL ALL SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, CONTACTORS, AND ASSOCIATED CONDUIT AND SUPPORT SYSTEMS IN THE ELECTRICAL ROOMS IN A MANNER AND LOCATION TO ACCOMMODATE THE INSTALLATION OF ALL FUTURE PANELBOARDS INDICATED IN THE DRAWINGS. COORDINATE THE FUTURE PANELBOARD LOCATIONS AND THEIR ASSOCIATED FUTURE REQUIREMENTS WITH ALL OTHER DIVISIONS. MAINTAIN SUFFICIENT PHYSICAL SPACE FOR THE FUTURE INSTALLATION AS WELL AS THE NECESSARY CLEAR WORKING SPACE, HEADROOM, DEDICATED EQUIPMENT SPACE, AND ANY OTHER REQUIRED CLEARANCES.

EE. PROVIDE FINAL CONNECTION OF POWER AND ASSOCIATED CONTROL CIRCUITS FOR ALL ELEVATOR EQUIPMENT. COORDINATE ALL WIRING REQUIREMENTS WITH THE ELEVATOR EQUIPMENT PROVIDER PRIOR TO ANY ROUGH-IN. COORDINATE EXACT LOCATION OF ALL EQUIPMENT, RECEPTACLES AND WIRING DEVICES IN THE ELEVATOR SHAFT, PIT AND MACHINE ROOM WITH THE ELEVATOR EQUIPMENT SUPPLIER PRIOR TO ANY ROUGH-IN.

FF. WIRE SIZE INDICATED BY BRANCH CIRCUIT AT HOMERUN SHALL BE CARRIED THROUGHOUT THE CIRCUIT TO FINAL CONNECTION AT EQUIPMENT. FINAL EXTENSION OF CIRCUIT TO EQUIPMENT MAY NOT BE SHOWN FOR CLARITY BUT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR FOR FINAL CONNECTION.

GG. AT ALL FAN COIL UNITS, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING THE FINAL CONNECTION OF POWER FROM THE FAN COIL CIRCUIT TO ANY CONDENSATE PUMPS OR FLOAT SWITCHES INSTALLED IN AUXILIARY DRAIN PANS. POWER WIRING SHOULD BE TAPPED DOWNSTREAM OF THE EQUIPMENT DISCONNECT SWITCH SO THAT ALL POWER IS DISCONNECTED AT THE UNIT WHEN THE SWITCH IS IN THE 'OFF' POSITION. COORDINATE ALL ROUGH-IN REQUIREMENTS WITH THE MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ANY ROUGH-IN.

HH. REFER TO THE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND QUANTITY OF ALL MECHANICAL EQUIPMENT AND FIRE/SMOKE AND/OR SMOKE DAMPERS. LOCATIONS AND QUANTITY SHOWN ON THE ELECTRICAL DRAWINGS ARE APPROXIMATE AND MAY NOT REFLECT FINAL POSITION OR QUANTITY. ELECTRICAL CONTRACTOR SHALL PROVIDE FINAL CONNECTION TO ALL MECHANICAL EQUIPMENT. WHERE EQUIPMENT IS SHOWN ON THE MECHANICAL PLANS, BUT NOT SHOWN ON THE ELECTRICAL PLANS, ELECTRICAL CONTRACTOR SHALL PROVIDE POWER TO THE EQUIPMENT BASED ON EQUIPMENT REQUIREMENTS AND INCLUDE ALL COSTS IN THE BASE BID. LOCATION SHOWN OF ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT IS SCHEMATIC AND MAY NOT REFLECT ACTUAL CONNECTION POINTS. ROUGH-IN AND CONNECTION TO EQUIPMENT SHALL BE PER THE EQUIPMENT MANUFACTURER'S REQUIREMENTS AND THE NATIONAL ELECTRICAL CODE. PROVIDE STRUCTURAL SUPPORTS AS REQUIRED FOR MOUNTING OF DISCONNECTING MEANS. VERIFY ALL ROUGH-IN REQUIREMENTS WITH THE MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ANY ROUGH-IN.

II. PROVIDE CONTACTOR IN A NEMA 1 ENCLOSURE AND FIRE ALARM FAN SHUT DOWN RELAY/CONTROL MODULE AND INTERLOCK WITH THE FIRE ALARM SYSTEM AT EACH FAN-POWERED BOX OR FAN TERMINAL UNIT TO SHUT OFF POWER TO THE UNIT UPON DETECTION OF SMOKE BY THE AREA SMOKE DETECTION SYSTEM OR BY THE DUCT DETECTOR IN THE RETURN AIR OF THE ASSOCIATED AIR HANDLING UNIT. LOCATE CONTACTOR ABOVE THE CEILING ADJACENT TO EACH FAN COIL UNIT. COORDINATE WITH FIRE ALARM CONTRACTOR FOR PROPER COIL VOLTAGE AND CONTROL. REFER TO MECHANICAL SCHEDULES AND POWER PLANS FOR CONTACTOR AMPACITY AND POLE QUANTITY. REFER TO SPECIAL SYSTEMS PLANS FOR ADDITIONAL COORDINATION.

JJ. SUPPORTS, CONDUIT, BOXES, ETC. INSTALLED IN AREAS WITH EXPOSED STRUCTURE SHALL BE PAINTED TO MATCH ADJACENT FINISHES.

GENERAL ELEC. DEMO NOTES:

A. THESE GENERAL NOTES APPLY TO ALL ELECTRICAL AND SPECIAL SYSTEMS DRAWINGS. REFER TO DIVISION 26, 27 AND 28 SPECIFICATIONS FOR ADDITIONAL ELECTRICAL AND SPECIAL SYSTEMS SPECIFICATIONS AND REQUIREMENTS.

B. AL ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE 2017 NEC AS ADOPTED BY THE LOCAL AHJ.

C. REMOVE ALL UNUSED CONDUIT, CONDUCTORS, PULL BOXES, ETC. FOR DEMOLISHED ITEMS. TURN OFF BREAKERS AND LABEL AS “SPARE” IN THE PANELBOARD DIRECTORY.

D. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL DEMOLISHED MATERIALS AND EQUIPMENT. STORE ITEMS ON SITE AS DIRECTED BY OWNER.

E. COORDINATE WITH THE ELECTRICAL UTILITY COMPANY AND ARRANGE FOR SERVICE AND ADJUSTMENTS AS INDICATED ON DRAWINGS. INCLUDE ALL COSTS, CHARGES, FEEDS, ETC. INCURRED BY LOCAL AUTHORITIES INTO BID. PROVIDE ALL MATERIALS AS REQUIRED BY LOCAL AUTHORITIES FOR SERVICE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL AUTHORITIES.

F. WHERE DEMOLISHED ELECTRICAL DEVICES ARE PART OF A CIRCUIT THAT IS THRU-WIRED, OR HAS ADDITIONAL DEVICES ON THE CIRCUIT THAT ARE TO REMAIN UNCHANGED, THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF THE EXISTING CIRCUIT. ANY ADDITIONAL CONDUIT, WIRING, BOXES, ETC. NEEDED TO MODIFY THE EXISTING CIRCUIT TO MAINTAIN THE INTEGRITY ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE BASE BID.

G. EXISTING CONDITIONS ON THIS SET OF CONSTRUCTION DOCUMENTS WERE TAKEN FROM EXISTING DRAWINGS, LIMITED SITE VISITS, AND VISUAL OBSERVATIONS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CHANGE ORDERS WILL NOT BE PAID DUE TO UNANTICIPATED CONDITIONS TO MEET INTENT OF WORK.

H. REFER TO ARCHITECTURAL DEMOLITION PLANS FOR PHASING AND EXTENTS OF DEMOLITION.

I. PROVIDE TEMPORARY POWER OR LIGHTING REQUIRED BY THE CONSTRUCTION MANAGER.

J. CONTRACTOR RESPONSIBLE FOR ALL CORING, PATCH, AND REPAIR OF ALL WALL AND FLOOR SYSTEMS AS REQUIRED DUE TO NEW CONSTRUCTION. MAINTAIN ALL FIRE RATINGS.

K. REMOVE ALL UNUSED CONDUIT AND WIRING LOCATED WITHIN THE AREA OF CONSTRUCTION.

L. REMOVE AND REPLACE COVERPLATES AS NEEDED ON EXISTING WALLS DUE TO NEW FINISHES.

M. REFER TO ARCHITECTURAL DRAWINGS FOR ALL EXISTING EQUIPMENT REQUIRED TO BE RELOCATED. CONTRACTOR SHALL FULLY COORDINATE SCHEDULE OF RELOCATING EQUIPMENT WITH OWNER.

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REVISIONS:

#	Description	Date

JAMES R. BASQUETTE

James R. Basquette

JOB NO: 23011.00
DRAWN BY: Author
CHECKED BY: Checker
DATE: 10/06/2023

ME100

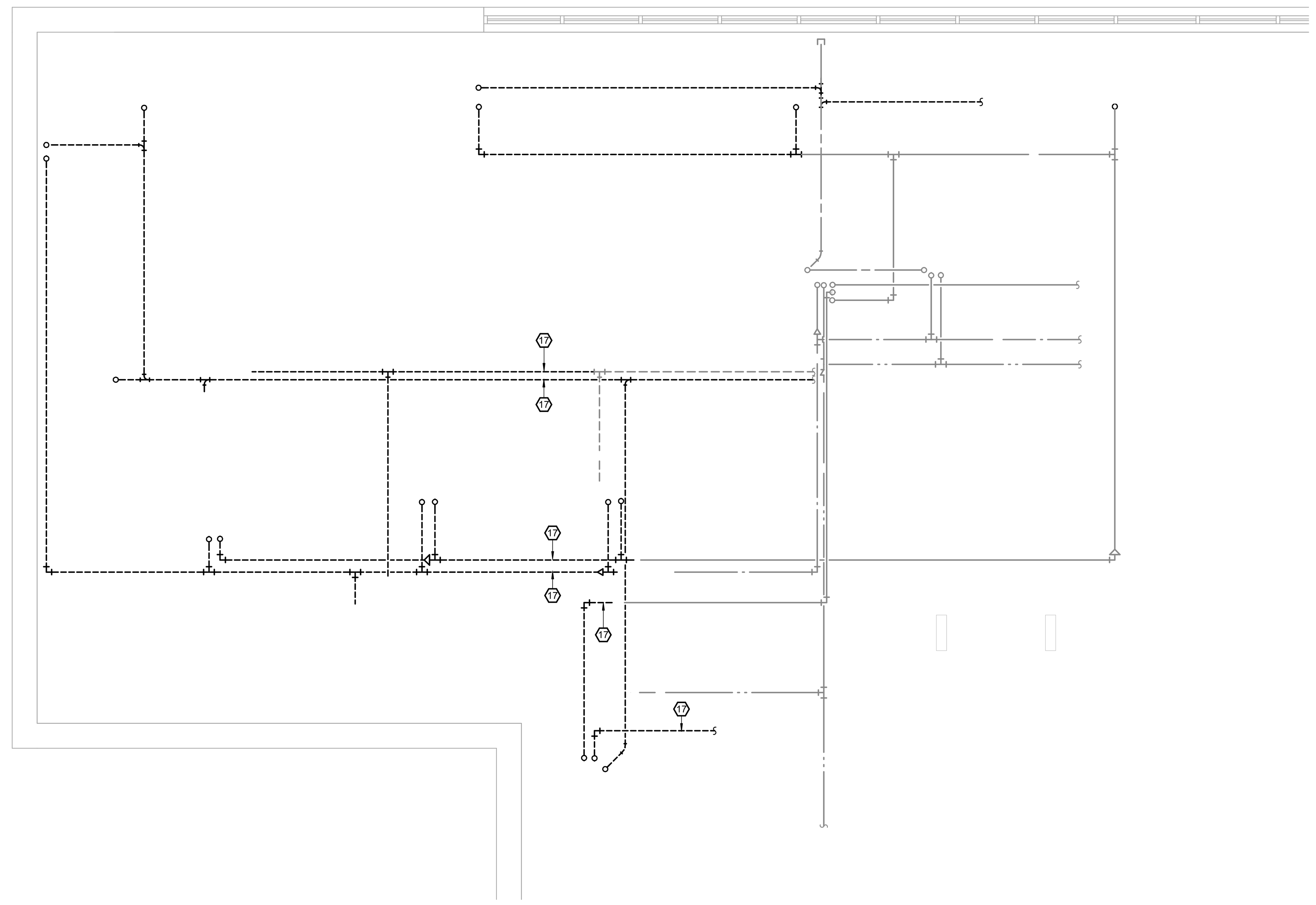
SYMBOLS LEGEND / GENERAL NOTES

GENERAL NOTES:

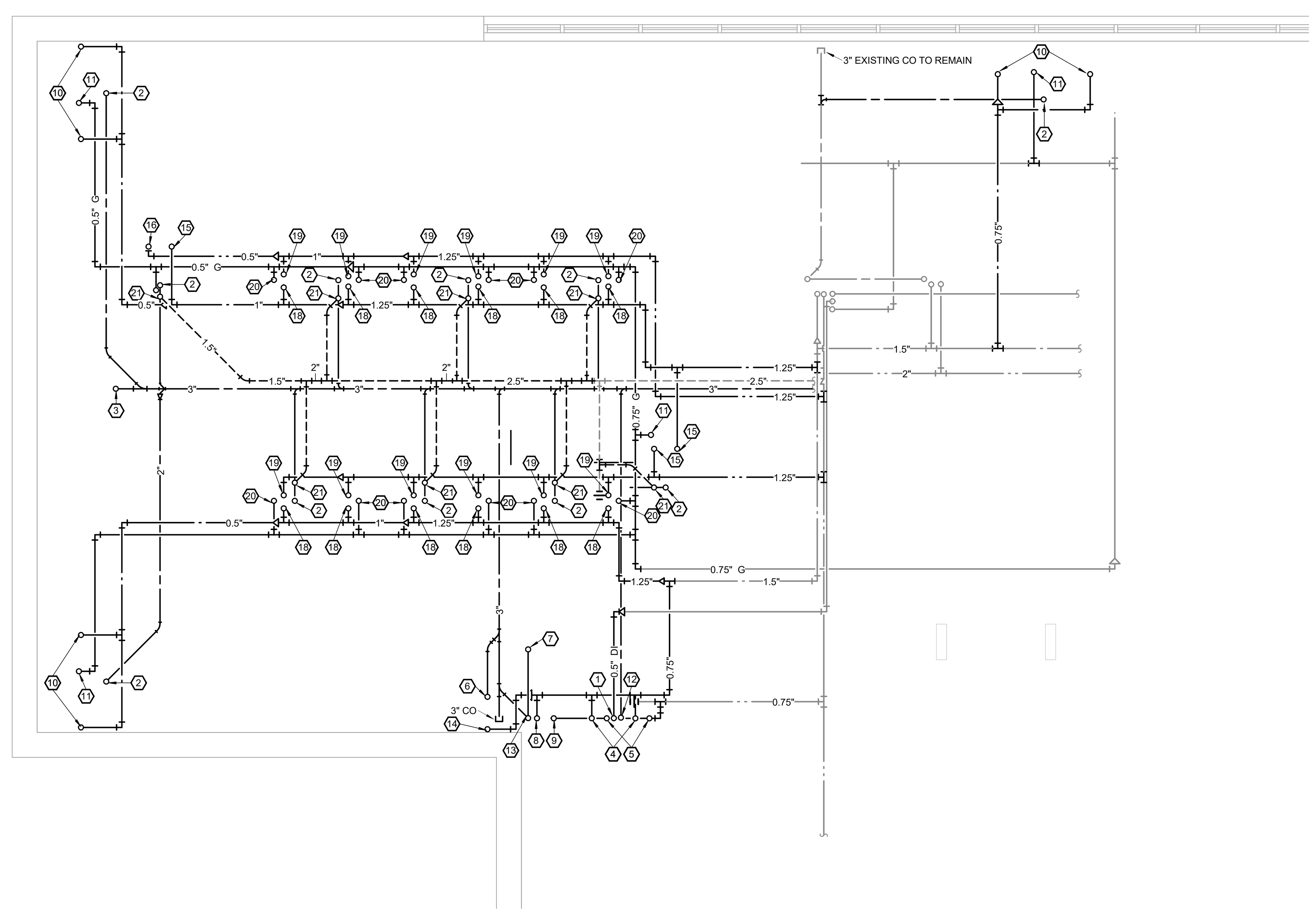
REFER TO SHEET ME100 FOR GENERAL NOTES.

