TM FIELDHOUSE

1550 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64081

PERMIT SET

2 MAY 2023

COLLINS WEBB #: 22103

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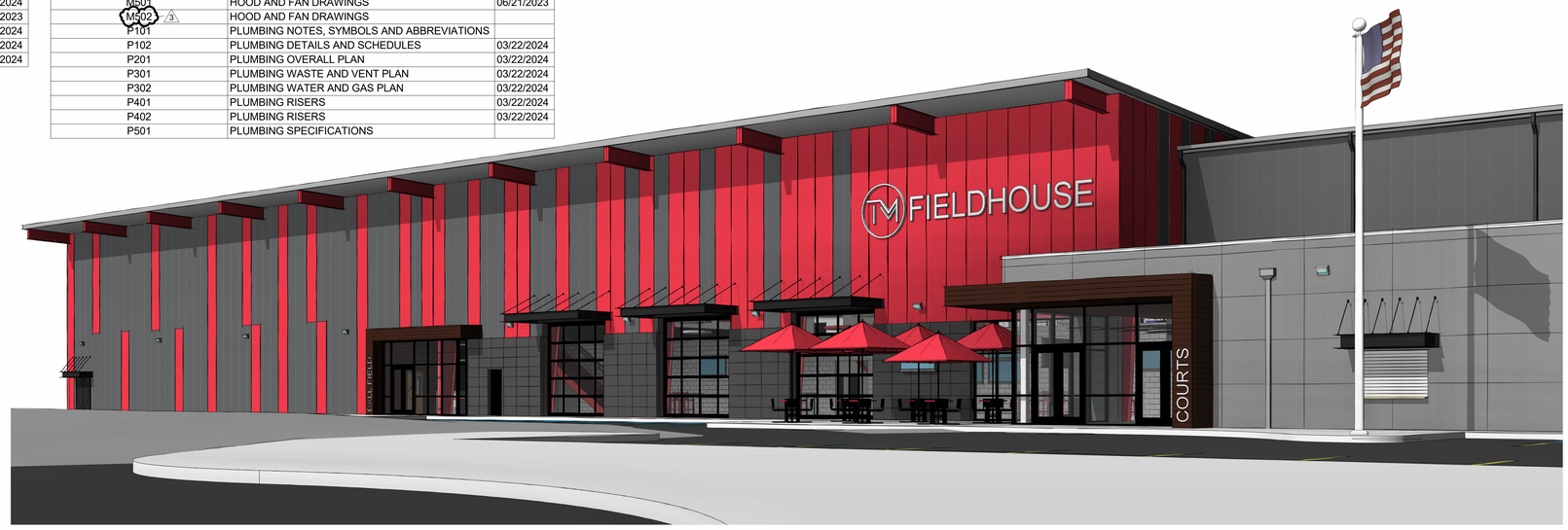

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ARCHITECTURAL ABBREVIATIONS

&	AND
<	ANGLE
AB	ANCHOR BOLT
ACOUS/ACST	ACOUSTIC(AL)
ACT	ACOUSTICAL CEILING TILE
ACP	ACOUSTICAL CEILING PANEL
ACS PNL	ACCESS PANEL
AD	AREA DRAIN
ADDL	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE
ADJ	ADJACENT
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AFS	ABOVE FINISH SLAB
AGGR	AGGREGATE
ALUM, AL	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
APPROX	APPROXIMATE(LY)
ARCH	ARCHITECT(URAL)
ASPH	ASPHALT
ASPH	AT
AVG	AVERAGE
BB	BULLETIN BOARD
BD	BOARD
BTWN	BETWEEN
BITUM	BITUMINOUS
BLK / BLKG	BLOCK / BLOCKING
BLDG	BUILDING
BM	BENCHMARK
BMD	BOTTOM OF METAL DECK
BO	BOTTOM OF / BY OTHERS
BOT	BOTTOM
BOS	BOTTOM OF STEEL
BRG	BEARING
BSMT	BASEMENT
BUR	BUILT UP ROOFING SYSTEM
[	CHANNEL
CAB	CABINET
CPT	CARPET
CI	CAST IRON
CB	CATCH BASIN
CCR	CARD CONTROL READER
CSWK	CASEWORK
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CSP	COMBINATION STAND PIPE
CG	CORNER GUARD
CEM	CEMENT, CEMENTITIOUS
CER	CERAMIC
CT	CERAMIC TILE
CH BD	CHALKBOARD
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
CLO	CLOSET
CMU	CONCRETE MASONRY UNIT
CRSC	COLD ROLLED STEEL CHANNEL
CW	COLD WATER
COL	COLUMN
CNTR	COUNTER
CSK	COUNTERSUNK
CONC	CONCRETE
CONF	CONFERENCE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CF/CI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CJ	CONTROL JOINT
CG	CORNER GUARD
CORR	CORRUGATED, CORRIDOR
CU	CUBIC
D	DEPTH
DBL	DOUBLE
DBL ACT	DOUBLE ACTING
DEG	DEGREE
DEMO	DEMOLISH
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFUSER
DIM	DIMENSION
DIM PT	DIMENSION POINT
DISP	DISPENSER
DIST	DISTANCE
DK	DECK
DN	DOWN
DR	DRAIN, DOOR
DS	DOWNSPOUT
DSP	DRY STANDPIPE
DT	DRAPERY TRACK
DTL	DETAIL
DW	DISHWASHER
DWG / DWGS	DRAWING / DRAWINGS

E	EAST
EA	EACH
EDR	EQUIPMENT DRAWING
EG	EDGE GUARD
EIFS	EXTERIOR INSULATION FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELAST	ELASTOMERIC
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
EOS	EDGE OF SLAB
EP	ELECTRICAL PANEL
EPB	ELECTRICAL PANEL BOARD
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EQ	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ESCAL	ESCALATOR
EST	ESTIMATED(D)
EWC	ELECTRIC WATER COOLER
EXC	EXCAVATED
EXH	EXHAUST
EXIST, (E)	EXISTING
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
EX-BR	EXISTING BRICK
F/F	FACE TO FACE
FA	FIRE ALARM
FAS	FIRE ALARM STATION
FB	FLAT BAR
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FEC	FIRE EXTINGUISHER CABINET
FE	FIRE EXTINGUISHER
FF	FINISH FACE
FG	FINISH GRADE
FHC	FIRE HOSE CABINET
FH/FEC	FIRE HOSE / EXTINGUISHER CABINET
FHMS	FLAT HEAD MACHINE SCREW
FHWS	FLAT HEAD WOOD SCREW
FHY	FIRE HYDRANT
FIN	FINISH, FINISHED
FLAM	FLAMMABLE
FLASH	FLASHING
FLEX	FLEXIBLE
FLR	FLOOR
FLUOR	FLUORESCENT
FO	FACE OF
FRT	FIRE RETARDANT TREATMENT
FRZ	FREEZER
FSB	FOLDING SHOWER BENCH
FSTNR	FASTENER
FT	FOOT, FEET
FTG	FOOTING
FURN	FURNITURE
FXTR	FIXTURE
G	GAS
GA	GAUGE, GAGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFRC	GLASS FIBER REINFORCED CONCRETE
GFRG	GLASS FIBER REINFORCED GYPSUM
GL	GLASS
GLU LAM	GLUE LAMINATED
GLZ	GLAZING
GR	GRADE OR GRADING
GVL	GRAVEL
GYP	GYPSUM
GYP BD	GYPSUM BOARD
GYP PLAS	GYPSUM PLASTER
H	HIGH
HB	HOSE BIBB
HC	HOLLOW CORE
HD	HEAD
HDBD	HARDBOARD
HDW, HDWR	HARDWARE
HDWD	HARDWOOD
HGT, HT	HEIGHT
HM	HOLLOW METAL
HNDRL	HANDRAIL
HORIZ	HORIZONTAL
HPT	HIGH POINT
HR	HOUR
HVAC	HEATING-VENTILATION-AIR CONDITIONING
HW	HOT WATER

ID	INSIDE DIAMETER
IN	INCH
INCAND	INCANDESCENT
INCL	INCLUDE, INCLUDING
INFO	INFORMATION
INSUL	INSULATION
INTR	INTERIOR
INV	INVERT
IVT	INTRAVENOUS TRACK
JAN	JANITOR
JST	JOIST
JT	JOINT
KG	KILOGRAM
KIT	KITCHEN
KPL	KICK PLATE
KS	KNEE SPACE
L	LENGHT, LONG
LAB	LABORATORY
LAM	LAMINATE, LAMINATION
LAV	LAVATORY
LB	POUND
LED	LIGHT EMITTING DIODE
LF	LINEAR FOOT
LG	LENGTH
LIN	LINEAR
LL	LEAD LINED
LPT	LOW POINT
LT	LIGHT
LT WT	LIGHT WEIGHT
LTG	LIGHTING
LVR	LOUVER
M	METERS
MACH	MACHINE
MATL	MATERIAL
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MEDICINE CABINET
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MED	MEDIUM
MET, MTL	METAL
MEMB	MEMBRANE
MFR / MFG	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLDG	MOLDING
MM	MILLIMETERS
MO	MASONRY OPENING
MOD	MODULE, MODULAR
MTD	MOUNTED
MTG	MOUNTING
MVBL	MOVABLE
MULL	MULLION
(N)	NEW
N	NORTH
NA	NOT APPLICABLE
NAT	NATURAL
NE	NORTHEAST
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NRC	NOICE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OA	OVERALL
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED-CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED-OWNER INSTALLED
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
OVHD	OVERHEAD
OZ	OUNCE

PA	PUBLIC ADDRESS
PART	PARTIAL
PBD	PARTICLEBOARD
PBX	PRIVATE TELEPHONE EXCHANGE
PCF	POUNDS PER CUBIC FOOT
PCI	POUNDS PER CUBIC INCH
PERF	PERFORATED
PERIM	PERIMETER
PERM	PERMANENT
PERP	PERPENDICULAR
PI	POINT OF INTERSECTION
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER, PLASTIC
PLBG	PLUMBING
PLF	POUNDERS PER LINEAR FOOT
PLYWD	PLYWOOD
PNEU	PNEUMATIC
PNL	PANEL
PNL BD	PANEL BOARD
PNT, P	PAINT
PORT	PORTABLE
PP	PUSH PLATE
PPM	PARTS PER MILLION
PR	PAIR
PRCST	PRECAST
PREP	PREPARATION
PREFAB	PREFABRICATION
PRKG	PARKING
PROJ	PROJECT
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT / PTD	POINT, PAINT / PAINTED
PTN	PARTITION
PTS	PNEUMATIC TUBE STATION
PVC	POLYVINYL CHLORIDE
PVG	PAVING
PVMT	PAVEMENT
PWR	POWER
QT	QUARRY TILE
QTR	QUARTER
QTY	QUANTITY
R	RISER
RA	RETURN AIR
RAD	RADIUS
RB	RESILIENT BASE
RCP	REFLECTED CEILING PLAN
RCPT	RECEPTACLE
RD	ROOF DRAIN
RECT	RECTANGULAR
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE (D) (ING) (MENT)
REQD	REQUIRED
REQT	REQUIREMENT
RESIL	RESILIENT
RET	RETURN
REV	REVISION
RF	RESILIENT FLOORING
RH	RIGHT HAND
RHMS	ROUND HEAD MACHINE SCREW
RHWS	ROUND HEAD WOOD SCREW
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RWL	RAIN WATER LEADER
S	SOUTH
SA	SUPPLY AIR
SB	SPLASH BLOCK
SC	SOLID CORE
SCHED	SCHEDULE
SCRN	SCREEN
SD	STORM DRAIN
SE	SOUTHEAST
SECT	SECTION
SEG	SEGMENT
SEP	SEPARATION OR SEPARATE
SEP JT	SEPARATION JOINT
SHT	SHEET, SHEETING
SHWR	SHOWER
SHV	SHELVES, SHELVING
SIM	SIMILAR
SK	SINK
SMS	SHEET METAL SCEW
SP	SPACE, SPACED, SPACING
SPEC	SPECIFICATION

SPKLR	SPRINKLER
SPKR	SPEAKER
SQ	SQUARE
SS	SANITARY SEWER
SSK	SERVICE SINK
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STAG	STAGGERED
STC	SOUND TRANSMISSION COEFFICIENT
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
STS	SELF-TAPPING STEEL
SUSP	SUSPENDED
SUSP CLG	SUSPENDED CEILING
SVCE	SERVICE
SW	SOUTHWEST
SYMM	SYMMETRICAL
SYST	SYSTEM
T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TC	TOP OF CONCRETE, TOP OF CURB
TD	TRENCH DRAIN
TEL	TELEPHONE
TEMP	TEMPORARY
THERM	THERMAL
THK	THICK, THICKNESS
THRES	THRESHOLD
THRU	THROUGH
TMPD GL	TEMPERED GLASS
TO	TOP OF
TOR	TOP OF RAILING
TOS	TOP OF STEEL
TOT	TOTAL
TOW	TOP OF WALL
TP	TOP OF PAVEMENT
TPH	TOILET PAPER HOLDER
TRANS	TRANSPARENT
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP	TYPICAL
TW	TOP OF WALL
UC	UNDER COUNTER
UL	UNDERWRITERS LABORATORIES
UNF	UNFINISHED
UON	UNLESS OTHERWISE NOTED
UPS	UNUNTERRUPTABLE POWER SUPPLY
UR	URINAL
UTIL	UTILITY
VAC	VACUUM
VB	VALVE BOX
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIT	VIREOUS
VP	VENT PIPE
VOL	VOLUME
VWC	VINYL WALL COVERING
W	WEST
W/	WITH
W/O	WITHOUT
W/W	WALL TO WALL
WAINS	WAINSCOT
WC	WATER CLOSET, WALL COVERING
WD	WOOD
WDW	WINDOW
WGL	WIRE GLASS
WCHR	WHEELCHAIR
WM	WIRE MESH
WO	WHERE OCCURS
WP	WATERPROOF
WPT	WORKING POINT
WR	WATER RESISTANT
WSCT	WAINSCOT
WSP	WET STANDPIPE
WT	WEIGHT
WTHPRF	WEATHERPROOF
WTRPRF	WATERPROOF
WWF	WELDED WIRE FRABRIC
WWM	WELDED WIRE MESH
XFMR	TRANSFORMER
YD	YARD

TYPICAL ARCHITECTURAL REFERENCE SYMBOLS

WALL SECTION
1 / A101 — WALL SECTION NUMBER; DIRECTION OF VIEW; SHEET WHERE DRAWN

BUILDING SECTION
1 / A101 — WALL SECTION NUMBER; SHEET WHERE DRAWN; DIRECTION OF VIEW

EXTERIOR ELEVATION
1 / A101 — ELEVATION DIRECTION; SHEET WHERE DRAWN; ELEVATION NUMBER

DETAIL REFERENCE
1 / A101 — DETAIL NUMBER; SHEET WHERE DRAWN, HYPHEN INDICATES DETAIL ON SAME SHEET.

SECTION DETAIL REFERENCE
1 / A101 — ELEVATION NUMBER AND DIRECTION; SHEET WHERE DRAWN

INTERIOR ELEVATION REFERENCE
1 / 2 / A102 / 2 / 1 — ELEVATION NUMBER AND DIRECTION OF VIEW; SHEET WHERE DRAWN

PARTITION TYPE IDENTIFICATION MARK
B3A — SEE PARTITION SYMBOL DESCRIPTION ON PARTITION TYPE SHEET

EQUIPMENT/ACCESSORY IDENTIFICATION MARK
E01 — SEE CORRESPONDING NUMBERED LEGEND ON SHEET WHERE REFERENCE OCCURS

DOOR IDENTIFICATION MARK
101 — SEE DOOR SCHEDULE FOR ADDITIONAL INFORMATION

WINDOW AND LOUVER TYPE MARK
W-X — SEE CORRESPONDING NUMBER ON SCHEDULE

LEVEL LINE
SECOND LEVEL +10'-0" — NAME OF LEVEL; INDICATES HEIGHT ABOVE PROJECT DATUM

ROOM NAME AND NUMBER
Room Name 101

REVISION EXTENT
1 — REVISION TAG MARK; EXTENT OF CURRENT REVISION

KEYED NOTE MARK
1 2 3 4 5 — SEE CORRESPONDING NUMBERED LEGEND ON SHEET WHERE REFERENCE OCCURS

MATCH LINE REFERENCE
A104, A103, A101, A102 — DRAWING INDICATION

DRAWING TITLE SYMBOLS
1 View Name SCALE: 1/8" = 1'-0" — DRAWING TITLE; DRAWING SCALE; DRAWING NUMBER

LAYOUT GRID LINES
A, B, 1, 90.00° — NEW GRID IDENTIFICATION; EXISTING GRID IDENTIFICATION

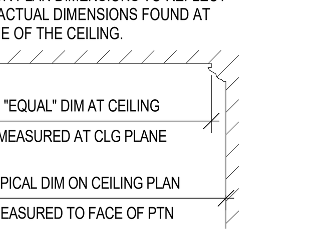
NORTH ARROW REFERENCE
NORTH

ARCHITECTURAL DIMENSIONING CONVENTIONS

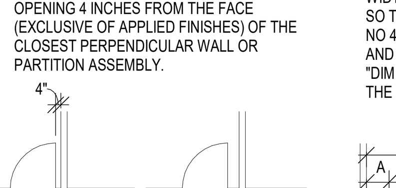
1. EXCEPT WHERE DIRECTED TO PLACE ITEMS OF THE WORK AT THE "APPROXIMATE LOCATION SHOWN," DO NOT SCALE DRAWINGS FOR DIMENSIONAL INFORMATION.
2. ALL ELEMENTS OF THE DRAWINGS MAY NOT BE DRAWN TO EXACT SCALE. ALL DIMENSIONS REQUIRED ARE SHOWN (OR MAY BE DERIVED FROM THOSE SHOWN OR NOTED) ON THE FLOOR PLANS, DETAIL PLANS, ELEVATIONS, SECTIONS, SCHEDULES, CONFIGURATION DETAILS, AND SPECIFICATIONS. SEE THE NOTES BELOW FOR DIMENSIONING CONVENTIONS USED ON THIS PROJECT.
3. EXCEPT WHERE SPECIFICALLY NOTED TO THE CONTRARY, ALL DIMENSIONS SHOWN ON THE ARCHITECTURAL DRAWINGS CONFORM TO THE FOLLOWING CONVENTIONS:
   A. DIMENSIONS UTILIZING THE "CENTERLINE" SYMBOL ARE MEASURED TO:
      - STRUCTURAL OR DIMENSIONAL GRID LINES.
      - CENTERLINE OF CONCRETE OR CONC MASONRY UNIT WALLS (EXCLUSIVE OF FURRING OR APPLIED FINISHES HAVING THICKNESS). REFER TO THE ARCH PLANS AND SECTIONS, THE STRUCT DRAWINGS, OR PARTITION SCHEDULE TO DETERMINE THE THICKNESS OF CONCRETE OR CONC MASONRY UNIT WALLS.
      - CENTERLINE OF PARTITION ASSEMBLY (EXCLUSIVE OF ANY APPLIED FINISHES HAVING THICKNESS WHICH MAY BE ADDED TO SUCH WALLS) AT PARTITIONS FRAMED WITH METAL STUDS. REFER TO "PARTITION SCHEDULE" TO DETERMINE THICKNESS OF EACH PARTITION TYPE.
      - CENTERLINE OF DOOR, WINDOW, OR LOUVER OPENING.
      - CENTERLINE OF EQUIPMENT OR FURNISHING.
      - CENTERLINE OF OTHER FEATURES AS INDICATED.
   B. REFER TO ABBREVIATIONS LEGEND FOR SYMBOL USED TO INDICATE CENTERLINE DIMENSION.
   C. DIMENSIONS UTILIZING THE "FACE OF" SYMBOL ARE MEASURED TO:
      - FACE OF CONCRETE OR CONC MASONRY UNIT WALL (EXCLUSIVE OF APPLIED FINISHES HAVING THICKNESS OR FURRING WHICH MAY BE ADDED TO THE FACE OF SUCH WALLS).
      - FACE OF PARTITION ASSEMBLY (EXCLUSIVE OF ANY APPLIED FINISHES HAVING THICKNESS WHICH MAY BE ADDED TO SUCH WALL) AS DEFINED BY THE PARTITION SCHEDULE. UNLESS NOTED AS A "FACE OF FINISH" OR "CLEAR" DIMENSION (SEE NOTE 'E' BELOW), DIMENSIONS ARE NOT MEASURED TO THE FACE OF APPLIED FINISH. REFER TO THE "PARTITION SCHEDULE" TO DETERMINE THE THICKNESS OF EACH PARTITION TYPE.
      - INSIDE EDGE OF FINISHED DOOR OPENING. REFER TO THE DOOR SCHEDULE FOR ADDITIONAL DIMENSIONAL INFORMATION.
      - DIMENSION OR WORK POINT AS INDICATED ON RELATED ARCH DETAIL PLAN, SECTION, ELEVATION, LAYOUT OR CONFIGURATION DETAIL, OR CONSTRUCTION DETAIL.
   D. REFER TO ABBREVIATIONS LEGEND FOR SYMBOL USED TO INDICATE "FACE OF" DIMENSION.
   E. WHERE "FACE OF FINISH" OR "CLEAR" DIMENSIONS ARE SPECIFICALLY NOTED, THE DIM IS MEASURED TO:
      - FINISH FACES AT THE MOST NARROW OR CONSTRICTED POINTS OF SECTION WHERE DIMENSION IS SHOWN, WHEN THE DIMENSION OCCURS ACROSS AN OPEN SPACE. THIS CASE, A "FACE OF FINISH" DIMENSION IS EQUIVALENT TO A "CLEAR" DIMENSION.
      - FINISH FACES AT THE WIDEST OR MOST EXPANSIVE POINTS OF THE SECTION THE DIMENSION IS SHOWN WHEN THE DIMENSION OCCURS ACROSS AN OBJECT OR GROUP OF OBJECTS.
   F. WHERE "EQUAL" DIMENSIONS ARE USED ON REFLECTED CEILING PLANS TO LOCATE CEILING GRID WORK POINTS, MEASURE DIMENSIONS TO:
      - EDGE OF THE INDICATED CEILING AT THE FACE OF THE ADJACENT APPLIED FINISH MEASURED AT THE PLANE OF THE CEILING.

NOTE NO 3 CONTINUED:

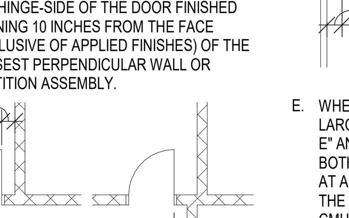
- CAUTION: DUE TO THE POSSIBLE APPLICATION OF APPLIED FINISHES - THICKNESS OF WHICH MAY VARY BETWEEN FLOOR AND CEILING AND IS NOT ACCOUNTED FOR (EXCEPT AS INDICATED BY "FOF" OR "CLEAR") BY THE DIMENSION SHOWN ON THE FLOOR PLANS - THE CONTRACTOR MUST ADJUST, AS NECESSARY, THE FLOOR PLAN DIMENSIONS TO REFLECT THE ACTUAL DIMENSIONS FOUND AT PLANE OF THE CEILING.



4. WHERE DIMENSIONS ARE NOT PROVIDED ON FLOOR PLANS TO LOCATE DOOR OPENINGS, APPLY THE FOLLOWING RULES, **IN ORDER**, TO DETERMINE THE LOCATION OF DOOR OPENINGS:
   A. DOOR OPENINGS MAY BE DIMENSIONED ON DRAWINGS OTHER THAN THE FLOOR PLANS. REFER TO THE SECTIONS, ELEVATIONS, DETAILS, AND DOOR SCHEDULE NOTES FOR ADDITIONAL DIMENSIONAL INFORMATION.
   B. WHERE THE HINGE-SIDE OF A DOOR IS SHOWN ADJACENT TO A WALL - OR WALLS - PERPENDICULAR TO THE WALL IN WHICH THE DOOR OPENING OCCURS:
      - AT DOORS OCCURRING IN METAL FRAMED GYPSUM BOARD PARTITIONS, LOCATE THE HINGE-SIDE OF THE DOOR FINISHED OPENING 4 INCHES FROM THE FACE (EXCLUSIVE OF APPLIED FINISHES) OF THE CLOSEST PERPENDICULAR WALL OR PARTITION ASSEMBLY.

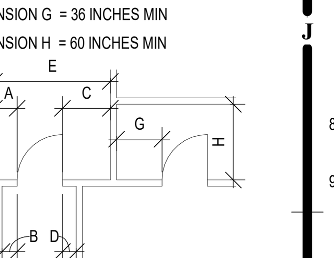


      - AT DOORS OCCURRING IN WALLS OF CONC MASONRY UNIT CONSTRUCTION, LOCATE THE HINGE-SIDE OF THE DOOR FINISHED OPENING 10 INCHES FROM THE FACE (EXCLUSIVE OF APPLIED FINISHES) OF THE CLOSEST PERPENDICULAR WALL OR PARTITION ASSEMBLY.



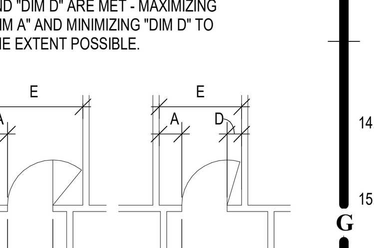
NOTE NO 4 CONTINUED:

C. WHERE DOOR OCCURS NOT ADJACENT TO A PERPENDICULAR WALL AND EITHER "DIM E" OR "DIM F" IN DIAGRAM BELOW IS 16'-0" OR LESS, LOCATE DOOR UTILIZING THE FOLLOWING MINIMUM DIMENSIONS:
- DIMENSION A = 18 INCHES MIN
- DIMENSION B = 12 INCHES MIN
- DIMENSION C = DOOR WIDTH + 2 INCHES MINIMUM
- DIMENSION D = 4 INCHES MIN AT METAL FRAMED GYP BD PARTITIONS OR - EVEN MULTIPLE OF 1/2 CMU MODULE PLUS 2 INCHES AT CONC MASONRY UNIT WALLS
- DIMENSIONS E AND F = AS SHOWN ON PLANS
- DIMENSION G = 36 INCHES MIN
- DIMENSION H = 60 INCHES MIN

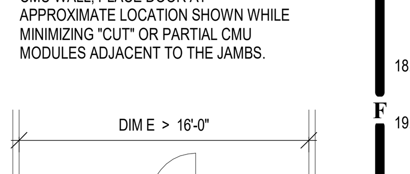


- IF SPACE ALLOWS, CENTER DOOR IN WALL SHOWN ON THE DRAWINGS SO THAT EITHER "DIM A" EQUALS "DIM C" OR "DIM B" EQUALS "DIM D".

D. IF "DIM E" IN DIAGRAMS BELOW IS LESS THAN THE SUM OF 2 TIMES THE DOOR WIDTH PLUS 20 INCHES, LOCATE DOOR SO THAT MINIMUMS STATED BY NOTE NO 4C ABOVE FOR "DIM A", "DIM B," AND "DIM D" ARE MET - MAXIMIZING "DIM A" AND MINIMIZING "DIM D" TO THE EXTENT POSSIBLE.



E. WHERE DOOR IS SHOWN LOCATED IN A LARGE EXPANSE OF OPEN WALL ("DIM E" AND "DIM F" IN DIAGRAM BELOW BOTH EXCEED 16'-0"), PLACE DOOR AT APPROXIMATE LOCATION SHOWN ON THE PLANS. WHERE DOOR OCCURS IN CMU WALL, PLACE DOOR AT APPROXIMATE LOCATION SHOWN WHILE MINIMIZING "CUT" OR PARTIAL CMU MODULES ADJACENT TO THE JAMBS.



5. WHERE WALLS AND/OR PARTITIONS OF UNEQUAL THICKNESS ABUT, ALIGN EXPOSED FACES, UNLESS OTHERWISE NOTED.

PROJECT LOCATION
1550 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64063

NORTH

VICINITY MAP

GENERAL INFORMATION NOTES:

1. ALL CONTRACTORS AND THEIR SUPERVISORY PERSONNEL SHALL REVIEW THE GENERAL AND SUPPLEMENTARY CONDITIONS TO THE CONTRACT.
2. ALL WORK SHALL CONFORM WITH APPLICABLE BUILDING CODES, REGULATIONS AND ORDINANCES.
3. CONTRACTOR AND/OR OWNER SHALL OBTAIN ALL REQUIRED BUILDING AND OCCUPANCY PERMITS.
4. CONTRACTOR SHALL BECOME FULLY ACQUAINTED WITH CONDITIONS RELATED TO THE WORK.
5. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, AND SEQUENCES OF CONSTRUCTION AND THE SAFETY OF ALL CONSTRUCTION PERSONNEL AND VISITORS.
6. DRAWINGS CONTAINED IN THIS SET SHALL NOT BE REPRODUCED FOR SHOP DRAWINGS. COPIES OF THESE DRAWINGS SUBMITTED AS SHOP DRAWINGS WILL BE REJECTED AND RETURNED TO THE CONTRACTOR.
7. EACH INSTALLER MUST EXAMINE SUBSTRATE AND/OR CONDITIONS UNDER WHICH THE WORK WILL BE INSTALLED AND REPORT TO THE CONTRACTOR IN WRITING ANY CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY EXECUTION OF THAT INSTALLERS WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED. COMMENCING WITH INSTALLATION SHALL CONSTITUTE ACCEPTANCE OF THE SUBSTRATE AND/OR CONDITIONS.
8. DO NOT SCALE DRAWINGS: FOLLOW WRITTEN DIMENSIONS AND NOTES. CONTACT ARCHITECT FOR CLARIFICATIONS, IF REQUIRED.
9. DIMENSIONS SHOWN ON THE FLOOR PLAN ARE TO THE FACE OF METAL STUD OR GIRT (FOS, FOG), FACE OF MASONRY (FOM), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS OTHERWISE NOTED OR INDICATED.
10. NOTE: WALL THICKNESSES ARE ACTUAL DIMENSIONS. REFER TO WALL TYPES SHEET FOR THICKENSSES.
11. "TYPICAL", AS USED IN THESE DOCUMENTS, SHALL MEAN THAT THE CONDITION OR DIMENSION IS REPRESENTATIVE OF, OR THE SAME, FOR SIMILAR CONDITIONS THROUGHOUT.
12. IF THERE IS A DISCREPANCY BETWEEN SMALL SCALE AND LARGE SCALE DRAWINGS, (PLAN, SECTION, & DETAIL DRAWINGS, ETC.) - CONTACT ARCHITECT FOR CLARIFICATION. FOR BIDDING PURPOSES: THE MOST EXPENSIVE AND/OR STRICTEST REQUIREMENTS SHALL GOVERN. FOR CLARIFICATIONS DURING CONSTRUCTION: THE MOST EXPENSIVE AND/OR STRICTEST REQUIREMENTS, AS INDICATED BY THE ARCHITECT, SHALL GOVERN.
13. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS - CONTACT ARCHITECT FOR CLARIFICATION. FOR BIDDING PURPOSES: THE MOST EXPENSIVE AND/OR STRICTEST REQUIREMENTS SHALL GOVERN. FOR CLARIFICATIONS DURING CONSTRUCTION: THE MOST EXPENSIVE AND/OR STRICTEST REQUIREMENTS, AS INDICATED BY THE ARCHITECT, SHALL GOVERN.
14. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL CONDITIONS SHALL BE REPORTED TO THE ARCHITECT IN WRITING FOR RESOLUTION, PRIOR TO PROCEEDING WITH THE WORK.
15. ANY AND ALL DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT IN WRITING FOR RESOLUTION, PRIOR TO PROCEEDING WITH THE WORK. IN THESE INSTANCES: NO CHANGE ORDERS OR EXTENSIONS OF TIME WILL BE ALLOWED OR ACCEPTED FOR PROCEEDING WITH THE WORK WITHOUT THE ARCHITECT'S WRITTEN DIRECTION AND APPROVAL. ALSO - CONTRACTOR MUST REPAIR AND/OR REPLACE ANY UNAUTHORIZED WORK, AS INDICATED BY THE ARCHITECT, AT NO ADDITIONAL COST TO THE OWNER.
16. ALL DISSIMILAR METAL MATERIALS SHALL BE ISOLATED WITH AN APPROVED NONMETAL ISOLATION MATERIAL.
17. OPEN EXTERIOR JOINTS AROUND WINDOW AND DOOR FRAMES, BETWEEN WALLS AND FOUNDATIONS, BETWEEN WALL PANELS, AND AT PENETRATIONS OF UTILITIES THROUGH THE BUILDING ENVELOPE, ETC. – SHALL BE SEALED, CAULKED, FLASHED OR WEATHER-STRIPPED AS REQUIRED FOR COMPATIBILITY WITH ADJACENT MATERIALS & TO ELIMINATE AIR LEAKAGE AND WATER ENTRY.
18. PROVIDE SEALANT AND/OR CAULKING BETWEEN DISSIMILAR ADJOINING INTERIOR MATERIALS. (I.E. WINDOW SILLS TO GYP. BD., ACT CEILINGS TO MASONRY WALLS, ETC.)
19. DOOR OPENINGS NOT LOCATED BY DIMENSION SHALL BE CENTERED IN WALL SHOWN OR LOCATED 4 INCHES FROM FINISH WALL TO FINISH JAMB, ALWAYS ALLOWING A MINIMUM OF 18" FROM THE PULL SIDE OF THE DOOR TO THE INTERSECTING WALL.
20. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES AND THEIR SERVICE CONNECTIONS WITH THE PROPER UTILITY COMPANY.
21. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE FINAL SIZE AND DEPTH OF THE ADA LIFT PIT AND MISC. ADA LIFT REQUIREMENTS WITH THE SELECTED ELEVATOR MANUFACTURER/ SUPPLIER.
22. CONTRACTOR SHALL COORDINATE SIZE, LOCATIONS AND NUMBER OF ALL ROOF OPENINGS AND ROOF ACCESSORIES WITH ALL OTHER TRADES. REFER TO THE ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS.
23. LOCATIONS AND SIZES OF ALL CONCRETE MECHANICAL AND ELECTRICAL PADS SHALL BE COORDINATED BY THE MECHANICAL AND ELECTRICAL CONTRACTORS, WITH THE SELECTED EQUIPMENT MANUFACTURER/SUPPLIER; AND ARE TO BE APPROVED BY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
24. EXCEPT AT FIRE-RATED PARTITIONS, ALL WALL AND COLUMN GYPSUM BOARD FACING SHALL BE HELD AT 5/8 INCH BELOW STRUCTURE, UNLESS DETAILED OR NOTED OTHERWISE.
25. GLASS DOORS, ADJACENT PANELS AND ALL GLAZED OPENINGS WITHIN 1'-6" OF THE FLOOR, AND WITHIN A 24-INCH ARC OF EITHER VERTICAL EDGE OF A DOOR, ETC., SHALL BE SAFETY GLAZING AS APPROVED FOR IMPACT BY APPLICABLE BUILDING CODES, AND SHALL BE LABELED AS SUCH.
26. ALL CEILING HEIGHTS AS SHOWN ON PLANS AND DETAILS ARE FROM SLAB OR TILE FLOOR (FINISHED FLOOR) TO FINISH CEILING.
27. PROVIDE INDEPENDENT FRAMING & ATTACHMENTS TO THE STRUCTURE – ADEQUATE TO SUPPORT THE CEILING SYSTEM, LIGHT FIXTURES, DUCTS, DIFFUSERS, SPRINKLER PIPING AND BUS DUCTS.
28. ALL CLOSETS AND ALCOVES WITHOUT A SPACE IDENTIFICATION NUMBER SHALL HAVE THE SAME FINISHES AS ADJOINING SPACES.
29. CONTRACTOR TO INSTALL WOOD BLOCKING AND PLYWOOD AS REQUIRED FOR THE MOUNTING OF ALL TOILET ACCESSORIES, MILLWORK/ CASEWORK, HANDRAILS, FIRE EXTINGUISHERS, WALL SPEAKERS, ELECTRICAL PANELS, FIRE ALARMS, MEP ITEMS, AND AV EQUIPMENT, ETC.
30. REFER TO SPECIFICATIONS FOR ALL REQUIRED TESTING AND INSPECTIONS.
31. ANY/ ALL PROPRIETARY PRODUCTS DESCRIBED AND/OR DRAWN IN THE DOCUMENTS (BUT NOT SPECIFIED) ARE TO MEET THE MANUFACTURER'S STANDARD CRITERIA WHICH IS NOT LIMITED TO THE FOLLOWING: PERFORMANCE REQUIREMENTS, QUALITY ASSURANCE REQUIREMENTS, APPLICABLE CODES AND INDUSTRY STANDARDS, FABRICATION, ASSEMBLY, HANDLING, DELIVERY, STORAGE, INSTALLATION, OPERATION, ADJUSTMENTS, ETC. PROVIDE THE MANUFACTURER'S STANDARD WARRANTY AND STANDARD FINISH WARRANTY. PROVIDE PRODUCT DATA, SHOP DRAWINGS, SAMPLES, AND MAINTENANCE DATA AS REQUIRED. REFER TO DIVISION 01 SPEC. SECTIONS WHICH ALSO APPLY - SUCH AS SUBSTITUTION PROCEDURES, SUBMITTAL PROCEDURES, QUALITY REQUIREMENTS, REFERENCES, EXECUTION, AND CLOSEOUT PROCEDURES. NOTE: ANY SUBSTITUTIONS MUST MEET THE DESIGN INTENT, AS WELL AS THE CRITERIA DESCRIBED ABOVE.
32. PROVIDE MINIMUM WARRANTY PERIOD OF 18 MONTHS FROM SUBSTANTIAL COMPLETION ON ALL PRODUCTS/ SERVICES.

collins | webb ARCHITECTURE
307B SW Market St., Lee's Summit, Missouri 64063 | 816.249.2270 | www.collinsandwebb.com

PERMIT SET

TM FIELDHOUSE
1550 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64081

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REVISION DATES:

1	CITY COMMENTS	06/21/2023
3	CITY COMMENTS AND OWNER REV.	03/22/2024

STATE OF MISSOURI — ROGER L. WEBB II — NUMBER A-2016004098 — ARCHITECT

03/22/2024

PROFESSIONAL SEAL

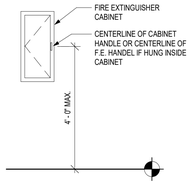
G001

ISSUE DATE: 2 MAY 2023

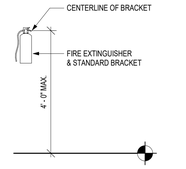
COLLINS WEBB #: 22103

GENERAL INFORMATION

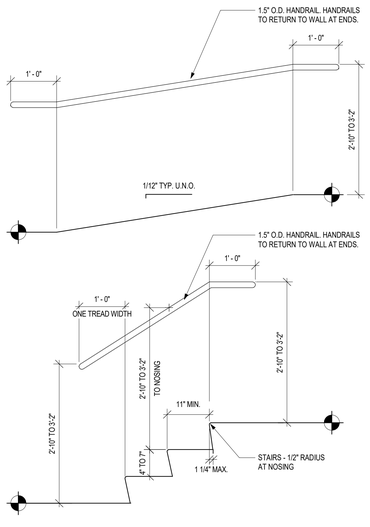
3/26/2024 5:11:32 PM



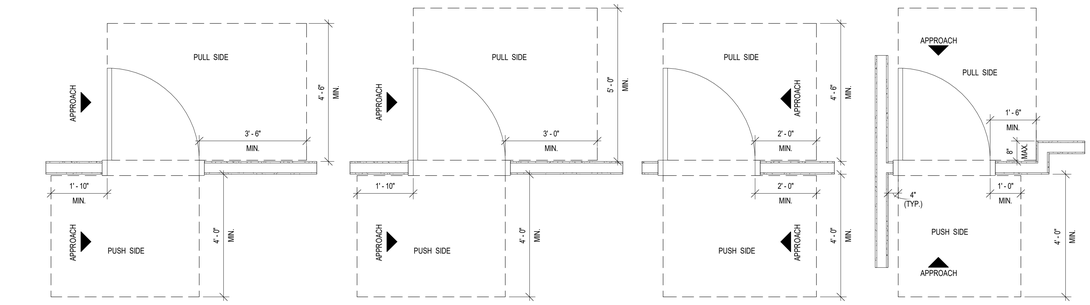
J10 FE CABINET
1/2" = 1'-0"



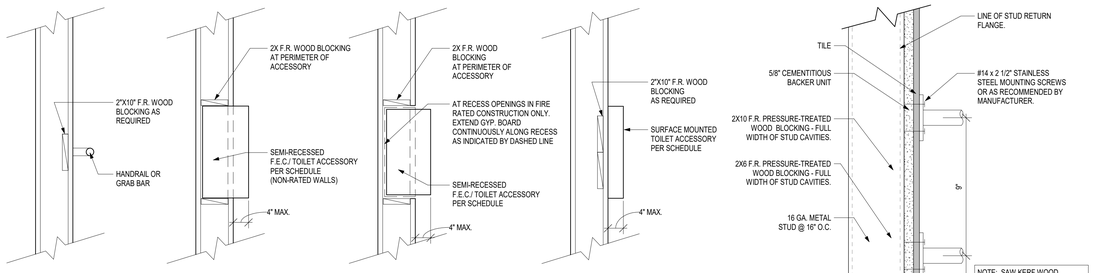
G10 FIRE EXTINGUISHER
1/2" = 1'-0"



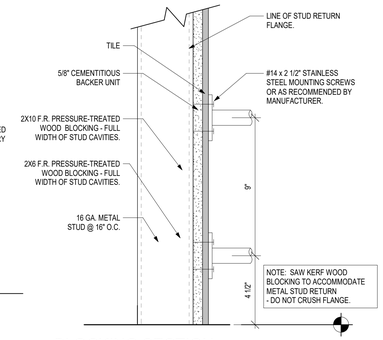
G9 HANDRAIL @ STAIRS AND RAMPS
3/4" = 1'-0"



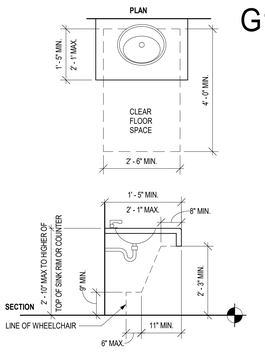
J6 TYP. DOOR APPROACH CLEARANCES
1/2" = 1'-0"



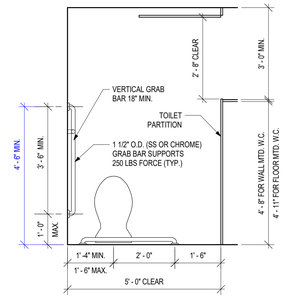
G6 TYP. BLOCKING DETAILS
3/4" = 1'-0"



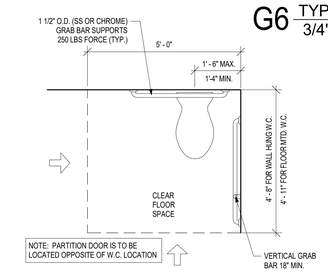
G2 BLOCKING SECTION
3" = 1'-0"



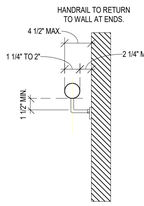
E12 SINK IN COUNTER CLEARANCES
1/2" = 1'-0"



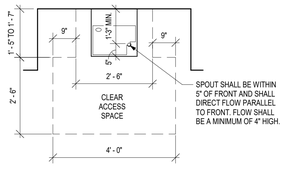
E10 ACCESSIBLE TOILET STALL
1/2" = 1'-0"



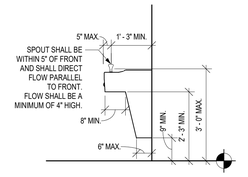
E8 ACCESSIBLE CLEAR FLOOR SPACE
1/2" = 1'-0"



E6 HANDRAIL CLEARANCES
1 1/2" = 1'-0"



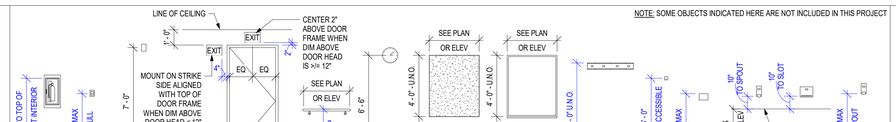
E4 E.W.C. - CLEAR SPACE
1/2" = 1'-0"



E2 E.W.C. - SECTION
1/2" = 1'-0"

MISCELLANEOUS ACCESSORY TYPICAL MOUNTING HEIGHTS

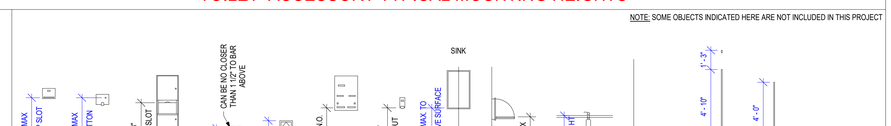
NOTE: SOME OBJECTS INDICATED HERE ARE NOT INCLUDED IN THIS PROJECT



FINISH FLOOR															
ACCESSORY TYPE	FIRE EXTINGUISHER CABINET	MANUAL FIRE PULL	FIRE STROBE/LIGHT/ AUDIBLE ALARM	WALL MOUNTED EXIT SIGN	WALL MOUNTED HANDRAIL	WALL CLOCK	FABRIC COVERED TACK BOARD	MARKER BOARD	MOP & BROOM HOLDER	ROBE HOOK	ELAPSED TIME CLOCK	SOAP DISPENSER	PAPER TOWEL DISPENSER	ALCOHOL DISPENSER
COMMENTS	SEMI RECESSED	SURFACE MOUNTED	SURFACE MOUNTED	WALL MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED

TOILET ACCESSORY TYPICAL MOUNTING HEIGHTS

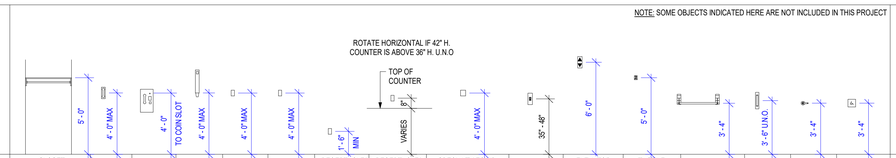
NOTE: SOME OBJECTS INDICATED HERE ARE NOT INCLUDED IN THIS PROJECT



FINISH FLOOR																	
ACCESSORY TYPE	PAPER TOWEL DISPENSER	POWER HAND DRYER	PAPER TOWEL DISPENSER & TRASH RECEPTACLE	TOILET TISSUE DISPENSER	SANITARY NAPKIN DISPOSAL	SANITARY NAPKIN DISPENSER	VANITY SOAP DISPENSER	FRAMED VANITY MIRROR	DIAPER CHANGING STATION	SOAP DISPENSER	FOLDING SHOWER SEAT	TOILET PARTITION	URINAL SCREEN				
COMMENTS	SURFACE MOUNTED	SURFACE MOUNTED	SEMI RECESSED	SURFACE MOUNTED	SURFACE MOUNTED	RECESSED & SURFACE	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	COUNTERTOP MOUNTED	SURFACE MOUNTED	WALL MOUNTED	WALL MOUNTED				

MISCELLANEOUS ACCESSORY TYPICAL MOUNTING HEIGHTS

NOTE: SOME OBJECTS INDICATED HERE ARE NOT INCLUDED IN THIS PROJECT



FINISH FLOOR																
ACCESSORY TYPE	CLOSET HANGAR ROD & SHELF	WALL PHONE	TELEPHONE HOUSING	CUP DISPENSER	WALL SWITCH	TELEPHONE OUTLET	RECEPTACLE/ TELEPHONE/ DATA	RECEPTACLE/ TELEPHONE/ DATA	SPECIALTY EQUIP (IE. THERMOSTAT,CARD READER,INTERCOM)	ELEVATOR CALL BUTTON	ELEVATOR VISIBLE SIGNAL INDICATOR	TACTILE CHARACTER INDICATOR	PANIC BAR	DOOR PULL	DOOR LATCH	ADA DOOR OPERATOR
COMMENTS	WALL MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	VARIES

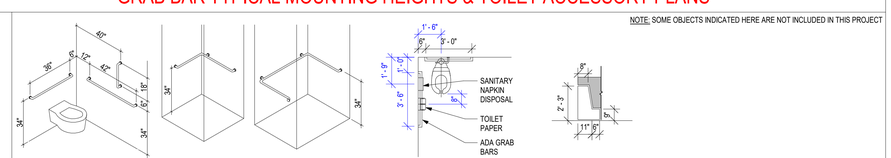
PLUMBING FIXTURE TYPICAL MOUNTING HEIGHTS

NOTE: SOME OBJECTS INDICATED HERE ARE NOT INCLUDED IN THIS PROJECT

FINISH FLOOR												
ACCESSORY TYPE	SHOWER MIXING VALVE	SHOWER HEAD	HAND HELD SHOWER	LAVATORY	LAVATORY	CHILDREN'S DRINKING FOUNTAIN	SINGLE DRINKING FOUNTAIN	DOUBLE DRINKING FOUNTAIN		TOILET	URINAL	
COMMENTS	WALL MOUNTED	WALL MOUNTED	WALL MOUNTED	WALL MOUNTED	COUNTER MOUNTED	WALL MOUNTED	WALL MOUNTED	WALL MOUNTED		WALL/FLOOR MOUNTED	WALL MOUNTED	

GRAB BAR TYPICAL MOUNTING HEIGHTS & TOILET ACCESSORY PLANS

NOTE: SOME OBJECTS INDICATED HERE ARE NOT INCLUDED IN THIS PROJECT



FINISH FLOOR						
ACCESSORY TYPE	ADA TOILET GRAB BAR	SHOWER STALL GRAB BAR	ROLL-IN SHOWER STALL GRAB BAR	TYPICAL ACCESSORIES AT ACCESSIBLE TOILET	TYPICAL ADA SINK ENCLOSURE PANEL CLEARANCE	
COMMENTS	SURFACE MOUNTED	SURFACE MOUNTED	SURFACE MOUNTED	NOTE: SANITARY NAPKIN DISPOSAL AT WOMEN'S & UNISEX ONLY		

A11 TYP. MOUNTING HEIGHTS
1/4" = 1'-0"

GENERAL NOTES: ACCESSIBILITY GUIDELINES

1. NOTE: ALL DIMENSIONS ARE MEASURED FROM FLOOR, UNLESS NOTED OR SHOWN OTHERWISE.
2. ADA UNOBSTRUCTED REACH RANGES: ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
3. ELEVATORS: STANDARD CALL BUTTONS: 35" TO 48" TO C.L. & PROTRUDE 1" MAX. ADA CALL BUTTONS: 42" TO C.L. (TYP.) & 48" MAX. (3/4" SMALLEST DIM.). ADA VISIBLE SIGNALS: 72" MIN. TO C.L. (2 1/2" SMALLEST DIM.). TACTILE SIGNAL ON HOISTWAY: 60" TO BASE OF CHARACTERS W/ TACTILE STAR & 2" HIGH CHARACTERS.
4. DOOR HARDWARE (TO CENTER OF HARDWARE): STANDARD MOUNTING HEIGHTS: PUSH PLATES = 42", PULL HANDLES = 42", KNOBS/ LEVERS = 40", PANIC EXIT = 42" CENTERLINE OF BAR. KICKPLATES: WIDTH = DOOR WIDTH MINUS 2", CENTER, HEIGHT = 16" FROM B.O. DOOR. THRESHOLDS: STANDARD = 1/2" MAX. AT EXT. SLIDING DOORS = 3/4" MAX., ADA HARDWARE = 34" MIN. TO 48" MAX.
5. DRINKING FOUNTAINS & EWC'S (TO SPOUT): STANDARD = 40" TYP., 42" MAX. ADA =36" MAX. (27" MIN. CLEAR KNEE SPACE)
6. COUNTERTOPS (TO SINK RIM/ COUNTERTOP): ADA = 28" MIN. TO 34" MAX.
7. WATER CLOSETS (TO TOP OF SEAT): STANDARD = 14" TO 15", ADA (TO TOP OF SEAT) = 17" TO 19". ADA FLUSH CONTROLS = 44" MAX.
8. URINALS (TO RIM): STANDARD = 24" MAX. ADA =17" MAX. ADA FLUSH CONTROLS = 44" MAX.
9. LAVATORIES (TO SINK RIM/ COUNTERTOP): STANDARD = 36" MAX. ADA = 34" MAX. (29" MIN. CLEAR KNEE SPACE)
10. MIRRORS (TO B.O. REFLECTIVE SURFACE): STANDARD = VARIES. ADA = 40" MAX.
11. GRAB BARS - ADA (TO TOP OF BAR): WATER CLOSETS = 33" MIN. TO 36" MAX. SHOWERS = 33" MIN. TO 36" MAX. (FROM B.O.SHOWER). BATHTUBS: TOP BAR = 33" MIN. TO 36" MAX. BOT. BAR = 9" ABOVE T.O. TUB
12. TOILET ROOM PARTITIONS: TOILETS = 12" TO BOT. & 70" TO TOP. URINALS = 18" TO BOT. & 60" TO TOP
13. TOILET PAPER DISPENSERS (TO C.L. OF OUTLET): STANDARD = 24". ADA = 19" MIN. TO 24" MAX.
14. WALL MOUNTED SOAP DISPENSERS (TO C. L. OF PUSH BUTTON): STANDARD = 40". ADA = VARIES. RE: OBSTRUCTED AND UNOBSTRUCTED REACH RANGES. ADA SIDE REACH = 46" MAX. ABOVE SINK IN COUNTER.
15. PAPER TOWEL DISPENSER/ WASTE RECEPTACLE (TO TOWEL SLOT): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
16. WARM AIR HAND DRYER (TO PUSH SWITCH): STANDARD = 44" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
17. SANITARY NAPKIN DISPENSER (TO C.L. OF COIN SLOT): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
18. SANITARY NAPKIN DISPOSAL (TO TOP OF UNIT): STANDARD = 28" MAX. ADA = 19" MIN. TO 24" MAX. (TO OPNG.)
19. TOILET SEAT COVER DISPENSERS (TO OPNG.): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
20. SHELVES: ADA = 48" MAX.
21. COAT HOOKS: STANDARD = 68". ADA = 48" MAX.
22. THERMOSTATS & CONTROL DEVICES (TO TOP): ADA FORWARD REACH = 48" MAX. ADA SIDE REACH = 48" MAX.
23. LIGHT SWITCHES & CARD READERS (TO C.L.): LOCATE 6" FROM DOOR JAMB. ADA = 48" MAX.
24. CONVENIENCE RECEPTACLES – ELECTRICAL/ TELEPHONE/ DATA (TO C.L.): STANDARD = 18". ADA = 15" MIN.
25. EXIT LIGHTS - WALL MOUNTED: 2" MIN. BELOW CEILING. 2" MIN. ABOVE DOOR FRAME. EQUAL SPACE FROM CEILING TO TOP OF FRAME.
26. FIRE EXTINGUISHERS (TO TOP, U.N.O.): GROSS WT. 40 LBS. OR LESS = 60" MAX. GROSS WT. MORE THAN 40 LBS. = 42" MAX. ADA = 40" MAX. (B.O. CABINET)
27. FIRE ALARM PULL STATIONS (TO LEVER): STANDARD = 48" MAX. ADA FORWARD REACH = 48" MAX. ADA SIDE REACH = 48" MAX.
28. SMOKE AND/OR HEAT DETECTORS: STANDARD = CEILING HEIGHT
29. HORN/ SPEAKER/ VISUAL SIGNALS: STANDARD = 80" AFF. OR 6" BELOW CEILING - WHICHEVER IS LOWER.
30. ROOM SIGNAGE (TO C.L.): STANDARD = 60" HIGH AFF. & WITHIN 18" OF LATCH SIDE OF DOOR

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TM FIELDHOUSE

1550 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64081

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REVISION DATES:

5.2.2023
PROFESSIONAL SEAL

G002

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ACCESSIBILITY GUIDELINES

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WALL PRIORITY LEGEND

NOTE: *THIS LEGEND IS FOR GRAPHIC REPRESENTATION ONLY.*

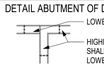
FOUR HOUR FIRE WALL (**4FW**)
THREE HOUR FIRE WALL (**3FW**)
TWO HOUR FIRE WALL (**2FW**)
FOUR HOUR FIRE BARRIER (**4FB**)
THREE HOUR FIRE BARRIER (**3FB**)

TWO HOUR FIRE BARRIER (**2FB**) *(INCLUDES THE FOLLOWING)*
- TWO HOUR SHAFT ENCLOSURE (**2SE**)

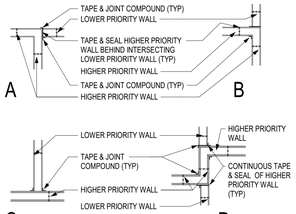
ONE HOUR FIRE BARRIER (**1FB**) *(INCLUDES THE FOLLOWING)*
- ONE HOUR SHAFT ENCLOSURE (**1SE**)

SMOKE TIGHT PARTITION (**X**) *(INCLUDES THE FOLLOWING)*
- SMOKE TIGHT PARTITION TO SMOKE TIGHT CEILING (**XC**)
- SMOKE TIGHT PARTITION WITHIN PLENUM ABOVE CEILING (**XP**)
- SMOKE TIGHT PARTITION SEPARATION OF INTERSTITIAL SPACES (**XI**)

DETAIL ABUTMENT OF DISSIMILAR WALL



INTERSECTION OF RATED WALLS



NOTES:
1. REFER TO WALL TYPES ON SHEET G121-TI FOR WALL COMPONENTS, NUMBER OF GYPSUM BOARD LAYERS, TYPE OF GYPSUM BOARD, AND OTHER SIMILAR INFO.
2. THE HIGHER PRIORITY WALL SHALL PASS THROUGH THE LOWER PRIORITY WALL.
3. TAPING AND SEALING OF HIGHER PRIORITY WALLS SHALL BE CONTINUOUS.
4. ALTERNATE LAYERS OF GYPSUM BOARD SHALL OVERLAP AT CORNER INTERSECTIONS OF MULTI-LAYERED RATED GYPSUM BOARD PARTITIONS.

FIRE & SMOKE RESISTIVE LEGEND DEFINITIONS

FIRE WALLS (FW)

DEFINITION
A FIRE RATED WALL THAT IS CONTINUOUS VERTICALLY FROM FOUNDATION TO ROOF TO SEPARATE CONSTRUCTION INTO SEPARATE BUILDINGS.

USE
FIRE WALLS SERVE TO CREATE SEPARATE BUILDINGS FOR THE FOLLOWING REASONS.
- CONSTRUCTION TYPE VARIES FROM ONE BUILDING TO ANOTHER.
- COMPLIANCE WITH MAXIMUM ALLOWABLE AREA REQUIREMENTS.
- TO SEPARATE BUILDINGS WITH DIFFERENT LEVELS OF FIRE PROTECTION.
- TO ADDRESS A PROPERTY LINE DEFINING DIFFERENT OWNERSHIP.

SPECIAL CONSIDERATIONS
- THE FIRE WALL REQUIRES SUFFICIENT STRUCTURAL STABILITY UNDER FIRE CONDITIONS TO ALLOW THE COLLAPSE OF CONSTRUCTION ON EITHER SIDE WITHOUT COLLAPSE OF THE WALL.
- OPENINGS ARE REQUIRED TO BE PROTECTED.
- OPENINGS ARE LIMITED BASED ON A PERCENTAGE OF WALL LENGTH.
- EXTENDING THE FIRE WALL THROUGH THE ROOF WITH A PARAPET IS REQUIRED FOR SOME CONSTRUCTION CLASSIFICATIONS.
- THE REQUIRED FIRE RATING OF A FIRE WALL IS BASED ON OCCUPANCY GROUPS AND CLASS OF CONSTRUCTION.
- HARDWARE FOR SWING DOORS SHALL INCLUDE A LATCH AND CLOSER.

FIRE BARRIERS (FB)

DEFINITION
A FIRE RATED WALL CONSTRUCTED TO RESTRICT THE SPREAD OF FIRE. CONTINUITY SHALL BE MAINTAINED FROM TOP OF FLOOR TO UNDERSIDE OF THE FLOOR OR ROOF DECK ABOVE.

USE
FIRE BARRIERS HAVE THE FOLLOWING APPLICATIONS.
- TO CREATE HORIZONTAL EXITS.
- TO SEPARATE EXIT PASSAGEWAYS.
- OCCUPANCY SEPARATIONS.
- TO SEPARATE INCIDENTAL USE AREAS.
- ISOLATION OF HAZARDS.
- TO SEPARATE ROOMS WITH DIFFERENT LEVELS OF FIRE PROTECTION.
- SMOKE BARRIERS AND SHAFT ENCLOSURES ARE FIRE BARRIERS. SEE ADDITIONAL REQUIREMENTS.

SPECIAL CONSIDERATIONS
- WITHIN SOME CONSTRUCTION CLASSIFICATIONS, CONSTRUCTION THAT PROVIDES STRUCTURAL SUPPORT OF A FIRE BARRIER IS REQUIRED TO BE OF THE SAME HOURLY FIRE RATING AS THE FIRE BARRIER, OR BETTER.
- OPENINGS ARE REQUIRED TO BE PROTECTED.
- HARDWARE FOR SWING DOORS SHALL INCLUDE A LATCH AND CLOSER.

SHAFT ENCLOSURES (SE)

DEFINITION
A SHAFT ENCLOSURE IS A FIRE BARRIER FORMING THE BOUNDARY OF A VERTICAL SHAFT.

USE
PROTECT OPENINGS IN FIRE RATED FLOOR/CEILING ASSEMBLIES.

SPECIAL CONSIDERATIONS
- PENETRATIONS IN SHAFT ENCLOSURES ARE PROHIBITED UNLESS NECESSARY FOR THE FUNCTION OF THE SHAFT. WHERE ALLOWED, OPENINGS ARE REQUIRED TO BE PROTECTED.
- DUCT PENETRATIONS REQUIRE COMBINATION SMOKE AND FIRE DAMPERS EXCEPT FOR EXISTING CONDITIONS THAT ARE GRANDFATHERED.
- HARDWARE FOR SWING DOORS SHALL INCLUDE A LATCH, CLOSER, AND PERIMETER SMOKE SEALS.

FIRE PARTITIONS (FP)

DEFINITION
A FIRE RATED PARTITION THAT IS USED FOR THE APPLICATIONS LISTED BELOW. IT SHALL BE CONTINUOUS FROM TOP OF FLOOR TO UNDERSIDE OF A FIRE-RATED FLOOR/CEILING OR ROOF/CEILING ASSEMBLY. WHERE ALLOWED BY CODE EXCEPTION, A FIRE PARTITION SHALL BE ALLOWED TO TERMINATE AT THE UPPER MEMBRANE OF A FIRE RATED CEILING

USE
FIRE PARTITIONS ARE USED IN CERTAIN OCCUPANCIES TO DO THE FOLLOWING.
- SEPARATE DWELLING UNITS
- SEPARATE SLEEPING SPACES
- SEPARATE CORRIDORS FROM ADJACENT SPACES
- SEPARATE ELEVATOR LOBBIES
- SEPARATE TENANT SPACES IN COVERED MALL BUILDINGS

SPECIAL CONSIDERATIONS
- OPENINGS ARE REQUIRED TO BE PROTECTED.
- HARDWARE FOR SWING DOORS SHALL INCLUDE A LATCH AND CLOSER.

BEARING WALLS (BW)

DEFINITION
AN INTERIOR OR EXTERIOR WALL DESIGNED TO SUPPORT FLOOR OR ROOF LOADS. A BEARING WALL IS FIRE-RATED ONLY TO MAINTAIN THE INTEGRITY OF ITSELF AS A FIRE RATED STRUCTURAL ELEMENT. THE WALL DOES NOT SERVE AS A FIRE SEPARATION FROM ONE SIDE TO THE OTHER SIDE.

USE
A VERTICAL, LOAD BEARING STRUCTURAL ELEMENT.

SPECIAL CONSIDERATIONS
- DOORS AND WINDOWS ARE NOT REQUIRED TO BE RATED.
- HVAC DUCT PENETRATIONS ARE NOT REQUIRED TO BE FIRE-DAMPERED.
- PLUMBING, ELECTRICAL, SPRINKLER SYSTEM, AND CABLE PENETRATIONS ARE REQUIRED TO BE FIRE-STOPPED WITH FIRE SEALANT AT BOTH SIDES, FOR WALLS CONSTRUCTED OF HOLLOW CMU OR STUD FRAMING.

GENERAL NOTES

1. THE FOLLOWING INFORMATION SERVES TO PROVIDE BUILDING OWNERS WITH CONCISE DEFINITIONS OF WALL TYPES RELATED TO LIFE SAFETY ISSUES. THIS INFORMATION IS NOT MEANT TO BE A SUBSTITUTE FOR APPLICABLE BUILDING CODES.
2. WHEN A WALL HAS MORE THAN ONE CLASSIFICATION, THE MOST RESTRICTIVE REQUIREMENTS FOR EACH CLASSIFICATION SHALL APPLY.
3. FOR NEW CONSTRUCTION, PERIMETER SMOKE-SEALS MAY BE REQUIRED AT FIRE RATED DOORS IN CERTAIN OCCUPANCIES.

GENERAL DESCRIPTION

PROJECT NAME: TM SPORTS COMPLEX
PROJECT LOCATION: 1600 SE HAMBLEN ROAD, LEE'S SUMMIT, MO 64081
COUNTY: JACKSON

COLLINS WEBB ARCHITECTURE
307B SW MARKET STREET
LEES SUMMIT, MISSOURI 64063

APPLICABLE CODES:
INTERNATIONAL BUILDING CODE - 2018 ED.
INTERNATIONAL PLUMBING CODE - 2018 ED.
INTERNATIONAL MECHANICAL CODE - 2018 ED.
INTERNATIONAL FUEL GAS CODE - 2018 ED.
INTERNATIONAL PRIVATE SEWAGE DISPOSAL CODE - 2018 ED.
INTERNATIONAL ENERGY CONSERVATION CODE - 2012 ED.
NATIONAL ELECTRICAL CODE - 2017 ED.
INTERNATIONAL FIRE CODE - 2018 ED.
ADA STANDARDS FOR ACCESSIBLE DESIGN - 2010 ED.
ICC/ANSI A117.1-2009. - ACCESSIBILITY AND USABILITY CODE

CODE INFORMATION

		TABLE/SECTION/REFERENCE
BUILDING/PROJECT USE:	**ATHLETIC CLUB**	
CONSTRUCTION TYPE	**TYPE II-B (FULLY SPRINKLED)**	**IBC TABLE 601**
OCCUPANCY CLASSIFICATION	**GROUP "A-4"**	**IBC SECTION 303**
BUILDING FRAME	**METAL FRAME**	
BASE ALLOWABLE AREA A-4	**38,000 SQ.FT.**	**IBC TABLE 506.2**
ACTUAL TENANT AREA (GROSS) - WEST BLDG	**14,220 SQ. FT.**	
SEPARATION WALL BETWEEN TWO SPACES	**2 HR**	
ACTUAL TENANT AREA (GROSS) - EAST BLDG	**37,448 SQ. FT.**	
BLDG GROSS SQ. FT. TOTAL	**51,668 SQ. FT.**	
EAST BLDG		
LEVEL 1	**35,072 SQ. FT.**	
MEZZANINE	**2,376 SQ. FT.**	
		IBC TABLE 504.4
ALLOWABLE STORIES	**3 STORIES**	
ACTUAL NUMBER OF STORIES	**1 STORIES**	
		IBC TABLE 504.3
ALLOWABLE HEIGHT	**75'-0"**	
ACTUAL HEIGHT IN FEET	**37' 0"**	

FIRE RESISTIVE REQUIREMENTS

		TABLE/SECTION/REFERENCE
PRIMARY FRAME	**0 HRS**	**IBC TABLE 601**
NON-BEARING WALLS	**0 HRS**	**IBC TABLE 601**
BEARING WALLS INT./ EXT.	**0 INT. / 0 EXT. HRS**	**IBC TABLE 601**
FLOOR CONSTRUCTION	**0 HRS**	**IBC TABLE 601**
CEILING/ROOF	**0 HRS**	**IBC TABLE 601**
CORRIDORS	**0 HRS**	**IBC TABLE 1020.1**

FIRE EXTINGUISHERS

1. PROVIDE PORTABLE FIRE EXTINGUISHERS IN OCCUPANCIES AND LOCATIONS AS REQUIRED BY THE STATE FIRE PREVENTION CODE. SEE PLANS FOR SUGGESTED LOCATIONS. NOTIFY ARCHITECT OF ANY PROPOSED RELOCATION OR IF A CONFLICT IS ENCOUNTERED.
2. PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED, INSPECTED, AND MAINTAINED IN ACCORDANCE WITH NFPA 10, STANDARD FOR PORTABLE FIRE EXTINGUISHERS.

CEILING HEIGHT NOTES: (IBC 1207)

1. ALL MEANS OF EGRESS TO HAVE A MINIMUM CEILING HEIGHT OF 7'-6" A.F.F., NOR SHALL HAVE ANY PROJECTION FROM THE CEILING BE LESS THAN 6'-8" A.F.F.
2. OCCUPIED SPACES, HABITABLE SPACES AND CORRIDORS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-6" A.F.F.
3. BATHROOMS, TOILET ROOMS, KITCHENS, STORAGE ROOMS AND LAUNDRY ROOMS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0" A.F.F.
4. A CLEAR HEIGHT ABOVE AND BELOW THE MEZZANINE FLOOR CONSTRUCTION SHALL NOT BE LESS THAN 7'-0" A.F.F.

INTERIOR FINISHES

GROUP A-4	MAX. FLAME SPREAD	
EXIT ENCLOSURES	CLASS B	IBC 803.13
LOBBIES & CORRIDORS	CLASS B	IBC 803.13
ALL OTHER SPACES	CLASS C	IBC 803.13
TEXTILES	CLASS A (I-25)	IBC 803.5.2

NOTE:
Decorative Materials and Trim (including plastics) must comply with IBC 806

MEZZANINE NOTES: (IBC 505.2)

1. A MEZZANINE SHALL BE CONSIDERED A PORTION OF THE STORY BELOW AND SHALL NOT CONTRIBUTE TO EITHER THE BUILDING AREA OR NUMBER OF STORIES AS REGULATED BY SECTION 503.1.
2. THE AREA OF THE MEZZANINE SHALL BE INCLUDED IN DETERMINING THE FIRE AREA.
3. THE AGGREGATE AREA OF A MEZZANINE SHALL NOT BE GREATER THAN ONE-THIRD OF THE FLOOR AREA OF THAT ROOM OR SPACE IN WHICH THEY ARE LOCATED.
4. MEZZANINES OR PORTIONS THEREOF ARE NOT REQUIRED TO BE OPEN TO THE ROOM IN WHICH THE MEZZANINES ARE LOCATED, PROVIDED THAT THE AGGREGATE FLOOR AREA OF THE ENCLOSED SPACE IS NOT GREATER THAN 10 PERCENT OF THE MEZZANINE AREA.

UL LISTING:

- SEE UL ASSEMBLIES ON SHEET G141.
- PRIOR REQUIREMENTS TO INSTALLATION ON GYPSUM BOARD AT RATED ALLS, SEE UL REQUIREMENTS FOR FIRE SEALANT AND DRAFT STOP INSTALLATION.
- 2-HR FIRE RATED STACKED WALL, SEE WALL TYPE F1 - SHEET A101
- 1ST LEVEL: 2-HR FIRE RATED CMU SEPARATION WALL, SEE UL #U905
- MEZZANINE LEVEL: 2- HR FIRE RATED 6" STUD SEPARATION WALL, SEE UL #425

GENERAL EXITING REQUIREMENTS

		TABLE/SECTION/REFERENCE
EXIT TRAVEL DISTANCE	**250 FEET**	**IBC SECTION 1017.2**
DEAD END CORRIDOR	**20 FEET**	**IBC SECTION 1020.4**
COMMON PATH OF TRAVEL	**30 FEET, OR 75' IF OCC. < 50**	**IBC SECTION 1029.8**
MIN. CORRIDOR WIDTH	**44", OR 36" IF OCC. < 50**	**IBC TABLE 1020.2**

POSTING OF OCCUPANT LOAD: (IBC 1004.9)

EVERY ROOM OR SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE ROOM OR SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE ROOM OR SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE PERMANENT DESIGN AND SHALL BE MAINTAINED BY THE OWNER OR AUTHORIZED AGENT.

EXIT REQUIREMENTS

	TABLE/SECTION/REFERENCE
A. REQUIRED CAPACITY	
1. STAIRS - 0.3" / PERSON	**IBC SECTION 1005**
2. OTHER COMPONENTS - 0.2" / PERSON	
B. MINIMUM NUMBER	
1. OCCUPANT LOAD OF 1-500 PERSONS - 2 EXITS PER STORY	**IBC TABLE 1006.3.2**
2. OCCUPANT LOAD OF 501-1000 PERSONS - 3 EXITS PER STORY	
3. OCCUPANT LOAD OF MORE THAN 1000 PERSONS - 4 EXITS PER STORY	

SIGNAGE

1. STAIR TACTILE AND BRAILLE SIGNAGE ON EACH FLOOR FOR EXIT STAIRWELL, FLOOR DISCHARGE, AND ROOF TOP ACCESS IN ACCORDANCE WITH ICC A117.1
2. PROVIDE SIGNAGE "IN CASE OF FIRE, ELEVATORS ARE OUT OF SERVICE. USE EXIT STAIRS" IN ACCORDANCE WITH IBC (3002.3)
3. EVACUATION DIAGRAM PROVIDED IN ACCORDANCE WITH IBC 1023.9

OCCUPANT LOAD : (IBC 1004)

			TABLE/SECTION/REFERENCE	NFPA 101 SECTION 12.1.7.2
UNCONCENTRATED SEATING	**186 OCC**		**UNCONCENTRATED:**	**15 SF/OCC**
STANDING SPACE	**93 OCC**	3	**STANDING SPACE:**	**5 SF/OCC**
EXERCISE BASEBALL INFIELD	**268 OCC**		**EXERCISE:**	**50 SF/OCC**
EXERCISE BASKETBALL COURTS	**336 OCC**		**EXERCISE:**	**50 SF/OCC**
BLEACHERS	**458 OCC**		**FIXED SEATS:**	**18"/OCC**
OFFICE SUITE	**3 OCC**	3	**OFFICE:**	**150 SF/OCC**
STORAGE	**5 OCC**		**STORAGE:**	**300 SF/OCC**
COOKING AREA & SCULLERY	**7 OCC**		**KITCHEN:**	**200 SF/OCC**
OCCUPANT LOAD THIS LEVEL	**1,356**	3	**TOTAL OCCUPANTS**	
EXITS REQUIRED THIS LEVEL	**4 EXITS**			**IBC TABLE 1006.3.2**
EXITS PROVIDED THIS LEVEL	**8 EXITS**			

TOTAL OCCUPANT LOAD

TOTAL OCCUPANT LOAD FOR BLDG. 3 **1,356 TOTAL OCC**

PLUMBING FIXTURE REQUIREMENTS

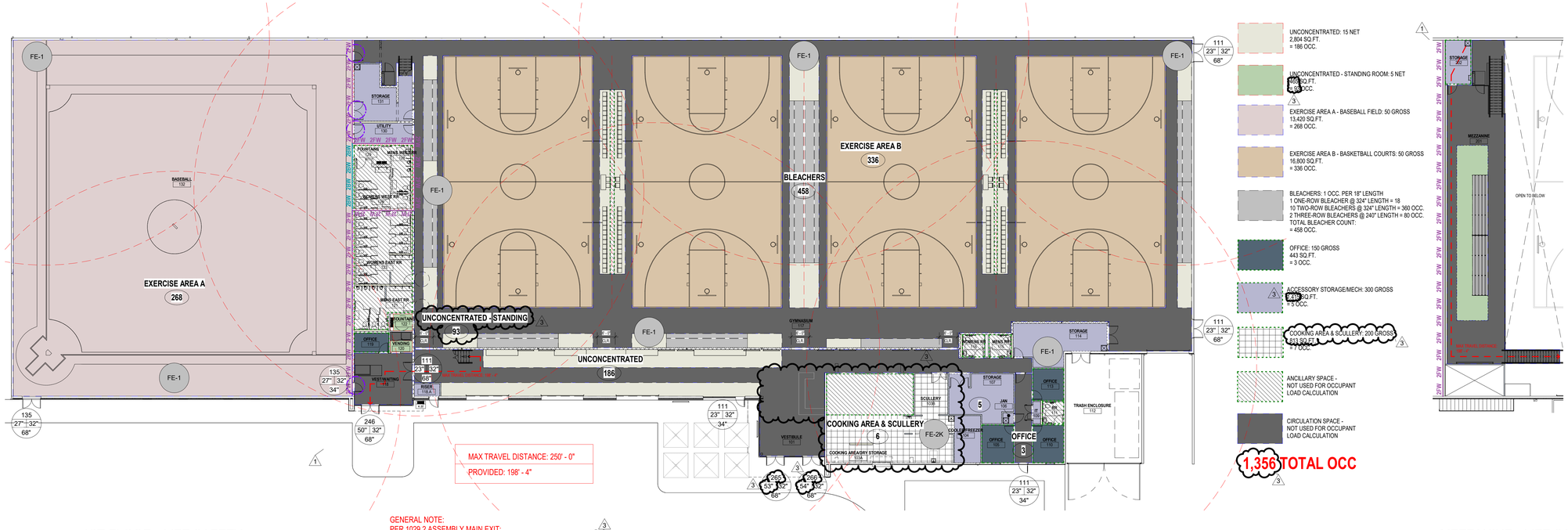
A4 OCC MEN WATER CLOSETS = 1/75 FOR FIRST 1,500, 1/120 FOR REMAINDER
A4 OCC WOMEN WATER CLOSETS = 1/40 FOR FIRST 1,520, 1/80 FOR REMAINDER
A4 OCC MEN LAVATORIES = 1/200
A4 OCC WOMEN LAVATORIES = 1/150 BOTH MALE/FEMALE
A4 OCC DRINKING FOUNTAIN = 1/1,000
A4 OCC SERVICE SINK = 1

PLUMBING FIXTURES REQUIRED

MEN WATER CLOSETS:	**676/75**	**10 REQUIRED**
WOMEN WATER CLOSETS:	**678/40**	**18 REQUIRED**
MEN LAVATORIES:	**678/200**	**4 REQUIRED**
WOMEN LAVATORIES:	**678/150**	**5 REQUIRED**
DRINKING FOUNTAINS:	3 **1,356/1,000**	**2 REQUIRED**
SERVICE SINKS:		**1 = 1 REQUIRED**

PLUMBING FIXTURES PROVIDED

UNISEX WATER CLOSETS:	**= 4 PROVIDED**
MEN WATER CLOSETS/URINALS:	**= 11 PROVIDED**
WOMEN WATER CLOSETS	**= 14 PROVIDED (+ 4 UNISEX = 18 TOTAL)**
UNISEX LAVATORIES:	**= 4 PROVIDED**
MEN LAVATORIES:	**= 4 PROVIDED**
WOMEN LAVATORIES	**= 2 PROVIDED (+ 4 UNISEX = 6 TOTAL)**
DRINKING FOUNTAINS:	**= 4 PROVIDED**
SERVICE SINKS:	**= 1 PROVIDED**



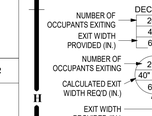
GENERAL NOTE:
PER 1029.2 ASSEMBLY MAIN EXIT:
MAIN EXIT CAPACITY AT BASKETBALL FACILITY= 680 OCC. > 544 (1/2 OCC. LOAD AT BASKETBALL FACILITY)
MAIN EXIT CAPACITY AT BASEBALL FACILITY = 170 OCC. > 135 (1/2 OCC. LOAD AT BASEBALL FACILITY)

A12 1ST FLOOR - LIFE SAFETY
1/16" = 1'-0"

A2 MEZZANINE - LIFE SAFETY
1/16" = 1'-0"

FIRE RESISTIVE LEGEND

3FW 3FW 3FW 3FW	3 HOUR FIRE WALL
2FW 2FW 2FW 2FW	2 HOUR FIRE WALL
2FB 2FB 2FB 2FB	2 HOUR FIRE BARRIER
1FB 1FB 1FB 1FB	1 HOUR FIRE BARRIER
2S 2S 2S 2S	2 HOUR SHAFT ENCLOSURE
1SE 1SE 1SE 1SE	1 HOUR SHAFT ENCLOSURE
1FP 1FP 1FP 1FP	1 HOUR FIRE PARTITION
0.5FP 0.5FP 0.5FP 0.5FP	0.5 HOUR FIRE PARTITION
0.5X 0.5X 0.5X 0.5X	0.5 HOUR CORRIDOR PARTITION
SB SB SB SB	1 HOUR SMOKE BARRIER
2BW 2BW 2BW 2BW	2 HOUR BEARING WALL
1BW 1BW 1BW 1BW	1 HOUR BEARING WALL



X" FROM ROOM OR LEVEL
X = CLEAR WIDTH OF OPENING IN INCHES

F.E.C. FIRE RISER CABINET

F.A.C.P. FIRE ALARM CONTROL PANEL

FDC **FIRE DEPARTMENT CONNECTION**

KNOX BOX

AR AREA OF RESCUE ASSISTANCE

ACCESSIBLE EGRESS COMPONENT

EGRESS PATH

FE-1 INDICATES FIRE EXTINGUISHER CABINET(FE) LOCATION WITH 75'-0" RADIUS COVERAGE AREA. SEE SPECIFICATIONS FOR FE TYPE.

FE-2K INDICATES KITCHEN/ BAR FIRE EXTINGUISHER (FE) LOCATION WITH 75'-0" RADIUS COVERAGE AREA. SEE SPECIFICATIONS FOR FE TYPE.

FE-3 INDICATES TEMPORARY WALL HUNG FIRE EXTINGUISHER (FE) LOCATION WITH 75'-0" RADIUS COVERAGE AREA. SEE SPECIFICATIONS FOR FE TYPE.

DOOR RATING LEGEND (REFER TO DOOR SCHEDULE)

20 MIN. DOOR

45 MIN. DOOR

90 MIN. DOOR

100 OCCUPANCY LOAD

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TM FIELDHOUSE

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LEE'S SUMMIT, MISSOURI 64081

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REVISION DATES:

1	CITY COMMENTS	06/21/2023
3	CITY COMMENTS AND OWNER REV.	03/22/2024

STATE OF MISSOURI ROGER L. WEBB NUMBER A-5410 REGISTERED ARCHITECT

03/22/2024
PROFESSIONAL SEAL

G003
ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

LIFE SAFETY PLANS AND PROJECT INFO.

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UL Product iQ®

BXUV.U425 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

Fire-resistance Ratings - ANSI/UL 263

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

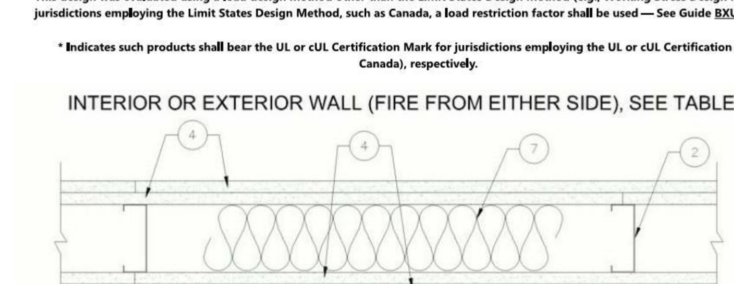
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

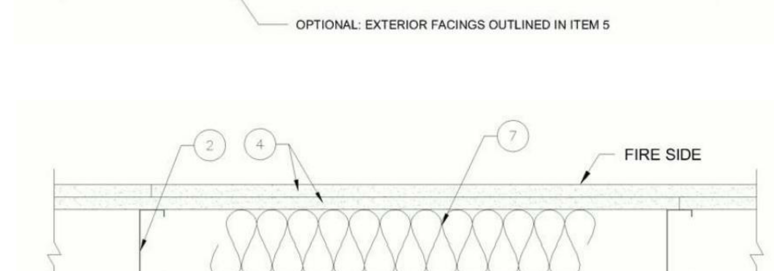
Design No. U425

January 3, 2023

Bearing Wall Rating — 3/4 Hr., 1, 1-1/2 or 2 Hr.
(See Items 2, 4 and 5)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**





1. **Steel Floor and Ceiling Tracks** — (Not Shown) — Top and bottom tracks of wall assemblies shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 MSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C.

2. **Steel Studs** — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

2A. **Steel Studs — Framing Members*** — In lieu of Item 2 — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.
EB METAL INC — NITROSTUD

2B. **Steel Studs — Framing Members*** — In lieu of Item 2 — Min 3-5/8 in. wide, No. 20 MSG (0.036 in. min. thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

BAILEY METAL PRODUCTS LTD

3. **Lateral Support Members** — (Not Shown) — Where required for lateral support of studs, support may be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.

4. **Gypsum Board* — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Gypsum board bearing the UL Classification Marking as to Fire Resistance. Applied vertically with joints between layers staggered. Outer layer of 3 layer construction may be applied horizontally unless specified below. The thickness and number of layers and percent of design load for the 45 min, 1 hr, 1-1/2 hr and 2 hr ratings are as follows:

TABLE I
Interior or Exterior Walls (Fire From Either Side)

Rating	Wallboard Protection Both Sides of Wall - No. of Layers & Thkns of Board In. Each Layers	% of Design Load
45 min	1 layer, 1/2 in. thick	100
1 hr	1 layer, 5/8 in. thick	100
1-1/2 hr	2 layers, 1/2 in. thick	100
2 hr	2 layers, 5/8 in. thick or	80
2 hr	3 layers, 1/2 in. thick	100
2 hr	2 layers, 3/4 in. thick	100

Note: Exterior facings allowed for use with Item 5 are also allowed to be installed on one side of the above walls.

TABLE II
Exterior Walls (Fire from Interior Side Only)

Rating	Wallboard Protection on Interior Side of Wall - No. of Layers & Thkns of Board In. Each Layers	% of Design Load
45 min	1 layer, 5/8 in. thick	100
1 hr	2 layers, 1/2 in. thick	100
1-1/2 hr	2 layers, 5/8 in. thick	100
2 hr	3 layers, 1/2 in. thick	100
2 hr	2 layers, 3/4 in. thick	100

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

NATIONAL GYPSUM CO (View Classification) — Riyadh, Saudi Arabia — CKNX.15208

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO (View Classification) — CKNX.R40305

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

4A. **Gypsum Board** — Nom. 3/4 in. gypsum board applied vertically with joints between layers staggered. The thickness and number of layers and percent of design load for the 2 hr ratings are shown in the table above.
CGC INC — Types AR, IP-AR, IP-X3, or ULTRACODE

UNITED STATES GYPSUM CO — Types AR, IP-AR, IP-X3, or ULTRACODE

USG BORAL DRYWALL SFZ LLC — Type ULTRACODE

USG MEXICO S A DE C V — Types AR, IP-AR, IP-X3, or ULTRACODE

4B. **Gypsum Board*** — (As an alternate to Item 4) — Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers on interior walls (multilayer systems) staggered a min of 12 in.
GEORGIA-PACIFIC GYPSUM L L C — GreenGlass Type X, Type DGG

NATIONAL GYPSUM CO — Type FSW-6.

CERTAINTEED GYPSUM INC — GlasRoc

4C. **Gypsum Board*** — (As an alternate to Item 4) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only and secured as described in Item 6.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

NATIONAL GYPSUM CO — Type SBWB

4D. **Wall and Partition Facings and Accessories*** — (As an alternate to Item 4) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

4E. **Wall and Partition Facings and Accessories*** — (As an alternate to Item 4) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

4F. **Gypsum Board*** — (As an alternate to 5/8 in. Type FSW in Item 4) — Nom. 5/16 in. thick gypsum panels applied vertically. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 4. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in item 4, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 4.
NATIONAL GYPSUM CO — Type FSW.

4G. **Wall and Partition Facings and Accessories*** — (As an alternate to 5/8 in. thick board as outlined in Item 4) — Nominal 1-3/8 in. thick, 4 ft wide panels, applied vertically or horizontally. Fastened to studs as described in item 6.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 545

5. **Gypsum Boards** — For exterior walls, Rating from Interior Side Only - 1/2 or 5/8 in. thick Classified or unclassified gypsum boards applied vertically and attached to studs and runner tracks with 1 in. long Type S-12 bugle head screws spaced 12 in. OC. along studs and tracks. One of the following exterior facings are to be applied over the gypsum board.
a. **Siding, Brick, or Stucco** — Aluminum siding, steel siding, brick veneer, or stucco attached to studs over gypsum sheathing and meeting the requirements of local code agencies. When a min 3-3/4 in. thick brick veneer facing is used, the Exterior Wall Rating is applicable with exposure on either face. Brick veneer wall attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick. When a min 3-3/4 in. thick brick veneer facing is used, Foamed Plastic (Item 10) may be used.

b. **Cementitious Backer Units*** — 1/2 or 5/8 in. thick, attached vertically or horizontally to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, wafer head steel screws, spaced 8 in. OC. Studs spaced a max of 16 in. OC. Joints covered with glass fiber mesh tape.
UNITED STATES GYPSUM CO — Type DCB

NATIONAL GYPSUM CO — Type PermBase, or DuraBacker

c. **Fiber-Cement Siding** — Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

d. **Molded Plastic*** — Solid vinyl siding mechanically secured to framing members in accordance with manufacturer's recommended installation details.
ALSIDE, DIV OF ASSOCIATED MATERIALS INC

e. **Wood Structural Panel or Lap Siding** — APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

f. **Building Units*** — (Not Shown) — 3 in. thick 18 x 24 in. cellular glass blocks, applied to the gypsum board (Item 5) with PC 88 adhesive or fastened with F anchors spaced a maximum 24 in. OC. F anchors fastened to framing members with 1-1/4 in. long #6 drywall screws.
PITTSBURGH CORNING LLC — FOAMGLAS® T3+ Block, FOAMGLAS® T4+ Block, FOAMGLAS® S3 Block, FOAMGLAS® F Block

6. **Fasteners** — (Not Shown) — Screws used to attach wallboard to studs: self-tapping bugle head sheet steel type, spaced 12 in. O.C. First layer Type S-12 by 1 in. long for 1/2 and 5/8 in. thick wallboards and 1-1/4 in. long for 3/4 in. thick wallboard. Second layer Type S-12 by 1-5/8 in. long for 1/2 and 5/8 in. thick wallboards and 2-1/4 in. long for 3/4 in. thick wallboard. Third layer Type S-12 by 1-7/8 in. long. Fasteners when Item 4G is used: First layer #6 x 2 in. long drywall screw spaced 8 in. OC along the perimeter and 12 in. OC in the field. Second layer #6 x 4 in. long drywall screw spaced 8 in. OC along the perimeter and 12 in. OC in the field. Horizontal joints to be staggered 12 in. between layers.

7. **Batts and Blankets*** — Placed in stud cavities of all exterior walls. May or may not be used in interior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.
See **Batts and Blankets*** (BZJZ) Category for names of Classified companies.

7A. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 7) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.
Applegate Greenfiber Acquisition LLC — INS735, INS745, INS750LD, and Insulmax for use with wet or dry application. INS765LD and INS773LD are to be used for dry application only.

7B. **Fiber, Sprayed*** — As an alternate to Item 7 — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft^3.
NU-WOOL CO INC — Cellulose Insulation

7C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 7) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

7D. **Fiber, Sprayed*** — (Optional) — As an alternate to Batts and Blankets (Item 7) — Spray applied mineral wool insulation. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

8. **Joint Tape and Compound** — (Not Shown) — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layer. Perforated paper tape, 2 in. wide, embedded in first layer of compound over all joints of outer layer.

9. **Furring Channels** — (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws.

10. **Foamed Plastic*** — (Optional, Not Shown) For use with brick veneer as outlined in Item 5a - Maximum 2 in. thick rigid polystyrene insulation attached to studs with fasteners of sufficient length to penetrate the foam and 3/16 in. into the stud. A minimum 1 in. air space is to be maintained between the outer surface of the foamed plastic and the inner surface of the brick veneer.
ATLAS MOLDED PRODUCTS, A DIVISION OF ATLAS ROOFING CORPORATION — Type ThermalStar

OWENS CORNING SCIENCE AND TECHNOLOGY, LLC

10A. **Foamed Plastic*** — (Optional, Not shown) — For use with brick veneer as outlined in Item 5a - Mortar drop protection - Foamed plastic with mortar control device attached, continuous, by drainage holes at bottom of air space behind brick veneer.
OWENS CORNING SCIENCE AND TECHNOLOGY, LLC — WeepGuard

10B. **Foamed Plastic*** — Polyisocyanurate foamed plastic insulation boards, any thickness, Classified in accordance with BRYX and / or CCVW. May be used with any exterior facing shown under items 5a, 5c, 5d and 5e.
ATLAS ROOFING CORP — "EnergyShield Pro Wall Insulation", "EnergyShield Pro 2 Wall Insulation", EnergyShield CGF Pro and EnergyShield Ply Pro

DUPONT DE NEMOURS, INC. — Type Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), TUFF-R™ ci Insulation, Thermax Butler Stylwall Insulation Board and Thermax Morton Heavy Duty Insulation Board

FIRESTONE BUILDING PRODUCTS CO L L C — "Enverge™ CI Foil Exterior Wall Insulation" and "Enverge™ CI Glass Exterior Wall Insulation"

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Type "Xci-Class A"," Xci 286", "Xci Foil (Class A)", "Xci CG", "Xci Foil", "Xci CG NH", "Xci Foil NH"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — Types "TSX-8500", "ECOMAXci FR", "TSX-8510", "ECOMAX xi FR White", "ECOMAXci", "ECOMAXci FR Air Barrier", "Thermasheath-XP", "Thermasheath", "Durasheath", "Thermasheath-3", "Durasheath-3".

JOHNS MANVILLE — Type "AP Foil-Faced Foam Sheathing"

10C. **Building Unit*** — Polyisocyanurate foamed plastic composite insulation boards, any thickness, Classified in accordance with BZXX. May be used with any exterior facing shown under items 5a, 5c, 5d and 5e.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Type "Xci NB" and "Xci Ply"

LAMINATORS INC — Type "Omega ci"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — Types Thermasheath-SI, ECOBASEci, ECOMAXci FR Ply, ThermaBase-CI, "ECOMAXci Ply", attached to studs with Type S screws long enough to penetrate the studs a minimum of three threads.

10D. **Foamed Plastic*** — (As an alternate to Item 10 - Not Shown) — Expanded polystyrene insulation installed to a maximum nominal density of 2.0 lb/ft^2.