PLAN HEX NOTES:

1	0.5" DI UP, ROUTE EXISTING TO CENTER OF SINK
2	2.0" WASTE UP TO ACID REDUCER
3	3.0" WASTE UP TO SERVE FINISH FLOOR GRADE CLEANOUT
4	0.5" CW UP TO SERVE SINK
5	0.5" HW UP TO SERVE SINK
6	2.0" WASTE UP TO SERVE TRAPPED FLOOR SINK
7	3.0 " WASTE UP TO TRAPPED FLOOR DRAIN
8	0.75" CW UP TO SERVE MIXING VALVE FOR EYE WASH SHOWER
9	0.75 " HW UP TO SERVE MIXING VALVE FOR EYE WASH SHOWER
10	0.5" CW UP TO SERVE CHEMISTRY HOOD SINK
11	0.5" NATURAL GAS UP TO SERVE CHEMISTRY HOOD TURRET
12	2.0" WASTE UP TO SERVE SINK
13	2.0" CIRCUIT VENT UP
14	0.5" CW UP TO SERVE ICE MACHINE
15	0.5" CW UP TO SERVE LAB STATION,
16	0.5" HW UP TO SERVE LAB STATION
17	REMOVE PORTION OF EXISTING PIPING AND ALL ASSOCIATED HANGERS, INSULATION, ETC. FIELD VERIFY EXISTING SIZE, ELEVATION, LOCATION, ETC.
18	0.75" CW UP TO SERVE LAB STATION SINKS
19	0.75" HW UP TO SERVE LAB STATION SINKS
20	0.5" NATURAL GAS UP TO SERVE LAB STATION TURRET
21	1.5" VENT UP



2 / P101 **FIRST FLOOR PLUMBING PLAN**
SCALE: 1/4" = 1'-0"



1 / P101 **FIRST FLOOR PLUMBING PLAN**
SCALE: 1/4" = 1'-0"

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#	Description	Date

STATE OF MISSOURI
JAMES R. BASQUETTE
NUMBER E-29112
REGISTERED PROFESSIONAL ENGINEER

James R. Basquette
Digitally signed by James R. Basquette
DN: C=US, E=jim.basquette@rtmec.com, O=RTM Engineering Consultants, CN=James R. Basquette
Date: 2023.10.05 16:40:25-05'00'

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DRAWN BY: MAO
CHECKED BY: KEH
DATE: 10/06/2023

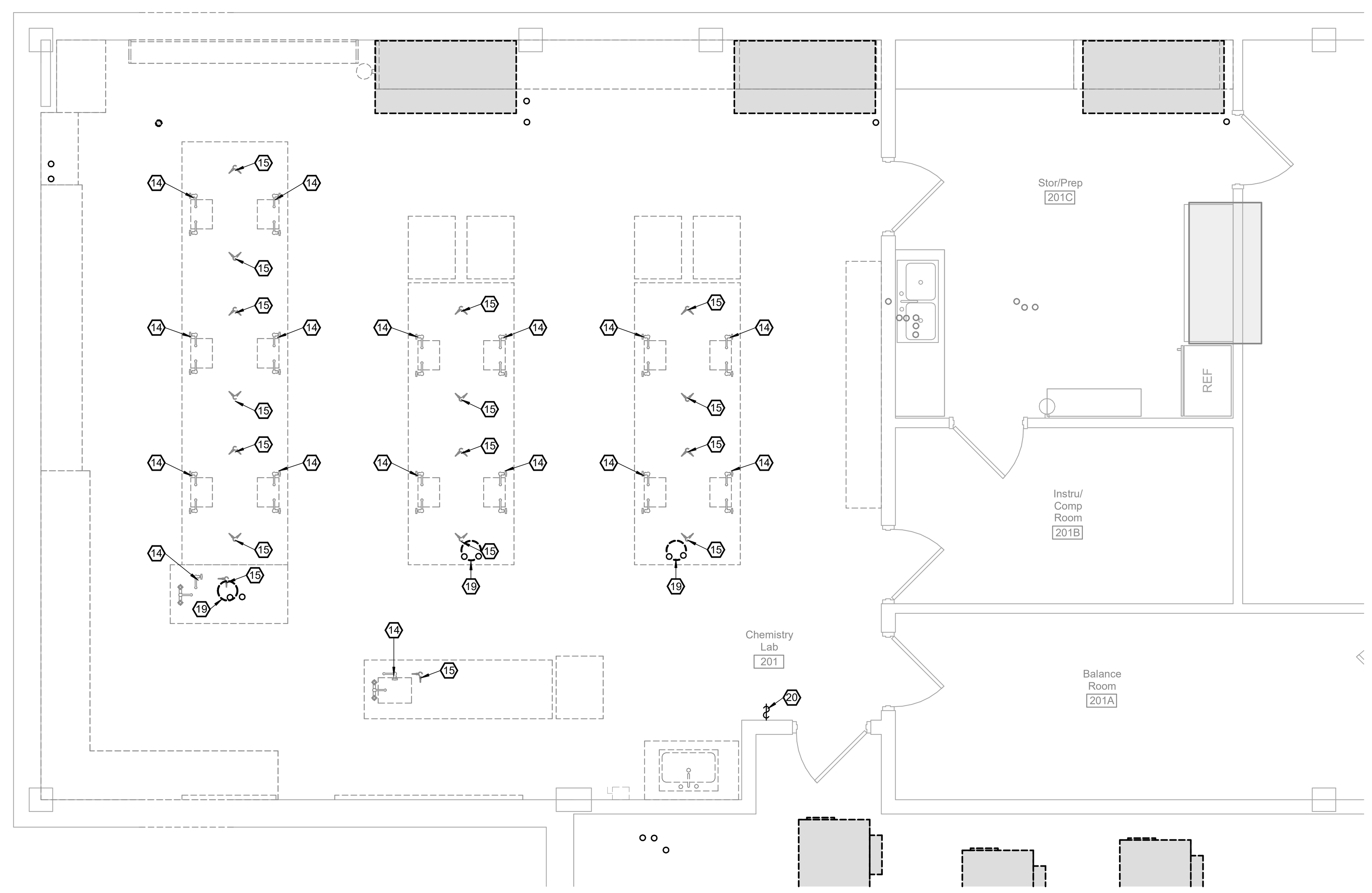
P101

GENERAL NOTES:

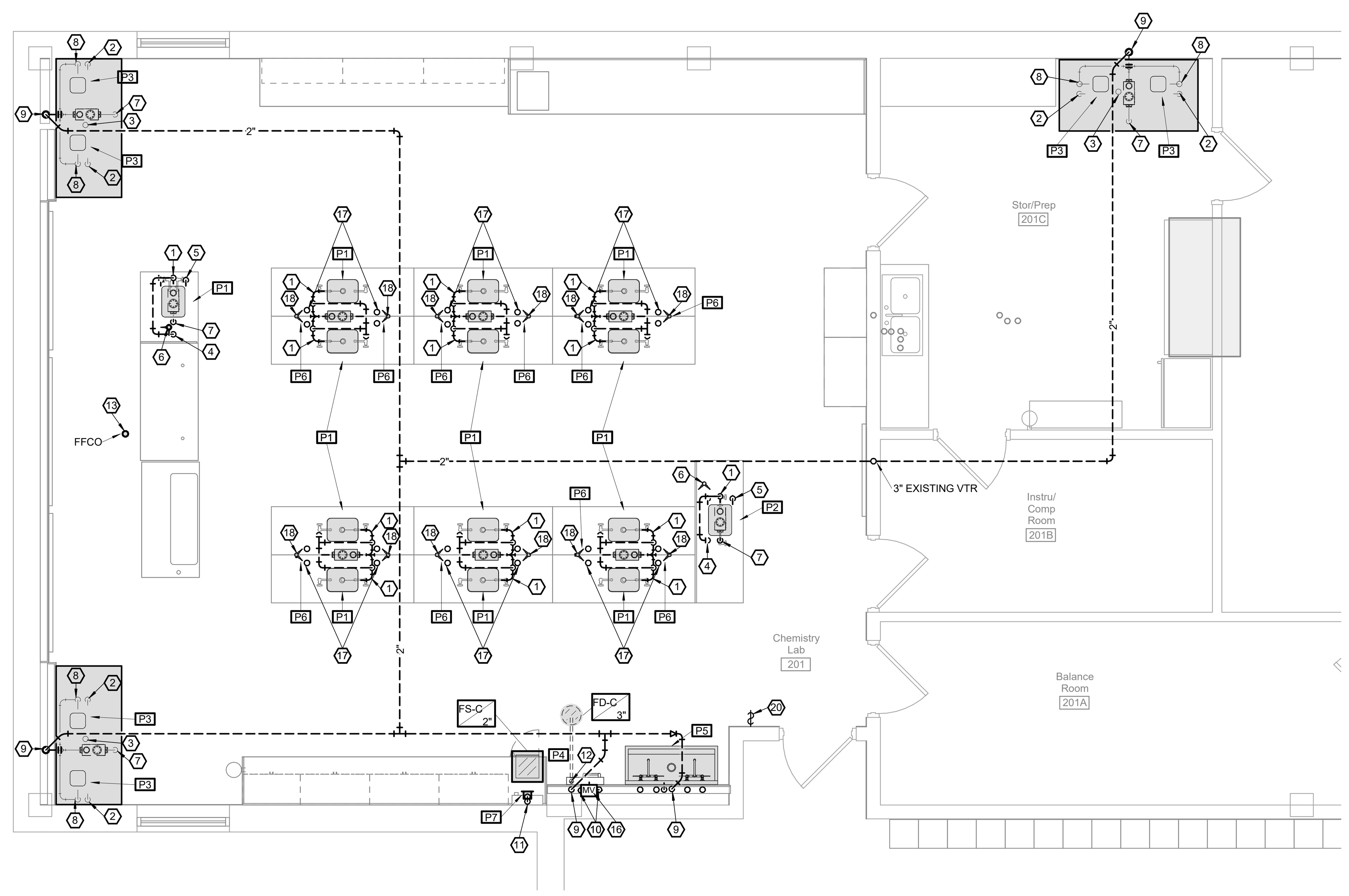
REFER TO SHEET ME100 FOR GENERAL NOTES.

PLAN HEX NOTES:

1. 1.5" VENT UP, 2.00" WASTE DOWN. ROUTE WASTE TO ACID REDUCER FROM SINK
2. 0.5" CW DOWN TO SERVE CHEMISTRY HOOD SINK
3. 0.5" NATURAL GAS UP TO SERVE CHEMISTRY HOOD TURRET
4. 1.5" VENT DOWN
5. 0.5" CW, 0.5" HW DOWN TO SERVE LAB STATION
6. 0.5" NATURAL GAS DOWN TO SERVE LAB STATION
7. 2.0" WASTE DOWN
8. 2.0" WASTE DOWN. ROUTE TO ACID REDUCER FROM SINK
9. 2.0" VENT UP
10. 0.5" CW, 0.5" HW DOWN TO SERVE EYE WASH STATION MIXING VAVLE TO REMAIN
11. 0.5" CW UP TO SERVE ICE MACHINE
12. 0.5" TEMPERED WATER DOWN TO SERVE EYE WASH STATION ROUTE TO MIXING VALVE
13. 4.00" WASTE DOWN
14. REMOVE EXISTING SINK AND ALL ASSOCIATED PIPING, FAUCETS, ETC. PREPARE FOR REPLACEMENT SINK PER IMPROVEMENT PLANS
15. REMOVE EXISTING GAS TURRETS AND ASSOCIATED PIPING TO BELOW FLOOR. MAINTAIN EXISTING EMERGENCY GAS SHUT-OFF SOLENOID.
16. INSTALL MIXING VALVE ABOVE ACCESSIBLE CEILING
17. 0.75" CW, 0.75" HW DOWN TO SERVE LAB STATION SINKS. 0.5" PIPE TO EACH CONNECTION
18. 0.5" NATURAL GAS DOWN TO SERVE LAB STATION TURRET
19. REMOVE NEUTRALIZATION BASIN AND ALL ASSOCIATED PIPING
20. EXISTING GAS SHUT-OFF SHALL REMAIN WITH REVISION OF GAS PIPING



2 / P102 **SECOND FLOOR PLUMBING DEMOLITION PLAN**
SCALE: 1/4" = 1'-0"



1 / P102 **SECOND FLOOR PLUMBING PLAN**
SCALE: 1/4" = 1'-0"

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REVISIONS:

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STATE OF MISSOURI
JAMES R. BASQUETTE
NUMBER
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REGISTERED PROFESSIONAL ENGINEER

James R. Basquette
Digitally signed by James R. Basquette
DN: C=US, E=jim.basquette@rtmec.com, O=RTM Engineering Consultants, CN=James R. Basquette
Date: 2023.10.05 16:40:36-05'00'

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DATE: 10/06/2023

P102

PLUMBING FIXTURE SCHEDULE

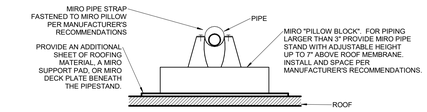
PLAN MARK	DESCRIPTION	MANUFACTURER	MODEL	TRIM	CONNECTION SIZES CW (IN)	HW (IN)	W (IN)	V (IN)	NOTES
P1	LAB SINK	REFER TO ARCHITECTURLA PLANS	EPOXY INTEGRAL WITH COUNTERTOP	FAUCET: (2) CHICAGO FAUCETS 900 SERIES LAB, 895-317GN2BVBE7CP, DECK MOUNTED 4" CENTER SET, 6" RIGID GOOSENECK SPOUT WITH ATMOSPHERIC VACUUM BREAKER, (1) REMOVEABLE LABATORY NOZZLE FOR LAB HOSE AND (1) VACUUM PUMP ASPIRATOR,AERATORS SHALL BE INTERCHANGEABLE. 4" WRISTBLADE HANDLE, GRID STRAINER	0.5	0.5	2	1.5	FAUCET HOLES TO MATCH FAUCET SPECIFIED. COORDINATE WITH COUNTERTOP SUPPLIER NUMBER OF HOLES. PROVIDE POINT OF USE NEUTRALIZATION BASIN AT EACH SINK - STRIEM LB-2'S
P2	ADA LAB SINK	REFER TO ARCHITECTURLA PLANS	EPOXY INTEGRAL WITH COUNTERTOP	FAUCET: (2) CHICAGO FAUCETS 900 SERIES LAB, 895-317GN2BVBE7CP, DECK MOUNTED 4" CENTER SET, 6" RIGID GOOSENECK SPOUT WITH ATMOSPHERIC VACUUM BREAKER, (1) REMOVEABLE LABATORY NOZZLE FOR LAB HOSE AND (1) VACUUM PUMP ASPIRATOR,AERATORS SHALL BE INTERCHANGEABLE. 4" WRISTBLADE HANDLE, GRID STRAINER	0.5	0.5	2	1.5	FAUCET HOLES TO MATCH FAUCET SPECIFIED. COORDINATE WITH COUNTERTOP SUPPLIER NUMBER OF HOLES. PROVIDE POINT OF USE NEUTRALIZATION BASIN AT EACH SINK - STRIEM LB-2'S
P3	CHEMISTRY HOOD LAB SINK	LABCONCO	OVAL CUPSINK	FAUCET: CHICAGO FAUCETS 900 SERIES LAB, 895-317GN2BVBE7CP, DECK MOUNTED 4" CENTER SET, 6" RIGID GOOSENECK SPOUT WITH ATMOSPHERIC VACUUM BREAKER, LABATORY NOZZLE FOR LAB HOSE, 4" WRISTBLADE HANDLE, GRID STRAINER	0.5	0.5	2	1.5	FAUCET HOLES TO MATCH FAUCET SPECIFIED. PROVIDE POINT OF USE NEUTRALIZATION BASIN AT EACH SINK - STRIEM LB-2'S
P4	RECESSED SAFETY STATION WITH DRAIN PAN, SURFACE MOUNTED	Guardian Equipment	GBF2173	RECESSED SAFETY STATION SURFACE MOUNTED WITH DRAIN AND WALL MOUNTED EXPOSED SHOWER HEAD. PROVIDE WITH EMERGENCY THERMOSTATIC MIXING VALVE TO MEET ANSI Z358.1 REQUIREMENTS.	-	-	-	-	EMERGENCY SHOWER / EYEWASH SHALL BE APPROVED AND INSTALLED PER ACCESSIBILITY.
P5	2 STATION HAND WAHING TROUGH SINK	ELKAY	EWMA4820C	FAUCET: (2) CHICAGO MODEL 631-GN8FCABCP, 8" GOOSENECK SPOUT WITH 1.5 GPM FLOW CONTROL, 4" WRISTBLADE HANDLE WALL MOUNTED, POLISHED CHROME, PROVIDE ASSE 1070 MIXING VALVE SET TO 105°F IF NOT INTEGRAL TO FAUCET, GRID STRAINER. COORDINATE WITH SINK MANUFACTURER OF LOCATING A 3RD HOL FOR DII WATER LOCATION.	-	-	-	-	FAUCET HOLES TO MATCH FAUCET SPECIFIED. FIXTURE ASSEMBLY MUST BE APPROVED BY AND INSTALLED PER BUILDING CODE ACCESSIBLE REQUIREMENTS. PROVIDE INSULATION KIT ON ALL ACCESSIBLE FIXTURES WITH EXPOSED TRAP AND SUPPLIES.
P6	LABORATORY GAS TURRET	T&S BRASS AND BROZE WORKS, INC.	BL-4200-0	POLISHED CHROME PLATED BRASS BODY, SERRATED TIP OUTLETS AT 90 DEGREES AND 3/8" NPT FEMALE INLET	-	-	-	-	
P7	ICE MAKER VALVE BOX	GUY GRAY	BIM875	0.25" OUTLET, COMPRESSION ANGLE VALVE, 20 GAUGE UNPAINTED STEEL BOX.	0.5	-	-	-	

DRAINAGE PIPE SPECIALTY SCHEDULE

PLAN MARK	DESCRIPTION	MANUFACTURER	MODEL	TRIM	NOTES
	NEUTRALIZATION TANK FOR ADA SINK	STRIEM	LB-2-ADA		
FD-C	7" ROUND FLOOR DRAIN	J.R. SMITH	3020-F-C	NICKEL BRONZE TOP, NICKEL BRONZE STRAINER, NICKEL BRONZE SEEPAGE CONTROL FLANGE, DEEP SEAL TRAP AND ACID-RESISTANT COATING.	DRAIN SIZE SHALL MATCH SANITARY BRANCH SERVING DRAIN. REFERENCE PLANS FOR SIZE.
FFCO	FINISHED FLOOR CLEANOUT	J.R. SMITH	4023	HARD FLOOR: ROUND CHROME PLATED SCORIATED COVER, CARPET AREAS: NICKEL BRONZE TOP AND CARPET CLAMP OR CARPET MARKER.	VERIFY FLOOR MATERIALS USED FROM ARCHITECTURAL PLANS. CLEANOUT TO BE FULL SIZE OF SOIL PIPE UP TO AND INCLUDING 4-INCH ID. REFERENCE PLANS FOR SOIL PIPE SIZE.
FS-C	FLOOR SINK	J.R. SMITH	2450	ACID RESISTANT COATING, SEEPAGE CONTROL FLANGE, REMOVAL STRAINER, 10" DEEP BODY.	DRAIN SIZE SHALL MATCH SANITARY BRANCH SERVING DRAIN. REFERENCE PLANS FOR SIZE.
NTS	NEUTRALIZATION TANK	STRIEM	LB-2-ADA	POINT OF USE NEUTRALIZATION BASIN AT EACH SINK.	
WCO	WALL CLEANOUT	J.R. SMITH	4532 WITH CLEANOUT PLUG OR 4512 WITH COUNTERSUNK PLUG	PROVIDE CLEANOUT PLUG AND STAINLESS STEEL ACCESS COVER IN FINISHED AREAS. PROVIDE COUNTER SUNK PLUG IN UNFINISHED AREAS.	CLEANOUT TO BE FULL SIZE OF SOIL PIPE UP TO AND INCLUDING 4-INCH ID. REFERENCE PLANS FOR SOIL PIPE SIZE.

PIPE MATERIAL SCHEDULE

SYSTEM	PIPING SIZE	TYPE	SCHEDULE	GRD	ASTM	MATERIAL	FITTINGS MATERIAL	FITTINGS TYPE	MAX. WORKING PRESS. (PSI)	MAX. WORKING TEMP. (°F)	FIELD TEST PRESS. (PSI)	FIELD TEST TIME	DESIGN NOTES (HIDE)
DOMESTIC WATER ABOVE GRADE	ALL	L	-	-	B88	CP	CP	SJ	120	40-180	150	1 HR	DOMESTIC WATER ABOVE GRADE
DOMESTIC WATER BELOW GRADE	ALL	K	-	-	B88	CP	CP	SJ	120	40-180	150	1 HR	DOMESTIC WATER BELOW GRADE
TEMPERATURE & PRESSURE RELIEF DRAIN	ALL	M	-	-	B88	CP	CP	DRS	10 ft	140-210	10 ft	1 HR	TEMPERATURE & PRESSURE
NATURAL GAS ABOVE GRADE	0.5" - 2.5"	CW	40	A	A53	CSBLK	MI	THRD	1	-	100	1 HR	NATURAL GAS ABOVE GRADE
ACID WASTE & VENT ABOVE GRADE (IN RETURN AIR PLENUMS)	ALL	DWV	40	-	F1673	PVDF	PVDF	DRSF	10 FT	50-180	10 FT	1 HR	ACID WASTE & VENT ABOVE GRADE



9 P401 ROOF PIPE SUPPORT DETAIL

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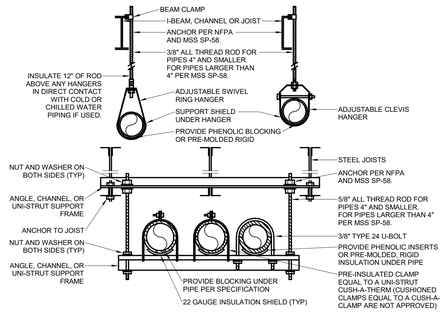

8 P401 PIPE HANGER DETAIL

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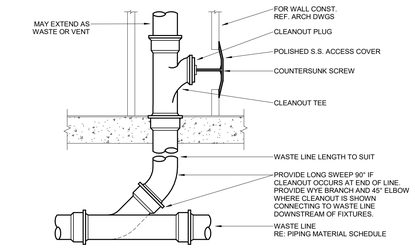

7 P401 WALL CLEANOUT DETAIL

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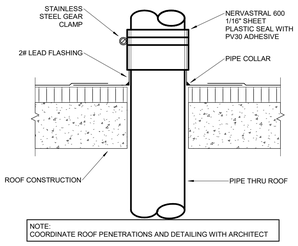

6 P401 VENT THRU ROOF DETAIL

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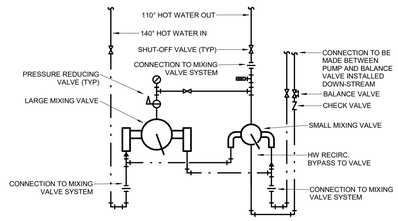

5 P401 MIXING VALVE DETAIL

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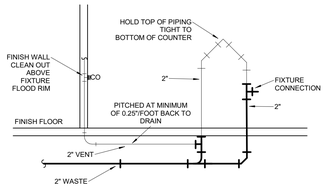

4 P401 ISLAND VENT DETAIL

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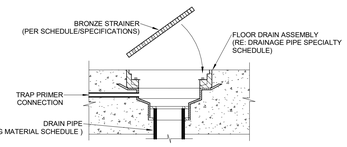

3 P401 FLOOR DRAIN DETAIL

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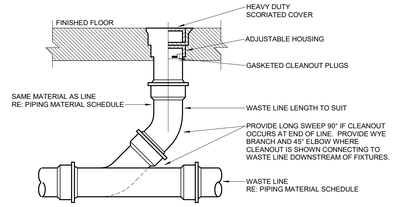

2 P401 FLOOR CLEANOUT DETAIL

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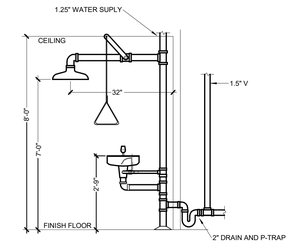

1 P401 EMERGENCY EYE WASH STATION

SCALE: NOT TO SCALE

GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.

SCHEDULE LEGEND

ABBREVIATED SCHEDULE HEADINGS	
EFFICIENCY	MINIMUM EFFICIENCY OF WATER HEATER
GPH	GALLONS PER HOUR
HP	HORSEPOWER
LOAD	NOMINAL CONNECTED GAS LOAD TO UNIT, USED TO SIZE GAS PIPING.
NPSH	NET POSITIVE SECTION HEAD
OUTPUT	MINIMUM REQUIRED OUTPUT TO MEET GPH RISE AS SCHEDULED
RPM	REVOLUTIONS PER MINUTE
PIPE MATERIAL SCHDULE	
ATP	ARMCO TRUSS PIPE
BLK	BLACK
BS	BELL & SPIGOT
CF	CRIMPED FITTING
CI	CAST IRON
CP	COPPER
CS	CARBON STEEL
CTD	PIPE LINE SERVICE COMPANY X-TRU-COAT HIGH DENSITY POLYETHYLENE COATING EXTRUDED OVER PIPE
CW	CONTINOUS WELD
DI	DUCTILE IRON
DR	DRAINAGE FITTING
GLV	GALVANIZED
HF	HEAT FUSED
LC	LEAD CAULKING
MI	MALLEABLE IRON
MJ	MECHANICAL JOINT
NG	NEOPREME GASKET
NH	NO-HUB
PE	POLYETHYLENE
PVC	POLYVINYL CHLORIDE
S	BRAZED JOINT - SILVER BRAZING ALLOY
SJ	SPOLDER JOINT 95-5 TIN-ANTIMONY
SL	SEAMLESS STEEL
SS	STANDARD STRENGTH - SERVICE WEIGHT
SW	SOLVENT WELD
THRD	THREADED
TS	TY-SEAL
VCP	VITRIFIED CLAY PIPE
WELD	WELDED
XH	EXTRA HEAVY
PUMP SCHEDULE	
AB	ALL BRONZE
AI	ALL IRON
BF	BRONZE FITTED
BMCCES	BASE MOUNTED CLOSED COUPLED END SUCTION
BMES	BASE MOUNTED END SUCTION
BMHSC	BASE MOUNTED HORIZONTAL SPLIT CASE
BMVSC	BASE MOUNTED VERTICAL SPLIT CASE
C	CONDENSER WATER
CH	CHILLED/HOT WATER
CW	CHILLED WATER
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
HW	HEATING HOT WATER
IL	IN-LINE
WATER HEATER SCHEDULE	
PTRV	PRESSURE & TEMPERATURE RELIEF VALVE

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REVISIONS:

#	Description	Date

JOB NO: 23011.00
DRAWN BY: MAO
CHECKED BY: KEH
DATE: 10/06/2023

P401

PLUMBING SCHEDULES AND DETAILS

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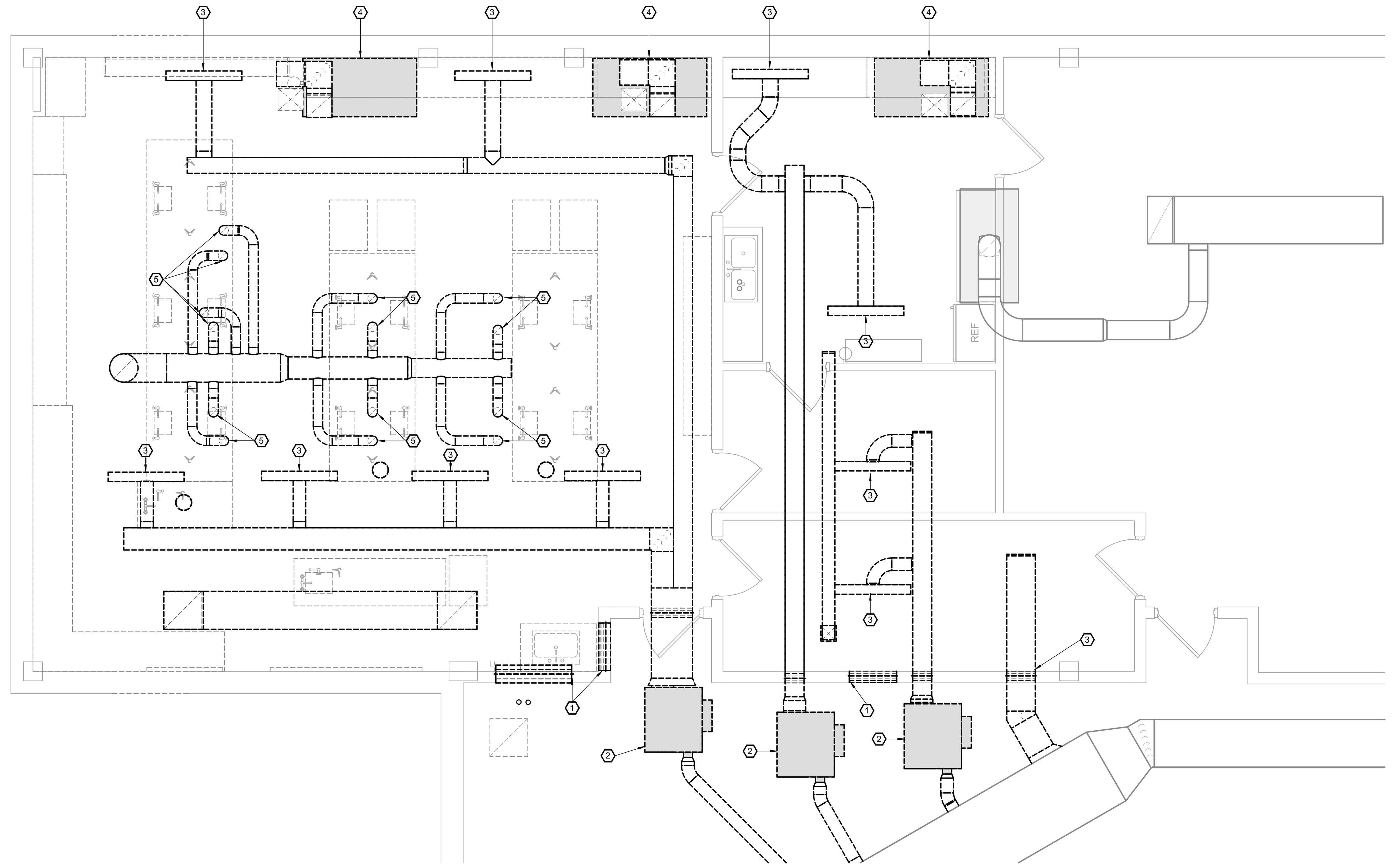
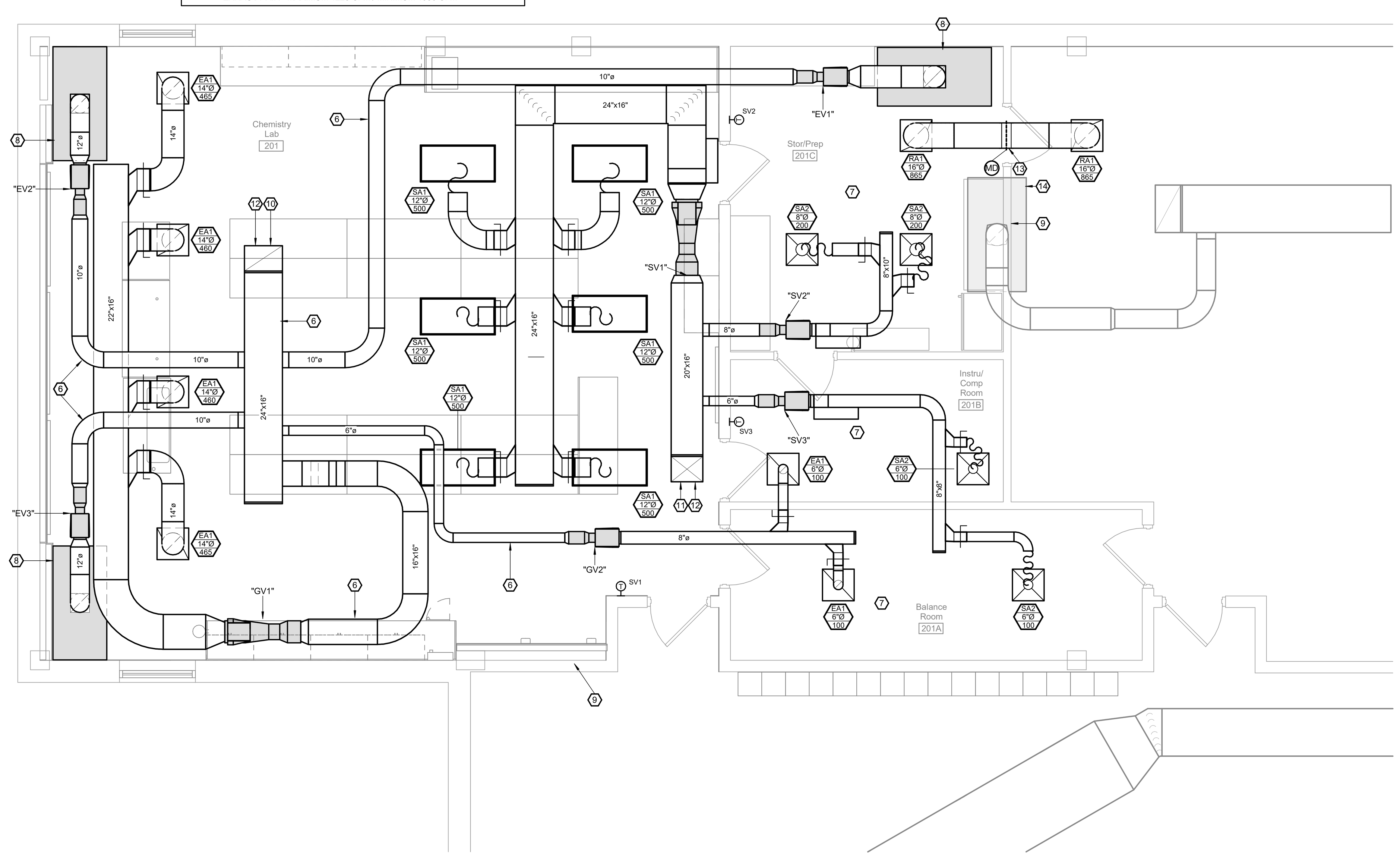