BASF CORP STYRENIC FOAMS DIV — Types Neopor® GPS, Neopor® GPS IE GPS, Neopor® GPS EIFS GPS, Progressive Foam Technologies Halo, and ProBoard.

10E. **Foamed Plastic*** — (Optional, As an alternate to Item 10 - Not Shown) — Spray applied, foamed plastic insulation, at any thickness, Classified in accordance with CCVW. May be used with any exterior facing shown under items 5a, 5c, 5d and 5e.

CARLISLE SPRAY FOAM INSULATION — Types SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, and Foamsulate HFO.

11. **Cementitious Backer Units*** — (Optional, Not Shown - For Use as an additional layer over required gypsum boards) - 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide.- Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. spaced a max of 8 in. OC. When 4 ft. wide boards are used, horizontal joints need not be backed by framing.
NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

11A. **Building Units** - (Optional Item Not Shown - For use over Gypsum Board, Item 4 or Item 5) 1 in., 2 in. or 3 in. thick, 4 ft. wide - Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with wafer head screws of adequate length to penetrate framing by a minimum of of ¾ in., spaced a max 8 in. o.c.

NATIONAL GYPSUM CO - Type PBCI

12. **Wall and Partition Facings and Accessories*** — (CLBV) (Optional, Not Shown) — For use with Item 1, Items 2 and 2A, Item 3, Item 4 to 4B, Item 6, Item 7, Item 8 and Item 9. For maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 4 to 4B), install RefleXor membrane with the gold side facing outwards. Membrane installed with T50 staples spaced 12 inches on center in both directions as per manufacturer's instructions, seams in membrane to be overlapped by 2 inches. When RefleXor membrane is used an additional layer of Gypsum Board that is identical to the one used in the first layer and as specified in Item 4 to 4B shall be installed over the membrane. The additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 4 to 4B except the fastener length shall be increased by a minimum of 5/8 inch. Install Batts and Blankets in the stud cavity as per Item 7.

On the other side of the wall prior to the installation of the Gypsum Board install Resilient Channels , 25 MSG galv steel, spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. Over the Resilient Channels install 3/4 inch thick SONOpan panel secured to the Resilient Channels with min. 1-1/4 in. long drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONOpan panel install the same Gypsum Board as specified in Item 4 (or 4 alternates) with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

Alternately, on the other side of the wall prior to the installation of the Gypsum Board (Item 4), install 3/4 in. thick SONOpan panels, secured to one side of studs either horizontally or vertically. Panels secured to each stud with min. 1-1/4 in. long drywall screws spaced 12 in. OC. Over the SONOpan, install 25 MSG galv steel, Resilient Channels, spaced vertically 24 in. OC. Resilient Channels fastened through panels to each stud with min. 2 in. long drywall screws or self-tapping screws. Over the Resilient Channels install Gypsum Board as specified in Item 4 (or 4 alternates) with drywall screws as specified in Item 6. Panels not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

MSL — RefleXor membrane, SONOpan panel.

13. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) - **When the Wall Assembly is used as an External Wall, on the External side of the wall one of the following Wall and Partition and Facing Accessories may be used, refer to items (A) to (C) below.**
A. **Non Insulated System with Metal Channels** — Install moisture barrier over the Gypsum Board Item 4 and Install Acry Metal Channels vertically at a horizontal spacing not greater than 24 inches OC over the moisture barrier. Acry Metal Channels attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Install Acrytec Panels on Acry Metal Channels using 1-1/4" long corrosion coated stainless steel screws spaced at a max spacing of 24 inches OC, along with manufacturer's approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels shall be Tremco illmod 600 pre compressed polyurethane foam sealant.

B. **Insulated System with Metal Channels** — Install moisture barrier over the Gypsum Board Item 4. Install galvanized Z girt channels specified by the manufacturer over the moisture barrier and the Gypsum Board Item 4. Z girt channels to be installed horizontally at a max. spacing of 24" OC. Z girt channels attached through the Gypsum Board and the moisture barrier to the Steel Studs Item 2, with screws provided by the manufacturer at a max spacing of 24 inches OC. Install mineral wool insulation between the Z girts. Maximum thickness of mineral wool insulation not to exceed 6 in. As per manufacturer's instructions install Acry Metal Channels vertically over the Z girts at a max horizontal spacing of 24 in. OC. Acrytec Panels installed on Acry channel with 1-1/4" long corrosion coated stainless steel screws at a max spacing of 24 in. OC, along with manufacturers approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

C. **Non Insulated Wood Strapping System** — Install moisture barrier over the Gypsum Board Item 4 and Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC, over the moisture barrier. 1" x 3" wood strapping attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2, using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Acrytec Panels to be installed on the 1" x 3" wood strapping using manufacturers approved stainless steel fasteners spaced at maximum 24 inches OC along with Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

D. **Insulated Wood Strapping System** — Install moisture barrier over the Gypsum Board Item 4. Install Extruded Polystyrene Insulation over moisture barrier, max thickness of insulation not to exceed 4 inches. Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC. Wood strapping attached through the Insulation, the Gypsum Board and moisture barrier to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max. 24 in. OC. Acrytec Panels to be installed over the wood strapping using manufacturers approved stainless steel fasteners at a max spacing of 24 in. OC and Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.
ACRYTEC PANEL INDUSTRIES — Nominal 5/8 inch thick Acrytec Panel.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-01-03

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UL Product iQ®

BXUV.U905 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
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Fire-resistance Ratings - ANSI/UL 263

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

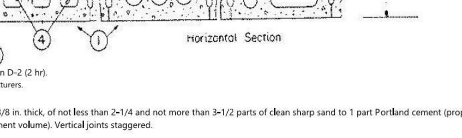
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U905

April 14, 2023

Bearing Wall Rating — 2 HR.
Nonbearing Wall Rating — 2 HR
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Concrete Blocks*** — Various designs. Classification D-2 (2 hr).
See **Concrete Blocks** category for list of eligible manufacturers.

2. **Mortar** — Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. **Portland Cement Stucco or Gypsum Plaster** — Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).

4. **Loose Masonry Fill** — If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.

5. **Foamed Plastic*** — (Optional-Not Shown) — 1-1/2 in. thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).
ATLAS ROOFING CORP — EnergyShield Pro Wall Insulation, EnergyShield Pro 2 Wall Insulation, EnergyShield CGF Pro, EnergyShield Ply Pro, EnergyShield® CGF, EnergyShield® PanelCast, EnergyShield® and "EnergyShield® XR

DUPONT DE NEMOURS, INC. — Types Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), TUFF-R™ ci Insulation, Thermax Butler Stylwall Insulation Board and Thermax Morton Heavy Duty Insulation Board

FIRESTONE BUILDING PRODUCTS CO L L C — "Enverge™ CI Foil Exterior Wall Insulation" and "Enverge™ CI Glass Exterior Wall Insulation"

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Types "Xci-Class A", "Xci Foil (Class A)", "Xci 286"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — Types "TSX-8500", "ECOMAXci FR", "TSX-8510", "ECOMAX xi FR White", "ECOMAXci", "ECOMAXci FR Air Barrier", "Thermasheath-XP", "Thermasheath", "Durasheath"

JOHNS MANVILLE — Type "AP Foil-Faced Foam Sheathing"

5A. **Building Units*** — As an alternate to Items 5, min. 1-in thick polyisocyanurate composite foamed plastic insulation boards, nom. 48 by 48 or 96 in.

ATLAS ROOFING CORP — EnergyShield® Ply

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci NB", "Xci Ply"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — "Thermasheath-SI", "ECOBASEci", "ThermaBase-CI", "ECOMAXci FR Ply", "ECOMAXci Ply".

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-04-14

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

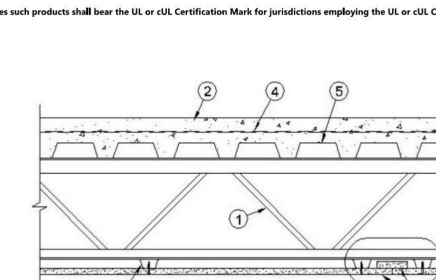
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. G572

December 16, 2021

Restrained Assembly Ratings — 1, 1-1/2, 2 and 3 Hr. (See Items 1, 2, 7B, 8A, 10A - 10Q)
Unrestrained Assembly Ratings — 1, 1-1/2, 2 and 3 Hr. (See Items 1, 2, 7B, 8A, 10A - 10Q)
Unrestrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr. (See Items 1, 2, 7B, 8A, 10A - 10Q)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Steel Joists** — Composite or noncomposite, spaced 48 in. OC. Min 10 in. deep and min weight of 4.9 lb/ft. Designed per S.J.I. Specifications for a max tensile stress of 30 ksi. May be either uncoated or provided with a shop coat of paint. Top and bottom chords shall each consist of two angles with a min total area of 0.652 and 0.412 sq in., respectively. Web members shall be either round bars or angles. Min area of the end diagonal web shall of 0.277 sq in. Min area of each of the first four interior diagonal webs shall be 0.249 sq in. All other interior webs shall have a min area of 0.196 sq in. For 1 or 2 hour ratings, min. 12 in. deep joists may be spaced up to a max. 72 in. OC.

1A. **Beam** — (Not Shown) Min W6 x 9 for 1, 1-1/2 or 2 hr ratings, and min W8 x 24 for 3 hr rating.

1B. **Joist Girders** — (Not shown) - As an alternate to Item 1A or 1B, Composite or noncomposite. Min 10 in. deep and min weight of 4.9 lb/ft. Designed per S.J.I. Specifications for a max tensile stress of 30 ksi. May be either uncoated or provided with a shop coat of paint. Top and bottom chords shall each consist of two angles with a min total area of 0.652 and 0.412 sq in., respectively. Web members shall be either round bars or angles. Min area of the end diagonal web shall of 0.277 sq in. Min area of each of the first four interior diagonal webs shall be 0.249 sq in. All other interior webs shall have a min area of 0.196 sq in. Joist Girders spaced up to a max. 72 in. OC.

2. **Normal-Weight or Lightweight Concrete** — Min. 2-1/2 in. thick as measured from the top plane of the steel floor and form units. Normal weight concrete, carbonate or siliceous aggregate, 150 plus or minus 3 pcf unit weight, 3500 psi compressive strength. Lightweight concrete, expanded shale, clay or slate aggregate by rotary kiln method, 114 plus or minus 6 pcf unit weight, 3500 psi compressive strength.

3. **Shear Connector** — (Optional, Not Shown) — For use with Item 1, 1A or 1B. Shear Studs, min 3/8 in. diam headed type or equivalent per A.I.S.C. specifications. Welded to the top chord of joist through the steel floor units. Stud welding, as recommended by the stud manufacturer, should be followed.

4. **Welded Wire Fabric** — Min. 6 x 6 — W1.4 x W1.4, or as required by the latest ACI code.

4A. **Fiber Reinforcement*** — As an alternate to Item 4, for 1, 1-1/2 and 2 hr assembly and beam ratings only. Engineered Synthetic or Steel fibers added to concrete mix to control shrinkage cracks in concrete. See Fiber Reinforcement (CBXQ) Category for rate that fibers are added to concrete mix and names of manufacturers. The floor assembly with the fiber reinforcement must still meet its structural capacity requirements.

5. **Steel Floor and Form Units*** — Min 9/16 in. deep, min 28 gauge uncoated, painted or galv fluted steel floor units, welded to joist max 15 in. OC.
CANAM GROUP INC — 36 in. wide, Type P-3606, P-3615 or P-3623 composite; 24 in. wide Type P-2432 composite; 36 in. wide Type P 3606 or P-3615 non-composite; 36 in. wide Types 1.5B, 1.5BI, 1.5BL and 1.5BL.

NEW MILLENNIUM BUILDING SYSTEMS L L C — 24 through 36 in. wide, Types 0.6FD, 1.0FD, 1.5FD, 1.5FDR, 1.5FDI, 1.5CDR, 1.5CD, 1.5CDI, 2.0CD, 3.0CD

6. **Tie Wire** — No. 18 SWG (0.048 in. diam) galv steel wire. Tie wire used to attach gypsum board furring channels to steel joists, joist girders or cold rolled channels.

6A. **Hanger Wire** — (Not Shown) - No. 12 SWG galv steel wire for use where indicated.

6B. **Hanger Clips** — (Not Shown) - Galv steel angles, 3/4 in. long with 1-3/8 in. horizontal and 1 in. vertical legs. Vertical leg provided with a 5/16 in. diam hole to accommodate hanger wire. Horizontal leg provided with a 3/16 in. diam hole for insertion of fastener. Hanger clips secured to underside of floor using nom 1-1/8 in. long, 0.145 in. diam shank with 0.312 in. diam head, powder-driven galv steel fasteners.

7. **Furring Channels** — Min 0.021 in. thick (25 gauge) galv steel, 7/8 in. high, 2-5/8 in. base width and 1-1/4 in. face width. Installed perpendicular to steel joists 24 in. OC. At gypsum board end joints, one channel shall be located on each side and 3 in. from end joint. All channels tied to bottom chord of each joist with double strand of No. 18 SWG (0.048 in. diam) galv steel wire. At splices, channels overlapped 8 in. and tied together with double strand of tie wire near each end of overlap.

7A. **Cold Rolled Channels** — (Not shown) - For use where indicated in Items 10 - 10Q. Min 0.053 in. thick (16 gauge) cold-rolled steel channels, 1-1/2 in. deep with 7/16 in. flanges. When it is necessary to lower the ceiling below the bottom plane of the joists, the cold rolled steel channels shall be used for attachment of furring channels. The channels shall be installed with their web oriented vertically and suspended from the joists or from the hanger clips (Item 6B) with 12 SWG or heavier gauge hanger wire at a max spacing of 48 in. OC. The spacing of the channels shall be no greater than the spacing of the joists. Adjoining lengths of cold-rolled channel spliced together by overlapping min 12 in., face to face or back to back, and tying with three double strands of No. 18 SWG (0.048 in. diam) galv steel wire.

7B. **Cold-Rolled Channels** — (Not shown) - Min 0.053 in. thick (16 gauge) cold-rolled steel channels, 1-1/2 in. deep with 7/16 in. flanges. When the composite or noncomposite steel joists are spaced more than 48 in. OC, a cold-rolled steel channel shall be suspended between joists, with its web vertical and with its lower flange flush with the plane at the bottom of the joists, to provide an intermediate support for the furring channels (Item 7). The channel shall be placed so as to provide support for the furring channel such that the span of the furring channel does not exceed 48". The cold-rolled channels are suspended from hanger clips (Item 6B) using 12 SWG galv steel hanger wire spaced max 48 in. OC. The channels shall be installed with their web oriented vertically and suspended from the joists or from the hanger clips (Item 6B) with No. 12 SWG or heavier gauge hanger wire at a max spacing of 48 in. OC. The channels shall be spaced a maximum of 48 in. OC.

8. **Gypsum Board*** — 5/8 in. thick, 4 ft wide, installed with long dimension perpendicular to furring channels and with side joints located between joists. End joints in adjacent rows may be staggered or in line. End joints shall be protected with a 3 in. wide backer strip of wallboard to be inserted for entire length of end joint between the two furring channels. The 3 in. wide backer strip is optional for 1 hour restrained and unrestrained assemblies. Gypsum board secured to furring channels with 1-1/4 in. long self-drilling, self-tapping bugle head screws spaced 12 in. OC. Along side joints, screws located 7/8 in. from board edge.
UNITED STATES GYPSUM CO — Type C

USG BORAL DRYWALL SFZ LLC — Type C

8A. **Gypsum Board* (As an alternative to Item 8)** — Nom 5/8 in. thick, 48 in. wide gypsum board, installed and secured as described in Item 8 with max screw spacing 8 in. OC. **Rating limited to 2 hours.**
CGC INC — Type ULIX

UNITED STATES GYPSUM CO — ULIX

9. **Joint System** — (Not Shown) — Paper tape embedded in joint compound over joints, and covered with two layers of compound with edges feathered out. Gypsum board screw heads covered with two layers of compound.

10. **Air Duct and Damper** — (Optional, Not Shown) — Duct made of min 0.024 in. thick (24 gauge) galv steel. Total area of duct openings not to exceed 144 sq in. per 100 sq ft of ceiling area. Area of individual duct opening not to exceed 144 sq in. Max dimension of opening 12 in. Duct supported by 1 1/2 in. deep, min 0.061 in. thick (16 gauge) cold-rolled steel channels spaced not over 48 in. O.C. and on each side of duct opening. Channels suspended from upper chord of joists by 12 SWG galv steel wire. Min clearance of 4 in. required between back of ceiling membrane and bottom of air duct.
Damper made of min 0.056 in. thick (16 gauge) galv steel protected on both surfaces with 1/16 in. ceramic fiber paper. Located over each duct outlet, attached to bottom of duct with corrosion resistant hinges and held open with a **Fusible Link** (Bearing the UL Listing Mark). Damper to overlap duct outlet 1 in. min. As an alternate, any UL Classified Ceiling Damper covered for use in 2 Hr or longer rated assemblies. To be installed in duct drop close to the back of ceiling per accompanying installation instructions.

Ducts containing 5 in. diam or smaller duct drops do not require dampers or other protection at the duct drops. Total area of unprotected duct outlets not to exceed 20 sq. in. per 100 sq ft of ceiling area. Area of individual duct opening not to exceed 20 sq. in.

10A. **Air Duct Materials*** — (Optional, Not Shown) - For the 2 h ratings, as an alternate to Air Duct (Item 10), Rigid Air Duct Materials may be used in accordance with their Fabrication Instructions. The duct outlet throat is positioned at the center of 24 in. long min. 0.029 in. thick (22 gauge) galv steel duct liner. These ducts are supported by min. 0.053 in. thick (16 gauge) cold-rolled steel channels suspended from the joists by 12 SWG galv steel wire. Channels are placed directly below the steel duct liner, one on each side of the throat, and otherwise spaced 72 in. OC for ducts up to 36 in. wide, and 48 in. OC for ducts between 36 and 60 in. wide. Additional supporting channels to be installed at a distance ranging from 3 to 6 in. from the ends of each individual duct section. Min. clearance of 4 in. required between back of ceiling membrane and bottom of air duct.
JOHNS MANVILLE — Rigid, Class I

KNAUF INSULATION LLC — Rigid, Class I

OWENS CORNING — Rigid, Class I

10B. **Damper** — (Optional, Not Shown) — For use with Item 10A. Min 0.020 in. thick (25 gauge) galv steel. Protected on both surfaces with 1/16 in. ceramic fiber paper and held open with a Fusible Link (bearing the UL Listing Mark). Damper to overlap duct outlet 1 in. min.

10C. **Flexible Air Duct** — (Optional, Not Shown) - (Bearing the UL Listing Mark). As an alternate to the 5 in. unprotected duct outlet. Nom 8 in. diam consisting of 0.006 in. thick vinyl coated, glass fiber reinforced fabric over helically wound 0.077 in. diam coated spring steel wire. As an alternate, nom 6 in. diam air duct connector consisting of 0.005 in. thick vinyl coated, glass fiber reinforced fabric over helically wound 0.071 in. diam coated spring steel wire. The flexible air duct and/or duct connector is connected to galv steel sleeve (Item 10D) by means of a stainless steel hose clamp. Flexible air duct or duct connector do not require dampers or other protection at ceiling penetrations.
The flexible air duct or air duct connector shall be suspended from structural steel or hanger wire anchors by means of a steel strap near the end connected to the steel sleeve (Item 10D), with the remainder of its length placed on the ceiling furring channels or supported approximately 1 in. or higher above the gypsum board with additional steel straps or hanger wires.

The total area of the flexible air duct opening shall not exceed 50.3 sq in. per each 100 sq ft of ceiling area; max dimension of opening is 8 in. The total area of the air duct connector opening shall not exceed 28.3 sq in. per each 100 sq ft of ceiling area; max dimension of opening is 6 in. Damper is not required when flexible air duct or air duct connector is used.

As an alternate, the flexible air duct may be supported by the metal hanger straps attached directly to the bottom of the concrete slab with powder-actuated pins. Pins, nom 1 in. long, consisting of 0.145 in. diam smooth-finish galv steel shank with 1/4 in. diam head. Pins tightly inserted in 3/8 in. long gear-shaped plastic washers and driven into the slab through both ends of the strap.

10D. **Duct Outlet Sleeve** — (Optional, Not Shown) — For use with Flexible Air Duct or Air Duct Connector (Item 10C) at openings in gypsum board ceiling. 4 in. long sleeve made from 28 gauge galv steel for the 8 in. diam opening and from 30 gauge galv steel for the 6 in. diam opening. The sleeve shall be mounted between two 7/8 in. steel angles of 26 gauge galv steel which are placed on top and overlap the adjacent furring channels approximately 3 in. Each angle is tied to the two furring channels with a double strand of 18 SWG galv steel tie wire through 1/8 in. diam hole drilled in the vertical leg of the steel angles. The sleeve is attached to each of the two angles with one 3/8 in. long Tek sheet steel screw.

10E. **Heating and Air Conditioning Plenum Box Outlet** — (Optional, Not Shown) — For the 1-1/2 h ratings, as an alternate to the 5 in. diam unprotected duct outlet. 14 by 14 in. opening penetrating the ceiling. Fabricated from pieces of min 26 MSG galv steel, attached together with lock seams and rivets. Finished box size 16 by 16 by 15 in. outside dimensions. Opposite sides of the box have 10 in. diam openings. The open bottom of the box has 1 in. wide flanges at the four sides to engage into hemmed hanger bars for attaching the box to the furring channels. Hanger bars consist of 1 in. wide plates made from No. 26 gauge galv steel, folded back to form a 5/8 in. return at the top side, for engaging the horizontal flanges at the bottom of the plenum box outlet. The top and the four sides of the box, except for the 10 in. diam openings, shall be lined with 1 in. thick UL Classified fiberglass insulation weighing nom 5 pcf. The 10 in. diam openings on two opposing sides of the box shall be provided with nom 3 in. long collars fabricated from No. 28 gauge galv steel for connecting the box to the nom 10 in. diam flexible air ducts (Item 10F). Box and flexible air duct suspended directly from hanger clips (Item 6B) by hanger wires connected to hanger straps made from 1 in. wide, No. 26 MSG galv steel, spaced max 30 in. OC. As an alternate the strap may be directly attached to the slab by the powder-driven galv steel fasteners described to support the flexible air duct in Item 10C. Top of the box to be min. 5 in. below the bottom plane of the steel floor and form units. Only one 14 by 14 in. outlet is allowed per 100 sq ft of ceiling area.

10F. **Flexible Air Duct** — (Optional, Not Shown) — For use with Item 10E. Bearing the UL Listing Mark. 10 in. ID, with a spirally wound steel wire helix (0.045 in. diam wire) covered with vinyl fiber. Core covered with 1 in. thick UL Classified fiberglass insulation weighing 1.0 pcf. Flexible air duct wrapped with outer jacketing consisting of aluminized vinyl film. Flexible air ducts mounted on collars of box (Item 10E), attached to collars with adjustable 10-1/2 in. diam, 9/16 in. wide hose clamp made of 0.024 in. thick stainless steel.

10G. **Heating and Air Conditioning Plenum Box Outlet** — (Optional, Not Shown) — For the 2 h ratings, as an alternate to the 5 in. diam unprotected duct outlet. 8 by 10 in. opening penetrating the ceiling. Four sides of box formed from one 5 in. wide strip of No. 28 gauge galv steel, with ends of strip overlapping 3/4 in. and fastened together with two 1/4 in. diam punches. The bottom 1 in. of the strip forming the box sides, bent 90 deg to the outside of the box forming horizontal flanges around the perimeter of the box to engage into hanger bars for supporting the box assembly. Sides of the box lined with 1 in. thick fiberglass insulation weighing nom 5 pcf. Fiberglass lining to be supported on a 1 in. wide steel plate attached at the bottom perimeter of the box's four sides. Top of the box fabricated from No. 28 gauge galv steel with 8 in. diam cutout at the center. Edges of the steel plate forming the top of the box bent down around the box's side perimeter and riveted to the four sides of the box by one rivet at the center of each side. Top of the box, except for the 8 in. cutout, also lined with 1 in. thick UL Classified fiberglass insulation, weighing 5 pcf. Top insulation lining, having 8 in. diam cutout at the center, bears along its perimeter on the 1 in. thick fiberglass lining at the box sides. The 8 in. diam cutout at the top of the box connected to a 4 in. long, 8 in. diam sleeve made from No. 28 gauge galv steel for top mounting of an 8 in. flexible air duct (Item 10H). Flexible air duct suspended by a hanger wire from hanger clip (Item 6B), connected to a nom 1 in. wide, No. 26 MSG galv steel plumbing strap wrapped around the flexible air duct near its connection to the box. As an alternate the strap may be directly attached to the slab by the powder-driven galv steel fasteners described to support the flexible air duct in Item 10C. The remainder of the flexible air duct length placed on the ceiling furring channel or supported min. 1 in. above the gypsum board with additional steel straps or hanger wires.
Only one 8 by 10 in. box outlet is allowed per 100 sq ft of ceiling area.

10H. **Flexible Air Duct** — (Optional, Not Shown) — (Bearing the UL Listing Mark) — For use with Item 10G, nom 8 in. diam, consisting of 0.005 in. thick vinyl-coated reinforced fiberglass fabric, wrapped over helically wound 0.038 in. diam coated spring steel wire. Flexible air duct attached to box sleeve with adjustable 8-1/2 in. diam, 9/16 in. wide hose clamp made from 0.024 in. thick stainless steel.

10I. **Heating and Air Conditioning Plenum Box Outlet** — ((Optional, Not Shown) — For the 2 h ratings, as an alternate to the 5 in. diam unprotected duct outlet. 10 by 10 in. opening penetrating the ceiling. Box fabricated from pieces of No. 28 gauge galv sheet steel and riveted together. Finished box size: 12 by 12 by 12 in. One side of the box has 10 in. diam opening. Box top and four sides of the box except the 10 in. cutout for opening, have 1 in. thick of UL Classified fiberglass, 5 pcf. Neck at side opening consisting of 10 in. diam sleeve fabricated from 3-1/2 in. wide strip of No. 28 gauge galv steel. One end of the sleeve notched 1/8 by 3/4 in. at 5/8 in. OC along its perimeter and bent 90 deg against the fiberglass lining around the 10 in. opening to secure the sleeve to the box. The sleeve to be connected to a 10 in. diam, UL Listed side-mounted flexible air duct (Item 10J). Flexible air duct suspended by a hanger wire from hanger clip (Item 6B), connected to a nom 1 in. wide, No. 26 MSG galv steel plumbing strap wrapped around the flexible air duct at its connection to the box\'s sleeve. As an alternate the strap may be directly attached to the slab by the powder-driven galv steel fasteners described to support the flexible air duct in Item 10C. The remainder of the flexible air duct length placed on the ceiling furring channel or supported min. 1 in. above the gypsum board with additional steel straps or hanger wires.
Only one 10 by 10 in. box outlet is allowed per 100 sq ft of ceiling area.

10J. **Flexible Air Duct** — (Optional, Not Shown) — (Bearing the UL Listing Mark) For use with Item 10I. Nom 10 in. diam consisting of 0.002 in. thick vinyl-coated reinforced fiberglass fabric, wrapped over helically wound 0.051 in. diam, coated spring steel wire. Flexible air duct attached to box sleeve with adjustable 10-1/2 in. diam, 9/16 in. wide hose clamp made from 0.024 in. thick stainless steel.

10K. **Fixtures, Recessed Light** — (Optional, Not Shown) — (Bearing the UL Listing Mark) — For the 1-1/2 h ratings , as an alternate to the 5 in. diam unprotected duct outlet. A max of four fixtures per 100 sq ft of ceiling area. Fixture housing 6-1/2 in. diam, 7-1/2 in. high, made from painted or galv steel. Each fixture supported on a base 6-1/2 in. by 9-7/8 in., made from painted or galv steel and screw-attached to the fixture by four screws. Each fixture with trim and lens weighs 4 lb max. Short sides of the base containing tabs for engagement into adjustable hanger bars supporting the fixture. Each fixture hanger bar screw-attached at one end to the ceiling furring channel and at the other end to additional furring channel parallel to and at 9 in. from the ceiling furring channel. Fixture trim 8 in. OD with a 5-1/4 in. inside diam opening to support a 5-3/8 in. diam diffused glass lens. Each fixture may be activated with nom 1 in. diam UL Listed electrical nonmetallic tubing wired with three No. 12 AWG Type THWN copper conductor wires or a UL Listed nonmetallic sheathed cable with three No. 12 AWG Type THWN copper conductor wires.

10L. **Fixture, Recessed Light** — (Optional, Not Shown) — (Bearing the UL Listing Mark) — For the 2 h ratings, as an alternate to the 5 in. diam unprotected duct outlet. Fluorescent lighting fixture with 12 by 12 by 5-1/2 in. aluminum housing, lampholder, ballast for fluorescent lamp and nom 2-1/2 by 4 by 2-1/4 in. deep galv steel junction box attached to one side of the light housing. Penetration of light into the ceiling is 7-3/4 in. diam max. Light fixture weighs 8 lbs max. Hanger tabs of light fixture wire-tied to nom 27 in. long cold-rolled steel channels on both sides of fixture. Ends of cold-rolled channels supporting the fixture wire-tied to top surface of two consecutive ceiling furring channels using No. 18 SWG galv steel tie wire. Light fixture may be activated with a 3/4 in diam electrical nonmetallic tubing (ENMT) containing three No. 12 or No. 14 AWG Type THHN wire; or nonmetallic sheathed cable with two conductors with grounding, or 1/2 in. diam flexible metal conduit containing three No. 12 AWG Type THHN wires. Only one fixture is allowed per 100 sq ft of ceiling area.

10M. **Exhaust Fan** — (Optional, Not Shown) — (Bearing the UL Listing Mark) — For use with Item 10O for the 2 h ratings, as an alternate to the 5 in. diam unprotected duct outlet. Frame made of painted steel measuring 7-1/2 by 7-1/8 by 3-5/8 in. Fan gross weight 3.75 lb max. The ceiling penetration from the exhaust fan shall not exceed 7-1/2 by 7-1/8 in. The installation of the exhaust fan requires an additional furring channel parallel to the ceiling channel and tied to two consecutive cold rolled channels or joists bottom chord. Fan screw-attached from one side to the ceiling furring channel and from the other side to the additional furring channel with two screws at each side through holes predrilled in the fan housing. Fan wired with a UL Listed nonmetallic sheathed cable with three No. 12 AWG conductors. Fan includes a 3 in. diam exhaust steel duct fastened to the outlet with aluminum foil tape.
Only one exhaust fan penetration and one ceiling runner penetration are allowed per 100 sq ft of ceiling area.

10N. **Electrical Junction Box** — (Optional, Not Shown) — Bearing the UL Listing Mark. Max 4 in. diam steel junction box with cover plate flush with ceiling. Attached with two 3/8 in. long steel screws to a section of steel furring channel placed on top and perpendicular to ceiling furring channels (Item 7), with its ends extending about 5 in. beyond the adjacent ceiling furring channels. Electrical cable to be supported from the steel joists, cold-rolled channels (Item 7A) or hanger clips (Item 6B).
For the 2 h ratings, only one junction box is allowed per 100 sq ft of ceiling area in addition to the 5 in. diam unprotected duct outlet.

For the 3 h ratings, only one junction box is allowed per 100 sq ft of ceiling area as an alternate to the 5 in. diam unprotected duct outlet.

10O. **Ceiling Runner Penetration** — (Optional, Not Shown) — Framing consisting of either nominal 4 or 6 in. wide steel C-channels with 2 in. flanges; or nominal 2x4 or 2x6 plates of structural grade lumber runner into stud cavity of steel or structural grade lumber stud sheathed with generic unclassified gypsum board partition (Not Shown). Bottom runner suspended by hanger wires tied to a cold rolled channel (Item 7A) running parallel to the runner. Hanger wires used for supporting the bottom runner and penetrating the top runner shall be spaced a max 12 in. OC. Top runner placed directly above, and screw-attached to web of 24 in. long pieces of furring channel, spaced at 16 in. OC. One in. long pieces of the supporting channel's web removed at both ends with the steel surfaces on both flanges bent 90 deg, for screw-attaching the supporting channels to the main ceiling furring channels. The top cold rolled channel supporting the suspended boxed partition shall be directly suspended from hanger clips, Item 6B. Bottom of partition protected with two layers of gypsum board (Item 8) as shown.
For the 2 h ratings, only one ceiling runner penetration together with one exhaust fan. (Item 10M) are allowed per 100 sq ft of ceiling area as an alternate to the 5 in. diam unprotected duct outlet.

For the 1 h ratings, only one ceiling runner penetration together with Nonmetallic Pipes (Item 10P) are allowed per 100 sq ft of ceiling area as an alternate to the 5 in. diam unprotected duct outlet.

10P. **Nonmetallic Pipes** — (Optional, Not Shown) — For the 1 h floor-ceiling ratings, as an alternate to the 5 in. diam unprotected duct outlet. Nom 2 in. and 4 in. diam Schedule 40 PVC (polyvinyl chloride) or CPVC (chlorinated polyvinyl chloride) supply or drain, waste and vent piping system. PVC or CPVC pipes penetrate the ceiling runner into stud cavity of steel or structural grade lumber stud sheathed with generic unclassified gypsum wallboard partition (Item 10O). The PVC or CPVC pipes are supported by hanger straps in conjunction with steel hanger wires suspended from hanger clips, Item 6B. As an alternate the strap may be directly attached to the slab by the powder-driven galv steel fasteners described to support the flexible air duct in Item 10C. The spacing of hanger straps supporting the pipes shall not exceed 25 in. OC. Only one nom 4 in. diam PVC or CPVC pipe and one nom 2 in. diam PVC or CPVC pipe are allowed per 100 sq ft of ceiling area. Min clearance of 4 in. required between back of ceiling membrane and bottom of nonmetallic pipes.

10Q. **Alternate Penetrating Items** — (Optional, Not Shown) — One or all of the following may be used in conjunction with 10P: ENMT (Non-metallic tubing), Romex Cable, and an additional bundle of tubing including 2 copper tubes (7/8 in. diam), non-metallic pipe (1 in. diam schedule 40 PVC), and non-metallic wire (low voltage). These items are located within the stud cavity of a rated or non-rated gypsum board partition.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2021-12-16

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REVISION DATES:

1	CITY COMMENTS	06/21/2023

STATE OF MISSOURI
ROGER L. WEBB II
NUMBER A-2016004008
ARCHITECT
6.21.2023
PROFESSIONAL SEAL

G141

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

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SPECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS

GENERAL REQUIREMENTS APPLICABLE TO ALL MATERIALS FOR THE PROJECT:

1.NO SUBSTITUTIONS OF MATERIALS WITHOUT COMPLETION OF A SUBSTITUTION REQUEST FORM & APPROVAL OF SUBSTITUTION BY BOTH ARCHITECT & OWNER PROJECT MANAGER. FORM CAN BE REQUESTED FROM ARCHITECT.
2. A CONDENSED SET OF SPECIFICATIONS ARE PROVIDED FOR THE PROJECT. STRICT ADHEARANCE TO MANUFACTURER REQUIREMENTS AND INSTALLATION ARE REQUIRED TO BE FOLLOWED WITH SECTIONS PROVIDED WITHIN. IF REQUIRED THE ARCHITECT WILL ISSUE ADDITIONAL SECTIONS TO PROVIDE CLARITY TO PRODUCTS OR INSTALLATION REQUIREMENTS.

DIVISION 1 - GENERAL REQUIREMENTS
1. 1 SEE ADMINISTRATIVE SPECIFICATION FOR GENERAL REQUIREMENTS RELATED TO ADMINISTATION OF THIS CONTRACT.

A. CONTRACTOR LICENSES
1. THE CONTRACTOR AND ALL SUBCONTRACTORS INVOLVED IN THE PROJECT SHALL BE REQUIRED TO OBTAIN AND PAY FOR ALL NECESSARY LICENSES AS REQUIRED BY ANY LAW OR AGENCIES HAVING JURISDICTION (AHJ) OVER THE PROJECT.

B. BUILDING PERMITS
1. THE GENERAL CONTRACTOR WILL PAY FOR ALL PERMITS REQUIRED BY ANY AGENCY HAVING JURISDICTION (AHJ) OVER THE PROJECT FOR ALL WORK TO BE PREFORMED BY THE GENERAL CONTRACTOR.

C. UTILITY FEES
1. THE CONTRACTOR SHALL PAY THE NECESSARY FEES TO CONNECT TO EXISTING UTILITIES AT THE PROPERTY LINE OR IN ADJACENT STREETS AND RIGHT OF WAY AS SPECIFIED, NECESSARY, AND/OR INCLUDED IN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL PAY ALL UTILITY COSTS (BILLS) DURING CONSTRUCTION UNTIL OWNER TAKES POSSESSION OF THE FACILITY OR THE FACILITY IS CERTIFIED AS SUBSTANTIALLY COMPLETE.

D. PROTECTION OF FINISHED WORK
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT FINISHED SURFACES. PROTECTION FOR FINISHES SUCH AS DOORS, WALLS AND FLOORS SHOULD BE PROVIDED AS REQUIRED. ANY DAMAGES TO THESE AREAS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE.

E. GENERAL CONDITIONS
1. ANY DISCREPANCY OR CONFLICT WITHIN OR BETWEEN DRAWINGS AND ANY DISCREPANCY OR CONFLICT BETWEEN ANY DRAWING AND ANY SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. NOTWITHSTANDING, DISCREPANCIES OR CONFLICTS NOT BROUGHT TO THE ARCHITECT'S AND/ OWNERS ATTENTION AND CLARIFIED DURING THE BIDDING OF THE PROJECT WILL BE DEEMED TO HAVE BEEN BID OR PROPOSED IN THE MORE COSTLY OR DIFFICULT MANNER, AND THE BETTER QUALITY OR GREATER QUANTITY OF THE WORK SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH ARCHITECT'S INTERPRETATION.
2. THE GENERAL CONTRACTOR SHALL KEEP A COMPLETE SET OF DOCUMENTS ON THE PROJECT SITE AT ALL TIMES FOR REFERENCE DURING CONSTRUCTION.
3. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING THE CONTRACTOR'S BEST SKILLS AND ATTENTION. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER CONSTRUCTION MEANS AND METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
4. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER ALL JOB SITE SAFETY PROCEDURES AND POLICIES. THE GENERAL CONTRACTOR SHALL HAVE A SAFETY COORDINATOR AND BE RESPONSIBLE TO HOLD REGULARLY SCHEDULED SAFETY TRAINING WITH ALL JOB SITE PERSONNEL, INCLUDING ALL SUB CONTRACTOR PERSONNEL.
5. NEITHER THE ARCHITECT'S OR THE OWNERS INSPECTION NOR FAILURE TO INSPECT SHALL RELIEVE THE CONTRACTOR OF ANY OBLIGATION HEREUNDER. IF ANY WORK FAILS TO CONFORM TO THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL PROMPTLY REMEDY AND/OR REPLACE THE SAME AT THE CONTRACTOR'S EXPENSE. NO ACCEPTANCE OR PAYMENT BY THE OWNER OR ARCHITECT SHALL CONSTITUTE A WAIVER OF THE FOREGOING AND NOTHING HEREIN SHALL EXCLUDE OR LIMIT ANY WARRANTIES IMPLIED BY LAW.
6. THE GENERAL CONTRACTOR SHALL SO CONDUCT ITS OPERATIONS AS NOT TO UNREASONABLY INTERFERE WITH TRAFFIC ON PUBLIC THOROUGHFARES ADJACENT OR NEAR TO THE PROJECT SITE.
7. DO NOT SCALE DRAWINGS.

F. PROJECT REQUIREMENTS
1. THE GENERAL CONTRACTOR REPRESENTS THAT IT POSSESSES THE SKILLS REQUIRED FOR THE WORK, ASSUMES THE RESPONSIBILITIES OF AN EMPLOYER FOR PERFORMANCE OF THE WORK, AND ACTS AS AN EMPLOYER OF ONE OR MORE EMPLOYEES BY PAYING WAGES, DIRECTING ACTIVITIES AND PERFORMING OTHER SIMILAR FUNCTIONS. THE GENERAL CONTRACTOR IS AN INDEPENDENT CONTRACTOR, FREE TO DETERMINE THE MANNER IN WHICH THE WORK IS PERFORMED.
2. THE GENERAL CONTRACTOR SHALL PROVIDE, AND MAINTAIN IN GOOD WORKING ORDER, THE FOLLOWING ITEMS FOR USE BY THE PROJECT SUPERINTENDENT DAILY DURING THE ENTIRE DURATION OF THE PROJECT:
   A. LAPTOP WITH INTERNET ACCESS.
   B. DIGITAL CAMERA WITH 'DATE STAMP' CAPABILITY AND WITH PROPER CABLES TO ATTACH TO LAPTOP.
   C. EMAIL ACCESS THROUGH THE LAPTOP.
   D. A PRINTER/SCANNER/FAX MACHINE WITH PROPER CABLES TO ATTACH TO LAPTOP.
   E. CELL PHONE.
   F. PROJECT INTERNET CLOUD BASED SITE FOR MANAGEMENT OF PROJECT INFORMATION. SITE WILL BE USED FOR SUBMITTAL OF SHOP DRAWINGS, RFI'S & PHOTOS. SITE SHALL BE PROCORE OR EQUAL FUNCTIONALITY.
3. THE GENERAL CONTRACTOR SHALL HAVE A CONSTRUCTION SUPERINTENDENT ASSIGNED TO THIS PROJECT, AND THIS SUPERINTENDENT SHALL BE ON SITE EVERY DAY THERE IS ANY CONSTRUCTION ON THIS PROJECT. THE SUPERINTENDENT SHALL BE REACHABLE BY PHONE DURING NORMAL BUSINESS HOURS. ONCE ASSIGNED, THE SUPERINTENDENT SHALL NOT BE REMOVED OR REPLACED WITHOUT WRITTEN APPROVAL FROM OWNER & ARCHITECT, UNLESS SPECIFICALLY REQUESTED TO BE REPLACED BY OWNER.
4. THE SUPERINTENDENT WILL BE REQUIRED TO PROVIDE PHOTOGRAPHS (VIA EMAIL USING A DIGITAL CAMERA) TO THE OWNER & ARCHITECT EACH FRIDAY BY NOON CST, SHOWING THE PROGRESS OF CONSTRUCTION. THE GENERAL CONTRACTOR IS ENCOURAGED TO TAKE PHOTOS SEVERAL TIMES EACH WEEK TO HELP MAINTAIN PROOF OF CONSTRUCTION PROGRESS, RECORD UNCOVERED CONDITIONS, RECORD CONDITION AND AMOUNTS OF VENDOR GOODS UPON RECEIPT, AND RECORD CONSTRUCTION THAT VARIES FROM THE CD'S (AS PART OF THE AS-BUILTS). ALL PHOTOS WILL HAVE A 'DATE STAMP'.

G. INSPECTIONS/OBSERVATIONS
1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OVERSEE CONSTRUCTION OF THE PROJECT, CONTINUALLY INSPECTING THE WORK, MATERIALS, AND WORKMANSHIP PROVIDED BY ALL OF HIS TRADESMEN, SUBCONTRACTORS, AND SUPPLIERS. EXCELLENCE IN QUALITY OF CONSTRUCTION CAN ONLY BE ACHIEVED IF THE CONTRACTOR ENFORCES HIGH STANDARDS OF ACCEPTABILITY. THE GENERAL CONTRACTOR CANNOT DELEGATE HIS RESPONSIBILITY TO THE SUBCONTRACTORS, BUT MUST CONTINUALLY MONITOR THE WORK OF EACH TRADE ON THE PROJECT.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE AND SCHEDULE ALL AGENCIES HAVING JURISDICTION (AHJ) INSPECTIONS NECESSARY TO OBTAIN THE CERTIFICATE OF OCCUPANCY (CERTIFICATE OF COMPLIANCE). PRIOR TO THE DATE OF THE AGENCY INSPECTION, THE GENERAL CONTRACTOR SHOULD INSPECT THE PROJECT TO INSURE THAT CONSTRUCTION COMPLIES WITH THE AGENCY REQUIREMENTS. SCHEDULING FINAL INSPECTIONS WITH AGENCY REPRESENTATIVES WHEN THE PROJECT IS NOT COMPLETE MUST BE AVOIDED. COPIES OF FINAL INSPECTIONS MUST BE PROVIDED TO OWNER & ARCHITECT AS THEY ARE AVAILABLE.
3. PRIOR TO REQUESTING THE SUBSTANTIAL COMPLETION INSPECTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT HIS OWN PRE-SUBSTANTIAL COMPLETION INSPECTION OF THE CONSTRUCTION FOR QUALITY OF CONSTRUCTION AND COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS.
4. THE FOLLOWING PEOPLE SHOULD BE IN ATTENDANCE FOR THE SUBSTANTIAL COMPLETION INSPECTION:
   A. GENERAL CONTRACTOR
   B. GENERAL CONTRACTOR SUPERINTENDENT
   C. MECHANICAL CONTRACTOR
   D. ELECTRICAL CONTRACTOR
   E. PLUMBING CONTRACTOR
   F. PAINTING CONTRACTOR
   H. FLOORING CONTRACTOR
5. ITEMS TO BE SUBMITTED AS A PREREQUISITE TO THE REQUEST FOR THE CERTIFICATE OF SUBSTANTIAL COMPLETION AND OWNER / ARCHITECT OBSERVATION OF ITEMS TO BE COMPLETED AND CORRECTED.
   A. GENERAL CONTRACTOR'S PUNCH LISTS
   B. HVAC TEST AND BALANCE REPORT
   C. SPRINKLER SYSTEM ACCEPTANCE INSPECTION REPORT
   D. COPY OF VIDEO OF COMPLETED SEWER SYSTEM
6. THE REVIEW TEAM SHOULD PROCEED IN AN ORGANIZED MANNER THROUGHOUT THE BUILDING INSPECTING EACH SPACE OR ROOM. THE PUNCH LIST GENERATED BY THE SUBSTANTIAL COMPLETION INSPECTION TOUR IS TO BE PREPARED BY THE CONTRACTOR. ALONG WITH THE PUNCH LIST, THE ARCHITECT SHALL PREPARE THE "CERTIFICATE OF SUBSTANTIAL COMPLETION."
7. IMMEDIATELY AFTER RECEIPT OF THE PUNCH LIST, THE GENERAL CONTRACTOR AND SUBCONTRACTORS ARE EXPECTED TO BEGIN CORRECTION OF THE OUTSTANDING ITEMS. AFTER COMPLETION OF PUNCHLIST, THE CONTRACTOR SHALL NOTIFY OWNER & ARCHITECT IN WRITTING THAT FULL LIST OF ITENMS TO BE COMPLETED AND OR CORRECT IS FINALIZED.

H. RECORD (CLOSE-OUT) DOCUMENTS
1. THE OWNER REQUIRES THE GENERAL CONTRACTOR AND SUBCONTRACTORS TO MAINTAIN AN ACCURATE, CURRENT SET OF RECORD DOCUMENTS (AS-BUILTS) AS CONSTRUCTION PROGRESSES. ALL PERTINENT INFORMATION RELATING TO THE PROJECT MUST BE TIMELY MAINTAINED ON THE AS-BUILTS. THE AS-BUILTS MUST BE MAINTAINED ON-SITE IN THE GENERAL CONTRACTOR'S OFFICE AND WILL NOT BE USED FOR ANY OTHER PURPOSE. SINCE THE OWNER WILL OWN AND OPERATE THE FACILITY, IT IS IMPERATIVE THAT ALL PARTIES MAINTAIN ACCURATE INFORMATION REGARDING THE ACTUAL CONSTRUCTION OF THE PROJECT.
ALL DEVIATIONS FROM THE CONTRACT SET OF DRAWINGS MUST BE NOTED ON THE AS-BUILTS IN RED WITH CLOUDS FOR CLEAR IDENTIFICATION. THE OWNER WILL REVIEW THE AS-BUILTS FOR ACCURACY AND COMPLETENESS MONTHLY, DURING THE PAYMENT APPLICATION REVIEW PROCESS. FAILURE TO POST CHANGES TO THE PROJECT ON THE AS-BUILTS AS IDENTIFIED DURING THE ON-SITE MONTHLY REVIEW WILL BE CAUSE TO SUSPEND PAYMENT UNTIL RECTIFIED. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ENFORCE THE TIMELY POSTING OF AS-BUILT CHANGES WITH THE SUBCONTRACTORS.

I. FINAL CLOSE-OUT OF THE PROJECT
1. WITHIN THIRTY (30) CALENDAR DAYS AFTER THE FINAL PROJECT SUBSTANTIAL COMPLETION, THE GENERAL CONTRACTOR SHALL COMPILE ALL CLOSE-OUT DOCUMENTS AND SUBMIT THEM TO THE OWNER FOR REVIEW. IF THE CONTRACTOR FAILS TO COMPLETE ITS REQUIREMENTS WITHIN THIS TIMELINE NOTED ABOVE THE CONTRACTOR MAY BE SUBJECT TO ADDITONAL ADMINISTATION FEES.

J. CLOSE-OUT DOCUMENTS
1. THE CATEGORIES LISTED BELOW SHOULD BE SUBMITTED AT THE SAME TIME.
   A. A DISK WITH ALL PHOTOS TAKEN DURING CONSTRUCTION.
   B. CHANGE ORDERS AND ALL ADDENDA ATTACHED AND POSTED TO THE AS-BUILT DRAWINGS.
   C. AS-BUILT DRAWINGS: ONE HARD COPY TO REMAIN ON SITE AND IN PLAN TUBE; ONE ELECTRONIC COPY TO BE SENT WITH CLOSE-OUT PAPERWORK.
   D. MATERIALS SELECTION DATA - PROVIDE ALL APPROVED SUBMITTALS.
   E. OPERATION AND MAINTENANCE MANUALS (O&M) - PROVIDE O&M MANUALS BOXED AND BOUND. THIS ITEM IS OF SIGNIFICANT IMPORTANCE TO MSI FUTURE MAINTENANCE ACTIVITIES.
   F. ALL HVAC TEST AND BALANCE REPORTS.
   H. RELEASE OF LIEN (AIA FORM 706A), PAYMENT OF DEBT (AIA FORM 706),
   I. WARRANTIES, CERTIFICATES, AFFIDAVITS:
   2. ALL INFORMATION INCLUDED IN THIS CATEGORY WILL BE FURNISHED IN ONE (1) COPY AND BOUND IN A STURDY THREE-RING BINDER WITH A LABEL ON THE OUTSIDE READING "GENERAL CLOSE-OUT DOCUMENTS" TO INCLUDE AN INDEX OF THE CONTENTS. ALL AIA DOCUMENTS WILL BE ORIGINAL (WITH RED LETTERING ON THE BOTTOM OF THE FORM) AND NOTARIZED. IF THE ELECTRONIC VERSION IS USED A COPY WITH ORIGINAL SIGNATURES WILL BE SUBMITTED. THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR WILL HAVE SEPARATE TABS IDENTIFYING EACH BY NAME. THE GENERAL CONTRACTOR WILL LIST EACH SUBCONTRACTOR ALPHABETICALLY AND WILL CHECK TO INSURE THAT A "RELEASE OF LIEN" - AIA FORM G706A AND A "PAYMENT OF DEBT-AIA FORM G706 IS INCLUDED FOR HIMSELF AND EACH SUBCONTRACTOR. THE GENERAL CONTRACTOR WILL INCLUDE A "CONSENT OF SURETY" - AIA FORM G707. IN ADDITION, THE GENERAL CONTRACTOR WILL INCLUDE BEHIND HIS TAB THE FOLLOWING INFORMATION:
      A. A LIST OF NAMES, BUISNESS ADDRESSES, PHONE NUMBERS AND EMAIL ADRESSES FOR THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR.
      B. AN ANNOTATED COPY OF THE SUBSTANTIAL COMPLETION PUNCH LIST INDICATING ACTION TAKEN ON EACH ITEM.
      C. WARRANTIES, CERTIFICATES AND AFFIDAVITS SHALL BE INCLUDED FOR ANY EQUIPMENT, MATERIALS OR SYSTEMS, COMBINED WITH ALL OF THE ABOVE INFORMATION AND PLACED BEHIND THE TAB OF THE CONTRACTOR THAT ISSUED IT.

DIVISION 5 - METALS

05 7000 - DECORATIVE METAL
A. SUBMITTALS:
PRODUCT DATA AND SHOP DRAWINGS WITH PLANS ELEVATIONS AND SECTIONS INDICATING MEMBER SIZES AND LAYOUT, VERTICAL AND HORIZONTAL DIMENSIONS, EDGE CONDITIONS, AND CONNECTION DETAILS.
INDICATE RAILING SYSTEM ELEVATIONS AND SECTIONS, DETAILS OF PROFILE, DIMENSIONS, SIZES, CONNECTION ATTACHMENTS, ANCHORAGE, SIZE AND TYPE OF FASTENERS, AND ACCESSORIES.
INDICATE ANCHOR AND JOINT LOCATIONS, BRAZED CONNECTIONS, TRANSITIONS, AND TERMINATIONS.
1. DELEGATED-DESIGN SUBMITTAL: FOR HANDRAIL AND GUARDRAIL SYSTEMS, INCLUDING ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

B. DESIGN: METAL TUBE RAILINGS SHALL BE DESIGNED BY FABRICATOR TO SUPPORT CODE-REQUIRED LOADING AND TO MATCH THE CONFIGURATIONS INDICATED IN THE CONSTRUCTION DOCUMENTS. SEE DRAWINGS FOR REQUIRED RAILING ELEVATIONS.

C. FIELD CONDITIONS:
1. FIELD MEASUREMENTS: VERIFY ACTUAL LOCATIONS OF WALLS AND OTHER CONSTRUCTION CONTIGUOUS WITH METAL FABRICATIONS BY FIELD MEASUREMENTS BEFORE FABRICATION.

D. RAILING SYSTEMS:
1. RAILING SYSTEMS - GENERAL: FACTORY- OR SHOP-FABRICATED IN DESIGN INDICATED, TO SUIT SPECIFIC PROJECT CONDITIONS, AND FOR PROPER CONNECTION TO BUILDING STRUCTURE, AND IN LARGEST PRACTICAL SIZES FOR DELIVERY TO SITE.
A. PERFORMANCE REQUIREMENTS: DESIGN AND FABRICATE RAILINGS AND ANCHORAGES TO RESIST THE FOLLOWING LOADS WITHOUT FAILURE, DAMAGE, OR PERMANENT SET; LOADS DO NOT NEED TO BE APPLIED SIMULTANEOUSLY.
   1. LATERAL FORCE: 75 LB MINIMUM, AT ANY POINT, WHEN TESTED IN ACCORDANCE WITH ASTM E935.
   2. DISTRIBUTED LOAD: 50 LB/FT MINIMUM, APPLIED IN ANY DIRECTION AT THE TOP OF THE HANDRAIL, WHEN TESTED IN ACCORDANCE WITH ASTM E935.
   3. CONCENTRATED LOADS ON INTERMEDIATE RAILS: 50 PSF, MINIMUM.
   4. CONCENTRATED LOAD: 200 LBS MINIMUM, APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE HANDRAIL SYSTEM, WHEN TESTED IN ACCORDANCE WITH ASTM E935.
B. ASSEMBLY: JOIN LENGTHS, SEAL OPEN ENDS, AND CONCEAL EXPOSED MOUNTING BOLTS AND NUTS USING SLIP-ON NON-WELD MECHANICAL FITTINGS, FLANGES, ESCUTCHEONS, AND WALL BRACKETS.
C. JOINTS: TIGHTLY FITTED AND SECURED, MACHINED SMOOTH WITH HAIRLINE SEAMS.
D. . FIELD CONNECTIONS: PROVIDE SLEEVES TO ACCOMMODATE SITE ASSEMBLY AND INSTALLATION.

2. METAL TUBE RAILING: ENGINEERED, POST SUPPORTED RAILING SYSTEM WITH METAL INFILL.
A. WALL MOUNTED COMPONENTS: COMPONENTS NECESSARY TO SUPPORT RAILING WITH 1-1/2 INCH CLEARANCE FROM WALL, AND AS FOLLOWS:
   1. UNDERSLUNG SUPPORT BRACKETS: SUPPORTS AT 60 INCHES, MAXIMUM.
   2. WALL RETURN WITHOUT SUPPORT: TERMINATES 1/4 INCH FROM SIDE WALL.
B. HANDRAIL BRACKETS: SAME METAL AS RAILING.
C. INFILL AT PICKET RAILINGS: VERTICAL PICKETS.
   1. HORIZONTAL SPACING: MAXIMUM 4 INCHES ON CENTER.
   2. MATERIAL: SOLID STEEL BAR.
   3. SIZE: 3/4 INCH IPS / 1.05 INCH OD.
   4. TOP MOUNTING: MECHANICALLY ATTACHED BY INTERNAL FITTINGS.
   5. BOTTOM MOUNTING: WELDED TO TOP SURFACE OF STRINGER.
D. INFILL AT PIPE RAILINGS: PIPE OR TUBE RAILS SLOPED PARALLEL TO STAIR.
   1. OUTSIDE DIAMETER: 1 INCH.
   2. MATERIAL: STEEL PIPE OR TUBE, ROUND.
   3. JOINTING: WELDED AND GROUND SMOOTH AND FLUSH.
E. INFILL AT MESH RAILINGS: METAL MESH PANELS.
   1. METAL INFILL PANELS: WELDED WIRE MESH; 0.120 INCH DIAMETER STEEL WIRE, 2 INCH BY 2 INCH PATTERN AND 0.125 INCH THICK STEEL SHEET HEM WITH MANUFACTURER'S STANDARD FACTORY APPLIED COATING.
   2. CARBON STEEL PANEL FINISH: MANUFACTURER'S STANDARD FACTORY FINISH; COMPLY WITH AAMA 2604.
F. INFILL AT CABLE RAILINGS: STAINLESS STEEL CABLE.
   1. MATERIAL: ASTM A666, TYPE 304.
   2. MOUNTING: MECHANICALLY ATTACHED TO FRAME.
G. CUSTOM FABRICATED INFILL AT METAL TUBE RAILINGS:.
   1. MATERIAL: SOLID STEEL BAR.
   2. MATERIAL: STEEL TUBE.
   3. TOP MOUNTING: WELDED TO UNDERSIDE OF TOP RAIL.
   4. BOTTOM MOUNTING: WELDED TO TOP SURFACE OF STRINGER.
H. END AND INTERMEDIATE POSTS: AS SHOWN ON DRAWINGS.
   1. HORIZONTAL SPACING: AS INDICATED ON DRAWINGS.
   2. MOUNTING: WELDED.
J. WALL-MOUNTED HANDRAIL:
   1. 1-1/2 INCH DIAMETER STAINLESS STEEL.

E. MATERIALS:
1. STEEL COMPONENTS:
   A. SECTIONS, SHAPES, PLATE AND BAR: ASTM A36/A36M.
   B. TUBING: ASTM A501/A501M STRUCTURAL TUBING, ROUND AND SHAPES AS INDICATED.
   C. PIPE: ASTM A53/A53M GRADE B SCHEDULE 40, BLACK FINISH.
   D. UNGALVANIZED STEEL SHEET: HOT- OR COLD-ROLLED, EXCEPT USE COLD-ROLLED WHERE FINISHED WORK WILL BE EXPOSED TO VIEW.
   E. GALVANIZED STEEL SHEET: ASTM A653/A653M, STRUCTURAL STEEL (SS) GRADE 33/230 WITH G40/Z120 COATING.
   F. BOLTS, NUTS, AND WASHERS: ASTM F3125/F3125M, TYPE 1, AND GALVANIZED TO ASTM A153/A153M WHERE CONNECTING GALVANIZED COMPONENTS.
   G. WELDING MATERIALS: AWS D1.1/D1.1M; TYPE REQUIRED FOR MATERIALS BEING WELDED.

F. ACCESSORIES:
1. NON-WELD MECHANICAL FITTINGS FOR STAINLESS STEEL RAILINGS: SLIP-ON, GALVANIZED MALLEABLE IRON BOLTS OR SCREW FASTENERS. CASTINGS, FOR SCHEDULE 40 PIPE, WITH FLUSH SETSCREWS FOR TIGHTENING BY STANDARD HEX WRENCH, NO
2. WELDING FITTINGS: FACTORY- OR SHOP-WELDED FROM MATCHING PIPE OR TUBE; JOINTS AND SEAMS GROUND SMOOTH.
3. ANCHORS AND FASTENERS: PROVIDE ANCHORS AND OTHER MATERIALS AS REQUIRED TO ATTACH TO STRUCTURE, MADE OF SAME MATERIALS AS RAILING COMPONENTS UNLESS OTHERWISE INDICATED; WHERE EXPOSED FASTENERS ARE UNAVOIDABLE PROVIDE FLUSH COUNTERSUNK FASTENERS.
   A. EXPOSED FASTENERS: NO EXPOSED BOLTS OR SCREWS.

G. INSTALLATION:
1. COMPLY WITH ALL DRAWINGS AND WRITTEN INSTRUCTIONS.
2. INSTALL COMPONENTS PLUMB AND LEVEL, ACCURATELY FITTED, FREE FROM DISTORTION OR DEFECTS AND WITH TIGHT JOINTS, EXCEPT WHERE NECESSARY FOR EXPANSION.
3. ANCHOR SECURELY TO STRUCTURE.

05 6000- STRUCTURAL METAL STUDS AND TRACK

THIS SECTION IS A DELEGATED DESIGN SUBMITTAL. CONTRACTOR SHALL ENGAGE A STRUCUTRAL ENGINEER LICENSED IN THE JURISDICTION WHRE THIS PROJECT IS LOCATED. ALL FEES SUBJECT OF THIS SERVICE WILL BE PART OF BASE CONTRACT.

A. SUBMITTALS: PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:

1. SHOWING PLANS, SECTIONS, ELEVATIONS, LAYOUTS, PROFILES AND PRODUCT COMPONENT LOCATIONS, INCLUDING ANCHORAGE, BRACING, FASTENERS, ACCESSORIES AND FINISHES.
2. INDICATE COMPONENT DETAILS, FRAMED OPENINGS, BEARING, ANCHORAGE, LOADING, WELDS, TYPE AND LOCATION OF FASTENERS, AND ACCESSORIES.
3. INDICATE METHOD FOR SECURING STUDS AND OTHER COMPONENTS TO TRACKS AND FOR FRAMING CONNECTIONS.
4. SUBMIT CALCULATIONS FOR LOADINGS AND STRESSES UNDER PROFESSIONAL ENGINEER'S SEAL REGISTERED IN THE STATE OF THE PROJECT.

B. QUALITY STANDARD:
1. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM FIVE YEARS DOCUMENTED EXPERIENCE.
2. INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THIS SECTION WITH MINIMUM 3 YEARS DOCUMENTED EXPERIENCE.
3. DESIGN STRUCTURAL ELEMENTS UNDER DIRECT SUPERVISION OF PROFESSIONAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND REGISTERED IN THE STATE OF THE PROJECT.

F. INSTALLATION:
1. FOLLOW MANUFACTURER INSTALLATION GUIDLINES. INSTALLATION SHALL BE COMPLIANT WITH APPLICABLE BUILDING CODES.

DIVISION 6 - WOOD AND PLASTICS

06 1000- ROUGH CARPENTRY

1. PROVIDE SUFFICIENT FIRE RETARDANT TREATED WOOD BLOCKING AT ALL STUDS FOR SECURING OF WALL & CEILING ITEMS, WHETHER FURNISHED BY OWNER OR CONTRACTOR.
2. CONCEALED WOOD IS TO BE FIRE RETARDANT TREATED UNLESS NOTED OTHERWISE.
3. PRESERVATIVE TREATED LUMBER IS REQUIRED FOR ALL ITEMS TO REMAIN IN CONTACT WITH CONCRETE OR MASONRY TO CONFORM TO AWPA STANDARD 5.
4. PLYWOOD SHALL BE CD GRADE APA FIR OR YELLOW PINE. ALL PLY-WOOD TO BE FIRE RATED WHERE WALLS ARE INDICATED AS RATED CONSTRUCTION.
5. BLOCKING SHALL BE CLOSELY FITTED, ACCURATELY SET TO REQUIRED LINES & LEVELS, SECURELY CONNECTED & RIGIDLY FIXED IN PLACE, USING NAILS, SCREWS, &/OR BOLTS AS INDICATED OR REQUIRED BY GOOD PRACTICE AND MANUFACTURER'S RECOMMENDATIONS.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07 2100 - THERMAL INSULATION
A. SUBMITTALS: PRODUCT DATA FOR EACH TYPE OF INSULATION SPECIFIED.

B. SURFACE BURNING CHARACTERISTICS:
1. FLAME SPREAD INDEX: 25 OR LESS
2. SMOKE DEVELOPED INDEX: 50 OR LESS IN EXPOSED AREAS AND PLENUMS; 450 OR LESS WHERE CONCEALED.

C. INSULATION PRODUCTS:
1. MINERAL FIBER OR GLASS FIBER BLANKET INSULATION: TYPE I, UNFACED WHERE SPECIFIED WITH SEPARATE VAPOR BARRIER.FIBERS MANUFACTURED FROM GLASS, SLAG WOOL, OR ROCK WOOL. FLEXIBLE PREFORMED BATT OR BLANKET, COMPLYING WITH ASTM C665; FRICTION FIT.SEE DRAWINGS FOR SPECIFIC TYPES.
   A. FLAME SPREAD INDEX: 25 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.
   B. SMOKE DEVELOPED INDEX: 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.
   C. COMBUSTIBILITY: NON-COMBUSTIBLE, WHEN TESTED IN ACCORDANCE WITH ASTM E136, EXCEPT FOR FACING, IF ANY.
2. BOARD INSULATION: BOARD INSULATION AT CAVITY WALL CONSTRUCTION, EXTERIOR WALL BEHIND [RATED AND ACOUSTIC CONDITIONS] WALL FINISH, AND INTERIOR WALL WITH FACER PROVIDING EXPOSED FINISH.
   A. EXPANDED POLYSTYRENE (EPS) BOARD INSULATION: COMPLIES WITH ASTM C578.
      1. FLAME SPREAD INDEX (FSI): CLASS A - 0 TO 25, WHEN TESTED IN ACCORDANCE WITH ASTM E84.
      2. SMOKE DEVELOPED INDEX (SDI): 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.
      3. BOARD SIZE: 48 INCH BY 96 INCH.
      4. BOARD THICKNESS: 1-1/2 INCH.
      5. TYPE AND COMPRESSIVE RESISTANCE: TYPE XI, 5 PSI (35 KPA), MINIMUM.
      6. TYPE AND WATER ABSORPTION: TYPE XI, 4.0 PERCENT BY VOLUME, MAXIMUM, BY TOTAL IMMERSION.

D. ACCESSORIES:
1. VAPOR RETARDER: 6 MIL POLYETHYLENE AT CONCEALED AREAS (FLAME SPREAD/SMOKE DEVELOPED: 25/450), FOIL/SCRIM AT PLENUMS AND EXPOSED AREAS (FLAME SPREAD/SMOKE DEVELOPED: 25/50). PROVIDE WHERE INDICATED IN DRAWINGS.
2. TAPE: REINFORCED POLYETHYLENE FILM WITH ACRYLIC PRESSURE SENSITIVE ADHESIVE. APPLICATION: SEALING OF INTERIOR CIRCULAR PENETRATIONS, SUCH AS PIPES OR CABLES.

E. INSTALLATION:
1. DO NOT INSTALL INSULATION ADHESIVES WHEN TEMPERATURE OR WEATHER CONDITIONS ARE DETRIMENTAL TO SUCCESSFUL INSTALLATION.
2. INSTALL INSULATION IN AREAS AND IN THICKNESSES INDICATED OR REQUIRED TO PRODUCE R-VALUES WHERE INDICATED. CUT AND FIT TIGHTLY AROUND OBSTRUCTIONS AND FILL VOIDS WITH INSULATION.
3. INSTALL IN EXTERIOR WALL AND CEILING SPACES WITHOUT GAPS OR VOIDS. DO NOT COMPRESS INSULATION.
4. TRIM INSULATION NEATLY TO FIT SPACES. INSULATE MISCELLANEOUS GAPS AND VOIDS.
5. EXTEND VAPOR RETARDER TO EXTREMITIES OF AREAS TO BE PROTECTED FROM VAPOR TRANSMISSION. SECURE IN PLACE WITH ADHESIVES OR OTHER ANCHORAGE AS RECOMMENDED BY MANUFACTURER. LOCATE SEAMS AT FRAMING MEMBERS, OVERLAP AND SEAL WITH SUITABLE TAPE (DUCT TAPE IS NOT SUITABLE).
6. DO NOT PERMIT INSTALLED INSULATION TO BE DAMAGED PRIOR TO ITS CONCEALMENT.

07 2500 - WEATHER BARRIERS
A. SUBMITTALS: PRODUCT DATA: PROVIDE DATA ON MATERIAL CHARACTERISTICS. SHOP DRAWINGS: PROVIDE DRAWINGS OF SPECIAL JOINT CONDITIONS.

B. MOCK-UP: INSTALL AIR BARRIER, VAPOR RETARDER, AND WATER-RESISTIVE BARRIER MATERIALS IN MOCK-UP.

C. PRODUCTS: AIR BARRIER, FLUID APPLIED: VAPOR PERMEABLE, ELASTOMERIC WATERPROOFING.

D. BASIS OF DESIGN: BASF CORPORATION; MASTERSEAL AWB 665:

E. ACCESSORIES:
1. SEALANTS, TAPES, AND ACCESSORIES FOR SEALING WEATHER BARRIER AND SEALING WEATHER BARRIER TO ADJACENT SUBSTRATES: AS SPECIFIED OR AS RECOMMENDED BY WEATHER BARRIER MANUFACTURER.
2. FLEXIBLE FLASHING: SHEATHING FABRIC SATURATED WITH AIR BARRIER COATING AND COMPLYING WITH THE APPLICABLE REQUIREMENTS OF ICC-ES AC148.
3. LIQUID FLASHING: ONE PART, FAST CURING, NON-SAG, ELASTOMERIC, GUN GRADE, TROWELABLE LIQUID FLASHING.

F. PREPARATION:
1. VERIFY THAT SURFACES AND CONDITIONS ARE READY TO ACCEPT THE WORK OF THIS SECTION.
2. REMOVE PROJECTIONS, PROTRUDING FASTENERS, AND LOOSE OR FOREIGN MATTER THAT MIGHT INTERFERE WITH PROPER INSTALLATION.
3. CLEAN AND PRIME SUBSTRATE SURFACES TO RECEIVE ADHESIVES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

G. INSTALLATION:
1. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. AIR BARRIERS: INSTALL CONTINUOUS AIR TIGHT BARRIER OVER SURFACES INDICATED, WITH SEALED SEAMS AND WITH SEALED JOINTS TO ADJACENT SURFACES.
3. PREPARE SUBSTRATE IN MANNER RECOMMENDED BY COATING MANUFACTURER; TREAT JOINTS IN SUBSTRATE AND BETWEEN DISSIMILAR MATERIALS AS RECOMMENDED BY MANUFACTURER.
4. MASTIC COATING: INSTALL BY TROWEL OR ROLLER TO MINIMUM THICKNESS OF 1/4 INCH; USE SHEET SEAL TO JOIN TO ADJACENT CONSTRUCTION, SEAL AIR TIGHT WITH SEALANT.
5. USE FLASHING TO SEAL TO ADJACENT CONSTRUCTION AND TO BRIDGE JOINTS.
6. INSTALL FLASHING OVER SILLS, COVERING ENTIRE SILL FRAME MEMBER, EXTENDING AT LEAST 5 INCHES ONTO WEATHER BARRIER AND AT LEAST 6 INCHES UP JAMBS; MECHANICALLY FASTEN STRETCHED EDGES.
7. AT OPENINGS TO BE FILLED WITH FRAMES HAVING NAILING FLANGES, SEAL HEAD AND JAMB FLANGES USING A CONTINUOUS BEAD OF SEALANT COMPRESSED BY FLANGE AND COVER FLANGES WITH SEALING TAPE AT LEAST 4 INCHES WIDE; DO NOT SEAL SILL FLANGE.
8. AT OPENINGS TO BE FILLED WITH NON-FLANGED FRAMES, SEAL WEATHER BARRIER TO EACH SIDE OF OPENING FRAMING, USING FLASHING AT LEAST 9 INCHES WIDE, COVERING ENTIRE DEPTH OF FRAMING.
9. AT HEAD OF OPENINGS, INSTALL FLASHING UNDER WEATHER BARRIER EXTENDING AT LEAST 2 INCHES BEYOND FACE OF JAMBS; SEAL WEATHER BARRIER TO FLASHING.
10. AT INTERIOR FACE OF OPENINGS, SEAL GAP BETWEEN WINDOW/DOOR FRAME AND ROUGH FRAMING, USING JOINT SEALANT OVER BACKER ROD.

07 4113 - ROOFING MATERIALS & ACCESSORIES
A. SUBMITTALS: PRODUCT DATA, AND SAMPLES OF EACH PRODUCT AND COLOR OPTIONS.

B. WARRANTY: SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF METAL PANEL SYSTEMS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.
1. WARRANTY PERIOD: TWO YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

SPECIAL WARRANTY ON PANEL FINISHES: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR FINISH OR REPLACE METAL PANELS THAT SHOW EVIDENCE OF DETERIORATION OF FACTORY-APPLIED FINISHES WITHIN SPECIFIED WARRANTY PERIOD.
1. FINISH WARRANTY PERIOD: 20 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

SPECIAL WEATHERTIGHTNESS WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE STANDING-SEAM METAL ROOF PANEL ASSEMBLIES THAT FAIL TO REMAIN WEATHERTIGHT, INCLUDING LEAKS, WITHIN SPECIFIED WARRANTY PERIOD.
1. WARRANTY PERIOD: 20 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

C. BASIS OF DESIGN: VERTICAL-RIB, SNAP-JOINT, STANDING-SEAM METAL ROOF PANELS:SUBJECT TO COMPLIANCE WITH REQUIREMENTS PROVIDE HIGH SEAM TEE-PANEL ROOFING, WITH 18-1/4 INCH COVERAGE AND 1" HIGH RIBS AS MANUFACTURED BY BERRIDGE MANUFACTURING COMPANY OR APPROVED EQUAL.
1. METALLIC-COATED STEEL SHEET: ZINC-COATED (GALVANIZED) STEEL SHEET COMPLYING WITH ASTM A 653/A 653M, G90 (Z275) COATING DESIGNATION, OR ALUMINUM-ZINC ALLOY-COATED STEEL SHEET COMPLYING WITH ASTM A 792/A 792M, CLASS AZ50 (CLASS AZM150) COATING DESIGNATION; STRUCTURAL QUALITY. PREPAINTED BY THE COIL-COATING PROCESS TO COMPLY WITH ASTM A 755/A 755M.
A. NOMINAL THICKNESS: 0.034 INCH 26 GA. (3)
B. EXTERIOR FINISH: TWO-COAT FLUOROPOLYMER.
C. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.
D. PANEL COVERAGE: NOMINAL 18 INCHES.
E. PANEL HEIGHT: 1.0 INCH.

D. MATERIALS:
1. SELF-ADHERING, HIGH-TEMPERATURE UNDERLAYMENT: PROVIDE SELF-ADHERING, COLD-APPLIED, SHEET UNDERLAYMENT, A MINIMUM OF 30 MILS THICK, CONSISTING OF SLIP-RESISTANT, POLYETHYLENE-FILM TOP SURFACE LAMINATED TO A LAYER OF BUTYL OR SBS-MODIFIED ASPHALT ADHESIVE, WITH RELEASE-PAPER BACKING. PROVIDE PRIMER WHEN RECOMMENDED BY UNDERLAYMENT MANUFACTURER.
2. FELT UNDERLAYMENT: ASTM D 226/D 22M, TYPE II (NO. 30), ASPHALT-SATURATED ORGANIC FELTS.
3. SLIP SHEET: MANUFACTURER'S RECOMMENDED SLIP SHEET, OF TYPE REQUIRED FOR APPLICATION.
4. MISCELLANEOUS METAL SUBFRAMING AND FURRING: ASTM C 645; COLD-FORMED, METALLIC-COATED STEEL SHEET, ASTM A 653/A 653M, G90 (Z275 HOT-DIP GALVANIZED) COATING DESIGNATION OR ASTM A 792/A 792M, CLASS AZ50 (CLASS AZM150) COATING DESIGNATION UNLESS OTHERWISE INDICATED. PROVIDE MANUFACTURER'S STANDARD SECTIONS AS REQUIRED FOR SUPPORT AND ALIGNMENT OF METAL PANEL SYSTEM.

E. ACCESSORIES:
1. PANEL ACCESSORIES: PROVIDE COMPONENTS REQUIRED FOR A COMPLETE, WEATHERTIGHT PANEL SYSTEM INCLUDING TRIM, COPINGS, FASCIAE, MULLIONS, SILLS, CORNER UNITS, CLIPS, FLASHINGS, SEALANTS, GASKETS, FILLERS, CLOSURE STRIPS, AND SIMILAR ITEMS. MATCH MATERIAL AND FINISH OF METAL PANELS UNLESS OTHERWISE INDICATED.
   A. CLOSURES: PROVIDE CLOSURES AT EAVES AND RIDGES, FABRICATED OF SAME METAL AS METAL PANELS.
   B. BACKING PLATES: PROVIDE METAL BACKING PLATES AT PANEL END SPLICES, FABRICATED FROM MATERIAL RECOMMENDED BY MANUFACTURER.
   C. FLASHING AND TRIM: PROVIDE FLASHING AND TRIM FORMED FROM SAME MATERIAL AS METAL PANELS AS REQUIRED TO SEAL AGAINST WEATHER AND TO PROVIDE FINISHED APPEARANCE. LOCATIONS INCLUDE, BUT ARE NOT LIMITED TO, EAVES, RAKES, CORNERS, BASES, FRAMED OPENINGS, RIDGES, FASCIAE, AND FILLERS. FINISH FLASHING AND TRIM WITH SAME FINISH SYSTEM AS ADJACENT METAL PANELS.
   D. PANEL FASTENERS: SELF-TAPPING SCREWS DESIGNED TO WITHSTAND DESIGN LOADS.
   E. PANEL SEALANTS: PROVIDE SEALANT TYPE RECOMMENDED BY MANUFACTURER THAT ARE COMPATIBLE WITH PANEL MATERIALS, ARE NONSTAINING, AND DO NOT DAMAGE PANEL FINISH.
   1. SEALANT TAPE: PRESSURE-SENSITIVE, 100 PERCENT SOLIDS, GRAY POLYISOBUTYLENE COMPOUND SEALANT TAPE WITH RELEASE-PAPER BACKING; 1/2 INCH WIDE AND 1/8 INCH THICK.
   2. JOINT SEALANT: ASTM C 920; AS RECOMMENDED IN WRITING BY METAL PANEL MANUFACTURER.
   3. BUTYL-RUBBER-BASED, SOLVENT-RELEASE SEALANT: ASTM C 1311.
F. INSTALLATION:
1.INSTALL ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

07 1300 - SHEET WATERPROOFING
A. SUBMITTALS:
1. PRODUCT DATA: PROVIDE DATA FOR MEMBRANE.
2.PROVIDE SHOP DRAWINGS: INDICATE SPECIAL JOINT OR TERMINATION CONDITIONS AND CONDITIONS OF INTERFACE WITH OTHER MATERIALS.
3. CERTIFICATE: CERTIFY THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

B. SURFACE BURNING CHARACTERISTICS:
1. FLAME SPREAD INDEX: 25 OR LESS
2. SMOKE DEVELOPED INDEX: 50 OR LESS IN EXPOSED AREAS AND PLENUMS; 450 OR LESS WHERE CONCEALED.

C. FIELD CONDITIONS:
1. MAINTAIN AMBIENT TEMPERATURES ABOVE 40 DEGREES F FOR 24 HOURS BEFORE AND DURING APPLICATION AND UNTIL LIQUID OR MASTIC ACCESSORIES HAVE CURED.

D. WARRANTY:
1. CONTRACTOR SHALL CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION; REMOVE AND REPLACE MATERIALS CONCEALING WATERPROOFING AT NO EXTRA COST TO OWNER.

E. BASIS OF DESIGN:
1. W.R. MEADOWS, INC; MEL-ROL: WWW.WRMEADOWS.COM

F. MATERIALS:
1. SELF-ADHERED MODIFIED BITUMINOUS SHEET MEMBRANE: LOCATION: LOCATIONS AS IDENTIFIED IN DRAWINGS.
2. ROLLED,SELF-ADHERED MODIFIED BITUMINOUS SHEET MEMBRANE: THICKNESS: 60 MIL, 0.060 INCH, MINIMUM. THICKNESS: 60 MIL, 0.060 INCH, MINIMUM. CARRIER FILM: 4 MILS, POLYMERIC MEMBRANE:56 MILS, SHEET WIDTH: 36 INCH, MINIMUM.
3. SEAMING MATERIALS: AS RECOMMENDED BY MEMBRANE MANUFACTURER.
4. MEMBRANE SEALANT: AS RECOMMENDED BY MEMBRANE MANUFACTURER.
5. TERMINATION BARS: ALUMINUM; COMPATIBLE WITH MEMBRANE AND ADHESIVES.
6. SURFACE CONDITIONER: COMPATIBLE WITH MEMBRANE.
7. ADHESIVES: AS RECOMMENDED BY MEMBRANE MANUFACTURER.
8. THINNER AND CLEANER: AS RECOMMENDED BY ADHESIVE MANUFACTURER, COMPATIBLE WITH SHEET MEMBRANE.

G. ACCESSORIES:
1. SEALANT FOR CRACKS AND JOINTS IN SUBSTRATES: RESILIENT ELASTOMERIC JOINT SEALANT COMPATIBLE WITH SUBSTRATES AND WATERPROOFING MATERIALS.
2. PROTECTION BOARD: PROVIDE TYPE CAPABLE OF PREVENTING DAMAGE TO WATERPROOFING DUE TO BACKFILLING AND CONSTRUCTION TRAFFIC.

H. INSTALLATION:
1. DO NOT INSTALL INSULATION ADHESIVES WHEN TEMPERATURE OR WEATHER CONDITIONS ARE DETRIMENTAL TO SUCCESSFUL INSTALLATION. DO NOT APPLY WATERPROOFING TO SURFACES UNACCEPTABLE TO MEMBRANE MANUFACTURER.
2. CLEAN AND PREPARE SURFACES TO RECEIVE WATERPROOFING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; VACUUM SUBSTRATE CLEAN.
3. FILL NON-MOVING JOINTS AND CRACKS WITH A FILLER COMPATIBLE WITH WATERPROOFING MATERIALS.SEAL MOVING CRACKS WITH SEALANT AND NON-RIGID FILLER, USING PROCEDURES RECOMMENDED BY SEALANT AND WATERPROOFING MANUFACTURERS.
4. INSTALL MEMBRANE WATERPROOFING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NRCA (WM) APPLICABLE REQUIREMENTS.
5. SELF-ADHERING MEMBRANE: REMOVE RELEASE PAPER LAYER, AND ROLL OUT ONTO SUBSTRATE WITH A MECHANICAL ROLLER TO PROVIDE FULL CONTACT BOND.
6. OVERLAP EDGES AND ENDS, MINIMUM 3 INCHES, SEAL PERMANENTLY WATERPROOF BY METHOD RECOMMENDED BY MANUFACTURER, AND APPLY UNIFORM BEAD OF SEALANT TO JOINT EDGE.
7. REINFORCE MEMBRANE WITH MULTIPLE THICKNESS OF MEMBRANE MATERIAL OVER JOINTS, WHETHER JOINTS ARE STATIC OR DYNAMIC.
8. WEATHER LAP JOINTS ON SLOPED SUBSTRATE IN DIRECTION OF DRAINAGE, AND SEAL JOINTS AND SEAMS.
9. FLEXIBLE FLASHINGS: SEAL ITEMS WATERTIGHT THAT PENETRATE THROUGH WATERPROOFING MEMBRANE WITH FLEXIBLE FLASHINGS.
10. SEAL MEMBRANE AND FLASHINGS TO ADJOINING SURFACES. INSTALL TERMINATION BAR ALONG EDGES. INSTALL COUNTERFLASHING OVER EXPOSED EDGES.
11. INSTALLATION OF DRAINAGE PANEL AND PROTECTION BOARD. INSTALLER TO FOLLOW MANUFACTURERS INSTALLATION PROCEDURES.
12. UPON COMPLETION OF HORIZONTAL MEMBRANE INSTALLATION, DAM INSTALLATION AREA IN PREPARATION FOR FLOOD TESTING. FLOOD TO MINIMUM DEPTH OF 1 INCH WITH CLEAN WATER, AND AFTER 48 HOURS INSPECT FOR LEAKS. IF LEAKING IS FOUND, REMOVE WATER, REPAIR LEAKING AREAS WITH NEW WATERPROOFING MATERIALS AS DIRECTED BY ARCHITECT; REPEAT FLOOD TEST, AND REPAIR DAMAGE TO BUILDING. WHEN AREA IS PROVEN WATERTIGHT, DRAIN WATER AND REMOVE DAM.

07 1400 - FLUID-APPLIED WATERPROOFING
A. SUBMITTALS:
1. PRODUCT DATA: PROVIDE DATA FOR MEMBRANE, SURFACE CONDITIONER, FLEXIBLE FLASHINGS, JOINT COVER SHEET, AND JOINT AND CRACK SEALANTS.
2. WARRANTY:
SUBMIT MANUFACTURER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

B. REFERENCE STANDARDS:
1. ASTM E154/E154M - STANDARD TEST METHODS FOR WATER VAPOR RETARDERS USED IN CONTACT WITH EARTH UNDER CONCRETE SLABS, ON WALLS, OR AS GROUND COVER 2008A, WITH EDITORIAL REVISION (2013).
2. NRCA (WM) - THE NRCA WATERPROOFING MANUAL 2021.

C. QUALITY ASSURANCE:
1. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS DOCUMENTED EXPERIENCE.
2. INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED AND WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

D. MOCK-UP:
1. CONSTRUCT MOCK-UP CONSISTING OF 100 SQ FT OF HORIZONTAL WATERPROOFED PANEL; TO REPRESENT FINISHED WORK INCLUDING INTERNAL AND EXTERNAL CORNERS, DRAINAGE PANEL, BASE FLASHINGS, CONTROL JOINTS, EXPANSION JOINTS, COUNTERFLASHINGS

E. FIELD CONDITIONS:
1. MAINTAIN AMBIENT TEMPERATURES ABOVE 40 DEGREES F FOR 24 HOURS BEFORE AND DURING APPLICATION AND UNTIL CURED.

F. PRODUCTS:
1. COLD-APPLIED RUBBERIZED ASPHALT WATERPROOFING:
   A. AVM INDUSTRIES, INC; AVM SYSTEM 500 (AUSSIE MEMBRANE): WWW.AVMINDUSTRIES.COM/#SLE.
   B. EPRO WATERPROOFING SYSTEMS; ECOLINE-S: WWW.EPROSERV.COM/#SLE.

   COLD-APPLIED RUBBERIZED ASPHALT WATERPROOFING: RUBBERIZED ASPHALTIC COMPOUND, SUITABLE FOR INSTALLATION ON CONCRETE AND CONCRETE MASONRY.
   1. COMPLYING WITH ICC-ES AC29; EVIDENCE OF COMPLIANCE INCLUDES CURRENT ICC-ES EVALUATION REPORT CITING ICC-ES AC29.
   2. HYDROSTATIC PRESSURE RESISTANCE: WHEN TESTED IN ACCORDANCE WITH ASTM C1306/C1306M, AT LEAST 50 POUNDS PER SQUARE INCH BY THE RAPID TEST AND AT LEAST 35 POUNDS PER SQUARE INCH BY THE LONG TERM TEST.
   3. LOW TEMPERATURE RESISTANCE: NO CRACKING, LOSS OF ADHESION, SPLITTING OR PINHOLES WHEN TESTED AT MINUS 15 DEGREES F IN ACCORDANCE WITH ASTM C836/C836M.
   4. ADHESION: NO SEPARATION WHEN TESTED IN ACCORDANCE WITH ASTM C836/C836M.
   5. DECAY RESISTANCE: NO DECAY WHEN TESTED IN ACCORDANCE WITH ASTM E154/E154M.
   6. WET FILM SAG RESISTANCE: NO SAG OR SAG WITHIN PLUS/MINUS 5 MILS WHEN TESTED IN ACCORDANCE WITH ASTM C836/C836M.

2. WATER-BASED ASPHALT EMULSION WATERPROOFING:
   A. MAR-FLEX WATERPROOFING & BUILDING PRODUCTS; ARMORMEMBRANE 363 WATER-BASED: WWW.MAR-FLEX.COM/#SLE.
   B. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; TREMPROOF 260: WWW.TREMCOSEALANTS.COM/#SLE.
   C. W.R. MEADOWS, INC; MEL-ROL LM: WWW.WRMEADOWS.COM/#SLE
      1. CURED THICKNESS: 60 MILS, 0.060 INCH, MINIMUM.
      2. SUITABLE FOR INSTALLATION OVER CONCRETE SUBSTRATES.
      3. ELONGATION: 1000 PERCENT, MEASURED IN ACCORDANCE WITH ASTM D412.
      4. PEEL ADHESION: ACCORDING TO ASTM D412, FOR THE FOLLOWING SUBSTRATES.
      5. ADHESION: GREATER THAN 150 PSI, MEASURED IN ACCORDANCE WITH ASTM D4541.

G. ACCESSORIES:
1. SEALANT FOR JOINTS AND CRACKS IN SUBSTRATE: TYPE COMPATIBLE WITH WATERPROOFING MATERIAL AND AS RECOMMENDED BY WATERPROOFING MANUFACTURER.

H. EXAMINATION:
1. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.
2. VERIFY SUBSTRATE SURFACES ARE FREE OF FROZEN MATTER, DAMPNESS, LOOSE PARTICLES, CRACKS, PITS, PROJECTIONS, PENETRATIONS, OR FOREIGN MATTER DETRIMENTAL TO ADHESION OR APPLICATION OF WATERPROOFING SYSTEM.
3. VERIFY THAT SUBSTRATE SURFACES ARE SMOOTH, FREE OF HONEYCOMB OR PITTING, AND NOT DETRIMENTAL TO FULL CONTACT BOND OF WATERPROOFING MATERIALS.
4. VERIFY ITEMS THAT PENETRATE SURFACES TO RECEIVE WATERPROOFING ARE SECURELY INSTALLED.

I. PREPARATION:
1. PROTECT ADJACENT SURFACES FROM DAMAGE NOT DESIGNATED TO RECEIVE WATERPROOFING.
2. CLEAN AND PREPARE SURFACES TO RECEIVE WATERPROOFING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; VACUUM SUBSTRATE CLEAN.
3. DO NOT APPLY WATERPROOFING TO SURFACES UNACCEPTABLE TO WATERPROOFING MANUFACTURER.
4. FILL NON-MOVING JOINTS AND CRACKS WITH A FILLER COMPATIBLE WITH WATERPROOFING MATERIALS.
5. SEAL MOVING CRACKS WITH SEALANT AND NON-RIGID FILLER, USING PROCEDURES RECOMMENDED BY SEALANT AND WATERPROOFING MANUFACTURERS.
6. PREPARE BUILDING EXPANSION JOINTS AT LOCATIONS AS INDICATED ON DRAWINGS.
7. INSTALL CANT STRIPS AT INSIDE CORNERS.

J. INSTALLATION:
1. INSTALL WATERPROOFING TO SPECIFIED MINIMUM THICKNESS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND NRCA (WM) APPLICABLE REQUIREMENTS.
2. APPLY PRIMER OR SURFACE CONDITIONER AT A RATE RECOMMENDED BY MANUFACTURER, AND PROTECT CONDITIONER FROM RAIN OR FROST UNTIL DRY.
3. AT JOINTS AND CRACKS LESS THAN 1/2 INCH IN WIDTH INCLUDING JOINTS BETWEEN HORIZONTAL AND VERTICAL SURFACES, APPLY 12 INCH WIDE STRIP OF JOINT COVER SHEET.
4. APPLY EXTRA THICKNESS OF WATERPROOFING MATERIAL AT CORNERS, INTERSECTIONS, AND ANGLES.
5. SEAL MEMBRANE AND FLASHINGS TO ADJOINING SURFACES.

07 6200 - SHEET METAL FLASHING AND TRIM

A. STANDARDS
FABRICATED SHEET METAL ITEMS, INCLUDING FLASHINGS, COUNTERFLASHINGS, AND OTHER ITEMS INDICATED IN SCHEDULE.

- AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM 2014 (2015 ERRATA).
- ASTM C920 - STANDARD SPECIFICATION FOR ELASTOMERIC JOINT SEALANTS 2018.
- CDA A4050 - COPPER IN ARCHITECTURE - HANDBOOK CURRENT EDITION.
- SMACNA (ASMM) - ARCHITECTURAL SHEET METAL MANUAL 2012.

B. SUBMITTALS
1. SHOP DRAWINGS: INDICATE MATERIAL PROFILE, JOINTING PATTERN, JOINTING DETAILS, FASTENING METHODS, FLASHINGS, TERMINATIONS, AND INSTALLATION DETAILS.

C. QUALITY ASSURANCE
1. PERFORM WORK IN ACCORDANCE WITH SMACNA (ASMM) AND CDA A4050 REQUIREMENTS AND STANDARD DETAILS, EXCEPT AS OTHERWISE INDICATED.

D. DELIVERY, STORAGE, AND HANDLING
1. STACK MATERIAL TO PREVENT TWISTING, BENDING, AND ABRASION, AND TO PROVIDE VENTILATION. SLOPE METAL SHEETS TO ENSURE DRAINAGE.
2. PREVENT CONTACT WITH MATERIALS THAT COULD CAUSE DISCOLORATION OR STAINING.

E. PRODUCTS
PRE-FINISHED ALUMINUM: ASTM B209 (ASTM B209M); 20 GAGE, (0.032 INCH) THICK; PLAIN FINISH SHOP PRE-COATED WITH MODIFIED SILICONE COATING.
1. FLUOROPOLYMER COATING: HIGH PERFORMANCE ORGANIC FINISH, AAMA 2604; MULTIPLE COAT, THERMALLY CURED FLUOROPOLYMER FINISH SYSTEM.
2. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS.

F. FABRICATION
1. FORM SECTIONS TRUE TO SHAPE, ACCURATE IN SIZE, SQUARE, AND FREE FROM DISTORTION OR DEFECTS.
2. FORM PIECES IN LONGEST POSSIBLE LENGTHS.
3. HEM EXPOSED EDGES ON UNDERSIDE 1/2 INCH; MITER AND SEAM CORNERS.
4. FORM MATERIAL WITH FLAT LOCK SEAMS, EXCEPT WHERE OTHERWISE INDICATED; AT MOVING JOINTS, USE SEALED LAPPED, BAYONET-TYPE OR INTERLOCKING HOOKED SEAMS.
5. FABRICATE FLASHINGS TO ALLOW TOE TO EXTEND 2 INCHES OVER ROOFING GRAVEL. RETURN AND BRAKE EDGES.