2 M102 SECOND FLOOR HVAC DEMOLITION PLAN

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

LAB PRESSURIZATION:
- SUPPLY OUTSIDE AIR - MAXIMUM 3600 CFM / MINIMUM 1750 CFM
- EXHAUST AIR - MAXIMUM 4225 CFM / MINIMUM 1950 CFM



1 M102 SECOND FLOOR HVAC PLAN

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

GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.

PLAN HEX NOTES:

1. REMOVE EXISTING TRANSFER GRILLE INTO CORRIDOR. SEAL ALL OPENINGS INTO THE CORRIDOR
2. REMOVE EXISTING FAN POWERED BOX AND ALL ASSOCIATED CONTROLS, DUCTWORK, HANGERS, INSULATION, ETC. CAP DUCT AT MAIN
3. REMOVE EXISTING DUCTWORK AND ASSOCIATED INSULATION, HANGERS, ETC. TO MAKE ROOM FOR NEW EXHAUST HOOD DUCTWORK PER IMPROVEMENT PLANS. FIELD VERIFY EXACT SIZE, ELEVATION, LOCATION, ETC.
4. REMOVE EXISTING FUME HOOD AND ALL ASSOCIATED EXHAUST FAN/MAKE-UP AIR UNIT, DUCTWORK, ACCESSORIES, ETC.
5. REMOVE EXISTING EXHAUST CONE AND ALL ASSOCIATED HANGERS, INSULATION, ETC.
6. ALL LAB EXHAUST DUCT SHALL BE 316 STAINLESS STEEL WITH ONE SEAM WELDED ON TOP SIDE. REFER TO SPECIFICATIONS.
7. MECHANICAL CONTRACTOR SHALL REMOVE AND REPLACE CEILING TILES IN ALL EXISTING AREAS WITH NEW DUCT AND IS RESPONSIBLE FOR REPLACING TILES IF DAMAGED DURING CONSTRUCTION.
8. LABORATORY FUME HOOD. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATION.
9. ENSURE ROOM AND PLENUM ARE COMPLETELY SEALED TO ADJACENT SPACES.
10. 24"X16" DUCT UP TO EXHAUST FAN.
11. 20X16" DUCT UP TO DOAS UNIT
12. ALL DUCTWORK SHALL BE SEALED AT MEDIUM PRESSURE DUCTWORK 3"-6" WC PER SPECIFICATIONS.
13. PROVIDE LOW VOLTAGE MOTORIZED DAMPER, PROVIDED BY CONTROLS CONTRACTOR. DAMPER SHALL OPEN TO ALLOW TRANSFER AIR FROM ROOM 203 TO PREP ROOM WHEN SASH ON PASS THROUGH HOOD IS OPEN ON THE PREP ROOM SIDE AND SHALL CLOSE AS PREP ROOM SASH IS CLOSED.
14. SASH ON PASS THROUGH HOOD ON PREP SIDE SHALL REMAIN CLOSED. ONLY OPEN FOR USE. BOTH SASHES ON EACH SIDE SHALL NOT BE OPENED AT THE SAME TIME AND SHALL HAVE A ERROR IF THEY ARE BOTH OPEN.

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REVISIONS:

#	Description	Date

STATE OF MISSOURI
JAMES R. BASQUETTE
NUMBER E-29112
REGISTERED PROFESSIONAL ENGINEER

James R. Basquette

Digitally signed by James R. Basquette
DN: C=US, E=jim.basquette@rtmec.com, O=RTM Engineering Consultants, CN=James R. Basquette
Date: 2023.10.05 16:40:59-05'00'

JOB NO: 23011.00
DRAWN BY: JGG
CHECKED BY: KEH
DATE: 10/06/2023

M102

SECOND FLOOR HVAC PLAN

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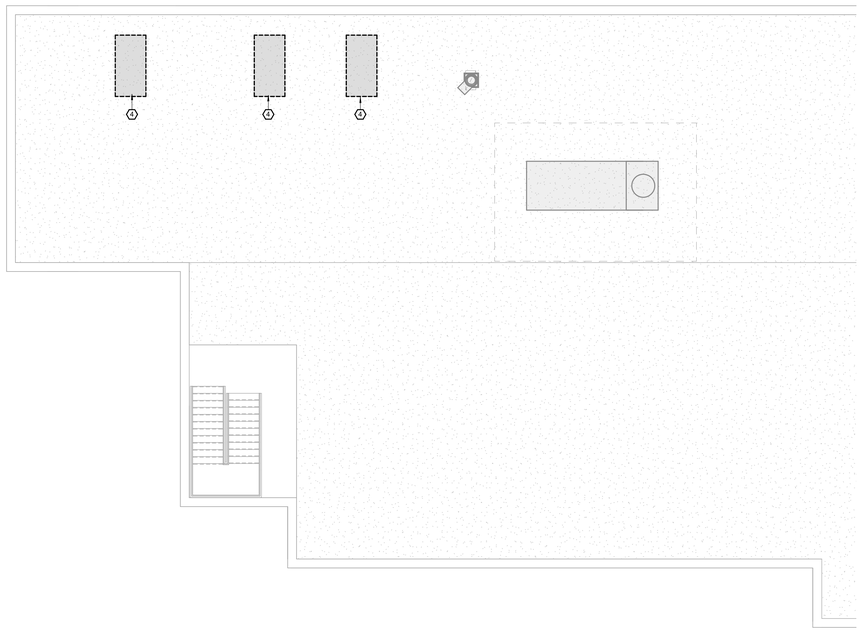
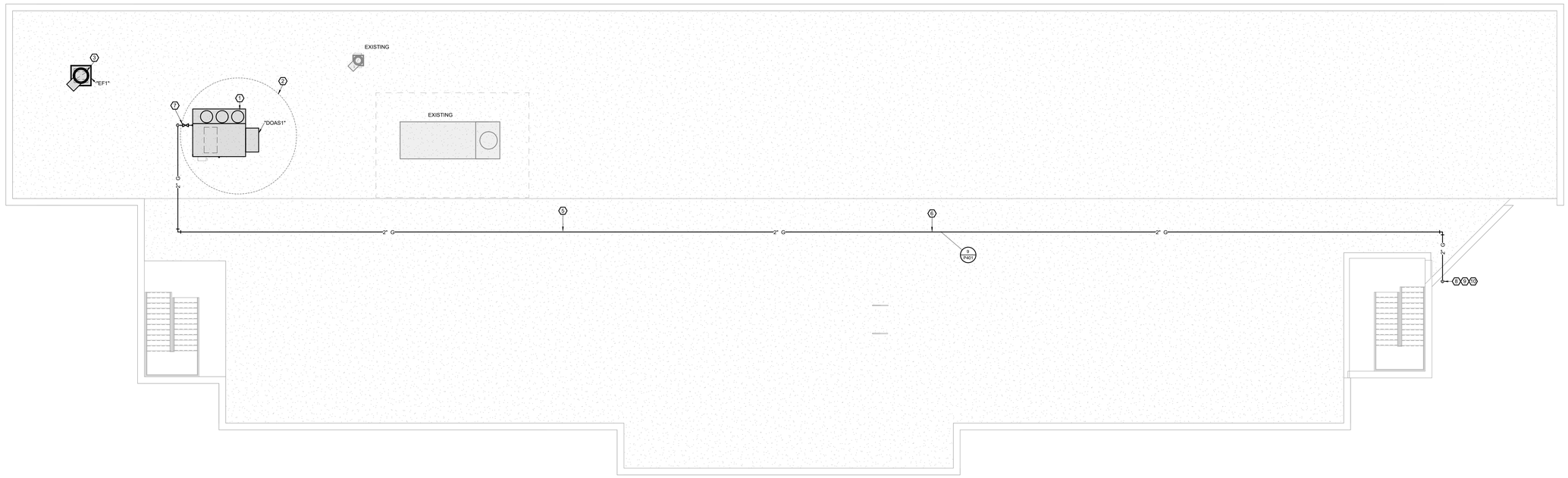


2 M103 **ROOF - HVAC Plan DEMO**
SCALE: 1/8" = 1'-0"



1 M103 **ROOF - HVAC Plan**
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.

PLAN HEX NOTES:

1. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCES. COORDINATE ROUGH-IN LOCATION WITH OTHER TRADES. (TYPICAL)
2. CIRCLE REPRESENTS THE 10'-0" MINIMUM DISTANCE REQUIRED FOR OUTSIDE AIR INTAKE CLEARANCE FROM EXHAUST, FLUE, VENT OR ANY OTHER SOURCE OF CONTAMINATED AIR. NOT EXHAUST FANS, FLUE OUTLETS, PLUMBING VENTS, ETC SHALL BE LOCATED INSIDE THIS CIRCLE.
3. MAINTAIN CODE REQUIRED MINIMUM 10'-0" CLEARANCE FROM ROOF EDGE.
4. REMOVE EXISTING EXHAUST FAN / MAU ASSOCIATED WITH LABORATORY EXHAUST HOOD AND PATH ROOF AS REQUIRED PER ARCHITECTURAL PLANS.
5. PAINT EXPOSED GAS PIPING ON ROOF WITH 2 COATS OF EPOXY ENAMEL PAINT.
6. GAS PIPING ON ROOF. SUPPORT AS PER DETAIL. (TYPICAL)
7. PROVIDE GAS COCK AND DIRT LEG AT EACH PIECE OF GAS FIRED EQUIPMENT.
8. ROUTE 2" GAS PIPE DOWN ALONG SIDE OF BUILDING TO EXISTING BUILDING REGULATOR. AFTER REGULATOR CONNECT 2" PIPE ROUTE TO ROOF AND RECONNECT PIPE TO THE EXISTING 1.25" PIPE.
9. 2" NATURAL GAS PIPE CONNECTED TO DOAS1 SIZED FOR 7" WC PER TABLE 402.4(2) 2018 IFGC. SIZED FOR 400 CFH.
10. PAINT EXPOSED GAS PIPING WITH 2 COATS OF EPOXY ENAMEL PAINT. PAINT AS DIRECTED BY ARCHITECT.

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#	Description	Date

STATE OF MISSOURI
JAMES R. BASQUETTE
NUMBER E-29112
ENGINEER
James R. Basquette

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M103

ROOF HVAC PLAN

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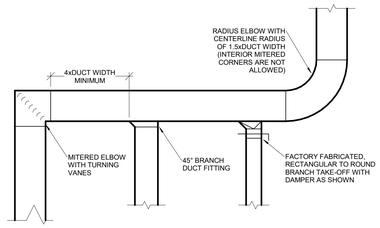
GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.



3 M301 **DUCTWORK CONSTRUCTION DETAIL**

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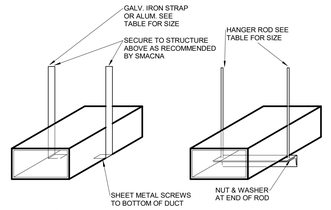

DUCT HANGER SCHEDULE					
DUCT SIZE (INCH)	TYPE OF HANGER	HANGER SPACING (FT)	STRAP SIZE	ROD SIZE (INCH)	ANGLE FOR BRACING
UP TO 12	A	8'-0"	1"x16GA	N.A.	N.A.
13 TO 18	A	8'-0"	1"x16GA	N.A.	N.A.
19 TO 30	A/B	8'-0"	1"x16GA	1/4"	1-1/2"x1-1/2"x1/8"
31 TO 42	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x1/8"
43 TO 54	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x1/8"
55 TO 60	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x1/8"
61 TO 84	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x3/16"
85 TO 96	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x3/16"
OVER 96	B	8'-0"	N.A.	3/8"	2"x2"x1/4"

NOTES:
1. FOR SEVERAL DUCTS ON ONE HANGER, TYPE "B" MAY BE USED. SIZE OF HANGER WILL BE SELECTED ON THE SUM OF DUCT WIDTHS EQUAL TO MAX WIDTH OF DUCT SCHEDULE.
2. ON TYPE "A" HANGER, PROVIDE 3 HANGERS AT EACH TAKE-OFF OR BRANCH.

2 M301 **DUCT SUPPORT DETAIL**

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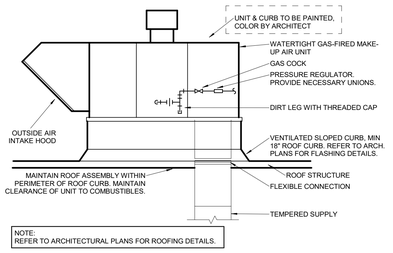
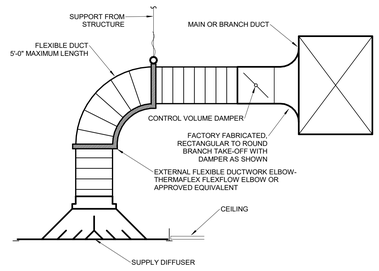


NOTE:
REFER TO ARCHITECTURAL PLANS FOR ROOFING DETAILS.