G. ACCESSORIES
1. FASTENERS: GALVANIZED STEEL, WITH SOFT NEOPRENE WASHERS.
2. PRIMER: ZINC CHROMATE TYPE.
3. CONCEALED SEALANTS: NON-CURING BUTYL SEALANT.
4. EXPOSED SEALANTS: ASTM C920; ELASTOMERIC SEALANT, WITH MINIMUM MOVEMENT CAPABILITY AS
5. RECOMMENDED BY MANUFACTURER FOR SUBSTRATES TO BE SEALED; COLOR TO MATCH ADJACENT MATERIAL.

H. INSTALLATION
1. SECURE FLASHINGS IN PLACE USING CONCEALED FASTENERS, AND USE EXPOSED FASTENERS ONLY WHERE PERMITTED.
2. APPLY PLASTIC CEMENT COMPOUND BETWEEN METAL FLASHINGS AND FELT FLASHINGS.
3. FIT FLASHINGS TIGHT IN PLACE; MAKE CORNERS SQUARE, SURFACES TRUE AND STRAIGHT IN PLANES, AND LINES ACCURATE TO PROFILES.
4. SEAL METAL JOINTS WATERTIGHT.

07 5423 - TPO MEMBRANE ROOFING & ACCESSORIES
A. SUBMITTALS: PRODUCT DATA, AND SHOP DRAWINGS: INDICATE JOINT OR TERMINATION DETAIL CONDITIONS, CONDITIONS OF INTERFACE WITH OTHER MATERIALS, AND PAVER OR WALKWAY PAD LAYOUT.
1. MANUFACTURER'S FIELD REPORTS: INDICATE PROCEDURES FOLLOWED, AMBIENT TEMPERATURES, HUMIDITY, WIND VELOCITY DURING APPLICATION, AND SUPPLEMENTARY INSTRUCTIONS GIVEN.SUBMIT FINAL MANUFACTURER'S PUNCH -LIST FIELD REPORT WHEN COMPLETE SYSTEM IS INSTALLED.
2. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE MEMBRANE SEAMING PRECAUTIONS AND PERIMETER CONDITIONS REQUIRING SPECIAL ATTENTION.

B. WARRANTY:
1. MATERIAL WARRANTY: PROVIDE MEMBRANE MANUFACTURER'S WARRANTY AGREEING TO REPLACE MATERIAL THAT SHOWS MANUFACTURING DEFECTS WITHIN 10 YEARS AFTER INSTALLATION.
2. SYSTEM WARRANTY: PROVIDE MANUFACTURER'S SYSTEM WARRANTY AGREEING TO REPAIR OR REPLACE ROOFING THAT LEAKS OR IS DAMAGED DUE TO WIND OR OTHER NATURAL CAUSES. WARRANTY TERM: 20 YEARS.
   A. FOR REPAIR AND REPLACEMENT INCLUDE COSTS OF BOTH MATERIAL AND LABOR IN WARRANTY.
   B. INCLUDE ACCIDENTAL PUNCTURES ACCORDING TO THE MANUFACTURER'S STANDARD WARRANTY TERMS.
   C. INCLUDE HAIL DAMAGE ACCORDING TO THE MANUFACTURER'S STANDARD WARRANTY TERMS.
   D. EXCEPTIONS NOT PERMITTED: DAMAGE DUE TO ROOF TRAFFIC. DAMAGE DUE TO WIND OF SPEED GREATER THAN 56 MPH BUT LESS THAN 90 MPH.

C. BASIS OF DESIGN: CARLISLE SYNTEC: WWW.CARLISLE-SYNTEC.COM, TPO MEMBRANE ROOFING: ONE PLY MEMBRANE, MECHANICALLY ATTACHED, OVER INSULATION.
1. WIND UPLIFT: DESIGNED TO WITHSTAND WIND UPLIFT FORCES CALCULATED WITH ASCE 7.
2. INSULATION THERMAL RESISTANCE (R-VALUE): 3 PER INCH, MINIMUM; PROVIDE INSULATION OF THICKNESS REQUIRED. MINIMUM R-30

D. ROOFING MEMBRANE MATERIALS:
1. MATERIAL: THERMOPLASTIC POLYOLEFIN (TPO) COMPLYING WITH ASTM D6878/D6878M.
   A. REINFORCING: INTERNAL FABRIC.
   (3) B. THICKNESS: 60 MILS (0.060 INCH), MINIMUM.
   C. SHEET WIDTH: FACTORY FABRICATED INTO LARGEST SHEETS POSSIBLE.COLOR: WHITE.
   D. PRODUCT: CARLISLE SURE-WELD.
2. SEAMING MATERIALS: AS RECOMMENDED BY MEMBRANE MANUFACTURER.
3. VAPOR RETARDER: MATERIAL APPROVED BY ROOF MANUFACTURER COMPLYING WITH REQUIREMENTS OF FIRE RATING CLASSIFICATION; COMPATIBLE WITH ROOFING AND INSULATION MATERIALS. INSTALL WITH FIRE-RETARDANT ADHESIVE.
4. FLEXIBLE FLASHING MATERIAL: SAME MATERIAL AS MEMBRANE.
5. BASE FLASHING: PROVIDE WATERPROOF, FULLY ADHERED BASE FLASHING SYSTEM AT ALL PENETRATIONS, PLANE TRANSITIONS, AND TERMINATIONS.

E. DECK SHEATHING AND COVER BOARDS:
1. DECK SHEATHING: GYPSUM SHEATHING, ASTM C1396/C1396M, TYPE X SPECIAL FIRE RESISTANT TYPE, PAPER FACE, 1/2 INCH THICK. PRODUCT: SECUROCK, DISTRIBUTED BY CARLISLE.
2. COVERBOARD: CEMENT ROOF BOARD, COMPLYING WITH ASTM C1325.

F. INSULATION:
1. INSULATION COMPLYING WITH MANUFACTURERES RECOMMENDATIONS.
2. CELLULOSE FIBER BOARD INSULATION: ASTM C208, TYPE II; NATURAL FINISH.
3. EXPANDED POLYSTYRENE (EPS) BOARD INSULATION: COMPLIES WITH ASTM C578 WITH DRAINAGE CHANNELS ON ONE FACE.
4. TAPERED BOARD: SLOPE AS INDICATED; MINIMUM THICKNESS 1/2 INCH; FABRICATE OF FEWEST LAYERS POSSIBLE.
   A. PRODUCT: CARLISLE INSULFOAM.
5. EXTRUDED POLYSTYRENE (XPS) BOARD INSULATION: COMPLIES WITH ASTM C578 WITH NATURAL SKIN SURFACE, DRAINAGE CHANNELS ON ONE FACE.

G. ACCESSORIES:
1. PROVIDE AND INSTALL ONLY ACCESSORIES WHICH COMPLY WITH MANUFACTURERS RECOMMENDATIONS.

H. INSTALLATION:
1. VERIFY THAT SURFACES AND SITE CONDITIONS ARE READY TO RECEIVE WORK.
2. VERIFY DECK IS SUPPORTED AND SECURE.
INCHES WIDE WITH SELF-SEALING STRIP FACE UP AT ROOF EDGE. INSTALL STARTER STRIP ALONG RAKE EDGE.
3. VERIFY DECK IS CLEAN AND SMOOTH, FLAT, FREE OF DEPRESSIONS, WAVES, OR PROJECTIONS, PROPERLY SLOPED AND SUITABLE FOR INSTALLATION OF ROOF SYSTEM.
4. VERIFY DECK SURFACES ARE DRY AND FREE OF RAIN, SNOW OR ICE.
5. VERIFY THAT ROOF OPENINGS, CURBS, AND PENETRATIONS THROUGH ROOF ARE SOLIDLY SET, AND CANT STRIPS ARE IN PLACE.
6. CLEAN SUBSTRATE THOROUGHLY PRIOR TO ROOF APPLICATION.
7. DO NOT BEGIN WORK UNTIL OTHER WORK THAT REQUIRES FOOT OR EQUIPMENT TRAFFIC ON ROOF IS COMPLETE.
8. APPLY MANUFACTURER'S RECOMMENDED VAPOR RETARDER OR TEMPORARY ROOF BEFORE ROOF INSTALLATION.
9. PERFORM WORK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NRCA (RM) APPLICABLE REQUIREMENTS.
10. REMOVE WRAPPINGS, EMPTY CONTAINERS, PAPER, AND OTHER DEBRIS FROM THE ROOF DAILY. DISPOSE OF DEBRIS IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
11. REMOVE BITUMINOUS MARKINGS FROM FINISHED SURFACES.
12. IN AREAS WHERE FINISHED SURFACES ARE SOILED BY WORK OF THIS SECTION, CONSULT MANUFACTURER OF SURFACES FOR CLEANING ADVICE AND CONFORM TO THEIR DOCUMENTED INSTRUCTIONS.
13. REPAIR OR REPLACE DEFACED OR DAMAGED FINISHES CAUSED BY WORK OF THIS SECTION.

I. PROTECTION:
1. PROTECT INSTALLED ROOFING AND FLASHINGS FROM CONSTRUCTION OPERATIONS.
2. WHERE TRAFFIC MUST CONTINUE OVER FINISHED ROOF MEMBRANE, PROTECT SURFACES USING DURABLE MATERIALS.

07 8400 - FIRESTOPPING
A. SUBMITTALS: PRODUCT DATA: PROVIDE DATA ON PRODUCT CHARACTERISTICS, PERFORMANCE RATINGS, AND LIMITATIONS.

B. MANUFACTURERS:
1. 3M FIRE PROTECTION PRODUCTS: HTTPS://WWW.3M.COM/3M/EN_US/P/C/BUILDING-MATERIALS/FIRE-PROTECTION/
2. HILTI, INC : HTTPS://WWW.HILTI.COM/C/CLS_FIRESTOP_PROTECTION_7131

C. MATERIALS:
1. FIRESTOPPING MATERIALS: ANY MATERIALS MEETING REQUIREMENTS.
2. PRIMERS, SLEEVES, FORMS, INSULATION, PACKING, STUFFING, AND ACCESSORIES: PROVIDE TYPE OF MATERIALS AS REQUIRED FOR TESTED FIRESTOPPING ASSEMBLY.
3. FIRE RATINGS: REFER TO DRAWINGS FOR REQUIRED SYSTEMS AND RATINGS.

D. ASSEMBLY REQUIREMENTS:
1. HEAD-OF-WALL JOINT SYSTEM FIRESTOPPING AT JOINTS BETWEEN FIRE-RATED WALL ASSEMBLIES AND NON-RATED HORIZONTAL ASSEMBLIES: USE SYSTEM THAT HAS BEEN TESTED ACCORDING TO ASTM E2837 TO HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF FLOOR OR WALL, WHICHEVER IS GREATER.
2. FLOOR-TO-FLOOR, WALL-TO-WALL, AND WALL-TO-FLOOR JOINTS, EXCEPT PERIMETER, WHERE BOTH ARE FIRE-RATED: USE SYSTEM THAT HAS BEEN TESTED ACCORDING TO ASTM E1966 OR UL 2079 TO HAVE FIRE RESISTANCE " F" RATING EQUAL TO REQUIRED FIRE RATING OF THE ASSEMBLY IN WHICH THE JOINT OCCURS.
3.THROUGH PENETRATION FIRESTOPPING: USE SYSTEM THAT HAS BEEN TESTED ACCORDING TO ASTM E814 TO HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF PENETRATED ASSEMBLY.

E. INSTALLATION:
1. INSTALLATIONS SHALL CONFORM TO UL REQUIREMENTS OF THE ASSEMBLY WHICH FIRESTOPPING IS TO BECOME PART OF THE BUILT ASSEMBLY.

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PERMIT SET

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REVISION DATES:

3	CITY COMMENTS AND OWNER REV.	03/22/2024

STATE OF MISSOURI ROGER L. WEBB II NUMBER A-2016004098 ARCHITECT
03/22/2024
PROFESSIONAL SEAL

G500

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

GENERAL PROJECT SPECIFICATIONS

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SPECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS

07 9200 - JOINT SEALANTS

A. SUBMITTALS: PRODUCT DATA, AND SCHEDULE OF LOCATIONS FOR EACH TYPE OF SEALANT SUBMITTED.

B. JOINT-SEALANT SCHEDULE: INCLUDE THE FOLLOWING INFORMATION:
1. JOINT-SEALANT APPLICATION, JOINT LOCATION, AND DESIGNATION.
2. JOINT-SEALANT MANUFACTURER AND PRODUCT NAME.
3. JOINT-SEALANT FORMULATION.
4. JOINT-SEALANT COLOR.

C. ENVIRONMENTAL LIMITATIONS: DO NOT PROCEED WITH INSTALLATION OF JOINT SEALANTS WHEN AMBIENT AND SUBSTRATE TEMPERATURE CONDITIONS ARE OUTSIDE LIMITS PERMITTED BY JOINT SEALANT MANUFACTURER OR ARE BELOW 40 deg F (4.4 deg C).

D. COMPATIBILITY: PROVIDE JOINT SEALANTS, JOINT FILLERS, AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER SERVICE AND APPLICATION CONDITIONS.

E. JOINT SEALANTS:
1. COLORS OF EXPOSED JOINT SEALANTS: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.
2. INTERIOR JOINTS IN CERAMIC TILE AND OTHER HARD SURFACES IN KITCHENS, TOILET ROOMS, AND AROUND PLUMBING FIXTURES: SINGLE COMPONENT, MILDEW-RESISTANT SILICONE SEALANT, ASTM C 920, TYPE S; GRADE NS, CLASS 25; USES NT, G, A, AND O; FORMULATED WITH FUNGICIDE.
3. INTERIOR JOINTS AROUND PERIMETERS OF DOORS AND FRAMES: LATEX SEALANT, SINGLE COMPONENT, NONSAG, MILDEW-RESISTANT, PAINTABLE, ACRYLIC EMULSION SEALANT COMPLYING WITH ASTM C 834.
4. ACOUSTICAL SEALANT FOR EXPOSED INTERIOR JOINTS: NONSAG, PAINTABLE, NONSTAINING, LATEX SEALANT COMPLYING WITH ASTM C 834.
5. ACOUSTICAL SEALANT FOR CONCEALED JOINTS: NONDRYING, NONHARDENING, NONSKINNING, NONSTAINING, GUNNABLE, SYNTHETIC-RUBBER SEALANT RECOMMENDED FOR SEALING INTERIOR CONCEALED JOINTS TO REDUCE TRANSMISSION OF AIRBORNE SOUND.
6. EXTERIOR CONCRETE PANELS, NATURAL STONES, MASONRY, ALUMINUM CURTAINWALLS, METAL PANELS AND WINDOW PERIMETERS.
BASIS OF DESIGN PRODUCTS:
A. TREMCO INCORPORATED; SPECTREM 1.
B. DOW CORNING CORPORATION; 790.
C. PECORA CORPORATION; 890NST.
7. EXTERIOR JOINTS IN HORIZONTAL TRAFFIC SURFACES.
ISOLATION AND CONTRACTION JOINTS IN CAST-IN-PLACE CONCRETE SLABS.
URETHANE JOINT SEALANT: MULTICOMPONENT, NONSAG, TRAFFIC GRADE, CLASS 25.
8. FIRESTOP SEALANTS:INSTALL AT FIRE RATED ASSEMBLIES AND AS DIRECTED WITHIN UL REFERENCES
BASIS OF DESIGN PRODUCTS:
A. HILTI
B. 3M

E. JOINT SEALANT BACKING:
1. GENERAL: PROVIDE SEALANT BACKINGS OF MATERIAL THAT ARE NONSTAINING; ARE COMPATIBLE WITH JOINT SUBSTRATES, SEALANTS, PRIMERS, AND OTHER JOINT FILLERS; AND ARE APPROVED FOR APPLICATIONS INDICATED BY SEALANT MANUFACTURER BASED ON FIELD EXPERIENCE AND LABORATORY TESTING.
2. CYLINDRICAL SEALANT BACKINGS: ASTM C 1330, TYPE C (CLOSED-CELL MATERIAL WITH A SURFACE SKIN), AND OF SIZE AND DENSITY TO CONTROL SEALANT DEPTH AND OTHERWISE CONTRIBUTE TO PRODUCING OPTIMUM SEALANT PERFORMANCE.
3. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MANUFACTURER FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT. PROVIDE SELF-ADHESIVE TAPE WHERE APPLICABLE.

F. MISCELLANEOUS MATERIALS
1. PRIMER: MATERIAL RECOMMENDED BY JOINT-SEALANT MANUFACTURER WHERE REQUIRED FOR ADHESION OF SEALANT TO JOINT SUBSTRATES INDICATED, AS DETERMINED FROM PRECONSTRUCTION JOINT-SEALANT-SUBSTRATE TESTS AND FIELD TESTS.
2. CLEANERS FOR NONPOROUS SURFACES: CHEMICAL CLEANERS ACCEPTABLE TO MANUFACTURERS OF SEALANTS AND SEALANT BACKING MATERIALS, FREE OF OILY RESIDUES OR OTHER SUBSTANCES CAPABLE OF STAINING OR HARMING JOINT SUBSTRATES AND ADJACENT NONPOROUS SURFACES IN ANY WAY, AND FORMULATED TO PROMOTE OPTIMUM ADHESION OF SEALANTS TO JOINT SUBSTRATES.
3. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MFR. FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT.
4. MASKING TAPE: NONSTAINING, NONABSORBENT MATERIAL COMPATIBLE WITH JOINT SEALANTS AND SURFACES ADJACENT TO JOINTS.

G. INSTALLATION: COMPLY WITH ASTM C 1193; ASTM C 919 FOR ACOUSTICAL JOINTS; AND AS FOLLOWS:
1. REMOVE ALL LOOSE MATERIAL, CLEAN AND PRIME JOINTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, AND PROTECT ADJACENT SURFACES.
2. INSTALL BOND-BREAKER TAPE WHERE JOINT BACKINGS ARE NOT USED.
3. INSTALL SEALANT TOOLED CONCAVE, FREE OF AIR POCKETS, FOREIGN EMBEDDED MATTER, RIDGES, AND SAGS, AND PROTECT UNTIL FULLY CURED. SEALANT WITH DUST AND DEBRIS EMBEDDED IN SURFACE SHALL BE CAUSE FOR REJECTION.

DIVISION 8 - OPENINGS

08 0671 - DOOR HARDWARE

A. SUBMITTALS: PRODUCT DATA AND HARDWARE SCHEDULE INDICATING HARDWARE ITEM, FINISH, AND QUANTITY LOCATED ON EACH DOOR WITH DOOR AND HARDWARE SET NUMBERING CORRESPONDING TO THOSE USED IN CONSTRUCTION DOCUMENTS. REFER TO ARCHITECTURAL PLANS AND HARDWARE SCHEDULES PROVIDED.
1. HARDWARE SUPPLIER SHALL SUBMIT FOUR COPIES OF FINAL HARDWARE SCHEDULE AT EARLIEST POSSIBLE DATE PARTICULARLY WHERE ACCEPTANCE OF HARDWARE SCHEDULE MUST PRECEDE FABRICATION OF OTHER WORK WHICH IS CRITICAL IN THE PROJECT CONSTRUCTION SCHEDULE. INCLUDE WITH SCHEDULE SHOP DRAWINGS OF OTHER WORK AFFECTED BY BUILDERS HARDWARE, AND OTHER INFORMATION ESSENTIAL TO THE COORDINATE REVIEW OF HARDWARE SCHEDULE.
2. KEYING SCHEDULE. SUBMIT SEPARATE DETAILED SCHEDULE INDICATING CLEARLY HOW THE OWNER'S FINAL INSTRUCTIONS ON KEYING OF LOCKS HAS BEEN FULFILLED. ALL KEYING SHALL BE COORDINATED WITH THE OWNER.

B. PRODUCTS: REFER TO HARDWARE SCHEDULE AND ARCHITECTURAL DRAWINGS.
1. STRIKES. PROVIDE MANUFACTURER'S STANDARD WROUGHT BOX STRIKE FOR EACH LATCH OR LOCK BOLT, WITH CURVED LIP EXTENDED TO PROTECT FRAME. FINISH TO MATCH HARDWARE SET. PROVIDE STANDARD (OPEN) STRIKE PLATES FOR INTERIOR DOORS WHERE WOOD DOOR FRAMES ARE USED. (1)
2. IN GENERAL, HARDWARE FINISH SHALL BE SATIN STAINLESS STEEL, UNLESS SPECIFIED DIFFERENTLY ON HARDWARE SCHEDULE.
3. SUPPLY OUT SWINGING EXTERIOR DOORS WITH NON REMOVABLE PINS.

C. INSTALLATION:
1. MOUNT HARDWARE UNITS AT HEIGHTS INDICATED IN "RECOMMENDED LOCATIONS FOR BUILDERS HARDWARE FOR STANDARD STEEL DOORS AND FRAMES" BY THE DOOR AND HARDWARE INSTITUTE, EXCEPT AS SPECIFICALLY INDICATED OR REQUIRED TO COMPLY WITH GOVERNING REGULATIONS, AND EXCEPT AS MAY BE OTHERWISE DIRECTED BY ARCHITECT.
2. INSTALL EACH HARDWARE ITEM IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. WHEREVER CUTTING AND FITTING IS REQUIRED TO INSTALL HARDWARE ONTO OR INTO SURFACES WHICH ARE LATER TO BE PAINTED OR FINISHED IN ANOTHER WAY, COORDINATE REMOVAL, STORAGE AND REINSTALLATION OR APPLICATION OF SURFACE PROTECTIONS WITH FINISHING WORK SPECIFIED IN THE DIVISION 9 SECTIONS. DO NOT INSTALL SURFACE MOUNTED ITEMS UNTIL FINISHES HAVE BEEN COMPLETED ON THE SUBSTRATE.
3. SET UNITS LEVEL, PLUMB AND TRUE TO LINE AND LOCATION. ADJUST AND REINFORCE THE ATTACHMENT SUBSTRATE AS NECESSARY FOR PROPER INSTALLATION AND OPERATION.
4.DRILL AND COUNTERSINK UNITS WHICH ARE NOT FACTORY PREPARED FOR ANCHORAGE FASTENERS. SPACE FASTENERS AND ANCHORS IN ACCORDANCE WITH INDUSTRY STANDARDS.
5.METAL THRESHOLDS SHALL BE SET IN A SOLID BED OF NON STAINING THIOKOL BASE CAULKING.
6. ADJUST AND CHECK EACH OPERATING ITEM OF HARDWARE AND EACH DOOR, TO ENSURE PROPER OPERATION OR FUNCTION OF EVERY UNIT. REPLACE UNITS WHICH CANNOT BE ADJUSTED TO OPERATE FREELY AND SMOOTHLY AS INTENDED FOR THE APPLICATION MADE.
7.FINAL ADJUSTMENT: WHEREVER HARDWARE INSTALLATION IS MADE MORE THAN ONE MONTH PRIOR TO ACCEPTANCE OR OCCUPANCY OF A SPACE OR AREA, RETURN TO THE WORK DURING THE WEEK PRIOR TO ACCEPTANCE OR OCCUPANCY, AND MAKE FINAL CHECK AND ADJUSTMENT OF ALL HARDWARE ITEMS IN SUCH SPACE OR AREA. CLEAN OPERATING ITEMS AS NECESSARY TO RESTORE PROPER FUNCTION AND FINISH OF HARDWARE AND DOORS. ADJUST DOOR CONTROL DEVICES TO COMPENSATE FOR FINAL OPERATION OF HEATING AND VENTILATING EQUIPMENT.

Hardware Group No. 01
For use on Door #(s): SF1A
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	112XY	628	IVE
2	EA	PANIC HARDWARE	9947-EO	626	VON
2	EA	90 DEG OFFSET PULL	8190HD 10"	630	IVE
2	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
2	EA	PA MOUNTING PLATE	4040XP-18PA SRT	689	LCN
2	EA	CUSH SHOE SUPPORT	4040XP-30 SRT	689	LCN
2	EA	BLADE STOP SPACER	4040XP-61 SRT	689	LCN
2	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
2	EA	DOOR CONTACT	679-05HM	BLK	SCE
	EA	WEATHERSTRIP	BY DOOR/FRAME MANUFACTURER		B/O

Hardware Group No. 02
For use on Door #(s): SF1B
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	9947-EO	626	VON
1	EA	PANIC HARDWARE	9947-NL-OP-110MD	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
2	EA	90 DEG OFFSET PULL	8190HD 10"	630	IVE
1	EA	OH STOP	100SE (@LEAF WITH AUTO OPERATOR)	630	GLY
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	SURF. AUTO OPERATOR	4642 WMS 120 VAC	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA SRT	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30 SRT	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61 SRT	689	LCN
1	EA	ACTUATOR, TOUCH	8310-853T	630	LCN
1	EA	ACTUATOR, TOUCH	8310-855 (TO BE MOUNTED IN THE VESTIBULE AND SHARED WITH DOOR SF2B)	630	LCN
2	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
2	EA	DOOR CONTACT	679-05HM	BLK	SCE
	EA	WEATHERSTRIP	BY DOOR/FRAME MANUFACTURER		B/O

Hardware Group No. 03
For use on Door #(s): SF5
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	9947-EO	626	VON
1	EA	PANIC HARDWARE	9947-NL-OP-110MD	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
2	EA	90 DEG OFFSET PULL	8190HD 10"	630	IVE
1	EA	OH STOP	100SE (@LEAF WITH AUTO OPERATOR)	630	GLY
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	SURF. AUTO OPERATOR	4642 WMS 120 VAC	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA SRT	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30 SRT	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61 SRT	689	LCN
1	EA	ACTUATOR, TOUCH	8310-818T	630	LCN
1	EA	ACTUATOR, TOUCH	8310-853T (EXTERIOR)	630	LCN
1	EA	RAIN DRIP	142AA	AA	ZER
2	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
2	EA	DOOR CONTACT	679-05HM	BLK	SCE
	EA	WEATHERSTRIP	BY DOOR/FRAME MANUFACTURER		B/O

Hardware Group No. 06
For use on Door #(s): 112B
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW NRP	630	IVE
1	EA	PANIC HARDWARE	9947-EO	626	VON
1	EA	PANIC HARDWARE	9947-L-06	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
2	EA	SURFACE CLOSER	4040XP HEDA	689	LCN
2	EA	ARMOR PLATE	8400 34" X 1" LDW B-CS	630	IVE
2	EA	FLOOR STOP	FS18L (MOUNTED NEAR WALL TO AVOID TRIPPING HAZARD)	BLK	IVE
1	SET	GASKETING	429AA-S	AA	ZER
1	EA	MEETING STILE	8193AA	AA	ZER
2	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
2	EA	DOOR CONTACT	679-05HM	BLK	SCE

Hardware Group No. 07
For use on Door #(s): 117E
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW NRP	630	IVE
2	EA	PANIC HARDWARE	9947-EO	626	VON
2	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	GASKETING	429AA-S	AA	ZER
2	EA	MEETING STILE	8193AA	AA	ZER
2	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
2	EA	DOOR CONTACT	679-05HM	BLK	SCE

Hardware Group No. 08
For use on Door #(s): SF4
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	99-NL-OP-110MD	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	90 DEG OFFSET PULL	8190HD 10"	630	IVE
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA SRT	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30 SRT	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61 SRT	689	LCN
1	EA	RAIN DRIP	142AA	AA	ZER
1	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
	EA	WEATHERSTRIP	BY DOOR/FRAME MANUFACTURER		B/O

Hardware Group No. 09
For use on Door #(s): 108A
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY EPT	628	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-99-NL-OP-110MD-CON 24 VDC	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	90 DEG OFFSET PULL	8190HD 10"	630	IVE
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	GASKETING	429AA-S	AA	ZER
1	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
1	EA	WIRE HARNESS	CON-XXP (LENGTH AS REQ'D)		SCH
1	EA	WIRE HARNESS	CON-XXW (LENGTH AS REQ'D)		SCH
1	EA	MULTITECH READER	MT11 12 VDC	BLK	SCE
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	PS902 900-2RS 120/240 VAC	LGR	SCE

Hardware Group No. 10 (3)
For use on Door #(s): 107
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW	652	IVE
2	EA	PANIC HARDWARE	9947-L-LBR-06	626	VON
2	EA	RIM CYLINDER	20-057	626	SCH
2	EA	SURFACE CLOSER	4040XP EDA	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
2	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488FSBK PSA	BK	ZER

Hardware Group No. 11
For use on Door #(s): 108B
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	PANIC HARDWARE	99-L-06	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	SURFACE CLOSER	4040XP RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 11A
For use on Door #(s): 132A
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	FIRE EXIT HARDWARE	99-L-F-06	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	GASKETING	429AA-S	AA	ZER
1	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER

Hardware Group No. 12
For use on Door #(s): 114B
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW	652	IVE
2	EA	PANIC HARDWARE	9947-L-LBR-06	626	VON
2	EA	RIM CYLINDER	20-057	626	SCH
2	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 13
For use on Door #(s): 118
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW	652	IVE
1	EA	PANIC HARDWARE	9947-EO-LBR	626	VON
1	EA	PANIC HARDWARE	9947-NL-OP-LBR-110MD	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
2	EA	90 DEG OFFSET PULL	8190HD 10"	630	IVE
2	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 14
For use on Door #(s): 117F 132B
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW NRP	630	IVE
1	EA	PANIC HARDWARE	9947-EO-LBR	626	VON
1	EA	PANIC HARDWARE	9947-NL-OP-LBR-110MD	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
2	EA	90 DEG OFFSET PULL	8190HD 10"	630	IVE
2	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	GASKETING	429AA-S	AA	ZER
2	EA	MEETING STILE	8193AA	AA	ZER
2	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER
2	EA	DOOR CONTACT	679-05HM	BLK	SCE

Hardware Group No. 15
For use on Door #(s): 132C
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	FIRE EXIT HARDWARE	99-L-BE-F-06	626	VON
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488FSBK PSA	BK	ZER

Hardware Group No. 16
For use on Door #(s): 130A 131A 202
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	STOREROOM LOCK	ND80RD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 17
For use on Door #(s): 130B
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	STOREROOM LOCK	ND80RD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488FSBK PSA	BK	ZER

Hardware Group No. 18 (2)
For use on Door #(s): 131B
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW	652	IVE
1	EA	CONST LATCHING BOLT	FB51P	630	IVE
1	EA	STOREROOM LOCK	ND80RD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
2	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488FSBK PSA	BK	ZER

(3)

Hardware Group No. 19A
For use on Door #(s): 103A
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW	652	IVE
2	EA	MANUAL FLUSH BOLT	FB458	626	IVE
1	EA	DUST PROOF STRIKE	DP1/DP2 AS REQ'D	626	IVE
1	EA	CLASSROOM LOCK	ND70RD RHO	626	SCH
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
2	EA	WALL STOP	WS406/407CCV	630	IVE
2	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 20
For use on Door #(s): 109
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW	652	IVE
2	EA	MANUAL FLUSH BOLT	FB358	626	IVE
1	EA	DUST PROOF STRIKE	DP1/DP2 AS REQ'D	626	IVE
1	EA	STOREROOM LOCK	ND80RD RHO	626	SCH
2	EA	OH STOP	90S	630	GLY
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
2	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 21
For use on Door #(s): 106
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	CLASSROOM LOCK	ND70RD RHO	626	SCH
1	EA	OH STOP	90S	630	GLY
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 22
For use on Door #(s): 114A
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	CLASSROOM LOCK	ND70RD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 24
For use on Door #(s): 105 110 113 119
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	ENTRANCE LOCK	ND53RD RHO	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

NOTE: PROVIDE FLOOR STOP IN LIEU OF WALL STOP WHERE REQUIRED.

Hardware Group No. 25
For use on Door #(s): 115 116
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	PRIVACY LOCK	L9040 06A 09-544 L283-722	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 26
For use on Door #(s): 111
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	PRIVACY LOCK	L9040 06A 09-544 L283-722	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 27
For use on Door #(s): 121 123 126 128
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	652	IVE
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	4040XP RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 28
For use on Door #(s): 118.A
Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW NRP	630	IVE
1	EA	STOREROOM LOCK	ND80RD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA (AT C109 ONLY)	AA	ZER
1	SET	GASKETING	429AA-S	AA	ZER
1	EA	DOOR SWEEP	8197AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

Hardware Group No. 29
For use on Door #(s): 102A 102B 102C 103B 103C 103D 117G
Provide each RU door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
	EA	NOTE	ALL HARDWARE BY OVERHEAD DOOR MFG		

Hardware Group No. 30
For use on Door #(s): 117A 117B 117C 117D 120 122 129 131C 132D
Provide each CO door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	NOTE	NO HARDWARE REQUIRED		

CASED OPEN

Hardware Group No. 31
For use on Door #(s): 112A
Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
	EA	NOTE	HARDWARE BY GATE SUPPLIER		

(3)

08 1113 - HOLLOW METAL DOORS AND FRAMES

A. SUBMITTALS: PRODUCT DATA AND SHOP DRAWINGS WITH DETAILS OF EACH OPENING, SHOWING ELEVATIONS, GLAZING, FRAME PROFILES, AND ANY INDICATED FINISH REQUIREMENTS.

B. HOLLOW METAL DOOR AND FRAME MANUFACTURERS:
1. CECO DOOR, AN ASSA ABLOY GROUP COMPANY: WWW.ASSAABLOYDSS.COM.
2. DE LA FONTAINE INC: WWW.DELAFONTAINE.COM
3. REPUBLIC DOORS, AN ALLEGION BRAND: WWW.REPUBLICDOOR.COM
4. STEELCRAFT, AN ALLEGION BRAND: WWW.ALLEGION.COM

C. SOUND-RATED HOLLOW METAL DOORS AND FRAMES:
1. OVERLY DOOR COMPANY: WWW.OVERLY.COM

D. DESIGN CRITERIA:
1. STEEL USED FOR FABRICATION OF DOORS AND FRAMES SHALL COMPLY WITH ONE OR MORE OF THE FOLLOWING REQUIREMENTS; GALVANNEALED STEEL CONFORMING TO ASTM A653/A653M, COLD-ROLLED STEEL CONFORMING TO ASTM A1008/A1008M, OR HOT-ROLLED PICKLED AND OILED (HRPO) STEEL CONFORMING TO ASTM A1011/A1011M, COMMERCIAL STEEL (CS) TYPE B FOR EACH.
2. TYPICAL DOOR FACE SHEETS: FLUSH.
3. GLAZED LIGHTS: NON-REMOVABLE STOPS ON NON-SECURE SIDE; SIZES AND CONFIGURATIONS AS INDICATED ON DRAWINGS. STYLE: MANUFACTURERS STANDARD.
4. HARDWARE PREPARATIONS, SELECTIONS AND LOCATIONS: COMPLY WITH NAAMM HMMA 830 AND NAAMM HMMA 831 OR BHMA A156.115 AND ANSI/SDI A250.8 (SDI-100) IN ACCORDANCE WITH SPECIFIED REQUIREMENTS.
5. ZINC COATING FOR TYPICAL INTERIOR AND/OR EXTERIOR LOCATIONS: PROVIDE METAL COMPONENTS ZINC-COATED (GALVANIZED) AND/OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A653/A653M, WITH MANUFACTURER'S STANDARD COATING THICKNESS, UNLESS NOTED OTHERWISE FOR SPECIFIC HOLLOW METAL DOORS AND FRAMES.
6. HOLLOW METAL PANELS: SAME CONSTRUCTION, PERFORMANCE, AND FINISH AS DOORS.
7. COMBINED REQUIREMENTS: IF A PARTICULAR DOOR AND FRAME UNIT IS INDICATED TO COMPLY WITH MORE THAN ONE TYPE OF REQUIREMENT, COMPLY WITH THE SPECIFIED REQUIREMENTS FOR EACH TYPE; FOR INSTANCE, AN EXTERIOR DOOR THAT IS ALSO INDICATED AS BEING SOUND-RATED MUST COMPLY WITH THE REQUIREMENTS SPECIFIED FOR EXTERIOR DOORS AND FOR SOUND-RATED DOORS; WHERE TWO REQUIREMENTS CONFLICT, COMPLY WITH THE MOST STRINGENT.

E. HOLLOW METAL DOOR:
1. EXTERIOR DOORS: THERMALLY INSULATED.
A. ASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100).
B. LEVEL 1 - STANDARD-DUTY.
C. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.
D. MODEL 1 - FULL FLUSH.
E. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.
F. DOOR CORE MATERIAL: MANUFACTURERS STANDARD CORE MATERIAL/CONSTRUCTION AND IN COMPLIANCE WITH REQUIREMENTS.
G. DOOR THICKNESS: 1-3/4 INCH, NOMINAL.
H. TOP CLOSURES FOR OUTSWINGING DOORS: FLUSH WITH TOP OF FACES AND EDGES.
I. WEATHERSTRIPPING: REFER TO SECTION 08 7100.
J. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.

2. INTERIOR DOORS, NON-FIRE RATED:
A. BASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100).
B. LEVEL 1 - STANDARD-DUTY.
C. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.
D. MODEL 1 - FULL FLUSH.
E. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.
F. DOOR THICKNESS: 1-3/4 INCH, NOMINAL.
G. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.

3. FIRE-RATED DOORS:
A. BASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100).
B. LEVEL 1 - STANDARD-DUTY.
C. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.
D. MODEL 1 - FULL FLUSH.
E. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.
F. FIRE RATING: AS INDICATED ON DOOR SCHEDULE, TESTED IN ACCORDANCE WITH UL 10C AND NFPA 252 ("POSITIVE PRESSURE FIRE TESTS").
G. TEMPERATURE-RISE RATING (TRR) ACROSS DOOR THICKNESS: IN ACCORDANCE WITH LOCAL BUILDING CODE AND AUTHORITIES HAVING JURISDICTION.
H. PROVIDE UNITS LISTED AND LABELED BY UL (DIR) OR ITS (DIR). ATTACH FIRE RATING LABEL TO EACH FIRE RATED UNIT.
I. SMOKE AND DRAFT CONTROL DOORS (INDICATED WITH LETTER "S" ON DRAWINGS AND/OR DOOR SCHEDULE): SELF-CLOSING OR AUTOMATIC CLOSING DOORS IN ACCORDANCE WITH NFPA 80 AND NFPA 105, WITH FIRE-RESISTANCE-RATED WALL CONSTRUCTION RATED THE SAME OR GREATER THAN THE FIRE-RATED DOORS, AND THE FOLLOWING;
1.MAXIMUM AIR LEAKAGE: 3.0 CFM/SQ FT OF DOOR OPENING AT 0.10 INCH W.G. PRESSURE, WHEN TESTED IN ACCORDANCE WITH UL 1784 AT BOTH AMBIENT AND ELEVATED TEMPERATURES.
2. GASKETING: PROVIDE GASKETING OR EDGE SEALING AS NECESSARY TO ACHIEVE LEAKAGE LIMIT.
3. LABEL: INCLUDE THE "S" LABEL ON FIRE-RATING LABEL OF DOOR.
J. DOOR CORE MATERIAL: MANUFACTURERS STANDARD CORE MATERIAL/CONSTRUCTION IN COMPLIANCE WITH REQUIREMENTS.
K. DOOR THICKNESS: 1-3/4 INCH, NOMINAL.
L. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.

F. HOLLOW METAL FRAMES:
1.COMPLY WITH STANDARDS AND/OR CUSTOM GUIDELINES AS INDICATED FOR CORRESPONDING DOOR IN ACCORDANCE WITH APPLICABLE DOOR FRAME REQUIREMENTS.
2. INTERIOR DOOR FRAMES, NON-FIRE RATED: FACE WELDED TYPE. FRAME FINISH: FACTORY FINISHED.
A. FULL LENGTH STOPS
B. FRAME METAL THICKNESS: 18 GAGE, 0.042 INCH, MINIMUM.
3. DOOR FRAMES, FIRE-RATED: FACE WELDED TYPE. FIRE RATING: SAME AS DOOR, LABELED.
A. FULL LENGTH STOPS
B. FRAME METAL THICKNESS: 18 GAGE, 0.042 INCH, MINIMUM.
4. SOUND-RATED DOOR FRAMES: FULL PROFILE/CONTINUOUSLY WELDED TYPE.
A. FRAME METAL THICKNESS: 18 GAGE, 0.042 INCH, MINIMUM.
5. FRAMES FOR WOOD DOORS: COMPLY WITH FRAME REQUIREMENTS IN ACCORDANCE WITH CORRESPONDING DOOR.
6. BORROWED LITES GLAZING FRAMES: CONSTRUCTION AND FACE DIMENSIONS TO MATCH DOOR FRAMES, AND AS INDICATED ON DRAWINGS.
7. FRAMES IN MASONRY WALLS: SIZE TO SUIT MASONRY COURSING WITH HEAD MEMBER 4 INCH HIGH TO FILL OPENING WITHOUT CUTTING MASONRY UNITS.
8. FRAMES WIDER THAN 48 INCHES: REINFORCE WITH STEEL CHANNEL FITTED TIGHTLY INTO FRAME HEAD, FLUSH WITH TOP.

G. FINISHES:
1.PRIMER: RUST-INHIBITING, COMPLYING WITH ANSI/SDI A250.10, DOOR MANUFACTURER'S STANDARD.

H. ACCESSORIES:
1. GLAZING: AS INDICATED IN DRAWINGS OR AS SPECIFIED.
2. REMOVABLE STOPS: FORMED SHEET STEEL, SHAPE AS INDICATED ON DRAWINGS, MITERED OR BUTTED CORNERS; PREPARED FOR COUNTERSINK STYLE TAMPER PROOF SCREWS.
3. SILENCERS: RESILIENT RUBBER, FITTED INTO DRILLED HOLE; PROVIDE THREE ON STRIKE SIDE OF SINGLE DOOR, THREE ON CENTER MULLION OF PAIRS, AND TWO ON HEAD OF PAIRS WITHOUT CENTER MULLIONS.
4. TEMPORARY FRAME SPREADERS: PROVIDE FOR FACTORY- OR SHOP-ASSEMBLED FRAMES.

E. INSTALLATION:
1.INSTALL DOORS AND FRAMES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RELATED REQUIREMENTS OF SPECIFIED DOOR AND FRAME STANDARDS OR CUSTOM GUIDELINES INDICATED.
2. INSTALL PREFINISHED FRAMES AFTER PAINTING AND WALL FINISHES ARE COMPLETE.
3. INSTALL FIRE RATED UNITS IN ACCORDANCE WITH NFPA 80.
4. COORDINATE FRAME ANCHOR PLACEMENT WITH WALL CONSTRUCTION. (1)

08 3100 - ACCESS DOORS AND PANELS

A. SUBMITTALS: PRODUCT DATA.

B. PRODUCTS: PRIME-PAINTED FLUSH, UNINSULATED ACCESS DOORS FOR WALLS AND CEILINGS WITH TRIMLESS FRAME AND SCREWDRIVER OPERATED LOCK FLUSH WITH FINISHED SURFACE. FIRE-RATED, SELF-LATCHING. AUTOMATIC CLOSING AT FIRE-RATED WALLS OR CEILINGS.

C. INSTALLATION: INSTALL FLUSH TO FINISHED DRYWALL SURFACE WITH FRAME TAPED AND SANDED FLUSH WITH WALL OR CEILING SURFACE AND FINISH TO MATCH ADJACENT SURFACE.

08 3613 - SECTIONAL DOORS

A. SUBMITTALS: PRODUCT DATA, AND COLOR SAMPLES. DOOR SCHEDULE INDICATING DOOR AND FRAME SIZES. TYPES, ELEVATIONS, DETAILS, AND HARDWARE WITH DOOR AND HARDWARE NUMBERING CORRESPONDING TO THOSE USED IN CONSTRUCTION DOCUMENTS.

B. BASIS OF DESIGN:
1. CLOPAY COMMERICAL - MODEL 904
2. CLOPAY COMMERICAL, ENERGY SERIES - MODEL 3200
3. CORNELL, MODEL ESC20
4. CORNELL, MODEL ESC30

C. ELECTRIC OPERATOR
1. DOORS SHALL BE COMPLETE WITH ALL HARDWARE AND LIFTMASTER 3265, 1/2 HP CHAIN DRIVE GARAGE DOOR OPENER OR APPROVED EQUAL. OPERATOR SHALL HAVE A WALL MOUNTED MULTI- FUNCTION CONTROL PANEL AND TWO HAND- HELD ROLLING CODE TRANSMITTERS. SUPPLY AND INSTALL DOOR JAMB KEYPAD. GARAGE DOOR JAMBS SHALL HAVE PHOTOCELLS AT EACH SIDE OF EACH GARAGE DOOR. PROVIDE TIMERS FOR DOORS TO AUTOMATICALLY CLOSE IF LEFT OPEN FOR AN EXTENDED PERIOD OF TIME.

D. INSTALLATION:
1. INSTALL DOOR ASSEMBLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. ANCHOR TO ADJACENT CONSTRUCTION WITHOUT DISTORTION OR STRESS.
3. SECURELY BRACE DOOR TRACKS SUSPENDED FROM STRUCTURE. SECURE TRACKS TO STRUCTURAL MEMBERS ONLY.
4. FIT AND ALIGN DOOR ASSEMBLY INCLUDING HARDWARE, LEVEL AND PLUMB, TO PROVIDE SMOOTH OPERATION.
5. POSITION HEAD AND JAMB WEATHERSTRIPPING TO CONTACT DOOR SECTIONS WHEN CLOSED; SECURE IN POSITION.
6. MAKE WIRING CONNECTIONS BETWEEN POWER SUPPLY AND OPERATOR AND BETWEEN OPERATOR AND CONTROLS.
7. INSTALL ELECTRIC GARAGE DOOR OPENERS IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. INSTALLATION SHALL INCLUDE GARAGE DOOR SILENCER ISOLATION PADS.

08 4313 - ALUMINUM FRAMED STOREFRONTS

A. SUBMITTALS: PRODUCT DATA: PROVIDE COMPONENT DIMENSIONS, DESCRIBE COMPONENTS WITHIN ASSEMBLY, ANCHORAGE AND FASTENERS, GLASS AND INFILL, DOOR HARDWARE, INTERNAL DRAINAGE DETAILS.
1. HARDWARE SCHEDULE: COMPLETE ITEMIZATION OF EACH ITEM OF HARDWARE TO BE PROVIDED FOR EACH DOOR, CROSS-REFERENCED TO DOOR IDENTIFICATION NUMBERS IN CONTRACT DOCUMENTS.
2. SHOP DRAWINGS: INDICATE SYSTEM DIMENSIONS, FRAMED OPENING REQUIREMENTS AND TOLERANCES, AFFECTED RELATED WORK, EXPANSION AND CONTRACTION JOINT LOCATION AND DETAILS, AND FIELD WELDING REQUIRED.

B. WARRANTY: WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.
1. CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION.
2. PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST FAILURE OF GLASS SEAL ON INSULATING GLASS UNITS, INCLUDING INTERPANE DUSTING OR MISTING. INCLUDE PROVISION FOR REPLACEMENT OF FAILED UNITS.
3. PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST EXCESSIVE DEGRADATION OF EXTERIOR FINISH. INCLUDE PROVISION FOR REPLACEMENT OF UNITS WITH EXCESSIVE FADING, CHALKING, OR FLAKING.

C. BASIS OF DESIGN: KAWNEER TRIFAB VERSAGLAZE 451/451T , ANODIZED.VERIFY FINISH WITH OWNER.
1. OTHER MANUFACTURERS: PROVIDE EITHER THE PRODUCT IDENTIFIED AS "BASIS OF DESIGN" OR AN EQUIVALENT PRODUCT.

D. MATERIALS:
1. ALUMINUM-FRAMED STOREFRONT: FACTORY FABRICATED, FACTORY FINISHED ALUMINUM FRAMING MEMBERS WITH INFILL, AND RELATED FLASHINGS, ANCHORAGE AND ATTACHMENT DEVICES.
2. ALUMINUM FRAMING MEMBERS: TUBULAR ALUMINUM SECTIONS[<>], DRAINAGE HOLES AND INTERNAL WEEP DRAINAGE SYSTEM.
3. EXTRUDED ALUMINUM: ASTM B221 (ASTM B221M).
4. STRUCTURAL STEEL SECTIONS: ASTM A36/A36M; SHOP PRIMED.
5. FASTENERS: STAINLESS STEEL.
6. CONCEALED FLASHINGS: STAINLESS STEEL, 26 GAGE, 0.0187 INCH MINIMUM THICKNESS.
7. SEALANT FOR SETTING THRESHOLDS: NON-CURING BUTYL TYPE.
8. GLAZING GASKETS: TYPE TO SUIT APPLICATION TO ACHIEVE WEATHER, MOISTURE, AND AIR INFILTRATION REQUIREMENTS.

E. FINISHES:
1. CLASS I COLOR ANODIZED FINISH: AAMA 611 AA-M12C22A44 ELECTROLYTICALLY DEPOSITED COLORED ANODIC COATING NOT LESS THAN 0.7 MILS THICK. COLOR AS SELECTED BY OWNER & ARCHITECT.

F. HARDWARE:
1. FOR EACH DOOR, INCLUDE WEATHERSTRIPPING, SILL SWEEP STRIP, AND THRESHOLD.
2. OTHER DOOR HARDWARE: STOREFRONT MANUFACTURER'S STANDARD TYPE TO SUIT APPLICATION.
A. FINISH ON HAND-CONTACTED ITEMS: POLISHED CHROME.
B. FOR EACH DOOR, INCLUDE BUTT HINGES, PIVOTS, PUSH HANDLE, PULL HANDLE, EXIT DEVICE, NARROW STILE HANDLE LATCH, AND CLOSER. COORDINATE ADA PUSH BUTTON LOCATION.

G. INSTALLATION:
1. VERIFY DIMENSIONS, TOLERANCES, AND METHOD OF ATTACHMENT WITH OTHER WORK.
2. VERIFY THAT WALL OPENINGS AND ADJOINING AIR AND VAPOR SEAL MATERIALS ARE READY TO RECEIVE WORK OF THIS SECTION.
3. INSTALL WALL SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. ATTACH TO STRUCTURE TO PERMIT SUFFICIENT ADJUSTMENT TO ACCOMMODATE CONSTRUCTION TOLERANCES AND OTHER IRREGULARITIES.
5. ALIGN ASSEMBLY PLUMB AND LEVEL, FREE OF WARP OR TWIST. MAINTAIN ASSEMBLY DIMENSIONAL TOLERANCES, ALIGNING WITH ADJACENT WORK.
6. PROVIDE THERMAL ISOLATION WHERE COMPONENTS PENETRATE OR DISRUPT BUILDING INSULATION.
7. INSTALL SILL FLASHINGS. TURN UP ENDS AND EDGES; SEAL TO ADJACENT WORK TO FORM WATER TIGHT DAM.
8. WHERE FASTENERS PENETRATE SILL FLASHINGS, MAKE WATERTIGHT BY SEATING AND SEALING FASTENER HEADS TO SILL FLASHING.
9. PACK FIBROUS INSULATION IN SHIM SPACES AT PERIMETER OF ASSEMBLY TO MAINTAIN CONTINUITY OF THERMAL BARRIER.
10. SET THRESHOLDS IN BED OF SEALANT AND SECURE.
11. INSTALL HARDWARE USING TEMPLATES PROVIDED. ADJUST OPERATING HARDWARE AND SASH FOR SMOOTH OPERATION.
12. WASH DOWN SURFACES WITH A SOLUTION OF MILD DETERGENT IN WARM WATER, APPLIED WITH SOFT, CLEAN WIPING CLOTHS, AND TAKE CARE TO REMOVE DIRT FROM CORNERS AND TO WIPE SURFACES CLEAN.
13. PROTECT INSTALLED PRODUCTS FROM DAMAGE UNTIL DATE OF SUBSTANTIAL COMPLETION.

08 5313 - VINYL WINDOWS

A. SUBMITTALS: THE CONTRACTOR SHALL PREPARE, AND SUBMIT TO THE ARCHITECT FOR APPROVAL, COMPLETE SHOP DRAWINGS FOR ALL WORK INCLUDED IN THIS SECTION, AND SHALL NOT PROCEED WITH FABRICATION AND DELIVERY PRIOR TO RECEIVING SUCH APPROVAL.

B. BASIS OF DESIGN: VINYL CASEMENT WINDOWS- BASIS OF DESIGN: MI 3500 VINYL SINGLE- HUNG WINDOWS.

C. INSTALLATION: ALL WINDOWS SHALL BE SET TRUE, PLUMB, LEVEL AND IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS.

08 8000 - GLAZING

A. SUBMITTALS: PRODUCT DATA ON INSULATING GLASS UNIT, GLAZING UNIT, AND [SPANDREL] GLAZING TYPES: PROVIDE STRUCTURAL, PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS, SIZE LIMITATIONS, SPECIAL HANDLING AND INSTALLATION REQUIREMENTS.
1. PRODUCT DATA ON GLAZING COMPOUNDS AND ACCESSORIES: PROVIDE CHEMICAL, FUNCTIONAL, AND ENVIRONMENTAL CHARACTERISTICS, LIMITATIONS, SPECIAL APPLICATION REQUIREMENTS, AND IDENTIFY AVAILABLE COLORS.
2. SAMPLES: SUBMIT TWO SAMPLES [12] BY [12] INCH IN SIZE OF GLASS UNITS.

B. WARRANTY: WARRANTY DOCUMENTATION: SUBMIT MANUFACTURER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.
1. INSULATING GLASS UNITS: PROVIDE A FIVE (5) YEAR MANUFACTURER WARRANTY TO INCLUDE COVERAGE FOR SEAL FAILURE, INTERPANE DUSTING OR MISTING, INCLUDING PROVIDING PRODUCTS TO REPLACE FAILED UNITS

C. STOREFRONT GLAZING BASIS OF DESIGN: GUARDIAN -SUNGUARD _ SNX 62/27 _COATED GLASS, CLEAR. WITH .24 U-VALUE ARGON FILLED.

D. QUALITY STANDARDS:
1. SAFETY GLASS: CATEGORY II MATERIALS COMPLYING WITH TESTING REQUIREMENTS IN 16 CFR 1201 AND ANSI Z97.1.
2. GLAZING PUBLICATIONS: WHERE APPLICABLE, COMPLY WITH WITH THE PUBLISHED RECOMMENDATIONS OF THE FOLLOWING:
A. GANA PUBLICATIONS: "GLAZING MANUAL" AND "LAMINATED GLASS DESIGN GUIDE".
B. SIGMA PUBLICATIONS: SIGMA TM-3000, "VERTICAL GLAZING GUIDELINES".

E. GLASS:
1. FLOAT GLASS: ASTM C 1036, TYPE I, QUALITY q3
2. HEAT-TREATED FLOAT GLASS: ASTM C 1048, TYPE I, QUALITY q3, HEAT STRENGTHENED OR FULLY TEMPERED WHERE INDICATED AND WHERE REQUIRED BY CODE OR INSTALLATION CONDITIONS.
3. MIRROR GLASS: ASTM C 1036, TYPE I, CLASS 1, QUALITY q1, SILVER COATED PER FS DDM411C, 6.0mm THICK, WITH EDGES FLAT POLISHED.

F. FABRICATED GLASS PRODUCTS:
1. SEALED INSULATING-GLASS UNITS: PREASSEMBLED UNITS COMPLYING WITH ASTM E 774 FOR CLASS CBA UNITS WITH TWO SHEETS OF GLASS SEPARATED BY A 1/2-INCH DEHYDRATED SPACE FILLED WITH AIR. EXTERIOR GLASS COLOR TO MATCH EXISTING. INTERIOR GLASS SHALL BE CLEAR.

G. INSTALLATION:
1. COMPLY WITH COMBINED RECOMMENDATIONS OF MANUFACTURERS OF GLASS, SEALANTS, GASKETS, AND OTHER GLAZING MATERIALS, UNLESS MORE STRINGENT REQUIREMENTS ARE CONTAINED IN GANA'S "GLAZING MANUAL".
2. SET GLASS LITES IN EACH SERIES WITH UNIFORM PATTERN, DRAW, BOW, AND SIMILAR CHARACTERISTICS.
3. AFTER GLASS INSTALLATION IS COMPLETE, REMOVE GLAZING MATERIALS AND LABELS FROM FINISHED SURFACES, AND THOROUGHLY CLEAN GLASS AND ADJACENT FRAMING AND SURFACES. REPEAT AS NECESSARY PRIOR TO FINAL WALK-THROUGH.

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REVISION DATES:

1	CITY COMMENTS	06/21/2023
2	CITY COMMENTS	07/20/2023
3	CITY COMMENTS AND OWNER REV.	03/22/2024

STATE OF MISSOURI ROGER L. WEBB II NUMBER A-2016004008 ARCHITECT
03/22/2024
PROFESSIONAL SEAL

G501

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

GENERAL PROJECT SPECIFICATIONS

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SPECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS

08 8100 - MIRRORS

A. SUBMITTALS: FOR EACH TYPE OF PRODUCT INDICATED.THE CONTRACTOR SHALL PREPARE, AND SUBMIT TO THE ARCHITECT FOR APPROVAL, COMPLETE SHOP DRAWINGS: INCLUDE MIRROR ELEVATIONS, EDGE DETAILS, MIRROR HARDWARE, AND ATTACHMENTS TO OTHER WORK. WARRANTY: SAMPLE OF SPECIAL WARRANTY.

B. QUALITY ASSURANCE: VINYL CASEMENT WINDOWS- BASIS OF DESIGN: MI 3500 VINYL SINGLE- HUNG WINDOWS.
1. GLAZING PUBLICATIONS: COMPLY WITH GANA'S "GLAZING MANUAL" AND "MIRRORS, HANDLE WITH EXTREME CARE: TIPS FOR THE PROFESSIONAL ON THE CARE AND HANDLING OF MIRRORS."
2.SAFETY GLAZING PRODUCTS: FOR MIRRORS, PROVIDE PRODUCTS COMPLYING WITH TESTING REQUIREMENTS IN 16 CFR 1201 FOR CATEGORY II MATERIALS.
3. PRECONSTRUCTION MIRROR MASTIC COMPATIBILITY TEST: SUBMIT MIRROR MASTIC PRODUCTS TO MIRROR MANUFACTURER FOR TESTING TO DETERMINE COMPATIBILITY OF MASTIC WITH MIRROR BACKING AND SUBSTRATES ON WHICH MIRRORS ARE INSTALLED.

C. WARRANTY: SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MIRROR MANUFACTURER AGREES TO REPLACE MIRRORS THAT DETERIORATE WITHIN SPECIFIED WARRANTY PERIOD. DETERIORATION OF MIRRORS IS DEFINED AS DEFECTS DEVELOPED FROM NORMAL USE THAT ARE NOT ATTRIBUTED TO MIRROR BREAKAGE OR TO MAINTAINING AND CLEANING MIRRORS CONTRARY TO MANUFACTURER'S WRITTEN INSTRUCTIONS. DEFECTS INCLUDE DISCOLORATION, BLACK SPOTS, AND CLOUDING OF THE SILVER FILM.
1. WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

D. BASIS OF DESIGN: SILVERED FLAT GLASS MIRRORS
1. GLASS MIRRORS, GENERAL: ASTM C 1503; MANUFACTURED USING COPPER FREE, LOW LEAD MIRROR COATING PROCESS.
2. CLEAR GLASS: MIRROR GLAZING QUALITY; ULTRACLEAR (LOW IRON) FLOAT GLASS WITH A MINIMUM 91 PERCENT VISIBLE LIGHT TRANSMISSION. NOMINAL THICKNESS: 1/4 INCH.
3. TEMPERED CLEAR GLASS: MIRROR GLAZING QUALITY, FOR BLEMISH REQUIREMENTS; AND COMPLY WITH ASTM C 1048 FOR KIND FT, CONDITION A, TEMPERED FLOAT GLASS BEFORE SILVER COATING IS APPLIED. NOMINAL THICKNESS: 1/4 INCH.

E. MIRROR HARDWARE: TOP AND BOTTOM ALUMINUM J CHANNELS: ALUMINUM EXTRUSIONS WITH A RETURN DEEP ENOUGH TO PRODUCE A GLAZING CHANNEL TO ACCOMMODATE MIRRORS OF THICKNESS INDICATED AND IN LENGTHS REQUIRED TO COVER BOTTOM AND TOP EDGES OF EACH MIRROR IN A SINGLE PIECE. FINISH: CLEAR BRIGHT ANODIZED.

1. TOP AND BOTTOM MIRROR MOUNTING CLIPS: #277 MIRROR CLIPS AS MANUFACTURED BY KNAPE & VOGT OR APPROVED EQUAL.
2. FASTENERS: FABRICATED OF SAME BASIC METAL AND ALLOY AS FASTENED METAL AND MATCHING IT IN FINISHED COLOR AND TEXTURE WHERE FASTENERS ARE EXPOSED.

F. INSTALLATION: GENERAL: EXAMINE SUBSTRATES, OVER WHICH MIRRORS ARE TO BE MOUNTED, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH INSTALLATION TOLERANCES, SUBSTRATE PREPARATION, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.
A. VERIFY COMPATIBILITY WITH AND SUITABILITY OF SUBSTRATES, INCLUDING COMPATIBILITY OF MIRROR MASTIC WITH EXISTING FINISHES OR PRIMERS.
B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AND SURFACES ARE DRY.

1.INSTALL MIRRORS TO COMPLY WITH MIRROR MANUFACTURER'S WRITTEN INSTRUCTIONS AND WITH REFERENCED GANA PUBLICATIONS. MOUNT MIRRORS ACCURATELY IN PLACE IN A MANNER THAT AVOIDS DISTORTING REFLECTED IMAGES.
2. INSTALL WALL MOUNTED ANNEALED GLASS MIRRORS IN THE APARTMENT UNITS WITH MIRROR CLIPS. ATTACH MIRROR HARDWARE SECURELY TO MOUNTING SURFACES WITH MECHANICAL FASTENERS INSTALLED WITH
3. ANCHORS OR INSERTS AS APPLICABLE. INSTALL FASTENERS SO HEADS DO NOT IMPOSE POINT LOADS ON BACKS OF MIRRORS.
4. PROTECT MIRRORS FROM BREAKAGE AND CONTAMINATING SUBSTANCES RESULTING FROM CONSTRUCTION OPERATIONS.
5. MAINTAIN ENVIRONMENTAL CONDITIONS THAT WILL PREVENT MIRRORS FROM BEING EXPOSED TO MOISTURE FROM CONDENSATION OR OTHER SOURCES FOR CONTINUOUS PERIODS OF TIME.
6. WASH EXPOSED SURFACE OF MIRRORS NOT MORE THAN FOUR DAYS BEFORE DATE SCHEDULED FOR INSPECTIONS THAT ESTABLISH DATE OF SUBSTANTIAL COMPLETION. WASH MIRRORS AS RECOMMENDED IN WRITING BY MIRROR MANUFACTURER.

DIVISION 9 - FINISHES

09 2116 - GYPSUM BOARD ASSEMBLIES

A. STEEL FRAMING MEMBERS: COMPLY WITH ASTM C754 IN DEPTHS AND GAGES AS INDICATED IN THE CONSTRUCTION DRAWINGS AND AS FOLLOWS:
1. STEEL SHEET COMPONENTS: COMPLY WITH ASTM C645 WITH MANUFACTURER'S STANDARD CORROSION-RESISTANT ZINC COATING.
2. TIE WIRE: ASTM A 641/A 641M, CLASS 1 ZINC COATING, SOFT TEMPER. .0625" DIAMETER OR DOUBLE STRAND OF .0475" DIAMETER WIRE.
3. WIRE HANGERS: ASTM A 641/A 641M, CLASS 1 ZINC COATING, SOFT TEMPER. .0162" DIAMETER.

B. PANEL PRODUCTS:PROVIDE IN THICKNESS AND TYPE INDICATED IN THE CONSTRUCTION DRAWINGS IN MAXIMUM LENGTHS AVAILABLE TO MINIMIZE END-TO-END BUTT JOINTS AND AS FOLLOWS:
1. GYPSUM WALLBOARD: ASTM C 36, TYPE 'X' WITH TAPERED EDGES, SAG-RESISTANT TYPE FOR CEILING SURFACES.
2. WATER-RESISTANT GYPSUM BACKING BOARD: ASTM C 630, TYPE 'X' ON ALL TOILET ROOM AND SHOWER ROOM WALLS, BEHIND ALL PLUMBING FIXTURES, AND AS INDICATED.

C. ACCESSORIES:
1. TRIM: ASTM 1047, FORMED FROM GALVANIZED OR ALUMINUM COATED STEEL SHEET, ROLLED ZINC, OR PLASTIC
a. OUTSIDE CORNERS: PROVIDE CORNER BEAD UNLESS NOTED OTHERWISE
b. EXPOSED PANEL EDGES: PROVIDE LC-BEAD (J-BEAD) UNLESS NOTED OTHERWISE; USE TEAR-AWAY BEAD WHERE GYP. BD. MEETS WINDOW FRAMES OR CEILING GRID.
c. CONTROL JOINTS: PROVIDE WHERE INDICATED OR APPROXIMATELY 30'-0" MAX. CONTACT ARCHITECT FOR LOCATIONS IF NOT INDICATED.
2. SOUND-ATTENUATION BLANKETS: ASTM C 665, TYPE I (UNFACED)
3. ACOUSTICAL SEALANT: COMPLY WITH ASTM C 834, NONSAG, PAINTABLE, NONSTAINING LATEX.

D. INSTALLATION:
1. FRAMING: COMPLY WITH ASTM C 754 AND ASTM C 840 AND WITH U.S. GYPSUM'S "GYPSUM CONSTRUCTION HANDBOOK" ISOLATE FRAMING FROM BUILDING STRUCTURE TO PREVENT TRANSFER OF LOADING IMPOSED BY STRUCTURAL MOVEMENT AND PROVIDE BRACING AS NECESSARY FOR PROPER SUPPORT WHETHER INDICATED OR NOT.
2. GYPSUM PANELS AND FINISH: COMPLY WITH ASTM C 840 AND GA-216. ISOLATE GYPSUM BOARD ASSEMBLIES FROM ABUTTING STRUCTURAL AND MASONRY WORK AND FINISH AS FOLLOWS:
A. LEVEL 1 (EMBED TAPE AT JOINTS): AT CONCEALED AREAS UNLESS A HIGHER LEVEL IS INDICATED OR REQUIRED FOR FIRE-RESISTANCE-RATED ASSEMBLY.
B. LEVEL 2 (EMBED TAPE AND APPLY SEPARATE FIRST COAT OF JOINT COMPOUND TO TAPE. FASTENERS, AND TRIM FLANGES AND SAND SMOOTH AFTER EACH COAT): AT SUBSTRATES BEHIND TILE.
C. LEVEL 4 (EMBED TAPE AND APPLY SEPARATE FIRST, FILL, AND FINISH COATS OF JOINT COMPOUND TO TAPE, FASTENERS, AND TRIM FLANGES AND SAND SMOOTH AFTER EACH COAT): AT ALL WALLS RECEIVING FLAT, EGGSHELL, OR SATIN SHEEN PAINT OR WALLCOVERING)
D. LEVEL 5 (EMBED TAPE, APPLY SEPARATE FIRST, FILL, AND FINISH COATS OF JOINT COMPOUND TO TAPE, FASTENERS, AND TRIM FLANGES, AND APPLY THIN SKIM COAT OF JOINT COMPOUND OVER ENTIRE SURFACE AND SAND SMOOTH AFTER EACH COAT): AT ALL WALLS RECEIVING SEMI-GLOSS OR GLOSS SHEEN PAINT, AND ALL GYPSUM BOARD CEILINGS)

09 2216 - NON-STRUCTURAL METAL FRAMING

A. SUBMITTALS: SHOP DRAWINGS: INDICATE PREFABRICATED WORK, COMPONENT DETAILS, STUD LAYOUT, FRAMED OPENINGS, ANCHORAGE TO STRUCTURE, ACOUSTIC DETAILS, TYPE AND LOCATION OF FASTENERS, ACCESSORIES, AND ITEMS OF OTHER RELATED WORK. DESCRIBE METHOD FOR SECURING STUDS TO TRACKS, SPLICING, AND FOR BLOCKING AND REINFORCEMENT OF FRAMING CONNECTIONS.
1. PRODUCT DATA: PROVIDE MANUFACTURER'S DATA ON PARTITION HEAD TO STRUCTURE CONNECTORS, SHOWING COMPLIANCE WITH REQUIREMENTS.
2. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES AND PERIMETER CONDITIONS REQUIRING SPECIAL ATTENTION.

B. MANUFACTURERS:
1. CLARKDIETRICH BUILDING SYSTEMS: WWW.CLARKDIETRICH.COM.
2. CEMCO: WWW.CEMCOSTEEL.COM.
3. JAIMES INDUSTRIES: WWW.JAIMESIND.COM
4. STEEL CONSTRUCTION SYSTEMS: WWW.STEELCONSYSTEMS.COM

C. FRAMING MATERIALS:
1. FIRE RATED ASSEMBLIES: COMPLY WITH APPLICABLE CODE AND AS FOLLOWS:
A. TOP OF FIRE RATED PARTITIONS: LISTED ASSEMBLY BY UL, NO. [ON DRAWINGS]; [1 AND 2] HOUR RATING.
B. FIRE RATED SHAFT WALL REQUIREMENTS: LISTED ASSEMBLY BY UL, NO. [ON DRAWINGS]; [1] HOUR RATING.

2. NON-LOADBEARING FRAMING SYSTEM COMPONENTS: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 FOR THE SPACING INDICATED, WITH MAXIMUM DEFLECTION OF WALL FRAMING OF L/240 AT 5 PSF.
A. TRACKS AND RUNNERS: SAME MATERIAL AND THICKNESS AS STUDS, BENT LEG RETAINER NOTCHED TO RECEIVE STUDS WITH PROVISION FOR CRIMP LOCKING TO STUD. STUDS: C SHAPED WITH FLAT OR FORMED WEBS WITH KNURLED FACES.
B. CEILING CHANNELS: C SHAPED.
C. FURRING: HAT-SHAPED SECTIONS, MINIMUM DEPTH OF 7/8 INCH.
D. CONTRACTOR TO PROVIDE BRACING AS REQUIRED TO COMPLETE SYSTEM.
F. WHERE INDICATED IN DRAWINGS, SHAFT WALL STUDS AND ACCESSORIES: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 AND SPECIFIED PERFORMANCE REQUIREMENTS.
G. CEILING HANGERS: TYPE AND SIZE AS SPECIFIED IN ASTM C754 FOR SPACING REQUIRED.
H. PARTITION HEAD TO STRUCTURE CONNECTIONS: PROVIDE MECHANICAL ANCHORAGE DEVICES THAT ACCOMMODATE DEFLECTION USING SLOTTED HOLES, SCREWS AND ANTI-FRICTION BUSHINGS, PREVENTING ROTATION OF STUDS WHILE MAINTAINING STRUCTURAL PERFORMANCE OF PARTITION.
I. FIT, REINFORCE, AND BRACE FRAMING MEMBERS TO SUIT DESIGN REQUIREMENTS.

D. INSTALLATION:
1.COMPLY WITH REQUIREMENTS OF ASTM C754.
2.VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.
3. VERIFY THAT ROUGH-IN UTILITIES ARE IN PROPER LOCATION.
4.EXTEND PARTITION FRAMING TO STRUCTURE WHERE INDICATED AND TO CEILING IN OTHER LOCATIONS.
5. PARTITIONS TERMINATING AT CEILING: ATTACH CEILING RUNNER SECURELY TO CEILING TRACK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
6.PARTITIONS TERMINATING AT STRUCTURE: ATTACH TOP RUNNER TO STRUCTURE, MAINTAIN CLEARANCE BETWEEN TOP OF STUDS AND STRUCTURE, AND CONNECT STUDS TO TRACK USING SPECIFIED MECHANICAL DEVICES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; VERIFY FREE MOVEMENT OF TOP OF STUD CONNECTIONS; DO NOT LEAVE STUDS UNATTACHED TO TRACK.
7.FIT RUNNERS UNDER AND ABOVE OPENINGS; SECURE INTERMEDIATE STUDS TO SAME SPACING AS WALL STUDS.
8. ALIGN STUD WEB OPENINGS HORIZONTALLY.
9. SECURE STUDS TO TRACKS USING CRIMPING METHOD. DO NOT WELD.
10. STUD SPLICING IS NOT PERMISSIBLE.
11. FABRICATE CORNERS USING A MINIMUM OF THREE STUDS.
12. DOUBLE STUD AT WALL OPENINGS, DOOR AND WINDOW JAMBS, NOT MORE THAN 2 INCHES FROM EACH SIDE OF OPENINGS.
13. BRACE STUD FRAMING SYSTEM RIGID.
14. COORDINATE ERECTION OF STUDS WITH REQUIREMENTS OF DOOR FRAMES; INSTALL SUPPORTS AND ATTACHMENTS.
15. COORDINATE INSTALLATION OF BUCKS, ANCHORS, AND BLOCKING WITH ELECTRICAL, MECHANICAL, AND OTHER WORK TO BE PLACED WITHIN OR BEHIND STUD FRAMING.
16. BLOCKING: USE WOOD BLOCKING SECURED TO STUDS. PROVIDE BLOCKING FOR SUPPORT OF PLUMBING FIXTURES, WALL CABINETS, TOILET ACCESSORIES, HARDWARE, AND OPENING FRAMES.

09 6500 - RESILIENT FLOORING AND WALL BASE

A. SUBMITTALS: PRODUCT DATA AND (1) SAMPLES OF EACH TILE AND BASE SPECIFIED FOR VERIFICATION PURPOSES.

B. BASIS OF DESIGN:
1. LUXURY VINYL TILE: KARNDEAN 56"X9", GLUE DOWN, ART SELECT - CLASSIC HICKORY EW13
2. RUBBER WALL BASE: ROPPE STANDARD 4", 700 SERIES - BLACK

C. ATTIC STOCK: FURNISH ONE (1) BOX FOR EACH 50 BOXES OR FRACTION THEREOF OF EACH TYPE OF FLOOR TILE AND 20' OF EACH COLOR AND TYPE OF WALL BASE PACKAGED WITH PROTECTIVE COVERING AND LABELED FOR STORAGE.

D. RESILIENT TILE PRODUCTS: PROVIDE FLOOR TILE IN TYPE AND SIZES INDICATED IN THE CONSTRUCTION DOCUMENTS COMPLYING WITH THE FOLLOWING:

E. RESILIENT WALL BASE: ASTM TYPE TS (RUBBER, VULCANIZED THERMOSET) 1/8" THICK, FURNISHED IN COILS IN STYLES AND SIZES INDICATED IN THE CONSTRUCTION DOCUMENTS WITH JOB-FORMED INSIDE AND OUTSIDE CORNERS.

F. INSTALLATION ACCESSORIES:
1. LEVELING AND PATCHING COMPOUNDS: LATEX-MODIFIED, PORTLAND CEMENT, OR BLENDED HYDRAULIC CEMENT-BASED FORMULATION PROVIDED OR APPROVED BY FLOORING MANUFACTURER TO SUIT RESILIENT PRODUCTS AND SUBSTRATE CONDITIONS.
2. ADHESIVES: WATER-RESISTANT TYPE RECOMMENDED BY MANUFACTURER TO SUIT RESILIENT PRODUCTS AND SUBSTRATE CONDITIONS. SPREAD ONLY ENOUGH ADHESIVE TO PERMIT INSTALLATION OF MATERIALS BEFORE INITIAL SET.
3. MOLDINGS, TRANSITION AND EDGE STRIPS: SAME MATERIAL AS FLOORING.

G. INSTALLATION:
1. PREPARE CONCRETE SUBSTRATES PER ASTM F 710. VERIFY THAT SUBSTRATES ARE DRY AND FREE OF CURING COMPOUNDS, SEALERS AND HARDENERS.
2. LAY OUT TILES SO WIDTHS AT OPPOSITE EDGES OF ROOM ARE EQUAL AND NOT LESS THAN HALF-WIDTH.
3. LAY TILES IN PATTERNS INDICATED WITH GRAIN DIRECTION ALTERNATING IN ADJACENT TILES, UNLESS NOTED OTHERWISE.
4. CLEAN, SEAL, AND WAX RESILIENT FLOORING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

H. WALL BASE AND ACCESSORY INSTALLATION:
1. CONFIRM THAT SOLID BACKING IS PROVIDED BEHIND ALL WALL BASE. AREAS WHERE GYPSUM BOARD IS HELD MORE THAN 1/2" ABOVE SLAB SHALL BE FILLED IN PRIOR TO BASE INSTALLATION.
2. INSTALL WALL BASE WITH MANUFACTURER'S RECOMMENDED ADHESIVE IN MAXIMUM LENGTHS POSSIBLE. APPLY TO WALLS, COLUMNS, PILASTERS, CASEWORK, AND OTHER PERMANENT FIXTURES.
3. INSTALL TRANSITION STRIPS WHERE FLOORING MATERIALS MEET OR WHERE EDGE OF TILE IS EXPOSED AS INDICATED IN THE FINISH SCHEDULE.

09 6813 - TILE CARPETING

A. SUBMITTALS: PRODUCT DATA AND SAMPLES OF EACH CARPET PRODUCT INDICATED. SUBMIT ACTUAL TILE SAMPLES OF EACH CARPET REQUIRED

B. WARRANTY: PROVIDE SPECIAL PROJECT WARRANTY, SIGNED BY CONTRACTOR, INSTALLER AND MANUFACTURER (CARPET MILL), AGREEING TO REPAIR OR REPLACE DEFECTIVE MATERIALS AND WORKMANSHIP OF CARPETING WORK DURING 1-YEAR WARRANTY PERIOD FOLLOWING SUBSTANTIAL COMPLETION. ATTACH COPIES OF PRODUCT WARRANTIES.

C. ATTIC STOCK: FURNISH FULL-WIDTH CARPET EQUAL TO 5% OF EACH TYPE AND COLOR CARPET INSTALLED, PACKAGED WITH PROTECTIVE COVERING AND LABELED FOR STORAGE.

D. PRODUCTS: PROVIDE CARPET IN PATTERNS AND COLORS AND WITH BACKINGS AS INDICATED IN THE CONSTRUCTION DOCUMENTS WITH CRITICAL RADIANT FLUX CLASSIFICATION CLASS I, NOT LESS THAN 0.45 W/SQ. CM PER ASTM E 648. ORDER ALL MATERIALS FROM THE SAME FACTORY DYE LOT.

E. INSTALLATION ACCESSORIES:
1.TROWELABLE LEVELING AND PATCHING COMPOUNDS: LATEX-MODIFIED, HYDRAULIC-CEMENT-BASED FORMULATION PROVIDED OR RECOMMENDED BY CARPET MANUFACTURER.
2. ADHESIVES: WATER-RESISTANT, MILDEW-RESISTANT, NONSTAINING TYPE TO SUIT PRODUCTS AND SUBFLOOR CONDITIONS INDICATED, THAT COMPLIES WITH FLAMMABILITY REQUIREMENTS FOR INSTALLED CARPET AND IS RECOMMENDED OR PROVIDED BY CARPET MANUFACTURER.

F. INSTALLATION: FOR CARPET TILE COMPLY CRI 104, SECTION 13 "CARPET MODULES (TILES)".
1. GENERAL: COMPLY WITH CRI'S "CRI CARPET INSTALLATION STANDARD" AND WITH CARPET MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS FOR PREPARING SUBSTRATES.
2. USE TROWELABLE LEVELING AND PATCHING COMPOUNDS, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, TO FILL CRACKS, HOLES, DEPRESSIONS, AND PROTRUSIONS IN SUBSTRATES. FILL OR LEVEL CRACKS, HOLES AND DEPRESSIONS 1/8 INCH WIDE OR WIDER, AND PROTRUSIONS MORE THAN 1/32 INCH, UNLESS MORE STRINGENT REQUIREMENTS ARE REQUIRED BY MANUFACTURER'S WRITTEN INSTRUCTIONS.
3.BROOM AND VACUUM CLEAN SUBSTRATES TO BE COVERED IMMEDIATELY BEFORE INSTALLING CARPET.
4.LAY CARPET TILE IN PATTERN AS INDICATED ON CONSTRUCTION DOCUMENTS AND SO WIDTHS AT OPPOSITE EDGES OF ROOM ARE EQUAL AND NOT LESS THAN HALF-WIDTH.
5.TRIM CARPET NEATLY AND TIGHT TO WALLS AND AROUND INTERRUPTIONS.
6.INSTALL PATTERN PARALLEL TO WALLS AND BORDERS UNLESS OTHERWISE INDICATED.
7.DO NOT BRIDGE BUILDING EXPANSION JOINTS WITH CARPET.
8. CUT AND FIT CARPET TO BUTT TIGHTLY TO VERTICAL SURFACES, PERMANENT FIXTURES, AND BUILT-IN FURNITURE INCLUDING CABINETS, PIPES, OUTLETS, EDGINGS, THRESHOLDS, AND NOSINGS. BIND OR SEAL CUT EDGES AS RECOMMENDED BY CARPET MANUFACTURER.
9. EXTEND CARPET INTO TOE SPACES, DOOR REVEALS, CLOSETS, OPEN-BOTTOMED OBSTRUCTIONS, REMOVABLE FLANGES, ALCOVES, AND SIMILAR OPENINGS.
10. MAINTAIN REFERENCE MARKERS, HOLES, AND OPENINGS THAT ARE IN PLACE OR MARKED FOR FUTURE CUTTING BY REPEATING ON CARPET AS MARKED ON SUBFLOOR. USE NONPERMANENT, NONSTAINING MARKING DEVICE.
11. PROTECT CARPET AGAINST DAMAGE FROM CONSTRUCTION OPERATIONS AND PLACEMENT OF EQUIPMENT AND FIXTURES DURING THE REMAINDER OF CONSTRUCTION PERIOD. USE PROTECTION METHODS RECOMMENDED IN WRITING BY CARPET MANUFACTURER.
12. INSTALL TRANSITION STRIPS AT CARPET TERMINATIONS AS SPECIFIED ON THE CONSTRUCTION DOCUMENTS.

09 9000 - PAINTING AND COATING

A. SUBMITTALS: PRODUCT DATA AND THREE (3) DRAW-DOWN SAMPLES OF EACH COLOR AND SHEEN SPECIFIED.

B. ATTIC STOCK: FURNISH ONE (1) GALLON OF EACH PAINT COLOR AND SHEEN, IN CONTAINERS, PROPERLY LABELED AND SEALED.

C. PRODUCTS: PROVIDE MANUFACTURER'S BEST QUALITY PAINTS OF COLOR AND SHEEN AS INDICATED IN THE CONSTRUCTION DOCUMENTS THAT ARE FORMULATED AND RECOMMENDED BY MANUFACTURER FOR APPLICATION INDICATED. PROVIDE MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH SUBSTRATES.

D. PAINT SYSTEMS:
1. ALL PAINT, STAIN, AND VARNISH SHALL BE PRODUCTS OF DEVOE, KWAL, SHERWIN WILLIAMS, PPG INDUSTRIES, PRATT & LAMBERT OR APPROVED EQUAL.
2. ALL MATERIAL SHALL BE OF THE STANDARD RESIDENTIAL GRADE OF THE TYPES DESIGNATED.
3. ALL MATERIAL SHALL BE DELIVERED TO THE JOB SITE IN THE ORIGINAL, UNOPENED, LABELED CONTAINERS. COLORS NOT SPECIFICALLY CALLED FOR IN THE PAINT SCHEDULE WILL BE SELECTED BY THE ARCHITECT.

E. APPLICATION / INSTALLATION:
1. EQUIPMENT: APPLY COATINGS BY BRUSH, ROLLER, SPRAY, OR OTHER APPLICATORS ACCORDING TO COATING MANUFACTURER'S WRITTEN INSTRUCTIONS. WHEN SPRAYED, EXTERIOR COATINGS SHALL BE BACK-ROLLED FOLLOWING SPRAY APPLICATION. USE ROLLERS FOR FINISH COAT ON INTERIOR WALLS AND CEILINGS.
2. PREPARE CONCRETE MASONRY BLOCK TO BE COATED. REMOVE EFFLORESCENCE, CHALK, DUST, DIRT, GREASE, OILS, AND RELEASE AGENTS. ROUGHEN AS REQUIRED TO REMOVE GLAZE. IF HARDENERS OR SEALERS HAVE BEEN USED TO IMPROVE CURING, USE MECHANICAL METHODS TO PREPARE SURFACES.
3. PIGMENTED (OPAQUE) FINISHES: COMPLETELY COVER SURFACES TO PROVIDE A SMOOTH, OPAQUE SURFACE OF UNIFORM APPEARANCE. PROVIDE A FINISH FREE OF CLOUDINESS, SPOTTING, HOLIDAYS, LAPS, BRUSH MARKS, RUNS, SAGS, ROPINESS, OR OTHER SURFACE IMPERFECTIONS.
4. APPLY PRODUCTS PER MANUFACTURER RECOMMENDED GUIDELINES. PRODUCT COVERAGE MINIMUM ONE COAT OF PRIMER AND TWO FINAL COATS ON MATERIALS.APPLY PRODUCTS TO MATERIALS APPROVED BY MANUFCTURER PRODUCT DATA SHEETS.

A. Exterior Work:

1. ALL EXTERIOR GALVANIZED METAL FLASHINGS, CONNECTORS, ETC.	ONE COAT COMMERCIAL METAL ETCH. ONE COAT EXTERIOR METAL PRIMER. TWO COATS EXTERIOR SEMI-GLOSS METAL PAINT.
2. ALL EXPOSED STEEL FRAMES, ANGLES, ETC.	TWO COATS SEMI-GLOSS METAL PAINT. (PRIME COAT CHANNELS, POSTS, RAILINGS, BEAMS, ETC. SURFACES THAT ARE NOT PRIMED.)
3. ALL EXPOSED MISC. FERROUS METAL ITEMS INCLUDING RAILS, PLATES, ANGLES, BOLTS, GRATES, CONDUITS, POSTS, PIPING, ETC.	TWO COATS SEMI-GLOSS METAL PAINT. (PRIME COAT SURFACES THAT ARE NOT PRIMED.)
4. ALL UNPRIMED EXTERIOR MILLWORK, TRIM, SMOOTH WOOD MATERIALS, ETC. SEMI-GLOSS PAINT.	PRIME AND BACK LATEX PRIMER. TWO COATS OF EXTERIOR LATEX SATIN OR
5. PRIMED MILLWORK AND TRIM.	TOUCH-UP PRIME. TWO COATS OF EXTERIOR 100% SATIN OR SEMI-GLOSS ACRYLIC LATEX PAINT.
6. ROUGH SAWN TRIM, BEAMS, COLUMNS, ETC.	ONE COAT PRIMER. TWO COATS EXTERIOR HEAVY BODIED STAIN.
7. PRIMED METAL ENTRY DOORS, FRENCH DOORS AND METAL FRAMES, GARAGE DOORS.	PATCH DENTS, TOUCH UP PRIMER. TWO COATS OF OIL BASE SEMI-GLOSS PAINT INSIDE AND OUTSIDE.
8. ANY OTHER PAINTING REQUIRED BY THE DRAWINGS.	TWO COATS TO MATCH ADJACENT SURFACES.

B. INTERIOR WORK:

1. GYPSUM BOARD WALLS EXCEPT IN KITCHENS, BATHROOMS, LAUNDRIES AND COMMON AREA CORRIDORS, UNLESS SCHEDULED FOR WALLCOVERING	ONE COAT OF PRIME LATEX PAINT AND ONE FINISH COAT OF LATEX EGGSHELL WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.) ONE WALL IN EACH APARTMENT UNIT LIVING SPACE AND EACH BEDROOM SHALL BE PAINTED ACCENT COLORS.
2. GYPSUM BOARD WALLS IN KITCHENS, BATHROOMS AND LAUNDRIES UNLESS SCHEDULED FOR WALLCOVERING OR TILE.	ONE COAT OF EPOXY COMPATABLE PRIMER PAINT AND ONE FINISH COAT OF EPOXY EGGSHELL WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.)
3. GYPSUM BOARD WALLS IN COMMON AREA CORRIDORS	ONE COAT OF PRIME LATEX PAINT AND ONE FINISH COAT OF SCRUBABLE LATEX FLAT WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.)
4. (CMU) - CONCRETE MASONRY UNIT WALLS.	BLOCK FILLER: PPG PAINTS; 6-15XI SPEEDHIDE INTERIOR/EXTERIOR HI FILL ACRYLIC MASONRY BLOCK FILLER/ PRIMER. APPLIED AT A DRY FILM THICKNESS OF NOT LESS THAN 7.0 MILS. TWO FINISH COATS ACRYLIC EGGSHELL FINISH OVER PRIMER.
5. GYPSUM BOARD CEILINGS.	TWO COATS OF LATEX FLAT PAINT. TWO COATS OF CLASS II VAPOR RETARDER PAINT AT CEILINGS ADJACENT TO ATTICS.
6. DOOR CASINGS, BASE, WOOD, MILL-WORK, ETC. (PRE-PRIMED.)	ONE PRIME COAT OF LATEX PAINT, ONE COAT LATEX PAINT AND ONE FINISH COAT OF LATEX SEMI-GLOSS PAINT.
7. PRIMED HARDWOOD DOORS.	ONE COAT OF LATEX PAINT AND ONE FINISH COAT OF LATEX SEMI-GLOSS PAINT.
8. ALL MISCELLANEOUS FERROUS METAL, INCLUDING GRILLES, REGISTERS, ETC.	TWO COATS METAL PAINT TO MATCH ADJACENT SURFACES UNLESS FACTORY PREFINISHED WHITE
9. ANY OTHER PAINTING WORK REQUIRED BY THE DRAWINGS.	FINISH TO MATCH SIMILAR CONDITIONS.

09 3000 - TILING

A. SUBMITTALS: PRODUCT DATA FOR SETTING AND GROUTING MATERIALS AND THREE (3) SAMPLES OF EACH TILE SPECIFIED FOR VERIFICATION PURPOSES.

B. ATTIC STOCK: FURNISH 2% OF EACH TYPE OF CERAMIC TILE PACKAGED WITH PROTECTIVE COVERING AND LABELED FOR STORAGE.

C. BASIS OF DESIGN: SEE DRAWING SCHEDULES.

D. TILE: COMPLY WITH STANDARD GRADE REQUIREMENTS IN ANSI A137.1 "SPECIFICATIONS FOR CERAMIC TILE" FOR PRODUCTS AND SIZES INDICATED IN THE CONSTRUCTION DOCUMENTS.

E. INSTALLATION MATERIALS:
1. THIN-SET MORTAR:
A. TYPICAL INTERIOR INSTALLATIONS: LATEX/POLYMER MODIFIED PORTLAND CEMENT COMPLYING WITH ANSI A108.5 AND ANSI 118.4.
2. GROUT:UNSANDED FOR JOINTS 1/16" WIDTH OR LESS, SANDED FOR JOINTS GREATER THAN 1/16" IN COLOR INDICATED IN SCHEDULE OR TO BE SELECTED BY ARCHITECT AND OWNER.
A. TYPICAL INTERIOR INSTALLATIONS: STANDARD CEMENT GROUT WITH INTEGRAL STAIN INHIBITORS (TEC ACCUCOLOR XT, OR EQUAL)
3. SETTING BED ACCESSORIES: ANSI A 108.1A

F. INSTALLATION METHODS: COMPLY WITH TILE INSTALLATION STANDARDS IN ANSI'S "SPECIFICATIONS FOR THE INSTALLATIONS OF CERAMIC TILE" AND TCA'S "HANDBOOK FOR CERAMIC TILE INSTALLATION" THAT APPLY TO THE MATERIALS AND METHODS INDICATED BELOW:

G.TERMINATIONS:
1. WHERE CUT TILE IS SPECIFIED AS THE TOP COURSE ON WALL WAINSCOTING OR WALL BASE WITH AN EXPOSED TOP EDGE, THE FACTORY EDGE SHALL BE USED AS THE EXPOSED EDGE.

H. CONFLICTS: IF NOT ADDRESSED ON DRAWINGS, WHERE ELECTRICAL DEVICES OR TOILET ACCESSORIES STRADDLE THE TRANSITION FROM THE TOP EDGE OF WAINSCOT WALL TILE TO GYPSUM BOARD SUBSTRATE, CONTACT ARCHITECT FOR RESOLUTION.

I. GROUT JOINTS:
1. JOINT SIZE: SET TILE WITH THE SMALLEST GROUT JOINT ACHIEVABLE AND AS RECOMMENDED BY THE MFR. BASED ON THE TILE PRODUCT AND SUBSTRATE CONDITIONS, UNLESS NOTED OTHERWISE.
2. TILE PATTERN: LAY TILE IN PATTERNS AS INDICATED IN THE CONSTRUCTION DOCUMENTS. ALIGN JOINTS WHERE ADJOINING TILES ON FLOOR, BASE, WALLS, AND TRIM ARE THE SAME SIZE, UNLESS INDICATED OTHERWISE.
3. INSTALLATION: INSTALL GROUT PER MANUFACTURER'S INSTRUCTIONS, EXERCISING CARE TO AVOID REMOVAL OF GROUT COLOR BY USE OF EXCESS WATER DURING INSTALLATION. FADED OR CHALKY GROUT SHALL BE CAUSE FOR REJECTION.
4. SEALER: AFTER FULLY CURED, GROUT SHALL BE SEALED WITH TWO (2) COATS OF COMMERCIAL QUALITY PENETRATING SILICONE SEALER.

09 5100 - ACOUSTICAL CEILINGS

A. SUBMITTALS: PRODUCT DATA ONLY

B. ATTIC STOCK: FURNISH 2% OF EACH TYPE OF CEILING TILE PACKAGED WITH PROTECTIVE COVERING AND LABELED FOR STORAGE.

C. ACOUSTICAL TILE PRODUCTS: PROVIDE CEILING TILE IN TYPE AND SIZES INDICATED IN THE CONSTRUCTION DOCUMENTS COMPLYING WITH ASTM E 1264, CLASS A MATERIALS, TESTED PER ASTM E 84.

D. SUSPENSION SYSTEM: PROVIDE HEAVY DUTY, DIRECT-HUNG, SUSPENSION SYSTEMS AS INDICATED IN THE CONSTRUCTION DOCUMENTS COMPLYING WITH ASTM C 635. FURNISH ALUMINUM GRID IN SHOWERS, KITCHENS, AND OTHER HIGH-HUMIDITY AREAS.
1. ATTACHMENT DEVICES: SIZE FOR FIVE (5) TIMES THE DESIGN LOAD INDICATED IN ASTM C 635, TABLE 1, DIRECT HUNG UNLESS OTHERWISE INDICATED.
2. WIRE HANGERS, BRACES, AND TIES: ZINC-COATED CARBON-STEEL WIRE; ASTM A 641/ (A 641 M), CLASS 1 ZINC COATING, SOFT TEMPER WITH A YIELD STRENGTH AT LEAST THREE (3) TIMES THE HANGER DESIGN LOAD (ASTM C 635, TABLE 1, DIRECT HUNG), BUT NOT LESS THAN 0.135" DIAMETER WIRE.
3. SEISMIC STRUTS: MANUFACTURER'S STANDARD PRODUCT DESIGNED TO ACCOMMODATE SEISMIC FORCES.
4. HOLD-DOWN CLIPS: PROVIDE HOLD-DOWN CLIPS ON CEILING TILE IN ENTRANCE VESTIBULES, COMPUTER ROOMS EMPLOYING DRY CHEMICAL FIRE-SUPPRESSION SYSTEMS, AND OTHER AREAS AS INDICATED.

F. INSTALLATION: COMPLY WITH ASTM C 636 AND CISCA'S "CEILING SYSTEMS HANDBOOK".
1. SEQUENCE WORK TO ENSURE ACOUSTICAL CEILINGS ARE NOT INSTALLED UNTIL BUILDING IS ENCLOSED, SUFFICIENT HEAT IS PROVIDED, DUST GENERATION ACTIVITIES HAVE TERMINATED, AND OVERHEAD WORK IS COMPLETED, TESTED, AND APPROVED.
2. INSTALL CEILING GRID AS INDICATED TO BE SYMMETRICAL ABOUT BOTH AXES OF EACH ROOM USING NOT LESS THAN HALF-SIZE TILE UNLESS INDICATED OTHERWISE ON THE REFLECTED CEILING PLAN.
3. SUPPORT SUSPENSION SYSTEM INDEPENDENTLY OF DUCTS, PIPES, AND CONDUITS.
4. SUPPORT FIXTURE LOADS USING SUPPLEMENTARY HANGERS LOCATED WITHIN 6" OF EACH CORNER OR SUPPORT FIXTURES INDEPENDENTLY.
5. PROVIDE MATCHING PERIMETER MOLDING INSTALLED IN BEAD OF ACOUSTICAL SEALANT AT ALL LOCATIONS WHERE CEILING INTERSECTS VERTICAL SURFACES. USE MATCHING PRE-FORMED CLOSURES AT ROUND OR CURVED OBSTRUCTIONS.
6. FIELD-CUT EDGES SHALL MATCH PROFILE OF FACTORY EDGES.

DIVISION 10 - SPECIALTIES

10 2800 TOILET AND BATH ACCESSORIES

A. REFERENCE CONSTRUCTION DRAWINGS & SCHEDULES FOR TYPE, QUANTITY, AND LOCATIONS OF TOILET AND BATH ACCESSORIES.

B. SUBMITTALS
1. PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:
2. PREPARATION INSTRUCTIONS AND RECOMMENDATIONS.
3. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.
4. INSTALLATION METHODS.

B. INSTALLATION:
1. INSTALLER MUST EXAMINE SUBSTRATES, PREVIOUSLY INSTALLED INSERTS AND ANCHORAGES NECESSARY FOR MOUNTING OF TOILET ACCESSORIES, AND OTHER CONDITIONS UNDER WHICH INSTALLATION IS TO OCCUR, AND MUST NOTIFY CONTRACTOR IN WRITING OF CONDITIONS DETRIMENTAL TO PROPER AND TIMELY COMPLETION OF WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN MANNER ACCEPTABLE TO INSTALLER.
2. INSTALL ACCESSORIES ACCORDING TO RESPECTIVE MANUFACTURERS' WRITTEN INSTRUCTIONS, USING FASTENERS APPROPRIATE TO SUBSTRATE INDICATED AND RECOMMENDED BY UNIT MANUFACTURER. I NSTALL UNITS LEVEL, PLUMB, AND FIRMLY ANCHORED IN LOCATIONS AND AT HEIGHTS INDICATED. ADHESIVE INSTALLATIONS ARE NOT PERMITTED.
3. MOUNTING HEIGHTS SHALL BE AS RECOMMENDED BY THE ACCESSORY MANUFACTURER AND AT HEIGHTS RECOMMENDED BY USE FOR PHYSICALLY HANDICAPPED TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT.
4. GRAB BARS: INSTALL TO WITHSTAND A DOWNWARD LOAD OF AT LEAST 250 LBF, WHEN TESTED ACCORDING TO ASTM F 446.
5. ADJUST ACCESSORIES FOR PROPER OPERATION AND VERIFY THAT MECHANISMS FUNCTION SMOOTHLY.
6. CLEAN AND POLISH ALL EXPOSED SURFACES AFTER REMOVING PROTECTIVE COATINGS.

10 3000 SOLID PLASTIC TOILET COMPARTMENTS

A. REFERENCE CONSTRUCTION DRAWINGS & SCHEDULES FOR TYPE, QUANTITY, AND LOCATIONS OF TOILET AND BATH ACCESSORIES.

B. PRODUCTS

BASIS OF DESIGN: ECLIPSE TOILET PARTITIONS AS MANUFACTURED BY AND SUPPLIED BY SCRANTON
1. STYLE: FLOOR MOUNTED OVERHEAD-BRACED TOILET COMPARTMENTS.
2. DOORS AND PANELS: HIGH DENSITY POLYETHYLENE (HDPE), FABRICATED FROM SEQ CHAPTER 1 EXTRUDED POLYMER RESINS, FORMING SINGLE THICKNESS PANEL.
A. WATERPROOF AND NONABSORBENT, WITH SELF-LUBRICATING SURFACE, RESISTANT TO MARKS BY PENS, PENCILS, MARKERS, AND OTHER WRITING INSTRUMENTS.
B. THICKNESS: 1 INCH (25 MM).
C. EDGES: SHIPLAP.
3. PANEL COLOR: TRADITIONAL SERIES:1. SHALE - ORANGE PEEL.
4. DOORS AND PANELS: HIGH PRIVACY: HEIGHT: 62 INCHES (1575 MM) HIGH AND MOUNTED AT 8 TO 14 INCHES (203 TO 356 MM) ABOVE THE FINISHED FLOOR.

C. SUBMITTALS
1. PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:
2. PREPARATION INSTRUCTIONS AND RECOMMENDATIONS.
3. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.
4. INSTALLATION METHODS.
5. SHOP DRAWINGS: PROVIDE LAYOUT DRAWINGS AND INSTALLATION DETAILS WITH LOCATION AND TYPE OF HARDWARE REQUIRED.
6. SELECTION SAMPLES: FOR EACH FINISH PRODUCT SPECIFIED, TWO COMPLETE SETS OF COLOR CHIPS REPRESENTING MANUFACTURER'S FULL RANGE OF AVAILABLE COLORS AND PATTERNS.

D. POSTS, RAILS AND HARDWARE:
1. METAL POSTS: 82.75 INCHES (2102 MM) HIGH, HEAVY DUTY EXTRUDED ALUMINUM, CLEAR ANODIZED FINISH, FASTENED TO FOOT WITH STAINLESS STEEL TAMPER RESISTANT SCREW.
2. HIDDEN SHOE (FOOT): ONE-PIECE MOLDED POLYETHYLENE INVISIBLE SHOE INSERTED INTO METAL POST AND SECURED TO METAL POST WITH STAINLESS STEEL TAMPER RESISTANT SCREW.
3. HEADRAIL CAP AND CORNER CAP: ONE-PIECE MOLDED POLYETHYLENE SECURED TO METAL POST WITH STAINLESS STEEL TAMPER RESISTANT SCREW; ADJUSTABLE TO LEVEL HEADRAIL TO FINISHED FLOOR.
4. WALL BRACKETS: CONTINUOUS HEAVY DUTY EXTRUDED ALUMINUM, CLEAR ANODIZED FINISH, INSERTED INTO SLOTTED PANEL AND FASTENED TO PANELS WITH STAINLESS STEEL TAMPER RESISTANT SCREWS.
5. HEADRAIL: HEAVY DUTY EXTRUDED ALUMINUM, CLEAR ANODIZED FINISH, SECURED TO WALL WITH STAINLESS STEEL TAMPER SCREWS.
6. DOOR HARDWARE:
A. HINGES: EDGE-MOUNTED HELIX STYLE STAINLESS STEEL CONTINUOUS HINGE. CLOSING DEGREE: 5 DEGREES. COMES TO A FULL CLOSE ON ITS OWN WEIGHT.
B.OCCUPANCY INDICATOR LATCH AND HOUSING: MATERIAL: SATIN STAINLESS STEEL. OCCUPANCY INDICATORS: GREEN FOR OCCUPIED AND RED NOT OCCUPIED. SLIDE BOLT AND BUTTON.
C.COAT HOOK AND DOOR BUMPER COMBINATION: MATERIAL: CHROME PLATED ZAMAK. HANDICAP DOOR: EQUIP WITH SECOND DOOR PULL AND DOOR STOP.
D. DOOR PULLS: CHROME PLATED ZAMAK:

E. INSTALLATION:
1. CLEAN SURFACES THOROUGHLY PRIOR TO INSTALLATION.
2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SHOP DRAWINGS.
3. INSTALL PARTITIONS RIGID, STRAIGHT, PLUMB, AND LEVEL.
4. LOCATE BOTTOM EDGE OF DOORS AND PANELS ___ INCHES ABOVE FINISHED FLOOR.
5. CLEARANCE AT VERTICAL EDGES OF DOORS SHALL BE UNIFORM TOP TO BOTTOM AND SHALL NOT EXCEED 3/8 INCH (9.5 MM).
6. NO EVIDENCE OF CUTTING, DRILLING, AND/OR PATCHING SHALL BE VISIBLE ON THE FINISHED WORK.
7. FINISHED SURFACES SHALL BE CLEANED AFTER INSTALLATION AND BE LEFT FREE OF IMPERFECTIONS.
8. ADJUST DOORS AND LATCHES TO OPERATE CORRECTLY.
9. PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT.
10. TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.

10 4400 - FIRE PROTECTION SPECIALTIES

A. REFERENCE CONSTRUCTION DRAWINGS FOR TYPE, SIZE AND LOCATIONS OF FIRE EXTINGUISHERS AND CABINETS.

DIVISION 11 - EQUIPMENT

11 3000 - APPLIANCES

A. REFERENCE CONSTRUCTION DRAWINGS FOR QUANTITY, AND LOCATION OF APPLIANCES TO BE FURNISHED BY OWNER.

12 3661 COUNTERTOPS

A. REFERENCE CONSTRUCTION DRAWINGS & SCHEDULES FOR TYPE, QUANTITY, AND LOCATIONS OF TOILET AND BATH ACCESSORIES.

B. SUBMITTALS: INCLUDE PLANS, SECTIONS, DETAILS, AND ATTACHMENTS TO OTHER WORK:
1. PRODUCT DATA :FOR EACH STONE, STONE ACCESSORY, AND MANUFACTURED PRODUCT.
2. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.
3. SAMPLES: FOR EACH STONE TYPE INDICATED.

C. FIELD CONDITIONS:
1. FIELD MEASUREMENTS: VERIFY DIMENSIONS OF CONSTRUCTION TO RECEIVE STONE COUNTERTOPS BY FIELD MEASUREMENTS BEFORE FABRICATION.

D. PRODUCTS:
1. SOURCE LIMITATIONS FOR STONE: OBTAIN FROM A SINGLE SOURCE TO PROVIDE MATERIALS OF CONSISTENT QUALITY IN APPEARANCE AND PHYSICAL PROPERTIES.

E. COUNTERTOPS
1. QUALITY STANDARD: PREMIUM GRADE, IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS), UNLESS NOTED OTHERWISE.
2. QUALITY STANDARD: SEFA 3 FOR LABORATORY WORKSURFACES.
3. PLASTIC LAMINATE COUNTERTOPS: HIGH-PRESSURE DECORATIVE LAMINATE (HPDL) SHEET BONDED TO SUBSTRATE.
A. LAMINATE SHEET: NEMA LD 3, GRADE HGS, 0.048 INCH NOMINAL THICKNESS.
B. EXPOSED EDGE TREATMENT: AS NOTED , SUBSTRATE BUILT UP TO MINIMUM 1-1/4 INCH THICK; COVERED WITH MATCHING LAMINATE.
C. BACK AND END SPLASHES: SAME MATERIAL, SAME CONSTRUCTION.
D. FABRICATE IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS), SECTION 11 - COUNTERTOPS, CUSTOM GRADE.

MANUFACTURERS:
1. REFER TO FINISH LEGEND.

4. NATURAL QUARTZ AND RESIN COMPOSITE COUNTERTOPS: SHEET OR SLAB OF NATURAL QUARTZ AND PLASTIC RESIN OVER CONTINUOUS SUBSTRATE.
A. FLAT SHEET THICKNESS: 1-1/4 INCH, MINIMUM.
B. NATURAL QUARTZ AND RESIN COMPOSITE SHEETS, SLABS AND CASTINGS: COMPLYING WITH ISFA 3-01 AND NEMA LD 3; ORTHOPHTHALIC POLYESTER RESIN, MINERAL FILLER, AND PIGMENTS; HOMOGENOUS, NON-POROUS AND CAPABLE OF BEING WORKED AND REPAIRED USING STANDARD WOODWORKING TOOLS; NO SURFACE COATING; COLOR AND PATTERN CONSISTENT THROUGHOUT THICKNESS.

MANUFACTURERS:
1. REFER TO FINISH LEGEND FOR SOLID SURFACE AND CORIAN QUARTZ DESCRIPTIONS, MANUFACTURERS, PRODUCT NUMBERS, COLORS, SIZES AND CONTACT INFORMATION.

C. FACTORY FABRICATE COMPONENTS TO THE GREATEST EXTENT PRACTICAL IN SIZES AND SHAPES INDICATED; COMPLY WITH THE MIA DIMENSION STONE DESIGN MANUAL.
D. FINISH ON EXPOSED SURFACES: POLISHED.
E. COLOR AND PATTERN: AS INDICATED ON DRAWINGS.

F. INSTALLATION:
1. SECURELY ATTACH COUNTERTOPS TO CABINETS OR SUPPORTS USING CONCEALED FASTENERS. MAKE FLAT SURFACES LEVEL; SHIM WHERE REQUIRED.
2. ATTACH PLASTIC LAMINATE COUNTERTOPS USING SCREWS WITH MINIMUM PENETRATION INTO SUBSTRATE BOARD OF 5/8 INCH.
3. SEAL JOINT BETWEEN BACK/END SPLASHES AND VERTICAL SURFACES.
4. GENERAL: INSTALL COUNTERTOPS OVER PLYWOOD SUBTOPS WITH FULL SPREAD OF WATER CLEANABLE EPOXY ADHESIVE.
5. GENERAL: INSTALL COUNTERTOPS BY ADHERING TO SUPPORTS WITH WATER CLEANABLE EPOXY ADHESIVE.
6. SET STONE TO COMPLY WITH REQUIREMENTS INDICATED. SHIM AND ADJUST STONE TO LOCATIONS INDICATED, WITH UNIFORM JOINTS OF WIDTHS INDICATED AND WITH EDGES AND FACES ALIGNED ACCORDING TO ESTABLISHED RELATIONSHIPS.
7. SPACE JOINTS WITH 1/16‑ INCH GAP FOR FILLING WITH SEALANT. USE TEMPORARY SHIMS TO ENSURE UNIFORM SPACING. CLAMP UNITS TO TEMPORARY BRACING, SUPPORTS, OR EACH OTHER TO ENSURE THAT COUNTERTOPS ARE PROPERLY ALIGNED AND JOINTS ARE OF SPECIFIED WIDTH.
8. COMPLETE CUTOUTS NOT FINISHED IN SHOP. MASK AREAS OF COUNTERTOPS ADJACENT TO CUTOUTS TO PREVENT DAMAGE WHILE CUTTING. USE POWER SAWS WITH DIAMOND BLADES TO CUT STONE. MAKE CUTOUTS TO ACCURATELY FIT ITEMS TO BE INSTALLED, AND AT RIGHT ANGLES TO FINISHED SURFACES UNLESS BEVELING IS REQUIRED FOR CLEARANCE. EASE EDGES SLIGHTLY TO PREVENT SNIPPING.
9. INSTALL BACKSPLASHES AND END SPLASHES BY ADHERING TO WALL WITH WATER‑ CLEANABLE EPOXY ADHESIVE. LEAVE 1/16‑ INCH GAP BETWEEN COUNTERTOP AND SPLASHES FOR FILLING WITH SEALANT. USE TEMPORARY SHIMS TO ENSURE UNIFORM SPACING.
10. GROUT JOINTS TO COMPLY WITH ANSI A108.10. REMOVE TEMPORARY SHIMS BEFORE GROUTING. TOOL GROUT UNIFORMLY AND SMOOTHLY WITH PLASTIC TOOL.
11. APPLY SEALANT TO JOINTS AND GAPS SPECIFIED FOR FILLING WITH SEALANT; COMPLY WITH SECTION 079200 "JOINT SEALANTS." REMOVE TEMPORARY SHIMS BEFORE APPLYING SEALANT.
12. ASSURE THAT SEAMS ARE SMOOTH, LEVEL AND TIGHT. SEAMS SHALL BE FILLED ENTIRELY SO FLUSH WITH COUNTERTOP. POLISH SURFACE AT SEAM. ASSURE THAT FILLER IS "NON‑ YELLOWING."
13. CLEANING: CLEAN COUNTERTOPS AS WORK PROGRESSES. REMOVE ADHESIVE, GROUT, MORTAR, AND SEALANT SMEARS IMMEDIATELY. CLEAN STONE COUNTERTOPS NO FEWER THAN SIX DAYS AFTER COMPLETION OF INSTALLATION, USING CLEAN WATER AND SOFT RAGS. DO NOT USE WIRE BRUSHES, ACID TYPE CLEANING AGENTS, CLEANING COMPOUNDS WITH CAUSTIC OR HARSH FILLERS, OR OTHER MATERIALS OR METHODS THAT COULD DAMAGE STONE.
14. SEALER APPLICATION: APPLY STONE SEALER TO COMPLY WITH STONE PRODUCER'S AND SEALER MANUFACTURER'S WRITTEN INSTRUCTIONS.

DIVISION 32 - EXTERIOR IMPROVEMENTS

32 3113 - FENCES, GATES & HARDWARE

A. REFERENCE CONSTRUCTION DRAWINGS FOR QUANTITY, AND LOCATIONS

B.SUBMITTALS: THE CONTRACTOR SHALL PREPARE, AND SUBMIT TO THE ARCHITECT FOR APPROVAL, COMPLETE SHOP DRAWINGS FOR ALL WORK INCLUDED.PROVIDE PRODUCT DATA IN THE FORM OF MANUFACTURER'S TECHNICAL DATA, SPECIFICATIONS, AND INSTALLATIONS FOR FENCE, POSTS, GATE UPRIGHTS, POST CAPS, GATES, GATE HARDWARE AND ACCESSORIES.VERIFY LAYOUT INFORMATION FOR FENCES AND GATES SHOWN ON THE DRAWINGS IN RELATION TO THE PROPERTY SURVEY AND EXISTING STRUCTURES. VERIFY DIMENSIONS BY FIELD MEASUREMENTS. PROVIDE SAMPLES IN THE FORM OF 3" LENGTHS OF ACTUAL PRODUCT USED.

C. WARRANTY: LIFETIME NON-PRORATED LIMITED TRANSFERABLE WARRANTY APPLIES TO ORIGINAL HOMEOWNER/CONSUMER, OR 30 YEAR NON-PRORATED LIMITED WARRANTY APPLIES TO COMMERCIAL APPLICATIONS.

D. BASIS OF DESIGN: CITY SCAPES CORVIT/TOUGHGATE

E. MATERIALS:
1. POSTS, RAILS, PICKETS, GATE UPRIGHTS, POST CAPS, AND ACCESSORIES SHALL BE OF HIGH IMPACT, ULTRA VIOLET (U.V.) RESISTANT, RIGID PVC, AND SHALL COMPLY WITH ASTM D 1784, CLASS 14344B.
2.FENCE POSTS: ONE PIECE EXTRUDED, OF LENGTHS INDICATED AND PRE-ROUTED TO RECEIVE RAILS AT SPACING INDICATED. PROVIDE CROSS SECTION, WALL THICKNESS AND CORNER RADIUS MINIMUM TOLERANCES.
3.RAILS: ONE PIECE EXTRUDED, OF LENGTHS INDICATED PRE-ROUTED TO RECEIVE PICKETS AT SPACING INDICATED.
PROVIDE CROSS SECTION, WALL THICKNESS AND CORNER RADIUS MINIMUM TOLERANCES.
4. PICKETS: ONE PIECE EXTRUDED, OF LENGTHS INDICATED. PROVIDE CROSS SECTION, WALL THICKNESS AND CORNER RADIUS MINIMUM TOLERANCES. PICKET SPACING FULL PRIVACY.
5.GATE UPRIGHTS: ONE PIECE EXTRUDED, OF LENGTHS INDICATED WITH ALUMINUM U CHANNEL INSERT. PROVIDE CROSS SECTION, WALL THICKNESS AND CORNER RADIUS MINIMUM TOLERANCES.
6. POST CAPS: MOLDED, ONE PIECE. CROSS SECTION TO MATCH POST OR GATE SECTION. PROVIDE MINIMUM THICKNESS REQUIREMENTS. CONFIGURATION: FLAT OR FOUR-SIDED AS REQUIRED FOR INSTALLATION TO TOP OF POSTS AND GATE. ACCESSORIES: MANUFACTURERS' STANDARD GATE BRACE, SCREW CAPS, RAIL END REINFORCERS, AND OTHER ACCESSORIES AS REQUIRED.
7. STIFFENER CHANNELS, GALVANIZED STEEL STRUCTURAL CHANNEL. CONFIGURE CHANNELS FOR CONCEALED INSTALLATION WITHIN PVC RAILS WITH PRE-DRILLED HOLES FOR DRAINAGE. ALUMINUM EXTRUDED CHANNEL AVAILABLE UPON REQUEST. CROSS SECTION: 1.775 X 1.700 GALVANIZED STEEL CHANNEL THICKNESS: 0.040 GAUGE (MINIMUM).
8. FASTENERS AND ANCHORAGE: STAINLESS STEEL. ALL FASTENERS TO BE CONCEALED OR COLORED HEADS TO MATCH. PROVIDE SIZES AS RECOMMENDED BY FENCE MANUFACTURER.
9. PVC CEMENT: AS RECOMMENDED BY FENCE MANUFACTURER.

F. HARDWARE:
1. GENERAL: PROVIDE HARDWARE AND ACCESSORIES FOR EACH GATE ACCORDING TO THE FOLLOWING REQUIREMENTS:
2. HINGES: COLOR- BLACK, SIZE AND MATERIAL TO SUIT GATE SIZE, NON LIFT-OFF TYPE, SELF CLOSING, GLASS FILLED NYLON WITH ADJUSTER PLATE, OFFSET TO PERMIT 120 DEGREE GATE OPENING. PROVIDE ONE PAIR OF HINGES FOR EACH GATE.
3. LATCH: FINISH TO MATCH HINGE. MANUFACTURERS' STANDARD SELF LATCHING, GLASS FILLED NYLON AND STAINLESS STEEL COMPOSITION SINGLE OR DUAL ACCESS GRAVITY LATCH. PROVIDE ONE LATCH PER GATE.
4. HARDWARE: FINISH TO MATCH HINGE.STAINLESS STEEL. PROVIDE SIZES AS RECOMMENDED BY FENCE MANUFACTURER.

G. CONCRETE:
1. CONCRETE: PROVIDE CONCRETE CONSISTING OF PORTLAND CEMENT PER ASTM C 150, AGGREGATES PER ASTM C 33, AND POTABLE WATER. MIX MATERIALS TO OBTAIN CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2000 PSI. USE AT LEASE FOUR SACKS OF CEMENT PER CUBIC YARD, 1-INCH MAXIMUM SIZE AGGREGATE, 3-INCH MAXIMUM SLUMP. USE ½ INCH MAXIMUM SIZE AGGREGATE IN POST WHERE REQUIRED.
2. PACKAGES CONCRETE MIX: MIX DRY-PACKAGED NORMAL-WEIGHT CONCRETE CONFORMING TO ASTM C 387 WITH CLEAN WATER TO OBTAIN A 2 TO 3 INCH SLUMP.

H. INSTALLATION:
1. INSTALL FENCE IN COMPLIANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. DURING INSTALLATION, PVC COMPONENTS SHALL BE CAREFULLY HANDLED AND STORED TO AVOID CONTACT WITH ABRASIVE SURFACES. INSTALL COMPONENTS IN SEQUENCE AS RECOMMENDED BY FENCE MANUFACTURER.
A. INSTALL FENCING AS INDICATED ON THE DRAWINGS PROVIDED.
B. VARIATIONS FROM THE INSTALLATION INDICATED MUST BE APPROVED.
C. VARIATIONS FROM THE FENCE AND GATE INSTALLATION INDICATED AND ALL COSTS FOR REMOVAL AND REPLACEMENT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
D. ALLOW MINIMUM 72 HOURS TO LET CONCRETE SET-UP BEFORE OPENING GATES.
E. CLEANING, REMOVE ALL TRACES OF DIRT AND SOILED AREAS.

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PERMIT SET

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REVISION DATES:

STATE OF MISSOURI ROGER L. WEBB II NUMBER A-2016004098 ARCHITECT
5.2.2023
PROFESSIONAL SEAL

G502

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

GENERAL PROJECT SPECIFICATIONS

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03_Abbreviation Schedule	
Abbreviation	Abbreviation Name
+/-	PLUS OR MINUS
ADDNL	ADDITIONAL
ADJ	ADJACENT
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AR	ANCHOR ROD
ARCH	ARCHITECT OR ARCHITECTURAL
B/	BOTTOM OF
B/W	BETWEEN
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BWP	BRACED WALL PANEL
CFS	COLD FORMED STEEL
CHKD	CHECKED
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CTR	CENTER
db	DIA OF REINF BAR, DIA OF BOLT
DBA	DEFORMED BAR ANCHOR
DIA or Ø	DIAMETER
DIAG	DIAGONAL
DIR	DIRECTION
DWL	DOWEL
EA	EACH
EE	EXTENDED END
EJ	EXPANSION JOINT
ELEV	ELEVATION
EN	EDGE NAILING
ENGR	ENGINEER
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EQ	EQUAL
EW	EACH WAY
EXIST	EXISTING
EXT	EXTERIOR
FDN	FOUNDATION
FLG	FLANGE
FLR	FLOOR
FS	FAR SIDE
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HSS	HOLLOW STRUCTURAL SECTION
IF	INSIDE FACE
INT	INTERIOR
JST	JOIST
K	KIPS (1000 LBS)
LCE	COMPRESSION EMBEDMENT LENGTH
LCS	COMPRESSION LAP SPLICE LENGTH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SLOTTED HOLE
LTE	TENSION EMBEDMENT LENGTH
LTS	TENSION LAP SLICE LENGTH
LW	LIGHTWEIGHT
MFCR	MANUFACTURER
MTL	METAL
NIC	NOT IN CONTRACT
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OF	OUTSIDE FACE
OPP	OPPOSITE
OVS	OVERSIZED
P/C	PRECAST
PAF	POWDER ACTUATED FASTENER
PAR	PARALLEL
PEMB	PRE-ENGINEERED METAL BUILDING
PEN	PENETRATION
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
RC	REINFORCED CONCRETE
RE:	REFER TO
REINF	REINFORCING
REQD	REQUIRED
RF	RIGID FRAME
SC	SLIP CRITICAL
SDS	SELF DRILLING SCREW
SIM	SIMILAR
SLV	SHORT LEG VERTICAL
SOG	SLAB ON GRADE
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STIR	STIRRUPS
STL	STEEL
SW	SHEAR WALL
SYM	SYMMETRIC
T&B	TOP AND BOTTOM
T/	TOP OF
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W/	WITH
W/O	WITHOUT
WF	WIDE FLANGE
WP	WORK POINT
WWR	WELDED WIRE REINFORCEMENT

STRUCTURAL DESIGN CRITERIA (2018 IBC AND ASCE 7-16):

1. BUILDING OCCUPANCY RISK CATEGORY III.

2. LIVE LOADS [UNIFORM (PSF) / POINT LOADS (KIPS)]:
-- ROOF:..20 PSF / 300#
-- GROUND LEVEL SLAB ....100 PSF / 2.0 K
-- MEZZANINE & STAIRS ....100 PSF / 300#

3. ROOF SNOW LOAD:
-- GROUND SNOW LOAD (Pg):.............................20 PSF
-- FLAT ROOF SNOW LOAD (Pf): ....16.94 PSF W/ DRIFT
-- MIN UNIFORM ROOF SNOW LOAD (Pm):..........22 PSF (NO DRIFT OR RAIN)
-- RAIN ON SNOW SURCHARGE (Prs) ....5.0 PSF
-- SNOW EXPOSURE FACTOR (Ce):....................1.0, EXPOSURE C
-- SNOW LOAD IMPORTANCE FACTOR (Is):..........1.0
-- THERMAL FACTOR (Ct):...................................1.1 (just above freezing)
– SLOPE FACTOR (CS)..1.0

4. WIND DESIGN DATA:
-- BASIC WIND SPEED (3 SEC GUST):..................117 MPH
– ASD WIND SPEED, V(ASD)....................................90 MPH
-- WIND EXPOSURE:..C
-- GROUND ELEVATION ABOVE SEA LEVEL........1,000 FT
-- DIRECTIONALITY FACTOR (Kd) 0.85
-- INTERNAL PRESSURE COEFF:.......................0.18
-- COMPONENTS AND CLADDING WIND (ULTIMATE 1.0*W) PRESSURES (BASED ON TRIB 10 S.F., EXP. C. MAY BE REDUCED FOR COMPONENTS WITH LARGER TRIB PER BLDG CODE):
WALLS AT CORNERS & EDGES:.....................+31 / -41 PSF
ALL OTHER MAIN WALL CONDITIONS:............+31 / -33.3 PSF
ROOF CORNERS:..+14 / -96.3 PSF
ROOF EDGES: ....+14 / -71 PSF
ALL OTHER MAIN ROOF CONDITIONS:............+14/ -54 PSF
PARAPET EDGES:.................................

5. EARTHQUAKE DESIGN DATA:
-- SEISMIC IMPORTANCE FACTOR (Ie):...............1.25
-- MAPPED SPECTRAL RESP ACCEL (Ss / S1):.....0.100 / 0.068
-- SITE CLASS:...D
-- SPECTRAL RESPONSE COEFF (Sds / Sd1):.......0.107 / 0.110
-- SEISMIC DESIGN CATEGORY:.........................B
-- SEISMIC FORCE RESISTING SYSTEM:............R=3, STEEL
-- DESIGN BASE SHEAR:...................................DETERMINED BY MB MFCR
-- SEISMIC RESPONSE COEFF (Cs):...................0.044
-- ANALYSIS PROCEDURE:................................ELF

6. RAIN LOAD DATA:
– 15-MIN RAIN INTENSITY................................8.28 IN/HR
– 60-MIN RAIN INTENSITY................................3.9 IN/HR
DESIGN ASSUMES APPROPRIATE ROOF SLOPE AND DRAINAGE (INCLUDING OVERFLOWS) ARE PROVIDED. ROOF IS DESIGNED FOR LIVE LOAD INDICATED ABOVE

7. GUARD RAILS:...50 PLF, AND/OR 200# CONCENTRATED LOAD APPLIED IN ANY DIRECTION.

8. ADDITIONAL DELEGATED DESIGN CRITERIA:
A. LOADS
--PEMB COLLATERAL ROOF LOAD:.......................5 PSF
--MECHANICAL EQUIPMENT AND LOADS:...........AS INDICATED ON MEP PLANS
--BASKETBALL GOALS, DIVIDING CURTAINS, BASEBALL NETS: AS INDICATED ON ARCH AND MEP PLANS
B. MEMBER DEFLECTION LIMITS (UNDER ROOF LIVE, SNOW, 10 YR WIND, OR SOIL PRESSURE)
--ROOF, SUPPORTING PLASTER CEILING:.............L/360
--ROOF, SUPPORTING OTHER CEILING:.................L/240
--WALL GIRT, BACKING NON-BRITTLE FINISH.......L/180
--WALL GIRT, BACKING BRITTLE FINISH...............L/360
C. BUILDING DRIFT LIMITS (UNDER 10 YR WIND, SEISMIC, OR SOIL PRESSURE):
--BRITTLE EXTERIOR FINISH:...................................H/240
--METAL WALL PANELS: H/100

PRE-ENGINEERED METAL BUILDING:

1. THE PRE-ENGINEERED METAL BUILDING SUPPLIER SHALL BE RESPONSIBLE FOR THE PEMB DESIGN. THE PEMB DESIGN AND CALCULATIONS SHALL BE SEALED BY AN ENGINEER LICENSED TO PRACTICE IN THE JURISDICTION OF THE PROJECT AND SUBMITTED TO THE ARCHITECT/ENGINEER FOR APPROVAL BEFORE FABRICATION, ALONG WITH A LETTER SEALED BY AN ENGINEER REGISTERED IN THE STATE OF THE PROJECT STATING THAT THEY HAVE REVIEWED THE METAL BUILDING DRAWINGS FOR CONFORMANCE TO THE DESIGN REQUIREMENTS.

2. PEMB DRAWINGS SHALL BE APPROVED BY THE ARCHITECT/ENGINEER BEFORE INSTALLATION OF ANY FOUNDATION ELEMENTS SUPPORTING THE PEMB COMPONENTS.

3. ROOF LIVE LOADS, INCLUDING SNOW LOADS, SHALL NOT BE REDUCED. DESIGN ROOF AND ROOF MEMBERS FOR ALL REQUIRED UNBALANCED LOADS AND SNOW DRIFTING.

4. CONTRACTOR TO VERIFY AND COORDINATE ALL BASE PLATE ELEVATIONS AND GROUTING REQUIREMENTS WITH PEMB SUPPLIER.

STRUCTURAL GENERAL NOTES:

1. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE "INTERNATIONAL BUILDING CODE, 2018 EDITION" AS AMENDED BY THE CITY OF LEE'S SUMMIT, MO. REFER TO THE SPECIAL STRUCTURAL INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS.

2. CONTRACTOR TO VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO COMMENCING WORK.

3. IF DISCREPANCIES EXIST BETWEEN STRUCTURAL PLANS, ARCHITECTURAL PLANS, OTHER PLANS, OR SPECIFICATIONS, THE CONTRACTOR OR SUBCONTRACTOR SHALL PROVIDE A WRITTEN REQUEST FOR CLARIFICATION FROM THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH THE WORK.

4. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO EXECUTE AND DETERMINE FINAL ERECTION PROCEDURES, SEQUENCING AND TO ENSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES WHATEVER SHORING, SHEETING, TEMPORARY BRACING, GUYING OR TIE DOWNS WHICH MIGHT BE NECESSARY.

5. THE STRUCTURE AND FOUNDATIONS ARE NOT DESIGNED FOR FUTURE EXPANSION.

6. FABRICATORS AND SUPPLIERS SHALL CLEARLY NOTE AND HIGHLIGHT CHANGES MADE IN SHOP DRAWINGS, WHICH DO NOT COMPLY WITH THE CONTRACT DOCUMENTS.

7. COLUMNS, BEAMS, JOISTS, OR TRUSSES SHALL NOT BE FIELD CUT OR TRIMMED FOR ANY REASON WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.

8. HOLES, PIPES, SLEEVES, ETC. NOT SHOWN ON THE DRAWINGS MUST BE REVIEWED BY THE ARCHITECT/ENGINEER BEFORE PLACEMENT THROUGH STRUCTURAL MEMBERS.

9. IF MECHANICAL AND ELECTRICAL EQUIPMENT SIZES, WEIGHTS, OR LOCATIONS DO NOT COINCIDE WITH EQUIPMENT SHOWN ON THE PLANS, COORDINATE ADJUSTMENTS WITH THE ARCHITECT.

10. NO AREA OF THE STRUCTURE SHALL BE LOADED WITH CONSTRUCTION MATERIALS OR EQUIPMENT THAT EXCEEDS FINAL DESIGN CRITERIA.

11. BEAMS, COLUMNS, WALLS AND FOOTING CENTERS SHALL BE CENTERED UNDER SUPPORTING MEMBERS (TYPICAL UNLESS NOTED OTHERWISE).

12. TYPICAL DETAILS ARE SHOWN ON SHEETS DESIGNATED "S0XX". THE INCLUDED TYPICAL DETAILS MAY OR MAY NOT BE CUT / REFERENCED ON PLANS OR SECTIONS, BUT ARE TO BE USED AS APPLICABLE

SUBMITTALS:

1. GENERAL CONTRACTOR TO PROVIDE A SHOP DRAWING SUBMITTAL LOG ITEMIZING ALL PROPOSED SUBMITTALS FOR APPROVAL BY STRUCTURAL ENGINEER OF RECORD.

2. ALL SHOP DRAWINGS SHALL BE CHECKED BY THE FABRICATOR AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO THE STRUCTURAL ENGINEER OF RECORD. SHOP DRAWING REVIEW BY ENGINEER IS LIMITED TO VERIFYING GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ANY CHANGES FROM THE CONTRACT DOCUMENTS, DIMENSIONAL ERRORS, COORDINATION ERRORS, OR OMISSIONS IN SHOP DRAWINGS.

3. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND CONSTRUCTION REGARDING ALL STRUCTURAL ITEMS, INCLUDING THE FOLLOWING IN ADDITION TO THE DELEGATED DESIGN SUBMITTALS:
– CONCRETE MIX DESIGNS (5 DAYS BEFORE POUR, MIN.)
– CONCRETE REINFORCEMENT
– MASONRY REINFORCEMENT
– STRUCTURAL STEEL

4. SHOP DRAWINGS SHALL INCLUDE CONNECTIONS AS WELL AS SIZE, SPACING, AND GRADE OF ALL MEMBERS. PLANS AND ANY DETAILING NECESSARY FOR DETERMINING FIT AND PLACEMENT SHALL ALSO BE INCLUDED.

5. IF THE SHOP DRAWINGS DIFFER FROM OR ADD TO THE DESIGN OF THE STRUCTURAL DRAWINGS, THEY SHALL BEAR THE SEAL AND SIGNATURE OF AN ENGINEER REGISTERED IN THE APPROPRIATE STATE. ANY CHANGES TO THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ARE SUBJECT TO REVIEW AND APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.

6. DESIGN DRAWINGS, SHOP DRAWINGS, AND CALCULATIONS FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY THE CONTRACTOR, INCLUDING:
– PRE-MANUFACTURED STEEL SHELTERS
– STAIR FRAMING
– TEMPORARY EXCAVATION BRACING AND SHORING

SHALL BEAR THE SEAL AND SIGNATURE OF AN ENGINEER REGISTERED IN THE APPROPRIATE STATE AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND CONSTRUCTION. CALCULATIONS SHALL BE INCLUDED FOR ALL CONNECTIONS TO THE STRUCTURE, CONSIDERING LOCALIZED EFFECTS ON STRUCTURAL ELEMENTS INDUCED BY THE CONNECTION LOADS.

7. ITEMS THAT ARE DESIGNED BY THE CONTRACTOR SHALL BE DESIGNED TO RESIST THE LIVE LOADS INDICATED IN STRUCTURAL NOTES, DEAD LOAD, SELF WEIGHT, ANY ADDITIONAL LOADING INDICATED ON PLANS AND DETAILS, SNOW DRIFT, AND A NET WIND UPLIFT.

8. ITEMS THAT ARE DESIGNED BY THE CONTRACTOR SHALL INCLUDE ANY RELEVANT TECHNICAL LITERATURE FROM MANUFACTURER. ALSO PROVIDE A CERTIFICATION FROM THE MANUFACTURER SHOWING THE PRODUCT IS IN COMPLIANCE WITH ALL APPLICABLE CODES AND STANDARDS.

9. THE CONTRACTOR SHALL COORDINATE SEISMIC RESTRAINTS OF MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT, MACHINERY, AND ASSOCIATED PIPING WITH THE STRUCTURE. ANY CONNECTIONS TO STRUCTURE SHALL CONFORM TO ASCE 7, CHAPTER 13 AND SHALL BE DESIGNED BY AN ENGINEER REGISTERED IN THE APPROPRIATE STATE, AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION.

10. FIELD ENGINEERED DETAILS DEVELOPED BY THE CONTRACTOR THAT DIFFER FROM OR ADD TO THE STRUCTURAL DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF AN ENGINEER REGISTERED IN THE APPROPRIATE STATE AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO CONSTRUCTION.

SPECIAL INSPECTIONS:

1. PROVIDE SPECIAL STRUCTURAL INSPECTIONS AND VERIFICATIONS BY A THIRD PARTY MEETING THE REQUIREMENTS OF CHAPTER 17 OF THE BUILDING CODE AND THE BUILDING OFFICIAL.

2. SPECIAL INSPECTORS SHALL BE QUALIFIED AND FURNISH THEIR REPORTS IN A TIMELY MANNER TO THE CONTRACTOR, BUILDING OFFICIALS, ARCHITECT, AND/OR ENGINEER

3. SHOULD INSPECTOR IDENTIFY ANY DISCREPANCY, THEY SHALL NOTIFY CONTRACTOR FIRST, AND THEN ARCHT/ ENGINEER IMMEDIATELY THEREAFTER IF CORRECTIVE ACTION IS NEEDED.

4. SPECIAL INSPECTIONS AS REQUIRED BY CODE:
A. STEEL: SECTION 1705.2, AND AISC 360. PERIODIC OBSERVATIONS OF CONNECTION, ALL BRACED-FRAME CONNECTIONS, WELDERS & FIELD WELDING.
B. CONCRETE: SECTION 1705.3 AND TABLE 1705.3 CONCRETE MATERIAL SAMPLING AND TESTING, REBAR OBSERVATIONS. TAKE SET OF (3) CYLINDERS FOR EVERY 50 C.Y., BUT NOT LESS THAN ONE SET OF SAMPLES PER DAY'S WORK AND PER MIX.
C. EARTHWORK: SECTION 1705.6. FOUNDATION BEARING, EXCAVATION, FILL PLACEMENT.
D. MASONRY: SECTION 1705.4 AND TMS 402 TABLE 3.1.2, LEVEL B (TABLE 3.1.3 FOR LEVEL C)

EARTHWORK AND FOUNDATIONS:

1. NO GEOTECHNICAL REPORT IS AVAILABLE FOR THIS PROJECT.

2. PERIMETER AND EXTERIOR FOOTINGS SHALL BEAR AT A MINIMUM OF 3'-0" BELOW ADJACENT GRADE.

3. ALL FOOTINGS SHALL BEAR ON FIRM NATIVE MATERIALS, COMPACTED OR ENGINEERED FILL CAPABLE OF SUPPORTING AN ALLOWABLE BEARING PRESSURE OF 1,500 PSF PRESUMPTIVE BEARING PRESSURE PER THE IBC. DEEPEN FOOTINGS AND REMOVE AND REPLACE UNACCEPTABLE SOILS WITH ENGINEERED FILL AS REQUIRED TO PROVIDE THIS MINIMUM DEPTH AND SUITABLE BEARING.

4. UNDERCUT THE PAD TO A DEPTH OF 24 INCHES BELOW BOTTOM OF FLOOR SLAB ELEVATION AND REPLACE WITH LOW-VOLUME-CHANGE MATERIALS.

5. FILL PLACEMENT, COMPACTION, AND SOIL BEARING TESTS SHALL BE PERFORMED BY A GEOTECHNICAL ENGINEER PRIOR TO INSTALLING FOOTINGS TO ENSURE DESIGN ALLOWABLE BEARING VALUES AND SLAB SUBGRADE REQUIREMENTS ARE SATISFIED. IF ACTUAL SITE CONDITIONS DO NOT SATISFY THESE REQUIREMENTS, COORDINATE ADJUSTMENTS WITH ARCHITECT/ENGINEER/ GEOTECHNICAL ENGINEER

6. SURFACE WATER SHALL NOT BE ALLOWED TO STAND ADJACENT TO OR DRAIN TOWARDS THE FOUNDATION AND SLAB SUBGRADES UNDER ANY CIRCUMSTANCES. PAVEMENTS OR GRADED SOILS AT THE PERIMETER OF THE BUILDING, EXCEPT AS REQUIRED AT EXITS OR AS NOTED, SHALL BE SLOPED AWAY AT 5% OR 6" MIN FOR THE FIRST TEN FEET AND AS REQUIRED TO PROVIDE POSITIVE DRAINAGE.

7. FOOTINGS MAY BE POURED TO NEAT LINES OF EXCAVATIONS PROVIDING VERTICAL LINES OF EXCAVATIONS CAN BE MAINTAINED DURING CONCRETE PLACEMENT.

8. FOUNDATION WALL BACKFILL SHALL NOT BE UNBALANCED BY MORE THAN TWO FEET ON EITHER SIDE AT ANY TIME. BASEMENT WALL AND RESTRAINED RETAINING WALL BACKFILL SHALL NOT BE PLACED, UNLESS THE WALL IS ADEQUATELY BRACED. RETAINING WALL AND BASEMENT WALL BACKFILL SHALL BE FREE DRAINING GRANULAR BACKFILL ACCEPTABLE TO THE GEOTECHNICAL ENGINEER.

CONCRETE AND MASONRY REINFORCING STEEL:

1. SUBMIT SHOP DRAWINGS FOR REBAR. ALL REINFORCING BARS SHALL MEET ASTM A615 GRADE 60.

2. ALL MESH SHALL MEET ASTM A-185: LAP A MINIMUM OF 8" OR ONE FULL MESH, WHICHEVER IS GREATER.

3. REINFORCING BAR QUANTITIES SHOWN ARE FOR ESTIMATING PURPOSES ONLY.

4. CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE ¾" CLEAR FOR SLABS, 2" CLEAR FOR FORMED SURFACES AND 3" CLEAR FOR FOOTINGS (TYPICAL UNLESS NOTED).

5. CONTRACTOR SHALL VERIFY THAT ALL REINFORCEMENT, SLAB DOWELS, INSERTS, SLEEVES AND EMBEDDED ITEMS ARE PROPERLY LOCATED AND RIGIDLY SECURED PRIOR TO CONCRETE PLACEMENT, "WET STICKING" DOWELS WILL NOT BE ALLOWED.

6. REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST A.C.I. DETAILING MANUAL BY A QUALIFIED AND EXPERIENCED FIRM AND PERSON. PLACE AND SUPPORT REINFORCEMENT WITH ACCESSORIES: MAXIMUM SPACING - 48" CENTERS (PLASTIC-TIPPED LEGS FOR EXPOSED SURFACES). USE 3" SBP SUPPORTS AT ALL FOOTINGS.

7. ALL STRUCTURAL ADHESIVE SHALL BE SIMPSON SET 3G OR HILTI HY-200 R OR EQUIVALENT. ALL STRUCTURAL ADHESIVE SHALL BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS. SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL WITH APPROPRIATE ICBO EVALUATION REPORTS.

CAST IN PLACE CONCRETE:

1. SUBMIT PROPOSED MIXED DESIGNS OF EACH TYPE FOR REVIEW. REQUIRED MINIMUM CONCRETE COMPRESSIVE STRENGTHS AT 28 DAYS:

a. FOOTING AND GRADE BEAM CONCRETE....................4000 PSI
b. BASEMENT / FOUNDATION WALL CONCRETE..............4000 PSI
c. SLAB ON GRADE AND STRUC SLAB ABOVE GRADE.....4000 PSI

2. ALL CONCRETE MIX DESIGNS SHALL HAVE WATER TO CEMENT RATIOS LESS THAN 0.52 (0.45 FOR MOISTURE SENSITIVE FLOORING), WITH A MAXIMUM 60/40 FINE TO COARSE AGGREGATE RATIO. CONCRETE MIX DESIGNS THAT DO NOT CONFORM TO THE ABOVE STANDARD AND/OR CONTAIN WATER REDUCING ADMIXTURES SHALL BE SUBMITTED WITH APPROPRIATE TEST DATA PER A.C.I.. ALL CONCRETE SHALL BE IN CONFORMANCE WITH THE A.C.I. 301 STANDARD THAT IS REFERENCED IN THE BUILDING CODE AT THE TIME OF PERMITTING THE PROJECT..

3. EXTERIOR CONCRETE (FLOOR SLABS, WALLS, ETC) SHALL HAVE 6.5% (PLUS/MINUS 1.5%) ENTRAINED AIR.

4. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" (VERIFY WITH ARCHITECT).

5. NO ALUMINUM SHALL BE EMBEDDED IN ANY CONCRETE.

6. NO CALCIUM CHLORIDE SHALL BE USED IN CONCRETE

7. THE DESIGN, CONSTRUCTION, AND SAFETY OF ALL FORMWORK IS THE RESPONSIBILITY OF THE CONTRACTOR

8. ALL CONCRETE IS REINFORCED UNLESS SPECIFICALLY NOTED AS UNREINFORCED. REINFORCE ALL CONCRETE NOT OTHERWISE SHOWN WITH THE SAME REINFORCING AS SIMILAR SECTIONS OR AREAS.

9. CONSTRUCTION JOINTS IN GRADE BEAMS, CONTINUOUS FOOTINGS, AND WALLS THAT DO NOT CHANGE DIRECTION SHALL BE SPACED NO GREATER THAN 60'-0". INTERMEDIATE CONTROL JOINTS SHALL BE SPACED AT 25'-0" MAX FOR WALLS. CONTROL JOINTS IN WALLS SHALL ALSO BE LOCATED 15'-0" FROM CORNERS AND AT CHANGES IN WALL THICKNESS

10. WHERE FRESH CONCRETE IS DEPOSITED AGAINST HARDENED CONCRETE (GREATER THAN 8 HRS OLD), CLEAN EXISTING SURFACE OF LAITANCE AND FOREIGN MATERIAL AND DAMPEN THE EXISTING SURFACE. IF REQUIRED, ROUGHEN EXISTING CONCRETE TO ¼" AMPLITUDE.

11. SLABS ON GRADE SHALL BE 4" THICK MINIMUM ON 4" OF GRANULAR FILL. REINF SLAB WITH 6 X 6-W2.1xW2.1 WWR OR #3 BARS @ 18" OC EA WAY. PLACE REINF IN UPPER 1/3 OF SLAB THICKNESS. AT INTERIOR SLABS, A 10 MIL VAPOR BARRIER SHALL BE PLACED BETWEEN THE CONCRETE AND GRANULAR BASE AND CARE SHOULD BE TAKEN DURING CURING TO PREVENT SLAB CURLING. THIS NOTE SHALL BE TYPICAL UNLESS NOTED OTHERWISE

12. SAW CUT JOINTS OR KEYED CONSTRUCTION JOINTS IN SLABS ON GRADE SHALL BE SPACED TO DIVIDE THE SLAB INTO PANELS NOT TO EXCEED 225 SQUARE FEET. THE LONGER DIMENSION OF EACH PANEL SHALL NOT EXCEED THE SHORTER DIMENSIONS BY MORE THAN 40%. JOINTS SHALL BE LOCATED AT COLUMN CENTERLINES WHERE POSSIBLE. SPACING BETWEEN JOINTS SHALL NOT EXCEED 15 FEET. CONTRACTOR SHALL SUBMIT JOINT LAYOUT TO ARCHITECT FOR APPROVAL. REFER TO TYPICAL DETAILS.

13. REINFORCEMENT SHALL BE CONTINUOUS AND LAPPED 53 BAR DIAMETERS (2' -6" MIN.) EXCEPT AS NOTED AND PROVIDE CORNER BARS OF SAME SIZE AND SPACING.

14. MINIMUM CONCRETE WALL REINFORCING (WALL 10" OR GREATER) SHALL BE #5 AT 10" CENTERS EACH WAY, EACH FACE

15. MINIMUM REINFORCING AROUND CONCRETE WALL OPENINGS 2'-0" OR GREATER (TYPICAL UNLESS NOTED): 2 - #5, EXTEND REINF 2'-0" PAST OPENINGS. PROVIDE 2-#5 x 4'-0" DIAGONAL BARS AT CORNERS

16. CONTRACTOR SHALL COORDINATE ALL CURING COMPOUNDS WITH FLOOR FINISH REQUIREMENTS TO ENSURE COMPATIBILITY.

17. FOUNDATION CONTRACTOR TO ENSURE PROPER ANCHOR ROD PROJECTION AND THAT ANCHOR RODS ARE HELD SECURELY IN POSITION PRIOR TO CONCRETE PLACEMENT. INSTALL ANCHOR RODS TO THE STRICT DIMENSIONAL TOLERANCES PER AISC REQUIREMENTS. STRUCTURAL STEEL COLUMN ANCHOR RODS SHALL BE SET WITH A RIGID TEMPLATE.

18. AGGREGATES AND/OR CONCRETE MIXES SHALL BE CERTIFIED TO BE FREE OF AND ELIMINATE DAMAGE OF CONCRETE DUE TO ALKALI-SILICA REACTION OR ALKALI-AGGREGATE REACTIONS WHEN EXPOSED TO SOILS AND/OR AN EXTERIOR ENVIRONMENT.

19. ALL CONCRETE MIX DESIGNS EXPOSED TO AN EXTERIOR ENVIRONMENT SHALL MEET THE REQUIREMENTS OF THE KANSAS CITY METRO MATERIALS BOARD (KCMMB) OR THE JOHNSON COUNTY CONCRETE BOARD (JCCB).

20. ANY CONCRETE WALLS EXPOSED TO VIEW OR TO BE FORMED WITH A FORM LINER SHALL BE CONSIDERED "ARCHITECTURAL CONCRETE" PER ACI 301 CHAPTER 6. A MOCKUP SHALL BE MADE AND REVIEWED FOR ACCEPTANCE BY THE ARCHITECT AND OR THE CLIENT FOR CONFORMANCE WITH FINISH INTENT. THE IN-PLACE CONCRETE SHOULD BE REVIEWED AT SEVERAL INTERVALS DURING CONSTRUCTION TO CONFIRM THAT THE FINISH IS MATCHING THE APPROVED MOCKUP STANDARD FOR FINISH. THE INTERVALS SHALL BE DETERMINED BY THE ARCHITECT.

CONCRETE MASONRY UNITS:

1. ALL MASONRY SHALL BE IN ACCORDANCE WITH ACI 530 / TMS 402. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR NON-STRUCTURAL BRICK REQUIREMENTS. INDIVIDUAL CMU'S SHALL BE PER ASTM C90 (2650 PSI), GROUT SHALL BE PER ASTM C476, MORTAR SHALL BE PER ASTM C270.
A. USE OF MASONRY CEMENT IS PROHIBITED.
B. USE OF AIR-ENTRAINING ADMIXTURES IS PROHIBITED.

2. MASONRY MATERIALS SHALL BE AS FOLLOWS:
A. f'm = 2,000 PSI MINIMUM. ALL UNITS SHALL BE NORMAL-WEIGHT BLOCK.
B. GROUT STRENGTH NOT LESS THAN 2,000 PSI.
C. MORTAR TYPE S. (USE TYPE M OR S, OR BETTER FOR PORTIONS BELOW-GRADE).

4. WHERE NOT OTHERWISE SHOWN, MINIMUM WALL REINFORCEMENT SHALL BE (1) #4 VERT AT 48" OC MAX. PROVIDE NOT LESS THAN 9-GAUGE HORIZONTAL LADDER-TYPE REINFORCEMENT AT NOT MORE THAN 16" OC VERTICALLY, LAPPED 8" MINIMUM. DISCONTINUE HORIZ REINF AT CONTROL JOINT LOCATIONS. REBAR POSITIONERS SHALL BE USED FOR ALL VERTICAL BARS SUCH THAT A MINIMUM 3" OF SPACE IS MAINTAINED CLEAR FOR PLACEMENT OF GROUT.

5. ALL BLOCKS SHALL BE LAID IN RUNNING BOND.

6. GROUT ALL BLOCK CORES CONTAINING VERTICAL BARS, HORIZONTAL BOND BEAMS, AND/OR ANCHOR RODS. IN ADDITION:
-- GROUT SOLID ALL UNITS LOCATED BELOW GRADE AND/OR LOCATED IN CONTACT WITH SOIL.
-- GROUT POUR HEIGHTS SHALL NOT EXCEED 5'-0" UNLESS CLEAN-OUTS ARE PROVIDED AND INSPECTED. THE MAXIMUM GROUT POUR HEIGHT WITH CLEANOUTS SHALL NOT EXCEED 12'-8". STOP GROUT POURS AT 1-1/2" BELOW THE TOP OF THE CMU COURSE. CONSOLIDATE GROUT WITH VIBRATOR.

7. ALL OPENINGS IN NEW CONCRETE MASONRY WORK REQUIRE A BOND-BEAM LINTEL PER TYPICAL DETAILS AND PLANS.
A. GALVANIZED LOOSE-ANGLE STEEL LINTELS SHALL BE UTILIZED TO SUPPORT BRICK VENEER, AND WHERE CUTTING IN NEW OPENINGS IN EXISTING BRICK AND TILE WALLS.

8. PROVIDE CONTROL JOINTS AS SHOWN ON ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS. WHERE NOT SHOWN OR OTHERWISE DENOTED, PROVIDE CONTROL JOINTS AT NOT MORE THAN 25'-0" OC, LOCATED AT OPENINGS, AND NEAR CORNERS, AS SHOWN ON TYPICAL DETAILS. PROVIDE VERTICAL REINFORCEMENT ON EACH SIDE OF CONTROL JOINTS.

9. PLACEMENT OF REINFORCEMENT SHALL OCCUR PRIOR TO PLACEMENT OF GROUT. ALL REINFORCEMENT IN STRUCTURAL AND SHEAR WALLS SHALL BE INSPECTED PRIOR TO GROUTING, AND ALL MATERIALS AND MATERIAL PLACEMENT INSPECTED AND TESTED.

10. REINFORCEMENT SHALL HAVE A MINIMUM LAP SPLICE OF 18" FOR #3 BARS, 24" FOR #4 BARS, AND 32" FOR #5 BARS, UNO

11. EXTEND HORIZONTAL REINFORCEMENT IN BOND BEAMS, LINTELS AND SILLS NOT LESS THAN 2'-0" PAST ENDS OF ALL OPENINGS. REINFORCEMENT IN BOND BEAMS IN LINTELS SHALL BE CONTINUOUS BARS AND SHALL NOT BE LAP SPLICED

12. PROVIDE LOOSE ANGLE STEEL LINTELS PER THE TYPICAL DETAILS.

13. REINFORCE BOND BEAMS W/ (1) #5 BAR MIN, UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHAPES AND PLATE MATERIAL REQUIREMENTS (TYPICAL UNLESS NOTED OTHERWISE):

a. WIDE FLANGE SHAPES - ASTM A992 (FY = 50 KSI MIN.)
b. CHANNELS, ANGLES, AND PLATES: - ASTM A36 (FY = 36 KSI MIN)
c. ROUND HSS - ASTM A500, GR B (FY = 42 KSI)
d. RECTANGULAR HSS - ASTM A500, GR B (FY = 46 KSI)
e. PIPE - ASTM A53, GR B (FY = 35 KSI)
f. ANCHOR RODS - ASTM F1554 (FY = 36 KSI MIN.),
g. ADHESIVE ANCHORS - SIMPSON SET-3G, HILTI HIT-HY 200, OR EQUIVALENT

2. STRUCTURAL STEEL SHALL BE NEW AND MEET THE 15TH EDITION A.I.S.C. "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS AND BRIDGES", AND THE "CODE OF STANDARD PRACTICES FOR STEEL BUILDINGS AND BRIDGES", EXCLUDING SECTION 4.4.1.B.

3. THE STRUCTURAL STEEL FABRICATOR SHALL BE AN AISC QUALITY CERTIFIED COMPANY FOR THE CATEGORY OF WORK IN THIS PROJECT OR PROVIDE A QUALITY ASSURANCE PLAN AND SPECIAL INSPECTIONS AS DEFINED IN THE CODE.

4. USE STANDARD AISC FRAMING CONNECTIONS WITH A325-N BOLTS, F436 WASHERS, AND A563 HEAVY-HEX NUTS AS REQUIRED, UNLESS NOTED OTHERWISE.

5. BOLTS IN MOMENT AND BRACED FRAME CONNECTIONS SHALL BE PRE-TENSIONED. ALL A490 BOLTS SHALL BE PRE-TENSIONED. OTHER BOLTED CONNECTIONS USING A325 BOLTS MAY BE SNUG-TIGHTENED, UNLESS NOTED OTHERWISE.

6. STEEL BEAMS SHALL BE FABRICATED WITH MILL CAMBER UP.

7. WELDING SHALL CONFORM TO THE CURRENT AND APPLICABLE AWS STANDARDS AND BE COMPLETED BY AN AWS CERTIFIED WELDER. ALL WELDS SHALL UTILIZE E70xx ELECTRODES. SHOP DRAWINGS SHALL SHOW FIELD WELDS, AS APPROPRIATE.

a. AWS D1.1 - STRUCTURAL WELDING CODE - STEEL
b. AWS D1.3 - STRUCTURAL WELDING CODE - SHEET STEEL
c. AWS D1.6 - STRUCTURAL WELDING CODE - STAINLESS STEEL

8. WELD SIZES SHALL BE INCREASED TO MEET THE REQUIRED EFFECTIVE THROAT WIDTH IF GAPS EXIST AT THE FAYING SURFACE.

9. NO COLUMN OR BEAM SPLICES, UNLESS CLEARLY INDICATED ON THE STRUCTURAL DRAWINGS, WILL BE ALLOWED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

10. SEE ARCHITECTURAL PLANS FOR FIREPROOFING & FINISHING REQUIREMENTS, AND COORDINATE STEEL PRIMING & COATINGS ACCORDINGLY.

11. GROUT WHERE INDICATED ON PLANS AT BASE PLATES SHALL BE NON-METALLIC NON-SHRINK WITH A MINIMUM COMPRESSIVE STRENGTH OF 6000 PSI AT 28 DAYS CONFORMING TO ASTM C1107

12. ALL POST-INSTALLED ANCHORS WHERE NOTED SHALL BE MANUFACTURED BY SIMPSON STRONG-TIE OR HILTI, INC. AND INSTALLED PER MANUFACTURER'S SPECIFICATIONS. SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL WITH APPROPRIATE IC-ES EVALUATION REPORTS.

13. ALL STEEL AND ASSOCIATED FASTENERS NOT PROTECTED FROM WEATHER OR WHOLLY WITHIN A CONDITIONED SPACE (INCLUDING ALL MASONRY LINTELS) SHALL BE HOT DIPPED GALVANIZED PER ASTM A123.

OPEN WEB STEEL BAR JOISTS:

1. OPEN-WEB STEEL JOISTS SHALL BE ENGINEERED AND MANUFACTURED BY AN SJI-CERTIFIED COMPANY TO CONFORM TO THE CURRENT SJI SPECIFICATIONS AND SJI REQUIREMENTS.

2. SUBMIT SHOP DRAWINGS FOR JOIST. DESIGN, DETAIL AND INSTALL JOIST-BRIDGING IN ACCORDANCE WITH SJI REQUIREMENTS, PROVIDING X-BRIDGING AT LOCATIONS WHERE HORIZONTAL BRIDGING IS DISCONTINUOUS AND INTERRUPTED. INSTALL ADDITIONAL ROW OF BOTTOM CHORD BRIDGING AT EACH END OF JOISTS AT THE FIRST BOTTOM CHORD PANEL POINTS AS REQUIRED FOR NET WIND UPLIFT.

3. WELD ALL JOISTS TO BEARINGS PER SJI GUIDELINES, INCLUDING BOTTOM CHORD EXTENSIONS AND CONNECTIONS AT COLUMN LINES PER SJI AND PER OSHA REQUIREMENTS. MIN JOIST SEAT WELDS SHALL BE AS FOLLOWS: K-SERIES = (2) 1/8" x 2-1/2" LONG

4. REINFORCE WEBS OF JOISTS WITH ADDITIONAL ANGLES FIELD-WELDED PER THE TYPICAL DETAILS AT ALL LOCATIONS WHERE POINT LOADS OCCUR BETWEEN PANEL POINTS, INCLUDING AT EDGES AND CORNERS OF CURBS & FRAMES SUPPORTING ROOF TOP EQUIPMENT.

METAL DECK:

1. SUBMIT SHOP DRAWINGS FOR ALL METAL DECKING.
A. MEZZANINE FLOOR DECK: 1" 26 GA (FY = 50 KSI MIN), G60 GALVANIZED, MIN FASTENING PATTERN: 36/4 WITH 3 SIDELAPS PER SPAN (UNO)

2. STEEL DECK MANUFACTURER SHALL BE A MEMBER OF THE STEEL DECK INSTITUTE (S.D.I.). ALL METAL DECK TO BE ERECTED PER MANUFACTURER REQUIREMENTS AND SPECIFICATIONS

3. DECK SHALL BE WELDED AT SUPPORTS WITH 5/8" DIA PUDDLE WELDS MIN. AND SIDELAP CONNECTIONS SHALL BE #10 TEK SCREWS MIN (UNO).

4. ALL METAL DECK HAS BEEN DESIGNED TO BE CONTINUOUS OVER 2 SPANS MINIMUM AND SHALL BEAR 2" MINIMUM ON STEEL SUPPORTS. FOR ONE OR TWO SPAN CONDITIONS CONTRACTOR SHALL PROVIDE SHORING AS REQUIRED OR FURNISH THICKER GAUGE DECK TO SUPPORT ALL APPLICABLE LOADS. CONTRACTOR TO SUBMIT ALTERNATES FOR APPROVAL.

5. PROVIDE REINFORCING CHANNELS, STANDARD CLOSURES, CANT STRIPS, SUMP PANS, AND OTHER ACCESSORIES AS REQUIRED FOR A PROPERLY FINISHED JOB, EVEN IF NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS. PROVIDE BEARING ANGLES WELDED TO COLUMNS AS REQUIRED TO SUPPORT METAL DECK.

6. ONE OPENING PER DECK SHEET, 6" OR LESS IN DIAMETER, IS PERMISSIBLE. HOLES LARGER THAN 6" IN DIAMETER OR MORE THAN ONE HOLE PER DECK SHEET REQUIRES REINFORCING PER SDI. HOLES LARGER THAN 12" (ROUND OR SQUARE) REQUIRE A STEEL FRAME

7. OPENINGS IN FLOOR DECK TO BE FRAMED WITH L4x4x1/4 ANGLE. EXTEND ANGLES TO STRUCTURAL SUPPORTS, BLOCK VERTICAL LEGS AND FIELD WELD. TYPICAL UNLESS NOTED OTHERWISE.

COLD FORMED STEEL FRAMING NOTES:

1. SUBMIT SHOP DRAWINGS AND CALCULATIONS PER THE DEFERRED SUBMITTAL REQUIREMENTS. SHOP DRAWINGS SHALL INCLUDE PLAN AND SECTION DETAILS TO SHOW LAYOUT, SPACINGS, SIZES, THICKNESSES, AND TYPES OF COLD-FORMED STEEL FRAMING. IN ADDITION, SHOP DRAWINGS SHALL INCLUDE ALL FASTENING, ANCHOR DETAILS, SUPPLEMENTAL FRAMING, STRAPPING, BRACING, BRIDGING, CONNECTION DETAILS, AND ATTACHMENTS TO ADJOINING WORK

CFS DESIGN CRITERIA:
-- TOP OF WALL VERTICAL DEFLECTION TO UNDERSIDE OF PRIMARY STRUCTURE ....MIN (½", L/360)
-- EXTERIOR WALLS: WIND PRESSURE PER BUILDING DESIGN CRITERIA;H/600 FOR WALLS BRACING MASONRY; H/360 FOR WALLS SUPPORTING TILE OR METAL PANEL; H/240 FOR ALL OTHER WALLS.
-- INTERIOR WALLS: 5 PSF HORIZONTAL PRESSURE;H/600 FOR WALLS BRACING MASONRY; H/360 FOR WALLS SUPPORTING TILE OR METAL PANEL; H/240 FOR ALL OTHER WALLS.

LIGHT GAUGE FRAMING MEMBERS SHALL HAVE THE FOLLOWING MINIMUM MATERIAL PROPERTIES: FY = 33 KSI FOR 18 GA AND LIGHTER MEMBERS, FY = 50 KSI FOR ALL DIAGONAL STRAP BRACING AND FOR 16 GA AND HEAVIER MEMBERS. ALL MATERIALS, CONNECTORS, FASTENERS SHALL BE GALVANIZED

CFS SUPPLIER SHALL INCLUDE AN ALLOWANCE (2% OF CFS BID PACKAGE) FOR MISC CLIPS, CONNECTORS, AND ANGLES TO ADDRESS ANY ADDITIONAL CFS ITEMS NEEDED DURING THE SHOP DRAWING REVIEW AND CONSTRUCTION PROCESS.

2. ALL DESIGN, FABRICATION, AND ERECTION SHALL BE IN CONFORMANCE WITH AISI "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS."

3. ALL EXTERIOR OR LOAD BEARING INTERIOR STUDS SHALL BE 600S162-43 (6" DEEP 18 GA) AT 16 INCHES ON CENTER MIN, UNLESS NOTED: REFER TO PLANS.

4. MINIMUM GAUGE OF STRUCTURAL STUDS SHALL BE 43 mils (18 GAUGE), UNLESS NOTED OTHERWISE.

5. TRACKS SHALL BE SECURELY ANCHORED TO THE SUPPORTING STRUCTURE TO PROPERLY TRANSFER IMPOSED LOADS. MINIMUM GAUGE OF TRACKS SHALL BE 43 mils (18 GAUGE). DEFLECTION TRACKS AT EXTERIOR WALL SHALL BE 16 GA MINIMUM.

6. PROVIDE WALL STUD BRIDGING FOR EACH STUD AS RECOMMENDED BY THE MANUFACTURER. MAXIMUM SPACING SHALL BE 4'-0" CENTERS.

7. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENTS TO PERPENDICULAR MEMBER. MEMBERS SHALL BE HELD POSITIVELY IN PLACE UNTIL PROPERLY FASTENED.

8. NOTCHES OR SPLICES IN ANY STRUCTURAL STUDS WILL NOT BE PERMITTED.

9. DO NOT NOTCH, DRILL OR CUT ANY HOLES IN LOAD BEARING STUDS FOR ELECTRICAL OR MECHANICAL EQUIPMENT: USE EXISTING FABRICATED HOLES.

10. ALL WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN LIGHT GAUGE STEEL FRAMING WORK. TOUCH UP ALL WELDS WITH GALVANIZE COATING.

11. SCREWS IN LIGHT GAUGE FRAMING SHALL BE INSTALLED WITH MINIMUM EDGE DISTANCES OF 1/2" AND MINIMUM SPACING BETWEEN SCREWS OF 3/4".

12. WHERE BACK-TO-BACK STUD COLUMNS ARE USED, ATTACH WITH #10 SCREWS @ 12" OC MAX, UNO.

13. FLOOR JOISTS SHALL BE ALIGNED WITH AND STACKED DIRECTLY ON SUPPORTING STUDS.

14. INSTALL WEB STIFFENERS IN ENDS OF ALL FLOOR JOISTS, AT ALL BEARING POINTS.

15. LATERAL BRACING MUST BE IN PLACE IN EACH DIRECTION BEFORE ANY LOAD IS APPLIED TO THE WALLS & LEFT IN PLACE UNTIL THE WORK IS PERMANENTLY STABILIZED.

16. PROVIDE FULL-DEPTH BLOCKING BETWEEN EACH JOIST AT BEARINGS OF CANTILEVERED JOISTS.

17. BRACE THE BOTTOM FLANGES OF JOISTS LONGER THAN 10' SPANS AT MIDSPAN OR SPACES NOT EXCEEDING 11' APART, CONSISTING OF STRAP BRACING CONTINUOUS & INTERMITTENT FULL-DEPTH BLOCKING @ 12' OC & EACH STRAP TERMINATION.

18. AT CANTILEVERS, HOLES ARE PROHIBITED FROM WEBS OF JOISTS AT OVERHANGS.

NON-LOAD-BEARING COLD FORMED STEEL FRAMING NOTES:

1. METAL STUD MANUFACTURERS GENERALLY RECOMMEND HORIZONTAL BRIDGING OR STRAPPING TO BE PROPERLY INSTALLED AT 5 FT TO 6 FT OC, MECHANICALLY ATTACHED TO EACH STUD TO PREVENT DAMAGE DURING CONSTRUCTION, EVEN IF ONE SIDE OR BOTH SIDES ARE TO BE SHEATHED WITH RIGID FACING MATERIALS.

2. WHEN RIGID FACING MATERIALS ARE NOT ATTACHED TO EITHER SIDE, SUCH AS ABOVE CEILINGS, HORIZONTAL BRIDGING OR STRAPPING AT EACH FACE SHALL BE INSTALLED

3. WHERE THE TOP OF THE STUD WALLS TERMINATE AGAINST PRIMARY STRUCTURAL FRAMING, A "DEFLECTION TRACK" SHOULD BE USED TO ALLOW FOR VERTICAL MOVEMENT. ONE ROW OF THE RECOMMENDED HORIZONTAL BRIDGING SHALL BE PROPERLY INSTALLED BY MECHANICAL ATTACHMENTS TO EACH STUD AS CLOSE TO THE TOP AS POSSIBLE. ANY TEMPORARY SCREWS FROM THE TOP DEFLECTION TRACK TO THE METAL STUDS SHALL BE REMOVED AS SOON AS POSSIBLE TO ALLOW VERTICAL DEFLECTION OF THE PRIMARY FRAMING AND TO PREVENT DAMAGE TO THE STUD WALL. METAL STUDS SHOULD NEVER BE ATTACHED DIRECTLY TO HORIZONTAL STRUCTURAL FRAMING SYSTEMS WITHOUT A DEFLECTION TRACK OR VERTICALLY SLOTTED.

RTU CURBS AND SCREEN WALLS:

1. MECHANICAL ROOFTOP EQUIPMENT SUPPLIER SHALL SUPPLY A STRUCTURAL SUPPORT CURB (AND/OR ADAPTER) FOR THE PLENUM, OF THE SPECIFIED HEIGHT, AS SHOWN ON THE MECHANICAL DRAWINGS.
– DESIGN OF THE CURB AND ADAPTER IS A DELEGATED DESIGN SUBMITTAL. EQUIPMENT SUPPLIER SHALL ENGAGE AN ENGINEER LICENSED IN THE STATE OF THE PROJECT TO DEVELOP A DESIGN FOR THE CURB AND ADAPTER. DESIGN SHALL CONSIDER ALL CODE REQUIRED GRAVITY AND WIND LOADS. THE DESIGN SHALL INCLUDE ALL FASTENERS AND CONNECTORS REQUIRED TO ANCHOR THE CURB TO THE ROOF STRUCTURE. SUBMIT SIGNED AND SEALED ANALYSIS CALCULATIONS, DESIGN AND SHOP DRAWINGS TO MECHANICAL AND STRUCTURAL ENGINEER FOR REVIEW

2. CURB SHALL BE FABRICATED OF A MINIMUM OF 14 GA GALVANIZED STEEL.

3. CURBS SHALL BE INSULATED

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PERMIT SET

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REVISION DATES:

1	CITY COMMENTS	06/20/2023

STATE OF MISSOURI
JOHN E. FUNK
NUMBER E-2000173299
REGISTERED PROFESSIONAL ENGINEER
03/22/24
PROFESSIONAL SEAL

S001

ISSUE DATE: 05/02/2023
COLLINS WEBB #: 22453

STRUCTURAL GENERAL NOTES

3/22/2024 10:50:56 AM

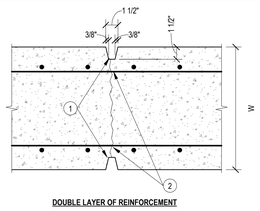
DEVELOPMENT AND LAP SPLICE SCHEDULE													
	F'c=3000 psi							F'c=4000 psi					
	EMBEDMENT			LAP SPLICE				EMBEDMENT			LAP SPLICE		
	COMPRESSION	TENSION (LTE)		COMPRESSION	TENSION (LTS)		HOOK	COMPRESSION	TENSION (LTE)		COMPRESSION	TENSION (LTS)		HOOK
BAR	(LCE)	TOP	OTHER	(LCS)	TOP	OTHER	(LDH)	(LCE)	TOP	OTHER	(LCS)	TOP	OTHER	(LDH)
#3	8	13	12	12	28	21	6	8	12	12	12	16	16	7
#4	11	21	16	15	37	28	8	9	18	14	15	24	18	9
#5	14	31	24	19	46	36	10	12	27	21	19	35	27	12
#6	16	43	33	23	56	43	12	14	37	28	23	48	37	14
#7	19	69	53	26	81	62	13	17	60	46	26	78	60	17
#8	22	85	66	30	93	71	15	19	74	57	30	96	74	19
#9	25	103	80	34	105	80	17	21	90	69	34	116	90	21
#10	28	124	96	38	118	90	19	24	108	83	38	140	108	24
#11	31	146	112	42	131	100	22	27	126	97	42	164	126	27

NOTES (PERTAINING TO TABLE):
A. TOP BARS ARE HORIZONTAL BARS THAT HAVE MORE THAN 12" OF FRESH CONCRETE CAST BELOW THEM.
B. ALL BARS THAT ARE NOT "TOP BARS" ARE "OTHER" BARS
C. ABBREVIATIONS:
- LCE - COMPRESSION EMBEDMENT LENGTH
- LTE - TENSION EMBEDMENT LENGTH
- LCS - COMPRESSION LAP SPLICE LENGTH
- LTS - TENSION LAP SPLICE LENGTH
- LDH - HOOKED BAR TENSION EMBEDMENT LENGTH

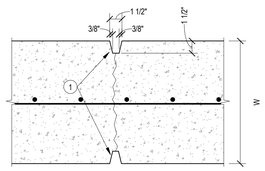
NOTES (GENERAL):
A. STAGGER ALL SPLICES 12 db MIN, BUT NOT LESS THAN 12"
B. ALL DIMENSIONS INDICATED IN TABLE ARE IN INCHES
C. BARS GREATER THAN #11 SHALL BE MECHANICALLY SPLICED
D. ALL SPLICES SHALL BE WIRED IN CONTACT STACKED VERTICAL

MULTIPLIERS:
ALL EMBEDMENT AND LAP SPLICE LENGTHS SHALL BE INCREASED AS REQ'D BY THE MULIPLIERS BELOW. APPLY MULTIPLE MULTIPLIERS IF APPLICABLE
1.3 – IF CONC CONTAINS LIGHT WEIGHT AGGREGATES
1.3 – IF EPOXY COATED REBAR USED

13 SPLICE & DEVELOPMENT SCHEDULE
3/4" = 1'-0"



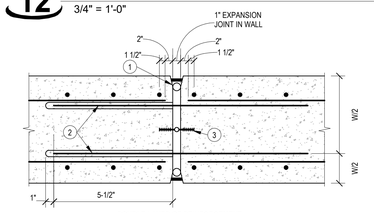
DOUBLE LAYER OF REINFORCEMENT



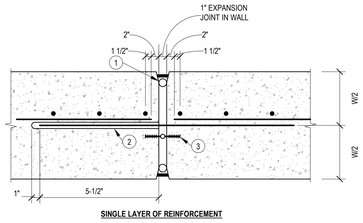
DETAIL NOTES:
1. PROVIDE CANT STRIPS EA FACE
2. FIELD CUT ALTERNATE HORIZ BARS EA FACE

SINGLE LAYER OF REINFORCEMENT

12 CONC WALL CONTROL JOINTS
3/4" = 1'-0"



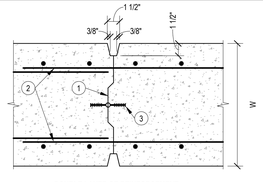
DOUBLE LAYER OF REINFORCEMENT



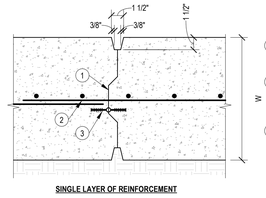
DETAIL NOTES:
1. SEALANT EA FACE
2. 1/2" DIA x 1'-0" DWLS @ 12" OC VERTICALLY WITH GREASED SLEEVE
3. WATERSTOP

SINGLE LAYER OF REINFORCEMENT

11 CONC WALL EXPANSION JOINTS
3/4" = 1'-0"



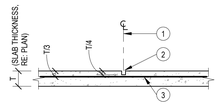
DOUBLE LAYER OF REINFORCEMENT

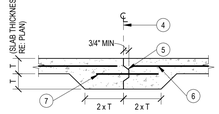


DETAIL NOTES:
1. FORM KEYWAY AT CONSTRUCTION JOINTS
2. EXTEND REINF REQD LAP DISTANCE OR PROVIDE POST INSTALLED DOWELS
3. WATERSTOP ON RETAINED EARTH SIDE

SINGLE LAYER OF REINFORCEMENT

10 CONC WALL CONSTRUCTION JOINTS
3/4" = 1'-0"



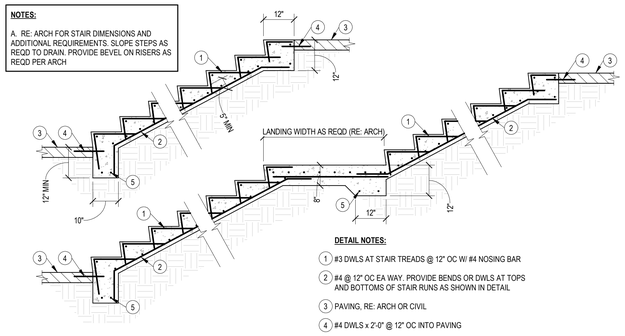


DETAIL NOTES:
1. SAW CUT JOINT
2. SAW CUT JOINT AS SOON AS EQUIPMENT CAN BE PLACED ON SLAB WITHOUT DAMAGE
3. MESH OR REBAR CONT
4. KEYED CONSTRUCTION JOINT USE BOND BREAKER
5. FORMED KEY (NO METAL KEY)
6. CUT MESH OR REBAR AT JOINT
7. 3/4" x 16" SMOOTH DWLS @ 12" OC

NOTES:
A. THIS DETAIL MAY BE USED IN LIEU OF SAW CUT JOINT

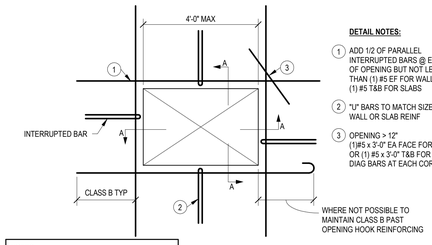
9 SLAB ON GRADE CONTROL JOINTS
3/4" = 1'-0"

NOTES:
A. RE: ARCH FOR STAIR DIMENSIONS AND ADDITIONAL REQUIREMENTS. SLOPE STEPS AS REQD TO DRAIN. PROVIDE BEVEL ON RISERS AS REQD PER ARCH



DETAIL NOTES:
1. #3 DWLS AT STAIR TREADS @ 12" OC W/ #4 NOSING BAR
2. #4 @ 12" OC EA WAY. PROVIDE BENDS OR DWLS AT TOPS AND BOTTOMS OF STAIR RUNS AS SHOWN IN DETAIL
3. PAVING, RE: ARCH OR CIVIL
4. #4 DWLS x 2'-0" @ 12" OC INTO PAVING
5. (2) #4 CONT

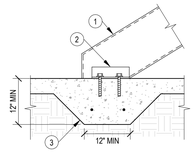
8 CONCRETE STAIRS ON GRADE
1/2" = 1'-0"



DETAIL NOTES:
1. ADD 1/2 OF PARALLEL INTERRUPTED BARS @ EA SIDE OF OPENING BUT NOT LESS THAN (1) #5 EF FOR WALLS OR (1) #5 T&B FOR SLABS
2. "U" BARS TO MATCH SIZE OF WALL OR SLAB REINF
3. OPENING > 12" (1)#5 x 3'-0" EA FACE FOR WALLS OR (1) #5 x 3'-0" T&B FOR SLABS DIAG BARS AT EACH CORNER

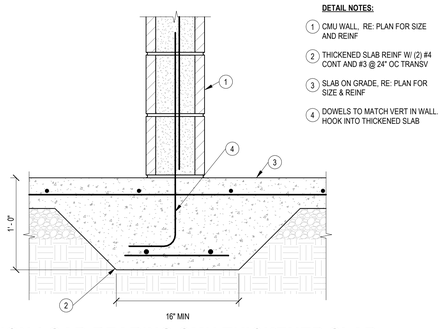
NOTES:
A. SEE WALL ELEVATIONS OR PLANS FOR REINFORCEMENT AT LARGER OPENINGS
B. CLUSTERS OF SMALL HOLES WHOSE OVERALL MEASUREMENT EXCEEDS 1'-0" SHOULD BE REINFORCED AS ONE OPENING
C. WALLS CAN SPAN IN EITHER DIRECTION

7 CONC WALL REINF @ OPENINGS
1/2" = 1'-0"



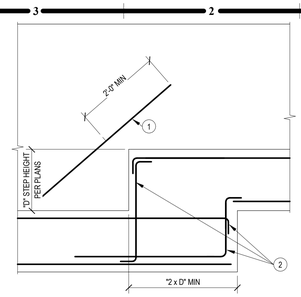
DETAIL NOTES:
1. STEEL STAIR STRINGER PER STAIR SUPPLIER
2. ANGLE OR BASE PLATE ON STRINGER INT W/ POST INSTALLED ANCHORS PER STAIR SUPPLIER
3. THICKENED SLAB BELOW LANDING. REINF W/ (2) #4 CONT

6 STAIR STRINGER ON THICKENED SLAB
3/4" = 1'-0"



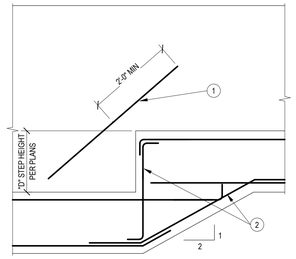
DETAIL NOTES:
1. CMU WALL. RE: PLAN FOR SIZE AND REINF
2. THICKENED SLAB REINF W/ (2) #4 CONT AND #3 @ 24" OC TRANSV
3. SLAB ON GRADE, RE: PLAN FOR SIZE & REINF
4. DOWELS TO MATCH VERT IN WALL. HOOK INTO THICKENED SLAB

5 NON-LOAD-BEARING CMU THICKENED SLAB
1 1/2" = 1'-0"



DETAIL NOTES:
1. #4 EACH FACE DIAG IN CONCRETE WALL
2. STEP FTG BARS (MATCH Ø & LAP W/ FTG BARS)

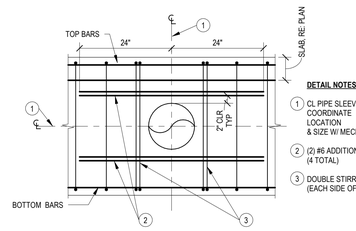
OPTION 1



DETAIL NOTES:
1. #4 EACH FACE DIAG IN CONCRETE WALL
2. STEP FTG BARS (MATCH DIAMETER & LAP W/ FTG BARS)

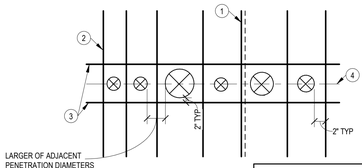
OPTION 2

4 FOOTING STEP
1/2" = 1'-0"



DETAIL NOTES:
1. CL PIPE SLEEVE COORDINATE LOCATION & SIZE W/ MECH
2. (2) #6 ADDITIONAL T&B (4 TOTAL)
3. DOUBLE STIRRUP (EACH SIDE OF SLEEVE)

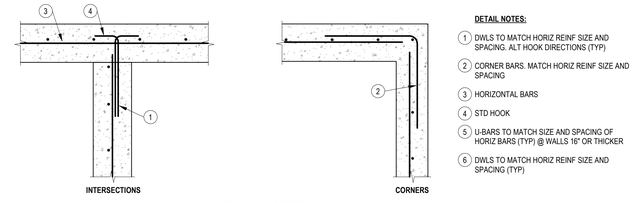
3 CONC BEAM PENETRATION
3/4" = 1'-0"



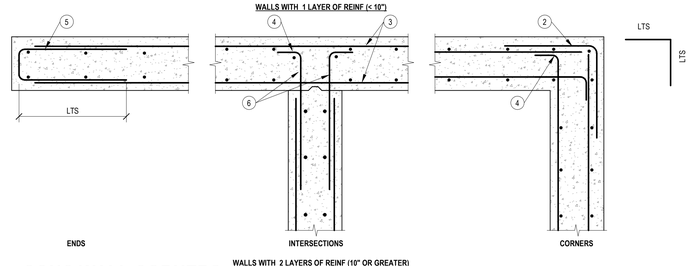
DETAIL NOTES:
1. ARRANGE PRIMARY SLAB BARS TO PASS BY PENETRATIONS. DO NOT TERMINATE SLAB BARS AT PENETRATIONS
2. (1) #5 x 5'-0" T&B @ ENDS & IN BTWN ALL PENETRATIONS
3. (1)#5 x 5'-0" T&B EA SIDE
4. ALIGN PENETRATIONS WHERE POSSIBLE

NOTES:
A. DETAIL DOES NOT APPLY FOR PENETRATIONS LARGER THAN 12" IN DIAMETER. SEE TYP SLAB OPENING DETAIL FOR SUCH PENETRATIONS

2 REINF @ SLAB PENETRATIONS
3/4" = 1'-0"



DETAIL NOTES:
1. DWLS TO MATCH HORIZ REINF SIZE AND SPACING. ALT HOOK DIRECTIONS (TYP)
2. CORNER BARS. MATCH HORIZ REINF SIZE AND SPACING
3. HORIZONTAL BARS
4. STD HOOK
5. U-BARS TO MATCH SIZE AND SPACING OF HORIZ BARS (TYP) @ WALLS 16" OR THICKER
6. DWLS TO MATCH HORIZ REINF SIZE AND SPACING (TYP)



1 CONC WALL CORNERS
3/4" = 1'-0"

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REVISION DATES:
1 CITY COMMENTS 06/20/2023

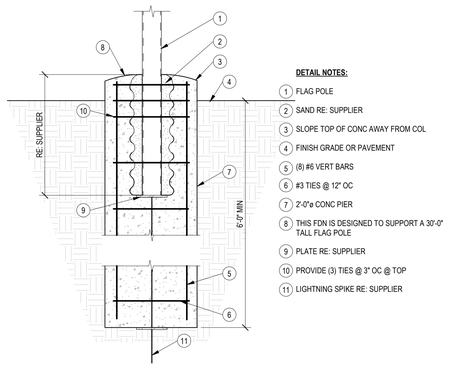
STATE OF MISSOURI
JOHN E. FUNK
NUMBER E-2000173299
REGISTERED PROFESSIONAL ENGINEER
03/22/24
PROFESSIONAL SEAL

S030

ISSUE DATE: 05/02/2023
COLLINS WEBB #: 22453

TYPICAL DETAILS - CONCRETE

3/22/2024 10:51:00 AM

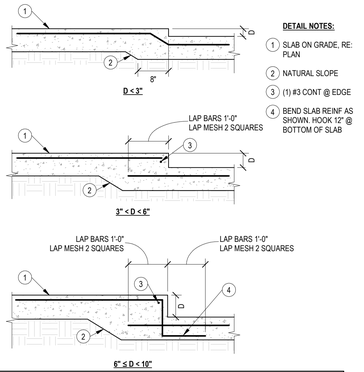


DETAIL NOTES:

1. FLAG POLE
2. SAND RE: SUPPLIER
3. SLOPE TOP OF CONC AWAY FROM COL
4. FINISH GRADE OR PAVEMENT
5. (8) #6 VERT BARS
6. #3 TIES @ 12" OC
7. 2'-0"ø CONC PIER
8. THIS FDN IS DESIGNED TO SUPPORT A 30'-0" TALL FLAG POLE
9. PLATE RE: SUPPLIER
10. PROVIDE (3) TIES @ 3" OC @ TOP
11. LIGHTNING SPIKE RE: SUPPLIER

3 FLAG POLE BASE

3/4" = 1'-0"



DETAIL NOTES:

1. SLAB ON GRADE, RE: PLAN
2. NATURAL SLOPE
3. (1) #3 CONT @ EDGE
4. BEND SLAB REINF AS SHOWN. HOOK 12" @ BOTTOM OF SLAB

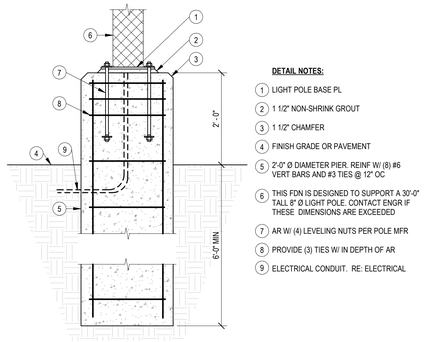
NOTES:

A. COORDINATE DEPTH AND LOCATION OF ALL FLOOR DEPRESSIONS WITH ARCHITECTURAL DRAWINGS

B. PROVIDE (1) #4 x 4'-0" TOP AT INTERIOR CORNERS OF ALL DEPRESSIONS

5 SLAB ON GRADE FLOOR DEPRESSION

3/4" = 1'-0"

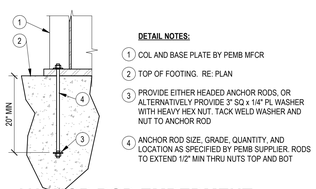


DETAIL NOTES:

1. LIGHT POLE BASE PL
2. 1 1/2" NON-SHRINK GROUT
3. 1 1/2" CHAMFER
4. FINISH GRADE OR PAVEMENT
5. 2'-0" Ø DIAMETER PIER. REINF W/ (8) #6 VERT BARS AND #3 TIES @ 12" OC
6. THIS FDN IS DESIGNED TO SUPPORT A 30'-0" TALL 8" Ø LIGHT POLE. CONTACT ENGR IF THESE DIMENSIONS ARE EXCEEDED
7. AR W/ (4) LEVELING NUTS PER POLE MFR
8. PROVIDE (3) TIES W/ IN DEPTH OF AR
9. ELECTRICAL CONDUIT. RE: ELECTRICAL

2 LIGHT POLE BASE

3/4" = 1'-0"

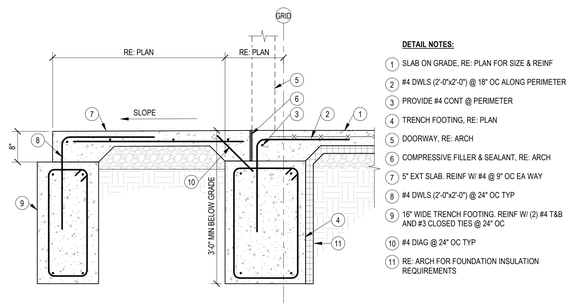


DETAIL NOTES:

1. COL AND BASE PLATE BY PEMB MFCR
2. TOP OF FOOTING. RE: PLAN
3. PROVIDE EITHER HEADED ANCHOR RODS, OR ALTERNATIVELY PROVIDE 3" SQ x 1/4" PL WASHER WITH HEAVY HEX NUT. TACK WELD WASHER AND NUT TO ANCHOR ROD
4. ANCHOR ROD SIZE, GRADE, QUANTITY, AND LOCATION AS SPECIFIED BY PEMB SUPPLIER. RODS TO EXTEND 1/2" MIN THRU NUTS TOP AND BOT

4 ANCHOR ROD EMBEDMENT

3/4" = 1'-0"



DETAIL NOTES:

1. SLAB ON GRADE, RE: PLAN FOR SIZE & REINF
2. #4 DWLS (2'-0"x2'-0") @ 18" OC ALONG PERIMETER
3. PROVIDE #4 CONT @ PERIMETER
4. TRENCH FOOTING, RE: PLAN
5. DOORWAY, RE: ARCH
6. COMPRESSIVE FILLER & SEALANT, RE: ARCH
7. 5" EXT SLAB. REINF W/ #4 @ 9" OC EA WAY
8. #4 DWLS (2'-0"x2'-0") @ 24" OC TYP
9. 16" WIDE TRENCH FOOTING. REINF W/ (2) #4 T&B AND #3 CLOSED TIES @ 24" OC
10. #4 DIAG @ 24" OC TYP
11. RE: ARCH FOR FOUNDATION INSULATION REQUIREMENTS

1 STOOP DETAIL

3/4" = 1'-0"

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REVISION DATES:

1	CITY COMMENTS	06/20/2023

STATE OF MISSOURI
JOHN E. FUNK
NUMBER E-2000172999
REGISTERED PROFESSIONAL ENGINEER
03/22/24

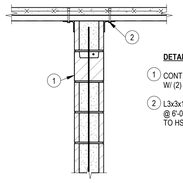
PROFESSIONAL SEAL

S031

ISSUE DATE: 05/02/2023
COLLINS WEBB #: 22453

TYPICAL DETAILS - CONCRETE

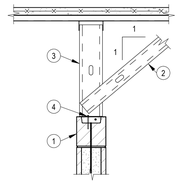
3/22/2024 10:51:01 AM



DETAIL NOTES:

1. CONT BOND BEAM W/ (2) #4 CONT
2. L3x3x1/4x6" @ 6'-0" OC WELD TO HSS

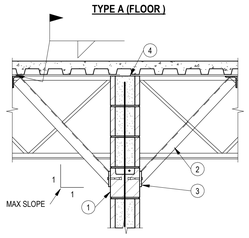
TYPE A (FLOOR)



DETAIL NOTES:

1. CONT BOND BEAM W/ (2) #4 CONT
2. STUD BRACE @ 48" OC
3. STUDS @ 16" OC AS REQ'D
4. 1/4" Ø PDF @ 24" OC

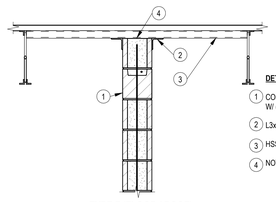
TYPE E (FLOOR / ROOF)



DETAIL NOTES:

1. CONT BOND BEAM W/ (2) #4 CONT
2. L2 1/2x2 1/2x1/4 @ 4'-0" OC
3. PL 1/4x4x4 W/ (1) 1/2" Ø x 4" EXPANSION BOLT
4. RE: ARCH FOR TOP OF CMU CONDITION

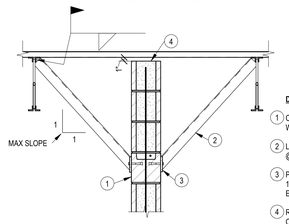
TYPE B (FLOOR / ROOF)



DETAIL NOTES:

1. CONT BOND BEAM W/ (2) #4 CONT
2. L3x3x1/4x6" @ 6'-0" OC WELD TO HSS
3. HSS2x2x1/4 @ 6'-0" OC
4. NOTCH CMU AROUND TUBE

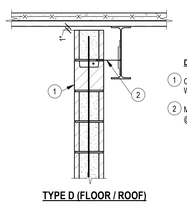
TYPE F (FLOOR / ROOF)



DETAIL NOTES:

1. CONT BOND BEAM W/ (2) #4 CONT
2. L2 1/2x2 1/2x1/4 @ 4'-0" OC
3. PL 1/4x4x4 W/ (1) 1/2" Ø x 4" EXPANSION BOLT
4. RE: ARCH FOR TOP OF CMU CONDITION

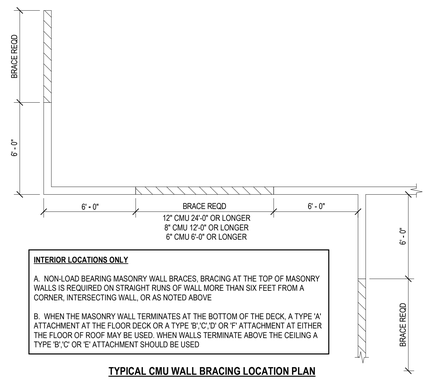
TYPE C (FLOOR / ROOF)



DETAIL NOTES:

1. CONT BOND BEAM W/ (2) #4 CONT
2. MASONRY TIE @ 16" OC

TYPE D (FLOOR / ROOF)



INTERIOR LOCATIONS ONLY

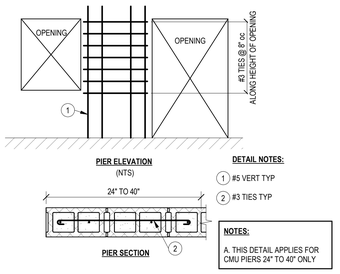
A. NON-LOAD BEARING MASONRY WALL BRACES, BRACING AT THE TOP OF MASONRY WALLS IS REQUIRED ON STRAIGHT RUNS OF WALL MORE THAN SIX FEET FROM A CORNER, INTERSECTING WALL, OR AS NOTED ABOVE

B. WHEN THE MASONRY WALL TERMINATES AT THE BOTTOM OF THE DECK, A TYPE 'A' ATTACHMENT AT THE FLOOR DECK OR A TYPE 'B','C','D' OR 'F' ATTACHMENT AT EITHER THE FLOOR OF ROOF MAY BE USED. WHEN WALLS TERMINATE ABOVE THE CEILING A TYPE 'B','C' OR 'E' ATTACHMENT SHOULD BE USED

TYPICAL CMU WALL BRACING LOCATION PLAN

5 CMU T/WALL BRACING CONN DETAILS

3/4" = 1'-0"



PIER ELEVATION
(NTS)

PIER SECTION

DETAIL NOTES:

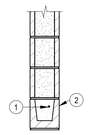
1. #5 VERT TYP
2. #3 TIES TYP

NOTES:

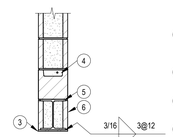
A. THIS DETAIL APPLIES FOR CMU PIERS 24" TO 40" ONLY

4 MASONRY PIER REINFORCING

3/4" = 1'-0"



LINTEL UNIT



STEEL BEAM WITH PLATE

DETAIL NOTES:

1. REINF PER SCHEDULE. EXTEND 24" BEYOND EA EDGE OF OPENING
2. LINTEL UNIT W/ 8" MIN BEARING EA END
3. BOT PLATE. DETAIL 1/2" SHORT OF OPENING EA END
4. BOND BEAM. REINF PER GENERAL NOTES
5. STEEL BEAM, RE: SCHEDULE
6. PROVIDE SOAPS AS REQD

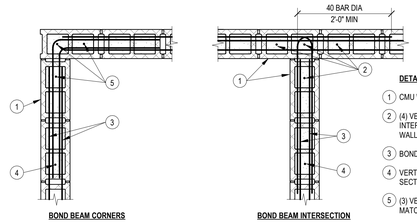
NOTES:

A. AT EA END OF A STEEL LINTEL, PROVIDE A PL 3/8" x 7" x 0'-8" W/ (2) 1/2" Ø x 4" HEADED STUDS. FIELD WELD BEAM BOT FLANGE TO PLATE 3/16" x 3" LONG EA SIDE AND EA END

8" CMU LINTEL SCHEDULE	
MAX OPENING "W"	**CMU LINTEL**
6'-0"	8" HIGH LINTEL UNIT W/ (2) #5 HORZ BOTTOM
8'-0"	16" HIGH LINTEL UNIT W/ (2) #5 HORZ BOTTOM
10'-0"	W8x15 BEAM W/ 1/4" x 7" BOTTOM PLATE
12'-0"	W8x21 BEAM W/ 1/4" x 7" BOTTOM PLATE
16'-0"	W16x31 BEAM W/ 1/4" x 7" BOTTOM PLATE

3 CMU LINTEL SCHEDULE

3/4" = 1'-0"



BOND BEAM CORNERS

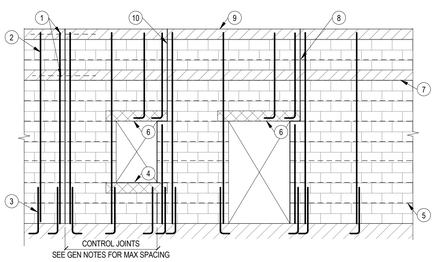
BOND BEAM INTERSECTION

DETAIL NOTES:

1. CMU WALL BOND BEAM
2. (4) VERT BARS @ INTERSECTION. MATCH TYP WALL REINF
3. BOND BEAM BARS TYP
4. VERT BARS, RE: PLAN & WALL SECTION
5. (3) VERT BARS AT CORNER. MATCH TYP WALL REINF

2 MASONRY BOND BEAM

3/4" = 1'-0"



DETAIL NOTES:

1. HORIZ REINF ACROSS CONTROL JOINTS SHALL BE CONT @ EACH DECK LEVEL AND @ THE TOPS OF WALLS
2. WALL VERT REINF, RE: PLAN OR GENERAL NOTES
3. PROVIDE DWLS INTO FTG THAT MATCH VERT BAR SIZE AND SPACING
4. PROVIDE BOND BEAM PER GENERAL NOTES UNDER ALL WINDOWS (AND SIMILAR OPENINGS)
5. #9 LADDER TYPE HORIZ JOINT REINF @ 16"OC UNO
6. LINTEL PER SCHEDULE OVER ALL OPENINGS 8" OR WIDER. LINTEL REINF SHALL EXTEND 24" PAST EDGE OF OPENING
7. PROVIDE BOND BEAMS WHERE FLOORS AND ROOFS ATTACH TO THE WALL AND PROVIDE BOND BEAMS AT JOIST AND BEAM BEARING ELEVATIONS
8. LADDER TYPE HORIZONTAL REINF SHALL BE DISCONTINUOUS AT ALL CONTROL JOINTS
9. BOND BEAM PER GENERAL NOTES AT THE TOPS OF ALL WALLS
10. CONTROL JOINTS SHALL OFFSET HORIZONTALLY THE LINTEL BEARING WIDTH AT ALL WALL OPENINGS

NOTES:

A. CONTRACTOR SHALL COORD W/ ENGR ANY CONDITION & LOCATIONS WHERE OPENING DIMENSIONS EXCEED THOSE SHOWN ON PLANS

B. LINTELS AND BOND BEAMS ARE REQD ABOVE AND BELOW ANY OPENING EXCEEDING 8" IN EITHER THE HORIZONTAL OR VERITICAL DIMENSION. THIS INCLUDES, BUT IS NOT LIMITED TO MECHANICAL, ELECTRICAL, PLUMBING, DOOR OR WINDOW OPENINGS

1 MASONRY WALL REINF

1/4" = 1'-0"

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REVISION DATES:

1	CITY COMMENTS	06/20/2023

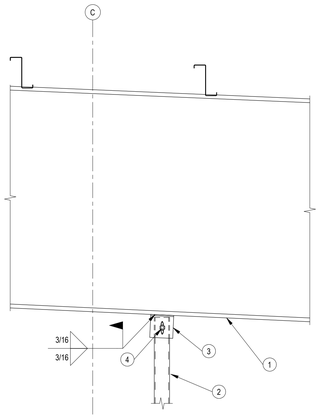
STATE OF MISSOURI
JOHN E. FUNK
NUMBER E-2000173299
REGISTERED PROFESSIONAL ENGINEER
03/22/24
PROFESSIONAL SEAL

S040

ISSUE DATE: 05/02/2023
COLLINS WEBB #: 22453

TYPICAL DETAILS - MASONRY

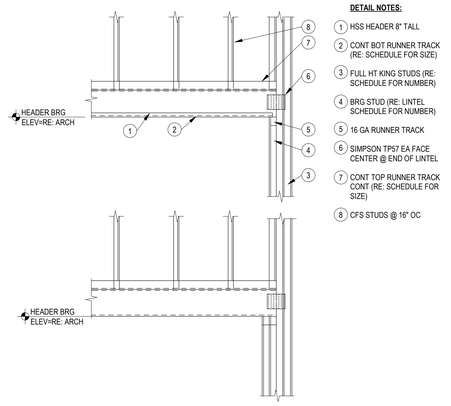
3/22/2024 10:51:02 AM



SECTION NOTES

1. RAFTER BY PEMB SUPPLIER
2. NET SUPPORT POST. RE: PLAN
3. L6x4x5/16" ANGLE (6" LONG) W/ 3" VERTICAL SLOT
4. 3/4" DIA BOLT CENTERED IN SLOT

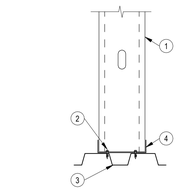
14 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. HSS HEADER 8" TALL
2. CONT BOT RUNNER TRACK (RE: SCHEDULE FOR SIZE)
3. FULL HT KING STUDS (RE: SCHEDULE FOR NUMBER)
4. BRG STUD (RE: LINTEL SCHEDULE FOR NUMBER)
5. 16 GA RUNNER TRACK
6. SIMPSON TPS7 EA FACE CENTER @ END OF LINTEL
7. CONT TOP RUNNER TRACK CONT (RE: SCHEDULE FOR SIZE)
8. CFS STUDS @ 16" OC

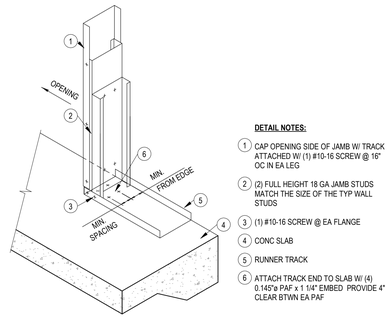
10 CFS BOX HEADER ELEV
1/2" = 1'-0"



DETAIL NOTES:

1. COLD FORM METAL STUD
2. (2) #10 - 16 SCREWS @ EA STUD (4) #10 - 16 SCREWS @ JAMB CONDITIONS
3. METAL DECK, RE: PLAN. ASSUME 22GA MIN
4. CONT BOT TRACK

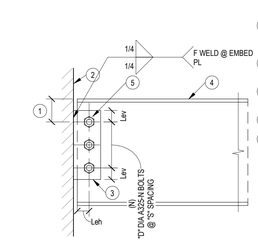
5 CFS STUD MTL DECK CONN
1 1/2" = 1'-0"



DETAIL NOTES:

1. CAP OPENING SIDE OF JAMB W/ TRACK ATTACHED W/ (1) #10-16 SCREW @ 16" OC IN EA LEG
2. (2) FULL HEIGHT 18 GA JAMB STUDS MATCH THE SIZE OF THE TYP WALL STUDS
3. (1) #10-16 SCREW @ EA FLANGE
4. CONC SLAB
5. RUNNER TRACK
6. ATTACH TRACK END TO SLAB W/ (4) 0.145"ø PAF x 1 1/4" EMBED PROVIDE 4" CLEAR BTWN EA PAF

4 CFS SILL CONN @ OPENINGS
3/4" = 1'-0"

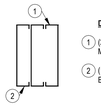


DETAIL NOTES:

1. 3" TYP EXCEPT AS RECOMMENDED BY AISC FOR W8 & SMALLER BEAMS OR FOR LARGER BEAMS
2. FACE OF BEAM WEB, COL FLG, COL WEB, OR EMBED PLATE
3. 3/8" TAB PL WIDTH = 2 x Leh+1/2" DEPTH AS REQD
4. STEEL BEAM RE: PLAN
5. HOLES MAY BE HORIZ SHORT SLOTS AS REQD

BEAM	N	V-ALLOW (K)	VARIABLES
W8	2	9.0	Lev = 1 1/2"
W10	2	14.0	Leh = 1 1/2"
W12, W14	3	23.8	D = 3/4"
W16	4	39.5	N = PER TABLE
W18	5	52.3	S = 3"
W21, W24	6	64.9	
W24	7	77.2	
W27	8	89.5	
W30	9	101.5	

13 SHEAR TAB CONN
1 1/2" = 1'-0"



DETAIL NOTES:

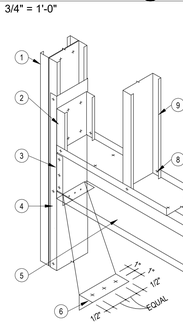
1. (2) FULL HT STUDS EA SIDE MATCH WALL STUD SIZE
2. (1) 14 GA JACK STUD W/ 2" FLANGE EA SIDE OF OPENING

9 CFS BUILT-UP JAMB
1 1/2" = 1'-0"

DETAIL NOTES:

1. 12 GA RUNNER
2. #10 SCREWS @ 12" OC
3. CFS HEADER, RE: SCHEDULE
4. 12 GA RUNNER TOP AND BOT

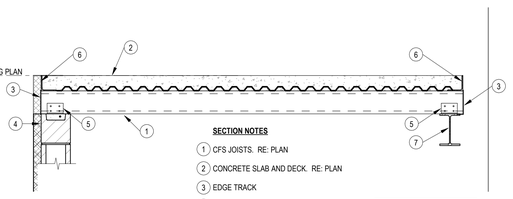
8 CFS BOX HEADER CONN
1 1/2" = 1'-0"



DETAIL NOTES:

1. FULL HEIGHT JAMB STUDS. QUANTITY & MEMBER SIZES AS REQD BY DESIGN
2. 6" LONG SECTION OF STUD ATTACHED TO JAMB W/ (4) #10-16 SCREWS
3. 18 GA MIN TRACK HEADER CONN
4. IF NO TRACK IN JAMB TYPE CAP OPENING SIDE OF JAMB W/ TRACK ATTACHED W/ (1) #10-16 SCREW @ 12" OC IN EA LEG
5. (2) UNPUNCHED STUDS. MEMBER SIZES AS REQD PER DESIGN
6. CLIP ANGLE SIZE AS REQD PER DESIGN
7. (2) #10-16 SCREWS @ 12" OC
8. (1) # 10-16 SCREW TYP EA FLANGE
9. CRIPPLE STUDS

3 CFS JAMB STUD CONN
3/4" = 1'-0"

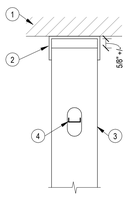


SECTION NOTES

1. CFS JOISTS. RE: PLAN
2. CONCRETE SLAB AND DECK. RE: PLAN
3. EDGE TRACK
4. BOND BEAM W/ (1) #5 CONT
5. SIMPSON RCA335 CLIP @ EA JOIST
6. 4"x4"x12 GA POUR STOP
7. BEAM. RE: PLAN

AT SIM - CFS JOISTS AND DECK RUNNING THE OPPOSITE DIRECTION

12 SECTION
3/4" = 1'-0"



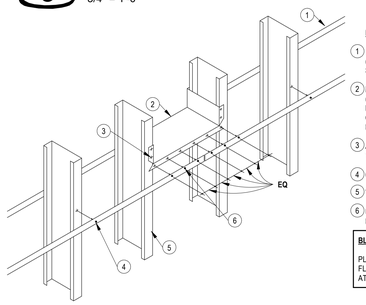
DETAIL NOTES:

1. PRIMARY STRUCTURE
2. DEEP TRACK CONT, 16 GA MIN
3. CFS STUDS, RE: PLAN
4. BRIDGING PER MFCR

NOTE:

A. SPACE VERT @ 4'-0" OC MAX, UNO

7 CFS T/STUD SLIP CONN
3/4" = 1'-0"



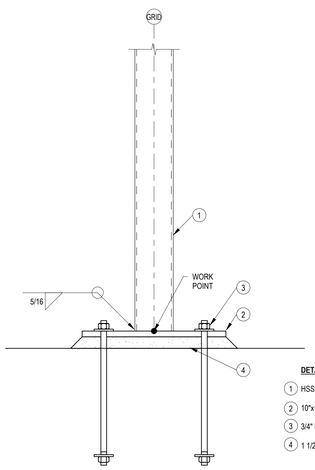
DETAIL NOTES:

1. 1 1/2" GA STRAPPING ON EA SIDE OF MEMBER (STRAPPING TO START END & SPLICE @ SOLID BLOCKING)
2. MIN 18 GA RUNNER TRACK SOLID BLOCKING @ 10'-0" OC MAX. MAKE RUNNER TRACK 8" LONGER THAN MEMBER INSIDE SPACING. CLIP FLANGES OF TRACK 4" FROM EA END. BEND TRACK @ CLIPPED FLANGES
3. ATTACH BLOCKING TO MEMBERS WITH (2) # 10-16 SCREWS IN EA FLANGE AS SHOWN
4. (1) #10-16 SCREW IN EA STUD FLANGE
5. TYP CFS MEMBER
6. USE (6) # 10-16 SCREWS ON EA SIDE OF BLOCKING

BLOCKING NOTE

PLACE SOLID BLOCKING @ ENDS OF WALL OR FLOOR SYSTEM, ADJACENT TO OPENGINGS & AT 10'-0" OC MAX

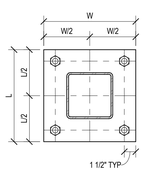
2 CFS STUD STRAP & BLOCKING
3/4" = 1'-0"

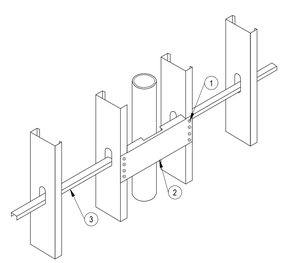


DETAIL NOTES

1. HSS COLUMN, RE: PLAN FOR SIZE
2. 10"x10"x1/2" BASE PLATE
3. 3/4" DIA ANCHOR RODS X 8" EMBED
4. 1 1/2" OF NON - SHRINK GROUT

15 COLUMN - BASE PLATE
1 1/2" = 1'-0"





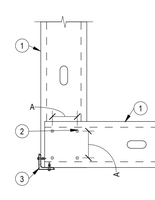
DETAIL NOTES:

1. (4) #10 SCREWS @ EACH END
2. 362T125-33 EACH SIDE, CLIP FLANGE, ATTACH TO STUDS
3. BRIDGING PER DETAILS

NOTE:

TRACK FLANGES CAN BE NOTCHED 1/2" MAX FOR PIPE

11 TYPICAL BRIDGING AT INTERRUPTIONS
NTS

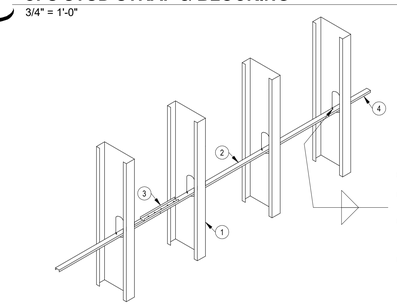


DETAIL NOTES:

1. CFS STUD
2. (4) #10 - 16 SCREWS PER LAP CONN
3. 2x2x18 GA CONT CLOSURE ANGLE @ OUTSIDE CORNERS (TYP) ATTACH W/ (1) #10 - 16 SCREW @ EA STUD

STUD DEPTH	A
3 5/8"	2 1/2"
6"	4"
8"	6"
10"	8"
12"	10"

6 CFS STUDS CORNER CONN
1 1/2" = 1'-0"



DETAIL NOTES:

1. CFS STUD 8" MAX DEPTH
2. 150U50-54 CONT COLD ROLLED CHANNEL
3. 150U50-54 x 12" LONG @ SPLICE LOCATIONS W/ (6) #10 - 16 SCREWS (3) EA END
4. ALL BRIDGING SHALL BE TERMINATED @ JAMBS, CORNER STUDS OR COLUMNS. BRIDGING SHALL NOT HANG LOOSE

1 CFS STUD BRIDGING
3/4" = 1'-0"

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REVISION DATES:

1	CITY COMMENTS	06/20/2023

STATE OF MISSOURI
JOHN E. FUNK
NUMBER E-2000173299
REGISTERED PROFESSIONAL ENGINEER
03/22/24
PROFESSIONAL SEAL

S054

ISSUE DATE: 05/02/2023
COLLINS WEBB #: 22453

TYPICAL DETAILS - CFS & STEEL

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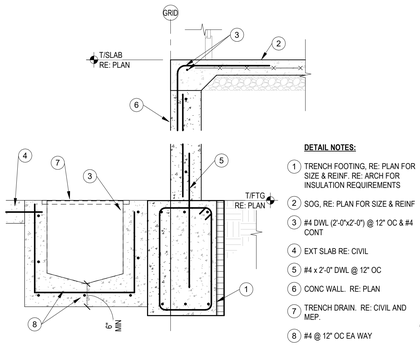
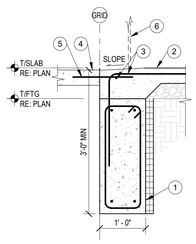


DETAIL NOTES:

1. TRENCH FOOTING, RE: PLAN FOR SIZE & REINF. RE: ARCH FOR INSULATION REQUIREMENTS
2. SOG, RE: PLAN FOR SIZE & REINF
3. #4 DWL (2'-0"x2'-0") @ 12" OC & #4 CONT
4. EXT SLAB RE: CIVIL
5. #4 x 2'-0" DWL @ 12" OC
6. CONC WALL. RE: PLAN
7. TRENCH DRAIN. RE: CIVIL AND MEP.
8. #4 @ 12" OC EA WAY

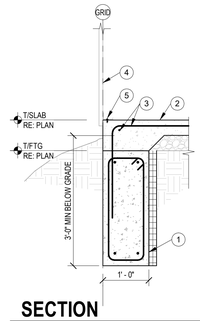
9 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. TRENCH FOOTING, RE: PLAN FOR SIZE & REINF. RE: ARCH FOR INSULATION REQUIREMENTS
2. SOG, RE: PLAN FOR SIZE & REINF
3. #4 DWL (2'-0"x2'-0") @ 12" OC & #4 CONT
4. EXT SLAB RE: CIVIL
5. #4 x 2'-0" DWL @ 12" OC @ DOORS
6. DOOR. RE: ARCH

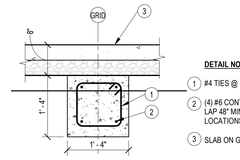
7 SECTION @ OVERHEAD DOORS
3/4" = 1'-0"



DETAIL NOTES:

1. TRENCH FOOTING, RE: PLAN FOR SIZE & REINF. RE: ARCH FOR INSULATION REQUIREMENTS
2. SOG, RE: PLAN FOR SIZE & REINF
3. #4 DWL (2'-0"x2'-0") @ 24" OC & #4 CONT
4. METAL WALL PANEL PER PEMB SUPPLIER
5. BASE ANGLE PER PEMB. ANCHOR TO CONC W/ 3/8ø SCREW ANCHOR x 2" MIN EMBED @ 24" OC MAX OR PER PEMB DRAWINGS

5 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. #4 TIES @ 16" OC
2. (4) #6 CONT. AT LAP SPLICES LAP 48" MIN ALT SPLICE LOCATIONS
3. SLAB ON GRADE. RE: PLAN

3 SECTION
3/4" = 1'-0"

SHEET NOTES:

A. REFERENCE SHEET S00x FOR STRUCTURAL GENERAL NOTES. REVIEW NOTES & DETAILS FOR APPLICABILITY.

B. SEE ARCHITECTURAL DRAWING FOR DETAILS & DIMENSIONS NOT SHOWN.

C. REFER TO S0xx FOR TYPICAL DETAILS.

D. TOP OF SLAB ELEVATION = 100'-0" UNO. EOS IS AT GRID LINE UNO.

E. TOP OF TRENCH FOOTING ELEVATION = 99'-4" UNO. THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE 3'-0" MIN BELOW GRADE, DEEPEN FOOTINGS AS REQUIRED. GRADE IS GENERALLY 6" BELOW FINISH FLOOR ELEVATION (COORDINATE WITH CIVIL).

F. TOP OF SPREAD FOOTING ELEVATION = 99'-4" UNO. SPREAD FOOTINGS DENOTED ON PLAN BY "Fx.x". REFER TO SCHEDULE ON THIS SHEET FOR SIZE AND REINFORCING.

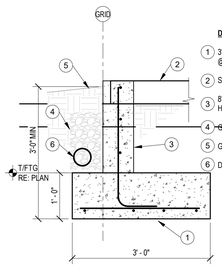
G. PROVIDE BLOCKOUTS IN SLAB FOR COLUMNS PER TYPICAL DETAIL

H. METAL BUILDING COLUMNS ARE TO BEAR 8" BELOW FINISHED FLOOR.

I. HSS SUPPORT POSTS FOR NET AND MEZZANINE TO BEAR 8" BELOW FINISHED FLOOR. PROVIDE BASE PLATES PER THE TYP DETAILS.

SCHEDULE - SPREAD FOOTING

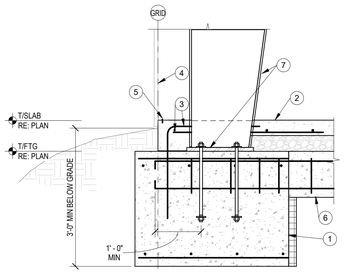
TYPE MARK	LENGTH	WIDTH	THICKNESS	REINF
F4.0	4' - 0"	4' - 0"	2' - 6"	(5) #5 EW TOP & BOT
F5.0	5' - 0"	5' - 0"	2' - 6"	(6) #5 EW TOP & BOT
F6.5	6' - 6"	6' - 6"	2' - 6"	(7) #5 EW TOP & BOT
F7.0	7' - 0"	7' - 0"	2' - 6"	(8) #5 EW TOP & BOT



DETAIL NOTES:

1. 3'-0" X 12" WALL FTG. REIN W/ #4 @ 12" OC EA WAY
2. SOG, RE: CIVIL
3. 8" WALL. REINF W/ #4 @ 12" OC. HOOK VERTS INTO FTG.
4. GRAVEL BACKFILL
5. GRADE. RE: CIVIL
6. DRAIN PIPE. RE: CIVIL

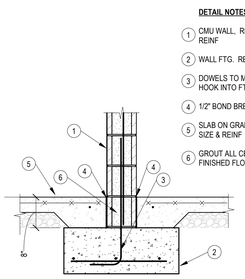
8 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. SPREAD FOOTING, RE: PLAN FOR SIZE & REINF. RE: ARCH FOR INSULATION REQUIREMENTS
2. SOG, RE: PLAN FOR SIZE & REINF
3. (2) #4 DWL (2'-0"x2'-0") EA SIDE OF COLUMN INTO FOOTING & #4 CONT
4. METAL WALL PANEL PER PEMB SUPPLIER
5. BASE ANGLE PER PEMB. ANCHOR TO CONC W/ 3/8ø SCREW ANCHOR x 2" MIN EMBED @ 24" OC MAX OR PER PEMB DRAWINGS
6. TIE BEAM RE: PLAN. EXTEND REINF 12" PAST OUTSIDE ANCHOR RODS AND PROVIDE 90 DEG HOOKS ON END
7. CO AND BASE PLATE BY PEMB SUPPLIER

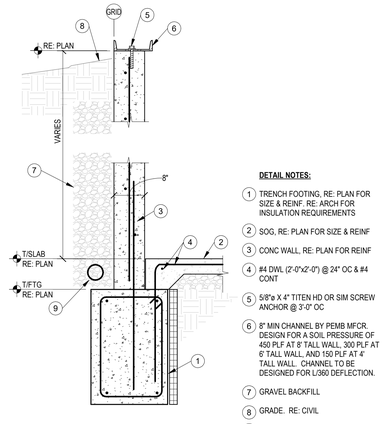
6 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. CMU WALL. RE: PLAN FOR SIZE AND REINF
2. WALL FTG. RE: PLAN
3. DOWELS TO MATCH VERT IN WALL. HOOK INTO FTG
4. 1/2" BOND BREAKER
5. SLAB ON GRADE, RE: PLAN FOR SIZE & REINF
6. GROUT ALL CELLS SOLID BELOW FINISHED FLOOR

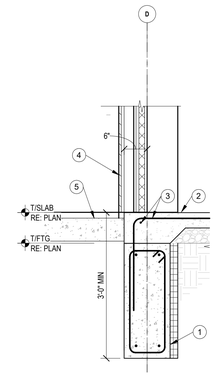
4 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. TRENCH FOOTING, RE: PLAN FOR SIZE & REINF. RE: ARCH FOR INSULATION REQUIREMENTS
2. SOG, RE: PLAN FOR SIZE & REINF
3. CONC WALL. RE: PLAN FOR REINF
4. #4 DWL (2'-0"x2'-0") @ 24" OC & #4 CONT
5. 5/8"ø X 4" T/TEN HD OR SIM SCREW ANCHOR @ 3'-0" OC
6. 8" MIN CHANNEL BY PEMB MFGR. DESIGN FOR A SOIL PRESSURE OF 450 PLF AT 8' TALL WALL, 300 PLF AT 6' TALL WALL, AND 150 PLF AT 4' TALL WALL. CHANNEL TO BE DESIGNED FOR L/360 DEFLECTION.
7. GRAVEL BACKFILL
8. GRADE. RE: CIVIL
9. DRAIN PIPE. RE: CIVIL

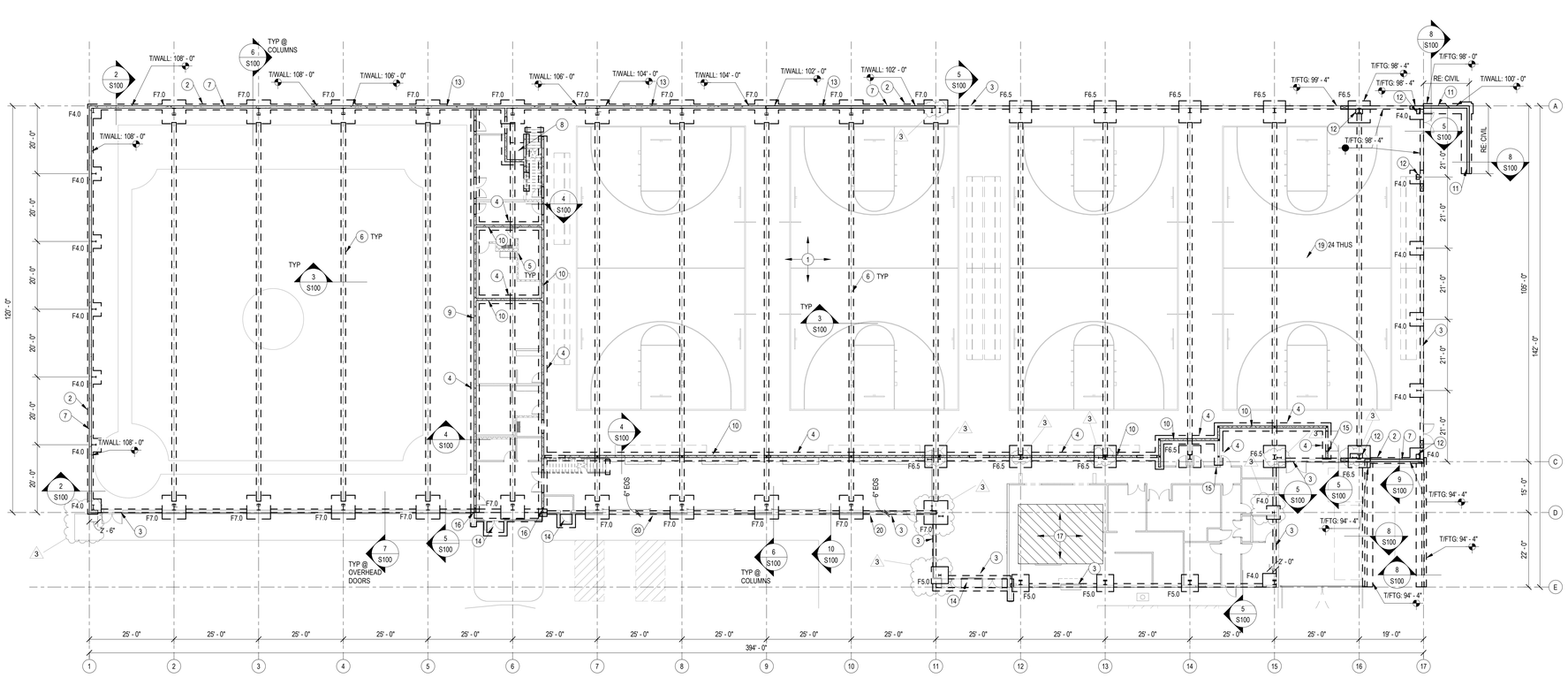
2 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. TRENCH FOOTING, RE: PLAN FOR SIZE & REINF. RE: ARCH FOR INSULATION REQUIREMENTS
2. SOG, RE: PLAN FOR SIZE & REINF
3. #4 DWL (2'-0"x2'-0") @ 24" OC & #4 CONT
4. CFS STUD WALL. RE: ARCH
5. SIDEWALK. RE: CIVIL

10 SECTION
3/4" = 1'-0"



PLAN NOTES:

1. 4" CONCRETE SLAB ON GRADE. RE:GENERAL NOTES FOR REINFORCING, GRANULAR FILL, VAPOR BARRIER AND JOINTING REQUIREMENTS
2. 20" WIDE x 2'-6" DEEP TRENCH FOOTING. REINF W/ (2) #5 TOP AND BOTTOM AND #4 TIES @ 24" OC
3. 12" WIDE x 2'-6" DEEP TRENCH FOOTING. REINF W/ (2) #4 TOP AND BOTTOM AND #4 TIES @ 24" OC
4. 30" WIDE x 1'-0" DEEP WALL FTG. REINF W/ (3) #5 CONT & #5 TRANS @ 18" OC
5. PROVIDE THICKENED SLAB UNDER ALL NON-LOAD BEARING CMU WALLS PER THE TYP DETAILS
6. 16"x16" TIE BEAM. RE: SECTION FOR REINF
7. 8" CONC WALL. REINF W/ #4 @ 9" OC VERT & #4 @ 12" OC HORIZ.
8. 12" THICK MAT SLAB BELOW LIFT. REINF W/ #4 @ 12" OC EA WAY, TOP AND BOTTOM. RECESS 3" BELOW FINISHED FLOOR (VERIFY SUPPLIERS EXACT REQMT'S)
9. 8" FULLY GROUTED CMU FIRE WALL. REINF W/ #4 VERT @ 40" OC
10. 8" CMU WALL. REINF W/ #4 VERT @ 40" OC. GROUT CELLS W/ REINF
11. RETAINING WALL AND FTG. RE: SECTION FOR REINF
12. WIDEN FDN WALL TO CREATE PILASTER UNDER COL BASE PLATE. REINF PILASTER W/ (4) #6 VERT AND (3) #4 TIES
13. 8" CONC WALL. REINF W/ #4 @ 12" OC EA WAY.
14. STOOP. RE: TYP DETAILS.
15. NOT USED
16. COLUMN BY PEMB SUPPLIER AS REQ'D FOR SUPPORT OF BELOW EAVE CANOPY
17. NO SLAB ON GRADE IN HATCHED AREA. RE: ARCH FOR EXTENTS
18. TUBE COL (8" MAX DEPTH) BY PEMB SUPPLIER.
19. VOLLEYBALL GOAL POST SLEEVE PER MANUFACTURER RE: ARCH
20. TRENCH FOOTING AND EDGE OF SLAB JOGS OUT AT NICHIHA WALL AREA. RE: SECTION

1 FOUNDATION PLAN
1/16" = 1'-0"

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REVISION DATES:

1	CITY COMMENTS	06/20/2023
3	CITY COMMENTS	03/22/2024

STATE OF MISSOURI
JOHN E. FUNK
NUMBER E-2000173299
REGISTERED PROFESSIONAL ENGINEER
03/22/24
PROFESSIONAL SEAL

S100

ISSUE DATE: 05/02/2023
COLLINS WEBB #: 22453

FOUNDATION PLAN

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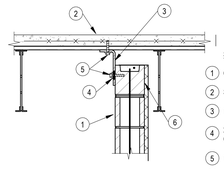
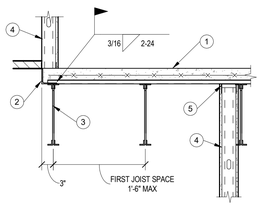


SECTION NOTES

1. CMU WALL. RE: PLAN
2. SLAB ON DECK. RE: PLAN
3. 1/4" BENT PLATE (4" LONG)
4. 2" VERTICAL SLOT IN PLATE FOR SLIP CONN. CENTER ANCHOR IN SLOT
5. 1/2"X3" SCREW ANCHORS @ 24" OC
6. BOND BEAM W/ (1) #5 CONT

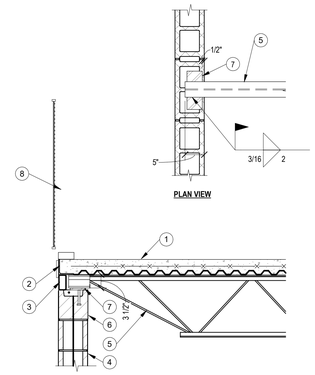
5 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. SLAB ON DECK. RE: PLAN
2. L4x4x1/4 CONT EDGE ANGLE
3. JOIST RE: PLAN
4. CFS WALL. RE: ARCH
5. VERTICAL SLIP TRACK

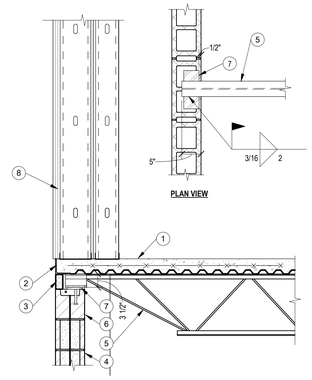
4 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. SLAB ON DECK. RE: PLAN
2. L4x4x1/4 CONT EDGE ANGLE
3. HSS4x2x3/16 CONT
4. CMU WALL RE: PLAN
5. JOIST RE: PLAN
6. BOND BM W/ (1) #5 CONT
7. 1/2" x 4" x 10" EMBED PLATE W/ (2) 1/2" X 4" HEADED STUDS INTO BOND BEAM
8. HANDRAIL. RE: ARCH

3 SECTION
3/4" = 1'-0"



DETAIL NOTES:

1. SLAB ON DECK. RE: PLAN
2. L4x4x1/4 CONT EDGE ANGLE
3. HSS4x2x3/16 CONT
4. CMU WALL RE: PLAN
5. JOIST RE: PLAN
6. BOND BM W/ (1) #5 CONT
7. 1/2" x 4" x 10" EMBED PLATE W/ (2) 1/2" X 4" HEADED STUDS INTO BOND BEAM
8. CFS FIREWALL ABOVE. RE: ARCH. AT SIM NO WALL ABOVE

2 SECTION
3/4" = 1'-0"

FRAMING LEGEND

- BEAM / TRUSS
- SPAN DIRECTION
- JOIST
- EXTENTS OF JOIST TYPE

SHEET NOTES:

A. REFERENCE SHEET S00x FOR STRUCTURAL GENERAL NOTES. REVIEW NOTES & DETAILS FOR APPLICABILITY.

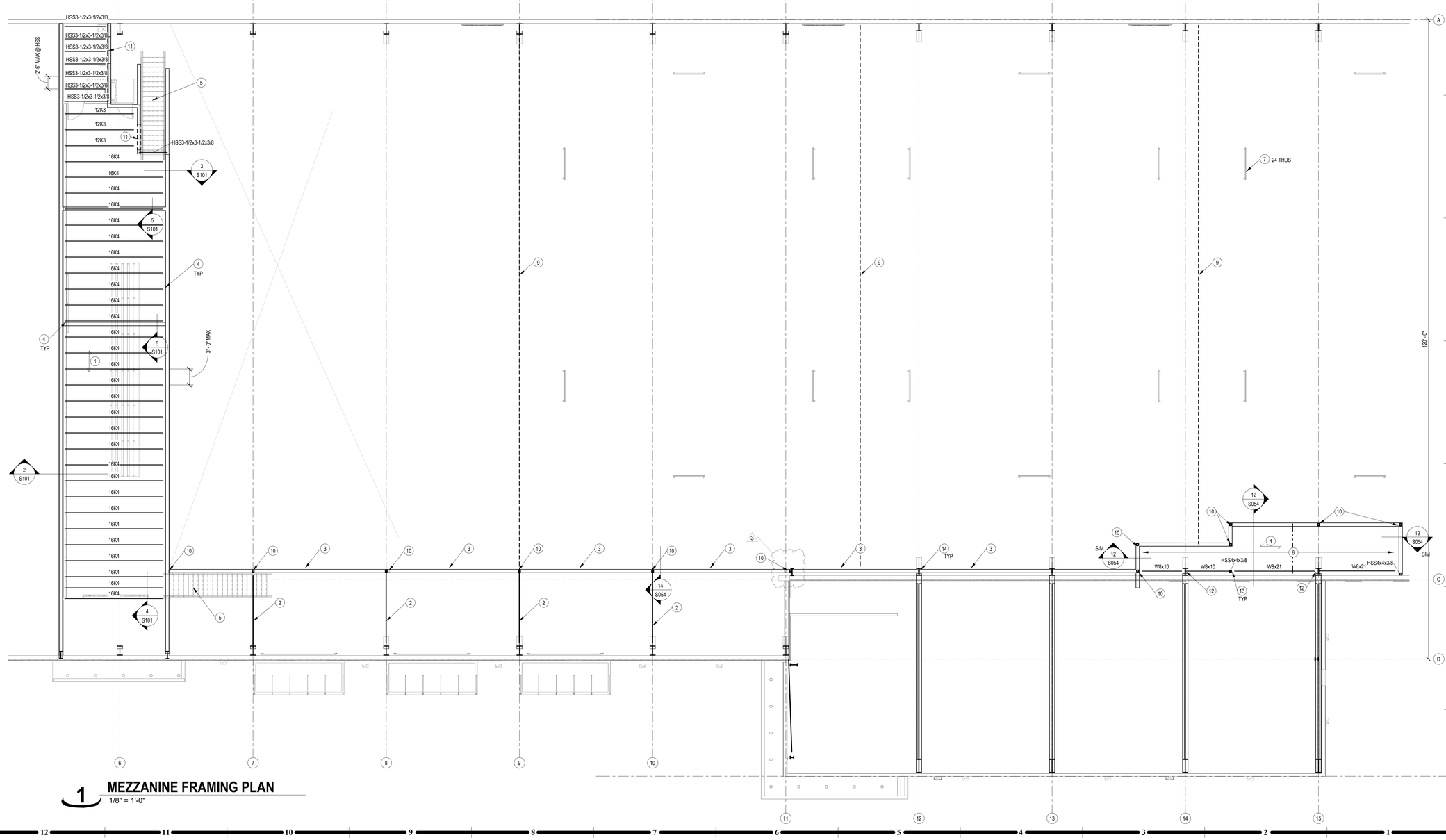
B. SEE ARCHITECTURAL DRAWING FOR DETAILS & DIMENSIONS NOT SHOWN.

C. REFER TO S0xx FOR TYPICAL DETAILS.

D. TOP OF MEZZ SLAB ELEVATION = 112'-0"

PLAN NOTES:

1. 1"x26 GA FORM DECK W/ 3" NORMAL WEIGHT CONC TOPPING (4" TOTAL THICKNESS). REINF W/ 4x4-W2.9xW2.9 WWR. RE: GENERAL NOTES FOR FASTENING REQUIREMENTS. B/DECK = 111'-8"
2. BRACE TOP OF CMU WALL BACK TO PEMB COL W/ 6" BOX STUD
3. CMU WALL TO HAVE BOND BEAM AT TOP W/ (2) #5 CONT
4. ALL BAR JOISTS TO HAVE 3-1/2" SEATS
5. STAIRS BY STAIR SUPPLIER. PROVIDE THICKENED SLAB AT STRINGER ATTACHMENT PER TYP DETAILS
6. 6" X 16 GA CFS FLOOR JOISTS @ 16" OC (600S200-54)
7. BASKETBALL GOAL PER MANUFACTURER RE: ARCH
8. NOT USED
9. DIVIDING CURTAIN PER MANUFACTURER RE: ARCH
10. HSS4x4x5/16 POST FOR NET ANCHORAGE
11. CMU LINTEL. RE: TYP DETAILS
12. PEMB MFCR TO DESIGN COLUMN FOR MEZZANINE REACTION OF DL=4 KIPS AND LL=9 KIPS
13. CONNECT BEAMS TO COLUMNS W/ SHEAR TAB PER THE TYP DETAILS
14. CLIP TOP OF CMU WALL TO COLUMN FOR LATERAL STABILITY W/ L4x4x3/8" ANGLE. FIELD WELD ANGLE TO STEEL W/ 3/16" WELD ALL AROUND AND USE (2) 5/8" DIA SCREW ANCHORS TO CMU.



1 MEZZANINE FRAMING PLAN
1/8" = 1'-0"

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REVISION DATES:

1	CITY COMMENTS	06/20/2023
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STATE OF MISSOURI
JOHN E. FUNK
NUMBER E-2000173299
REGISTERED PROFESSIONAL ENGINEER
03/22/24
PROFESSIONAL SEAL

S101

ISSUE DATE: 05/02/2023
COLLINS WEBB #: 22453

MEZZANINE PLAN

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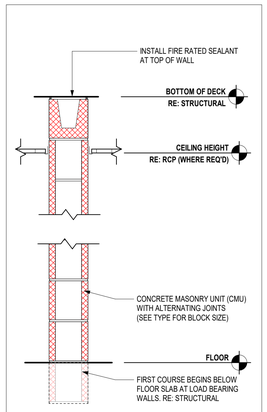
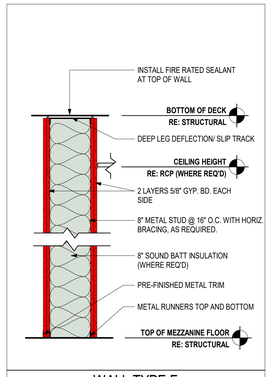


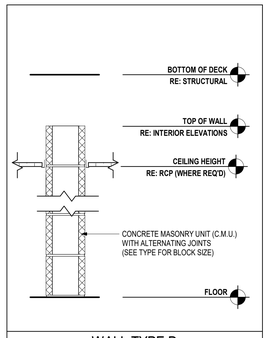
WALL TYPE G

TYPE	WALL DESCRIPTION
G1	• 8"X8"X16" (NOM.) C.M.U. TO DECK ABOVE, PROVIDE BOND BEAMS AT BOTTOM TWO COURSES AND TOP COURSE • ALL CELLS GROUTED SOLID • FIRESTOPPING AT TOP OF WALL TO SEAL FLOOR SLAB • STEEL CLIP ANGELS EACH SIDE OF WALL • ALL HOLLOW METAL FRAMES GROUTED SOLID • FIRE-RATED SEALANT • 2-HR RATED RE: UL # U905



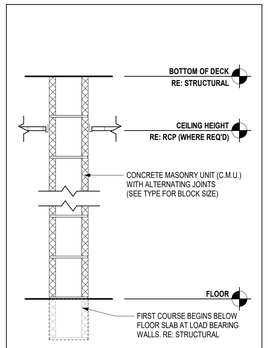
WALL TYPE F

TYPE	WALL DESCRIPTION
F1	• 8" METAL STUD @ 16" O.C. TO DECK ABOVE • 2 LAYERS OF 5/8" TYPE "X" GYP. BD. EACH SIDE • FIRE RATED SEALANT • 2-HR RATED RE: UL # U425



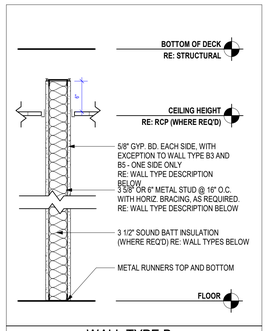
WALL TYPE D

TYPE	WALL DESCRIPTION
D1	• 8"X8"X16" (NOM.) C.M.U. TO HEIGHT NOTED • NON RATED • HEIGHT OF WALL TERMINATES AT 12' - 0"



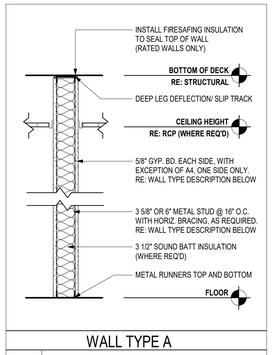
WALL TYPE C

TYPE	WALL DESCRIPTION
C1	• 6"X8"X16" (NOM.) C.M.U. TO DECK ABOVE • NON RATED
C2	• 8"X8"X16" (NOM.) C.M.U. TO DECK ABOVE • NON RATED



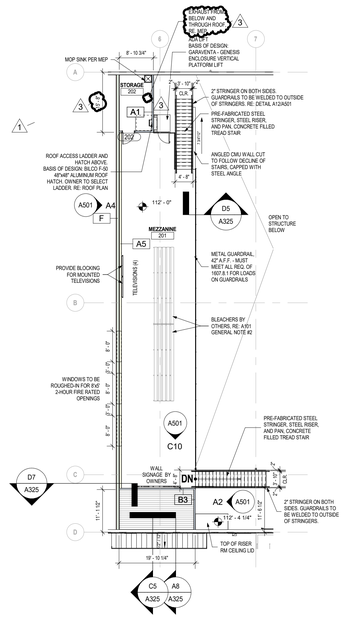
WALL TYPE B

TYPE	WALL DESCRIPTION
B1	• 3-5/8" METAL STUD @ 6" MIN. ABOVE CEILING HEIGHT • 5/8" TYPE "X" GYP. BD. EACH SIDE • NO SOUND BATT INSUL. • NON RATED
B2	• 3-5/8" METAL STUD @ 6" ABOVE CEILING HEIGHT • 5/8" TYPE "X" GYP. BD. EACH SIDE • **SOUND BATT INSUL.** • NON RATED
B3	• 3 5/8" METAL STUD @ 6" ABOVE CEILING HEIGHT • 5/8" TYPE "X" GYP. BD. ONE SIDE (ROOM SIDE) • NO SOUND BATT INSUL. • NON RATED
B4	• 6" METAL STUD @ 6" ABOVE CEILING HEIGHT • 5/8" TYPE "X" GYP. BD. EACH SIDE • **SOUND BATT INSUL.** • NON RATED
B5	• 6" METAL STUD @ 6" ABOVE CEILING HEIGHT • 5/8" TYPE "X" GYP. BD. ONE SIDE (ROOM SIDE) • NO SOUND BATT INSUL. • NON RATED



WALL TYPE A

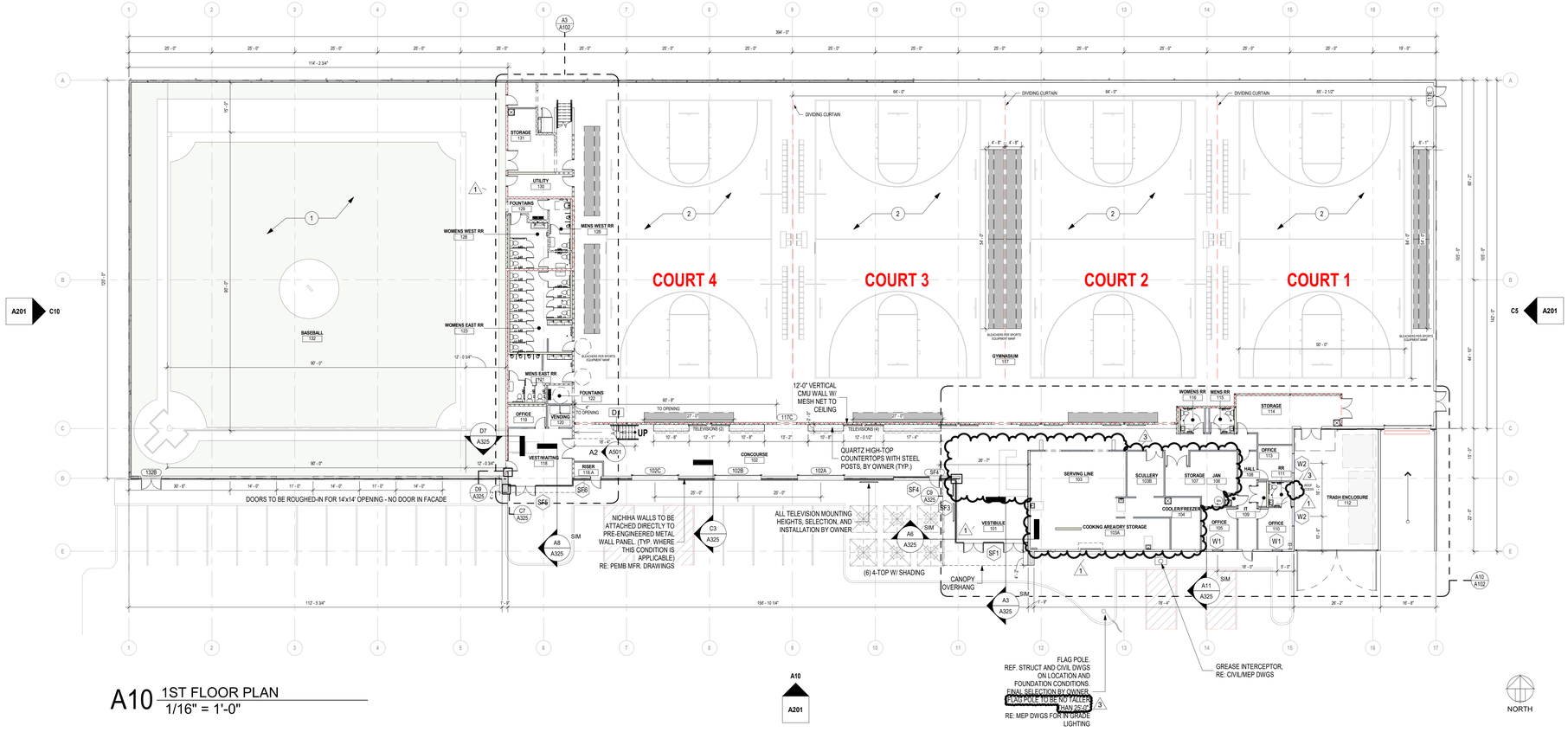
TYPE	WALL DESCRIPTION
A1	• 3 5/8" METAL STUD @ 16" O.C. TO DECK ABOVE • 5/8" TYPE "X" GYP. BD. EACH SIDE TO DECK ABOVE • NO SOUND BATT INSUL. • NON RATED
A2	• 3 5/8" METAL STUD @ 16" O.C. TO DECK ABOVE • 5/8" TYPE "X" GYP. BD. EACH SIDE TO DECK ABOVE • SOUND BATT INSUL. • NON RATED
A3	• 3 5/8" METAL STUD @ 16" O.C. TO DECK ABOVE • 5/8" TYPE "X" GYP. BD. ONE SIDE (ROOM SIDE) • NO SOUND BATT INSUL. • NON RATED
A4	• 6" METAL STUD @ 16" O.C. TO DECK ABOVE • 5/8" TYPE "X" GYP. BD. EACH SIDE TO DECK ABOVE • NO SOUND BATT INSUL. • NON RATED
A5	• 6" METAL STUD @ 16" O.C. TO DECK ABOVE • 5/8" TYPE "X" GYP. BD. ONE SIDE (ROOM SIDE) • NO SOUND BATT INSUL. • NON RATED



F3 MEZZANINE FLOOR PLAN
1/16" = 1'-0"

1 GENERAL NOTE (TYP.):
BASKETBALL COURT FLOORING, BASKETBALL GOALS, SCOREBOARDS, MESH NETS, WALL PADS, BLEACHERS AND VOLLEYBALL NETS BY OTHERS. INSTALLED PER SPORTS EQUIPMENT MANF. REQ. PEMB SUPPLIER TO PROVIDE SUPPORT BEAMS AND DESIGN FRAMES FOR EQUIP. CONCRETE CONTRACTOR SHALL COORDINATE FLOOR INSERTS WITH EQUIPMENT VENDOR PRIOR TO FLATWORK PLACEMENT.
RE: PEMB MFR. FOR REQ. EQUIP. SUPPORT.
RE: SPOONBALL SPORTS FOR LOCATIONS, FLOORING AND EQUIP.
WEIGHTS.
OWNER TO COORDINATE WITH VENDOR ON ALL SPORTING EQUIP.

2 GENERAL NOTE (TYP.):
BASKETBALL COURT FLOORING, BASKETBALL GOALS, SCOREBOARDS, MESH NETS, WALL PADS, BLEACHERS AND VOLLEYBALL NETS BY OTHERS. INSTALLED PER SPORTS EQUIPMENT MANF. REQ. PEMB SUPPLIER TO PROVIDE SUPPORT BEAMS AND DESIGN FRAMES FOR EQUIP. CONCRETE CONTRACTOR SHALL COORDINATE FLOOR INSERTS WITH EQUIPMENT VENDOR PRIOR TO FLATWORK PLACEMENT.
RE: PEMB MFR. FOR REQ. EQUIP. SUPPORT.
RE: SPOONBALL SPORTS FOR LOCATIONS, FLOORING AND EQUIP.
WEIGHTS.
OWNER TO COORDINATE WITH VENDOR ON ALL SPORTING EQUIP.



A10 1ST FLOOR PLAN
1/16" = 1'-0"

GENERAL NOTES: FLOOR PLANS

1. SEE GENERAL ARCHITECTURAL SHEETS FOR ADDITIONAL NOTES AND DETAILS THAT ARE APPLICABLE.
2. ARCHITECTURAL ELEVATION 100'-0"
3. DIMENSIONS SHOWN ON THE FLOOR PLAN ARE TO THE FACE OF STUD (FOS), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN OTHERWISE.
4. NOTE: WALL THICKNESSES ARE ACTUAL DIMENSIONS AND PER WALL TYPES. SEE GENERAL SHEETS.
5. DOOR OPENINGS NOT LOCATED BY DIMENSION SHALL BE CENTERED IN WALL SHOWN OR LOCATED 4 INCHES FROM FINISH WALL TO HINGE SIDE OF THE DOOR, ALWAYS ALLOWING A MINIMUM OF 18" FROM THE PULL SIDE (STRIKE SIDE) OF THE DOOR TO THE INTERSECTING WALL, OR OTHER PROTRUDING OBJECTS.
6. NOT USED
7. PROVIDE FINISH LEVELS AS DESCRIBED:
   - LEVEL 1:
     - FIRE RATED WALL AREAS ABOVE FINISHED CEILINGS, WHETHER OR NOT ACCESSIBLE IN THE COMPLETED CONSTRUCTION.
   - LEVEL 2:
     - AREAS WHERE SETTING TYPE COMPOUND FOR WATER RESISTANT GYPSUM BACKER OR FIBER REINFORCED WALL PANELS ARE USED.
     - ALL OPEN TO PLENUM SPACES ABOVE CEILINGS.
     - OPEN TO STRUCTURE SPACES WHERE PAINTED BLACK.
     - AREAS IN MECHANICAL, ELECTRICAL AND STORAGE ROOMS.
   - LEVEL 3:
     - PUBLIC CIRCULATION CORRIDORS WHERE ROOM SIDE WALLS HAVE WALLCOVERING OR WOOD SLAT WALL TREATMENTS.
     - OPEN TO STRUCTURE SPACES WHERE PAINTED OTHER THAN BLACK.
   - LEVEL 4:
     - CIRCULATION CORRIDORS WHERE ROOM SIDE WALLS AND/OR CEILINGS HAVE PAINTED SURFACES.
   - LEVEL 5:
     - PUBLIC LOBBIES AND LOUNGE AREAS WHERE WALLS AND/OR CEILINGS HAVE PAINTED OR WALL COVERINGS INSTALLED ON SURFACES WITHIN LOUNGE AREAS.
8. RE: FINISH LEGEND, FINISH SCHEDULE AND SPECIFICATIONS FOR DOOR AND DOOR FRAME FINISHES.
9. STAIR ENCLOSURES, SHAFT WALLS, EXIT PASSAGE WAYS AND EXTERIOR WALLS TO BE COORDINATED FOR PHASE OF WORK PER MATRIX AND PROJECT SCOPING.
10. MAINTAIN AND PROTECT EXISTING EXPANSION JOINTS DURING CONSTRUCTION. PATCH/REPAIR/REPLACE TO MATCH EXISTING RATINGS AS REQUIRED ON THE SHELL PORTION OF PROJECT.

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REVISION DATES:

1	CITY COMMENTS	06/21/2023
3	CITY COMMENTS AND OWNER REV.	03/22/2024

STATE OF MISSOURI ROGER L. WEBB NUMBER A-2010038939 ARCHITECT

PROFESSIONAL SEAL 03/22/2024

A101

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

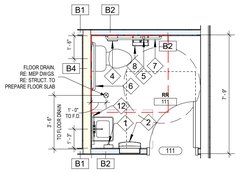
1ST FLOOR & MEZZ. PLAN

3/26/2024 5:11:42 PM

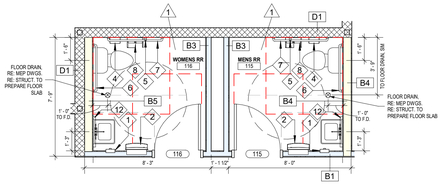
ACCESSORY SCHEDULE					
TYPE MARK	MANUFACTURER	DESCRIPTION	MODEL	FINISH	REMARKS
1	COORD. W/ OWNER	SURFACE MOUNTED SOAP DISPENSER	COORD. W/ OWNER	COORD. W/ OWNER	1
2	COORD. W/ OWNER	RECESSED PAPER TOWEL DISPENSER/WASTE RECEPTACLE	COORD. W/ OWNER	COORD. W/ OWNER	1
3	METPAR CORP	SOLID PHENOLIC WALL HUNG URINAL SCREEN	18" X 42" WALL HUNG	COORD. W/ OWNER	1
4	BOBRICK WASHROOM EQUIPMENT, INC.	SURFACE MOUNTED SANITARY NAPKIN DISPOSAL - 7 1/2" X 10" X 3 13/16"	B-270	STAINLESS STEEL W/ SATIN FINISH	1
5	BOBRICK WASHROOM EQUIPMENT, INC.	VERTICAL GRAB BAR, 1-1/2" DIA., SS,18"	B-6806-18	SATIN W/ PEENED GRIP	1
6	BOBRICK WASHROOM EQUIPMENT, INC.	GRAB BAR, 1-1/2" DIA., SS, 36"	B-6806-36	SATIN W/ PEENED GRIP	1
7	BOBRICK WASHROOM EQUIPMENT, INC.	GRAB BAR, 1-1/2" DIA., SS, 42"	B-6806-42	SATIN W/ PEENED GRIP	1
8	BOBRICK WASHROOM EQUIPMENT, INC.	SURFACE MOUNTED SINGLE JUMBO-ROLL TOILET TISSUE DISPENSER - 10 21/32" DIA. X 4 29/64"	09606	STAINLESS STEEL W/ SATIN FINISH	1
9	COORD. W/ OWNER	COUNTER SOAP DISPENSER	COORD. W/ OWNER	COORD. W/ OWNER	1
10	BRADLEY CORPORATION	SURFACE-MOUNTED PAPER TOWEL DISPENSER W/ SENSOR ACTIVATION - 12.27" X 15.2" X 9.47"	2494	<varies>	<varies>
12	BOBRICK WASHROOM EQUIPMENT, INC.	GLASS MIRROR W/ STAINLESS STEEL ANGLE FRAME - 24" X 48"	B-290	STAINLESS STEEL W/ SATIN FINISH	1, 2
14	COORD. W/ OWNER	GLASS MIRROR W/ STAINLESS STEEL FRAME - 48" X 48"	COORD. W/ OWNER	COORD. W/ OWNER	1, 2
15	KOALA KARE	HORIZONTAL WALL MOUNTED BABY CHANGING STATION W/ STAINLESS STEEL VENEER	KB200-SS	COORD. W/ OWNER	1
16	METPAR CORP	FLOOR MOUNTED SOLID PHENOLIC TOILET ENCLOSURES - OVERHEAD BRACED - 78" H PANELS, FLR. CLR. 9" A.F.F.	THE CORINTHIAN (TYPE FP500)	COORD. W/ OWNER	1, 4
17	COORD. W/ OWNER	GLASS MIRROR WITH STAINLESS STEEL FRAME - 84" X 48"	COORD. W/ OWNER	COORD. W/ OWNER	1, 2

GENERAL NOTES:
A. ALL TOILET ACCESSORY LOCATIONS BASED ON FLOOR PLAN LAYOUT.
B. REFER TO INTERIOR ELEVATIONS FOR ANY ACCESSORIES THAT MAY NOT SHOW UP ON THE PLANS.
C. REFER TO G002 AND MANUFACTURER'S SPECIFICATIONS FOR MOUNTING HEIGHTS.
D. COORDINATE ALL MOUNTING HEIGHTS W/ PLUMBING FIXTURES TO ALLOW PROPER OPERATION & INFORM ARCHITECT IN WRITING OF ANY CONFLICTS.
E. G.C. TO VERIFY DIRECTLY W/ OWNER TO DETERMINE MOUNTING HEIGHTS, U.N.O.
F. REFER TO PLANS AND ELEVATIONS FOR ITEMS NOTED AS FF&E.
G. PROVIDE ALLOWANCE FOR ALL ROUNDED VANITY MIRRORS.
H. BASIS OF DESIGN PROVIDED ABOVE. FINAL SELECTION BY OWNER.

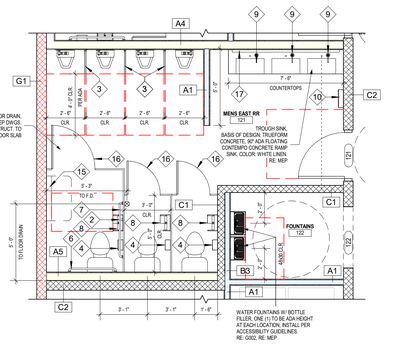
REMARKS:
1. FF&E ITEM - OWNER FURNISHED, CONTRACTOR INSTALLED. REFER TO PLANS AND ELEVATIONS FOR FURTHER CLARIFICATION.
2. MIRRORS TO BE CENTERED AT SINKS, TYP.
3. NFPA 286 TESTED AND APPROVED PRODUCT.
4. F.V. PRIOR TO FABRICATION AND INSTALLATION



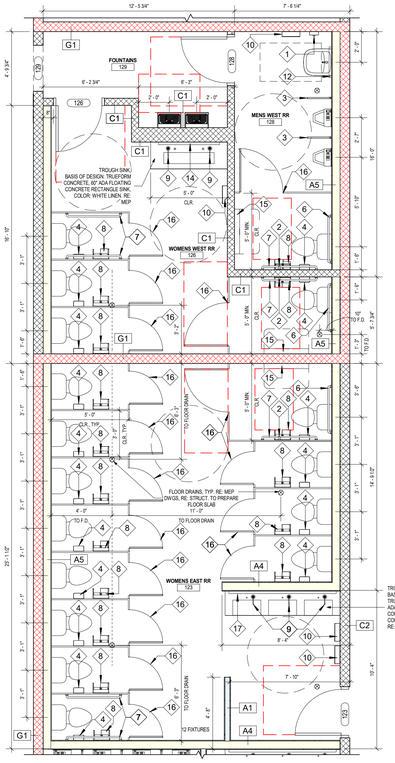
H12 PRIVATE RESTROOM
1/4" = 1'-0"



G12 CONCOURSE RESTROOMS
1/4" = 1'-0"

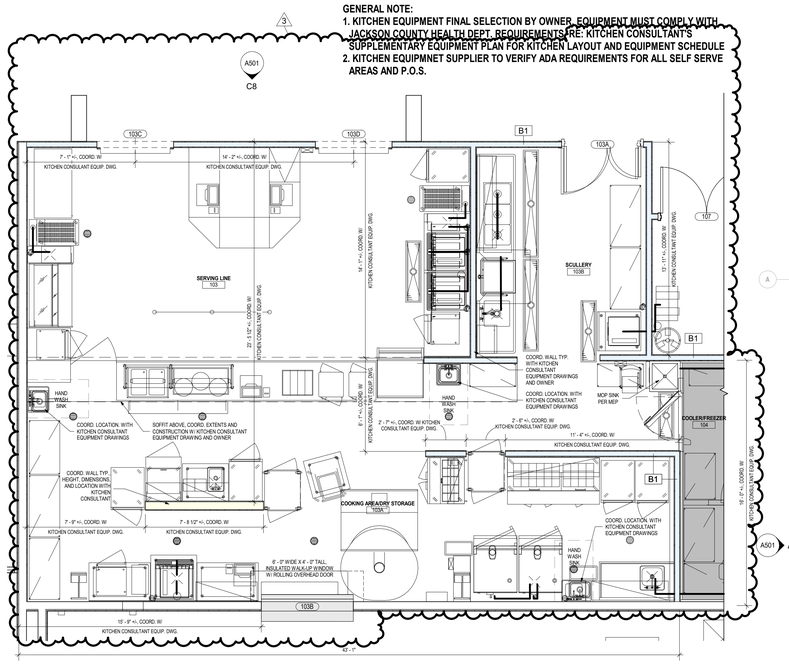


D12 MENS EAST RESTROOM
1/4" = 1'-0"



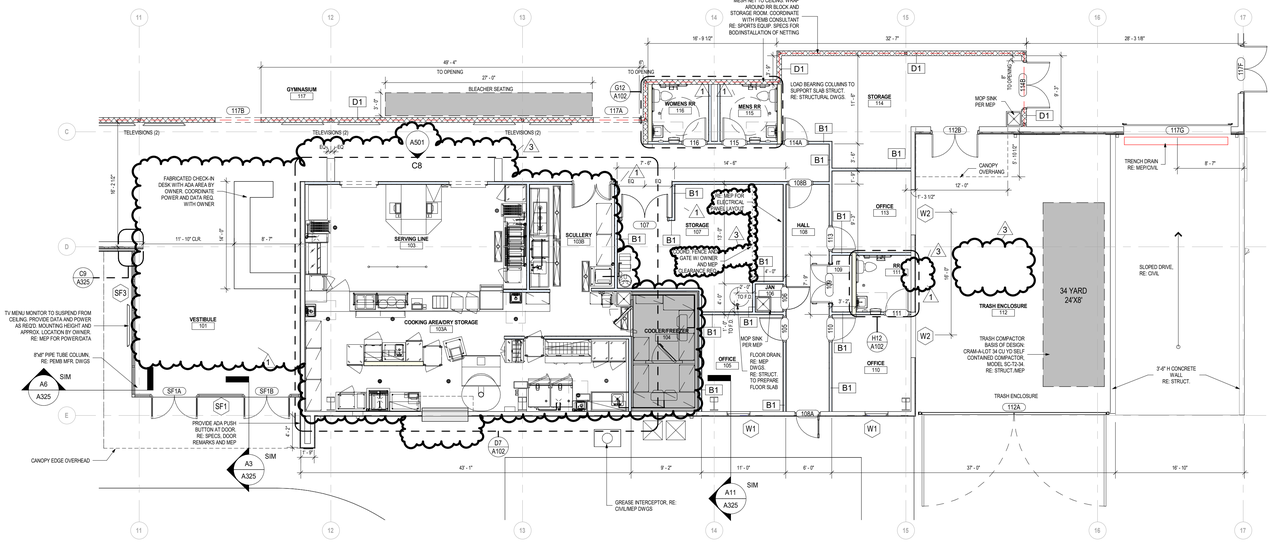
D10 WOMENS EAST RESTROOMS
1/4" = 1'-0"

GENERAL NOTE:
1. KITCHEN EQUIPMENT FINAL SELECTION BY OWNER. EQUIPMENT MUST COMPLY WITH JACKSON COUNTY HEALTH DEPT. REQUIREMENTS. RE: KITCHEN CONSULTANT'S SUPPLEMENTARY EQUIPMENT PLAN FOR KITCHEN LAYOUT AND EQUIPMENT SCHEDULE
2. KITCHEN EQUIPMNET SUPPLIER TO VERIFY ADA REQUIREMENTS FOR ALL SELF SERVE AREAS AND P.O.S.



D7 ENLARGED KITCHEN PLAN
1/4" = 1'-0"

KITCHEN EQUIPMENT REMARKS
NOTES: 1 CONTRACTOR TO INSTALL WOOD BLOCKING AND/OR PLYWOOD AS NEEDED FOR ALL EQUIPMENT, MEP ITEMS, SHELVING, AND CASEWORK. CASEWORK BY VENDOR, TOPS BY OWNER 3 RE: SUPPLEMENTARY EQUIPMENT PLAN DRAWING FOR KITCHEN EQUIPMENT SCHEDULE AND LAYOUT



A10 ENLARGED ENTRY/BOH FLOOR PLAN
1/8" = 1'-0"

A3 WEST RESTROOM BLOCK
1/8" = 1'-0"

GENERAL NOTES: FLOOR PLANS

1. SEE GENERAL ARCHITECTURAL SHEETS FOR ADDITIONAL NOTES AND DETAILS THAT ARE APPLICABLE.
2. ARCHITECTURAL ELEVATION 100'-0".
3. DIMENSIONS SHOWN ON THE FLOOR PLAN ARE TO THE FACE OF STUD (FOS), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN OTHERWISE.
4. NOTE: WALL THICKNESSES ARE ACTUAL DIMENSIONS AND PER WALL TYPES. SEE GENERAL SHEETS.
5. DOOR OPENINGS NOT LOCATED BY DIMENSION SHALL BE CENTERED IN WALL SHOWN OR LOCATED 4 INCHES FROM FINISH WALL TO HINGE SIDE OF THE DOOR, ALWAYS ALLOWING A MINIMUM OF 18" FROM THE PULL SIDE (STRIKE SIDE) OF THE DOOR TO THE INTERSECTING WALL, OR OTHER PROTRUDING OBJECTS.
6. NOT USED
7. PROVIDE FINISH LEVELS AS DESCRIBED:
   - LEVEL 1:
     - FIRE RATED WALL AREAS ABOVE FINISHED CEILINGS, WHETHER OR NOT ACCESSIBLE IN THE COMPLETED CONSTRUCTION.
   - LEVEL 2:
     - AREAS WHERE SETTING TYPE COMPOUND FOR WATER RESISTANT GYPSUM BACKER OR FIBER REINFORCED WALL PANELS ARE USED.
     - ALL OPEN TO PLENUM SPACES ABOVE CEILINGS.
     - OPEN TO STRUCTURE SPACES WHERE PAINTED BLACK.
     - AREAS IN MECHANICAL, ELECTRICAL AND STORAGE ROOMS.
   - LEVEL 3:
     - PUBLIC CIRCULATION CORRIDORS WHERE ROOM SIDE WALLS HAVE WALLCOVERING OR WOOD SLAT WALL TREATMENTS.
     - OPEN TO STRUCTURE SPACES WHERE PAINTED OTHER THAN BLACK.
   - LEVEL 4:
     - CIRCULATION CORRIDORS WHERE ROOM SIDE WALLS AND/OR CEILINGS HAVE PAINTED SURFACES.
   - LEVEL 5:
     - PUBLIC LOBBIES AND LOUNGE AREAS WHERE WALLS AND/OR CEILINGS HAVE PAINTED OR WALL COVERINGS INSTALLED ON SURFACES WITHIN LOUNGE AREAS
8. RE: FINISH LEGEND, FINISH SCHEDULE AND SPECIFICATIONS FOR DOOR AND DOOR FRAME FINISHES.
9. STAIR ENCLOSURES, SHAFT WALLS, EXIT PASSAGE WAYS AND EXTERIOR WALLS TO BE COORDINATED FOR PHASE OF WORK PER MATRIX AND PROJECT SCOPING.
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STATE OF MISSOURI
ROGER L. WEBB
NUMBER A-2016004016
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03/22/2024
PROFESSIONAL SEAL

A102

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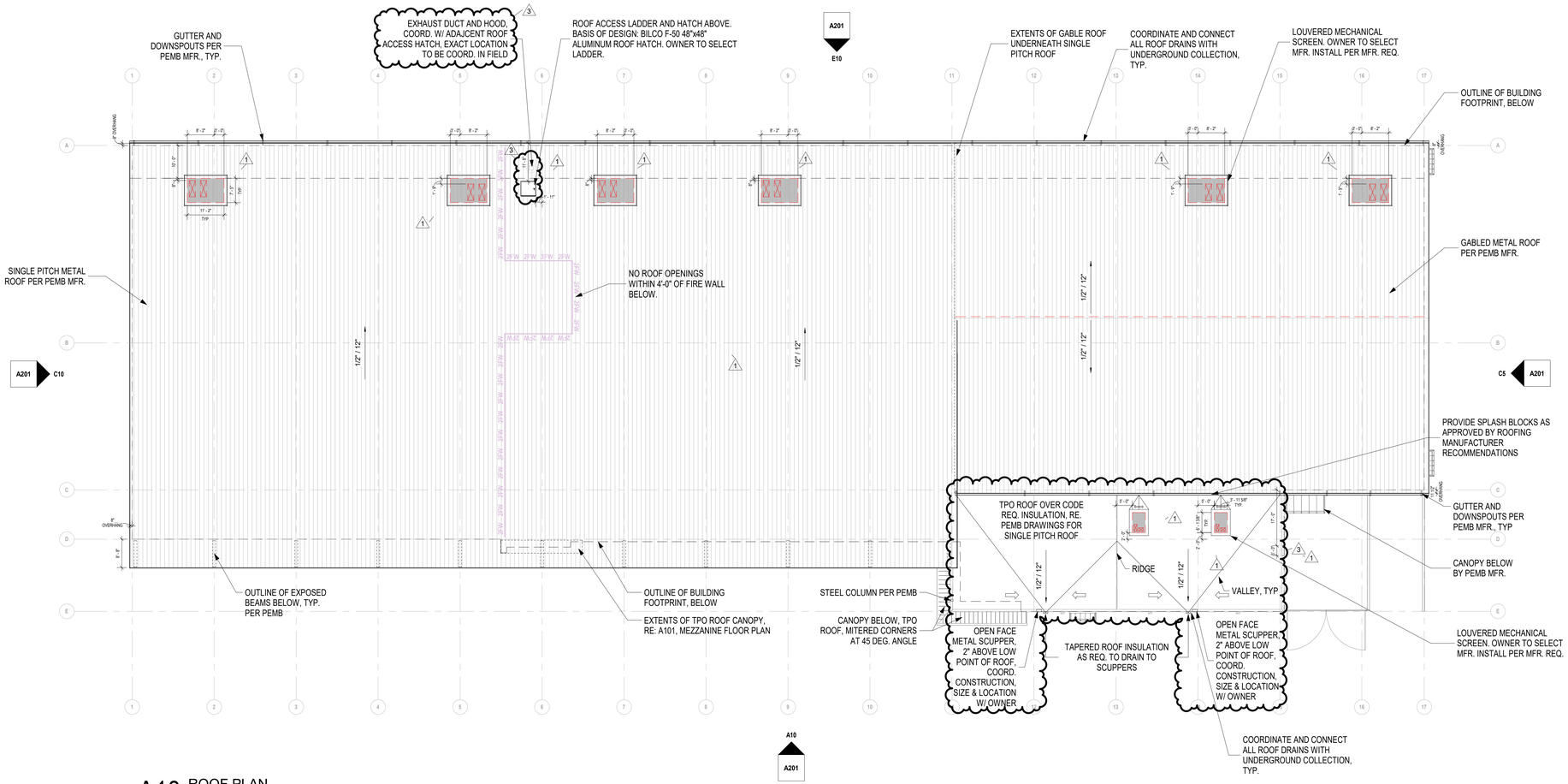
COLLINS WEBB #: 22103

ENLARGED PLANS AND DETAILS

3/26/2024 5:11:47 PM



A10 ROOF PLAN
1/16" = 1'-0"

GENERAL NOTES: ROOF PLANS

1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. DIMENSIONS SHOWN ON THE ROOF PLAN ARE TO THE FACE OF EXTERIOR WALL, FACE OF MASONRY (FOM), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN OTHERWISE.
3. PROVIDE 1/2"/ FT. TAPERED INSULATION AT ALL ROOF CURBS AND AT EQUIPMENT WHICH EXCEEDS 18 INCHES IN WIDTH.

ROOF PLAN LEGEND

- SLOPE DIRECTION
- TAPERED INSULATION CRICKET OVERBUILD
- ROOF WALKING PAD
- ROOF DRAIN

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STATE OF MISSOURI
ROGER L. WEBB
NUMBER A-2010004044
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A104

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ROOF PLAN

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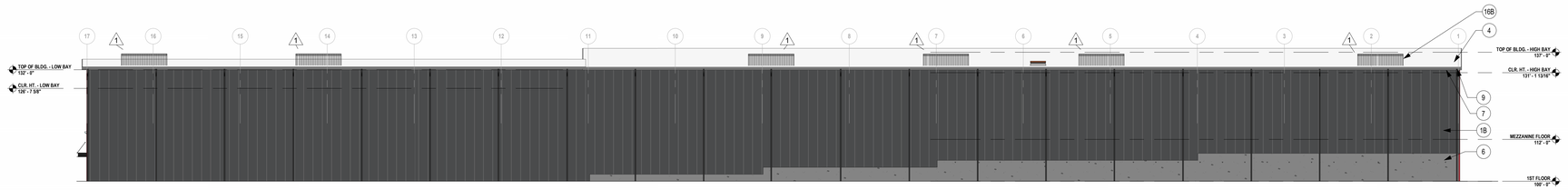
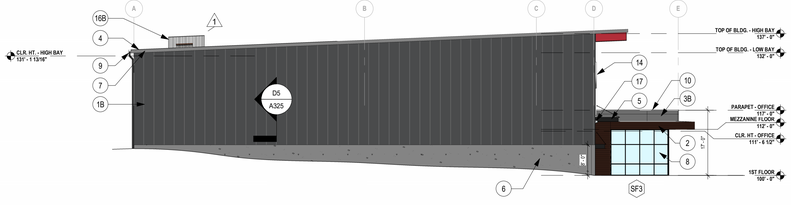
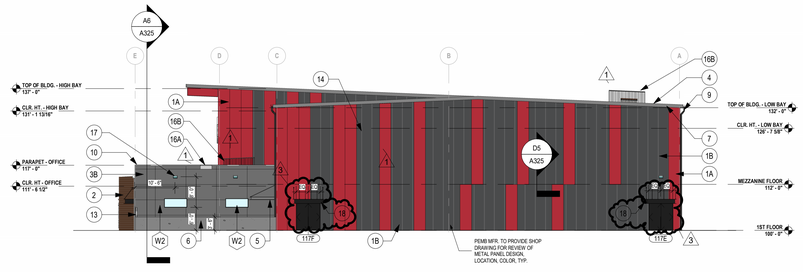


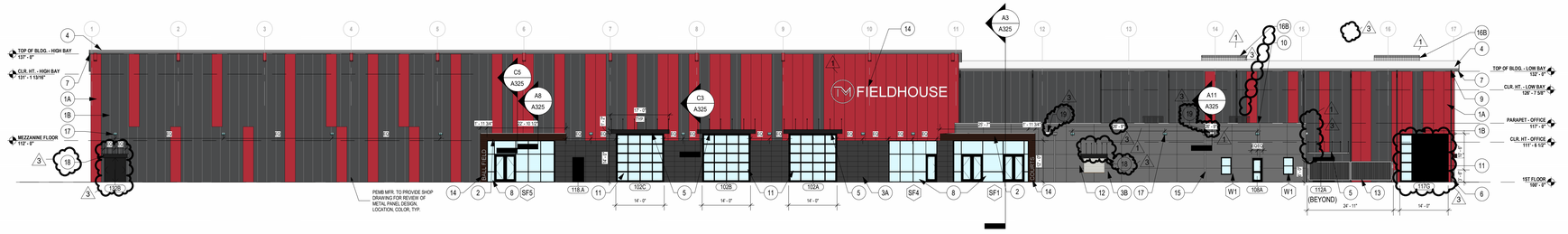
E10 NORTH ELEVATION
1/16" = 1'-0"



C10 WEST ELEVATION
1/16" = 1'-0"



C5 EAST ELEVATION
1/16" = 1'-0"



A10 SOUTH ELEVATION
1/16" = 1'-0"

GENERAL NOTES EXTERIOR ELEVATIONS:

1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. DIMENSIONS SHOWN ON THE EXTERIOR ELEVATIONS ARE TO THE FACE OF EXTERIOR WALL, FACE OF MASONRY (FOM), FACE OF CONCRETE WALLS (FOC), FACE OF STUD, AND COLUMN GRID LINES, UNLESS OTHERWISE NOTED OR INDICATED.
3. RE: THE WINDOW TYPES SHEET FOR ALL EXTERIOR WINDOW TYPES AND GLASS TYPES.
4. PROVIDE ALL BLOCKING AND POWER AS REQUIRED FOR EXTERIOR SIGNAGE.
5. ALL ROOF TOP UNITS SHALL BE [illegible] THE TOP OF THE UNIT.

KEY NOTES EXTERIOR ELEVATIONS:

1A PRE-ENGINEERED METAL BUILDING PANEL 1:
BASIS OF DESIGN: KYNAR500, COLOR: REGAL RED
RE: PEMB MFR. DRAWINGS

1B PRE-ENGINEERED METAL BUILDING PANEL 2:
BASIS OF DESIGN: KYNAR500, COLOR: CHARCOAL GRAY
RE: PEMB MFR. DRAWINGS

2 EXTERIOR ARCHITECTURAL WALL PANEL:
BASIS OF DESIGN: NICHIHA: WOOD SERIES - ROUGHSAWN, COLOR: ESPRESSO

3A EXTERIOR ARCHITECTURAL WALL PANEL:
BASIS OF DESIGN: NICHIHA FIBER CEMENT PANEL.
FINAL SELECTION BY OWNER.

3B EXTERIOR ARCHITECTURAL WALL PANEL:
BASIS OF DESIGN: OMNIS, STENI COLOUR RAINSCREEN, COLOR: SN8007.
FINAL SELECTION BY OWNER.

4 STANDING SEAM METAL ROOF
RE: PEMB MFR. DRAWINGS

5 EXTERIOR PRE-MANUFACTURED CANOPY BY PEMB MFR.
PEMB MFR. TO PROVIDE STRUCTURAL SUPPORT IN WALL FOR CANOPY

6 CONCRETE FOUNDATION WALL.
RE: STRUCT.

7 FASCIA AND SOFFIT
RE: PEMB MFR. DRAWINGS

8 STOREFRONT SYSTEM.
BASIS OF DESIGN: KAWNEER TRIFAB VERSAGLAZE 451/451T, COLOR: ANODIZED BLACK

9 GUTTER AND DOWNSPOUT. ROUTE DOWNSPOUT TO UNDERGROUND COLLECTION.
RE: PEMB MFR. DRAWINGS

10 METAL COPING
RE: PEMB MFR. DRAWINGS

11 OVERHEAD DOOR
BASIS OF DESIGN: CLOPAY COMMERCIAL, ENERGY SERIES. RE: DOOR ELEVATIONS/SCHEDULE

12 INSULATED ROLLING OVERHEAD DOOR PER DOOR SCHEDULE
BASIS OF DESIGN: CORNELL RE: DOOR ELEVATIONS/SCHEDULE

13 TRASH ENCLOSURE GATE PER DOOR SCHEDULE
BASIS OF DESIGN: CITYSCAPES CORVIT/TOUGHGATE
RE: DOOR ELEVATION/SCHEDULE

14 STAINLESS STEEL BACKLIT SIGNAGE, OWNER PROVIDED AND CONTRACTOR INSTALLED. RE: MEP FOR LIGHTING

15 SCUPPER AND DOWNSPOUT. ROUTE DOWNSPOUT TO UNDERGROUND COLLECTION. RE: CIVIL

16A 3'-0" WIDE NOTCH IN PARAPET WALL FOR ROOF ACCESS. BOT. OF NOTCH @ 16'-0"

16B ROOF ACCESS HATCH. RE: ROOF PLAN

17 EXTERIOR LIGHTING, WALL PACK MOUNTED 15'-0" TO CENTER OF FIXTURE. RE: MEP

18 6'-0" X 30" EYEBROW, COORD. FINAL PRODUCT SELECTION, MOUNTING HEIGHT, AND FINISH W/ OWNER, INSTALL PER MFR. RECOMMENDATIONS

19 OPEN FACE METAL SCUPPER, 2" ABOVE LOW POINT OF ROOF, COORD. CONSTRUCTION, SIZE & LOCATION W/ OWNER.

EXTERIOR ELEVATION MATERIALS

- PRE-ENGINEERED METAL PANEL 1, BY OTHERS. COLOR: REGAL RED
- PRE-ENGINEERED METAL PANEL 2, BY OTHERS. COLOR: CHARCOAL GRAY
- EXTERIOR ARCHITECTURAL WALL PANEL. BASIS OF DESIGN: NICHIHA: WOOD SERIES - ROUGHSAWN, COLOR: ESPRESSO
- EXTERIOR ARCHITECTURAL WALL PANEL. BASIS OF DESIGN: NICHIHA FIBER CEMENT PANEL. SELECTION BY OWNER
- EXTERIOR ARCHITECTURAL WALL PANEL. BASIS OF DESIGN: OMNIS, STENI COLOUR RAINSCREEN, COLOR: SN8007
- CONCRETE
- STANDING SEAM ROOF

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STATE OF MISSOURI
ROGER L. WEBB
NUMBER A-2011004984
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03/22/2024
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A201

ISSUE DATE: 2 MAY 2023
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EXTERIOR ELEVATIONS

3/26/2024 5:11:57 PM

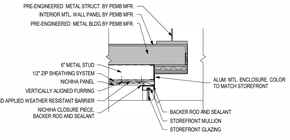
GENERAL NOTES: EXTERIOR WALL SECTIONS/ DETAILS

1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. RE: FLOOR PLANS, ROOF PLAN AND ELEVATIONS FOR SECTION CUT LOCATIONS.
3. ALL WINDOW AND DOOR OPENING DIMENSIONS ARE ROUGH OPENING DIMENSIONS, UNLESS NOTED OTHERWISE.
4. DIMENSIONS SHOWN ON THE WALL SECTIONS ARE TO THE FACE OF EXTERIOR WALL, FACE OF MASONRY (FOM), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN OTHERWISE.
5. PAINT ALL EXPOSED STEEL, INCLUDING STEEL LINTELS, ETC. (TYP.)