5 M301 **MAKE-UP AIR UNIT DETAIL**

SCALE: NOT TO SCALE



4 M301 **CEILING DIFFUSER DETAIL**

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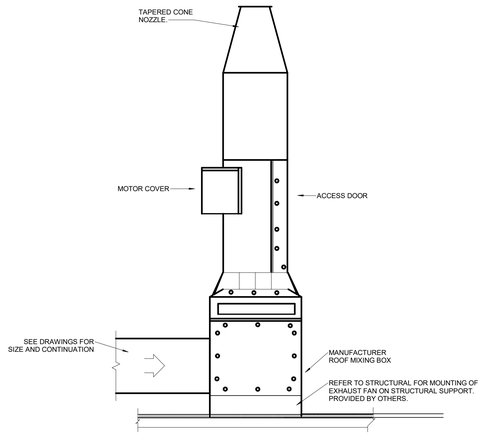

1 M301 **EXHAUST FAN DETAIL**

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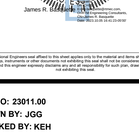

James R. Basquette
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M301

MECHANICAL DETAILS

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OUTSIDE AIR VENTILATION UNIT SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	OUTDOOR AIR FLOW	SUPPLY FAN		COOLING DATA				HOT GAS REHEAT			APPROXIMATE CAPACITY (BTUH)	GAS HEATING		EFFICIENCY (%)	ELECTRICAL DATA				NOTES
			MAX (CFM)	SUPPLY AIR FLOW (CFM)	MOTOR (HP)	EST. ESP (IN WG)	MIN. EER	E.A.T. DB (°F)	E.A.T. WB (°F)	MIN SCC (BTU/H)	MIN TCC (BTU/H)	L.A.T.	E.A.T. DB (°F)	E.A.T. WB (°F)	L.A.T. (°F)		GAS LOAD (BTU/H)	OUTPUT (BTU/H)		VOLTAGE	PHASE	FLA	MCA	MOCP (A)	
DOAS1	VALENT	VX-212-30II-M-E1	3,750	3750	2	1	4.9	105.0	79.7	199,400	326,700	54.2 °F	54.2	54.1	75.0	211,300	400,000	324,000	81	460	3	52	76	100	AD,CURB,DDC,DS,F,HG,LL,MHGR,PM,R410A,SA,VFD SF,VSC

AIR VALVE SCHEDULE

ROOM SERVED BY EQUIPMENT	MARK	FUNCTION	MANUFACTURER / MODEL	PRIMARY AIR FLOW		VALVE SIZE	APD (W.C)	ELECTRIC REHEAT COIL					NOTES
				MAX (CFM)	MIN (CFM)			KW	E.A.T.	L.A.T.	HEATER PHASE	HEATER VOLTAGE	
201C	EV1	HOOD/EXHAUST	CRITICAL ROOM CONTROL - CLV-ST108-S0-FS-FHCVSS	725 CFM	440 CFM	8	0.11 in-wg	0	0 °F	0 °F	1	0 V	316 STAINLESS, FAIL SAFE, STEP DOWN 24V TRANSFORMER PROVIDED BY CONTROLS CONTRACTOR
201	EV2	HOOD/EXHAUST	CRITICAL ROOM CONTROL - CLV-ST108-S0-FS-FHCVSS	725 CFM	440 CFM	8	0.11 in-wg	0	0 °F	0 °F	1	0 V	316 STAINLESS, FAIL SAFE, STEP DOWN 24V TRANSFORMER PROVIDED BY CONTROLS CONTRACTOR
201	EV3	HOOD/EXHAUST	CRITICAL ROOM CONTROL - CLV-ST108-S0-FS-FHCVSS	725 CFM	440 CFM	8	0.11 in-wg	0	0 °F	0 °F	1	0 V	316 STAINLESS, FAIL SAFE, STEP DOWN 24V TRANSFORMER PROVIDED BY CONTROLS CONTRACTOR
201	GV1	GENERAL EXHAUST	CRITICAL ROOM CONTROL - CLV-ST114-EC-FS	1,850 CFM	2735 CFM	14	0.24 in-wg	0	0 °F	0 °F	1	0 V	316 STAINLESS, FAIL SAFE, STEP DOWN 24V TRANSFORMER PROVIDED BY CONTROLS CONTRACTOR
201A/B	GV2	GENERAL EXHAUST	CRITICAL ROOM CONTROL - CLV-ST106-EC-FS	200 CFM	200 CFM	6	0.08 in-wg	0	0 °F	0 °F	1	0 V	316 STAINLESS, FAIL SAFE, STEP DOWN 24V TRANSFORMER PROVIDED BY CONTROLS CONTRACTOR
201	SV1	SUPPLY	CRITICAL ROOM CONTROL - CLV-SP116-AS-FS	3,000 CFM	3000 CFM	16	0.19 in-wg	40	55 °F	95 °F	3	480 V	ALUMINUM, FAIL SAFE, SCR ELECTRIC HEAT, MANUFACTER INETGRAL DISCONNET SWITCH, STEP DOWN 24V TRANSFORMER PROVIDED BY CONTROLS CONTRACTOR
201C	SV2	SUPPLY	CRITICAL ROOM CONTROL - CLV-ST106-EC-FS	400 CFM	400 CFM	6	0.14 in-wg	6	55 °F	102 °F	3	208 V	ALUMINUM, FAIL SAFE, SCR ELECTRIC HEAT, MANUFACTER INETGRAL DISCONNET SWITCH, STEP DOWN 24V TRANSFORMER PROVIDED BY CONTROLS CONTRACTOR
201A/B	SV3	SUPPLY	CRITICAL ROOM CONTROL - CLV-ST106-EC-FS	200 CFM	200 CFM	6	0.14 in-wg	3	55 °F	102 °F	3	208 V	ALUMINUM, FAIL SAFE, SCR ELECTRIC HEAT, MANUFACTER INETGRAL DISCONNET SWITCH, STEP DOWN 24V TRANSFORMER PROVIDED BY CONTROLS CONTRACTOR

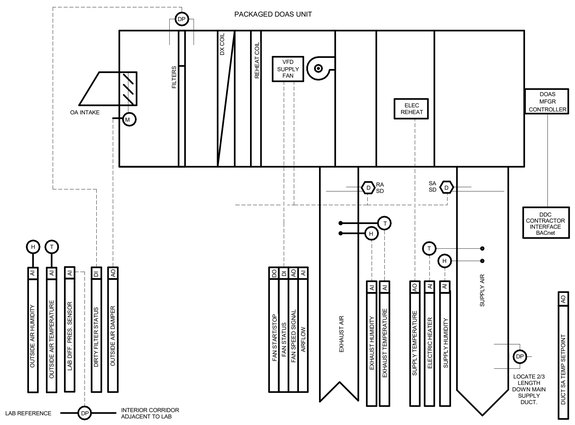
* AIR VALVES PROVIDED BY THE CONTROLS CONTRACTOR.

GRILLE, REGISTER AND DIFFUSER SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	APPLICATION	FINISH	FRAME TYPE	VOLUME DAMPER	MAXIMUM NC	MINIMUM THROW (FT)	MAXIMUM THROW (FT)	MAXIMUM ΔP (IN WG)	NOTES
EA1	TITUS	PAR-24 x 24	EXHAUST	WHITE	GRID	No	30	0	0	0.10	24x24 SQUARE PERFORATED FACE WITH ROUND DUCT CONNECTION
RA1	TITUS	PAR-24 x 24	RETURN	WHITE	GRID	No	30	0	0	0.10	24x24 SQUARE PERFORATED FACE WITH ROUND DUCT CONNECTION
SA1	TITUS	TRI-TEC-AL	SUPPLY	WHITE	GRID	No	30	5	18	0.10	24"x48" PERFERATED FACE - ALUMINUM BACKPAN, HIGH VOLUME LOW VELOCITY
SA2	TITUS	OMNI-24 x 24	SUPPLY	WHITE	GRID	No	30	0	0	0.10	24x24 SQUARE PLAQUE FACE WITH ROUND DUCT CONNECTION

FAN SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	AIR FLOW (CFM)	EST. ESP (IN WG)	VOLTAGE	PHASE	FLA	MOTOR (HP)	NOTES
EF1	COOK	195TCNHBLE14	4,225	2	460	3	8	5	CURB,DM,VFD,EPC,WC



2 M401 **LAB DOAS CONTROL SCHEMATIC**
SCALE: NOT TO SCALE

DOAS UNIT SEQUENCE OF OPERATION (DOAS-1)

ROOFTOP DEDICATED OUTSIDE AIR UNIT; (CONSTANT VOLUME SUPPLY, VARIABLE DX COOLING, HEAT PUMP HEATING DOWN TO 10°F WITH SECONDARY ELECTRIC HEAT, VARIABLE SUPPLY TEMPERATURE, DEHUMIDIFICATION AND DISCHARGE TEMPERATURE CONTROL VIA MODULATING HOT GAS REHEAT, FILTER MONITORING, SMOKE CONTROL).

DOAS UNIT MANUFACTURER SHALL PROVIDE BACNET COMPLIANT CONTROLLER AND ALL PROGRAMMING REQUIRED TO MEET THE SEQUENCE OF OPERATION AS DESCRIBED BELOW. DDC CONTROLS CONTRACTOR SHALL PROVIDE INTERFACE TO CONNECT WITH DOAS UNIT MANUFACTURER'S CONTROLLER AND SHALL PROVIDE ALL PROGRAMMING AND GRAPHICS NECESSARY LIST EACH INDIVIDUAL CONTROL POINT SHOWN ON THE DIAGRAM AND/OR LISTED IN THE SEQUENCE BELOW. DDC SYSTEM SHALL BE CAPABLE OF SENDING ALL OUTPUTS AND ACCEPTING ALL INPUTS LISTED BELOW IN THIS SEQUENCE OF OPERATION. ALL OTHER REQUIRED SENSORS, RELAYS, SWITCHES, ETC. NOT PROVIDED BY MANUFACTURER SHALL BE PROVIDED BY MECHANICAL CONTRACTOR AND/OR DDC CONTRACTOR.

ROOM PRESSURIZATION CONTROL: UNIT SHALL RUN CONTINUOUSLY TO MAINTAIN NEGATIVE PRESSURE SPACE PER LAB CONTROL SEQUENCE. ONLY SHUTDOWN BY THE MANUAL DISCONNECT, BUILDING AUTOMATION SYSTEM, FIRE ALARM, OR HIGH STATIC PRESSURE SWITCH IN FAN DISCHARGE. OUTSIDE AIR DAMPER SHALL MODULATE TO MAIN PROPER OUTSIDE AIR FLOW WITH ASSOCIATION WITH SUPPLY FAN.

AHU FAN SPEED WILL BE CONTROLLED BY A VARIABLE FREQUENCY DRIVE. SUPPLY FAN SPEED SHALL BE CONTROLLED BY STATIC PRESSURE CONTROLLERS.

DISCHARGE TEMPERATURE SHALL MAINTAIN DISCHARGE AIR TEMPERATURE COOLING / HEATING MODE 55°F (ADJUSTABLE). VARIABLE SPEED COMPRESS / SCR HEATING CONTROLS SHALL MAINTAIN DISCHARGE TEMPERATURE.

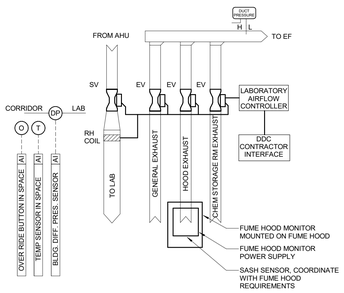
UNOCCUPIED MODE / EXTEND BREAK MODE:

UNIT SHALL MODULATE FAN SPEED AND OUTSIDE AIR MOTORIZED DAMPER TO MAINTAIN LAB SEQUENCE REQUIREMENTS.

SMOKE ACTIVATED FIRE PROTECTION CONTROL: DUCT MOUNTED SMOKE DUCT DETECTORS SHALL BE INSTALLED AS SHOWN ON THE HVAC AIR FLOW SCHEMATIC TO AUTOMATICALLY SHUT DOWN THE UNIT AND SEND SIGNAL TO THE FIRE ALARM SYSTEM. IF THIS ACTION OCCURS, CONTROLLER SHALL SEND EMERGENCY ALARM SIGNAL TO SYSTEM. UNIT SHALL REQUIRE MANUAL START-UP IF THIS ACTION OCCURS.

FILTER MONITORING: PROVIDE DIFFERENTIAL PRESSURE SENSOR TO MEASURE PRESSURE ACROSS THE FILTERS. CONTROLLER SHALL SEND ALARM SIGNAL WHEN FILTERS ARE IN NEED OF CHANGING BASED UPON THE DIFFERENTIAL PRESSURE SENSOR SETPOINT (ADJUSTABLE).

ALARMS:
FINAL ALARMS SHALL BE COORDINATED WITH OWNER PRIOR TO OCCUPANCY.
- SUPPLY FAN PROOF OF RUN
- EXHAUST FAN PROOF OF RUN
- DISCHARGE AIR TEMPERATURE HIGH / LOW LIMIT (115°F / 45°F) (ADJUSTABLE)
- SUPPLY FILTER STATUS - DIRTY FILTER
- EXHAUST FILTER STATUS - DIRTY FILTER



NOTE THAT EACH DIAGRAM REPRESENTS ONE LAB SETUP OF VALVES.
REFER TO DRAWINGS FOR EXACT QUANTITY OF VALVE PAIRS AND THEREFORE THE REQUIRED NUMBER OF CONTROL POINTS AND CONTROLLERS.

LAB SEQUENCES

LABORATORY CONTROLS CONTRACTOR SHALL PROVIDE ALL CONTROLLERS AND DEVICES NECESSARY TO ACCOMPLISH THE FOLLOWING SEQUENCES FOR LABORATORY SUPPLY AND EXHAUST CONTROL.

LABORATORY CONTROL SYSTEM:
- LAB CONTROLLER SHALL BE ABLE TO ACCEPT INPUT FROM BUILDING DDC CONTROL SYSTEM AND RESET VALUE OF AIRFLOW TO THE SPACE. AIRFLOW AMOUNT SHALL BE A USER INPUT AND SHALL BE ADJUSTABLE FROM (35% TO 100%)
- LAB EXHAUST FAN SHALL SHALL BE CONTROLLED WITH VFD PROVIDED BY CONTROLS CONTRACTOR. SHALL MAINTAIN NEGATIVE PRESSURE OF SPACE TO ADJACENT SPACES.
- FUME HOOD:
  - SASH POSITION SENSOR SHALL MONITOR THE FREE AREA IN THE FUME HOOD SASH PLANE AND MAINTAIN 100 FPM ACROSS SASH OPENING.
  - FUME HOOD MONITOR, SHALL MONITOR THE REQUIRED EXHAUST AIRFLOW RATE BASED ON SASH POSITION SENSOR. SHALL MAINTAIN 100 FPM ACROSS SASH OPENING. DURING TIMES OF HOOD NOT BEING USED SASH SHALL REMAIN CLOSED.
  - FUME HOOD EXHAUST AIR VALVE
    - AIR VALVE SHALL MODULATE TO MAINTAIN THE FUME HOOD MINIMUM FPM ACROSS HOOD SASH.
    - WHEN THE DIFFERENTIAL PRESSURE ACROSS A FUME EXHAUST VALVE DROPS BELOW THE MINIMUM OPERATING DIFFERENTIAL PRESSURE, THE FUME HOOD MONITOR SHALL GENERATE AN AUDIUBLE AND VISUAL ALARM.