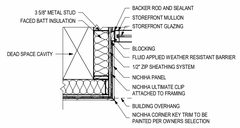
D9 NICHIHA WRAPPED CMU - DOOR OPENING
1/2" = 1'-0"

D7 NICHIHA WRAPPED CMU
1/2" = 1'-0"

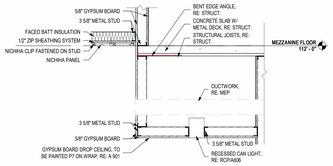
D5 MEZZANINE RAILING
1/2" = 1'-0"



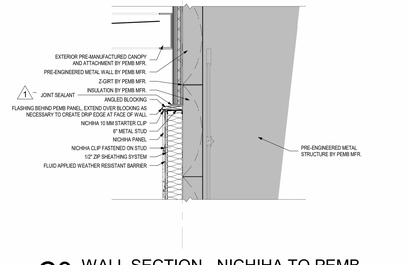
C9 STOREFRONT TO NICHIHA PANEL
1/2" = 1'-0"



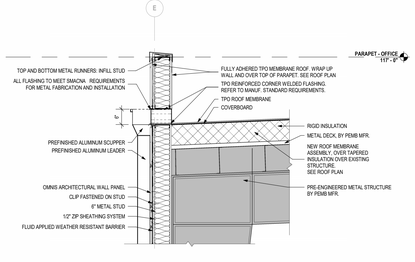
C7 OUTSIDE CORNER KEY TRIM
1/2" = 1'-0"



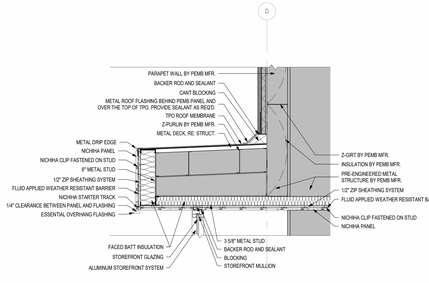
C5 WALL SECTION - SOFFIT TO MEZZ. FLOOR
1/2" = 1'-0"



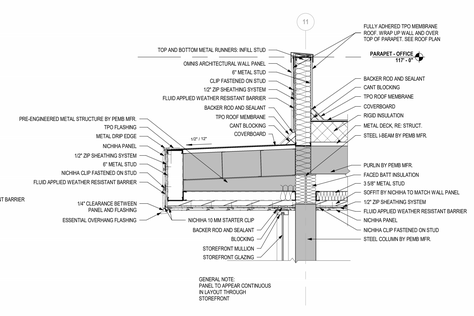
C3 WALL SECTION - NICHIHA TO PEMB
1/2" = 1'-0"



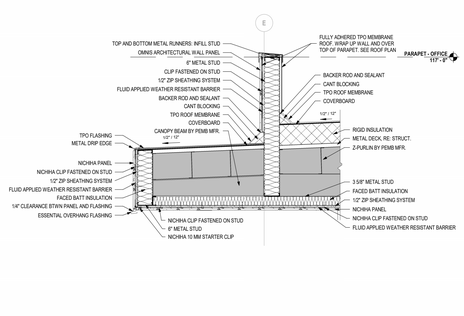
A11 WALL SECTION - SCUPPER DETAIL
1/2" = 1'-0"



A8 WALL SECTION - WEST CANOPY
1/2" = 1'-0"



A6 WALL SECTION - VESTIBULE CANOPY
1/2" = 1'-0"



A3 WALL SECTION - CANOPY + TPO ROOFS
1/2" = 1'-0"

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REVISION DATES:

1	CITY COMMENTS	06/21/2023

PERMIT SET

STATE OF MISSOURI
ROGER L. WEBB
NUMBER A-2011038710
ARCHITECT

6.21.2023

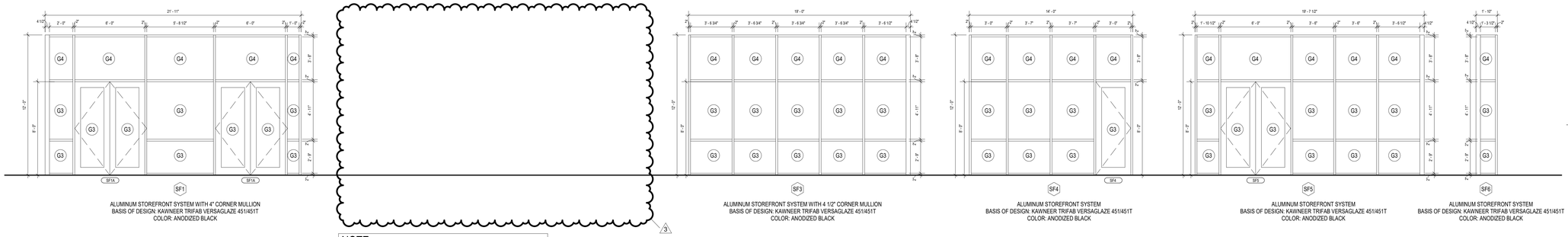
PROFESSIONAL SEAL

A325

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

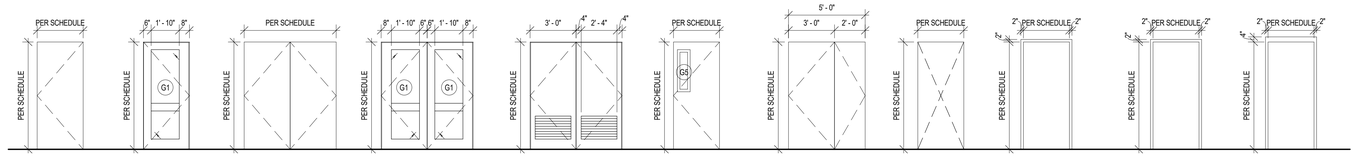
WALL SECTIONS

3/26/2024 5:12:06 PM

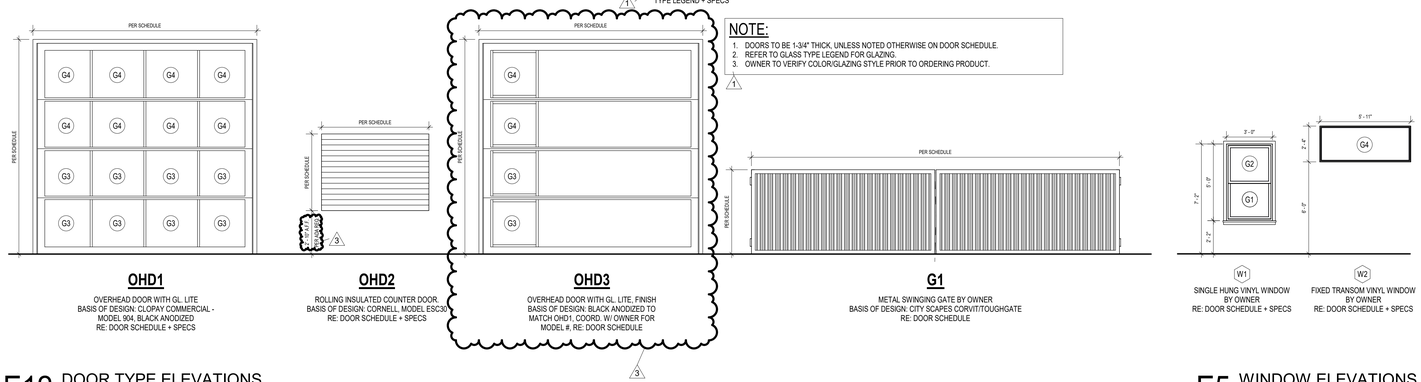


H12 STOREFRONT ELEVATIONS
1/4" = 1'-0"

NOTE:
1. REFER TO GLASS TYPE LEGEND FOR GLAZING.
2. OWNER TO VERIFY COLOR/GLAZING STYLE PRIOR TO ORDERING PRODUCT.



NOTE:
1. DOORS TO BE 1-3/4" THICK, UNLESS NOTED OTHERWISE ON DOOR SCHEDULE.
2. REFER TO GLASS TYPE LEGEND FOR GLAZING.
3. OWNER TO VERIFY COLOR/GLAZING STYLE PRIOR TO ORDERING PRODUCT.



E12 DOOR TYPE ELEVATIONS
1/4" = 1'-0"

E5 WINDOW ELEVATIONS
1/4" = 1'-0"

DOOR SCHEDULE

DOOR NO.	ROOM NAME	WDT	HT	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	RTG	REMARKS
102A	CONCOURSE	14' - 0"	14' - 0"	OHD1	ALUM/GL	ANODIZED	-				
102B	CONCOURSE	14' - 0"	14' - 0"	OHD1	ALUM/GL	ANODIZED	-				
102C	CONCOURSE	14' - 0"	14' - 0"	OHD1	ALUM/GL	ANODIZED	-				
103A	SCULLERY	6' - 0"	7' - 0"	D7	HM	PTD	F1	HM	PTD		3
103B	COOKING AREA/DRY STORAGE	6' - 0"	14' - 0"	OHD2	ALUM	ANODIZED	-				
103C	SERVING LINE	5' - 0"	7' - 0"	O1	-	-	-	-	-		10, 11
103D	SERVING LINE	5' - 0"	7' - 0"	O1	-	-	-	-	-		10, 11
105	OFFICE	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		5
106	JAN	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		5
107	STORAGE	6' - 0"	7' - 0"	D3	HM	PTD	F1	HM	PTD		3
108A	HALL	3' - 0"	7' - 0"	D2	ALUM/GL	PTD	F1	HM	PTD		1
108B	HALL	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		3
109	IT	5' - 0"	7' - 0"	D5	HM	PTD	F1	HM	PTD		5
110	OFFICE	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		5
111	RR	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		5
112A	TRASH ENCLOSURE	24' - 0"	6' - 0"	G1	STEEL	PTD	-				
112B	TRASH ENCLOSURE	6' - 0"	7' - 0"	D3	HM	PTD	F1	HM	PTD		6
113	OFFICE	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		5
114A	STORAGE	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		3
114B	STORAGE	6' - 0"	7' - 0"	D3	HM	PTD	F1	HM	PTD		3
115	RR	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		3
116	RR	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		3
117A	GYMNASIUM	6' - 0"	8' - 0"	O1	-	-	-	-	-		
117B	GYMNASIUM	6' - 0"	8' - 0"	O1	-	-	-	-	-		
117C	GYMNASIUM	6' - 0"	8' - 0"	O1	-	-	-	-	-		
117D	GYMNASIUM	6' - 0"	8' - 0"	O1	-	-	-	-	-		
117E	GYMNASIUM	6' - 0"	7' - 0"	D3	HM	PTD	F1	CANOPY	PTD		
117F	GYMNASIUM	6' - 0"	7' - 0"	D3	HM	PTD	F1	CANOPY	PTD		
117G	GYMNASIUM	14' - 0"	14' - 0"	OHD3	ALUM/GL	PTD	-				12
118	VEST-WAITING	6' - 0"	7' - 0"	D4	ALUM/GL	PTD	F1	HM	PTD		
118.A	RISER	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		6
119	OFFICE	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		5
120	VENDING	3' - 0"	7' - 0"	O2	-	-	F1	HM	PTD		
121	MENS EAST RR	3' - 0"	7' - 0"	D1	HM	PTD	F2	HM	PTD		3
122	FOUNTAINS	4' - 0"	8' - 0"	O1	-	-	-	-	-		
123	WOMENS EAST RR	3' - 0"	7' - 0"	D1	HM	PTD	F2	HM	PTD		3
126	WOMENS WEST RR	3' - 0"	7' - 0"	D1	HM	PTD	F2	HM	PTD		
128	MENS WEST RR	3' - 0"	7' - 0"	D1	HM	PTD	F2	HM	PTD		5
129	FOUNTAINS	3' - 0"	7' - 0"	O1	-	-	-	-	-		
130A	UTILITY	3' - 0"	7' - 0"	D1	HM	PTD	F2	HM	PTD		3
130B	UTILITY	3' - 0"	7' - 0"	D1	HM	PTD	F2	HM	PTD	90 MIN	4, 8
131A	STORAGE	3' - 0"	7' - 0"	D1	HM	PTD	F2	HM	PTD		3
131B	STORAGE	6' - 0"	7' - 0"	D3	HM	PTD	F2	HM	PTD	90 MIN	4, 8
131C	STORAGE	6' - 0"	8' - 0"	O1	-	-	-	-	-		
132A	BASEBALL	3' - 0"	7' - 0"	D6	HM/GL	PTD	F2	HM	PTD	90 MIN	5, 8
132B	BASEBALL	6' - 0"	7' - 0"	D4	HM	PTD	F1	CANOPY	PTD		
132C	BASEBALL	3' - 0"	7' - 0"	D1	HM	PTD	F2	HM	PTD	90 MIN	4, 8
132D	BASEBALL	5' - 0"	8' - 0"	O1	-	-	-	-	-		
202	STORAGE	3' - 0"	7' - 0"	D1	HM	PTD	F1	HM	PTD		3
SF1A	VESTIBULE	6' - 0"	8' - 0"	SF1	ALUM/GL	-	SF1	AL	-		7
SF1B	VESTIBULE	6' - 0"	8' - 0"	SF1	ALUM/GL	-	SF1	AL	-		2, 7
SF4	CONCOURSE	3' - 0"	8' - 0"	SF4	ALUM/GL	-	SF4	AL	-		7
SF5	VEST-WAITING	6' - 0"	8' - 0"	SF5	ALUM/GL	-	SF5	AL	-		2, 7

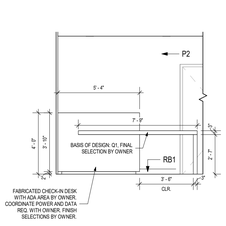
DOOR SCHEDULE REMARKS:

- PROTECT DOOR AND FRAME FROM DAMAGE THROUGHOUT CONSTRUCTION. ANY DAMAGE TO BE REPAIRED/REPLACED PER OWNER DISCRETION.
- DOORS TO MATCH ADJACENT WALL COLOR.
- DOOR FRAME 2" OFF FINISHED FACE ON HINGE SIDE U.N.O.

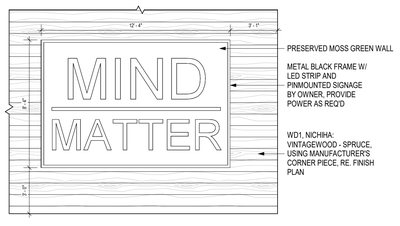
1. ACCESS CONTROL SYSTEMS. ALL ROUGH-IN TO BE PROVIDED BY OWNER. COORDINATE WITH ACCESS CONTROL VENDOR AND CLIENT.
2. PROVIDE ADA INGRESS/EGRESS AUTO OPERATOR. FINAL LOCATIONS, WIRING, POWER AND CONNECTIONS TO BE PROVIDED BY OWNER. RE: SPECS, DOOR REMARKS AND MEP.
3. BASIS OF DESIGN: HM DOOR TO BE PAINTED P3, SW REAL RED
4. BASIS OF DESIGN: HM DOOR TO BE PAINTED P4, SW JAY BLUE
5. BASIS OF DESIGN: HM DOOR TO BE PAINTED P8, SW REPOSE GRAY
6. BASIS OF DESIGN: HM DOOR TO BE PAINTED P9, SW TRICORN BLACK - EXTERIOR GRADE PAINT
7. REF. TO STOREFRONT ELEVATIONS FOR DETAILS.
8. FIRE RATED DOOR - 90 MIN
9. COORD. INSTALLATION OF SECURITY ACCORDION GRILLE WITH OWNER
10. BLOCKING IN SIDES FOR STAINLESS STEEL OPENING CASING. COORD. STAINLESS STEEL AROUND OPENING WITH OWNER
11. COORD. OVERHEAD DOOR MODEL # WITH OWNER, FINISH BASIS OF DESIGN: BLACK ANODIZED TO MATCH OHD1

GLASS TYPE LEGEND

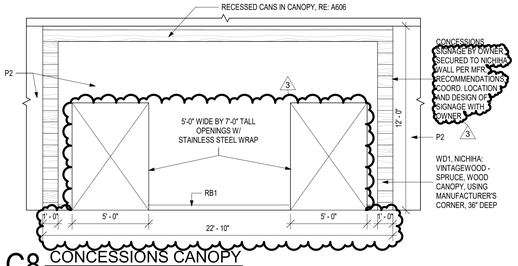
DESIGNATION NUMBER	DESCRIPTION
G1	1/4" TEMPERED GLAZING COLOR: CLEAR
G2	1/4" GLAZING COLOR: CLEAR
G3	1" INSULATED TEMPERED GLAZING COLOR: CLEAR
G4	1" INSULATED GLAZING COLOR: CLEAR
G5	3/8" 180-MIN FIRELITE PLUS FORCED ENTRY, FIRE-RATED, SAFETY-RATED GLASS CERAMIC. COLOR: CLEAR



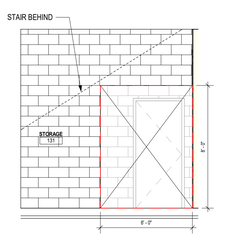
C12 CHECKIN COUNTER
1/4" = 1'-0"



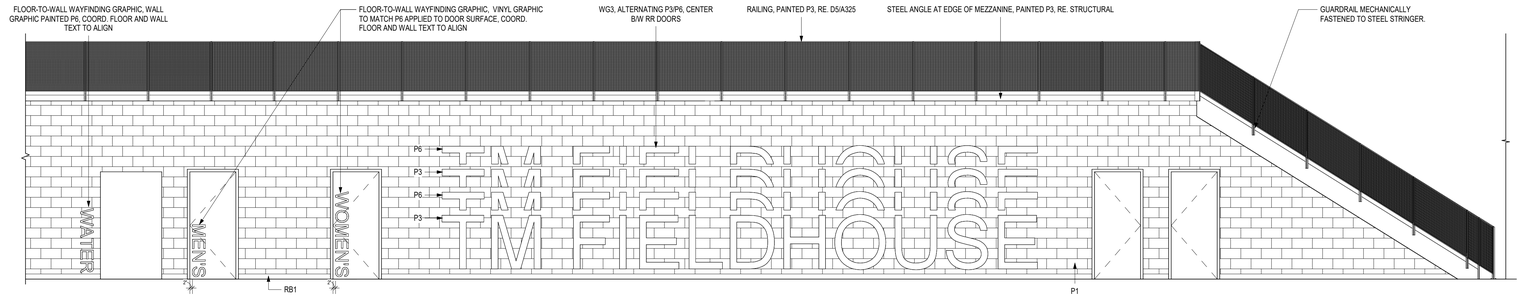
C10 MEZZANINE GREEN WALL GRAPHIC
1/4" = 1'-0"



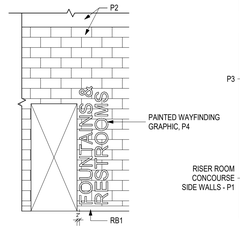
C8 CONCESSIONS CANOPY
1/4" = 1'-0"



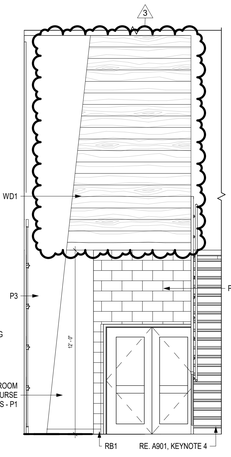
C5 UNDER STAIR CMU WALL
1/4" = 1'-0"



A12 MEZZANINE - COURTSIDE WALL
1/4" = 1'-0"



A4 BALLFIELD WALL GRAPHIC
1/4" = 1'-0"



A2 CONCOURSE W WALL
1/4" = 1'-0"

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REVISION DATES:

1	CITY COMMENTS	06/21/2023
3	CITY COMMENTS AND OWNER REV.	03/22/2024

STATE OF MISSOURI ROGER L. WEBB NUMBER A-2001020859 ARCHITECT

03/22/2024
PROFESSIONAL SEAL

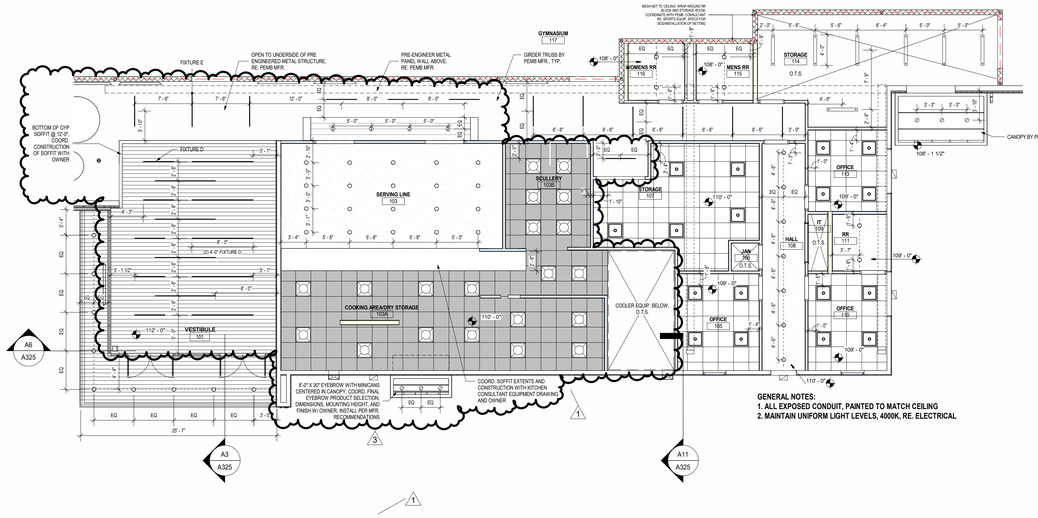
A501

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

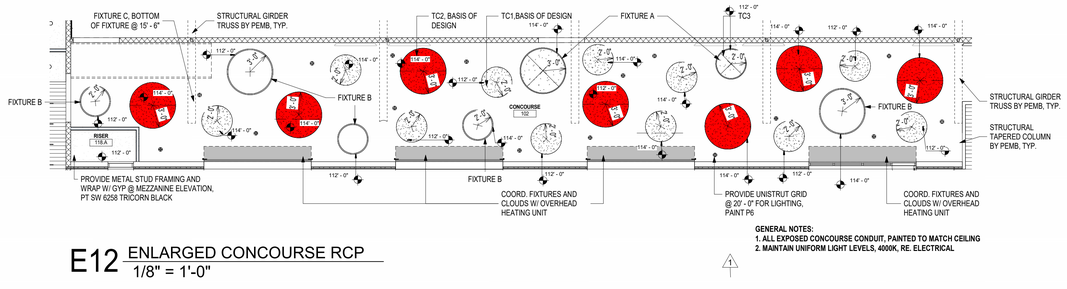
DOOR SCHEDULE AND DETAILS

3/26/2024 5:23:37 PM

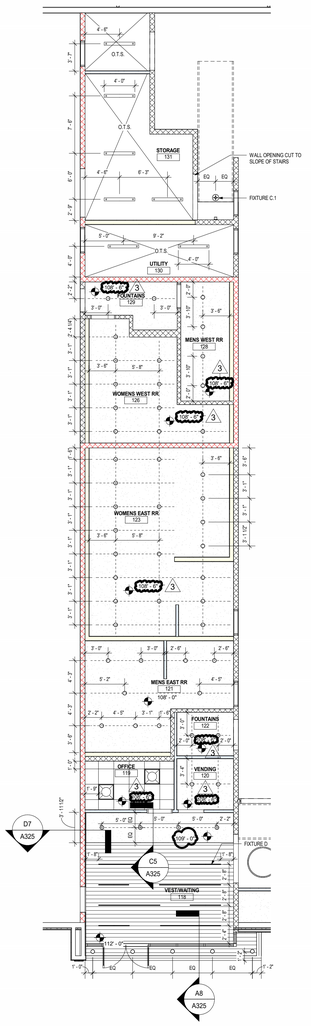
G12 CONCOURSE TECTUM CLOUDS VIEW



G8 ENLARGED ENTRY/BOH RCP
1/8" = 1'-0"



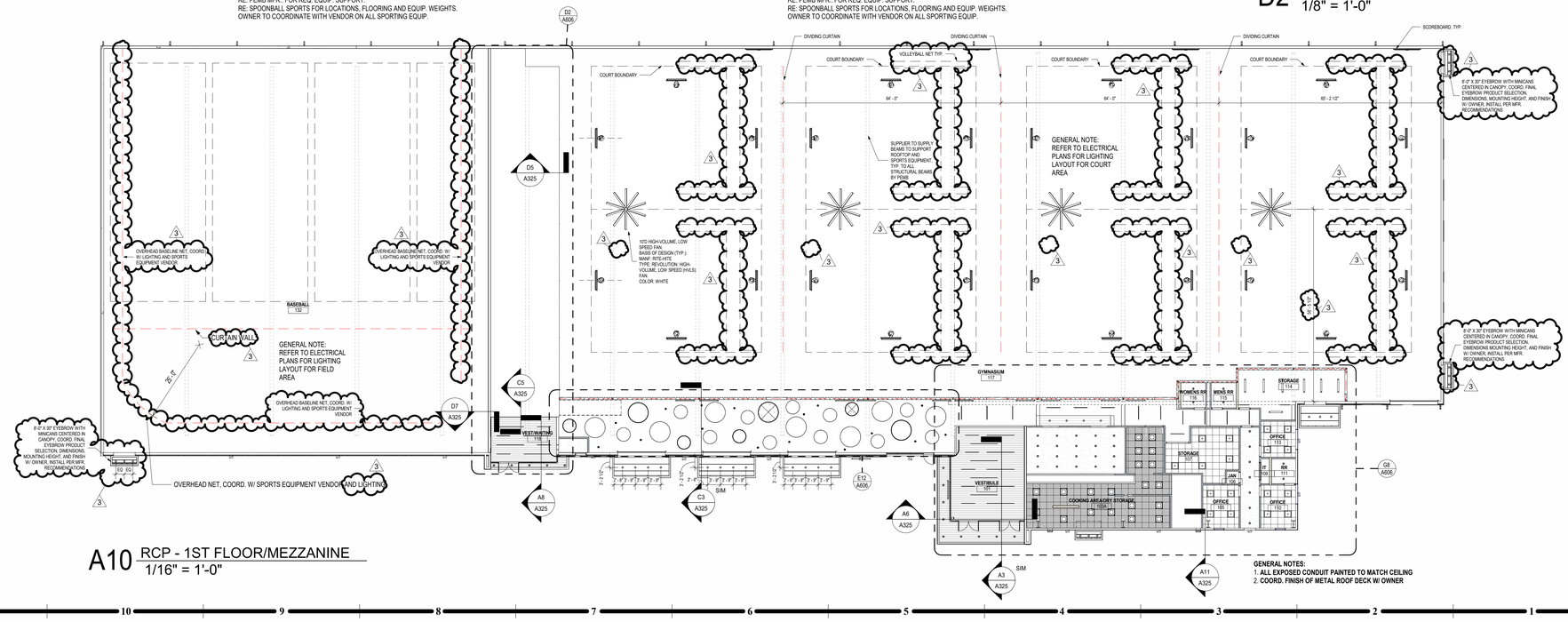
E12 ENLARGED CONCOURSE RCP
1/8" = 1'-0"



D2 1ST FLOOR RESTROOM BLOCK RCP
1/8" = 1'-0"

1 GENERAL NOTE (TYP.):
BASEBALL FIELD FENCING, BASEBALL BATTING NETS, BASELINE NETS AND CURTAIN NETS BY OTHERS. INSTALLED PER SPORTS EQUIPMENT MANF. REQ. PEMB SUPPLIER TO PROVIDE SUPPORT BEAMS AND DESIGN FRAMES FOR EQUIP. CONCRETE CONTRACTOR SHALL COORDINATE FLOOR INSERTS WITH EQUIPMENT VENDOR PRIOR TO FLATWORK PLACEMENT.
RE: PEMB MFR. FOR REQ. EQUIP. SUPPORT.
RE: SPOONBALL SPORTS FOR LOCATIONS, FLOORING AND EQUIP. WEIGHTS.
OWNER TO COORDINATE WITH VENDOR ON ALL SPORTING EQUIP.

2 GENERAL NOTE (TYP.):
BASKETBALL COURT FLOORING, BASKETBALL GOALS, SCOREBOARDS, MESH NETS, WALL PADS, BLEACHERS AND VOLLEYBALL NETS BY OTHERS. INSTALLED PER SPORTS EQUIPMENT MANF. REQ. PEMB SUPPLIER TO PROVIDE SUPPORT BEAMS AND DESIGN FRAMES FOR EQUIP. CONCRETE CONTRACTOR SHALL COORDINATE FLOOR INSERTS WITH EQUIPMENT VENDOR PRIOR TO FLATWORK PLACEMENT.
RE: PEMB MFR. FOR REQ. EQUIP. SUPPORT.
RE: SPOONBALL SPORTS FOR LOCATIONS, FLOORING AND EQUIP. WEIGHTS.
OWNER TO COORDINATE WITH VENDOR ON ALL SPORTING EQUIP.



A10 RCP - 1ST FLOOR/MEZZANINE
1/16" = 1'-0"

GENERAL NOTES: REFLECTED CEILING PLANS

1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. RE: DETAILS FOR ADDITIONAL CONDITIONS AND CEILING HEIGHT INFORMATION.
3. RE: FINISH LEGEND AND FINISH SCHEDULE FOR ROOM CEILING FINISHES.
4. RE: ELECTRICAL SHEETS AND SPECIFICATIONS FOR DETAILED INFORMATION ON LIGHT FIXTURE SCHEDULE.
5. RE: MECHANICAL SHEETS AND SPECIFICATIONS FOR DETAILED INFORMATION ON DIFFUSERS.
6. RE: MECHANICAL SHEETS FOR LOCATIONS OF SOUND ISOLATION BELOW AND OR AROUND MECH. EQUIPMENT.
7. DIMENSIONS SHOWN ON THE REFLECTED CEILING PLANS ARE TO THE FACE OF STUD, AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN OTHERWISE.
8. ALL EXPOSED CONDUIT, DUCTWORK, ETC. TO BE PAINTED BLACK, TYP. U.N.O.
9. ALL CEILING HEIGHTS AS SHOWN ON PLANS AND DETAILS ARE FROM SLAB OR TILE FLOOR (FINISHED FLOOR) TO FINISH CEILING.
10. AT ALL GYP. BD. SOFFITS: EXTEND GYP. BD. UP 6 INCHES ABOVE ADJACENT CEILING.
11. CEILING TILES/GRID TO BE CENTERED IN THE ROOM, UNLESS NOTED OTHERWISE.
12. RECESSED LIGHTING, SPEAKERS, SMOKE DETECTORS, ETC. AND PENDANT LIGHT FIXTURES - SHALL BE CENTERED IN CEILING TILE OR GYP. BD. CEILING, UNLESS NOTED OTHERWISE.
13. COORDINATE ALL PENDANT MOUNTED LIGHT FIXTURES IN EQUIPMENT AREAS WITH EXPOSED STRUCTURE.
14. COORDINATE ALL CEILING MOUNTED EQUIPMENT WITH CASEWORK BELOW.
15. IF THERE IS A CONFLICT BETWEEN ANY ABOVE-CEILING MECHANICAL / ELECTRICAL / PLUMBING WORK & THE SCHEDULED OR SHOWN CEILING HEIGHT, CONTACT THE ARCHITECT IMMEDIATELY FOR CLARIFICATION.
16. PROVIDE OVERALL CEILING COORDINATION DRAWING SHOWING ALL DEVICES DURING SHOP SUBMITTAL PROCESS.
17. ALL LIGHTING BY G.C. COORD. WITH MILLWORK CONTRACTOR FOR LOCATION.

CEILING PLAN LEGEND

NOTE: SOME SYMBOLS MAY NOT BE USED IN THIS DRAWING OR PROJECT.

	ACT-1 ARMSTRONG CEILINGS: 2'X2' KITCHEN ZONE SQUARE LAY-IN (WHITE), RE. A901 FINISH SCHEDULE
	ACT-2 ARMSTRONG CEILINGS: 2'X2' ULTIMA SQUARE LAY-IN (WHITE), RE. A901 FINISH SCHEDULE
	5/8" GYPSUM BOARD, RE: ROOM FINISH SCHEDULE FOR FINISH
	TC1, SUSPENDED ACOUSTICAL CLOUDS - BASIS OF DESIGN: ARMSTRONG CEILINGS, 2" THICK TECTUM CLOUDS - CIRCLE (WHITE). 47" DIA., RE. E12/A606
	TC2, SUSPENDED ACOUSTICAL CLOUDS - BASIS OF DESIGN: ARMSTRONG CEILINGS, 2" THICK TECTUM CLOUDS - CIRCLE (CUSTOM COLOR), 72" DIA., RE. E12/A606, COORD. COLOR W/ CLIENT
	FIXTURE A BASIS OF DESIGN: BARBICAN LIGHTING - HALO ROUND (WHITE), W/ WHITE ACOUSTIC FELT LAYER, 48" & 72" DIA., RE. E12/A606 FOR BOTTOM OF FIXTURE, FINAL SELECTION BY OWNER, RE. TO ELECTRICAL DWGS FOR LIGHTING REQUIREMENTS
	FIXTURE B BASIS OF DESIGN: ALW - 1.5" MOONRING (MR1.5- SATIN WHITE), 48" & 72" DIA., RE. E12/A606 FOR BOTTOM OF FIXTURE, FINAL SELECTION BY OWNER, RE. TO ELECTRICAL DWGS FOR LIGHTING REQUIREMENTS
	FIXTURE C BASIS OF DESIGN: ACUITY BRANDS - LDN6 CYLINDER SERIES (6" AIRCRAFT CABLE MOUNTED, WHITE.) RE. ELECTRICAL DWGS FOR TYP., BOTTOM OF FIXTURE @ 15' - 6", RE. E12/A606
	FIXTURE C.1 BASIS OF DESIGN: ACUITY BRANDS - LDN6 CYLINDER SERIES (6" WALL MOUNTED, WHITE.) RE. ELECTRICAL DWGS FOR TYP., BOTTOM OF FIXTURE @ 8' - 0", RE. D2/A606
	FIXTURE D BASIS OF DESIGN: ALW - 3.5 RECESSED LIGHTPLANE, 48", RE. G9/A606, FINAL SELECTION BY OWNER, RE. ELECTRICAL DWGS FOR LIGHTING REQUIREMENTS
	FIXTURE E BASIS OF DESIGN: ALW - ROUND LIGHTPLANE 1 (SW), 48", BOTTOM OF FIXTURE @ 10' - 0", RE. G9/A606, FINAL SELECTION BY OWNER, RE. ELECTRICAL DWGS FOR LIGHTING REQUIREMENTS
	2'X2' LAY-IN LED LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR TYPE.
	RECESSED CAN LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR TYPE.
	4' SUSPENDED DIRECT/INDIRECT LED LIGHT FIXTURE. BOTTOM OF FIXTURE @ 9' - 0". SEE ELECTRICAL DRAWINGS FOR TYPE AND SIZE.
	EMERGENCY WALL MOUNTED LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR TYPE.
	EMERGENCY EXIT LIGHT FIXTURE (CEILING MOUNTED). SEE ELECTRICAL DRAWINGS FOR TYPE.
	EMERGENCY EXIT LIGHT FIXTURE (WALL MOUNTED). SEE ELECTRICAL DRAWINGS FOR TYPE.
	CEILING MOUNTED RETURN AIR GRILLE. SEE MECHANICAL DRAWINGS FOR TYPE.
	CEILING MOUNTED SUPPLY DIFFUSER. SEE MECHANICAL DRAWINGS FOR TYPE.
	EXHAUST DUCT. SEE MECHANICAL DRAWINGS FOR TYPE.
	CEILING MOUNTED SPEAKER GRILLE. SEE ELECTRICAL DRAWINGS FOR TYPE.
	SPRINKLER HEAD. SEE PLUMBING DRAWINGS FOR TYPE.

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REVISION DATES:

1	CITY COMMENTS	06/21/2023
3	CITY COMMENTS AND OWNER REV.	03/22/2024

STATE OF MISSOURI
ROGER L. WEBB
NUMBER A-2011004700
ARCHITECT

PROFESSIONAL SEAL 03/22/2024

A606

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

RCP - 1ST FLOOR

3/26/2024 5:12:25 PM

FINISH LEGEND

SYMBOL	MATERIAL	MANUFACTURER	TYPE	COLOR	TYP. AREA / REMARKS
FLOOR FINISH					
C1	CARPET TILE (24"X24")	J+J FLOORING	WELL VERSED II	COORD. W/ OWNER	OFFICE, ASHLAR INSTALLATION
C2	WALK-OFF CARPET (24"X24")	J+J FLOORING	CATWALK II	COUTURE 1426	VESTIBULE
LVT1	LUXURY VINYL PLANK TILE - GLUE DOWN (56"X9")	KARNDEAN	ART SELECT	CLASSIC HICKORY EW13	STAGGERED INSTALLATION, VESTIBULE, VEST/WAITING, HALL, OFFICE, RE: FINISH PLAN
SC1	SEALED CONCRETE			COORD. ACID STAIN AND STENCILED WAYFINDING W/ OWNER	ALL FLOORS U.N.O. RE. FINISH PLAN
WALL BASE					
RB1	RUBBER BASE (4"H)	ROPPE	700 SERIES	100 BLACK	ALL CMU AND STUD WALLS U.N.O., USE INSIDE/OUTSIDE CORNER PIECES AS REQ.
TB1	BULLNOSE TILE BASE (3"X24")	DALTILE	WANDERWISE	ROAM WW03	ALL RESTROOM AND RESTROOM AND URINAL WALLS U.N.O.
WALL FINISH					
EP2	PAINT - EPOXY	SHERWIN WILLIAMS	EGGSHELL	SW 7015 REPOSE GRAY	ALL RESTROOM WALLS U.N.O., FOUNTAINS 129
EP3	PAINT - EPOXY	SHERWIN WILLIAMS	EGGSHELL	SW 6258 TRICORN BLACK	FOUNTAINS 122
P1	PAINT	SHERWIN WILLIAMS	EGGSHELL	SW 6258 TRICORN BLACK	ALL CONCOURSE, GYMNASIUM, AND MEZZANINE STUD AND CMU WALLS U.N.O
P2	PAINT	SHERWIN WILLIAMS	EGGSHELL	SW 7015 REPOSE GRAY	ALL WALLS U.N.O.
P3	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS	SW 6868 REAL RED	BASIS OF DESIGN; ALL COLUMNS AND GIRDERS EAST OF FIRE SEPARATION WALL, WG3, AND DOORS, RE. DOOR SCHEDULE, WALL GRAPHIC ACCENT COLOR, COORD. FINAL COLOR SELECTION W/ CLIENT, RE. A12/A501,C8/A501
P4	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS	SW 6797 JAY BLUE	BASIS OF DESIGN; ALL COLUMN AND GIRDERS WEST OF FIRE SEPARATION WALL, WG5, AND DOORS, RE. DOOR SCHEDULE, COORD. FINAL COLOR SELECTION W/ CLIENT, RE. A2/A501
P5	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS	SW 7605 GALE FORCE	WG4, BASIS OF DESIGN OFFICE WALL GRAPHIC ACCENT COLOR, COORD. FINAL COLOR SELECTION W/ CLIENT, RE.FINISH PLAN
P6	PAINT	SHERWIN WILLIAMS	SEMI GLOSS	SW 7005 PURE WHITE	WG3, WG6, RE. A12/1501
P8	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS	SW 7015 REPOSE GRAY	RE. DOOR SCHEDULE AND REMARKS
P9	PAINT	SHERWIN WILLIAMS	SEMI GLOSS	SW 6258 TRICORN BLACK	RE. DOOR SCHEDULE AND REMARKS, DOORS TO RECEIVE EXTERIOR GRADE PAINT
T1	GLAZED PORCELAIN TILE (12"X24")	DALTILE	WANDERWISE	ROAM WW03	RESTROOM WET WALLS, 1/3 HORIZONTAL RUNNING BOND INSTALLATION, 84"H, BASIS OF DESIGN, COORD. FINAL SELECTION W/ OWNER
TG1	TILE GROUT - EPOXY (1/16" GROUT JOINTS)	MAPEI	KERAPOXY	IRON 107	TO BE USED WITH T1, BASIS OF DESIGN, COORD. FINAL SELECTION W/ OWNER
WD1	ARCHITECTURAL WALL PANEL	NICHIHA	VINTAGEWOOD	SPRUCE	CONCESSIONS, MEZZANINE, USING MANUFACTUER'S CORNER PIECE
WD2	ARCHITECTURAL WALL PANEL	NICHIHA	ROUGHSAWN	ESPRESSO	VESTIBULE, CONCOURSE, USING MANUFACTUER'S CORNER PIECE, RE. FINISH PLAN
WG1	PAINTED WALL GRAPHIC			COORD. W/ OWNER	CONCOURSE N WALL, RE. FINISH PLAN
WG2	PAINTED WALL GRAPHIC			COORD. W/ OWNER	GYMNASIUM S WALL, RE. FINISH PLAN
WG3	PAINTED WALL GRAPHIC	SHERWIN WILLIAMS		P3 & P6	GYMNASIUM W WALL, A12/A501
WG4	PAINTED WALL GRAPHIC	SHERWIN WILLIAMS		P5	OFFICE, RE. FINISH PLAN AND ROOM FINISH SCHEDULE FOR LOCATIONS, COORD.GRAPHIC W/ OWNER
WG5	PAINTED WALL GRAPHIC	SHERWIN WILLIAMS		P4	BALLFIELD E WALL, WALL PAINTED WAYFINDING GRAPHIC, RE. A4/A501
WG6	PAINTED WALL GRAPHIC	SHERWIN WILLIAMS		P6	GYMNASIUM W WALL, WAYFINDING GRAPHIC, COORD. FLOOR AND WALL TEXT TO ALIGN, RE. A12/A501
WP1	SPORTS WALL PADS	SPOONBALL SPORTS		COORD. W/ CLIENT	COURTSIDE, COORD. LOCATIONS AND MOUNTING HT W/ OWNER
WP2	SPORTS WALL PADS	SPOONBALL SPORTS		COORD. W/ CLIENT	BALLFIELD SIDE, COORD. LOCATIONSAND MOUNTING HT W/ OWNER
MILLWORK / CASEWORK					
Q1	QUARTZ	DALTILE	2CM, POLISHED	CARRARA VEIL OQ12	VESTIBULE CHECKIN DESK, CONCOURSE, CONCESSIONS, BASIS OF DESIGN, COORD. FINAL SELECTION W/ OWNER
WALL PROTECTION					
FRP1	FIBER REINFORCED PANEL / RIGID SHEET WALLCOVERING (.06")	INPRO	SMOOTH FINISH, FULL HEIGHT	0101 DESIGNER WHITE	CONCESSIONS, MEZZANINE
FRP2	FIBER REINFORCED PANEL / RIGID SHEET WALLCOVERING (.06")	INPRO	SMOOTH FINISH, 6'H	0151 GRAYSTONE	JAN
CEILING FINISH					
ACT1	LATEX-FACED CEILING TILE (2'x2')	ARMSTRONG CEILINGS	KITCHEN ZONE SQUARE LAY-IN	WHITE	CONCESSIONS
ACT1 GRID	15/16" SUSPENSION SYSTEM	ARMSTRONG CEILINGS	TRIM (SQUARE)	WHITE	TO BE USED WITH ACT1 AND ACT2
ACT2	ACOUSTICAL CEILING TILE (2'x2')	ARMSTRONG CEILINGS	ULTIMA SQUARE LAY-IN	WHITE	OFFICE, STORAGE, RE. RCP
EP1	PAINT - EPOXY	SHERWIN WILLIAMS	FLAT	SW 7005 PURE WHITE	RESTROOMS
EP4	PAINT - EPOXY	SHERWIN WILLIAMS	FLAT	SW 6258 TRICORN BLACK	FOUNTAINS (122), RE. ROOM FINISH SCHEDULE
P7	PAINT	SHERWIN WILLIAMS	FLAT	SW 7005 PURE WHITE	RE. ROOM FINISH SCHEDULE
TC1	TECTUM CLOUD (2" THICK, 47"DIA.)	ARMSTRONG CEILINGS	TECTUM CLOUDS - CIRCLE	WHITE	BASIS OF DESIGN, CONCOURSE, RE. E12/A606
TC2	TECTUM CLOUD (2" THICK, 72" DIA.)	ARMSTONG CEILINGS	TECTUM CLOUDS - CUSTOM SHAPES (2 HALF CIRCLES)	CUSTOM COLOR - COORD. W/ CLIENT	BASIS OF DESIGN, CONCOURSE, RE. E12/A606
WD3	ARCHITECTURAL PANEL	NICHIHA	ROUGHSAWN	ESPRESSO	VESTIBULE, USING MANUFACTUER'S CORNER PIECE AS REQ'D

FINISH LEGEND NOTES:

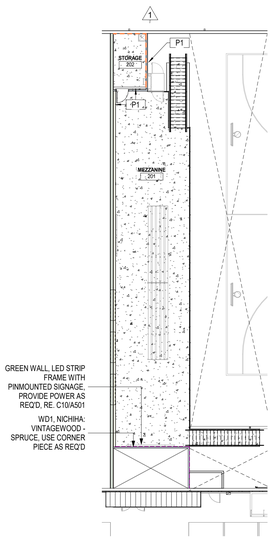
1. BASIS OF DESIGN: ALL EXPOSED GIRTS TO BE PAINTED TO MATCH P6, COORD. FINAL SELECTION W/ OWNER
2. ALL FINISHES BASIS OF DESIGN, COORD. FINAL SELECTION W/ OWNER
3. COORD. FINISH OF METAL ROOF DECK W/ OWNER

ROOM FINISH SCHEDULE

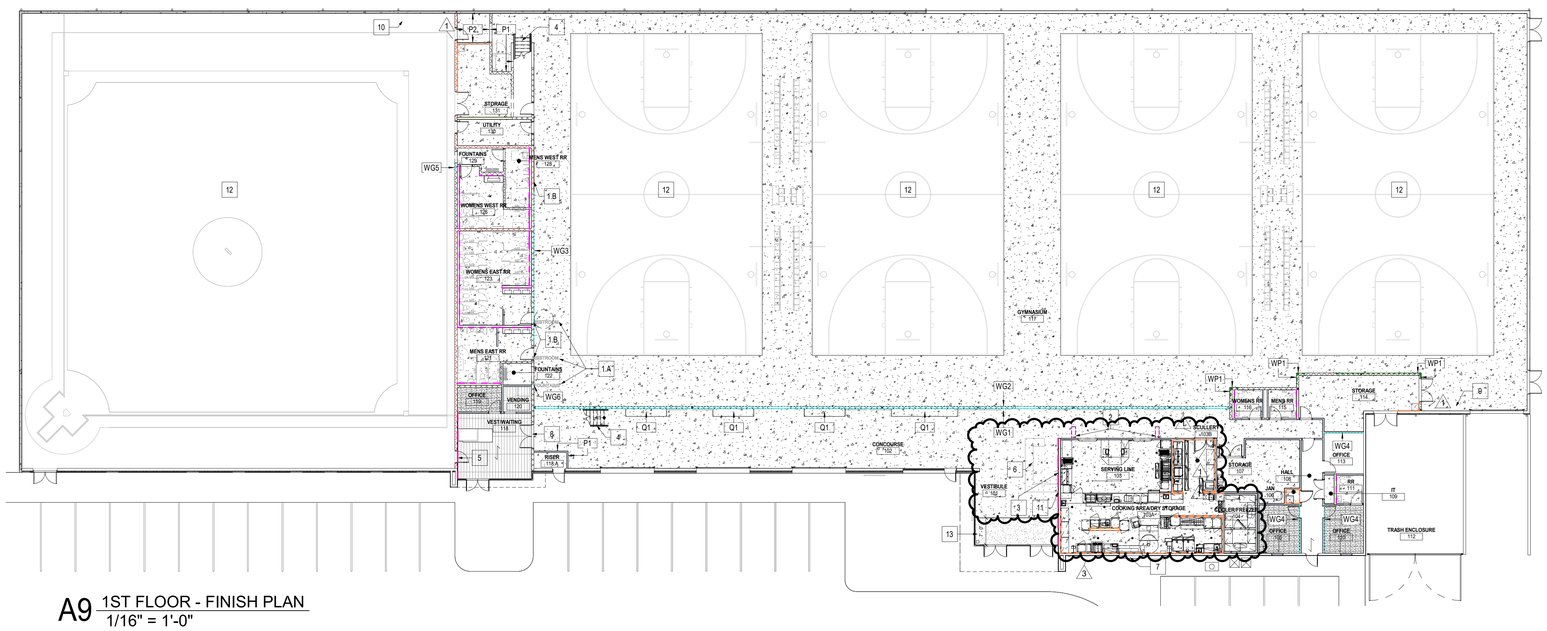
RM. NO.	ROOM NAME	FLOORS: FLOOR	FLOORS: WALL BASE	WALL FINISH: NORTH WALL	WALL FINISH: EAST WALL	WALL FINISH: SOUTH WALL	WALL FINISH: WEST WALL	CEILING FINISH	CASEWORK: COUNTERTOP	CASEWORK: BASE CABINET	CASEWORK: UPPER CABINET	REMARKS
101	VESTIBULE	LVT1/C2		N/A	WD2	N/A	N/A	WD3				
102	CONCOURSE	SC1	RB1	WG1	P1	METAL PANEL/P1	P1	TC1/TC2	Q1			2
103	SERVING LINE	SC1	RB1	COORD. W/ OWNER	COORD. W/ OWNER	COORD. W/ OWNER	COORD. W/ OWNER	EP1				7,8
103A	COOKING AREA/DRY STORAGE	SC1	RB1	COORD. W/ OWNER	COORD. W/ OWNER	COORD. W/ OWNER	COORD. W/ OWNER	ACT1	Q1			6, 7
103B	SCULLERY	SC1	RB1	FRP1	FRP1	FRP1	FRP1	ACT1				6, 7
104	COOLER/FREEZER	SC1	RB1	COORD. W/ OWNER	COORD. W/ OWNER	COORD. W/ OWNER	COORD. W/ OWNER	OTS				
105	OFFICE	C1	RB1	P2	P2/WG4	P2	P2	ACT2				2
106	JAN	SC1	RB1	FRP2	FRP2	FRP2	FRP2	OTS				
107	STORAGE	SC1	RB1	P2	P2	P2	P2	ACT2				
108	HALL	LVT1	RB1	P2	P2	P2	P2	P7				
109	IT	SC1	RB1	P2	P2	P2	P2	OTS				
110	OFFICE	C1	RB1	P2	P2	P2	P2/WG4	ACT2				2
111	RR	SC1	TB1	EP2	EP2	EP2	T1/EP2	EP1				1
112	TRASH ENCLOSURE	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
113	OFFICE	LVT1	RB1	P2/WG4	P2	P2	P2	ACT2				2
114	STORAGE	SC1	RB1	P2	P2	P2	P2	OTS				
115	MENS RR	SC1	TB1	EP2	T1/EP2	EP2	EP2	EP1				1
116	WOMENS RR	SC1	TB1	EP2	EP2	EP2	T1/EP2	EP1				1
117	GYMNASIUM	SC1, COURTS PER EQUIPMENT VENDOR	RB1	METAL PANEL	METAL PANEL	P1/WG2	P1/WG3	OTS				2,3,4,5
118	VEST/WAITING	LVT1	RB1	P2	P2	N/A	WD2	WD3/P7				
118.A	RISER	SC1	RB1	P2	P2	P2	P2	P7				
119	OFFICE	SC1	RB1	P2	P2	P2	P2	ACT2				
120	VENDING	SC1	RB1	P2	P2	P2	P2	P7				
121	MENS EAST RR	SC1	TB1	T1/EP2	EP2	T1/EP2	EP2	EP1				1
122	FOUNTAINS	SC1	RB1	EP3	EP3	EP3	EP3	EP4				
123	WOMENS EAST RR	SC1	TB1	EP3	T1/EP2	EP2	T1/EP2	EP1				
126	WOMENS WEST RR	SC1	TB1	EP2	T1/EP2	EP2	EP2	EP1				<varies>
128	MENS WEST RR	SC1	TB1	EP2	T1/EP2	EP2	EP2	EP1				1
129	FOUNTAINS	SC1	RB1	EP2	EP2	EP2	EP2	EP1				
130	UTILITY	SC1	RB1	P2	P2	P2	P2	OTS				
131	STORAGE	SC1	RB1	P2	P2	P2	P2	OTS				
132	BASEBALL	PER EQUIPMENT VENDOR	RB1	METAL PANEL	P2/P4	METAL PANEL	METAL PANEL	OTS				2, 4, 5
133	FAM RR	SC1	TB1	EP2	T1/EP2	EP2	EP2	EP1				1
201	MEZZANINE	SC1	RB1	P1	N/A	WD1	P1	OTS				
202	STORAGE	SC1	RB1	P2	P2	P2	P2	OTS				

ROOM FINISH SCHEDULE REMARKS:

1. TOILET/URINAL FIXTURE WALL TO RECEIVE T1, 84" H, EP2 ABOVE, USE SCHLUTER FINISHING STRIP AT TRANSITION, RE. FINISH PLAN
2. COORD. WALL GRAPHIC W/ OWNER
3. FLOOR-TO-WALL WAYFINDING GRAPHIC, COORD. TEXT TO ALIGN, RE. FINISH PLAN AND A12/A501
4. COORD. FINAL WALL PAD COLOR AND LOCATIONS W/ OWNER
5. NETS PER SPORTS EQUIPMENT VENDOR, COORD. LOCATIONS W/ OWNER
6. COORD. EXTENTS OF FRP WITH OWNER AND KITCHEN CONSULTANT EQUIPMENT DRAWINGS
7. COORD. FINAL FINISH SELECTION WITH OWNER AND KITCHEN CONSULTANT EQUIPMENT DRAWINGS
8. COORD. COUNTER HEIGHT AND CONSTRUCTION W/ OWNER AND KITCHEN CONSULTANT DWGS. KITCHEN EQUIPMENT SUPPLIER TO VERIFY ADA REQUIREMENTS FOR ALL SELF SERVE AREAS AND P.O.S.



A12 MEZZANINE FLOOR - FINISH PLAN
1/16" = 1'-0"



A9 1ST FLOOR - FINISH PLAN
1/16" = 1'-0"

GENERAL NOTES: FLOOR FINISH PLANS

1. RE: G-SHEETS - FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. RE: FINISH LEGEND, FINISH SCHEDULE, AND FLOOR FINISH PLANS FOR SPECIFIC FLOOR FINISH INFORMATION AND LOCATIONS.
3. FLOOR FINISHES SHOWN ARE FOR ACCENT CLARIFICATION ONLY.
4. INSTALL TRANSITION STRIPS AT ALL FLOOR FINISH MATERIAL CHANGES, UNLESS NOTED OTHERWISE.
5. FLOOR FINISH PATTERN SHALL BE CENTERED IN ROOM, UNLESS NOTED OTHERWISE.
6. ALIGN ALL WALL TILE JOINTS WITH FLOOR TILE JOINTS, UNLESS NOTED OR SHOWN OTHERWISE.
7. ALL CLOSETS & ALCOVES WITHOUT A SPACE IDENTIFICATION NUMBER SHALL HAVE THE SAME FLOOR FINISHES AS ADJOINING SPACES.
8. FLOOR FINISH MATERIAL &/ OR PATTERN SHALL BE INSTALLED UNDER TOE KICKS OF CASEWORK/ MILLWORK, UNDER OPEN COUNTERTOPS, & UNDER EQUIPMENT.
9. FLOOR MATERIAL/ COLOR TRANSITIONS TO ALIGN WITH ROOM SIDE OF DOOR STOP, UNLESS NOTED OTHERWISE.

GENERAL NOTES: WALL FINISH / WALL PROTECTION PLANS:

1. RE: G-SHEETS - FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. RE: FINISH LEGEND & FINISH SCHEDULE FOR SPECIFIC FINISH INFORMATION & LOCATIONS.
3. CONTRACTOR SHALL PROVIDE ALL NECESSARY BLOCKING FOR WALL PROTECTION ATTACHMENT. THIS INCLUDES, BUT IS NOT LIMITED TO: HANDRAILS,POSTER CASES, TV MONITORS, BATHROOM ACCESSORIES, FIRE EXTINGUISHERS AND EQUIPMENT. RE: ROUGH CARPENTRY SPECIFICATION SECTION FOR CLARIFICATION.
4. CONTRACTOR SHALL PROVIDE MANUFACTURER'S STANDARD ACCESSORY MOLDING OR TRIM FOR WALL PROTECTION ITEMS, UNLESS NOTED OTHERWISE.
5. IF WALL IS LESS THAN 18" WIDE DO NOT PROVIDE HANDRAIL. HANDRAILS SHOULD STOP APPROXIMATELY 3" FROM THE OPEN SWING OF A DOOR. HANDRAILS SHOULD STOP APPROXIMATELY 3" FROM A CORNER GUARD.

GENERAL NOTES: INTERIOR FINISHES

1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. RE: G002 FOR ACCESSIBILITY GUIDELINES.
3. RE: A600 SERIES SHEETS FOR ADDITIONAL CEILING FINISH INFORMATION.
4. HOLLOW METAL FRAMES SHALL RECEIVE SEMI-GLOSS FINISH. WHERE WALL COLOR IS DIFFERENT ON EACH SIDE OF THE HOLLOW METAL FRAME, PAINT FRAME TO MATCH CORRIDOR WALL, UNLESS NOTED OR SHOWN OTHERWISE.
5. CONTINUE WALL FINISH AS SCHEDULED BEHIND EQUIPMENT.
6. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CASEWORK FABRICATION AND INSTALLATION.
7. TRANSITION ALL WALL FINISHES/COLOR CHANGES AT INSIDE CORNERS, UNLESS NOTED OTHERWISE (U.N.O.)
8. TRANSITION WALL BASE AT INSIDE CORNERS, U.N.O.
9. INSTALL METAL TRANSITION STRIP WHERE WALL TILE MEETS PAINTED GYP. BD. WALL IN ALL VERTICAL AND/ OR HORIZONTAL CONDITIONS, U.N.O.

FLOOR FINISH LEGEND	
	GRAIN / INSTALL DIRECTION
	C1: CARPET TILE
	C2 - WALK OFF CARPET
	SC1: SEALED CONCRETE
	LVT1
	SPORT COURT POLYPROPYLENE SURFACE

NOT ALL FLOOR FINISHES ARE GRAPHICALLY SHOWN , ONLY THOSE FOR TRANSITION CLARIFICATION.

WALL FINISH LEGEND	
	ACCENT PAINT (P)
	NICHIHA: VINTAGEWOOD - SPRUCE, USE CORNER TRIM PIECES AS REQ'D
	WALL TILE (T)
	WALLPADDING (WP1)
	WALLPADDING (WP2)
	WALL GRAPHIC (WG)
	WALL PROTECTION (FRP)
	NICHIHA: ROUGHSAWN - ESPRESSO

NOT ALL WALL FINISHES ARE GRAPHICALLY SHOWN . REFER TO FINISH SCHEDULE AND INTERIOR ELEVATIONS FOR SPECIFIC LOCATIONS AND MATERIALS.

KEYED NOTES: FINISH PLAN

1.A	FLOOR-TO-WALL WAYFINDING GRAPHIC, FLOOR GRAPHIC TO BE STENCILED STAINED WAYFINDING GRAPHIC, COLOR TO MATCH P6, W/ SEALED CONCRETE TOP COAT. TOP COAT TO BE APPLIED ONLY AFTER CONCRETE STAINED FLOOR AND LOGO ARE COMPLETE. COORD. FLOOR AND WALL TEXT TO ALIGN, RE. A12/A501
1.B	FLOOR-TO-WALL WAYFINDING GRAPHIC, VINYL GRAPHIC TO MATCH P6, APPLIED TO DOOR SURFACE, COORD. FLOOR AND WALL TEXT TO ALIGN, RE. A12/A501
2	WD1 CONCESSIONS WOOD CANOPY, NICHIHA: VINTAGEWOOD- SPRUCE, USING MANUFACTURER'S CORNER PIECE, RE. C8/A501
3	WD2, EXTERIOR NICHIHA: ROUGHSAWN (ESPRESSO) TO EXTEND INTO INTERIOR VESTIBULE AND CONCOURSE, USING MANUFACTURER'S CORNER PIECE
4	HM & PRECAST STAIR, BASIS OF DESIGN: RAIL AND RISERS TO BE PAINTED P3, COORD. W/ CLIENT
5	WD2, EXTERIOR NICHIHA: ROUGHSAWN (ESPRESSO) TO EXTEND INTO INTERIOR VESTIBULE, USING MANUFACTURER'S CORNER PIECE
6	VESTIBULE QUEUING DESK BY OWNER
7	CONCESSIONS COUNTER, FINAL MATERIAL SELECTION BY OWNER
8	P1 UP UNTIL MEZZANINE LEVEL @ 12' - 0", WD1 ABOVE, RE. A2/A501
9	COURTSIDE, WP1 AT ALL COLUMNS AND GIRDERS, COORD. FINAL PAD LOCATIONS W/ CLIENT
10	BALLFIELD SIDE, WP2 AT ALL COLUMNS AND GIRDERS, COORD. FINAL PAD LOCATIONS W/ CLIENT
11	POTENTIAL PIN-MOUNTED SIGNAGE, COORD. W/ CLIENT
12	BASEBALL FIELD/BASKETBALL COURT FLOORING AND EQUIPMENT BY OTHERS, TYP.
13	BASIS OF DESIGN, COORD. DEPTH OF WALK OFF CARPET W/ CLIENT AND CHECK-IN DESK

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REVISION DATES:

1	CITY COMMENTS	06/21/2023
3	CITY COMMENTS AND OWNER REV.	03/22/2024

STATE OF MISSOURI — ROGER L. REED — NUMBER A-2010008918 — ARCHITECT

03/22/2024
PROFESSIONAL SEAL

A901

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

FINISH FLOOR PLANS

3/26/2024 5:12:28 PM

ELECTRICAL ABBREVIATIONS

AC	ALTERNATING CURRENT
AHU	AIR HANDLING UNIT
A. OR AMPS.	AMPERES
AFC	ABOVE FINISH COUNTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BTC	BRANCH TO CONNECTION POINT AND CONNECT EQUIPMENT
C	CONDUIT ("E.C." IS EMPTY CONDUIT)
CF	CEILING FAN
CM	COFFEE MAKER
CT	COOKTOP
D	DEDICATED CIRCUIT
DCO	DUPLEX CONVIENCE OUTLET
DP	DISPOSAL
DW	DISHWASHER
DY	DRYER
EMT	ELETRICAL METALLIC TUBING
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)
EX	EXISTING
FCU	FAN COIL UNIT
GFI/GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFIP	GROUND FAULT INTERRUPTER PROTECTED
GRD	GROUND
H	HORIZONTAL MOUNT (RECEPTACLE)
HD	VENTILATION HOOD
HP	HORSEPOWER
HT	HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
HZ	HERTZ
IG	ISOLATED GROUND (DUPLEX RECEPTS. - NEMA 5-20RIG)
KCM	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT-AMPERES (1000 VOLT-AMPERES)
KW	KILOWATTS (1000 WATTS)
MLO	MAIN LUGS ONLY
MCB	MAIN CIRCUIT BREAKER
MW	MICROWAVE (COORD MTG HT W/ ARCHITECT)
NIC	NOT IN CONTRACT
NEC	NATIONAL ELECTRICAL CODE
NF	NOT FUSED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PNL	PANEL
PH OR Ø	PHASE
P	POLE
PVC	POLYVINYL CHLORIDE
RF	REFRIGERATOR
RG	RANGE
SPD	SURGE PROTECTIVE DEVICE
T	TAMPERPROOF RECEPTACLE
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION RECEPTACLE
UC	UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)
UL	UNDERWRITERS LABORATORIES
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLTS
VA	VOLT-AMPERES
VD	VENDING MACHINE (24"AFF)
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WA	WASHER
WD	WARMING DRAWER
WO	WALL OVEN
WP	WEATHERPROOF
WP/WR	WEATHERPROOF/WEATHER RESISTANT
W/UNIT	DISCONNECT IS SUPPLIED WITH THE UNIT

GENERAL ELECTRICAL NOTES

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, REQUIREMENTS OF THE AHJ AND ALL LOCAL & STATE CODES.
2. DO NOT SCALE FROM THESE DRAWINGS.
3. REFER TO ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES.
4. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH PULL STRINGS AND BUSHINGS.
5. ALL JUNCTION BOXES SHALL HAVE A COVER.
6. COORDINATE EACH LIGHT FIXTURE INSTALLATION(S) W/ ACTUAL CEILING TO BE FURNISHED.
7. ALL BRANCH CIRCUITS WITHOUT A CONDUCTOR & CONDUIT INDICATED SHALL BE ROUTED TO A 20A-1P BREAKER W/ 2#12,1#12EG,3/4"C.
8. ALL BRANCH CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #12 AWG AND ALL CONDUIT SHALL NOT BE SMALLER THAN 3/4"C, UNLESS SPECIFICALLY NOTED OTHERWISE.
9. ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED OTHERWISE. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC210.4.
10. ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC. THE RACEWAY SHALL NOT BE USED AN EQUIPMENT GROUND.
11. ALL FIXTURES SHALL BE SUPPORTED FROM EACH CORNER (INDEPENDENT OF THE SUSPENDED CEILING) WITH 12 GAUGE WIRE CONNECTED TO STRUCTURAL SYSTEM OF BUILDING. THE INSTALLATION SHALL MEET OR EXCEED THE SEISMIC REQUIREMENTS OF LOCAL AND NATIONAL CODES.
12. ELECTRICAL DEVICE MOUNTING HEIGHTS, UNO.

PANELBOARDS	78" AFF TO TOP OF PANEL
SWITCHES	48" AFF TO CENTER OF SWITCH
RECEPTACLES	18" AFF TO CENTER OF RECEPTACLE
TEL/DATA OUTLETS	48" AFF TO CENTER OF RECEPTACLE
APARTMENT LOADCENTERS	PER ANSI A117.1 REQUIREMENTS (VERIFY WITH LOCAL INSPECTOR)

13. ELECTRICAL EQUIPMENT (PANELBOARDS, TRANSFORMERS, DISTRIBUTION EQUIPMENT, ETC.) IS SHOWN TO SCALE ON THE FLOOR PLANS.
14. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING EQUIPMENT THAT WILL FIT WITHIN THE SPACES SHOWN ON THE PLANS AND COMPLYING WITH ALL CODE REQUIRED CLEARANCES.
15. ELECTRICAL CONTRACTOR TO LABEL ALL DEVICES (RECEPTACLES, SWITCHES, PANELBOARDS, DISCONNECTS, ETC.) WITH CIRCUIT NUMBER AND PANELBOARD DESIGNATION. RECEPTACLES, SWITCHES, AND SIMILAR DEVICES TO HAVE PRE-PRINTED, SELF ADHESIVE LABEL.
16. PANELBOARDS, DISCONNECT SWITCHES, AND SIMILAR DEVICES TO HAVE ENGRAVED, SELF-ADHESIVE, LAMINATED ACRYLIC LABEL (BLACK W/ WHITE LETTERING).
17. PROVIDE TYPE-WRITTEN PANELBOARD SCHEDULES FOR ALL ELECTRICAL PANELBOARDS.

ELECTRICAL SYMBOLS

LIGHTING FIXTURES/DEVICES

SYMBOL	DESCRIPTION	MOUNTING
A	DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING
A	DIRECTIONAL DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING
A	WALL MOUNTED LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL
A	LINEAR LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING OR SUSPENDED
A	2X4 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING
A	2X2 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING
	HATCHING ON FIXTURE INDICATES FIXTURE TO HAVE EMERGENCY BACK-UP	
EG	TWO HEAD EMERGENCY LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING
X1 X2	EMERGENCY EXIT SIGN. PROVIDE ARROW(S) AS INDICATED. SHADING INDICATES FACE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING
S	SINGLE POLE SWITCH 20A (120/277V)	WALL - 48" AFF
S_3	THREE WAY SWITCH 20A (120/277V)	WALL - 48" AFF
S_4	FOUR WAY SWITCH 20A (120/277V)	WALL - 48" AFF
H	WALL BOX DIMMER SWITCH	WALL - 48" AFF
X X	CEILING OR WALL MOUNTED OCCUPANCY SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL OR CEILING
HLC X	LOW-VOLTAGE CONTROL STATION (LETTER INDICATES CONTROL STATION TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL - 48" AFF
PC X	PHOTOCELL SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	FIELD VERIFY
PP	POWERPACK (LETTER INDICATES POWERPACK TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	ACCESSIBLE CEILING

COMMUNICATION/LOW-VOLTAGE DEVICES

SYMBOL	DESCRIPTION	MOUNTING
CR	CARD READER (VERIFY EXACT REQUIREMENTS)	
	DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	WALL - 18" AFF
	DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	FLOOR OR CEILING
TV	TELEVISION OUTLET	WALL OR CEILING
	SPEAKER OUTLET	FIELD VERIFY
TTB	TELEPHONE TERMINAL BOARD	WALL
	SECURITY CAMERA OUTLET	FIELD VERIFY
	PUSH BUTTON	

NOTE: NOT ALL SYMBOLS MAY BE USED.

POWER EQUIPMENT/DEVICES

SYMBOL	DESCRIPTION	MOUNTING
	SWITCHBOARD OR DISTRIBUTION PANEL REFER TO PANEL SCHEDULES	
	DRY-TYPE TRANSFORMER REFER TO PLANS FOR KVA RATING	
	120/208V, 3Ø, 4W PANELBOARD REFER TO PANEL SCHEDULES	
	277/480V, 3Ø, 4W PANELBOARD REFER TO PANEL SCHEDULES	
J	JUNCTION BOX	WALL OR CEILING
30/2P2T	FUSED SAFETY SWITCH (E.G. 30/2P2T INDICATES A 30A, 3-POLE SWITCH WITH 20A FUSES)	
30/NF3P	NON-FUSED SAFETY SWITCH (E.G. 30/NF3 INDICATES A 30A, 3-POLE SWITCH WITHOUT FUSES)	
SM	MOTOR RATED SWITCH	
M	MOTOR	
	NEMA 5-20R SIMPLEX RECEPTACLE	WALL - 18" AFF
	NEMA 5-20R DUPLEX RECEPTACLE	WALL - 18" AFF
	NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER	WALL - 6" ABOVE FINISHED COUNTER U.N.O.
	NEMA 5-20R QUAD-PLEX RECEPTACLE	WALL - 18" AFF
	NEMA 5-20R SPLIT RECEPTACLE. TOP OUTLET WIRED HOT. BOTTOM OUTLET SWITCHED.	WALL - 18" AFF
	SPECIAL PURPOSE RECEPTACLE REFER TO PLANS FOR NEMA CONFIGURATION	WALL - 18" AFF OR CEILING
USB	NEMA 5-20R - DUPLEX RECEPTACLE WITH USB PORTS SIMILAR TO HUBBELL #USB20ACSW	WALL - 18" AFF
	NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ON CEILING	CEILING - FLUSH
FB1	HUBBELL CFB4 SERIES FLOOR BOX (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
FB2	HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) WITH (1) DUPLEX RECEPTACLE AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
FB3	HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE VERIFY EXACT CONNECTION WITH FURNITURE VENDOR	FLOOR - FLUSH
P1	HUBBELL S1PT SERIES 4" POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
P2	HUBBELL S1PTFF SERIES 4" POKE-THRU (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE VERIFY EXACT CONNECTION WITH FURNITURE VENDOR	FLOOR - FLUSH
P3	HUBBELL S1R6 SERIES 6" POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION AND A/V CONNECTION CAPABILITY	FLOOR - FLUSH
	CONDUIT IN OR UNDER FLOOR/GRADE	
	CONDUCTOR HOME RUN - (#) HOT, (#) NUETRAL, (#) EQUIPMENT GROUND, & (#) ISOLATED GROUND	
	EQUIPMENT CONNECTION	
	CONDUIT IN CEILING OR WALL	

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RYAN BREWER
NUMBER PE-2020010758
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03/22/2024

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E101

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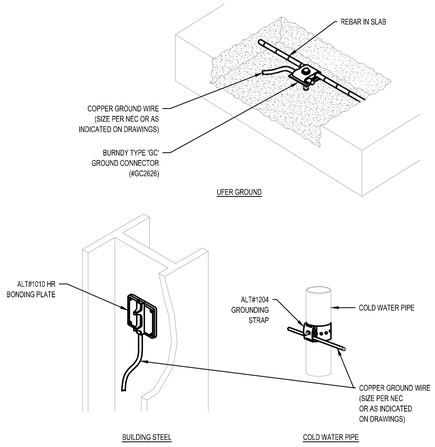
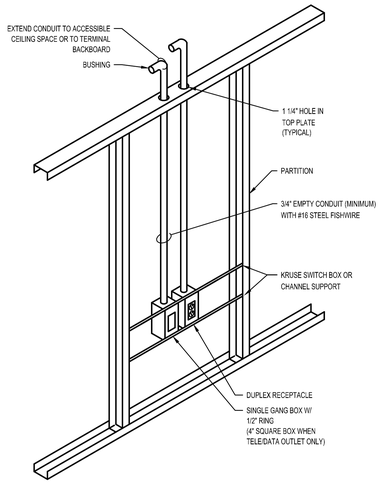
ELECTRICAL NOTES, SYMBOLS & ABBREVIATIONS



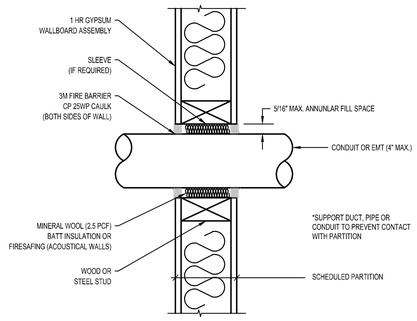
1 TYPICAL GROUND CONNECTION DETAILS

SCALE: NOT TO SCALE



2 OUTLET IN HOLLOW PARTITION

SCALE: NOT TO SCALE



3 TYPICAL FIRE RATED PENETRATION THROUGH A GYP WALL ASSEMBLY

SCALE: NOT TO SCALE

FIRE RATED PENETRATION NOTES:

-FOR UL WALL SYSTEM NO. WL1001 (FORMERLY NO. 147)
F-RATINGS - 1,2,3 & 4 HR (SEE ITEMS #2 & #3)
T RATINGS - 0,1,2,3,4 (SEET ITEM #3)
L RATING @ 400 F - LESS THAN 1 CFM/SQ. FT. (SEE ITEM #3)

1. WALL ASSEMBLY - THE 1,2,3 OR 4 HR FIRE-RATED GYPSUM WALL BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS - WALL FRAMING MAY CONSIST OR EITHER WOOD STUDS (MAX. 2 HR FIRE RATED ASSEMBLIES) OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2X4 IN. LUMBER SPACED 16 IN. O.C. WITH NOM 2X4 IN. LUMBER AND PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN. 3-3/8 IN. WIDE BY 1-3/8 IN. DEEP. CHANNELS SPACED MAX 24 IN. O.C.
   B. WALLBOARD, GYPSUM - NOM 1/2 OR 5/8 IN.THICK, 4 FT. WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD RYPS, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE R ESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 13-1/2 IN.
2. PIPE OR CONDUIT - NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER), STEEL PIPE NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT, NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR TYPE L OR (OR HEAVIER) COPPER TUBING NOM 1 IN. DIAM (OR SMALLER) FLEXIBLE STEEL CONDUIT . WHEN COPPER PIPE OR FLEXIBLE STEEL CONDUIT IS USED, MAX F RATING OF FIRESTOP SYSTEM ITEM CONSTRUCTED USING STEEL CHANNEL STUDS, A MAX OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRESTOP SYSTEM. PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.
3. FILL, VOID OR CAVITY MATERIAL - CAULK - CAULK FILL MATERIAL INSTALLED TO COMPLETELY FILL ANULAR SPACE BETWEEN PIPE OR CONDUIT AND GYPSUM WALLBOARD AND WITH A MIN 1/4 IN. DIAM BOARD OF CAULK APPLIED TO PERIMISTER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. CAULK INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE PIPE OR CONDUIT AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS TABULATED BELOW:

MAX PIPE OR CONDUIT DIAM (IN)	ANULAR SPACE (IN)	F RATING (HR)	T RATING (HR)
1	0 TO 3/16	1 OR 2	0 + 1 OR 2
1	1/4 TO 1/2	3 OR 4	3 OR 4
4	0 TO 1/4	1 OR 2	0
6	1/4 TO 1	3 OR 4	0
12	1/4 TO 1/4	1 OR 2	0

*WHEN COPPER PIPE IS USED, T RATING IS 0 NOM.
MINNESOTA MINING & MFG. CO - TYPES CP-25 S/L, CP-25 N/8, CP-25 WS, CP-25 WS+ (NOTE: L RATINGS APPLY WHEN TYPE CP-25 WS+ CAULK IS USED.

4 FIRE RATED PENETRATION NOTES

SCALE: NOT TO SCALE

5 BACK-TO-BACK BOX ARRANGEMENT FOR NOISE CONTROL

SCALE: NOT TO SCALE

6 TYPICAL RECESSED DOWNLIGHT FIXTURE DETAIL

SCALE: NOT TO SCALE

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NUMBER PE-2020013759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

E102

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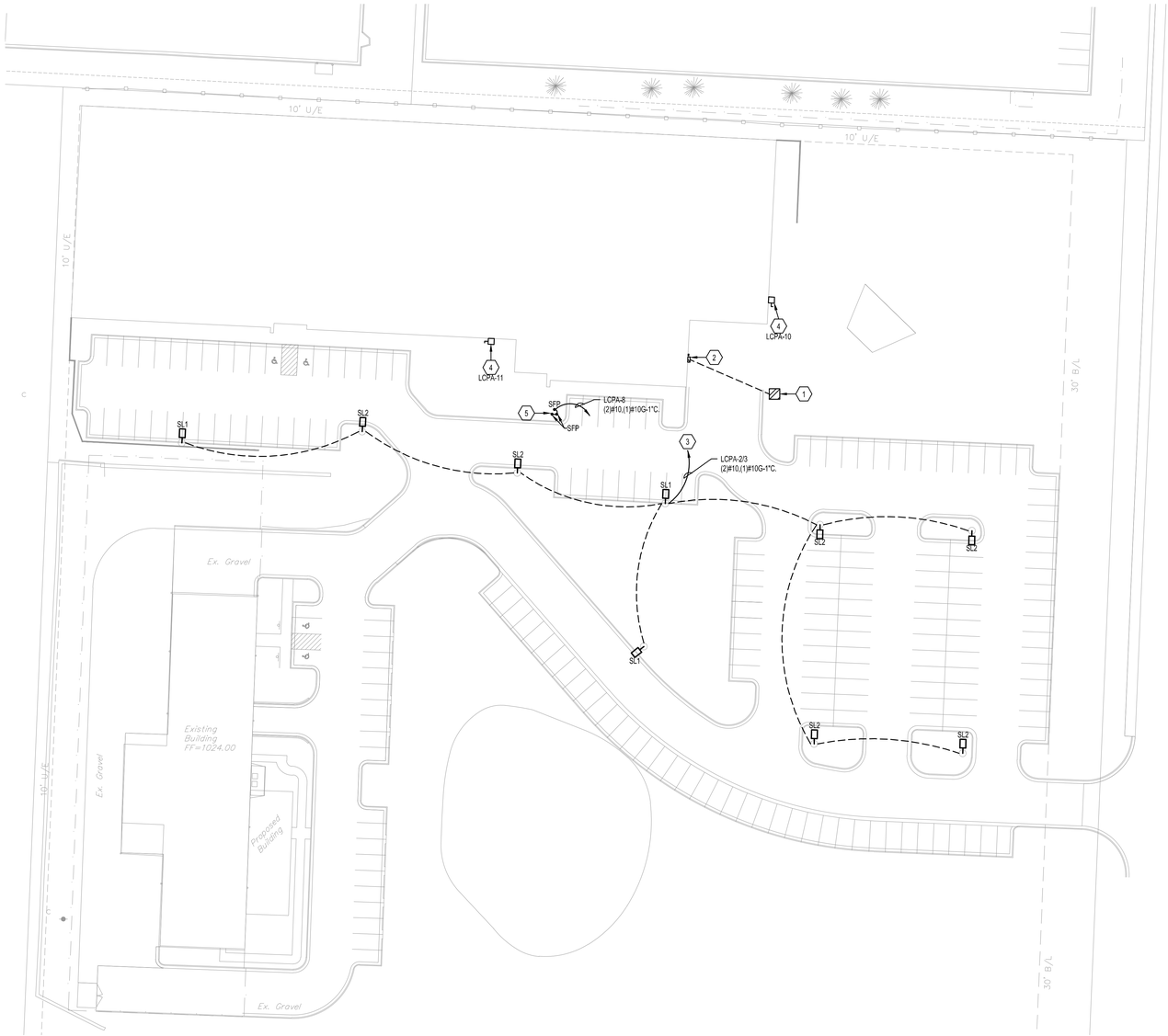
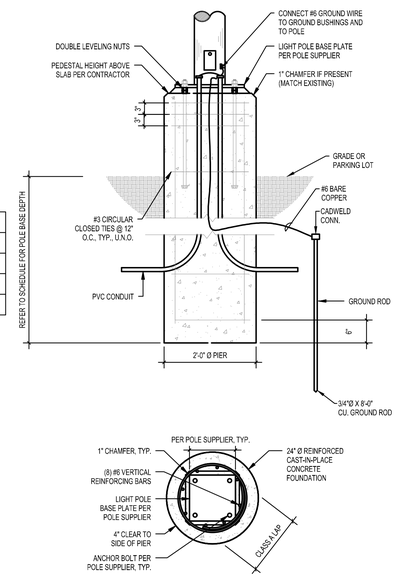
ELECTRICAL DETAILS



1 ELECTRICAL SITE PLAN

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

POLE BASE DEPTH	
POLE HEIGHT	POLE DEPTH
20' AND UNDER	6'-0" DEEP
OVER 20' TO 30'	8'-0" DEEP
OVER 30' TO 50'	12'-0" DEEP



2 LIGHT POLE BASE DETAIL

SCALE: NO SCALE

KEYED NOTES:

1. APPROXIMATE LOCATION OF UTILITY CO. PAD MOUNTED TRANSFORMER. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION.
2. UTILITY CO. CT CABINET AND METER. REFER TO SHEET E401 FOR ADDITIONAL INFORMATION.
3. LIGHTING CONTROL INTENT FOR EXTERIOR LIGHTING IS FOR FIXTURES TO BE 'ON'/OFF' VIA TIME-OF-DAY SCHEDULE WITH PHOTOCELL OVERRIDE.
4. PROVIDE NEMA 3R, LOCKABLE DISCONNECT SWITCH FOR EXTERIOR SIGNAGE. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
5. IN-GRADE FIXTURES MOUNTED AROUND FLAG POLE BASE. FIELD VERIFY EXACT FIXTURE LOCATION PRIOR TO ROUGH-IN.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFERENCE SHEET E102 FOR ELECTRICAL DETAILS.
3. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.

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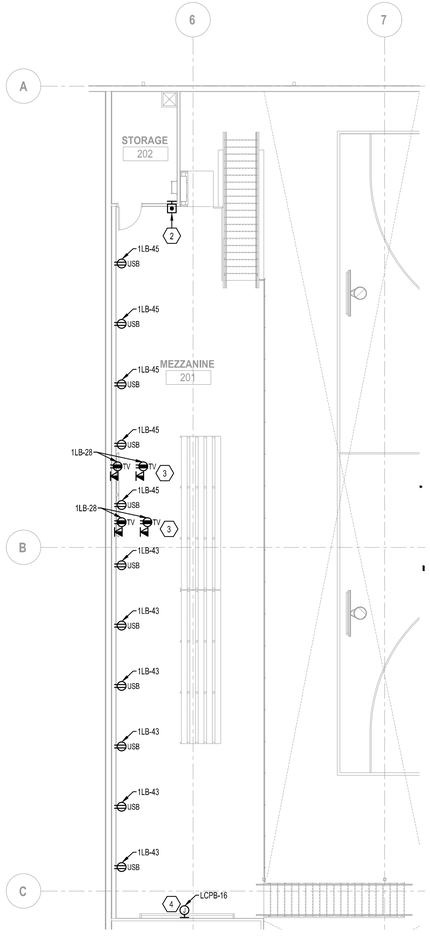
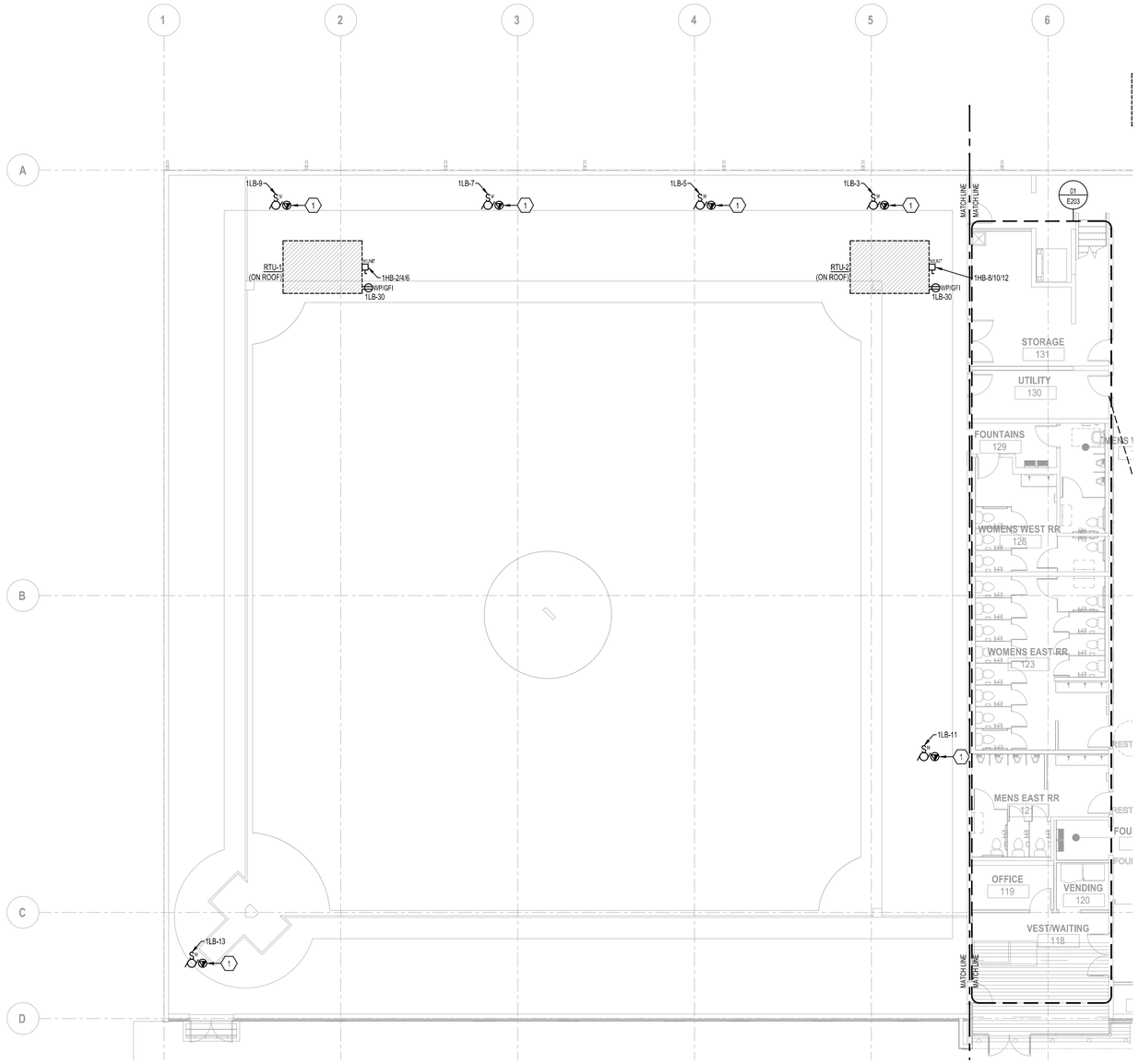
ELECTRICAL SITE PLAN



2 MEZZANINE POWER PLAN

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



1 PARTIAL POWER PLAN

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

KEYED NOTES:

1. POWER AND DATA CONNECTION FOR OVERHEAD EQUIPMENT MOTOR. FIELD VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. ROUTE DATA LINE BACK TO OVERHEAD EQUIPMENT CONTROL PANEL AS REQUIRED.
2. CONTROLS FOR ADA LIFT. FIELD VERIFY EXACT CONNECTION REQUIREMENTS AND LOCATION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
3. POWER AND DATA FOR TV. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
4. POWER FOR ILLUMINATED SIGNAGE. FIELD VERIFY EXACT CONNECTION PRIOR TO ROUGH-IN.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFERENCE SHEET E102 FOR ELECTRICAL DETAILS.
3. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.

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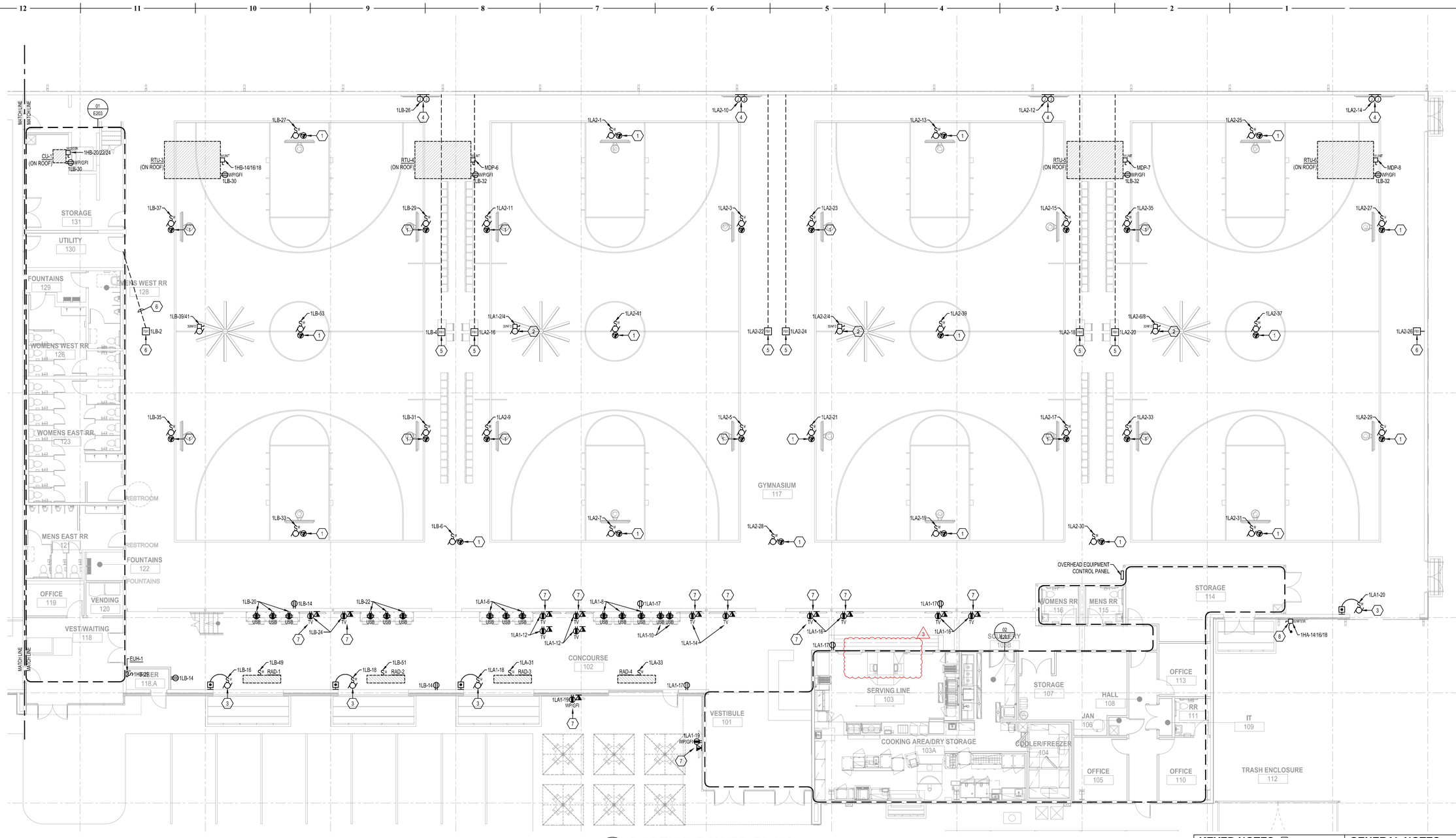
PARTIAL POWER PLAN



1 PARTIAL POWER PLAN

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

KEYED NOTES:

1. POWER AND DATA CONNECTION FOR OVERHEAD EQUIPMENT MOTOR. FIELD VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. ROUTE DATA LINE BACK TO OVERHEAD EQUIPMENT CONTROL PANEL AS REQUIRED.
2. POWER FOR HVLS FAN. FIELD VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. COORDINATE HVLS FAN CONTROL LOCATION WITH OWNER AND PROVIDE ALL LINE/LOW-VOLTAGE WIRING AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
3. POWER FOR OVERHEAD DOOR. FIELD VERIFY EXACT CONNECTION REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. COORDINATE DOOR CONTROL LOCATION WITH OWNER AND PROVIDE ALL LINE/LOW-VOLTAGE WIRING AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
4. POWER AND DATA CONNECTION FOR SCOREBOARD. FIELD VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
5. FLOOR BOX FOR POWER/DATA AT SCORER'S TABLE. PROVIDE (1) 1" CONDUIT FOR POWER AND (1) 1-1/4" CONDUIT FOR DATA. ROUTE DATA CONDUIT TO SCOREBOARD LOCATION AS REQUIRED. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
6. FLOOR BOX FOR CONVENIENCE POWER. PROVIDE (1) 1" CONDUIT FOR POWER AND (1) 1-1/4" CONDUIT FOR DATA FROM NEAREST WALL AS REQUIRED. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
7. POWER AND DATA FOR TV. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
8. POWER FOR TRASH COMPACTOR. FIELD VERIFY EXACT CONNECTION REQUIREMENTS AND LOCATION PRIOR TO ROUGH-IN.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFERENCE SHEET E102 FOR ELECTRICAL DETAILS.
3. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.

PARTIAL POWER PLAN

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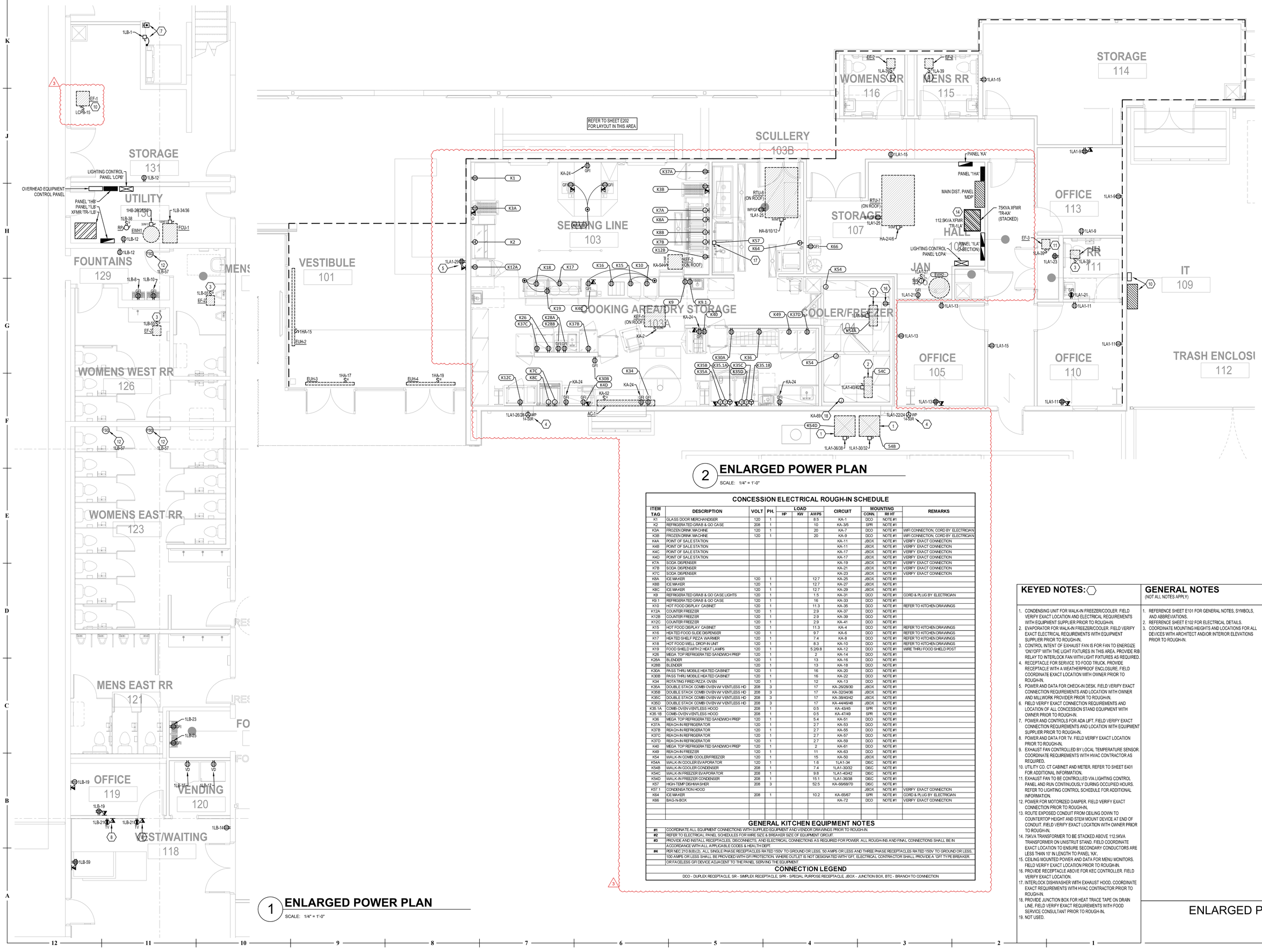

1 ENLARGED POWER PLAN

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

2 ENLARGED POWER PLAN

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

CONCESSION ELECTRICAL ROUGH-IN SCHEDULE

ITEM TAG	DESCRIPTION	VOLT	PH.	LOAD HP	LOAD KW	LOAD AMPS	CIRCUIT	MOUNTING CONN.	MOUNTING RR HT	REMARKS
K1	GLASS DOOR MERCHANDISER	120	1			8.5	KA-1	DCO	NOTE #1	
K2	REFRIGERATED GRAB & GO CASE	208	1			10	KA-3/5	SPR	NOTE #1	
K3A	FROZEN DRINK MACHINE	120	1			20	KA-7	DCO	NOTE #1	WIFI CONNECTION, CORD BY ELECTRICIAN
K3B	FROZEN DRINK MACHINE	120	1			20	KA-9	DCO	NOTE #1	WIFI CONNECTION, CORD BY ELECTRICIAN
K4A	POINT OF SALE STATION						KA-11	JBOX	NOTE #1	VERIFY EXACT CONNECTION
K4B	POINT OF SALE STATION						KA-11	JBOX	NOTE #1	VERIFY EXACT CONNECTION
K4C	POINT OF SALE STATION						KA-17	JBOX	NOTE #1	VERIFY EXACT CONNECTION
K4D	POINT OF SALE STATION						KA-17	JBOX	NOTE #1	VERIFY EXACT CONNECTION
K7A	SODA DISPENSER						KA-19	JBOX	NOTE #1	VERIFY EXACT CONNECTION
K7B	SODA DISPENSER						KA-21	JBOX	NOTE #1	VERIFY EXACT CONNECTION
K7C	SODA DISPENSER						KA-23	JBOX	NOTE #1	VERIFY EXACT CONNECTION
K8A	ICE MAKER	120	1			12.7	KA-25	JBOX	NOTE #1	
K8B	ICE MAKER	120	1			12.7	KA-27	JBOX	NOTE #1	
K8C	ICE MAKER	120	1			12.7	KA-29	JBOX	NOTE #1	
K9	REFRIGERATED GRAB & GO CASE LIGHTS	120	1			1.5	KA-31	DCO	NOTE #1	CORD & PLUG BY ELECTRICIAN
K9.1	REFRIGERATED GRAB & GO CASE	120	1			16	KA-33	DCO	NOTE #1	
K10	HOT FOOD DISPLAY CABINET	120	1			11.3	KA-35	DCO	NOTE #1	REFER TO KITCHEN DRAWINGS
K12A	COUNTER FREEZER	120	1			2.9	KA-37	DCO	NOTE #1	
K12B	COUNTER FREEZER	120	1			2.9	KA-39	DCO	NOTE #1	
K12C	COUNTER FREEZER	120	1			2.9	KA-41	DCO	NOTE #1	
K15	HOT FOOD DISPLAY CABINET	120	1			11.3	KA-4	DCO	NOTE #1	REFER TO KITCHEN DRAWINGS
K16	HEATED FOOD SLIDE DISPENSER	120	1			9.7	KA-6	DCO	NOTE #1	REFER TO KITCHEN DRAWINGS
K17	HEATED SHELF PIZZA WARMER	120	1			7.4	KA-8	DCO	NOTE #1	REFER TO KITCHEN DRAWINGS
K18	HOT FOOD WELL DROP-IN UNIT	120	1			8.3	KA-10	DCO	NOTE #1	REFER TO KITCHEN DRAWINGS
K19	FOOD SHIELD WITH 2 HEAT LAMPS	120	1			5.2/9.8	KA-12	DCO	NOTE #1	WIRE THRU FOOD SHIELD POST
K26	MEGA TOP REFRIGERATED SANDWICH PREP	120	1			2	KA-14	DCO	NOTE #1	
K28A	BLENDER	120	1			13	KA-16	DCO	NOTE #1	
K28B	BLENDER	120	1			13	KA-18	DCO	NOTE #1	
K30A	PASS THRU MOBILE HEATED CABINET	120	1			16	KA-20	DCO	NOTE #1	
K30B	PASS THRU MOBILE HEATED CABINET	120	1			16	KA-22	DCO	NOTE #1	
K34	ROTATING FIRED PIZZA OVEN	120	1			12	KA-13	DCO	NOTE #1	
K35A	DOUBLE STACK COMBI OVEN W/ VENTLESS HD	208	3			17	KA-26/28/30	JBOX	NOTE #1	
K35B	DOUBLE STACK COMBI OVEN W/ VENTLESS HD	208	3			17	KA-32/34/36	JBOX	NOTE #1	
K35C	DOUBLE STACK COMBI OVEN W/ VENTLESS HD	208	3			17	KA-38/40/42	JBOX	NOTE #1	
K35D	DOUBLE STACK COMBI OVEN W/ VENTLESS HD	208	3			17	KA-44/46/48	JBOX	NOTE #1	
K35.1A	COMBI-OVEN VENTLESS HOOD	208	1			0.5	KA-43/45	SPR	NOTE #1	
K35.1B	COMBI-OVEN VENTLESS HOOD	208	1			0.5	KA-47/49	SPR	NOTE #1	
K36	MEGA TOP REFRIGERATED SANDWICH PREP	120	1			5.4	KA-51	DCO	NOTE #1	
K37A	REACH-IN REFRIGERATOR	120	1			2.7	KA-53	DCO	NOTE #1	
K37B	REACH-IN REFRIGERATOR	120	1			2.7	KA-55	DCO	NOTE #1	
K37C	REACH-IN REFRIGERATOR	120	1			2.7	KA-57	DCO	NOTE #1	
K37D	REACH-IN REFRIGERATOR	120	1			2.7	KA-59	DCO	NOTE #1	
K40	MEGA TOP REFRIGERATED SANDWICH PREP	120	1			2	KA-61	DCO	NOTE #1	
K49	REACH-IN FREEZER	120	1			11	KA-63	DCO	NOTE #1	
K54	WALK-IN COMBI COOLER/FREEZER	120	1			15	KA-50	JBOX	NOTE #1	
K54A	WALK-IN COOLER EVAPORATOR	120	1			1.6	1LA1-34	DISC	NOTE #1	
K54B	WALK-IN COOLER CONDENSER	208	1			7.4	1LA1-30/32	DISC	NOTE #1	
K54C	WALK-IN FREEZER EVAPORATOR	208	1			9.8	1LA1-40/42	DISC	NOTE #1	
K54D	WALK-IN FREEZER CONDENSER	208	1			15.1	1LA1-36/38	DISC	NOTE #1	
K57	HIGH-TEMP DISHWASHER	208	3			52.5	KA-65/67/70	DISC	NOTE #1	
K57.1	CONDENSATION HOOD							JBOX	NOTE #1	VERIFY EXACT CONNECTION
K64	ICE MAKER	208	1			10.2	KA-65/67	SPR	NOTE #1	CORD & PLUG BY ELECTRICIAN
K66	BAG-N-BOX						KA-72	DCO	NOTE #1	VERIFY EXACT CONNECTION

GENERAL KITCHEN EQUIPMENT NOTES

#1	COORDINATE ALL EQUIPMENT CONNECTIONS WITH SUPPLIED EQUIPMENT AND VENDOR DRAWINGS PRIOR TO ROUGH-IN
#2	REFER TO ELECTRICAL PANEL SCHEDULES FOR WIRE SIZE & BREAKER SIZE OF EQUIPMENT CIRCUIT
#3	PROVIDE AND INSTALL RECEPTACLES, DISCONNECTS, AND ELECTRICAL CONNECTIONS AS REQUIRED FOR POWER ALL ROUGH-INS AND FINAL CONNECTIONS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES & HEALTH DEPT.
#4	PER NEC 210.8(B)(2), ALL SINGLE PHASE RECEPTACLES RATED 150V TO GROUND OR LESS, 50 AMPS OR LESS AND THREE PHASE RECEPTACLES RATED 150V TO GROUND OR LESS, 100 AMPS OR LESS SHALL BE PROVIDED WITH GFI PROTECTION. WHERE OUTLET IS NOT DESIGNATED WITH 'GFI', ELECTRICAL CONTRACTOR SHALL PROVIDE A 'GFI' TYPE BREAKER OR FACELESS GFI DEVICE ADJACENT TO THE PANEL SERVING THE EQUIPMENT.

CONNECTION LEGEND

DCO - DUPLEX RECEPTACLE, SR - SIMPLEX RECEPTACLE, SPR - SPECIAL PURPOSE RECEPTACLE, JBOX - JUNCTION BOX, BTC - BRANCH TO CONNECTION

KEYED NOTES:

1. CONDENSING UNIT FOR WALK-IN FREEZER/COOLER. FIELD VERIFY EXACT LOCATION AND ELECTRICAL REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
2. EVAPORATOR FOR WALK-IN FREEZER/COOLER. FIELD VERIFY EXACT ELECTRICAL REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
3. CONTROL INTENT OF EXHAUST FAN IS FOR FAN TO ENERGIZE 'ON'/'OFF' WITH THE LIGHT FIXTURES IN THIS AREA. PROVIDE RIB RELAY TO INTERLOCK FAN WITH LIGHT FIXTURES AS REQUIRED.
4. RECEPTACLE FOR SERVICE TO FOOD TRUCK. PROVIDE RECEPTACLE WITH A WEATHERPROOF ENCLOSURE. FIELD COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
5. POWER AND DATA FOR CHECK-IN DESK. FIELD VERIFY EXACT CONNECTION REQUIREMENTS AND LOCATION WITH OWNER AND MILLWORK PROVIDER PRIOR TO ROUGH-IN.
6. FIELD VERIFY EXACT CONNECTION REQUIREMENTS AND LOCATION OF ALL CONCESSION STAND EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN.
7. POWER AND CONTROLS FOR ADA LIFT. FIELD VERIFY EXACT CONNECTION REQUIREMENTS AND LOCATION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
8. POWER AND DATA FOR TV. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
9. EXHAUST FAN CONTROLLED BY LOCAL TEMPERATURE SENSOR. COORDINATE REQUIREMENTS WITH HVAC CONTRACTOR AS REQUIRED.
10. UTILITY CO. CT CABINET AND METER. REFER TO SHEET E401 FOR ADDITIONAL INFORMATION.
11. EXHAUST FAN TO BE CONTROLLED VIA LIGHTING CONTROL PANEL AND RUN CONTINUOUSLY DURING OCCUPIED HOURS. REFER TO LIGHTING CONTROL SCHEDULE FOR ADDITIONAL INFORMATION.
12. POWER FOR MOTORIZED DAMPER. FIELD VERIFY EXACT CONNECTION PRIOR TO ROUGH-IN.
13. ROUTE EXPOSED CONDUIT FROM CEILING DOWN TO COUNTERTOP HEIGHT AND STEM MOUNT DEVICE AT END OF CONDUIT. FIELD VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
14. 75KVA TRANSFORMER TO BE STACKED ABOVE 112.5KVA TRANSFORMER ON UNISTRUT STAND. FIELD COORDINATE EXACT LOCATION TO ENSURE SECONDARY CONDUCTORS ARE LESS THAN 10' IN LENGTH TO PANEL 'KA'.
15. CEILING MOUNTED POWER AND DATA FOR MENU MONITORS. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
16. PROVIDE RECEPTACLE ABOVE FOR KEC CONTROLLER. FIELD VERIFY EXACT LOCATION.
17. INTERLOCK DISHWASHER WITH EXHAUST HOOD. COORDINATE EXACT REQUIREMENTS WITH HVAC CONTRACTOR PRIOR TO ROUGH-IN.
18. PROVIDE JUNCTION BOX FOR HEAT TRACE TAPE ON DRAIN LINE. FIELD VERIFY EXACT REQUIREMENTS WITH FOOD SERVICE CONSULTANT PRIOR TO ROUGH-IN.
19. NOT USED.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFERENCE SHEET E102 FOR ELECTRICAL DETAILS.
3. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.

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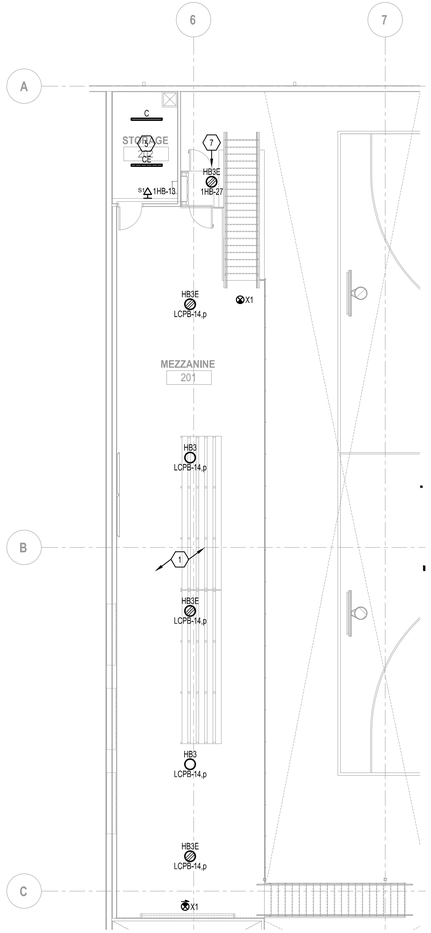
3 CITY COMMENTS 03/22/24 AND OWNER REV.

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010758
PROFESSIONAL ENGINEER
03/22/2024
PROFESSIONAL SEAL

E203

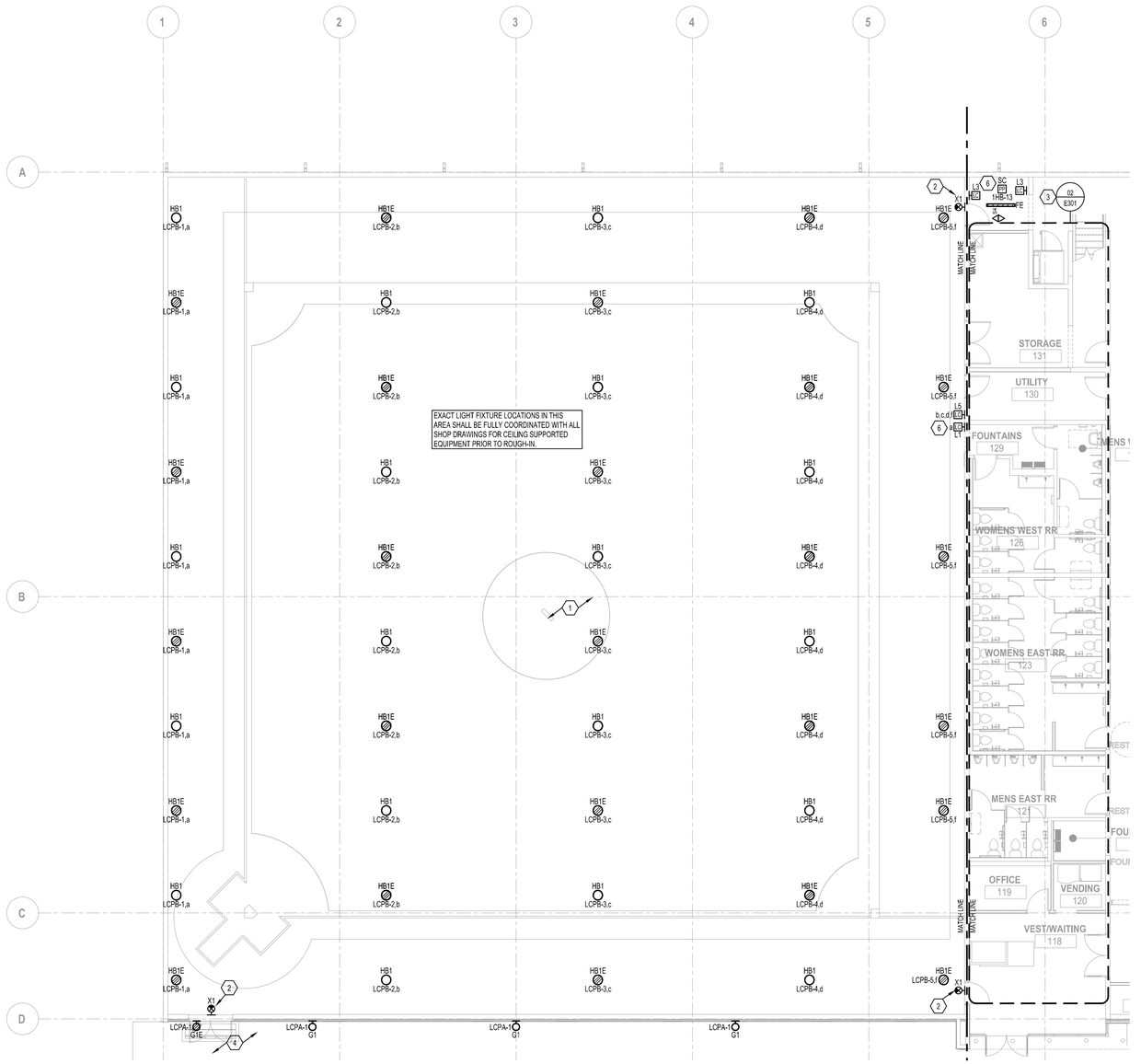
ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ENLARGED POWER PLANS



2 MEZZANINE LIGHTING PLAN

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



1 PARTIAL LIGHTING PLAN

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

KEYED NOTES:

1. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE 'ON'/OFF' VIA TIME-OF-DAY SCHEDULE WITH MANUAL OVERRIDE AVAILABLE VIA THE LOW-VOLTAGE CONTROL STATION.
2. PROVIDE WIREGUARD FOR EXIT SIGN IN THIS AREA.
3. REFER TO THIS DETAIL FOR MEZZINE LIGHTING LAYOUT ABOVE THIS AREA.
4. LIGHTING CONTROL INTENT FOR EXTERIOR LIGHTING IS FOR FIXTURES TO BE 'ON'/OFF' VIA TIME-OF-DAY SCHEDULE WITH PHOTOCELL OVERRIDE.
5. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE MANUAL 'ON'/AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE AVAILABLE VIA OCCUPANCY SENSOR SWITCH.
6. MANUAL OVERRIDE SWITCHES FOR BASEBALL AREA LIGHTING. FIELD VERIFY EXACT LOCATION OF OVERRIDE SWITCHES WITH OWNER PRIOR TO ROUGH-IN. IF LOCATED WITHIN BASEBALL AREA, PROVIDE IMPACT RESISTANT COVER AS NECESSARY.
7. FIXTURE TO BE WIRED 'HOT' AND REMAIN 'ON' 24/7.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFERENCE SHEET E102 FOR ELECTRICAL DETAILS.
3. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
4. CIRCUIT ALL EXIT SIGNS TO NEAREST EMERGENCY LIGHTING CIRCUIT (OR NEAREST LIGHTING CIRCUIT IF NO GENERATOR).

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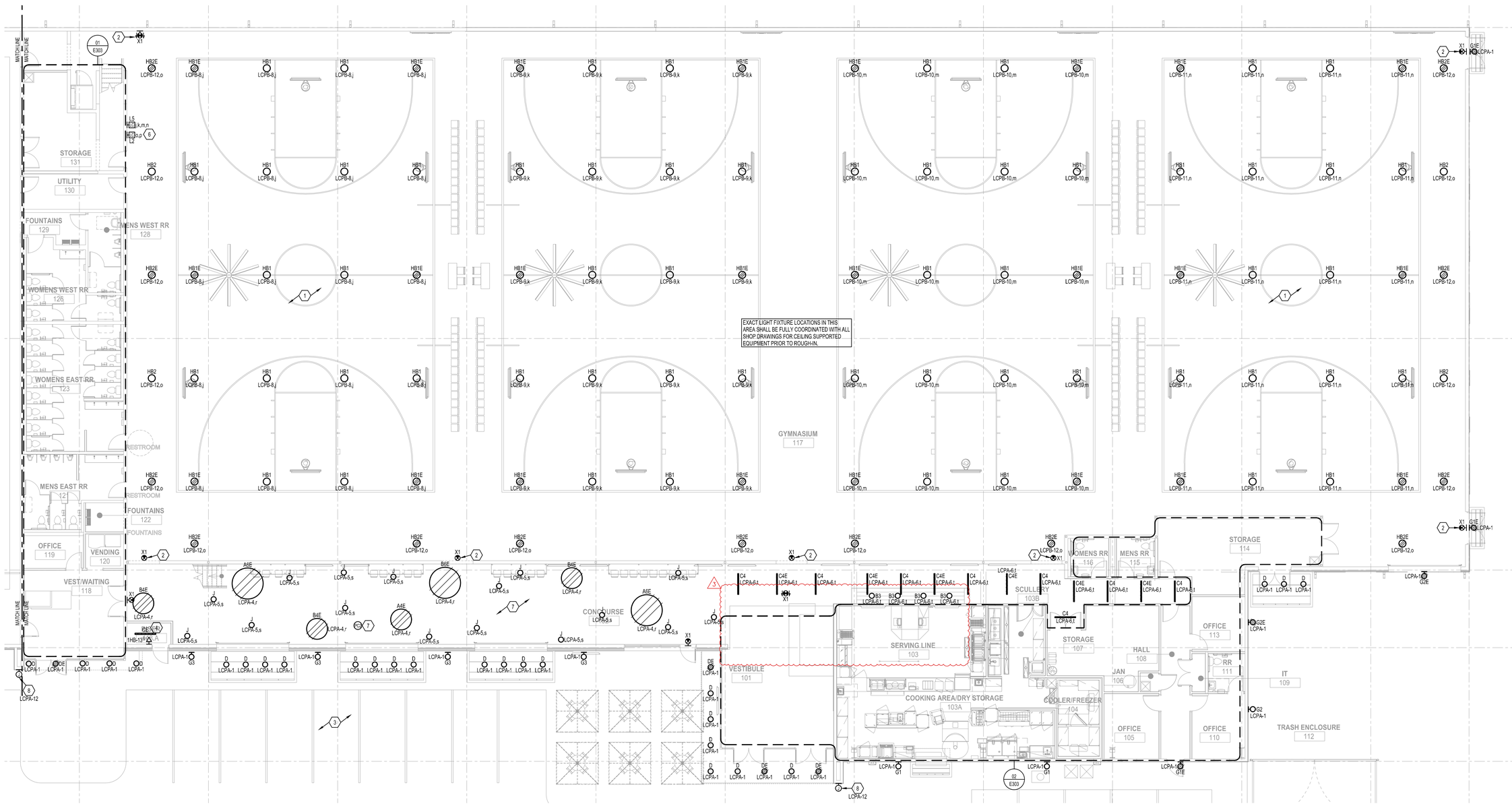
STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2009019759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

E301

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

PARTIAL LIGHTING PLAN



1 PARTIAL LIGHTING PLAN

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

KEYED NOTES:

1. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE 'ON'/'OFF' VIA TIME-OF-DAY SCHEDULE WITH MANUAL OVERRIDE AVAILABLE VIA THE LOW-VOLTAGE CONTROL STATION.
2. PROVIDE WIREGUARD FOR EXIT SIGN IN THIS AREA.
3. LIGHTING CONTROL INTENT FOR EXTERIOR LIGHTING IS FOR FIXTURES TO BE 'ON'/'OFF' VIA TIME-OF-DAY SCHEDULE WITH PHOTOCELL OVERRIDE.
4. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE AUTO 'ON'/AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE AVAILABLE VIA OCCUPANCY SENSOR SWITCH.
5. MANUAL OVERRIDE SWITCHES FOR BASKETBALL AREA LIGHTING. FIELD VERIFY EXACT LOCATION OF OVERRIDE SWITCHES WITH OWNER PRIOR TO ROUGH-IN. IF LOCATED WITHIN BASEBALL AREA, PROVIDE IMPACT RESISTANT COVER AS NECESSARY.
6. MANUAL OVERRIDE SWITCHES FOR BASKETBALL AREA LIGHTING. FIELD VERIFY EXACT LOCATION OF OVERRIDE SWITCHES WITH OWNER PRIOR TO ROUGH-IN. IF LOCATED WITHIN BASKETBALL AREA, PROVIDE IMPACT RESISTANT COVER AS NECESSARY.
7. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE 'ON'/'OFF' VIA TIME-OF-DAY SCHEDULE WITH MANUAL OVERRIDE AVAILABLE VIA THE LOW-VOLTAGE CONTROL STATION. FIXTURES IN THIS AREA SHALL AUTOMATICALLY DIM UP/DOWN VIA DIMMING PHOTOCELL TO MAINTAIN THE DESIRED FOOTCANDLE LEVEL. INSTALL DIMMING PHOTOCELL IN SPACE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
8. POWER FOR LED BACKLIT LETTERING. FIELD VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS WITH OWNER PRIOR TO ROUGH-IN.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFERENCE SHEET E102 FOR ELECTRICAL DETAILS.
3. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
4. CIRCUIT ALL EXIT SIGNS TO NEAREST EMERGENCY LIGHTING CIRCUIT (OR NEAREST LIGHTING CIRCUIT IF NO GENERATOR).

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1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS AND OWNER REV. 03/22/24

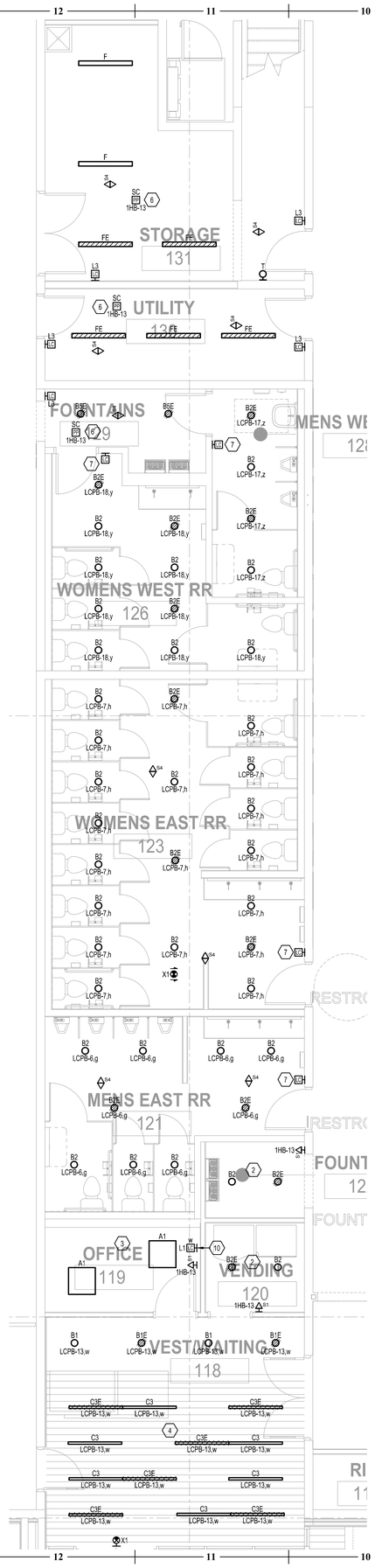
STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2009019759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

E302

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

PARTIAL LIGHTING PLAN



2 ENLARGED LIGHTING PLAN

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

1 ENLARGED LIGHTING PLAN

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

KEYED NOTES:

1. LIGHTING IN THIS AREA IS INTEGRAL TO WALK-IN COOLER UNIT.
2. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE AUTO 'ON'/AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE AVAILABLE VIA THE OCCUPANCY SENSOR SWITCH.
3. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE MANUAL 'ON'/AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE AVAILABLE VIA OCCUPANCY SENSOR SWITCH.
4. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE 'ON'/'OFF' VIA TIME-OF-DAY SCHEDULE WITH MANUAL OVERRIDE AVAILABLE VIA THE LOW-VOLTAGE CONTROL STATION.
5. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE MANUAL 'ON'/AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE AVAILABLE VIA THE LOW-VOLTAGE CONTROL STATION.
6. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE AUTO 'ON'/AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE AVAILABLE VIA THE LOW-VOLTAGE CONTROL STATION.
7. LIGHTING CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE 'ON'/'OFF' VIA TIME-OF-DAY SCHEDULE. AFTER HOURS FIXTURES SHALL BE AUTO 'ON'/AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE AVAILABLE VIA THE LOW-VOLTAGE CONTROL STATION.
8. MANUAL OVERRIDE SWITCHES FOR CONCOURSE AREA LIGHTING. FIELD VERIFY EXACT LOCATION OF OVERRIDE SWITCHES WITH OWNER PRIOR TO ROUGH-IN.
9. PROVIDE nLIGHT BRIDGE TO CONNECT LIGHTING CONTROL PANELS AND DEVICES AS REQUIRED. VERIFY EXACT REQUIREMENTS WITH MANUFACTURER PRIOR TO ORDERING.
10. MANUAL OVERRIDE SWITCH FOR VESTIBULE LIGHTING. FIELD VERIFY EXACT LOCATION OF OVERRIDE SWITCHES WITH OWNER PRIOR TO ROUGH-IN.
11. MOUNT PHOTOCELL ON ROOF PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
12. POWER FOR OWNER SIGNAGE. FIELD VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS PRIOR TO ROUGH-IN.
13. MANUAL OVERRIDE SWITCH FOR SERVING AREA LIGHTING, FIELD VERIFY EXACT LOCATION OF OVERRIDE SWITCH WITH OWNER PRIOR TO ROUGH-IN.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFERENCE SHEET E102 FOR ELECTRICAL DETAILS.
3. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
4. CIRCUIT ALL EXIT SIGNS TO NEAREST EMERGENCY LIGHTING CIRCUIT (OR NEAREST LIGHTING CIRCUIT IF NO GENERATOR).

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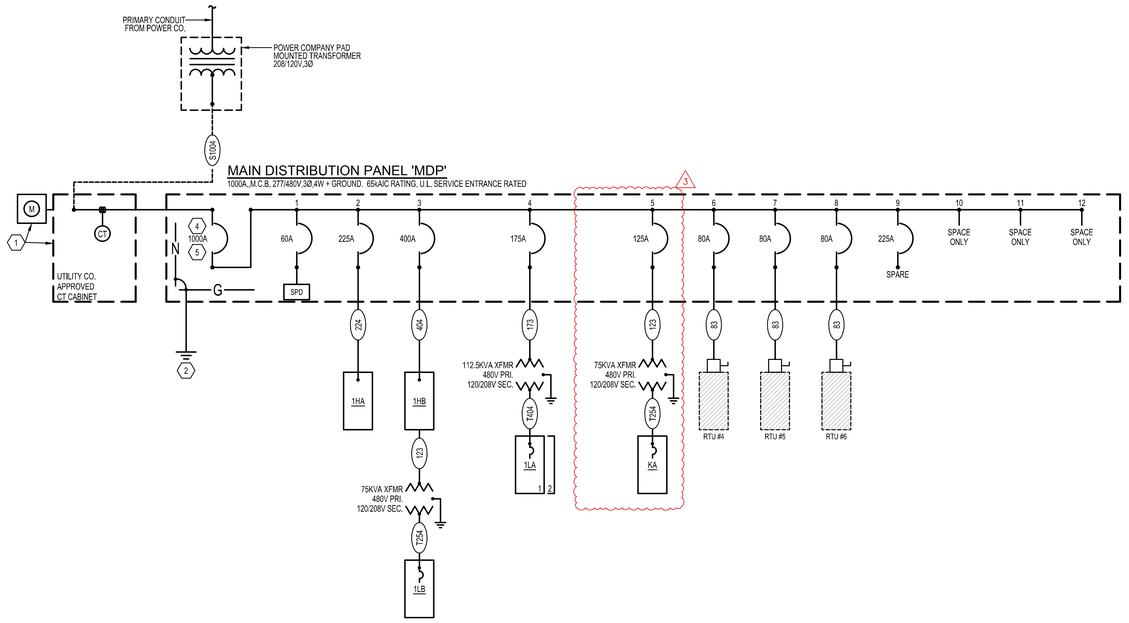
STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020019759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

E303

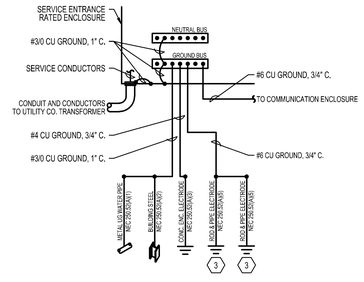
ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ENLARGED LIGHTING PLANS



1 ELECTRICAL ONE-LINE DIAGRAM

SCALE: NO SCALE



2 SERVICE GROUNDING DETAIL

SCALE: NO SCALE

FEEDER SCHEDULE

THHN/THWN COPPER CONDUCTORS W/ EG CONDUCTOR
XHHW ALUMINUM CONDUCTORS W/ EG CONDUCTOR

CONDUCTORS & GROUND				AMPS
CODE	SETS	CONDUCTORS	RACEWAY	
83	-	3#4,1#8G. (CU)	1"	85
123	-	3#1,1#6G. (CU)	1-1/2"	130
173	-	3#2/0,1#6G. (CU)	2"	175
224	-	4#4/0,1#4G. (CU)	2-1/2"	230
404	2	4#3/0,1#3G. (CU)	2"	400
T154	-	4#2/0,1#4G. (CU)	2"	175
T254	-	4#300KCM,1#2G. (CU)	3"	285
T404	2	4#4/0,1#1/0G. (CU)	2-1/2"	460
S1004	3	4#400KCM (CU)	3"	1005

NOTES:
1. ALL CONDUCTORS AMPACITY BASED ON THE NEC TABLE 310-16 FOR CONDUCTORS W/ 75°C INSULATION.
2. ALL RACEWAY SIZES (EMT/RMC/PVC 40) BASED ON THE NEC TABLE 4(CHAPTER 9), 40% FILL COLUMN.
3. ELECTRICAL CONTRACTOR TO VERIFY ALL EQUIPMENT CONDUCTOR TERMINATION TEMPERATURE RATINGS (IE. 60°C OR 75°C). ADJUST CONDUCTOR AMPACITY AND CONDUIT SIZES ACCORDINGLY.
4. VERIFY MAXIMUM NO. OF SETS OF SERVICE ENTRANCE CONDUCTORS ALLOWED W/ UTILITY CO.
5. EQUIPMENT GROUNDING CONDUCTORS BASED ON T250.122. GROUND TO BE ADJUSTED PER T250.66 FOR SEPARATELY DERIVED SYSTEMS.
6. ALUMINUM FEEDERS NOT TO BE USED ON TRANSFORMER SECONDARY CONDUCTORS.

VOLTAGE DROP CHART

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR 12 CIRCUITS

BRANCH CIRCUIT RATING (AMPS)	WIRE SIZE (AWG)	MAXIMUM LENGTH OF BRANCH CIRCUIT (FEET)				
		120V	208V	240V	277V	480V
20A	#12	50	90	110	125	200
	#10	80	150	175	200	350
	#8	140	230	280	320	550
	#6	215	375	430	500	870
30A	#10	50	100	110	130	225
	#8	80	160	180	210	360
	#6	135	250	280	325	560
	#4	220	400	450	525	910

NOTES:
1. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
2. CONDUCTOR SIZES ARE BASED ON SOLID COPPER CONDUCTORS FOR WIRES SMALLER THAN #6 AND STRANDED COPPER CONDUCTORS FOR WIRES #6 AND LARGER, IN A SINGLE METAL CONDUIT.
3. LIMITS FOR CONDUCTOR LENGTH SHOWN ARE BASED ON A MAXIMUM OF 3% VOLTAGE DROP TO COMPLY WITH THE NEC FOR CIRCUITS LOADED UP TO 80% OF THE BRANCH BREAKER RATING. FIELD VERIFY EXACT BRANCH CIRCUIT LENGTHS AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

UNLESS NOTED OTHERWISE, WIRE SIZES CALLED OUT IN PANEL SCHEDULES DO NOT ACCOUNT FOR VOLTAGE DROP. CONTRACTOR SHALL INCREASE WIRE SIZES AS REQUIRED UTILIZING VOLTAGE DROP TABLE PROVIDED.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E1.01 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
3. FIELD VERIFY ALL ELECTRICAL WORK WITH OWNER PRIOR TO START OF PROJECT.

KEYED NOTES:

1. PROVIDE UTILITY METER AND CT CABINET PER UTILITY COMPANY STANDARDS. INSTALLATION SHALL MEET ALL UTILITY COMPANY REQUIREMENTS AND LOCAL CODES.
2. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.
3. REFER TO NEC 250.53 FOR ADDITIONAL INFORMATION.
4. MAIN BREAKER TO HAVE AN 'LSIG' (LONG TIME, SHORT TIME, INSTANTANEOUS AND GROUND FAULT) TRIP UNIT.
5. PROVIDE ARC ENERGY REDUCTION MAINTENANCE SWITCH AS REQUIRED PER NEC 240.87.

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STATE OF MISSOURI — RYAN BREWER — NUMBER PE-2010010768 — PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

E401

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ELECTRICAL ONE-LINE DIAGRAM & SCHEDULES

PANEL 1LA (SECT. 1)

VOLTAGE/PHASE: **208Y/120V, 3PH, 4W**
BUS AMPERAGE: **400A**
MAIN TYPE: **400A MCB**

AFC VALUE: **5,695A**
AIC RATING: **10,000A**
MOUNTING: **SURFACE (NEMA 1)**

GROUNDS: **EG (PER T250.66)**
ISOLATED GROUND BUS: **NO**
SERVICE ENTRANCE RATED: **NO**

ALL LOADS IN VA

	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	P	WIRE	CKT #	PHASE	CKT #	WIRE	P	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	
									SPARE	20	1		1	A	2	12	2	20	HVLS FAN #3			447						
									SPARE	20	1		3	B	4							447						
									SPARE	20	1		5	C	6	12	1	20	CONC. CNTR #3 QUADS		1080							
									SPARE	20	1		7	A	8	12	1	20	CONC. CNTR #4 QUADS		1080							
		540							OFFICE 113 RCPTS	20	1	12	9	B	10	12	1	20	CONC. CNTR #5 QUADS		720							
		540							OFFICE 110 RCPTS	20	1	12	11	C	12	12	1	20	CONC. CT#3 TV'S		720							
		540							OFFICE 105 RCPTS	20	1	12	13	A	14	12	1	20	CONC. CT#3 TV'S		360							
		540							HALL/STOR RCPTS	20	1	12	15	B	16	12	1	20	CONC. CT#1/2 TV'S		720							
		720							CONC/CT#2-3 CONV RCPT	20	1	12	17	C	18	12	1	20	OVHD DOOR #3			1152						
		360							PATIO TV RCPTS	20	1	12	19	A	20	12	1	20	OVHD DOOR #4			1152						
		360							JAN/PRV RR RCPTS	20	1	12	21	B	22	8	2	50	FOOD TRUCK RCPT						4160			GF
						1800			SERVER AREA QUAD	20	1	12	23	C	24										4160			
		360							ROOFTOP RCPTS	20	1	12	25	A	26	8	2	50	FOOD TRUCK RCPT						4160			GF
			150						RE-CIRC PUMP	20	1	12	27	B	28										4160			
		360							VEST CHECK-IN DESK	20	1	12	29	C	30	12	2	20	ITEM #K54B						770			
				312					RADIANT HEATER RAD-3	20	1	12	31	A	32										770			
				312					RADIANT HEATER RAD-4	20	1	12	33	B	34	12	1	20	ITEM #K54A						192			
									SPACE ONLY				35	C	36	10	2	30	ITEM #K54D						1570			
									SPACE ONLY				37	A	38										1570			
			63						RR/IT EXHAUST FANS	20	1	12	39	B	40	12	2	20	ITEM #K54C						770			
									SPARE	20	1		41	C	42										770			
	0	6480	28498	624	0	4800	0	0	TOTALS										TOTALS	0	4680	9610	0	0	16640	0	0	

NEC CODE REFERENCES
* 100% OF 1ST 10 KVA, 50% OF REMAINING
** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS
*** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.

PANEL ABBREVIATIONS
GF - GROUND FAULT BREAKER
ST - SHUNT TRIP BREAKER
AF - ARC FAULT BREAKER
GF/AF - COMBO ARC/GROUND FAULT BREAKER
IG - PROVIDE ISOLATED GROUND
EM - PROVIDE EMERGENCY LOCKING TAB
FA - FIRE ALARM, PROVIDE RED LOCKING TAB
LCK - PROVIDE PADLOCKABLE BREAKER
OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE
RP - CIRCUIT CONTROLLED VIA RELAY PANEL

PANEL NOTES

PHASE LOAD SUMMARY

TOTAL	PHASE	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
21790	A	0	3420	12898	312	0	5160	0	0
24517	B	0	3600	11285	312	0	9320	0	0
25025	C	0	4140	13925	0	0	6960	0	0

PANEL LOAD SUMMARY

		LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
71331	CONNECTED VA	0	11160	38107	624	0	21440	0	0
--	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	1.00	1.00
70751	DEMAND VA	0	10580	38107	624	0	21440	0	0
0	SHOW WINDOW DEMAND								
0	TRACK LTG DEMAND								
0%	SPARE								
70751	DEMAND VA + SPARE								
196.4	TOTAL DESIGN AMPS								

MAIN DISTRIBUTION PANEL MDP

VOLTAGE/PHASE: **480Y/277V, 3PH, 4W**
BUS AMPERAGE: **1000A**
MAIN TYPE: **1000A MCB**

AFC VALUE: **43,070A**
AIC RATING: **65,000A**
MOUNTING: **SURFACE (NEMA 1)**

GROUNDS: **EG (PER T250.66)**
ISOLATED GROUND BUS: **NO**
SERVICE ENTRANCE RATED: **YES**

ALL LOADS IN VA

	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	P	WIRE	CKT #	PHASE	CKT #	WIRE	P	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	
									SPD	60	3		1	A	2	OL	3	225	PANEL '1HA'	4736	0	5265	750	4138	0	0	0	
														B						2462	0	5265	1500	4138	0	0	0	
														C						3020	0	5265	750	4138	0	0	0	
	8876	4320	25009	312	39075	5200	0	0	PANEL '1HB'	600	3	OL	3	A	4	OL	3	175	PANEL '1LA' VIA XFMR	0	3420	12898	312	0	5160	0	0	
	11418	3060	24290	7812	39075	5900	0	0						B						0	3600	11285	312	0	9320	0	0	
	9326	1980	26594	10500	39075	5400	0	0						C						0	4140	13925	0	0	6960	0	0	
	180	0	3192	0	0	0	26000	0	PANEL 'KA' VIA XFMR	125	3	OL	5	A	6	OL	3	80	RTU #4			5875		12249				
	0	0	816	500	0	0	29899	0						B								5875		12249				
	0	1860	516	0	0	0	26024	0						C								5875		12249				
			5875		12249				RTU #5	80	3	OL	7	A	8	OL	3	80	RTU #6			5875		12249				
			5875		12249									B								5875		12249				
			5875		12249									C								5875		12249				
									SPARE	225	3		9	A	10				SPACE ONLY									
														B														
														C														
									SPACE ONLY				11	A	12				SPACE ONLY									
														B														
														C														
	29800	11220	98043	19124	153972	16500	81922	0	TOTALS										TOTALS	10218	11160	89154	3624	85907	21440	0	0	

NEC CODE REFERENCES
* 100% OF 1ST 10 KVA, 50% OF REMAINING
** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS
*** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.

PANEL ABBREVIATIONS
GF - GROUND FAULT BREAKER
ST - SHUNT TRIP BREAKER
AF - ARC FAULT BREAKER
GF/AF - COMBO ARC/GROUND FAULT BREAKER
EX - EXISTING CIRCUIT AND WIRING TO REMAIN
EM - PROVIDE EMERGENCY LOCKING TAB
FA - FIRE ALARM, PROVIDE RED LOCKING TAB
LCK - PROVIDE PADLOCKABLE BREAKER
OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE
RP - CIRCUIT CONTROLLED VIA RELAY PANEL

PANEL NOTES

PHASE LOAD SUMMARY

TOTAL	PHASE	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
203215	A	13792	7740	63990	1374	79960	10360	26000	0
215024	B	13880	6660	59282	10124	79960	15220	29899	0
213845	C	12346	7980	63926	11250	79960	12360	26024	0

PANEL LOAD SUMMARY

		LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
632084	CONNECTED VA	40018	22380	187197	22748	239879	37940	81922	0
--	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	0.65	1.00
584478	DEMAND VA	50022	16190	187197	0	239879	37940	53249	0
0	SHOW WINDOW DEMAND								
0	TRACK LTG DEMAND								
10%	SPARE								
667616	DEMAND VA + SPARE								
803.0	TOTAL DESIGN AMPS								

PANEL 1LA (SECT. 2)

VOLTAGE/PHASE: **208Y/120V, 3PH, 4W**
BUS AMPERAGE: **400A**
MAIN TYPE: **MLO**

AFC VALUE: **5,695A**
AIC RATING: **10,000A**
MOUNTING: **SURFACE (NEMA 1)**

GROUNDS: **EG (PER T250.122)**
ISOLATED GROUND BUS: **NO**
SERVICE ENTRANCE RATED: **NO**

ALL LOADS IN VA

	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	P	WIRE	CKT #	PHASE	CKT #	WIRE	P	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	
			1152						CT#3 BB GOAL #1 MOTOR	20	1	12	1	A	2	12	2	20	HVLS FAN #2			447						
			1152						CT#3 BB GOAL #2 MOTOR	20	1	12	3	B	4							447						
			1152						CT#3 BB GOAL #3 MOTOR	20	1	12	5	C	6	12	2	20	HVLS FAN #1			447						
			1152						CT#3 BB GOAL #4 MOTOR	20	1	12	7	A	8							447						
			1152						CT#3 BB GOAL #5 MOTOR	20	1	12	9	B	10	12	1	20	CT#3 SCOREBOARD						1000			
			1152						CT#3 BB GOAL #6 MOTOR	20	1	12	11	C	12	12	1	20	CT#2 SCOREBOARD						1000			
			1152						CT#2 BB GOAL #1 MOTOR	20	1	12	13	A	14	12	1	20	CT#1 SCOREBOARD						1000			
			1152						CT#2 BB GOAL #2 MOTOR	20	1	12	15	B	16	12	1	20	CT#3 SCORER'S FLRBOX		360							
			1152						CT#2 BB GOAL #3 MOTOR	20	1	12	17	C	18	12	1	20	CT#2 SCORER'S FLRBOX		360							
			1152						CT#2 BB GOAL #4 MOTOR	20	1	12	19	A	20	12	1	20	CT#1 SCORER'S FLRBOX		360							
			1152						CT#2 BB GOAL #5 MOTOR	20	1	12	21	B	22	12	1	20	CT#3 BLEACHER FLRBOX		360							
			1152						CT#2 BB GOAL #6 MOTOR	20	1	12	23	C	24	12	1	20	CT#2 BLEACHER FLRBOX		360							
			1152						CT#1 BB GOAL #1 MOTOR	20	1	12	25	A	26	12	1	20	CT#1 BLEACHER FLRBOX		360							
			1152						CT#1 BB GOAL #2 MOTOR	20	1	12	27	B	28	12	1	20	CT#2/3 DIV CURTAIN MTR			1152						
			1152						CT#1 BB GOAL #3 MOTOR	20	1	12	29	C	30	12	1	20	CT#1/2 DIV CURTAIN MTR			1152						
			1152						CT#1 BB GOAL #4 MOTOR	20	1	12	31	A	32		1	20	CT									
			1152						CT#1 BB GOAL #5 MOTOR	20	1	12	33	B	34				SPACE ONLY									
			1152						CT#1 BB GOAL #6 MOTOR	20	1	12	35	C	36				SPACE ONLY									
			1152						CT #1 VB NETS MOTOR	20	1	12	37	A	38				SPACE ONLY									
			1152						CT #2 VB NETS MOTOR	20	1	12	39	B	40				SPACE ONLY									
			1152						CT #3 VB NETS MOTOR	20	1	12	41	C	42				SPACE ONLY									
	0	0	24192	0	0	0	0	0	TOTALS										TOTALS	0	2160	4093	0	0	3000	0	0	

NEC CODE REFERENCES
* 100% OF 1ST 10 KVA, 50% OF REMAINING
** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS
*** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.

PANEL ABBREVIATIONS
GF - GROUND FAULT BREAKER
ST - SHUNT TRIP BREAKER
AF - ARC FAULT BREAKER
GF/AF - COMBO ARC/GROUND FAULT BREAKER
IG - PROVIDE ISOLATED GROUND
EM - PROVIDE EMERGENCY LOCKING TAB
FA - FIRE ALARM, PROVIDE RED LOCKING TAB
LCK - PROVIDE PADLOCKABLE BREAKER
OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE
RP - CIRCUIT CONTROLLED VIA RELAY PANEL

PANEL NOTES

PHASE LOAD SUMMARY

TOTAL	PHASE	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
10678	A	0	720	8958	0	0	1000	0	0
11383	B	0	720	9663	0	0	1000	0	0
11383	C	0	720	9663	0	0	1000	0	0

PANEL LOAD SUMMARY

		LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
33445	CONNECTED VA	0	2160	28285	0	0	3000	0	0
--	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	1.00	1.00
33445	DEMAND VA	0	2160	28285	0	0	3000	0	0
0	SHOW WINDOW DEMAND								
0	TRACK LTG DEMAND								
0%	SPARE								
33445	DEMAND VA + SPARE								
92.8	TOTAL DESIGN AMPS								

PANEL 1HA

VOLTAGE/PHASE: **480Y/277V, 3PH, 4W**
BUS AMPERAGE: **225A**
MAIN TYPE: **MLO**

AFC VALUE: **37,304A**
AIC RATING: **42,000A**
MOUNTING: **SURFACE (NEMA 1)**

GROUNDS: **EG (PER T250.122)**
ISOLATED GROUND BUS: **NO**
SERVICE ENTRANCE RATED: **NO**

ALL LOADS IN VA

	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	P	WIRE	CKT #	PHASE	CKT #	WIRE	P	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	
	1910								SUPPORT AREA LTG	20	1	12	1	A	2	12	3	15	RTU-7			693		1740				
LCP	274								SERVING LINE LTG	20	1	12	3	B	4							693		1740				
LCP	632								EXTERIOR LTG	20	1	12	5	C	6							693		1740				
LCP	650								POLE LTG	20	2	SP	7	A	8	12	3	20	RTU-8			693		2397				
LCP	650												9	B	10							693		2397				
LCP	1188								CONCOURSE LTG	20	1	12	11	C	12							693		2397				
LCP	976								VESTIBULE/CONC LIN LTG	20	1	12	13	A	14	8	3	35	TRASH COMPACTOR			3880						
				1500					EUH-2 (VESTIBULE)	15	1	12	15	B	16							3880						
				750					EUH-3 (VESTIBULE)	15	1	12	17	C	18							3880						
				750					EUH-4 (VESTIBULE)	15	1	12	19	A	20				SPACE ONLY									
LCP	1200								VESTIBULE SIGNAGE	20	1	12	21	B	22				SPACE ONLY									
LCP	1200								EAST EXT. SIGNAGE	20	1	12	23	C	24				SPACE ONLY									
LCP	1200								SOUTH EXT. SIGNAGE	20	1	12	25	A	26				SPACE ONLY									
LCP	338								FLAG/ENTRY LETTER LTS	20	1	12	27	B	28				SPACE ONLY									
									SPACE ONLY				29	C	30				SPACE ONLY									
									SPACE ONLY				31	A	32				SPACE ONLY									
									SPACE ONLY				33	B	34				SPACE ONLY									
									SPACE ONLY				35	C	36				SPACE ONLY									
									SPACE ONLY				37	A	38				SPACE ONLY									
									SPACE ONLY				39	B	40				SPACE ONLY									
									SPACE ONLY				41	C	42				SPACE ONLY									
	10218	0	0	3000	0	0	0	0	TOTALS										TOTALS	0	0	15796	0	12413	0	0	0	

NEC CODE REFERENCES
* 100% OF 1ST 10 KVA, 50% OF REMAINING
** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS
*** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.

PANEL ABBREVIATIONS
GF - GROUND FAULT BREAKER
ST - SHUNT TRIP BREAKER
AF - ARC FAULT BREAKER
GF/AF - COMBO ARC/GROUND FAULT BREAKER
SP - REFER TO SITE PLAN FOR WIRE SIZE
EM - PROVIDE EMERGENCY LOCKING TAB
FA - FIRE ALARM, PROVIDE RED LOCKING TAB
LCK - PROVIDE PADLOCKABLE BREAKER
OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE
LCP - CKT CONTROLLED VIA LTG CONTROL PANEL

PANEL NOTES

PHASE LOAD SUMMARY

TOTAL	PHASE	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
14889	A	4736	0	5265	750	4138	0	0	0
13364	B	2462	0	5265	1500	4138	0	0	0
13173	C	3020	0	5265	750	4138	0	0	0

PANEL LOAD SUMMARY

		LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
41426	CONNECTED VA	10218	0	15796	3000	12413	0	0	0
--	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	1.00	1.00
40981	DEMAND VA	12772	0	15796	0	12413	0	0	0
0	SHOW WINDOW DEMAND								
0	TRACK LTG DEMAND								
0%	SPARE								
40981	DEMAND VA + SPARE								
49.3	TOTAL DESIGN AMPS								

PANEL 1LB

VOLTAGE/PHASE: **208Y/120V, 3PH, 4W**
BUS AMPERAGE: **250A**
MAIN TYPE: **250A MCB**

AFC VALUE: **3,596A**
AIC RATING: **10,000A**
MOUNTING: **SURFACE (NEMA 1)**

GROUNDS: **EG (PER T250.66)**
ISOLATED GROUND BUS: **NO**
SERVICE ENTRANCE RATED: **NO**

ALL LOADS IN VA

	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	P	WIRE	CKT #	PHASE	CKT #	WIRE	P	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	
			1500						ADA LIFT	20	1	12	1	A	2	12	1	20	CT#4 BLEACHER FLRBOX		360							
			1152						CAGE #1 MOTOR	20	1	12	3	B	4	12	1	20	CT#4 SCORER'S FLRBOX		360							
			1152						CAGE #2 MOTOR	20	1	12	5	C	6	12	1	20	CT#3/4 DIV CURTAIN MTR			1152						
			1152						CAGE #3 MOTOR	20	1	12	7	A	8	12	1	20	DRINK FOUNTAIN #3						600			
			1152						CAGE #4 MOTOR	20	1	12	9	B	10	12	1	20	DRINK FOUNTAIN #4						600			
			1152						DIV CURTAIN MOTOR	20	1	12	11	C	12	12	1	20	UTILITY/STORAGE RCPTS		540							
			1152						HOME PLATE NET MOTOR	20	1	12	13	A	14	12	1	20	VEST/CONC/CT#4 RCPTS		720							
GF						1800			VENDING MACHINE #1	20	1	12	15	B	16	12	1	20	OVHD DOOR #1			1152						
GF						1800			VENDING MACHINE #2	20	1	12	17	C	18	12	1	20	OVHD DOOR #2			1152						
		540							OFFICE RCPTS	20	1	12	19	A	20	12	1	20	CONC. CNTR #1 QUADS		1080							
									VESTIBULE TV'S	20	1	12	21	B	22	12	1	20	CONC. CNTR #2 QUADS		1080							
						600			DRINK FOUNTAIN #1	20	1	12	23	C	24	12	1	20	CONC. CT#4 TV'S		360							
						600			DRINK FOUNTAIN #2	20	1	12	25	A	26	12	1	20	CT#4 SCOREBOARD						1000			
			1152						CT#4 BB GOAL #1 MOTOR	20	1	12	27	B	28	12	1	20	MEZZ TV'S		720							
			1152						CT#4 BB GOAL #2 MOTOR	20	1	12	29	C	30	12	1	20	RTU RCPTS		720							
			1152						CT#4 BB GOAL #3 MOTOR	20	1	12	31	A	32	12	1	20	RTU RCPTS		540							
			1152						CT#4 BB GOAL #4 MOTOR	20	1	12	33	B	34	4	2	70	FAN COIL UNIT 'FCU-1'			458	7500					
			1152						CT#4 BB GOAL #5 MOTOR	20	1	12	35	C	36							458	7500					
			1152						CT#4 BB GOAL #6 MOTOR	20	1	12	37	A	38	12	1	20	RE-CIRC PUMP			100						
			447						HVLS FAN #4	20	2	12	39	B	40				SPACE ONLY									
			447										41	C	42				SPACE ONLY									
		1080							MEZZ TABLE RCPTS	20	1	12	43	A	44				SPACE ONLY									
		900							MEZZ TABLE RCPTS	20	1	12	45	B	46				SPACE ONLY									
	300								MEZZ ILLUMINATED SIGN	20	1	12	47	C	48				SPACE ONLY									
				312					RADIANT HEATER RAD-1	20	1	12	49	A	50				SPACE ONLY									
				312					RADIANT HEATER RAD-2	20	1	12	51	B	52				SPACE ONLY									
			1152						CT #4 VB NETS MOTOR	20	1	12	53	C	54				SPACE ONLY									
			1176						EXHAUST FAN 'EF-1'	20	1	12	55	A	56				SPACE ONLY									
						500			MOTORIZED DAMPERS	20	1	12	57	B	58				SPACE ONLY									
		360							CHECK-IN DESK RCPT	20	1	12	59	C	60				SPACE ONLY									
	300	2880	18546	624	0	5300	0	0	TOTALS										TOTALS	0	6480	4471	15000	0	2200	0	0	

NEC CODE REFERENCES
* 100% OF 1ST 10 KVA, 50% OF REMAINING
** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS
*** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.

PANEL ABBREVIATIONS
GF - GROUND FAULT BREAKER
ST - SHUNT TRIP BREAKER
AF - ARC FAULT BREAKER
GF/AF - COMBO ARC/GROUND FAULT BREAKER
IG - PROVIDE ISOLATED GROUND
EM - PROVIDE EMERGENCY LOCKING TAB
FA - FIRE ALARM, PROVIDE RED LOCKING TAB
LCK - PROVIDE PADLOCKABLE BREAKER
OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE
RP - CIRCUIT CONTROLLED VIA RELAY PANEL

PANEL NOTES

PHASE LOAD SUMMARY

TOTAL	PHASE	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
14216	A	0	4320	7384	312	0	2200	0	0
20437	B	0	3060	6665	7812	0	2900	0	0
21149	C	300	1980	8969	7500	0	2400	0	0

PANEL LOAD SUMMARY

		LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
55802	CONNECTED VA	300	9360	23018	15624	0	7500	0	0
--	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	1.00	1.00
55877	DEMAND VA	375	9360	23018	15624	0	7500	0	0
0	SHOW WINDOW DEMAND								
0	TRACK LTG DEMAND								
0%	SPARE								
55877	DEMAND VA + SPARE								
155.1	TOTAL DESIGN AMPS								

PANEL 1HB

VOLTAGE/PHASE: **480Y/277V, 3PH, 4W**
BUS AMPERAGE: **400A**
MAIN TYPE: **MLO**

AFC VALUE: **13,815A**
AIC RATING: **22,000A**
MOUNTING: **SURFACE (NEMA 1)**

GROUNDS: **EG (PER T250.122)**
ISOLATED GROUND BUS: **NO**
SERVICE ENTRANCE RATED: **NO**

ALL LOADS IN VA

	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	P	WIRE	CKT #	PHASE	CKT #	WIRE	P	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	
LCP	1950								BASEBALL FLD ROW 1 LTG	20	1	12	1	A	2	4	3	80	RTU #1			5875		12249				
LCP	1950								BASEBALL FLD ROW 2 LTG	20	1	12	3	B	4							5875		12249				
LCP	1950								BASEBALL FLD ROW 3 LTG	20	1	12	5	C	6							5875		12249				
LCP	1950								BASEBALL FLD ROW 4 LTG	20	1	12	7	A	8	4	3	80	RTU #2			5875		12249				
LCP	1170								BASEBALL FLD ROW 5 LTG	20	1	12	9	B	10							5875		12249				
LCP	660								MEN/WOMEN RR LTG	20	1	12	11	C	12							5875		12249				
	785								CORE AREA LTG	20	1	12	13	A	14	4	3	80	RTU #3			5875		12249				
LCP	3900								BBALL COURT 4 LTG	20	1	12	15	B	16							5875		12249				
LCP	3900								BBALL COURT 3 LTG	20	1	12	17	C	18							5875		12249				
LCP	3900								BBALL COURT 2 LTG	20	1	12	19	A	20	12	3	15	COND. UNIT 'CU-1'					2328				
LCP	3900								BBALL COURT 1 LTG	20	1	12	21	B	22									2328				
LCP	2516								BBALL AREA GEN LTG	20	1	12	23	C	24									2328				
LCP	291								VEST/WAITING LTG	20	1	12	25	A	26	12	3	20	WATER HEATER 'EWH1'						3000			
LCP	498								MEZZANINE LTG	20	1	12	27	B	28										3000			
				3000					EUH-1 (RISER RM)	15	1	12	29	C	30										3000			
									SPACE ONLY				31	A	32				SPACE ONLY									
									SPACE ONLY				33	B	34				SPACE ONLY									
									SPACE ONLY				35	C	36				SPACE ONLY									
									SPACE ONLY				37	A	38				SPACE ONLY									
									SPACE ONLY				39	B	40				SPACE ONLY									
									SPACE ONLY				41	C	42				SPACE ONLY									
									UNUSABLE SPACE				43	A	44	OL	3	125	PANEL '1LB'	0	4320	7384	312	0	2200	0	0	
									UNUSABLE SPACE				45	B	46				VIA XFMR	0	3060	6665	7812	0	2900	0	0	SF
									UNUSABLE SPACE				47	C	48				VIA SUB-FEED BREAKER	300	1980	8969	7500	0	2400	0	0	
	29320	0	0	3000	0	0	0	0	TOTALS										TOTALS	300	9360	75894	15624	117225	16500	0	0	

NEC CODE REFERENCES
* 100% OF 1ST 10 KVA, 50% OF REMAINING
** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS
*** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.

PANEL ABBREVIATIONS
GF - GROUND FAULT BREAKER
ST - SHUNT TRIP BREAKER
AF - ARC FAULT BREAKER
GF/AF - COMBO ARC/GROUND FAULT BREAKER
SF - SUB-FEED BREAKER
EM - PROVIDE EMERGENCY LOCKING TAB
FA - FIRE ALARM, PROVIDE RED LOCKING TAB
LCK - PROVIDE PADLOCKABLE BREAKER
OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE
LCP - CKT CONTROLLED VIA LTG CONTROL PANEL

PANEL NOTES

PHASE LOAD SUMMARY

TOTAL	PHASE	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
82793	A	8876	4320	25009	312	39075	5200	0	0
91555	B	11418	3060	24290	7812	39075	5900	0	0
92875	C	9326	1980	26594	10500	39075	5400	0	0

PANEL LOAD SUMMARY

		LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
267223	CONNECTED VA	29620	9360	75894	18624	117225	16500	0	0
--	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	1.00	1.00
256004	DEMAND VA	37025	9360	75894	0	117225	16500	0	0
0	SHOW WINDOW DEMAND								
0	TRACK LTG DEMAND								
0%	SPARE								
256004	DEMAND VA + SPARE								
307.9	TOTAL DESIGN AMPS								

3

PANEL KA

VOLTAGE/PHASE: **208Y/120V, 3PH, 4W**
BUS AMPERAGE: **250A**
MAIN TYPE: **250A MCB**

AFC VALUE: **2,471A**
AIC RATING: **10,000A**
MOUNTING: **SURFACE (NEMA 1)**

GROUNDS: **EG (PER T250.66)**
ISOLATED GROUND BUS: **NO**
SERVICE ENTRANCE RATED: **NO**

ALL LOADS IN VA

	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	P	WIRE	CKT #	PHASE	CKT #	WIRE	P	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	
GF							1020		ITEM #K1	20	1	12	1	A	2	10	1	25	KEF-1			1392						
GF							1040		ITEM #K2	20	2	12	3	B	4	12	1	20	ITEM #K15							1356		GF
							1040						5	C	6	12	1	20	ITEM #K16							1164		GF
GF							1920		ITEM #K3A	20	1	12	7	A	8	12	1	20	ITEM #K17							888		
GF							1920		ITEM #K3B	20	1	12	9	B	10	12	1	20	ITEM #K18							996		
		480							POS STATIONS	20	1	12	11	C	12	12	1	20	ITEM #K19							1800		
ST							1440		ITEM #K34	20	1	12	13	A	14	12	1	20	ITEM #K26							240		GF
									SHUNT TRIP				15	B	16	12	1	20	ITEM #K28A							1560		
		480							POS STATIONS	20	1	12	17	C	18	12	1	20	ITEM #K28B							1560		
LCK							500		ITEM #K7A	20	1	12	19	A	20	12	1	20	ITEM #K30A							1920		GF
LCK							500		ITEM #K7B	20	1	12	21	B	22	12	1	20	ITEM #K30B							1920		
LCK							500		ITEM #K7C	20	1	12	23	C	24	12	1	20	KIT. CONV RCPTS		900							
LCK							1524		ITEM #K8A	20	1	12	25	A	26	10	3	30	ITEM #K35A							2042		
LCK							1524		ITEM #K8B	20	1	12	27	B	28											2042		LCK
LCK							1524		ITEM #K8C	20	1	12	29	C	30											2042		
GF	180								ITEM #K9	20	1	12	31	A	32	10	3	30	ITEM #K35B							2042		
GF							1920		ITEM #K9.1	20	1	12	33	B	34											2042		LCK
GF							1356		ITEM #K10	20	1	12	35	C	36											2042		
GF							348		ITEM #K12A	20	1	12	37	A	38	10	3	30	ITEM #K35C							2042		
GF							348		ITEM #K12B	20	1	12	39	B	40											2042		LCK
GF							348		ITEM #K12C	20	1	12	41	C	42											2042		
GF							52		ITEM #K35.1A	20	2	12	43	A	44	10	3	30	ITEM #K35D							2042		
							52						45	B	46											2042		LCK
GF							52		ITEM #K35.1B	20	2	12	47	C	48											2042		
							52						49	A	50	12	1	20	ITEM #K54			1800						LCK
GF							648		ITEM #K36	20	1	12	51	B	52	12	1	15	AIR CURTAIN			816						
GF							324		ITEM #K37A	20	1	12	53	C	54	12	1	20	KEF-2			516						
GF							324		ITEM #K37B	20	1	12	55	A	56				SPACE ONLY									
							324		ITEM #K37C	20	1	12	57	B	58				SPACE ONLY									
							324		ITEM #K37D	20	1	12	59	C	60				SPACE ONLY									
GF							240		ITEM #K40	20	1	12	61	A	62				SPACE ONLY									
							1320		ITEM #K49	20	1	12	63	B	64				SPACE ONLY									
GF							1061		ITEM #K64	20	2	12	65	C	66	4	3	70	ITEM #K57							6305		
							1061						67	A	68											6305		
				500					HEAT TRACE FOR DRAIN	20	1	12	69	B	70											6305		
									SPACE ONLY				71	C	72	12	1	20	ITEM #K66							500		
	180	960	0	500	0	0	24606	0	TOTALS										TOTALS	0	900	4524	0	0	0	57316	0	

NEC CODE REFERENCES
* 100% OF 1ST 10 KVA, 50% OF REMAINING
** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS
*** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.

PANEL ABBREVIATIONS
GF - GROUND FAULT BREAKER
ST - SHUNT TRIP BREAKER
AF - ARC FAULT BREAKER
GF/AF - COMBO ARC/GROUND FAULT BREAKER
IG - PROVIDE ISOLATED GROUND
EM - PROVIDE EMERGENCY LOCKING TAB
FA - FIRE ALARM, PROVIDE RED LOCKING TAB
LCK - PROVIDE PADLOCKABLE BREAKER
OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE
RP - CIRCUIT CONTROLLED VIA RELAY PANEL

PANEL NOTES

PHASE LOAD SUMMARY

TOTAL	PHASE	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
29372	A	180	0	3192	0	0	0	26000	0
31215	B	0	0	816	500	0	0	29899	0
28400	C	0	1860	516	0	0	0	26024	0

PANEL LOAD SUMMARY

		LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
88986	CONNECTED VA	180	1860	4524	500	0	0	81922	0
--	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	0.65	1.00
60358	DEMAND VA	225	1860	4524	500	0	0	53249	0
0	SHOW WINDOW DEMAND								
0	TRACK LTG DEMAND								
0%	SPARE								
60358	DEMAND VA + SPARE								
167.5	TOTAL DESIGN AMPS								

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307B SW Market St., Lee's Summit, Missouri 64063 | 816.249.2270 | www.collinsandwebb.com

PERMIT SET

TM FIELDHOUSE
1600 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64063

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REVISION DATES:
1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010759
PROFESSIONAL ENGINEER
03/22/2024
PROFESSIONAL SEAL

E402

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ELECTRICAL SCHEDULES

LIGHTING FIXTURE SCHEDULE CONT.

FIXT. TYPE	DESCRIPTION & MANUFACTURER OPTIONS	NO.	LAMPS TYPE	FIXT. VOLT	TOTAL WATTS	FINISH	REMARKS/MOUNTING	NOTES
F	Linear LED Strip Light M# LITHONIA #CLX-L48-3000LM-SEF-_-RDL-MVOLT	1	LED	UNV	18.6W	Standard	Pendant (Verify Ht w/ Architect)	1
FE	Linear LED Strip Light w/ Emergency Battery Pack M# LITHONIA #CLX-L48-3000LM-SEF-_-RDL-MVOLT-PS1050	1	LED	UNV	18.6W	Standard	Pendant (Verify Ht w/ Architect)	1,2
G1	Exterior LED WallPack M# LITHONIA #WDGE2-LED-P2-40K-80CRI-VF-MVOLT	1	LED	UNV	15W	Coord. w/ Architect	Wall 14'-0" AFG (Refer Arch Elevation)	1
G1E	Exterior LED WallPack w/ Emergency Battery Pack M# LITHONIA #WDGE2-LED-P2-40K-80CRI-VF-MVOLT-E10WH	1	LED	UNV	15W	Coord. w/ Architect	Wall 14'-0" AFG (Refer Arch Elevation)	1,2
G2	Exterior LED WallPack M# LITHONIA #WDGE2-LED-P4-40K-80CRI-T4M-MVOLT	1	LED	UNV	46.7W	Coord. w/ Architect	Wall 16'-0" AFG (Refer Arch Elevation)	1
G2E	Exterior LED WallPack w/ Emergency Battery Pack M# LITHONIA #WDGE2-LED-P4-40K-80CRI-T4M-MVOLT-E10WH	1	LED	UNV	46.7W	Coord. w/ Architect	Wall 16'-0" AFG (Refer Arch Elevation)	1,2
G3	Exterior LED WallPack M# INDESSA LTG #501-1LED19-MVOLT	1	LED	UNV	16.8W	Coord. w/ Architect	Wall 5'-0" AFG (Refer Arch Elevation)	1,2
HB1	LED High Bay Light Fixture, 27,000 Lumens, 4000K w/ 0-10V Dimming M# LITHONIA #CPRB-AL014-UVOLT-SWW9-80CRI-DWH	1	LED	UNV	195W	White	Pendant Mount at 26'-0" AFF. Field Coordinate Exact Location to Avoid Ceiling Mounted Equipment.	1
HB1E	LED High Bay Light Fixture, 27,000 Lumens, 4000K w/ 0-10V Dimming and Emergency Battery Pack M# LITHONIA #CPRB-AL014-UVOLT-SWW9-80CRI-DWH LITHONIA #RBAY BLD640WCP M4 (EMERGENCY BATTERY)	1	LED	UNV	195W	White	Pendant Mount at 26'-0" AFF. Field Coordinate Exact Location to Avoid Ceiling Mounted Equipment.	1,2
HB2	LED High Bay Light Fixture, 21,000 Lumens, 4000K w/ 0-10V Dimming M# LITHONIA #CPRB-AL014-UVOLT-SWW9-80CRI-DWH	1	LED	UNV	148W	White	Pendant Mount at 26'-0" AFF. Field Coordinate Exact Location to Avoid Ceiling Mounted Equipment.	1
HB2E	LED High Bay Light Fixture, 21,000 Lumens, 4000K w/ 0-10V Dimming and Emergency Battery Pack M# LITHONIA #CPRB-AL014-UVOLT-SWW9-80CRI-DWH LITHONIA #RBAY BLD640WCP M4 (EMERGENCY BATTERY)	1	LED	UNV	148W	White	Pendant Mount at 26'-0" AFF. Field Coordinate Exact Location to Avoid Ceiling Mounted Equipment.	1,2
HB3	LED High Bay Light Fixture, 12,000 Lumens, 4000K w/ 0-10V Dimming M# LITHONIA #CPRB-AL013-UVOLT-SWW9-80CRI-DWH	1	LED	UNV	83W	White	Pendant Mount at 26'-0" AFF. Field Coordinate Exact Location to Avoid Ceiling Mounted Equipment.	1
HB3E	LED High Bay Light Fixture, 12,000 Lumens, 4000K w/ 0-10V Dimming and Emergency Battery Pack M# LITHONIA #CPRB-AL013-UVOLT-SWW9-80CRI-DWH LITHONIA #RBAY BLD640WCP M4 (EMERGENCY BATTERY)	1	LED	UNV	83W	White	Pendant Mount at 26'-0" AFF. Field Coordinate Exact Location to Avoid Ceiling Mounted Equipment.	1,2
J	Pendant Mounted LED Cylinder w/ 0-10V Dimming M# LITHONIA #LDN6CYL-40-20-L06-AR-LSS-MVOLT-GZ1-PM	1	LED	UNV	22.5W	Coord. w/ Architect	Coord. w/ Architect	1
SL1	Pole Mounted LED Parking Area Fixture M# LITHONIA #RSX1-LED-P4-40K-R3-HVOLT	1	LED	480V/ 1 PH	133W	White	Pole Mounted at 22'-0" AFG.	
SL2	Pole Mounted LED Parking Area Fixture M# LITHONIA #RSX2-LED-P3-40K-R5-HVOLT	1	LED	480V/ 1 PH	150W	White	Pole Mounted at 22'-0" AFG.	
SFP	In-Grade Flag Pole Luminaire w/ 0-10V Dimming M# HYDREL #M9720C-LED-P3-MVOLT-NSP-LDM	1	LED	UNV	46W	Coord. w/ Architect	Recessed (In-Grade)	1
T	Wall Mounted LED Cylinder w/ 0-10V Dimming M# LITHONIA #LDN6CYL-40-20-L06-AR-LSS-MVOLT-GZ1-WM	1	LED	UNV	22.5W	Coord. w/ Architect	Coord. w/ Architect	1
X1	LED Exit Sign, Single/Double Sided, Universal Mount, Emergency Battery Pack. Provide Arrows as Indicated. M# DUAL LITE #EVE-U-R-W-E EVENLITE #TLX-EM-RU-W (OR EQUAL)	1	LED	UNV	2W		Wall/Ceiling/Pendant	2

NOTES:
1. Coordinate Exact Mounting Height and Location of All Fixtures With Owner and Architect Prior to Rough-In.
2. Circuit Emergency Battery Packs and Exit Signs to Local Lighting Circuit Ahead of Any Means of Control for Proper Operation.

LIGHTING FIXTURE SCHEDULE

FIXT. TYPE	DESCRIPTION & MANUFACTURER OPTIONS	NO.	LAMPS TYPE	FIXT. VOLT	TOTAL WATTS	FINISH	REMARKS/MOUNTING	NOTES
A1	2x2 LED Panel M# LITHONIA #CPX-2X2-3200LM-80CRI-35K-SWL-MVOLT	1	LED	UNV	31W	Standard	Recessed (Lay-In)	1
A1E	2x2 LED Panel w/ Emergency Battery Pack M# LITHONIA #CPX-2X2-3200LM-80CRI-35K-SWL-MVOLT-E10WLCP	1	LED	UNV	31W	Standard	Recessed (Lay-In)	1,2
A2	2x2 LED Panel M# LITHONIA #CPX-2X2-4000LM-80CRI-35K-SWL-MVOLT	1	LED	UNV	36.3W	Standard	Recessed (Lay-In)	1
A2E	2x2 LED Panel w/ Emergency Battery Pack M# LITHONIA #CPX-2X2-3200LM-80CRI-35K-SWL-MVOLT-E10WLCP	1	LED	UNV	36.3W	Standard	Recessed (Lay-In)	1,2
A3	2x2 LED Panel M# LITHONIA #CPX-2X2-2000LM-80CRI-35K-SWL-MVOLT	1	LED	UNV	15.6W	Standard	Recessed (Lay-In)	1
A4E	48" Diameter Moon Ring LED Pendant in Concourse Area w/ Acoustic Insert, Emergency Battery Pack and 0-10V Dimming M# ALW #MR1.5-D4-SS-MED-80-4000K-V01-LENS-N-N-N-SW-UNV-EMB W ACOUSTIC INSERT	1	LED	UNV	97W	Coord. w/ Architect	Coord. w/ Architect	1,2
A6E	72" Diameter Moon Ring LED Pendant in Concourse Area w/ Acoustic Insert, Emergency Battery Pack and 0-10V Dimming M# ALW #MR1.5-D6-SS-MED-80-4000K-V01-LENS-N-N-N-SW-UNV-EMB W ACOUSTIC INSERT	1	LED	UNV	147W	Coord. w/ Architect	Coord. w/ Architect	1,2
B1	LED Downlight w/ 0-10V Dimming M# GOTHAM LTG #EVO4-35-07-AR-LSS-MWD-MVOLT-GZ1	1	LED	UNV	7.9W	Standard	Recessed (Ceiling - Provide Flange)	1
B1E	LED Downlight w/ 0-10V Dimming and Emergency Battery Pack M# GOTHAM LTG #EVO4-35-07-AR-LSS-MWD-MVOLT-GZ1-EL	1	LED	UNV	7.9W	Standard	Recessed (Ceiling - Provide Flange)	1,2
B2	LED Downlight M# GOTHAM LTG #EVO4-35-10-AR-LSS-MWD-MVOLT	1	LED	UNV	8.8W	Standard	Recessed (Ceiling - Provide Flange)	1
B2E	LED Downlight w/ Emergency Battery Pack M# GOTHAM LTG #EVO4-35-10-AR-LSS-MWD-MVOLT-EL	1	LED	UNV	8.8W	Standard	Recessed (Ceiling - Provide Flange)	1,2
B3	LED Downlight M# GOTHAM LTG #EVO4-35-10-AR-LSS-MD-MVOLT	1	LED	UNV	8.8W	Standard	Recessed (Ceiling - Provide Flange)	1
B4E	48" Diameter Moon Ring LED Pendant in Concourse Area w/ Emergency Battery Pack and 0-10V Dimming M# ALW #MR1.5-D4-SS-MED-80-4000K-V01-LENS-N-N-N-SW-UNV-EMB	1	LED	UNV	97W	Coord. w/ Architect	Coord. w/ Architect	1,2
B5	LED Downlight M# GOTHAM LTG #EVO4-35-15-AR-LSS-MWD-MVOLT	1	LED	UNV	13.7W	Standard	Recessed (Ceiling - Provide Flange)	1
B5E	LED Downlight w/ Emergency Battery Pack M# GOTHAM LTG #EVO4-35-15-AR-LSS-MWD-MVOLT-EL	1	LED	UNV	13.7W	Standard	Recessed (Ceiling - Provide Flange)	1,2
B6E	72" Diameter Moon Ring LED Pendant in Concourse Area w/ Emergency Battery Pack and 0-10V Dimming M# ALW #MR1.5-D6-SS-MED-80-4000K-V01-LENS-N-N-N-SW-UNV-EMB W ACOUSTIC INSERT	1	LED	UNV	147W	Coord. w/ Architect	Coord. w/ Architect	1,2
C	Adjustable Output LED Strip Light M# LITHONIA #CSS-L48-AL03-MVOLT-SWW3-80CRI	1	LED	UNV	35.8W	Standard	Pendant (Verify Ht w/ Architect)	1
CE	Adjustable Output LED Strip Light w/ Emergency Battery Pack M# LITHONIA #CSS-L48-AL03-MVOLT-SWW3-80CRI-IE10WCPHE	1	LED	UNV	35.8W	Standard	Pendant (Verify Ht w/ Architect)	1,2
C3	Suspended, Round Linear LED in Concourse Area M# ALW #LP3.5R-4FT-LOW-DIRECT-80-4000-V01-UNV	1	LED	UNV	6.2W/ FT	Standard	Pendant (Verify Ht w/ Architect)	1
C3E	Suspended, Round Linear LED in Concourse Area w/ Emergency Battery Pack M# ALW #LP3.5R-4FT-LOW-DIRECT-80-4000-V01-UNV-EMB	1	LED	UNV	6.2W/ FT	Standard	Pendant (Verify Ht w/ Architect)	1,2
C4	Suspended, Round Linear LED in Concourse Area w/ 0-10V Dimming M# ALW #LP3.5R-4FT-MED-DIRECT-80-4000-V01-UNV	1	LED	UNV	8.4W/ FT	Standard	Pendant (Verify Ht w/ Architect)	1
C4E	Suspended, Round Linear LED in Concourse Area w/ 0-10V Dimming and Emergency Battery Pack M# ALW #LP3.5R-4FT-MED-DIRECT-80-4000-V01-UNV-EMB	1	LED	UNV	8.4W/ FT	Standard	Pendant (Verify Ht w/ Architect)	1,2
D	Damp Location Rated LED Downlight M# GOTHAM LTG #EVO6SQ-40-10-AR-LSS-MVOLT	1	LED	UNV	10W	Standard	Recessed (Ceiling - Provide Flange)	1
DE	Damp Location Rated LED Downlight w/ Emergency Battery Pack M# GOTHAM LTG #EVO6SQ-40-10-AR-LSS-MVOLT-ELR	1	LED	UNV	10W	Standard	Recessed (Ceiling - Provide Flange)	1,2

LIGHTING CONTROLS SCHEDULE

FIXTURE TAG	MANUFACTURER	MODEL #	SETTINGS	DESCRIPTION	NOTES
DC	ACUITY BRANDS: nLIGHT	nPP16-D SERIES	REFER TO PLANS FOR CONTROL INTENT	ON/OFF ROOM0-10V DIMMING CONTROLLER LINE VOLTAGE - SINGLE RELAY	1,2,4
DC2	ACUITY BRANDS: nLIGHT	nSP5 PCD-(2W,3W,MLVELC 12	REFER TO PLANS FOR CONTROL INTENT	MLV, ELV, 2-WIRE, 3-WIRE DIMMING POWER PACK	1,2,4
SC	ACUITY BRANDS: nLIGHT	nPP16 SERIES	REFER TO PLANS FOR CONTROL INTENT	ON/OFF ROOM SWITCH CONTROLLER LINE VOLTAGE - SINGLE RELAY	1,2,4
L1	ACUITY BRANDS: nLIGHT	nPODM-DX	-	ON/OFF AND DIMMING LOW VOLTAGE SWITCH WITH 1-CHANNEL CONTROL	1,6
L2	ACUITY BRANDS: nLIGHT	nPODM-2P-DX	-	ON/OFF AND DIMMING LOW VOLTAGE SWITCH WITH 2-CHANNEL CONTROL	1,6
L3	ACUITY BRANDS: nLIGHT	nPODM	-	ON/OFF LOW VOLTAGE SWITCH WITH 1-CHANNEL CONTROL	1,6
L5	ACUITY BRANDS: nLIGHT	nPODM-4P	-	ON/OFF AND DIMMING LOW VOLTAGE SWITCH WITH 4-CHANNEL CONTROL	1,6
PC1	ACUITY BRANDS: nLIGHT	nCM-ADCX-RJB		CEILING MOUNTED AUTOMATIC DIMMING CONTROL PHOTOCELL SENSOR	1
PC2	ACUITY BRANDS: nLIGHT	ARPA-PC		EXTERIOR PHOTOCELL SENSOR FOR SWITCHING ONLY	1
S1	SENSOR SWITCH	WSX SERIES	REFER TO PLANS FOR CONTROL INTENT	WALL MOUNT OCCUPANCY SENSOR LINE VOLTAGE - SINGLE RELAY	1
S3	ACUITY BRANDS: nLIGHT	nCM-9 SERIES	-	CEILING MOUNT OCCUPANCY SENSOR - SMALL MOTION LOW VOLTAGE	3
S4	ACUITY BRANDS: nLIGHT	nCM-10 SERIES	-	CEILING MOUNT OCCUPANCY SENSOR - LARGE MOTION LOW VOLTAGE	3
WIRE	-	-	-	CAT5, CAT5e, OR CAT 6. STANDARD OR SOLID. TERMINATED AS RJ45 TIA/EIA-568B	
BR	ACUITY BRANDS: nLIGHT	nBRG-8-KIT	-	8-PORT nLIGHT BRIDGE	5
LCPA	ACUITY BRANDS: nLIGHT	ARP INTENC08 NLT 16FCR-MVOLT-SM.DTC		16-POLE ARP RELAY PANEL WITH DIGITAL TIME CLOCK	
LCPB	ACUITY BRANDS: nLIGHT	ARP INTENC16 NLT 16FCR-MVOLT-SM		16-POLE ARP RELAY PANEL. CONNECT TO LCPA VIA BRIDGE AS REQUIRED	

NOTES:
1. COORDINATE ALL MODEL NUMBERS WITH MANUFACTURER PRIOR TO ORDERING. PROVIDE DEVICES TO MEET CONTROL INTENT INDICATED ON THE DRAWINGS.
2. PROVIDE 6'-0" OF EXCESS CONTROL WIRING, COILED AND TIED, BETWEEN CEILING MOUNTED OCCUPANCY SENSOR AND CORRESPONDING LOAD CONTROLLER.
3. MODIFY LOCATIONS OF CEILING MOUNTED OCCUPANCY SENSORS AS REQUIRED SO THAT NO OCCUPANCY SENSORS IS WITHIN 4'-0" OF AN HVAC SUPPLY DIFFUSER.
4. LOCATE DEVICE ABOVE CEILING OR AT STRUCTURE IN ACCESSIBLE LOCATION. LOCATIONS SHOWN ON DRAWINGS ARE SCHEMATIC. ADD ACCESS PANEL WITHIN CEILING IF NECESSARY. COORDINATE ACCESS PANEL LOCATION AND SPECIFICATION DIRECTLY WITH ARCHITECT.
5. LOCATION SHOWN ON PLAN FOR REFERENCE ONLY. CONTRACTOR MAY RELOCATE BRIDGE PORTS FOR A MORE ECONOMICAL LAYOUT IF DESIRED.
6. PROVIDE DEVICES WITH DEFAULT MANUFACTURE MARKINGS ON BUTTONS.
7. ROUTE RECEPTACLE CIRCUIT INDICATED ON PLAN AS "CONTROLLED RECEPTACLES" THROUGH PLUG LOAD CONTROLLER FOR AUTOMATIC ON/OFF CONTROL VIA OCCUPANCY SENSOR. ONE CONTROLLED CIRCUIT PER PLUG CONTROLLER.
8. DEVICE TO BE INSTALLED IN SINGLE GANG BOX. COORDINATE TIME-OF-DAY SCHEDULES WITH OWNER FOR ZONES TO BE ON TIME-OF-DAY CONTROL.
9. PENDANT MOUNT DEVICE TO 1/2" KNOCKOUT ON JUNCTION BOX AS REQUIRED.

LIGHTING CONTROL PANEL SCHEDULE

MOUNTING: **SURFACE (NEMA 1)**

PANEL: **LCPA**

RELAY NO.	ZONE DESCRIPTION	CONTROLLED CIRCUIT	MANUAL OVERRIDE	TIME ON	TIME OFF	PHOTOCELL OVERRIDE	DIMMING RELAY	NOTES
1	EXTERIOR LTG	1HA-5	NO	NOTE #1	NOTE #1	ON/OFF	NO	#2
2	POLE LTG	1HA-7	NO	NOTE #1	NOTE #1	ON/OFF	NO	#2
3	POLE LTG	1HA-9	NO	NOTE #1	NOTE #1	ON/OFF	NO	#2
4	CONCOURSE RINGS	1HA-11	YES, 'r'	NOTE #1	NOTE #1	N/A	YES	#1, #3, #4
5	CONCOURSE PENDANTS	1HA-11	YES, 's'	NOTE #1	NOTE #1	N/A	YES	#1, #3, #4
6	CONCOURSE LINEAR LTS	1HA-13	YES, 't'	NOTE #1	NOTE #1	N/A	YES	#1, #4
7	VESTIBULE LINEAR LTS	1HA-13	YES, 'v'	NOTE #1	NOTE #1	N/A	YES	#1, #4
8	FLAG POLE LTS	1HA-27	NO	NOTE #1	NOTE #1	N/A	NO	#2
9	VESTIBULE SIGNAGE	1HA-21	NO	NOTE #1	NOTE #1	N/A	NO	#1
10	EAST EXT. SIGNAGE	1HA-23	NO	NOTE #1	NOTE #1	N/A	NO	#2
11	SOUTH EXT. SIGNAGE	1HA-25	NO	NOTE #1	NOTE #1	N/A	NO	#2
12	BACKLIT ENTRY LETTERING	1HA-27	NO	NOTE #1	NOTE #1	N/A	NO	#2
13	SERVING LINE LTS	1HA-3	YES, 'aa'	NOTE #1	NOTE #1	N/A	YES	#1, #4
14	SPARE							
15	SPARE							
16	SPARE							

NOTES:
1. CIRCUIT TO BE ON TIME-OF-DAY SCHEDULE. VERIFY TIME-OF-DAY SCHEDULE WITH OWNER AS REQUIRED.
2. CIRCUIT TO BE ON TIME-OF-DAY SCHEDULE WITH PHOTOCELL OVERRIDE. VERIFY TIME-OF-DAY SCHEDULE WITH OWNER AS REQUIRED.
3. THIS ZONE TO AUTOMATICALLY DIM UP/DOWN VIA PHOTOCELL TO MAINTAIN DESIRED FOOTCANDLE LEVEL BASED ON AMOUNT DAYLIGHT PRESENT.
4. THIS ZONE TO DIM UP/DOWN VIA LOW-VOLTAGE CONTROL STATION.
5. EXHAUST FAN TO RUN CONTINUOUSLY DURING BUSINESS HOURS. VERIFY SCHEDULE WITH OWNER.
6. VERIFY EXACT DIMMING TYPE OF FIXTURE AND PROVIDE ALL ACCESSORIES AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. PROVIDE VOLTAGE BARRIERS IN RELAY PANEL AS REQUIRED.