ROOM PRESSURIZATION:
- SUPPLY ARE VALVES AND GENERAL EXHAUST AIR VALVES SHALL WORK WITH HOOD EXHAUST AIR VALVES TO MAINTAIN NEGATIVE PRESSURE IN SPACE WHILE ALSO MAINTAIN SPACE COOLING / HEATING NEEDS.
- FUME HOOD EXHAUST VALVE, INCREASE OF AIR FLOW - GENERAL EXHAUST AIR VALVE SHALL DECREASE AIRFLOW SIMULTANEOUSLY WITH FUME HOOD EXHAUST VALVE TO MAINTAIN FUME HOOD VELOCITY WHILE ALSO MAINTAINING SPACE DIFFERENTIAL.
- ROOM TEMPERATURE SETPOINT NOT MET. SUPPLY AIR VALVE SHALL OPEN TO MEET ROOM TEMPERATURE SETPOINT, SUPPLY AIR VALVE SHALL MAINTAIN CONSTANT AIRFLOW TO MAINTAIN NEGATIVE SPACE.
- SETPOINT NOT MET, ELECTRIC REHEAT COIL SHALL MODULATE TO MAINTAIN SPACE SET POINT.

UNOCCUPIED: TEMPERATURE SETBACK SHALL DECREASE SUPPLY AIR FLOW TO MEET TEMPERATURE SETBACK SETTING (ADJUSTABLE). GENERAL EXHAUST AIR VALVE AND EXHAUST FAN SHALL DECREASE TO 50% MINIMUM WHILE STILL MAINTAINING NEGATIVE PRESSURE SPACE VERSUS ADJACENT SPACES. MINIMUM 2 HOURS (ADJUSTABLE) WARM UP REQUIRED TO CATCH SYSTEM BACK UP.

EXTENDED BREAK UNOCCUPIED: FUME EXHAUST HOODS CAN BE DECREASED TO MAINTAIN 60 FPM ACROSS SASH AND AIR VALVES SHALL SIMULTANEOUSLY MODULATE TO MAINTAIN 60 FPM. GENERAL EXHAUST CAN DECREASE TO 50% MINIMUM WHILE MAINTAINING NEGATIVE PRESSURE IN SPACE VERSUS SUPPLY AIR VALVE. SUPPLY AIR VALVE SHALL MAINTAIN SPACE TEMPERATURE SETPOINT OF SETBACK TEMPERATURE.

AIR VALVE / LAB EXHAUST FAN - POINTS LIST

TYPE	POINT	DESCRIPTION	UNITS	TREND	ALARM	TOTALIZE
AI	EH-T	ELECTRIC RE-HEATING LAT	DEG F	X	X	
AI	DA-T	DISCHARGE AIR TEMPERATURE	DEG F	X	X	
AI	SAV-T	SUPPLY AIR VALVE - EAT	DEG F	X	X	
AI	OA-T	OUTSIDE AIR TEMPERATURE	DEG F	X		
AI	SAV-F	SUPPLY AIR VALVE AIRFLOW	CFM	X	X	
AI	EAV-F	EXHAUST VALVE AIRFLOW	CFM	X	X	
AI	EF-F	EXHAUST FAN AIRFLOW	CFM	X	X	
AI	DP-HL	DUCT PRESS. EXHAUST	In WC		X	
DI	EF-S	EXHAUST FAN STATUS	OFF ON	X	X	X
DO	EF-C	EXHAUST FAN COMMAND	OFF ON	X		
AO	EF-O	EXHAUST FAN VFD OUTPUT	%	X		
AO	EH-O	ELECTRIC HEATING OUTPUT	%	X		
AO	EAV-O	EXHAUST AIR VALVE OUTPUT	%	X		
AO	RAV-O	RETURN AIR VALVE OUTPUT	%	X		
AO	DAT-SP	DISCHARGE AIR TEMP SETPOINT	DEG F	X		
AO	EAP-SP	EXHAUST AIR PRESS. SETPOINT	In WC	X		

1 M401 **LAB CONTROL SEQUENCE**
SCALE: NOT TO SCALE

GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.

SCHEDULE LEGEND

ABBREVIATED SCHEDULE HEADINGS	
A	AMPS
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
DB	DRY BULB
E.A.T.	ENTERING AIR TEMPERATURE
E.S.P.	EXTERNAL STATIC PRESSURE INCLUDES ALL WORK EXTERNAL TO UNIT
E.W.T.	ENTERING WATER TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EST.	ESTIMATED
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR/LB	GRAINS OF MOISTURE PER POUND OF DRY AIR
HP	HORSEPOWER
IN	INCH
ISP	INLET STATIC PRESSURE
L.A.T.	LEAVING AIR TEMPERATURE
L.W.T.	LEAVING WATER TEMPERATURE
LBS	POUNDS
LOAD	NOMINAL CONNECTED GAS LOAD TO UNIT, USED TO SIZE GAS PIPING
MCA	MINIMUM CIRCUIT AMPACITY
MIN.	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
NC	MAXIMUM NOISE CRITERIA RATING
NPSH	NET PRESSURE SUCTION HEAD
OA	OUTSIDE AIR
OUTPUT	MINIMUM REQUIRED OUTPUT TO SATIFY SCHEDULED HEATING REQUIREMENTS
PPH	POUNDS PER HOUR
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SHC	SENSIBLE HEAT CAPACITY
TCC	TOTAL COOLING CAPACITY
TEMP	TEMPERATURE
THC	TOTAL HEAT CAPACITY
WB	WET BULB
WPD	WATER PRESSURE DROP
EXHAUST FAN SCHEDULE	
AF	ALUMINUM FINISH
DD	DIRECT DRIVE MOTOR
DM	DISCONNECT MEANS
EPC	INDUSTRIAL STRENGTH EPOXY POWDER COAT FOR ALL PARTS EXPOSED TO AIR STREAM
GBD	GRAVITY BACKDRAFT DAMPER
VFD	VARIABLE FREQUENCY DRIVE PROVIDED BY CONTROLS CONTRACTOR.
WC	ZERO PRESSURE WEATHER CAP.
OUTSIDE AIR VENTILATION SCHEDULE	
CURB	INSULATED FULL ROOF CURB
DDC	DIRECT DIGITAL CONTROL.
DS	SINGLE POINT MEANS OF DISCONNECT
F	PROVIDE MERV 8 PRE-FILTER AND MERV 13 FINAL FILTER. PROVIDE WITH HOLDING FRAME.
HG	HAIL GUARDS FOR CONDENSER COILS.
LL	LOWE LEAKE OUTSIDE AIR DAMPER
MHGR	MODULATING HOT GAS REHEAT.
PM	ELECTRICAL PHASE MONITORING.
R410A	PROVIDE UNIT WITH R410A REFRIGERANT
SA	SUPPLY AIR RESET SCHEDULE TO SHUTDOWN HOT GAS REHEAT WHEN OUTSIDE AIR TEMPERATURE IS ABOVE 90°F LEAVING AIR TEMPERATURE WOULD BE REDUCED TO COOLING COIL LEAVING AIR TEMPERATURE.
SCAD	HINGED ACCESS DOORS
VFD SA	VARIABLE FREQUENCY DRIVE
VSC	BARIABLE SPEED COMPRESSOR.

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James R. Guillotte

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GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.

PLAN HEX NOTES:

1 CONTRACTOR SHALL DEMOLISH EXISTING LIGHT SWITCHES. NEW LIGHT SWITCHES SHOWN ON LIGHTING PLAN SHALL BE LOCATED IN PLACE OF DEMOLISHED SWITCHES.

2 EXISTING FIRE ALARM STROBE SHALL REMAIN AS EXISTING.

3 EXISTING LIGHTING CONTROL DEVICE SHALL BE DEMOLISHED.

4 CONTRACTOR SHALL DEMOLISH EXISTING ELECTRICAL DEVICE INCLUDING ALL ASSOCIATED WIRING, CONDUIT AND RACEWAY, ETC. CONTRACTOR SHALL ALSO MAKE ANY REQUIRED SPLICES AND CONNECTIONS TO MAINTAIN CIRCUIT FOR ANY EXISTING TO REMAIN DOWNSTREAM DEVICES.

5 CONTRACTOR SHALL DEMOLISH POWER AND DATA SERVING EXISTING PROJECTOR.

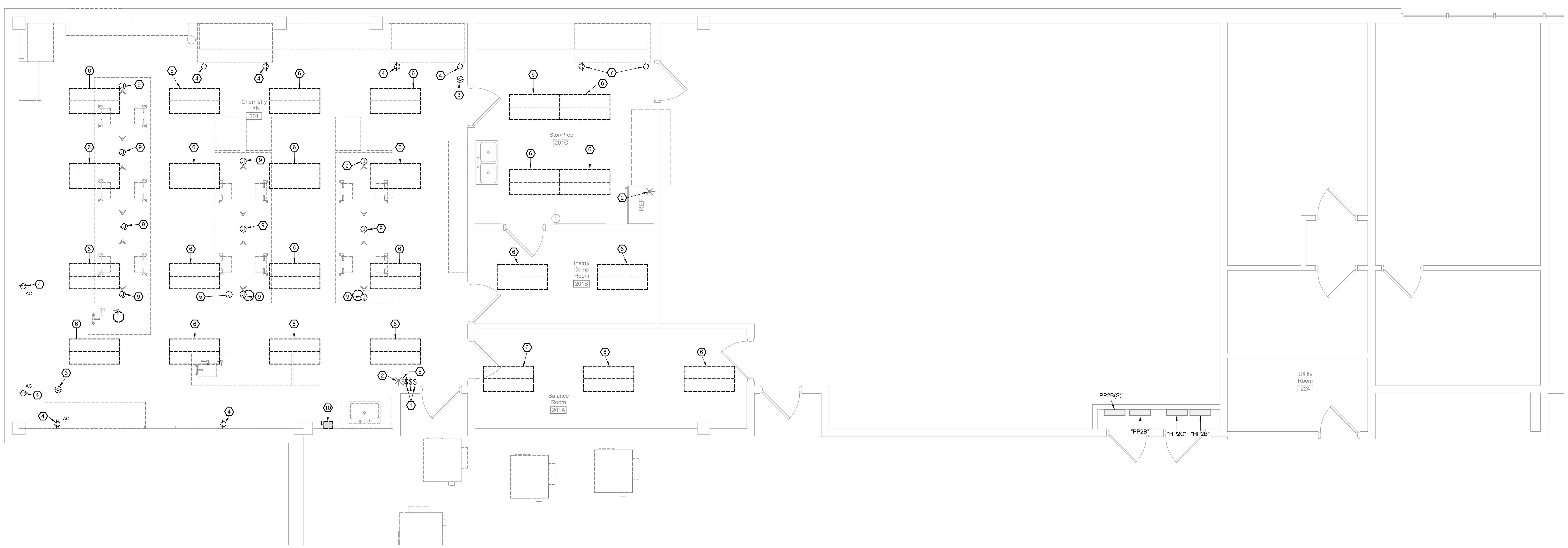
6 CONTRACTOR SHALL DEMOLISH EXISTING LIGHT FIXTURE. NEW LIGHT FIXTURE AND CONTROLS SHALL TIE INTO EXISTING CIRCUIT SERVING DEMOLISHED FIXTURES FROM UNSWITCHED PORTION OF EXISTING CIRCUIT.

7 CONTRACTOR SHALL DEMOLISH EXISTING RECEPTACLES ON DEMOLISHED LAB HOOD. CIRCUIT SERVING DEMOLISHED RECEPTACLES SHALL REMAIN AND SERVE NEW RECEPTACLES ON NEW HOOD. CONTRACTOR SHALL MAKE ALL EXTENSIONS AND SPLICES TO EXTEND EXISTING CIRCUIT TO NEW HOOD RECEPTACLES.

8 EXISTING EMERGENCY GAS SHUTOFF SHALL REMAIN AS EXISTING.

9 EXISTING SURFACE MOUNTED RECEPTACLE SHALL BE DEMOLISHED. EXISTING CIRCUIT SHALL SERVE NEW SURFACE RECEPTACLE SHOWN ON IMPROVEMENT PLAN. CONTRACTOR SHALL MAKE ALL NECESSARY SPLICES AND CONNECTIONS TO EXTEND CIRCUIT TO NEW DEVICE LOCATION.

10 EXISTING DISCONNECT SWITCH SERVING EXISTING EXHAUST SYSTEM SHALL BE DEMOLISHED INCLUDING ALL ASSOCIATED WIRING, CONDUIT, RACEWAY ETC BACK TO PANEL OF ORIGINATION.



1
ED101
ELECTRICAL DEMOLITION PLAN - LEVEL 2
SCALE: 1/4" = 1'-0"

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#	Description	Date

STATE OF MISSOURI
JAMES R. BASQUETTE
NUMBER
E-29112
REGISTERED PROFESSIONAL ENGINEER

James R. Basquette

Digitally signed by James R. Basquette
DN: C=US, E=jim.basquette@rtmec.com, O=RTM Engineering Consultants, CN=James R. Basquette
Date: 2023.10.05 16:41:45-05'00'

The Professional Engineers seal affixed to this sheet applies only to the material and items shown on this sheet. All drawings, instruments or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plan, drawings, or documents not exhibiting this seal.

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ED101

ELECTRICAL DEMOLITION PLAN

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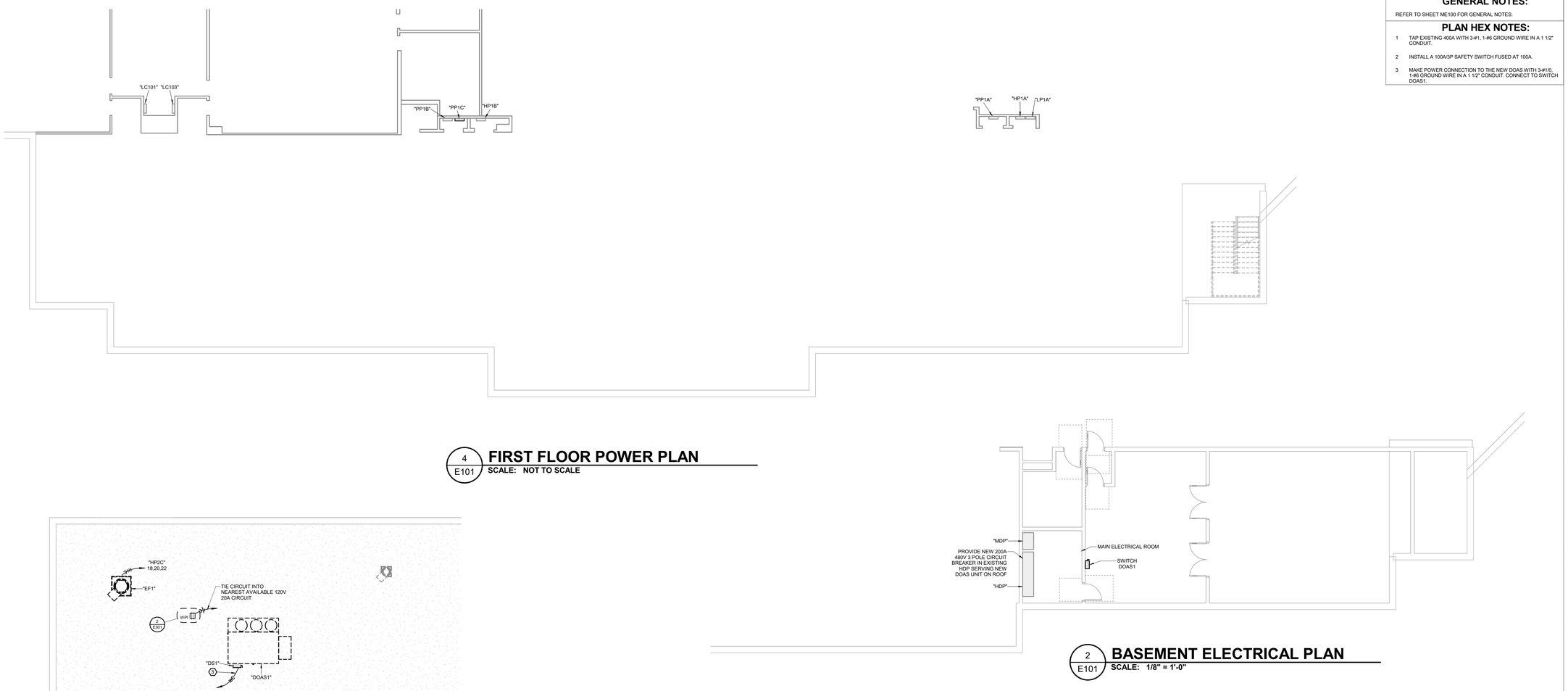

4 E101 **FIRST FLOOR POWER PLAN**
SCALE: NOT TO SCALE

2 E101 **BASEMENT ELECTRICAL PLAN**
SCALE: 1/8" = 1'-0"

3 E101 **ROOF ELECTRICAL PLAN**
SCALE: 1/8" = 1'-0"

1 E101 **ELECTRICAL RISER DIAGRAM**
SCALE: NOT TO SCALE

GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.

PLAN HEX NOTES:

1. TAP EXISTING 400A WITH 3-#1, 1-#6 GROUND WIRE IN A 1 1/2" CONDUIT.
2. INSTALL A 100A/3P SAFETY SWITCH FUSED AT 100A.
3. MAKE POWER CONNECTION TO THE NEW DOAS WITH 3-#1/0, 1-#6 GROUND WIRE IN A 1 1/2" CONDUIT. CONNECT TO SWITCH DOAS1.

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E101

BASEMENT / FIRST FLOOR / ROOF ELECTRICAL PLANS

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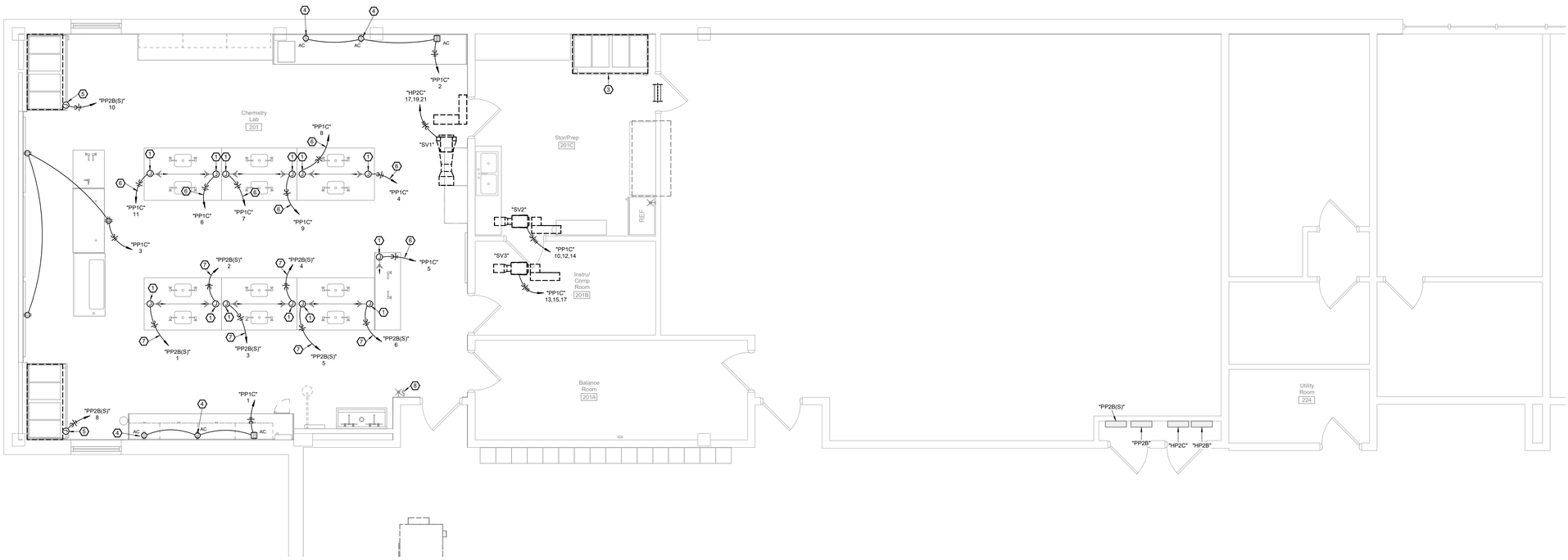
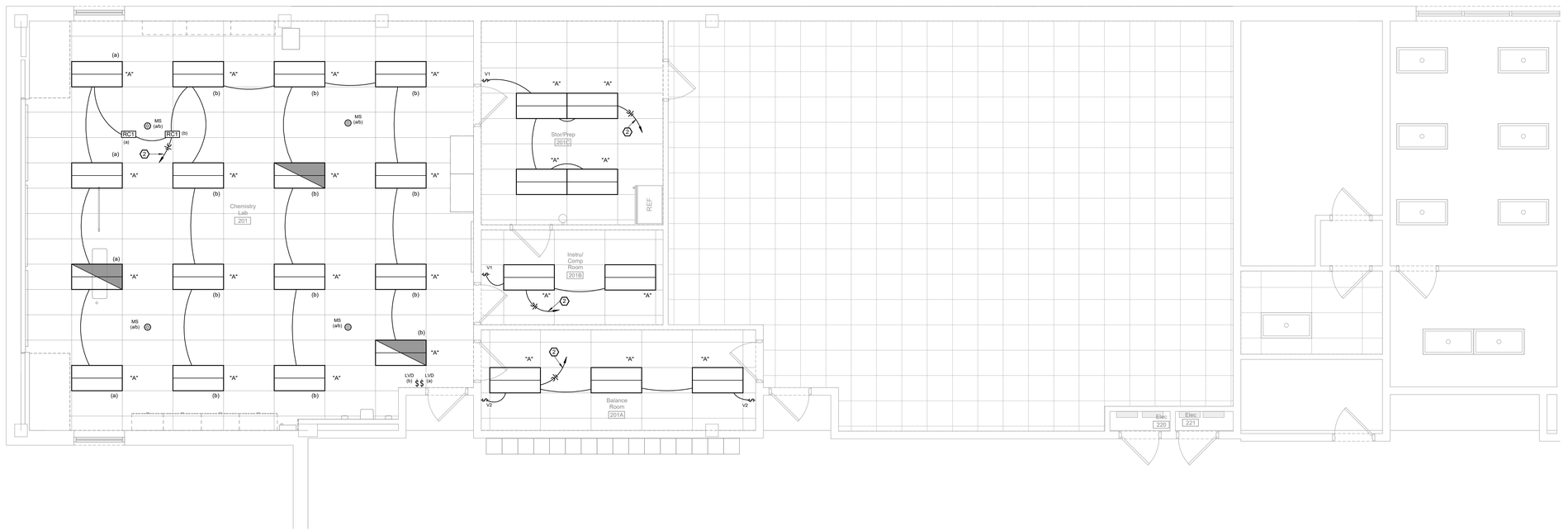


2 E102 **SECOND FLOOR POWER PLAN**
SCALE: 1/4" = 1'-0"



1 E102 **SECOND FLOOR LIGHTING PLAN**
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.

PLAN HEX NOTES:

1. CONTRACTOR SHALL PROVIDE HUBBELL SURFACE MOUNT 2 GANG BOX MODEL NUMBER SA6689G. PROVIDE 2 DUPLEX RECEPTACLES AND STAINLESS STEEL COVER PLATE. ONE OF THE TWO DUPLEXES IN THE BOX SHALL BE GFI AND THE OTHER SHALL BE WIRED DOWNSTREAM OF THE GFI RECEPTACLE TO BE GFI PROTECTED. WIRING SHALL BE FED FROM BELOW IN CASEWORK. RECEPTACLES SHALL FACE IN THE DIRECTION AS SHOWN BY ARROW ON PLANS.
2. CONTRACTOR SHALL TIE NEW LIGHT FIXTURES INTO EXISTING CIRCUIT SERVING DEMOLISHED LIGHT FIXTURES. CONTRACTOR SHALL TIE INTO UNSWITCHED PART OF CIRCUIT TO SERVE NEW CONTROLS FOR NEW LIGHT FIXTURES.
3. CONTRACTOR SHALL CONNECT NEW HOOD RECEPTACLES TO EXISTING CIRCUIT(S) SERVING THE DEMOLISHED HOOD RECEPTACLES.
4. RECEPTACLE SHALL BE GFI PROTECTED BY UPSTREAM GFI RECEPTACLE.
5. MAKE POWER CONNECTION TO (2) DUPLEX RECEPTACLES LOCATED INTEGRAL WITH FUME HOOD. BOTH RECEPTACLES ON HOOD SHALL BE SERVED BY CIRCUIT SHOWN.
6. CIRCUIT SERVING NEW SURFACE MOUNTED BOX SHALL BE FED FROM BELOW AND CONCEALED IN CASEWORK.
7. CIRCUIT SERVING NEW SURFACE MOUNTED RECEPTACLE SHALL BE FED FROM EXISTING BREAKER IN PP2B(S) SUB PANEL SERVING DEMOLISHED SURFACE MOUNT BOX. NEW WIRING AND CIRCUITRY SHALL BE FED FROM BELOW AND CONCEALED IN CASEWORK.
8. EXISTING EMERGENCY GAS SHUTOFF SHALL REMAIN AS EXISTING.

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STATE OF MISSOURI — JAMES R. BASQUETTE — NUMBER E-29112 — REGISTERED PROFESSIONAL ENGINEER

James R. Basquette, PE

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E102

SECOND FLOOR ELECTRICAL PLANS

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GENERAL NOTES:

REFER TO SHEET ME100 FOR GENERAL NOTES.

PLAN HEX NOTES:

EXISTING CIRCUIT BREAKER PANELBOARD SCHEDULE

PANEL NAME: "PP1A"	**LOCATION:** LEVEL 1 **FED BY:** EXISTING **MOUNTING:** SURFACE	**VOLTAGE:** 120/208V, 3Ph, 4W **ENCLOSURE:** WESTINGHOUSE **MANUFACTURER:** WESTINGHOUSE **PANEL TYPE:** WESTINGHOUSE	**MAIN TYPE:** MCB **BUS RATING (A):** 225 **MCB RATING (A):** 225 **MIN. AIC RATING (A):** EXISTING

CKT	LOAD DESCRIPTION	CIRCUIT CONFIGURATION	VD%	CB	P	TYPE	A		B		C		TYPE	P	CB	VD%	CIRCUIT CONFIGURATION	LOAD DESCRIPTION	CKT
1	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	2
3	EXISTING LOAD	--	--	20	1	--			0	0			--	1	20	--	--	EXISTING LOAD	4
5	EXISTING LOAD	--	--	20	1	--					0	0	--	1	20	--	--	EXISTING LOAD	6
7	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	8
9	EXISTING LOAD	--	--	20	1	--			0	0			--	1	20	--	--	EXISTING LOAD	10
11	EXISTING LOAD	--	--	20	1	--					0	0	--	1	20	--	--	EXISTING LOAD	12
13	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	14
15	EXISTING LOAD	--	--	20	1	--			0	0			--	1	20	--	--	EXISTING LOAD	16
17	EXISTING LOAD	--	--	20	1	--					0	0	--	1	20	--	--	EXISTING LOAD	18
19	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	20
21	EXISTING LOAD	--	--	20	1	--			0	0			--	1	20	--	--	EXISTING LOAD	22
23	EXISTING LOAD	--	--	20	1	--					0	0	--	1	20	--	--	EXISTING LOAD	24
25	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	26
27	EXISTING LOAD	--	--	20	1	--			0	0			--	1	20	--	--	EXISTING LOAD	28
29	SPARE	--	--	20	1	--					0	0	--	1	20	--	--	EXISTING LOAD	30
31	SPACE	--	--	--	1	--	--	0					--	1	20	--	--	EXISTING LOAD	32
33	SPACE	--	--	--	1	--			--	--			--	1	--	--	--	SPACE	34
35	SPACE	--	--	--	1	--					--	--	--	1	--	--	--	SPACE	36
37	PP1C	4#1, #8G, 1-1/2"	0.85%	100	3		7920	--					--	1	--	--	--	SPACE	38
39	--	--	--	--	--	--			7920	--			--	1	--	--	--	SPACE	40
41	--	--	--	--	--	--					8760	--	--	1	--	--	--	SPACE	42

	A	B	C
CONNECTED PHASE LOAD	7920 VA	7920 VA	8760 VA
***PHASE DIVERSIFIED LOAD**	7920 VA	7920 VA	8760 VA
***PHASE DIVERSIFIED AMPS**	66 A	66 A	73 A

CALCULATED PANEL AMPS: **73 A**

(*DIVERSIFIED LOADS CALCULATED PER THE NATIONAL ELECTRIC CODE.)

NOTES/ACCESSORIES:
1. BOLDED AND UNDERLINED CCT NUMBER INDICATED NEW CIRCUIT BREAKER.

PANEL TOTALS	
TOTAL CONNECTED LOAD:	24600 VA
TOTAL DIVERSIFIED LOAD:	24600 VA
CONTROLLING LOAD:	N/A

CIRCUIT BREAKER PANELBOARD SCHEDULE

PANEL NAME: "PP1C"	**LOCATION:** **FED BY:** "PP1A" **MOUNTING:** SURFACE	**VOLTAGE:** 120/208V, 3Ph, 4W **ENCLOSURE:** NEMA 1 **MANUFACTURER:** SQUARE D **PANEL TYPE:** NQ	**MAIN TYPE:** MLO **BUS RATING (A):** 100 **MCB RATING (A):** N/A **MIN. AIC RATING (A):** 10000 A

CKT	LOAD DESCRIPTION	CIRCUIT CONFIGURATION	VD%	CB	P	TYPE	A		B		C		TYPE	P	CB	VD%	CIRCUIT CONFIGURATION	LOAD DESCRIPTION	CKT
1	CLASS 201 AC RECEPT	2#12, #12G, 3/4"	1.40%	20	1		540	540						1	20	1.61%	2#12, #12G, 3/4"	CLASS 201 AC RECEPT	2
3	CLASS 201 TEACHING WALL	2#12, #12G, 3/4"	3.51%	20	1				1080	1920				1	20	5.13%	2#12, #12G, 3/4"	LAB STATION RECEPT	4
5	LAB STATION RECEPT	2#12, #12G, 3/4"	4.73%	20	1						1920	1920		1	20	5.77%	2#12, #12G, 3/4"	LAB STATION RECEPT	6
7	LAB STATION RECEPT	2#12, #12G, 3/4"	5.73%	20	1		1920	1920						1	20	5.41%	2#12, #12G, 3/4"	LAB STATION RECEPT	8
9	LAB STATION RECEPT	2#12, #12G, 3/4"	5.45%	20	1				1920	2000				3	20	2.52%	4#12, #12G, 3/4"	SV2	10
11	LAB STATION RECEPT	2#12, #12G, 3/4"	6.05%	20	1						1920	2000	--	--	--	--	--	--	12
13	SV3	4#10, #10G, 3/4"	0.72%	25	3		1000	2000					--	--	--	--	--	--	14
15	--	--	--	--	--	--			1000	--			--	1	--	--	--	SPACE	16
17	--	--	--	--	--	--					1000	--	--	1	--	--	--	SPACE	18
19	SPACE	--	--	--	1	--	--	--					--	1	--	--	--	SPACE	20
21	SPACE	--	--	--	1	--			--	--			--	1	--	--	--	SPACE	22
23	SPACE	--	--	--	1	--					--	--	--	1	--	--	--	SPACE	24
25	SPACE	--	--	--	1	--	--	--					--	1	--	--	--	SPACE	26
27	SPACE	--	--	--	1	--			--	--			--	1	--	--	--	SPACE	28
29	SPACE	--	--	--	1	--					--	--	--	1	--	--	--	SPACE	30

	A	B	C
CONNECTED PHASE LOAD	7920 VA	7920 VA	8760 VA
***PHASE DIVERSIFIED LOAD**	7920 VA	7920 VA	8760 VA
***PHASE DIVERSIFIED AMPS**	66 A	66 A	73 A

CALCULATED PANEL AMPS: **73 A**

(*DIVERSIFIED LOADS CALCULATED PER THE NATIONAL ELECTRIC CODE.)

NOTES/ACCESSORIES:
1. PROVIDE BLANK SPACE COVER WHERE "SPACE" IS SHOWN ON SCHEDULE

PANEL TOTALS	
TOTAL CONNECTED LOAD:	24600 VA
TOTAL DIVERSIFIED LOAD:	24600 VA
CONTROLLING LOAD:	N/A

EXISTING CIRCUIT BREAKER PANELBOARD SCHEDULE

PANEL NAME: "PP2B(S)"	**LOCATION:** LEVEL 2 **FED BY:** PP2B **MOUNTING:** SURFACE	**VOLTAGE:** 120/208V, 3Ph, 4W **ENCLOSURE:** WESTINGHOUSE **MANUFACTURER:** WESTINGHOUSE **PANEL TYPE:** WESTINGHOUSE	**MAIN TYPE:** EXISTING **BUS RATING (A):** EXISTING **MCB RATING (A):** EXISTING **MIN. AIC RATING (A):** EXISTING

CKT	LOAD DESCRIPTION	CIRCUIT CONFIGURATION	VD%	CB	P	TYPE	A		B		C		TYPE	P	CB	VD%	CIRCUIT CONFIGURATION	LOAD DESCRIPTION	CKT
1	LAB STATION RECEPT	2#12, #12G, 3/4"	4.97%	20	1		1920	1920						1	20	4.69%	2#12, #12G, 3/4"	LAB STATION RECEPT	**2**
3	LAB STATION RECEPT	2#12, #12G, 3/4"	4.65%	20	1				1920	1920				1	20	4.37%	2#12, #12G, 3/4"	LAB STATION RECEPT	**4**
5	LAB STATION RECEPT	2#12, #12G, 3/4"	4.33%	20	1						1920	1920		1	20	4.04%	2#12, #12G, 3/4"	LAB STATION RECEPT	**6**
7	EXISTING LOAD	--	--	20	1	--	0	1920						1	20	4.89%	2#12, #12G, 3/4"	HOOD RECEPT	**8**
9	EXISTING LOAD	--	--	20	1	--			0	1920				1	20	6.18%	2#12, #12G, 3/4"	HOOD RECEPT	**10**
11	EXISTING LOAD	--	--	20	1	--					0	0	--	1	20	--	--	EXISTING LOAD	12
13	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	14
15	EXISTING LOAD	--	--	20	1	--			0	0			--	1	20	--	--	EXISTING LOAD	16
17	EXISTING LOAD	--	--	20	1	--					0	0	--	1	20	--	--	EXISTING LOAD	18
19	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	20
21	EXISTING LOAD	--	--	20	1	--			0	0			--	1	20	--	--	EXISTING LOAD	22
23	EXISTING LOAD	--	--	20	1	--					0	0	--	1	20	--	--	EXISTING LOAD	24

	A	B	C
CONNECTED PHASE LOAD	5760 VA	5760 VA	3840 VA
***PHASE DIVERSIFIED LOAD**	5760 VA	5760 VA	3840 VA
***PHASE DIVERSIFIED AMPS**	50 A	50 A	32 A

CALCULATED PANEL AMPS: **50 A**

(*DIVERSIFIED LOADS CALCULATED PER THE NATIONAL ELECTRIC CODE.)

NOTES/ACCESSORIES:
1. BOLDED AND UNDERLINED CCT NUMBER INDICATED NEW CIRCUIT BREAKER.

PANEL TOTALS	
TOTAL CONNECTED LOAD:	15360 VA
TOTAL DIVERSIFIED LOAD:	15360 VA
CONTROLLING LOAD:	N/A

EXISTING CIRCUIT BREAKER PANELBOARD SCHEDULE

PANEL NAME: "HP2C"	**LOCATION:** LEVEL 2 **FED BY:** **MOUNTING:** SURFACE	**VOLTAGE:** 480/277V, 3Ph, 4W **ENCLOSURE:** WESTINGHOUSE **MANUFACTURER:** WESTINGHOUSE **PANEL TYPE:** WESTINGHOUSE	**MAIN TYPE:** MLO **BUS RATING (A):** 100 **MCB RATING (A):** 100 **MIN. AIC RATING (A):** EXISTING

CKT	LOAD DESCRIPTION	CIRCUIT CONFIGURATION	VD%	CB	P	TYPE	A		B		C		TYPE	P	CB	VD%	CIRCUIT CONFIGURATION	LOAD DESCRIPTION	CKT
1	EXISTING LOAD	--	--	20	3	--	0	0					--	3	20	--	--	EXISTING LOAD	2
3	--	--	--	--	--	--			0	0			--	--	--	--	--	--	4
5	--	--	--	--	--	--					0	0	--	--	--	--	--	--	6
7	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	8
9	EXISTING LOAD	--	--	20	1	--			0	0			--	1	20	--	--	EXISTING LOAD	10
11	EXISTING LOAD	--	--	20	1	--					0	0	--	1	30	--	--	EXISTING LOAD	12
13	EXISTING LOAD	--	--	20	1	--	0	0					--	1	20	--	--	EXISTING LOAD	14
15	EXISTING LOAD	--	--	30	1	--			0	0			--	1	20	--	--	EXISTING LOAD	16
17	SV1	4#4, #8G, 1-1/4"	0.46%	70	3						13333	2018		3	20	0.57%	3#12, #12G, 3/4"	EF1	**18**
19	--	--	--	--	--	--	13333	2018					--	--	--	--	--	--	**20**
21	--	--	--	--	--	--			13333	2018			--	--	--	--	--	--	**22**
23	SPACE	--	--	--	1	--					--	--	--	1	--	--	--	SPACE	24
25	SPACE	--	--	--	1	--	--	--					--	1	--	--	--	SPACE	26
27	SPACE	--	--	--	1	--			--	--			--	1	--	--	--	SPACE	28
29	SPACE	--	--	--	1	--					--	--	--	1	--	--	--	SPACE	30

	A	B	C
CONNECTED PHASE LOAD	15352 VA	15352 VA	15352 VA
***PHASE DIVERSIFIED LOAD**	15856 VA	15856 VA	15856 VA
***PHASE DIVERSIFIED AMPS**	57 A	57 A	57 A

CALCULATED PANEL AMPS: **57 A**

(*DIVERSIFIED LOADS CALCULATED PER THE NATIONAL ELECTRIC CODE.)

NOTES/ACCESSORIES:
1. BOLDED AND UNDERLINED CCT NUMBER INDICATED NEW CIRCUIT BREAKER.

PANEL TOTALS	
TOTAL CONNECTED LOAD:	46055 VA
TOTAL DIVERSIFIED LOAD:	47569 VA
CONTROLLING LOAD:	N/A

LIGHTING DEVICE SCHEDULE

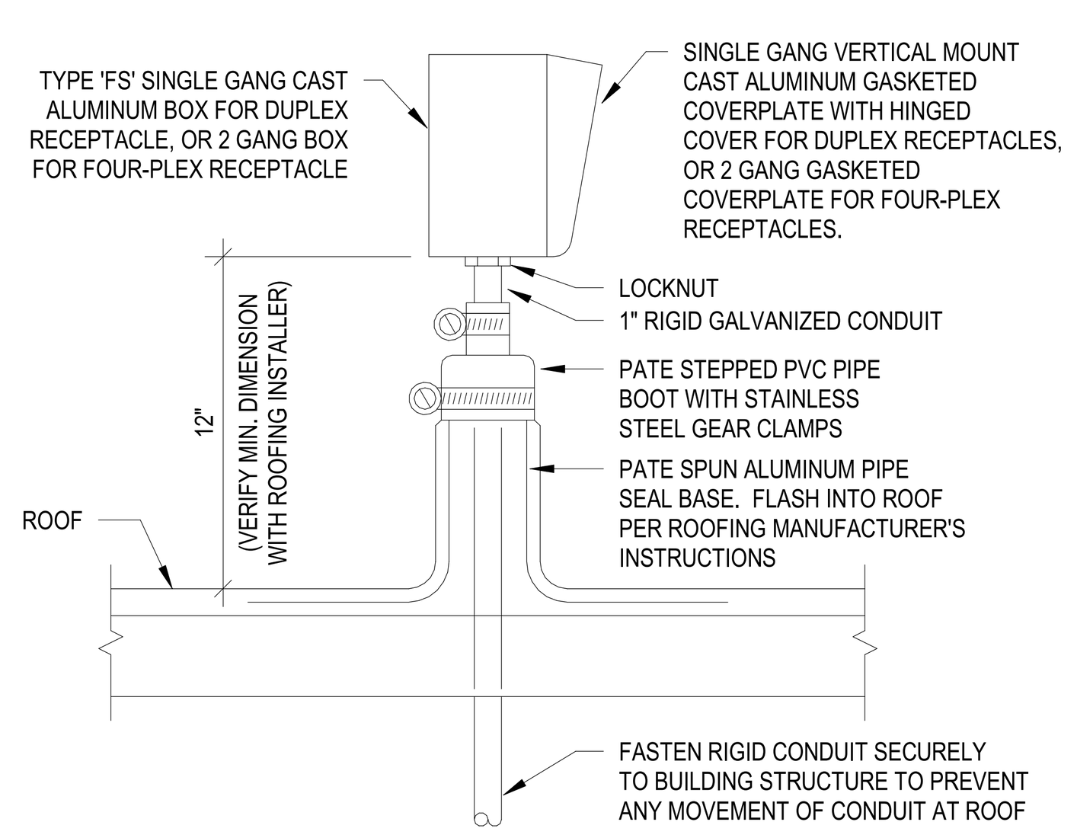
PLAN MARK	MOUNTING TYPE	MANUFACTURER	MODEL	FINISH	NOTES
MS	CEILING	nLIGHT	nCM PDT-9-RJB	WHITE	LOW VOLTAGE DUAL TECH CEILING SMALL MOUNTION OCCUPANCY SENSOR.
RC1	PLENUM	nLIGHT	nPP16-D-EFP-SA		1 ZONE 0-10V DIMMING ROOM CONTROLLER PROGRAMMED TO MANUAL ON / AUTO OFF AFTER 20 MIN.
LVD	WALL	nLIGHT	nPODMA-DX-WH	WHITE	LOW VOLTAGE 3 BUTTON DIMMING WALL SWITCH. 1. ON/OFF, 2. RAISE, 3. LOWER.
V1	WALL	SENSOR SWITCH	WSXA-PDT-D-SA	WHITE	WALL MOUNTED LINE VOLTAGE OCCUPANCY DIMMING SWITCH PROGRAMMED TO MANUAL ON / AUTO OFF AFTER 20 MIN.
V2	WALL	SENSOR SWITCH	WSXA MWO-PDT-D-SA	WHITE	WALL MOUNTED LINE VOLTAGE OCCUPANCY DIMMING SWITCH PROGRAMMED TO MANUAL ON / AUTO OFF AFTER 20 MIN. SWITCH SHALL BE COMPATIBLE FOR 3-WAY APPLICATIONS.

LUMINAIRE SCHEDULE

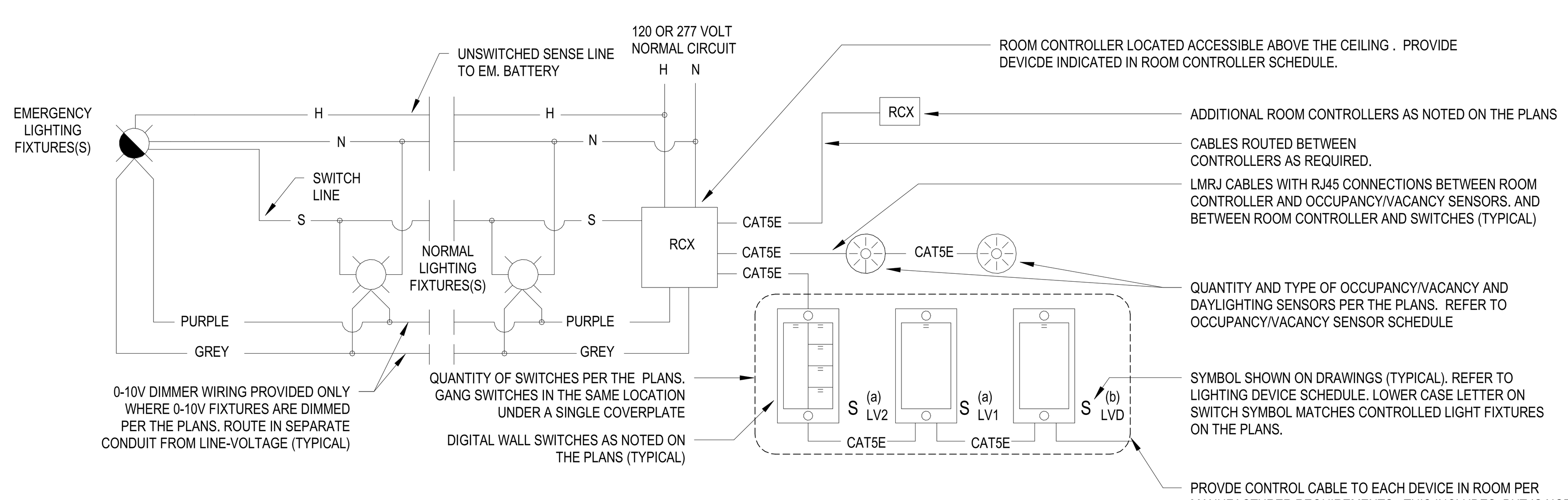
PLAN MARK	MANUFACTURER	MODEL	MOUNTING TYPE	FINISH	LUMINAIRE SOURCE				ELECTRICAL		DESCRIPTION
					SOURCE TYPE	LUMENS	COLOR TEMP (K)	CRI	VOLTAGE	LOAD (VA)	
A	METALUX	24EN-LD2-54-UNV-L840-CD	RECESSED	WHITE	LED	5,400	4000	80	277	43	RECESSED 2X4 LED TROFFER WITH UNIVERSAL DRIVER. WHERE EMERGENCY FIXTURE IS SHOWN ON PLANS. PROVIDE METALUX OPTION EL10WSD 10W EMERGENCY INTEGRAL BATTERY PACK.

DISCONNECT SCHEDULE

PLAN MARK	LOAD		SWITCH			FUSE		ENCLOSURE NEMA TYPE	NOTES
	EQUIPMENT SERVED	VOLTAGE	DUTY	AMP	POLES	AMP	TYPE		
DS1	DOAU1	480	HD	200	3	200	LPN-RK	NEMA 3R	
DS#	(EQUIPMENT SERVED)	480	HD	200	3	200	LPN-RK	NEMA 3R	



2 / E301 **ROOF RECEPTACLE MOUNTING**
SCALE: NOT TO SCALE



NOTES:
1. PROGRAM ROOM CONTROLLER TO MEET CONTROL SEQUENCE FOR ZONES INDICATED ON PLANS / LIGHTING DEVICE SCHEDULE.
2. ROOM CONTROLLER, LOW VOLTAGE SWITCHES, OCCUPANCY AND VACANCY SENSORS SHALL ALL BE OF THE SAME MANUFACTURER. nLIGHT IS BASIS OF DESIGN, REFER TO LIGHTING DEVICE SCHEDULE FOR ADDITIONAL REQUIREMENTS.
3. WIRING DIAGRAM SHOWN IS SCHEMATIC. INSTALL PER THE MANUFACTURER'S REQUIREMENTS - VERIFY ALL WIRING REQUIREMENTS PRIOR TO ROUGH-IN.

1 / E301 **ROOM CONTROLLER - VACANCY/OCCUPANCY SENSOR DETAIL**
SCALE: NOT TO SCALE

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100% Construction Documents

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Metropolitan Community College
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REVISIONS:

#	Description	Date

STATE OF MISSOURI · JAMES R. BASQUETTE · NUMBER E-29112 · REGISTERED PROFESSIONAL ENGINEER

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JOB NO: 23011.00
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CHECKED BY: KEH
DATE: 10/06/2023

E301