LIGHTING CONTROL PANEL SCHEDULE

MOUNTING: **SURFACE (NEMA 1)**

PANEL: **LCPB**

RELAY NO.	ZONE DESCRIPTION	CONTROLLED CIRCUIT	MANUAL OVERRIDE	TIME ON	TIME OFF	PHOTOCELL OVERRIDE	DIMMING RELAY	NOTES
1	BASEBALL FLD ROW 1 LTG	1HB-1	YES, 'a'	NOTE #1	NOTE #1	N/A	YES	#4, #6
2	BASEBALL FLD ROW 2 LTG	1HB-3	YES, 'b'	NOTE #1	NOTE #1	N/A	YES	#4, #6
3	BASEBALL FLD ROW 3 LTG	1HB-5	YES, 'c'	NOTE #1	NOTE #1	N/A	YES	#4, #6
4	BASEBALL FLD ROW 4 LTG	1HB-7	YES, 'd'	NOTE #1	NOTE #1	N/A	YES	#4, #6
5	BASEBALL FLD ROW 5 LTG	1HB-9	YES, 'f'	NOTE #1	NOTE #1	N/A	YES	#4, #6
6	MEN'S RR 122 LTG	1HB-11	YES, 'g'	NOTE #1	NOTE #1	N/A	NO	#1
7	WOMEN'S RR 123 LTG	1HB-11	YES, 'h'	NOTE #1	NOTE #1	N/A	NO	#1
8	BBALL COURT #4 LTG	1HB-15	YES, 'j'	NOTE #1	NOTE #1	N/A	YES	#4, #6
9	BBALL COURT #3 LTG	1HB-17	YES, 'k'	NOTE #1	NOTE #1	N/A	YES	#4, #6
10	BBALL COURT #2 LTG	1HB-19	YES, 'm'	NOTE #1	NOTE #1	N/A	YES	#4, #6
11	BBALL COURT #1 LTG	1HB-21	YES, 'n'	NOTE #1	NOTE #1	N/A	YES	#4, #6
12	BBALL AREA GENERAL LTG	1HB-23	YES, 'o'	NOTE #1	NOTE #1	N/A	YES	#4, #6
13	VESTIBULE LTG	1HB-25	YES, 'w'	NOTE #1	NOTE #1	N/A	YES	#1, #4, #6
14	MEZZANINE LTG	1HB-27	YES, 'p'	NOTE #1	NOTE #1	N/A	YES	#4, #6
15	MEN/WOMEN RR EX. FANS	1LB-55	NO	NOTE #1	NOTE #1	N/A	NO	#5, #7
16	MEZZANINE ILLUM. SIGN	1LB-47	NO	NOTE #1	NOTE #1	N/A	NO	#1
17	MEN'S RR 122 LTG	1HB-11	YES, 'z'	NOTE #1	NOTE #1	N/A	NO	#1
18	WOMEN'S RR 124 LTG	1HB-11	YES, 'y'	NOTE #1	NOTE #1	N/A	NO	#1
19	SPARE							
20	SPARE							
21	SPARE							
22	SPARE							
23	SPARE							
24	SPARE							
25	SPARE							
26	SPARE							
27	SPARE							
28	SPARE							
29	SPARE							
30	SPARE							
31	SPARE							
32	SPARE							

NOTES:
1. CIRCUIT TO BE ON TIME-OF-DAY SCHEDULE. VERIFY TIME-OF-DAY SCHEDULE WITH OWNER AS REQUIRED.
2. CIRCUIT TO BE ON TIME-OF-DAY SCHEDULE WITH PHOTOCELL OVERRIDE. VERIFY TIME-OF-DAY SCHEDULE WITH OWNER AS REQUIRED.
3. THIS ZONE TO AUTOMATICALLY DIM UP/DOWN VIA PHOTOCELL TO MAINTAIN DESIRED FOOTCANDLE LEVEL BASED ON AMOUNT DAYLIGHT PRESENT.
4. THIS ZONE TO DIM UP/DOWN VIA LOW-VOLTAGE CONTROL STATION.
5. EXHAUST FAN TO RUN CONTINUOUSLY DURING BUSINESS HOURS. VERIFY SCHEDULE WITH OWNER.
6. VERIFY EXACT DIMMING TYPE OF FIXTURE AND PROVIDE ALL ACCESSORIES AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. PROVIDE VOLTAGE BARRIERS IN RELAY PANEL AS REQUIRED.

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REVISION DATES:

1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

PROFESSIONAL SEAL

E403

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ELECTRICAL LIGHTING SCHEDULES

16000 - ELECTRICAL

GENERAL

DESCRIPTION
DIVISION 16 OF THE SPECIFICATIONS COVERS ALL ELECTRICAL WORK FOR THE PROJECT. WORK SHALL INCLUDE LABOR, MATERIAL AND ACCESSORIES NECESSARY TO ACCOMPLISH THE WORK AS SPECIFIED AND SHOWN ON THE DRAWINGS, INCLUDING CONNECTION AND CHECKOUTS OF EQUIPMENT FURNISHED BY OTHERS (OTHER TRADES, THE OWNER AND OTHER CONTRACTORS), AND TO ALL EQUIPMENT ITEMS AND AS INDICATED ON DRAWINGS OR AS REQUIRED.

THE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS INCLUDING THE GENERAL - CONDITIONS, INCLUDING ALL SUPPLEMENTS ISSUED THERETO, INSTRUCTIONS TO BIDDERS, AND OTHERS PERTINENT DOCUMENTS ISSUED BY THE ARCHITECT ARE A PART OF THESE SPECIFICATIONS AND ELECTRICAL DRAWINGS. THIS TRADE SHALL CONSULT THEM FOR INSTRUCTIONS WHICH APPLY. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE ELECTRICAL LAYOUT AND WORK INCLUDED. ELECTRICIAN SHALL FOLLOW DRAWINGS IN LAYOUT THE ELECTRICAL WORK AND CONSULT THE DRAWINGS AND LAYOUTS OF OTHER TRADES TO VERIFY LOCATION AND SPACES IN WHICH WORK WILL BE INSTALLED.

CODES, PERMITS, INSPECTION AND COMMISSIONING
INSTALLATION SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL WORK IN EFFECT, INCLUDING THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), THE NATIONAL ELECTRICAL SAFETY CODE, ALL LOCAL GOVERNING CODES AND ORDINANCES, WITH THE REGULATIONS OF THE SERVING ELECTRICAL UTILITY COMPANY. PROVIDE ALL REQUIRED PERMITS AND INCLUDE THE COST OF SAME IN THE COST OF THE PROJECT. OBTAIN AND PAY FOR (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ALL REQUIRED INSPECTIONS AND REVIEWS. PROVIDE FOR AND PAY ALL EXPENSES (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ASSOCIATED WITH LIGHTING AND LIGHTING CONTROLS COMMISSIONING. ALL COMMISSIONING DOCUMENTATION SHALL BE CERTIFIED AND GIVEN TO OWNER AND DESIGN PROFESSIONAL.

QUALITY ASSURANCE
THE FOLLOWING INDUSTRY STANDARDS AS APPLICABLE TO ELECTRICAL WORK SHALL APPLY TO THE WORK OF THIS DIVISION EXCEPT THAT, WHERE THE REQUIREMENTS OF THESE SPECIFICATIONS ARE MORE THAN THE LISTED STANDARD, THESE SPECIFICATIONS SHALL TAKE PRECEDENCE:

UL - UNDERWRITERS' LABORATORIES
NEMA - NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION
NECA - NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM - AMERICAN SOCIETY OF TESTING MATERIALS.

ALL MATERIALS SHALL BE NEW, UL LISTED AND LABELED WHERE LABELED MATERIALS ARE AVAILABLE, UNDAMAGED AND FREE OF DEFECTS AT TIME OF INSTALLATION. MATERIALS OR EQUIPMENT DAMAGED IN SHIPMENT OR OTHERWISE DAMAGED PRIOR TO OR DURING INSTALLATION SHALL NOT BE REPAIRED AT THE JOB SITE, BUT SHALL BE REPLACED WITH NEW MATERIALS. WHEN THE MANUFACTURER'S NAME APPEARS IN THESE SPECIFICATIONS AND DRAWINGS, IT SHALL BE CONSTRUED THAT THE MANUFACTURER HAS TO MEET THE FULL REQUIREMENTS OF THE SPECIFICATIONS AND DRAWINGS.

SUBMITTALS
SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT TO THE ARCHITECT FOR ENGINEER'S REVIEW ELECTRONICALLY OR HARD COPIES. INCLUDE SUFFICIENT INFORMATION TO INDICATE COMPLETE COMPLIANCE WITH SPECIFICATIONS. PROVIDE SUBMITTALS AS EARLY AS REQUIRED TO SUPPORT THE PROJECT SCHEDULE. ALLOW ONE WEEK FOR ENGINEER REVIEW TIME. THE ENGINEER'S SUBMITTAL REVIEWS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, OR QUANTITIES; OR FOR OMITTING COMPONENTS OR FITTINGS; OR FOR NOT COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS AND/OR OTHER TRADES.

OWNER RECORDS
ACCUMULATE DURING THE PROGRESS OF THE JOB, THE FOLLOWING DATA IN DUPLICATE, AND PREPARE IN A NEAT BROCHURE OR PACKET FOLDER TO BE TURNED OVER TO THE OWNER AT SUBSTANTIAL COMPLETION: RECORD DRAWINGS PER ABOVE.

ALL WARRANTIES, GUARANTEES, AND MANUFACTURER'S DIRECTION ON EQUIPMENT & MATERIAL FURNISHED.

COMPLETE PLAIN ENGLISH STEP-BY-STEP OPERATING INSTRUCTIONS FOR THE ELECTRICAL SYSTEM. ONE COPY OF THESE INSTRUCTIONS SHALL BE FRAMED AND POSTED AS DIRECTED ON THE PREMISES.

CERTIFIED LIGHTING AND LIGHTING CONTROLS COMMISSIONING AS REQUIRED BY CURRENTLY ADOPTED ENERGY CODE REQUIREMENTS.

MANUFACTURERS' NAMES AND CATALOG NUMBERS
IN SOME INSTANCES, SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAME AND MODEL OR CATALOG NUMBERS. USE OF NAMES AND CATALOG NUMBERS DOES NOT INDICATE THAT THE EQUIPMENT SPECIFIED IN NECESSARILY AN "OFF THE SHELF" ITEM. VARIANCES MAY BE DUE TO REQUIREMENT OF DESIRED FINISH, MATERIAL OR OTHER MODIFICATION.

IN THE CASE OF PANELBOARDS, SAFETY SWITCHES AND OTHER EQUIPMENT REQUIRING WIRE AND CABLE TERMINATIONS, ASCERTAIN THAT LUG SIZES AND WIRING GUTTERS OR WIRING SPACE ALLOWED IS PROPER FOR THE WIRES AND CABLES CONTAINED THEREIN.

WHEN APPROVAL IS GIVEN FOR THE USE OF EQUIPMENT DIFFERING FROM THAT SHOWN ON DRAWINGS IN REGARD TO FOUNDATIONS, SPACE FOR PIPING, DUCTWORK, WIRING, INSULATION, ETC. CHANGES REQUIRED TO ACCOMPLISH SUCH DIFFERENCES SHALL BE ACCOMPLISHED AT NO COST TO THE OWNER.

PROTECTION OF EQUIPMENT
ELECTRICAL EQUIPMENT SHALL BE PROTECTED FROM THE WEATHER, IN PARTICULAR, DRIPPING OR SPLASHING WATER, AT ALL TIMES DURING SHIPMENT, STORAGE AND CONSTRUCTION. MANUFACTURER'S RECOMMENDATIONS WITH REGARD TO STORAGE, PROTECTION, AND HANDLING SHALL BE FOLLOWED.

SHOULD ANY APPARATUS BE SUBJECTED TO POSSIBLE INJURY DUE TO WATER, IT SHALL BE THOROUGHLY DRIED AND PUT THROUGH A DIELECTRIC TEST, AT THE EXPENSE OF THE CONTRACTOR, TO ASCERTAIN THE SUITABILITY OF THE APPARATUS OR IT SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.

DAMAGED OR DEFECTIVE EQUIPMENT: INSPECT ALL ELECTRICAL EQUIPMENT AND MATERIALS PRIOR TO INSTALLATION. INSTALLATION OR PLACEMENT INTO SERVICE OF DAMAGED MATERIALS WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER IS PROHIBITED. REPLACE OR REPAIR TO NEW CONDITION, AS CERTIFIED BY THE MANUFACTURER, AND TEST DAMAGED EQUIPMENT IN COMPLIANCE WITH INDUSTRY STANDARDS AT NO ADDITIONAL COST TO THE OWNER. EQUIPMENT REQUIRED FOR THE TESTING SHALL BE PROVIDED BY THE CONTRACTOR.

WORKING CLEARANCE
THE SIZE OF ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS IS BASED ON DIMENSIONS OF A PARTICULAR MANUFACTURER, (GENERALLY THE FIRST NAMED). WHILE OTHER MANUFACTURERS MAY BE ACCEPTABLE, IT IS THE RESPONSIBILITY OF THE TRADE TO DETERMINE IF THE EQUIPMENT PROPOSED WILL FIT IN THE ALLOCATED SPACE.

INSTALL ALL EQUIPMENT IN A MANNER TO PERMIT ACCESS TO ALL SURFACES. MAINTAIN PROPER CLEARANCE TO MEET ALL SAFETY AND OPERATING CODES, PARTICULARLY N.E.C. INCLUDE ALL REQUIREMENTS DICTATED BY OPERATION, CONTROL, ADJUSTMENT, MAINTENANCE AND POSSIBLE REPLACEMENT OF EQUIPMENT IN DETERMINING CLEARANCE.

SHOULD THERE BE APPARENT VIOLATIONS OF N.E.C. CLEARANCE, NOTIFY THE ARCHITECT-ENGINEER BEFORE PROCEEDING WITH CONNECTION OR PLACEMENT OF EQUIPMENT.

COORDINATION
INSTALLATION STUDIES ARE REQUIRED TO COORDINATE THE ELECTRICAL WORK WITH THE WORK OF OTHER TRADES. PREPARE COORDINATION DRAWINGS AT ACCURATE SCALE WHERE SEVERAL ELEMENTS OF ELECTRICAL OR COMBINED MECHANICAL/STRUCTURAL/ELECTRICAL WORK MUST BE SEQUENCED AND POSITIONED WITH PRECISION IN ORDER TO FIT INTO THE AVAILABLE SPACE.

SHOW THE ACTUAL PHYSICAL DIMENSIONS REQUIRED FOR PROPER INTEGRATION OF EQUIPMENT WITH BUILDING SYSTEMS.

PROVIDE APPROVED SHOP DRAWINGS TO ALL REQUIRED DISCIPLINES AND VERIFY FINAL ELECTRICAL CHARACTERISTICS BEFORE ROUGHING POWER FEEDS TO ANY EQUIPMENT. WHEN ELECTRICAL DATA ON APPROVED SHOP DRAWINGS DIFFERS FROM CONTEMPLATED DESIGN, MAKE NECESSARY ADJUSTMENTS TO THE WIRING, DISCONNECTS, AND BRANCH-CIRCUIT PROTECTION FOR THE EQUIPMENT ACTUALLY INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

DAMAGE FROM INTERFERENCE CAUSED BY INADEQUATE COORDINATION SHALL BE RECTIFIED AT NO ADDITIONAL COST TO THE OWNER.

WORKMANSHIP
ALL WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.

ANY MATERIAL ITEMS OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THESE SPECIFICATIONS OR VISA-VERSA, OR ANY ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

THIS TRADE SHALL DO OR HAVE DONE BY COMPETENT TRADESMEN ALL CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF THIS WORK. NO CUTTING IN CONSTRUCTIVE PARTS OF THE BUILDING LIKELY TO IMPAIR ITS STRENGTH SHALL BE DONE WITHOUT THE ARCHITECT-ENGINEER'S WRITTEN APPROVAL.

EXCAVATION AND BACKFILL
EXCAVATION, TRENCHING AND BACKFILLING ARE SPECIFIED IN SECTION EXCAVATION TRENCHING AND BACKFILLING FOR UTILITIES. CONDUIT IS TO BE INSTALLED AS SPECIFIED FOR PIPELINES. CONDUIT INSTALLED BENEATH FLOOR SLAB SHALL BE A MINIMUM OF 6" BELOW SLAB. BACKFILL OVER CONDUIT SHALL BE COMPACTED AS FOR SLAB BEDDING MATERIAL. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF CONDUIT (PIPE) PENETRATION OF EXTERIOR FOOTINGS. COMPLETE INSTALLATION SHALL CONFORM TO N.E.C.

PENETRATIONS
COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION OF FIRE-STOPPING SPECIFIED IN ARCHITECTURAL SPECIFICATIONS.

ROOFS: COORDINATE ALL ROOF PENETRATIONS WITH ENGINEER, OWNER, AND AS APPLICABLE, THE ROOFING CONTRACTOR PROVIDING A ROOF WARRANTY. KEEP ALL RACEWAY PENETRATIONS WITHIN MECHANICAL EQUIPMENT CURBS WHEREVER POSSIBLE. COORDINATE WITH DIVISION 15. FLASH AND COUNTERFLASH ALL OPENINGS THROUGH ROOF, AND/OR PROVIDE PRE-FABRICATED MOLDED SEALS COMPATIBLE WITH THE ROOF CONSTRUCTION INSTALLED, OR AS REQUIRED BY THE ENGINEER, OWNER, OR ROOFING CONTRACTOR. ALL ROOF PENETRATIONS SHALL BE LEAKTIGHT AT THE TERMINATINO OF THE WORK AND SHALL NOT VOID ANY NEW OR EXISTING ROOF WARRANTIES.

WALLS AND FLOORS - SLEEVES FOR RACEWAYS AND CABLES:
STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS AND DRIP RINGS.

CAST IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE", EQUIVALIENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL SATERSTOP, UNLESS OTHERWISE INDICATED.

FIRESTOPPING: FIRE RESISTANT THROUGH PENETRAION SEALANTS - TWO PART, FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN THROUGH-PENETRAION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE TRAY PENETRAIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E 814, BY UNDERWRITER'S LABORATORIES, INC., OR OTHER NRTL ACCEPTABLE TO AHJ.
ACCEPTABLE MANUFACTURERS - HILTI, INC., 3M CORP, RECTORSEAL, SPECIFY TECHNOLOGY INC., UNITED STATES GYPSUM COMPANY.

ELECTRICAL SERVICE
SERVICE SHALL BE AS SHOWN ON DRAWINGS.

PROVIDE SECONDARY SERVICE INTO THE BUILDING WITH CONDUIT AND WIRING AS SHOWN ON THE PLANS, INCLUDING, BUT NOT LIMITED TO, UNDERGROUND RACEWAYS AND CABLES AND SECONDARY CONNECTIONS TO UTILITY TRANSFORMERS AS REQUIRED BY SERVING ELECTRICAL UTILITY COMPANY. COORDINATE ALL REQUIREMENTS WITH UTILITY COMPANY PRIOR TO BID.

PROVIDE ALL REQUIRED GROUNDING FOR A COMPLETE SERVICE ENTRANCE GROUNDING SYSTEM. PERMANENTLY AND EFFECTIVELY GROUND AND BOND THE ELECTRICAL INSTALLATION IN A THOROUGH AND EFFICIENT MANNER, AND IN CONFORMANCE (AT A MINIMUM) WITH N.E.C. OR THESE DOCUMENTS, WHERE THEY EXCEED CODE REQUIREMENTS. USE BARE OR INSULATED CONDUCTORS, AS SPECIFIED HEREIN, AND OTHER MATERIALS INDICATED ON THE DRAWINGS.

PROVIDE ALL NECESSARY ENCLOSURES REQUIRED BY THE OWNER FOR THE UTILITY COMPANY METERING. REFER TO DRAWINGS FOR MINIMUM REQUIREMENTS. COORDINATE WITH UTILITY COMPANY PRIOR TO BID FOR ALL REQUIREMENTS.

PRODUCTS

GENERAL
ALL EQUIPMENT OF A PARTICULAR KIND, SUCH AS WIRING DEVICES AND PANELBOARDS AND ALL LIGHTING FIXTURES OF THE SAME TYPE, SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.

PROVIDE ACCESS PANELS FOR ALL EQUIPMENT AND DEVICES REQUIRING SUCH PANELS. SIZE AS REQUIRED FOR PROPER ACCESS AND MAINTENANCE, MINIMUM ACCEPTABLE IS 12 IN BY 12 IN CLEAR OPENING WHERE HAND ACCESS ONLY IS REQUIRED.

PROVIDE LABELS FOR EACH MOTOR CONTROLLER, SAFETY SWITCH, RELAY, PANELBOARD, CONTACTOR, TIMER, CONTROL DEVICE, METER AND CIRCUIT BREAKER. LABELS SHALL BE LAMINATED, PHENOLIC STRIPS 1/16" THICK, AND ENGRAVED TO SHOW BLACK LETTERS ON A WHITE BACKGROUND NOT LESS THAN 1/4" HIGH. SIZE STRIPS TO PROPERLY FIT MANUFACTURER'S BRACKETS AND BE LEGIBLE. WHERE MANUFACTURER'S BRACKETS ARE NOT PROVIDED, MOUNT LABELS WITH PROPER SCREWS, OR AN APPROVED ADHESIVE.

RACEWAYS
CONDUIT, RIGID STEEL; GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.L. FITTINGS SHALL BE PIPE THREADED, MALLEABLE IRON. CONNECTORS SHALL BE INSULATED THROAT TYPE.

CONDUIT, PVC: POLYVINYLCHLORIDE SCHEDULE 40 PIPE SPECIFICALLY MANUFACTURED AND LABELED (UL STANDARD 651) FOR USE AS ELECTRICAL CONDUIT. FITTINGS SHALL BE EITHER SOCKET WELDED TYPE OR PIPE THREADED WITH INSULATED THROAT.

CONDUIT, FLEXIBLE METALLIC: GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH GALVANIZED OR SHERADIZED FITTINGS. LISTED PER UL-L. FITTINGS SHALL BE OF THE SQUEEZE TYPE WITH INSULATED THROATS.

CONDUIT, LIQUIDTIGHT FLEXIBLE METALLIC: GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH OVERALL JACKET OF LIQUID TIGHT PVC, UL LISTED. FITTINGS SHALL BE STEEL OR MALLEABLE IRON INSULATED THROAT, WATERTIGHT.

ELECTRIC METALLIC TUBING: GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.3. FITTINGS 1/2 INCH THROUGH 2 INCH TRADE SIZE SHALL BE COMPRESSION TYPE, MANUFACTURED FROM MALLEABLE IRON OR STEEL, AND RAIN AND/OR CONCRETE-TIGHT AS REQUIRED BY INSTALLATION. POT METAL OR DIE CAST TYPE FITTINGS ARE PROHIBITED. CONNECTORS SHALL BE INSULATED THROAT TYPE.

CONDUCTORS AND CABLES
GENERAL: SERVICE LATERALS AND PANELBOARD FEEDERS SHALL BE OF ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70; SOLID CONDUCTOR FOR NO. 10 AWG AND SMALLER; CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL FEEDER CONDUCTORS NO 8 AWG AND LARGER; STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION.

ALL BRANCH CIRCUITS SHALL BE ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70; SOLID CONDUCTOR FOR NO. 10AWG AND SMALLER; CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL BRANCH CIRCUIT CONDUCTORS NO 8 AWG AND LARGER; STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION. ALL CONDUCTORS, NO 10 AWG AND SMALLER, USED FOR POWER AND LIGHTNG CIRCUITS; SOLID COPPER, TYPE THWN-2 INSULATION (WET OR DAMP LOCATIONS, OR IN CONDUIT BELOW GRADE OR SLAB), TYPE THHN INSULATION (DRY LOCATIONS ONLY ABOVE GRADE), OR DUAL RATED TYPE THHN/THWN-2. ALL BRANCH CIRCUIT WIRING SHALL NOT BE SMALLER THAN NO 12 AWG. IF NO CONDUCTOR SIZE IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE CONDUCTORS AND CONDUIT SIZED PER NFPA 70 AND BASED ON THE INDICATED BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE RATING AND NUMBER OF POLES. WHERE NO CIRCUIT SIZE (CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICE) IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE THREE NO 12 AWG CONDUCTORS IN 3/4" RACEWAY, AND A 20A SINGLE POLE CIRCUIT BREAKER.

CONDUCTOR INSULATION TYPES; 90-DEGREE C-RATED, TYPE THHN/THWN-2 OR XHHW-2 COMPLYING WITH ICEA S-95-658/NEMA WC70.

COLORS FOR 208/120V CONDUCTORS
PHASE A: BLACK
PHASE B: RED
PHASE C: BLUE
NEUTRAL: WHITE
EQUIPMENT GROUND: GREEN
ISOLATED GROUND: GREEN WITH YELLOW STRIPE

COLORS FOR 480/277V CONDUCTORS
PHASE A: BROWN
PHASE B: ORANGE
PHASE C: YELLOW
NEUTRAL: WHITE
EQUIPMENT GROUND: GREEN

UNLESS NOTED OTHERWISE, SPECIAL PURPOSE CONDUCTORS AND CABLES, SUCH AS LOW VOLTAGE CONTROL AND SHIELDED INSTRUMENT WIRING, SHALL BE AS RECOMMENDED BY THE SYSTEM EQUIPMENT MANUFACTURER.

CONTROL WIRING; STRANDED COPPER CONDUCTORS, 600V INSULATION, OF THE PROPER TYPE, SIZE AND NUMBER AS REQUIRED TO ACCOMPLISH SPECIFIED FUNCTION. MINIMUM SIZE; NO. 14 AWG UNLESS NOTED OTHERWISE.

MC TYPE CABLE CAN BE USED IF ACCEPTED BY LOCAL AUTHORITY AND GOVERNING CODES FOR WHIPS FROM JUNCTION BOX TO LIGHT FIXTURES ONLY. TYPE MC CABLE; 600V, UNJACKETED; ANSI E119 AND E814, UL STANDARDS 44 OR 83 (AS APPLICABLE), AND 1569, NFPA 70 ARTICLE 330; ALUMINUM OR GALVANIZED STEEL INTERLOCKED ARMOR; THHN- OR XHHW-INSULATED CONDUCTORS; COLOR CODE; ICEA METHOD 1, WITH GREEN INSULATED GROUDING CONDUCTOR.

PROVIDE A DEDICATED EQUIPMENT-GROUNDING CONDUCTOR, OR BONDING JUMPER, AS APPLICABLE, IN ALL BRANCH CIRCUITS AND FEEDERS, SIZED IN ACCORDANCE WITH NFPA 70, UNLESS INDICATED AS LARGER ON THE DRAWINGS.

PROVIDE A DEDICATED NEUTRAL (WHERE REQUIRED) AND DEDICATED GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT.

VOLTAGE DROP IN BRANCH CIRCUITS SHALL NOT EXCEED 2%.

GFCI CIRCUITS: DO NOT USE MULTI-CONDUCTOR CIRCUITS, WITH A SHARED NEUTRAL FOR ANY GFCI CIRCUIT BREAKER OR RECEPTACLE CIRCUIT. BRANCH CIRCUITS FED FROM GFCI CIRCUIT BREAKERS, LIMIT THE ONE-WAY CONDUCTOR LENGTH TO 100 FEET BETWEEN THE PANELBOARD AND THE MOST REMOTE RECEPTACLE OR LOAD ON THE GFCI CIRCUIT.

BOXES
OUTLET BOXES: GALVANIZED PRESSED STEEL WITH GALVANIZED STEEL EXTENSION RINGS OR PLASTER RINGS OR TILE RINGS TO PROVIDE EXPOSED SURFACE FLUSH WITH WALL OR CEILING FINISH. PROVIDE ALL CEILING OUTLET BOXES WITH "NO-BOLT" OR THROUGH AND LOCKNUTTED TYPE FIXTURE STUDS.

JUNCTION AND PULL BOXES: FABRICATE IN ACCORDANCE WITH NEMA AND N.E.C. STANDARDS AND REQUIREMENTS INSOFAR AS MATERIAL, GAUGES, DIMENSIONS, AND FABRICATION METHODS. BOXES SHALL BEAR THE UL LABEL. WHERE BOXES ARE NOT SIZED ON THE DRAWINGS, THEY SHALL BE SIZED IN ACCORDANCE WITH N.E.C. REQUIREMENTS. FINISH IN STANDARD GRAY ENAMEL, WITH SIDES AND BACK SPOT-WELDED IN POSITION AND THE REMOVABLE SCREW COVER MOUNTED WITH BRASS MACHINE SCREWS.

WIRING DEVICES
SWITCHES: HEAVY DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE-POLE, DOUBLE-POLE, THREE-POLE, OR FOUR-WAY AS NOTED ON DRAWINGS OR AS REQUIRED FOR THE SWITCHING ARRANGEMENTS IN EACH SPACE. HUBBELL #HBL122** OR EQUAL. COORDINATE SWITCH COLORS WITH COVERPLATES AS DESCRIBED BELOW UNDER "PLATES".

SWITCHES, SPECIAL PURPOSE: KEY OPERATED, HEAVY-DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE OR MULTI-POLE AS NOTED OR AS REQUIRED. HUBBELL #HBL122** OR EQUAL.

RECEPTACLES: THREE WIRE GROUNDING TYPE, 120 VOLT RATED, SPECIFICATION GRADE 20 AMPERES DUPLEX UNLESS NOTED OTHERWISE ON DRAWINGS. HUBBELL #5362 OR EQUAL. COORDINATE RECEPTACLE COLOR WITH COVERPLATE AS DESCRIBED BELOW UNDER "PLATES". SINGLE RECEPTACLE, 20 AMPERE, 120 VOLT, SPECIFICATION GRADE. HUBBELL #5361 OR EQUAL.

DUST AND MOISTURE RESISTANT, MELAMINE BODY, GRAY NYLON FACE BACKED BY FABRIC REINFORCED NEOPRENE GASKET SLIT TO PROVIDE WIPING ACTION ON CAP BLADES. PASS & SEYMOUR #6307 OR APPROVED EQUAL. GROUND FAULT CIRCUIT INTERRUPTER, NYLON FACE CLASS A, NEMA 5-20R, SPECIFICATION GRADE. HUBBELL #GF-5362* OR EQUAL.

CORROSION RESISTANT, SIMILAR AND APPROVED EQUAL TO STANDARD RECEPTACLE, EXCEPT FABRICATED FROM YELLOW MELAMINE PLASTIC WITH YELLOW NYLON FACE AND EXPOSED METAL PARTS FINISHED TO RESIST CORROSION. (NEMA 5-15R = HUBBELL #52CM61).

ISOLATED GROUND, DUPLEX OR SIMPLEX THREE WIRE GROUNDING TYPE, SPECIFICATION GRADE, ORANGE FACE, GROUND CONTACT FULLY ISOLATED FROM STRAP AND EQUIPPED WITH SCREW TERMINAL. HUBBELL #IG-5362* OR EQUAL.

RECEPTACLES, SPECIAL PURPOSE: SPECIAL PURPOSE OUTLETS SHALL BE AS SCHEDULED ON DRAWINGS.

PLATES: PROVIDE PLATES FOR ALL OUTLET BOXES. PLATES SHALL BE OF SUITABLE CONFIGURATION FOR THE NUMBER AND TYPE OF DEVICES SERVED, SHALL BE ONE PIECE, SHALL OVERLAP OUTLET BOX EDGE AND ROOM SURFACES, AND SHALL BE SMOOTH FINISH NYLON TYPE OF SAME MANUFACTURER AS THE WIRING DEVICES. VERIFY DESIRED MATERIALS AND COLORS WITH ARCHITECT PRIOR TO INSTALLATION.

STANDARD INTERIOR: IVORY FINISHED ON LIGHT COLORED WALLS - COORDINATE ALL COLORS WITH ARCHITECT

INTERIOR DAMP LOCATIONS: STAINLESS STEEL.

EXTERIOR LOCATIONS: FOR UNATTENDED WET LOCATIONS, PROVIDE IN-USE NEMA 3R, UL LABELED PLATES MOLDED FROM A CLEAR HIGH IMPACT ULTRAVIOLET STABILIZED POLYCARBONATE MATERIAL FOR EASY VERIFICATION THAT CORDS ARE PLUGGED IN AND THAT THE GFCI IS FUNCTIONING. COVER PLATES SHALL BE BY THE SAME MANUFACTURER AS THE WIRING DEVICES; COMPLYING WITH NFPA 70 406.8 (A) OR (B) REQUIREMENTS FOR ATTENDED OR UNATTENDED USE AS APPLICABLE.

ACCEPTABLE MANUFACTURERS: HUBBELL, PASS & SEYMOUR, LEVITON AND COOPER.

CABINETS AND ENCLOSURES
FURNISH AND INSTALL FLUSH CABINETS AND ENCLOSURES AS SHOWN ON THE PLANS AND AS HEREIN SPECIFIED. UNIT SHALL BE PROVIDED WITH DEAD FRONT SUB PANEL, RECESSED AS REQUIRED, TO HOUSE CONTROLS. DOOR SHALL BE PROVIDED WITH CONCEALED HINGES AND FLUSH KEY OPERATED LOCK. DOOR AND TRIM SHALL BE PRIME PAINTED FOR FIELD PAINTING TO MATCH WALL FINISHES. PROVIDE KNOCK-OUTS, LOUVERS AND IDENTIFICATION ENGRAVING AS REQUIRED TO MEET FIELD CONDITIONS. EXACT BACKBOX SIZE TO BE COORDINATED WITH EQUIPMENT SUPPLIER.

CIRCUIT DISCONNECTS
SAFETY SWITCHES: SAFETY SWITCHES SHALL CONSIST OF A BOX, FRONT COVER, AND CIRCUIT PROTECTOR DEVICE ALL MANUFACTURED AND ASSEMBLED IN ACCORDANCE WITH NEMA STANDARDS

THE BOX SHALL BE FABRICATED FROM CODE GAUGE GALVANIZED SHEET STEEL IN ACCORDANCE WITH U.L. LISTING AND LABEL. THE CIRCUIT PROTECTOR DEVICE SHALL BE HEAVY DUTY, QUICK-MAKE, QUICK-BREAK FUSED OR UNFUSED SWITCH RATED FOR MOTOR CIRCUITS AND/OR SERVICE ENTRANCE DUTY, IF REQUIRED. UNITS SHALL BE FURNISHED FOR SURFACE OR FLUSH MOUNTING WITH EITHER GENERAL PURPOSE OR RAINTIGHT ENCLOSURES, AS REQUIRED. FUSED UNITS SHALL BE FURNISHED COMPLETE WITH PROPER FUSES.

PANELBOARDS
SHALL CONSIST OF BOX, INTERIOR, FRONT, AND CIRCUIT PROTECTIVE DEVICES. THE ASSEMBLY SHALL BE U.L. LABELED AND BE LISTED FOR SERVICE. THE ASSEMBLY SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH NEMA STANDARD PB-1. THE LATEST UL STANDARD (UL-50) AND SHALL HAVE A TURNED EDGE AROUND THE FRONT FOR RIGIDITY AND FOR CLAMPING ON FRONT. PROVIDE STANDARD KNOCKOUTS ON REMOVABLE BOX ENDS. FABRICATE FROM SHEET STEEL AND FINISH WITH BAKED ON GRAY ENAMEL OVER RUST INHIBITOR. EACH FRONT SHALL HAVE A DOOR MOUNTED ON SEMI-CONCEALED HINGES WITH A CYLINDER LOCK, INDEX CARD CIRCUIT DIRECTORY MOUNTED BEHIND CLEAR PLASTIC AND HELD IN A METAL FRAME, AND CONCEALED TRIM CLAMPS FOR MOUNTING TO THE BOX. ALL LOCKS SHALL BE MASTER KEYED AND ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

ALL INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED. THE DESIGN OF THE INTERIOR SHALL PERMIT REPLACEMENT OF INDIVIDUAL BRANCH BREAKERS WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT MACHINE DRILLING OR TAPPING. BUS BARS FOR PANELS RATED 600 AMPERES OR MORE SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OR TIN FINISH ALUMINUM (57% CONDUCTIVITY) OF RECTANGULAR CROSS-SECTION. BUS BARS FOR PANELS RATED LESS THAN 600 AMPERES SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OF RECTANGULAR CROSS-SECTION. BUS BAR CONNECTIONS TO BRANCH CIRCUIT BREAKERS SHALL BE THE PHASE SEQUENCE TYPE AND ACCEPT BOLT-ON TYPE BREAKERS ONLY. PANELBOARD BUS STRUCTURE AND MAIN BREAKER OR MAIN LUGS SHALL BE RATED AS SCHEDULED ON DRAWING. SUCH RATINGS SHALL BE ESTABLISHED BASED ON HEAT RISE TESTS IN ACCORDANCE WITH UL STANDARDS. GROUP INCOMING CABLE LUGS AT ONE END FOR SEPARATION FROM LOAD SIDE CABLES. EQUIPMENT NEUTRAL BUSSING WITH A LUG FOR EACH BRANCH BREAKER POSITION. INTERIOR SHALL MOUNT TO BOX WITHOUT TOOLS.

BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, BOLT-ON THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKERS ONE, TWO OR THREE POLE WITH INTEGRAL CROSSBAR FOR MULTI-POLE UNITS, EQUIPPED WITH AN OVERCENTER, TRIP-FREE, TOGGLE-TYPE OPERATING ACTION AND POSITIVE HANDLE INDICATION OF BREAKER STATUS. CIRCUIT BREAKERS SHALL BE UL LISTED IN ACCORDANCE WITH UL STANDARDS.

EACH PANELBOARD, AS A COMPLETE UNIT, SHALL HAVE A SHORT CIRCUIT RATING EQUAL TO OR GREATER THAN THE INTEGRATED EQUIPMENT RATING SHOWN ON DRAWINGS. THE RATING SHALL BE ESTABLISHED BY TESTING WITH THE OVERCURRENT DEVICES MOUNTED IN THE PANELBOARD. THE SHORT CIRCUIT TESTS ON THE OVERCURRENT DEVICES ON THE STRUCTURE SHALL BE MADE SIMULTANEOUSLY BY CONNECTING THE FAULT TO EACH OVERCURRENT DEVICE WITH THE PANELBOARD CONNECTED TO ITS RATED SUPPLY VOLTAGE.

REFER TO PANELBOARD SCHEDULES FOR FULLY RATED OR SERIES-RATED REQUIREMENTS. SERIES-RATED SYSTEMS ARE NOT ALLOWED UNLESS SPECIFICALLY INDICATED ON PANELBOARD SCHEDULES. WHERE ALLOWED, SERIES-RATED SYSTEMS SHALL BE PROPERLY LABELLED BY NEC REQUIREMENTS.

METHOD OF TESTING SHALL BE PER UL STANDARDS. PANELBOARDS SHALL BE MARKED WITH THEIR MAXIMUM SHORT CIRCUIT CURRENT RATING AT THE SUPPLY VOLTAGE.

APPROVED MANUFACTURERS: SQUARE-D CO. OR EQUAL BY GE, SIEMENS AND/OR EATON.

OVERCURRENT PROTECTIVE DEVICES
FUSES OF THE PROPER SIZE, RATING AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED IN EACH FUSIBLE DEVICE. FUSES OF 600 VOLTS AND BELOW SHALL BE UL CLASS RK-1, CURRENT-LIMITING, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERE RMS SYMMETRICAL INTERRUPTING CAPACITY ON NON-MOTOR CIRCUITS AND UL CLASS RK-5, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERES RMS SYMMETRICAL INTERRUPTING CAPACITY ON MOTOR CIRCUITS.

APPROVED MANUFACTURERS: BUSSMANN, LITTLEFUSE OR FERRAZ-SHAWMUT (ALL FUSES SHALL BE OF SAME MANUFACTURER TO ENSURE SELECTIVE COORDINATION).

CIRCUIT BREAKERS: CIRCUIT BREAKERS OF THE PROPER SIZE, RATING, AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED WHERE CALLED FOR ON DRAWINGS. BREAKERS SHALL BE THERMAL MAGNETIC MOLDED-CASE WITH QUICK-MAKE, QUICK-BREAK, OVER CENTER TOGGLE TYPE MECHANISM AND TRIP-FREE HANDLE MECHANISM. THE BREAKER SHALL BE ENCLOSED IN A SUITABLE NEMA RATED ENCLOSURE. BREAKERS SHALL BE OF SAME MANUFACTURER AS THOSE IN THE PANELBOARDS.

TIMESWITCHES
ELECTRONIC TIME SWITCHES: ELECTRONIC, SOLID STATE PROGRAMMABLE UNITS WITH ALPHANUMERIC DISPLAY; COMPLYING WITH UL917. SPST, 30 AMPERE INDUCTIVE OR RESISTIVE, 240VAC, CONTACT RATING. 2 PROGRAMMABLE ON-OFF SET POINTS ON A 24-HOUR SCHEDULE, ALLOWING DIFFERENT SET POINTS FOR EACH DAY OF THE WEEK. ALLOW CONNECTION OF A PHOTOELECTRIC RELAY AS SUBSTITUE FOR ON-OFF FUNCTION OF A PROGRAM. ASTRONOMIC TIME ON ALL CHANNELS. BATTERY BACKUP FOR SCHEDULES AND TIME CLOCK.

OUTDOOR PHOTOELECTRIC SWITCHES
SOLID STATE, WITH SPST DRY CONTACT RATED FOR 1800-VA TUNGSTEN OR 1000-VA INDUCTIVE, TO OPERATE CONNECTED RELAY, CONTACTOR COILS OR MICROPROCESSOR INPUT, COMPLYING WITH UL 773A.

TELEPHONE AND DATA SYSTEMS
FURNISH AND INSTALL A SYSTEM OF PROPERLY SIZED AND PROPERLY LOCATED OUTLETS WITH ASSOCIATED CONNECTING CONDUIT RUNS, EXTENDING TO PULL BOXES AND TELEPHONE BACKBOARD. FURNISH AND INSTALL RACEWAYS, FOR INCOMING SERVICE WHERE INDICATED.
OUTLET BOXES: UNLESS OTHERWISE INDICATED, ALL TELEPHONE OUTLETS AND JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO ACCOMMODATE INTERNAL TERMINAL STRIPS BY TELEPHONE CO.

OUTLET COVER PLATES: TELEPHONE OUTLET COVER PLATES SHALL MATCH THOSE SPECIFIED FOR ADJACENT WIRING DEVICES, INCLUDING THOSE WITH SPECIAL FINISHES.

RACEWAYS: MATERIALS FOR TELEPHONE RACEWAY SYSTEM WORK SHALL BE IN ACCORDANCE WITH CORRESPONDING RACEWAYS SPECIFIED HEREIN AND IN OTHER SECTIONS.

VERIFY LOCATION OF WALL OUTLETS BEFORE ROUGHING IN TO ENSURE COORDINATION WITH OWNER'S FINAL INTENDED FURNITURE LAYOUT. PLAN INDICATIONS SHALL NOT BE SCALED UNLESS DIRECTED. OUTLETS SHALL BE RELOCATED WITHIN ROOMS BEFORE ROUGH-IN WHERE DIRECTED BY ARCHITECT-ENGINEER WITHOUT ADDITIONAL COST TO OWNER.

TELEPHONE SERVICE CONDUIT LAYOUT SHALL HAVE THE JOB SITE APPROVAL OF AN AUTHORIZED REPRESENTATIVE OF THE TELEPHONE CO. COORDINATE WORK SO THAT BOTH TELEPHONE CO. AND OWNER'S REPRESENTATIVES ARE PRESENT AT THE SAME TIME FOR APPROVAL OR CHANGES IN AMPLE TIME FOR ANY REQUIRED CORRECTIONS BEFORE COMPLETION OF PROJECT.

FROM EACH TELEPHONE OUTLET, PROVIDE 3/4" EMT CONDUIT CONCEALED IN WALL TO 6" ABOVE ACCESSIBLE CEILING OR UP TO STRUCTURE WHERE NO CEILING EXISTS, UNLESS SHOWN OTHERWISE ON DRAWINGS.

TELEPHONE TERMINAL BOARD: PRIOR TO INSTALLATION OF TELEPHONE TERMINAL BOARD, THE EXACT LOCATION SHALL BE VERIFIED WITH THE TELEPHONE CO. THE TELEPHONE TERMINAL BOARD SHALL BE PROVIDED WITH A DOUBLE DUPLEX RECEPTACLE LOCATED WHERE INDICATED ON THE DRAWINGS. THE TERMINAL BOARD SHALL BE CONSTRUCTED OF 4' X 8' X 3/4" PLYWOOD WITH TWO (2) COATS OF FLAME RETARDANT PAINT UNLESS NOTED OTHERWISE ON DRAWINGS.

LIGHTING
FIXTURES ARE SPECIFIED IN THE SCHEDULE BY MANUFACTURER'S NAME AND CATALOG NUMBER.

ALL RECESSED LIGHT FIXTURES SHALL BE PROVIDED WITH FACTORY INSTALLED THERMAL PROTECTION.

ALL LAMPS USED ON THIS PROJECT SHALL BE NEW, DELIVERED TO THE JOB SITE IN THE ORIGINAL PACKING CASES AND SLEEVES AND SHALL BE OF THE SAME MANUFACTURER.

PROVIDE FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS SUITABLE FOR OPERATION OF LAMPS SPECIFIED; TOTAL HARMONIC DISTORTION LESS THAN 20%; FREQUENCY OF OPERATION OF 20 KHZ OR GREATER WITH NO VISIBLE FLICKER; LINE TRANSIENT WITHSTAND RATINGS AS DEFINED IN ANSI/IEEE, CATEGORY A. APPROVED MANUFACTUERERS: ADVANCE OR EQUAL BY MAGNETEK, MOTOROLA OR OSRAM.

HID BALLASTS SHALL BE AUTO TRANSFORMER REACTOR, HIGH POWER FACTOR POTTED AND ENCASED TO MINIMIZE SOUND. APPROVED MANUFACTURERS: GE, SYLVANIA, OR OSRAM.

LED LIGHT FIXTURES ARE TO BE PROVIDED WITH COMPATIBLE DRIVER AND MUST BE COORDINATED WITH CONTROL TYPE INDICATED. CONTRACTOR IS RESPONSIBLE TO ENSURE CONTROLS ARE CAPABLE OF PROPERLY CONTROLLING LIGHT FIXTURES AS INDICATED WITHIN THESE DRAWINGS.

CONTACTORS AND RELAYS
ALL CONTACTORS AND RELAYS SHALL BE UL LISTED AND LABELED, GENERAL PURPOSE, ELECTRICALLY HELD TYPE, IN NEMA 1 ENCLOSURES. WHERE SPECIFICALLY NOTED ON DRAWINGS, UNITS SHALL BE ELECTRICALLY HELD OR MOMENTARY OPERATIONAL TYPE. UNITS SHALL BE FURNISHED WITH LINE OR LOW VOLTAGE CONTROL AS NOTED AND WITH THE CORRECT NUMBER OF POLES AND CURRENT CHARACTERISTICS. WHERE LOW VOLTAGE OPERATION IS INDICATED, PROVIDE PROPER STEPDOWN TRANSFORMERS AND RECTIFIERS. APPROVED MANUFACTURERS: ASCO, OR MANUFACTURER OF APPROVED PANELBOARDS FURNISHED.

TRANSFORMERS
GENERAL PURPOSE, UL-LISTED/LABELED 150 DEGREES C TEMPERATURE RISE ABOVE 40 DEGREES C AMBIENT. INSULATING MATERIALS: EXCEED NEMA ST-020 STANDARDS, RATED FOR 220 DEGREES C, UL-COMPONENT RECOGNIZED INSULATION SYSTEM. PHASES, VOLTAGES, AND SIZES: AS INDICATED ON THE DRAWINGS. SOUND LEVEL: NOT EXCEEDING NEMA STANDARDS FOR THE SIZES INDICATED. FULL-CAPACITY PRIMARY TAPS: BELOW 25 KVA - MINIMUM OF TWO 5% (2-); 25 KVA TO 300 KVA - MINIMUM OF SIX 2.5% (2+, 4-); ABOVE 300 KVA - FOUR 2.5% (2+, 2-). TRANSFORMER CORE AND COIL ASSEMBLIES: MOUNTED ON INTEGRAL VIBRATION-ABSORBING PADS. MAKE FINAL CONDUIT CONNECTIONS TO TRANSFORMERS WITH FLEXIBLE CONDUIT, WITH AT LEAST 6" OF SLACK IN ALL DIRECTIONS. TRANSFORMER ENCLOSURES: FULLY ENCLOSED (EXCEPT FOR VENTILATION OPENINGS), NEMA 2, DRIP-PROOF, FABRICATED OF HEAVY GAUGE SHEET STEEL CONSTRUCTION. MANUFACTURERS: SQUARE D, GENERAL ELECTRIC, ACME, SIEMENS.

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REVISION DATES:
1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010759
PROFESSIONAL ENGINEER
03/22/2024
PROFESSIONAL SEAL

E501

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ELECTRICAL SPECIFICATIONS

WIRING OF MECHANICAL EQUIPMENT
PROVIDE ALL RACEWAYS AND POWER WIRING FOR ALL DIVISION 15 EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, PUMPS, WATER HEATERS, AND HVAC EQUIPMENT, AND ALL LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15. CONNECT PER MANUFACTURER'S WIRING DIAGRAMS. COORDINATE WITH DIVISION 15 FOR DISCONNECTS FURNISHED WITH EQUIPMENT, AND PROVIDE ALL DISCONNECT SWITCHES AS REQUIRED. AFTER INSTALLING WIRING, VERIFY THAT EACH MOTOR LOAD HAS THE CORRECT PHASE ROTATION.

VERIFY THE ACTUAL "MAXIMUM OVERCURRENT PROTECTION" DEVICE RATINGS AND "MINIMUM CIRCUIT AMPACITY" CONDUCTOR SIZING FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. BASE ELECTRICAL INSTALLATIONS ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY SOMEWHAT FROM THE CONDUCTOR AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS; HOWEVER, IN NO CASE, REDUCE THE SIZE OF CONDUCTORS INDICATED ON THE DRAWINGS WITHOUT AUTHORIZATION FROM THE ENGINEER. PROVIDE PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT WITHOUT EXTRA COST TO THE OWNER. NOTIFY THE ENGINEER OF ALL CHANGES REQUIRED IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES SO THAT THE EFFECTS ON FEEDERS, BRANCH CIRCUITS, PANELBOARDS, FUSES AND CIRCUIT BREAKERS CAN BE CHECKED PRIOR TO PURCHASING AND INSTALLATION. BE RESPONSIBLE FOR COORDINATING WITH DIVISION 15 TO VERIFY THE ACTUAL AMPACITIES AND CORRECT SIZES OF ALL CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICES FOR ALL EQUIPMENT. AND CORRECT OVERLOAD HEATERS FOR ALL MOTORS, WHEN STARTERS ARE PROVIDED UNDER DIVISION 16.

PROVIDE ALL RACEWAYS, POWER WIRING, AND LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15, FOR ALL THERMOSTATS, TEMPERATURE CONTROL DEVICES, AND CONTROLS, INCLUDING, BUT NOT LIMITED TO, NIGHT-STATS, WATER HEATER INTERLOCKS, TIME SWITCHES AND OVERRIDE TIMERS. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAMS. LOW-VOLTAGE CONDUCTORS FOR THERMOSTATS AND TEMPERATURE CONTROL SYSTEMS MAY BE RUN EXPOSED ABOVE FINISHED ACCESSIBLE CEILINGS, IF APPROVED AND LISTED FOR THIS PURPOSE, BUT SHALL BE INSTALLED IN CONDUIT WITHIN WALLS AND WHERE EXPOSED IN THE WORK AREAS.

EXECUTION

METHOD OF PROCEDURE
ERECT EQUIPMENT PARTS AT SUCH TIME AND IN SUCH MANNER AS TO MINIMIZE INTERFERENCES AND DELAYS IN THE EXECUTION OF THE WORK CARE SHALL BE USED IN THE ERECTION AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS TO AVOID MARRING SURFACES OF THE WORK. DAMAGES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

EQUIPMENT REQUIRING ELECTRICAL SERVICE SHALL NOT BE ENERGIZED OR PLACED IN SERVICE UNTIL ALL INTERESTED PARTIES HAVE BEEN DULY NOTIFIED AND ARE PRESENT OR HAVE WAIVED THEIR RIGHT TO BE PRESENT. WHERE EQUIPMENT TO BE PLACED IN SERVICE INVOLVES SERVICE OR CONNECTION FROM ANOTHER CONTRACTOR OR THE OWNER, NOTIFY THE OWNER IN WRITING WHEN THE EQUIPMENT WILL BE READY. THE OWNER SHALL BE NOTIFIED AS FAR IN ADVANCE AS POSSIBLE, OF THE DATE THE VARIOUS ITEMS OF EQUIPMENT WILL BE COMPLETE.

THE WORK OF THIS TRADE INCLUDES ROUGH-IN FOR AND FINAL CONNECTION AND REQUIRED TO ALL MISCELLANEOUS EQUIPMENT FURNISHED BY OTHERS, OR UNDER OTHER DIVISIONS OF THE WORK. THIS SHALL INCLUDE POWER AND CONTROL WIRING. WIRING DEVICES AND COVER-PLATES FOR BUILT-IN EQUIPMENT ARE INCLUDED IN THE WORK OF THIS DIVISION. SAFETY DISCONNECTS AND OTHER MISCELLANEOUS PROTECTIVE DEVICES REQUIRED BY N.E.C. ARE INCLUDED IN THE WORK OF THIS DIVISION. DO ALL ROUGHING-IN AND FINAL CONNECTIONS FROM APPROVED SHOP DRAWINGS ONLY.

COMPLIANCE WITH THE DRAWING AND ANY NOTES THEREON IS REQUIRED, PROVIDE OPENINGS THROUGH WALLS, PARTITIONS, FLOORS, AND ROOFS AS REQUIRED FOR ELECTRICAL WORK.

PROVIDE SLEEVES FOR ELECTRICAL WORK PASSING THROUGH WALLS, PARTITIONS, ROOFS, AND FLOORS. SLEEVES SHALL EXTEND THROUGH FLOORS, WALLS AND PARTITIONS AND SHALL BE CUT FLUSH WITH EACH SURFACE UNLESS OTHERWISE SPECIFIED. FIRE WALL AND/OR FLOOR INTEGRITY SHALL BE RESTORED AFTER PENETRATION. SLEEVES IN CONCRETE AND MASONRY WALLS, CONCRETE FLOORS AND ROOFS, SHALL BE FABRICATED FROM STANDARD GALVANIZED STEEL PIPE WITH ENDS FINISHED SMOOTH, BURR FREE, WITHOUT SHARP EDGES. SLEEVES IN WALLS, ROOFS, AND FLOORS OF OTHER CONSTRUCTION AND THROUGH SUSPENDED CEILINGS SHALL BE FABRICATED FROM 22 U.S. GAUGE GALVANIZED STEEL. FLOOR SLEEVES SHALL EXTEND THREE INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. SPACE BETWEEN FLOOR SLEEVES AND PASSING CONDUIT SHALL BE FILLED WITH DUCT SEAL PACKING AND CAULKED WITH WATERPROOF COMPOUND AS APPROVED. WHERE CONDUITS PASS THROUGH WATERPROOFED FLOORS OR WALLS, SLEEVES SHALL BE FABRICATED SUCH THAT WATERPROOFING CAN BE FLASHED ONTO AND AROUND THE SLEEVE.

RACEWAYS
ALL POWER AND LIGHTING CIRCUITS SHALL BE RUN IN METALLIC RACEWAYS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. THESE RACEWAYS SHALL BE RUN CONCEALED IN ALL FINISHED AREAS, AND WHERE RUN EXPOSED SHALL BE SQUARE TO THE BUILDING AND HELD TIGHT TO THE BUILDING CONSTRUCTION. LOW VOLTAGE, TELEPHONE, INTERCOM, MUSIC, ALARM AND SECURITY WIRING RUN ABOVE ACCESSIBLE CEILINGS SHALL BE RUN USING INSULATED, PLENUM RATED CABLE. PROVIDE LOW VOLTAGE CABLE IN CONDUIT IF REQUIRED BY LOCAL AHJ. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION. METALLIC CONDUIT FOR THESE SYSTEMS SHALL BE PROVIDED ONLY WHERE RUN INSIDE WALLS. THE DRAWINGS INDICATE THE REQUIRED SIZE OF ALL RACEWAYS (EXCEPT AS HEREINAFTER SPECIFIED), THE POINTS OF TERMINATION AND THE SUGGESTED ROUTING. HOWEVER, THE INSTALLER IS RESPONSIBLE FOR PROPER COORDINATION WITH BUILDING STRUCTURE AND THE WORK OF OTHER TRADES. FURNISH ALL REQUIRED BENDS, ELBOWS, FITTINGS, JUNCTION AND PULL BOXES, WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS, THAT MAY BE REQUIRED TO SATISFY CODES AND THE STANDARDS OF GOOD PRACTICE. WHERE CONDUITS FOR BOTH BRANCH AND FEEDER CIRCUITS ARE RUN CONCEALED, THEY MAY BE RUN OUT OF SQUARE TO THE BUILDING PROVIDING THE SHORTEST POSSIBLE RUN IS UTILIZED. RACEWAY SIZES ARE BASED ON THE USE OF COPPER CONDUCTORS AND N.E.C. FILL.

CONDUIT SHALL BE CONSTRUED AS ELECTRICAL RACEWAYS AND SHALL CONFORM TO THE FOLLOWING: CONCEALED IN SUSPENDED CEILINGS AND INTERIOR PARTITIONS - EMT WITH SET SCREW TYPE FITTINGS. UNDERGROUND OR BELOW INTERIOR SLABS - GRS. (NOTE: PVC CONDUIT IS PERMITTED OUTSIDE FOR PARKING AREA LIGHTING, SIGNS, ETC. ELBOWS SHALL BE GRS). EXPOSED ON BUILDING EXTERIOR - GRS.

CONDUIT BENDS SHALL BE MADE TO THE LARGEST POSSIBLE RADIUS FOR EASE IN PULLING CONDUCTORS AND TO PROVIDE A NEATLY INSTALLED APPEARANCE. EQUIPMENT AND CONDITIONS PERMITTING, POWER CONDUIT BENDS SHALL CONFORM TO THE FOLLOWING: 1-1/2 IN. - 18 IN. RADIUS; 2 IN. - 24 IN. RADIUS; 2-1/2 IN. - 24 IN. RADIUS; 3 IN. - 36 IN. RADIUS.

GRS CONDUIT SHALL BE CUT WITH POWER OR HACKSAW AND CLEANLY REAMED TO REMOVE ALL "BURRS" AND ALL FIELD CUT THREADS SHALL BE PAINTED WITH WHITE LEAD BEFORE COUPLINGS ARE APPLIED.

EMPTY CONDUIT SYSTEMS INSTALLED FOR COMMUNICATION SYSTEMS, PUBLIC TELEPHONES, OWNER ITEMS AND OTHER SYSTEMS AS INDICATED ON DRAWINGS SHALL BE INSTALLED COMPLETE WITH NYLON PULL WIRES PROPERLY TAGGED AT BOTH ENDS FOR IDENTIFICATION.

WHERE BUILDING VENTILATION CONDITIONS ARE SUCH THAT AIR MAY FLOW CONTINUOUSLY IN CONDUITS, CAUSING CONDENSATION AND THE COLLECTION OF MOISTURE, THE CONDUITS SHALL BE SEALED AT EACH END WITH A PLIABLE X DUCT SEALING COMPOUND. ALSO SEAL ALL CONDUITS ENTERING AND LEAVING REFRIGERATED EQUIPMENT AND PROVIDE EXPANSION JOINTS PER N.E.C.

ALL CONNECTIONS TO MOTORS, SOLENOID VALVES, PRESSURE SWITCHES, LIMIT SWITCHES, AND SIMILAR APPARATUS SHALL BE FLEXIBLE CONDUIT WHERE PERMITTED. WHERE EQUIPMENT IS INSTALLED OUTDOORS OR EXPOSED TO MOISTURE, USE LIQUIDTIGHT FLEXIBLE CONDUIT WITH WATERTIGHT FITTINGS.

EQUIPMENT LEVELING, HANGERS AND SUPPORTS
SET EACH PIECE INSTALLED UNDER THIS DIVISION TRUE AND LEVEL. ADEQUATELY SUPPORT ALL RACEWAYS FROM THE STRUCTURE USING SCREW CLAMPS TO SECURE TO SAME. ARRANGE SUPPORTS TO PREVENT MOISTURE COLLECTION AND ALLOW ENTRANCE TO BOXES WITHOUT BENDS. INSTALL MULTIPLE CONDUITS USING CHANNEL TRAPEZE SUPPORTS TIGHT TO STRUCTURE ABOVE. USE APPROVED SPACERS TO INSULATE FROM CONTACT WITH BUILDING. SIZE CLAMPS, INSERTS, CHANNELS AND ALL OTHER MEMBERS TO SUPPORT A LOAD EQUAL TO 200% OF THE COMBINED WEIGHT OF ALL SUPPORTED MATERIAL PLUS THE WEIGHT OF A MAN.

WHERE SEVERAL RACEWAYS ARE SUPPORTED ON A COMMON TRAPEZE HANGER, SUPPORTS SHALL BE SPACED TO ACCOMMODATE THE SMALLEST SIZE RACEWAY INVOLVED. SPACE HANGERS AS FOLLOWS:
RIGID CONDUIT: 1/2 AND 3/4 IN. SIZE; 6'-0" ON CENTERS; 1 AND 1-1/4 IN. SIZE; 9'-0" ON CENTERS
ELECTRIC METALLIC TUBING:
1/2 AND 3/4 IN. SIZE; 5'-0" ON CENTERS; 1 AND 1-1/4 IN SIZE; 6'-0" ON CENTERS.

SECURELY ATTACH HANGERS AND SUPPORTS TO CONSTRUCTION BY METHODS RECOMMENDED IN THE "NECA STANDARDS OF INSTALLATION" MANUAL COORDINATION WITH MECHANICAL TRADES: THE INTENT OF THE ABOVE CEILING SUPPORTS IS TO COMBINE AS MANY PIPES, CONDUITS, ETC., AS IS POSSIBLE WITHIN SAFE STRUCTURAL LIMITS, ON EACH HORIZONTAL SECTION OF A TRAPEZE HANGER. PRIOR TO SELECTING THE HORIZONTAL MEMBER, ALL TRADES, MECHANICAL AND ELECTRICAL, SHALL COORDINATE ACTUAL NUMBER OF PIPES, CONDUITS, ETC., SUCH THAT FINAL SELECTION RESULTS IN A NEATLY GROUPED, DISCIPLINED AND ACCESSIBLE INSTALLATION.

WIRING INSTALLATION
EXCEPT FOR SUCH ITEMS AS ARE NORMALLY WIRED AT THEIR POINT OF MANUFACTURE AND SO DELIVERED - AND UNLESS SPECIFICALLY NOTED TO THE CONTRARY HEREIN - THE ELECTRICAL TRADE SHALL DO ALL ELECTRICAL WIRING OF EVERY CHARACTER. IT IS THE INTENT OF THESE SPECIFICATIONS AND DRAWINGS THAT ALL SYSTEMS AND EQUIPMENT SHALL BE PROVIDED WITH ALL NECESSARY UTILITY CONNECTIONS, COMPLETED TO ALLOW SAFE AND PROPER OPERATION OF SAID SYSTEMS. WHEN IT IS NECESSARY FOR TRADES PERFORMING WORK COVERED BY THIS DIVISION TO MAKE FINAL CONNECTIONS TO ITEMS OF EQUIPMENT BEING FURNISHED BY OTHERS, OR BY OTHER TRADES UNDER OTHER DIVISIONS, ALL SUCH WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DIVISION AND ALL MATERIALS USED SHALL BE AS SPECIFIED HEREIN.

MINIMUM WIRE SIZE FOR BRANCH CIRCUITS SHALL BE #12 AWG, EXCEPT THAT HOMERUNS LONGER THAN 100 FT. LENGTH FROM THE PANEL TO THE CIRCUIT'S ELECTRICAL LOAD CENTER SHALL BE #10 AWG MINIMUM. WHERE RUNS EXCEED 150', CONTRACTOR MUST ENSURE WIRE SIZE BEING UTILIZED DOES NOT CREATE A VOLTAGE DROP GREATER THAN 3%. REQUEST PROPER WIRE SIZE PRIOR TO INSTALLATION IF A 3% VOLTAGE DROP MAY OCCUR FOR ANY BRANCH CIRCUIT. WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE ENCLOSED IN THE SAME RACEWAY, CONDUCTORS ARE TO BE DERATED PER N.E.C. AND WIRE SIZE INCREASED AS REQUIRED. WHERE THE INCREASED CONDUCTOR SIZE REQUIRES, INCREASE THE RACEWAY SIZE AS WELL. FOR CONTROL WIRING, USE #14 AWG MINIMUM. FOR FIXTURE WIRING, AS PERMITTED BY N.E.C., USE #18 AWG MINIMUM. FOR SIGNAL AND COMMUNICATIONS SYSTEMS USE WIRE SIZE AS SPECIFICALLY REQUIRED BY THE SYSTEM SUPPLIER.

MAKE CONNECTIONS TO TERMINALS USING PRESSURE TYPE CONNECTORS. SOLDERED JOINTS ARE PROHIBITED. ALL JOINTS IN CONDUCTORS SHALL BE MADE AT AN ACCESSIBLE LOCATION WITHIN A BOX BY TWISTING THE BARE CONDUCTOR ENDS TOGETHER AND APPLYING A WIRE CONNECTOR IN ALL SIZES UP TO THE MAXIMUM CAPACITY OF THE CONNECTOR. JOINTS SHALL BE TAPED WITH AN APPROVED ELECTRICAL TAPE. SPLICES FOR CONDUCTORS LARGER THAN #10 AWG SHALL BE MADE WITH AN APPROVED COMPRESSION (SQUEEZE) CONNECTOR INSULATED WITH NOT LESS THAN TWO LAYERS OF ELECTRICAL FILL TAPE TO 1.5 TIMES THE THICKNESS OF INSULATION, FOLLOWED BY TWO (MINIMUM) LAYERS OF HALF-LAPPED ELECTRICAL TAPE FOR MECHANICAL PROTECTION. LOCATE ALL SPLICES IN BOXES OR FITTINGS OF PROPER SIZE PER N.E.C.

IDENTIFY ALL WIRES AND CABLES WITH BRADY ADHESIVE WIRE MARKERS AT EACH BOX, PANEL, AND OUTLET. IDENTIFICATION SHALL, AS A MINIMUM, INDICATE THE PANEL AND CIRCUIT SUPPLYING THE OUTLET. AT THE PANEL END, THE LOAD SERVED AND ITS LOCATION SHALL BE INDICATED. PROVIDE A MINIMUM OF 8 IN. SLACK WIRE AT EACH OUTLET FOR MAKING CONNECTION TO THE DEVICE OR TO PROVIDE FOR A FUTURE DEVICE IN THE BOX.

BOXES
EACH BOX SHALL BE OF PROPER SIZE TO ACCOMMODATE THE DEVICE AND FUNCTION FOR WHICH IT IS SHOWN. BOXES FOR WALL DEVICES SHALL BE FURNISHED COMPLETE WITH PLASTER RING OR TILE RING ACCORDING TO WALL CONSTRUCTION WHERE REQUIRED. BOXES FOR INSTALLATION IN MASONRY WALLS SHALL BE SPECIAL SQUARE CORNER MASONRY TYPE. BOXES FOR MOUNTING OF LIGHTING FIXTURES SHALL BE FOUR INCH OCTAGON, EQUIPPED WITH 3/8 IN. "NO-BOLT" FIXTURE STUD. BOXES FOR FLOOR OUTLETS SHALL BE CONCRETE PROOF STEEL BOXES WITH ADJUSTABLE TOPS AND DEVICES AS HEREINAFTER NOTED OR SHOWN. ALL BOXES SHALL BE FURNISHED COMPLETE WITH PROPER COVER AND/OR DEVICE PLATE AND DEVICE. UNLESS OTHERWISE NOTED, PLACE OUTLET BOXES AT THE FOLLOWING HEIGHTS (BOX CENTER TO FINISH FLOOR): WALL SWITCHES 48" AND CONVENIENCE OUTLETS 18" UNLESS NOTED OTHERWISE ON DRAWINGS.

TELEPHONE, ALARM, AND SIGNAL SYSTEM OUTLET BOXES SHALL BE STANDARD OUTLET BOX TYPE WHERE ONLY ONE CONDUIT ENTERS SAME. UNLESS OTHERWISE SPECIFIED OR INDICATED ON DRAWINGS, WHERE TWO OR MORE CONDUITS ENTER, BOX SHALL BE 4-11/16 IN. SQUARE MINIMUM WITH SUITABLE ADAPTER RING.

LOCATE ALL OUTLETS AS INDICATED ON DRAWINGS, HOWEVER, AT INSTALLATION INSPECT ARCHITECTURAL DRAWINGS AND LOCATE LOCAL SWITCHES ON THE STRIKE SIDE OF THE DOOR.

SYSTEM GROUNDING
EQUIPMENT, RACEWAY SYSTEMS, WIRING SYSTEM NEUTRALS, RECEPTACLES AND POWER OUTLETS, MOTORS AND MOTORIZED EQUIPMENT, SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. ARTICLE 250.

GROUND RECEPTACLES AND POWER OUTLETS TO THE CONDUIT SYSTEM WITH A GREEN GROUNDING CONDUCTOR SIZE IN ACCORDANCE WITH N.E.C. AND CONNECTED BETWEEN THE DEVICE GROUNDING SCREW AND THE OUTLET BOX. CONNECTION TO THE BOX MAY BE A "G" CLIP OR BY A 10/24 SCREW THREADED INTO A HOLE IN THE BACK OF THE BOX AND USED FOR NO OTHER PURPOSE. EQUIPMENT CONNECTED TO THE ELECTRICAL SYSTEM SHALL BE GROUNDED WITHIN INSULATED GREEN GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH N.E.C. AND INSTALLED WITHIN THE RACEWAY. CONDUCTOR SHALL BE CONTINUOUS BETWEEN A GROUNDING SCREW IN THE EQUIPMENT JUNCTION BOX AND A GROUND ATTACHMENT IN THE NEAREST OUTLET BOX IN THE RIGID METALLIC CONDUIT SYSTEM. THIS REQUIREMENT INCLUDES ALL FLEXIBLE CONDUIT.

GENERALLY FOR TELEPHONE AND SUPPLEMENTAL COMMUNICATION SYSTEMS NO 6 AWG CONDUCTOR TO EACH PROTECTOR CABINET, OTHER CABINET, OR DEVICE INSTALLATION SHALL BE CONSIDERED SUFFICIENT, FROM THE SERVICE GROUND (UNLESS INDICATED OTHERWISE).

GROUNDING MATERIAL:
GROUND-RODS - 1/2" DIA., 10' LONG, COPPERWELD
GROUND CONDUCTOR - SIZE AS PER N.E.C. REQUIREMENTS, SOFT DRAWN OR SOFT ANNEALED, COPPER WIRE.
JOINTS AND CONNECTIONS - MOLDED FUSION WELDING PROCESS USING PROPER MOLD AND THE NUMBER, SIZE AND TYPE CARTRIDGE FOR THE JOINT OR CONNECTION. WATERPIPE CONNECTION, SILICON BRONZE APPROVED MECHANICAL CONNECTOR DESIGNED FOR THE PIPE AND CABLE TO BE BONDED.

PANELBOARD INSTALLATION:
MOUNT PANELBOARDS WITH CENTERLINE AT 5 FT.-6IN. ABOVE FINISH FLOOR, EXCEPT THAT THE HIGHEST BREAKER HANDLE SHALL BE BELOW 6 FT.-5 IN. ABOVE FINISH FLOOR. ARRANGE BREAKERS SO THAT THE BREAKER RATING IS VISIBLE WITH THE PANEL FRONT IN PLACE.

PANEL DIRECTORIES, AS A MINIMUM, SHALL BE TYPEWRITTEN AND INDICATE BREAKER POSITION NUMBER AND EQUIPMENT SERVED. THE PANEL IDENTIFICATION SHALL BE LOCATED ON THE PANEL TRIM AND SHALL CONSIST OF A BLACK LAMINATED PHENOLIC LABEL, SCREW MOUNTED, WITH THE PANEL IDENTIFICATION MATCHING PANEL IDENTIFICATION ON DRAWINGS. LABEL ALL CONDUCTORS WITH ADHESIVE WRAP LABELS WITHIN 2 IN. OF THE CONDUCTOR TERMINATION PRIOR TO INSTALLATION OF TRIM.

LIGHTING FIXTURE INSTALLATION
PROVIDE A LIGHTING FIXTURE FOR EACH AND EVERY OUTLET IN ACCORDANCE WITH TYPE DESIGNATION AND FIXTURE SCHEDULE ON THE DRAWINGS. VERIFY THE ARCHITECTURAL FINISHES AND CEILING CONSTRUCTION AND - REGARDLESS OF THE CATALOG NUMBER PREFIXES AND SUFFIXES SHOWN - PROVIDE FIXTURES WITH THE PROPER TRIM, FRAMES, SUPPORTS, AND HANGER AND OTHER MISCELLANEOUS APPURTENANCES TO PROPERLY COORDINATE WITH SAID FINISHES. REINFORCE CEILING CONSTRUCTION AS REQUIRED TO PROPERLY SUPPORT THE WEIGHT OF FIXTURES INSTALLED THEREON.

IMMEDIATELY PRIOR TO FINAL INSPECTION: THOROUGHLY CLEAN ALL FIXTURES INSIDE AND OUT, INCLUDING PLASTICS AND GLASSWARE. ADJUST TRIM TO FIT ADJACENT SURFACES. REPLACE BROKEN OR DAMAGED PARTS. INSTALL NEW LAMPS. ELECTRICALLY AND MECHANICALLY TEST THE SYSTEM FOR PROPER OPERATION.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVAL FROM LOCAL CODE AUTHORITIES AND MAKING ANY REVISIONS DIRECTED BY THEM ON EMERGENCY AND EXIT LIGHTING.

CLEANING
THOROUGHLY CLEAN ALL FIXTURES, SWITCHES, OTHER DEVICES, PANELBOARDS, AND EQUIPMENT PROVIDED OR CONNECTED IN THIS CONTRACT. ALL SURFACES SHALL BE PROPERLY POLISHED AND SHALL BE FREE OF PAINT AND ALL OTHER DIRT OR DEBRIS. TOUCHUP OR COMPLETELY REFINISH ALL EQUIPMENT FURNISHED WITH FACTORY FINISHES THAT IS DAMAGED DURING DELIVERY OR CONSTRUCTION. PROPERLY PROTECT THE FRONTS OF ALL PANELBOARDS, SWITCHBOARDS AND SIMILAR EQUIPMENT TO PREVENT MARRING AND OTHER DEFACING.

AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY THE WORK OF THE TRADESMEN DOING ELECTRICAL WORK. AT COMPLETION OF THE WORK, REMOVE ALL RUBBISH, TOOLS, EQUIPMENT, AND SURPLUS MATERIALS. BROOM CLEAN ALL ASSIGNED SPACES PRIOR TO LEAVING THE PREMISES.

TESTING AND LOAD BALANCING

TEST ALL CIRCUITS TO ASSURE THEM TO BE FREE OF GROUNDS AND SHORTS. LIGHT AND TEST EACH LAMP. PROVE AND TEST THE AVAILABLE VOLTAGE ON THE LOAD SIDE OF EACH DISCONNECT. VERIFY PROPER OPERATION OF THE DISCONNECT. VERIFY THE PHASE SEQUENCE, VOLTAGE, AND ROTATION AT EACH MOTOR IN THE PRESENCE OF THE INSTALLER. RUN EACH MOTOR WITH ITS CONTROL AS NEARLY AS POSSIBLE UNDER OPERATING CONDITIONS FOR A SUFFICIENT LENGTH OVER TIME TO DEMONSTRATE CORRECT ALIGNMENT, WIRING CAPACITY, SPEED, AND OVERALL SATISFACTORY OPERATION. CHECK THAT THE PROPER OVERLOAD HEATERS HAVE BEEN INSTALLED BY READING THE MOTOR NAMEPLATE. ADJUST THE SIZE OF THE OVERLOAD HEATER AS REQUIRED TO MATCH THE MOTOR NAMEPLATE. OPERATE ALL MAIN AND FEEDER SWITCHES AND BREAKERS.

THE VARIOUS BRANCH CIRCUITS SERVED FROM THE LIGHTING PANELBOARDS VARY IN LOADING. CAREFULLY BALANCE THE ACTUAL OPERATING LOAD ON EACH PANELBOARD WHEN ALL LOAD IS TURNED ON AND THE SYSTEM IS OPERATING AT 100% DEMAND, THE UNBALANCE SHALL NOT EXCEED 10%. DURING FINAL INSPECTION, FURNISH THE TEST INSTRUMENTS AND QUALIFIED PERSONNEL TO PERFORM COMPLETE TESTING. COSTS OF ALL TESTING, INCLUDING THE INCIDENT COSTS FOR RETESTING OCCASIONED BY DEFECTS AND FAILURES OF THE EQUIPMENT TO MEET THE SPECIFICATIONS, SHALL BE BORNE BY THE CONTRACTOR.

FURNISH AT THE COMPLETION OF THE PROJECT A FINAL INSPECTION CERTIFICATE FROM THE LOCAL INSPECTING AUTHORITY.

END OF SECTION 16000

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REVISION DATES:

1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020070759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

E502

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

ELECTRICAL SPECIFICATIONS

MECHANICAL ABBREVIATIONS

(ALPHABETICAL BY ABBREVIATION)

ABBREVIATION	LONG FORM
ABV	ABOVE
AC OR ACU	AIR-CONDITIONING UNIT
AHAP	AS HIGH AS POSSIBLE
AHU	AIR-HANDLING UNIT
AUTO	AUTOMATIC
BLW	BELOW
C	CHILLER
CD	CONDENSATE
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
CH	CABINET HEATER
CHP	CHILLED WATER PUMP
CLNG OR CLG	CEILING
CONC	CONCRETE
CP OR CWP	CONDENSER WATER PUMP
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CRAC OR CACU	COMPUTER ROOM AIR-CONDITIONING UNIT
CREF	CHILLER ROOM EXHAUST FAN
CRU	CONDENSATE (STEAM) RETURN UNIT
CT	COOLING TOWER CELL
CTU	CONDENSATE (STEAM) TRANSFER UNIT
CU	CONDENSING UNIT
DV	CONSTANT VOLUME TERMINAL BOX
DEF	DISHWASER EXHAUST FAN
DMPR	DAMPER
DN	DOWN
EA	EACH
EBH	ELECTRIC BASEBOARD HEATER
EDH	ELECTRIC DUCT-MOUNTED HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
FD	FIRE DAMPER
FCU	FAN-COIL UNIT
FF	FINAL FILTER
FFCH	FORCED-FLOW CABINET HEATER
FFU	FAN FILTER UNIT
FP	FAN POWERED TERMINAL BOX
GPM	GALLONS PER MINUTE
HC	HEATING COIL
HUM	HUMIDIFIER
HWP OR HP	HEATING WATER PUMP
HX	HEAT EXCHANGER
KEF	KITCHEN (GREASE HOOD) EXHAUST FAN
KW	KILOWATTS
LD	LINEAR SUPPLY DIFFUSER
MOT	MOTORIZED
MTD	MOUNTED
MUAF	MAKE-UP AIR FAN
MUAHU	MAKE-UP AIR-HANDLING UNIT
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OPG OR OPNG	OPENING

NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

MECHANICAL ABBREVIATIONS CONT.

(ALPHABETICAL BY ABBREVIATION)

ABBREVIATION	LONG FORM
PF	PRE-FILTER
PLNM	PLENUM
RA	RETURN AIR
RAF	RETURN AIR FAN
RAG OR RG	RETURN AIR GRILLE
RAR OR RR	RETURN AIR REGISTER
RAS	RETURN AIR SILENCER
RE:	IN REFERENCE TO
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAF OR SF	SUPPLY AIR FAN
SAG OR SG	SUPPLY AIR GRILLE
SAR OR SR	SUPPLY AIR REGISTER
SAS	SUPPLY AIR SILENCER
SCHP	SECONDARY CHILLED WATER PUMP
SD	SMOKE DAMPER OR DETECTOR
SPCHP	SPECIAL PROCESS CHILLED WATER PUMP
TA	THROW AWAY (FILTER TYPE)
TDEF	TRUCK DOCK EXHAUST FAN
TEF	TOILET EXHAUST FAN
TRANS	TRANSITION OR TRANSFER
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
V V	VARIABLE VOLUME TERMINAL BOX
W/	WITH
XFMR OR TFMR	TRANSFORMER
XT OR EX	EXPANSION TANK

NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

DUCTWORK LEGEND

(REFER TO SPECIFICATIONS SECTIONS 15815 AND 15820 FOR ADDITIONAL INFORMATION)

SINGLE LINE	DESCRIPTION	DOUBLE LINE
	ROUND ELBOW DOWN	
	ROUND ELBOW UP	
	OFFSET TO CHANGE ELEVATION (AT 30° WHEN POSSIBLE. ARROW SLOPES DN, U.N.O.)	
	ROUND RADIUS ELBOW	
	90° STRAIGHT TEE	
	90° CONICAL TEE	
	45° LATERAL TAP	
	45° LATERAL CONICAL TEE	
	SIZE OR SHAPE TRANSITION	
	ROUND FLEXIBLE DUCT	
	RECTANGULAR ELBOW DOWN	
	RECTANGULAR ELBOW UP	
	OFFSET TO CHANGE ELEVATION (AT 30° WHERE POSSIBLE. ARROW SLOPES DN., U.N.O.)	
	RECTANGULAR RADIUS ELBOW	
	RECTANGULAR ELBOW WITH TURNING VANES	
	SPLIT BRANCH TAKE-OFF WITH SQUARE ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF WITH RADIUS ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF TEE WITH STATIONARY SPLITTER DAMPER	
	BRANCH TAKE-OFF WITH 45° LEAD IN TAP	
	INSULATED/LINED DUCTWORK (U.N.O.)	
	SQUARE FACED CEILING DIFFUSER 4-WAY DIRECTIONAL THROW (U.N.O.)	
	ROUND FACED CEILING DIFFUSER	
OR	CEILING RETURN OR EXHAUST AIR GRILLE OR REGISTER	
	SIDEALL SUPPLY GRILLE OR REGISTER	
	SUPPLY DUCT RISER	
	RETURN, EXHAUST OR OUTSIDE AIR DUCT RISER	
	MANUAL BALANCING DAMPER	
	AUTOMATIC (MOTOR-OPERATED) DAMPER	
	FIRE DAMPER	
	GRAVITY BACKDRAFT DAMPER	
	COMBINATION FIRE AND SMOKE DAMPER WITH SMOKE DETECTOR	
	SMOKE DAMPER (AUTOMATIC) WITH SMOKE DETECTOR	
S	DUCT MOUNTED SMOKE DETECTOR	S OR S

NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

STANDARD MECHANICAL SYMBOLS

SYMBOL	DESCRIPTION	
	GATE VALVE	VALVES, FITTINGS & DEVICES
	BALL VALVE	
	GLOBE VALVE	
	BUTTERFLY VALVE	
	PLUG VALVE	
	ANGLE VALVE	
	CHECK VALVE	
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)	
	AUTOMATIC CONTROL VALVE (3-WAY)	
	AUTOMATIC CONTROL VALVE (ANGLE)	
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)	
	SOLENOID VALVE	
	PRESSURE REDUCING VALVE	
	PRESSURE RELIEF VALVE	
	GAUGE COCK	
	PRESSURE GAUGE WITH GAUGE COCK	
	THERMOMETER	
	THERMOMETER WELL	
	TEST PLUG	
	FLOW METER	
	TEMPERATURE SENSOR	
	PRESSURE SENSOR	
PDS	DIFFERENTIAL PRESSURE SWITCH	
	IMMERSION THERMOSTAT	
	MANUAL AIR VENT	
	AUTOMATIC AIR VENT	
FSW	FLOW SWITCH	
	ORIFICE	
	PIPE SLEEVE THRU WALL OR FLOOR	
	EXPANSION JOINT	
	FLEXIBLE PIPE JOINT	
	PIPE GUIDE	
	ANCHOR	
	STRAINER (Y-TYPE)	
	STRAINER (BASKET TYPE)	
	UNION	
	CONCENTRIC REDUCER	
	ECCENTRIC REDUCER	
	DIRECTION OF FLOW	
	DIRECTION OF SLOPE	
T	THERMOSTAT	
H	HUMIDISTAT	
FSC	FAN SPEED CONTROLLER	
CS	CONDENSER WATER SUPPLY	PIPING
CR	CONDENSER WATER RETURN	
D	CONDENSATE DRAIN	

NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

OTHER SYMBOLS

SYMBOL	DESCRIPTION
	INDICATES CONNECTION TO EXISTING DUCT OR PIPE

GENERAL EQUIPMENT DESIGNATION KEY:

MECHANICAL GENERAL NOTES

1. PRIOR TO SUBMITTING BID, VISIT THE SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW GENERAL NOTES, SPECIFICATIONS AND ALL OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
2. COORDINATE THE INSTALLATION OF MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. DUCTWORK AND PIPING SHALL BE ROUTED TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC.
3. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN FOR NEW INSTALLATION DURING WORK. REPAIR ANY DAMAGE CAUSED DURING CONSTRUCTION AT NO COST TO THE OWNER.
4. ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.
5. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING IS SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND SHALL MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. FIELD VERIFY FINAL LOCATIONS TO INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
6. REFER TO ARCHITECTURAL DRAWINGS FOR ALL RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. CHASE AND PENETRATIONS INTENDED FOR DUCTWORK AND PIPING SHALL BE VERIFIED WITH ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION.
7. COORDINATE LOCATION OF ROOF PENETRATIONS WITH THE EXISTING CONDITIONS AND ARCHITECTURAL DRAWINGS.
8. SEAL ALL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS. FIREPROOF ALL PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
9. COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL, AND DUCT INSTALLATION REQUIREMENTS.
10. LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE FINAL CEILING AND LIGHTING LOCATIONS.
11. DUCTWORK CROSSING FIRE RATED WALL OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.
12. PROVIDE FIRE AND/OR FIRE/SMOKE DAMPERS IN DUCTWORK AT CEILINGS AND WALLS AS REQUIRED BY BUILDING CODE AUTHORITY HAVING JURISDICTION. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE.
13. PROVIDE WALL AND/OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO ALL FIRE AND/OR FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 6"x6" AND SHALL BE INSTALLED WITH 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 6"x6" ACCESS DOOR.
14. THERMOSTATS AND HUMIDISTATS SHALL BE LOCATED AND SET BY MECHANICAL CONTRACTOR AND WIRED IN CONDUIT BY ELECTRICAL CONTRACTOR. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. MOUNTING HEIGHTS SHALL BE 48" AFF TO MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS.
15. COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH ANY WALL MOUNTED ITEMS INDICATED ON THE ARCHITECTURAL DRAWINGS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF ANY WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.
16. ALL BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS, AND GRILLES SHALL HAVE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT.
17. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
18. RIGID DUCTWORK INSULATION: PROVIDE R-6 MINIMUM INSULATION WRAP ON ALL CONCEALED DUCTWORK. PROVIDE R-6 MINIMUM INTERNAL DUCT LINER ON ALL EXPOSED DUCTWORK. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE DIMENSIONS, SHEET METAL SIZES SHALL INCREASE ACCORDINGLY. PROVIDE R-12 MINIMUM INSULATION ON ALL DUCTWORK INSTALLED IN UNCONDITIONED SPACES. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
19. FLEXIBLE DUCT WORK SHALL BE THERMAFLEX TYPE MKE, FLEXMASTER TYPE 8M, OR APPROVED EQUAL, SHALL BE LISTED UNDER 181 AS CLASS 1 AIR DUCT AND SHALL BE PROVIDED WITH INTEGRAL R-6 MINIMUM FIBERGLASS INSULATION. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORT TO AVOID SHARP BENDS AND SAGGING.
20. WALL MOUNTED DIFFUSERS AND GRILLES SHALL BE PROVIDED WITH SUITABLE MOUNTING FRAME TO MATCH WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.

GENERAL MECHANICAL NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR RATED WALLS AND PARTITIONS.VERIFY FIRE AND/OR SMOKE DAMPER LOCATIONS AT DUCTS OR OPENINGS PENETRATING THESE WALLS.
2. REFER TO ARCHITECTURAL PLANS FOR ROOM NAMES AND NUMBERS.
3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.
4. VERIFY LOCATIONS OF THERMOSTATS WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION.
5. VERIFY LOCATIONS OF EXPOSED DUCTS WITH ARCHITECT PRIOR TO INSTALLATION.
6. DUCT DIMENSIONS INDICATED ON PLANS ARE FREE AREA DIMENSIONS.
7. SUPPLY AND RETURN AIR DUCT SHALL BE INTERNALLY LINED WHERE SPECIFIED.
8. ALL LOUVER SIZES ON MECHANICAL PLANS ARE GIVEN IN FREE AREA REQUIRED. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS AND LOCATIONS.
9. COORDINATE TERMINAL BOX AND BALANCING DAMPER LOCATIONS CAREFULLY TO INSURE PROPER AND ADEQUATE ACCESS TO FILTERS, MOTORS, CONTROL VALVES, CONTROL PANLES, ETC. PROVIDE ACCESS PANELS AS SPECIFIED WHERE REQUIRED TO ASSURE THIS ACCESS.
10. CEILING PLENUM SPACE IS VERY TIGHT. WHERE REQUIRED, DUCTS OR PIPES SHALL BE ROUTED BETWEEN LIGHT FIXTURES AND UP AND OVER OTHER DUCTS OR PIPES USING THE SPACES BETWEEN STRUCTURAL JOISTS OR BEAMS WHERE APPLICABLE. CONTRACTOR SHALL BE RESPONSIBLE FOR CAREFULLY COORDINATING ALL TRADES. EXISTING UNKNOWN CONDITIONS MAY AFFECT EXACT DUCT OR PIPE ROUTING, OR EXISTING CONDITIONS MAY NEED TO BE MODIFIED TO ACCOMMODATE DUCTS AND PIPES.

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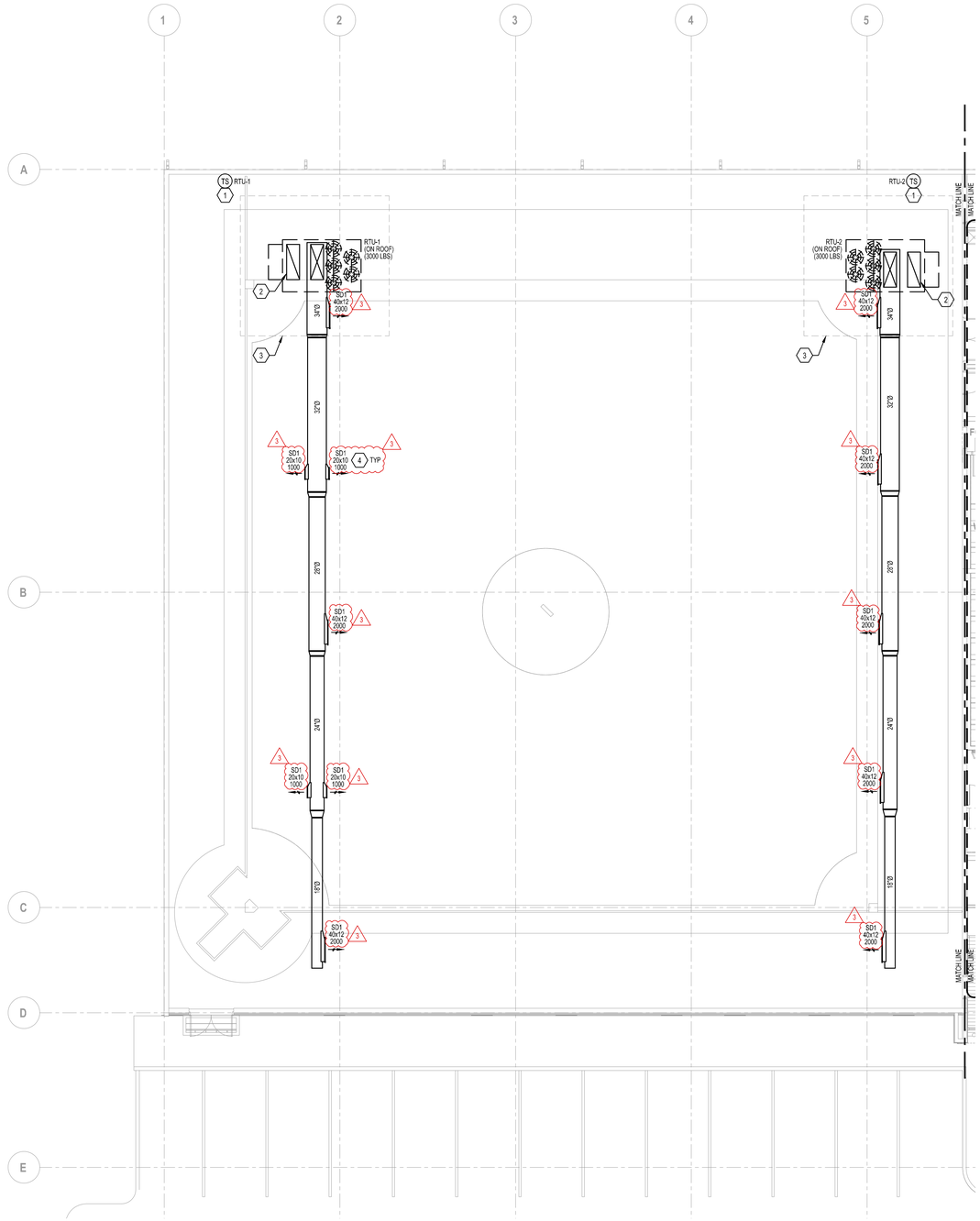
1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

PROFESSIONAL SEAL

M101

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

MECHANICAL NOTES, SYMBOLS & ABBREVIATIONS



1 PARTIAL MECHANICAL PLAN

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

KEYED NOTES:

1. MOUNT SPACE TEMPERATURE SENSOR AT 96" AFF.
2. ROUTE FULL SIZE RETURN DUCT FROM ROOFTOP UNIT DOWN THROUGH ROOF DECK AND TERMINATE OPEN. COVER DUCT OPENING WITH 1/2"x1/2" GALVANIZED HARDWARE CLOTH.
3. PROVIDE CASCADE ROOFTOP SCREEN. LOUVER PANEL STYLE, AROUND ROOFTOP EQUIPMENT. MAINTAIN ALL REQUIRED CLEARANCES FOR MAINTENANCE AND AIRFLOW.
3 4. DRUM LOUVER PROVIDED WITH ADJUSTABLE HORIZONTAL AND VERTICAL THROW DEFLECTION FROM ROTATABLE DRUM AND PIVOTING BLADES. ADJUST DRUM LOUVER TO ACHIEVE DESIRED AIRFLOW DEFLECTION. VERIFY FINAL SIZE WITH MANUFACTURER PRIOR TO ORDERING.

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET M101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

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STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2009020759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

M201

ISSUE DATE: 2 MAY 2023
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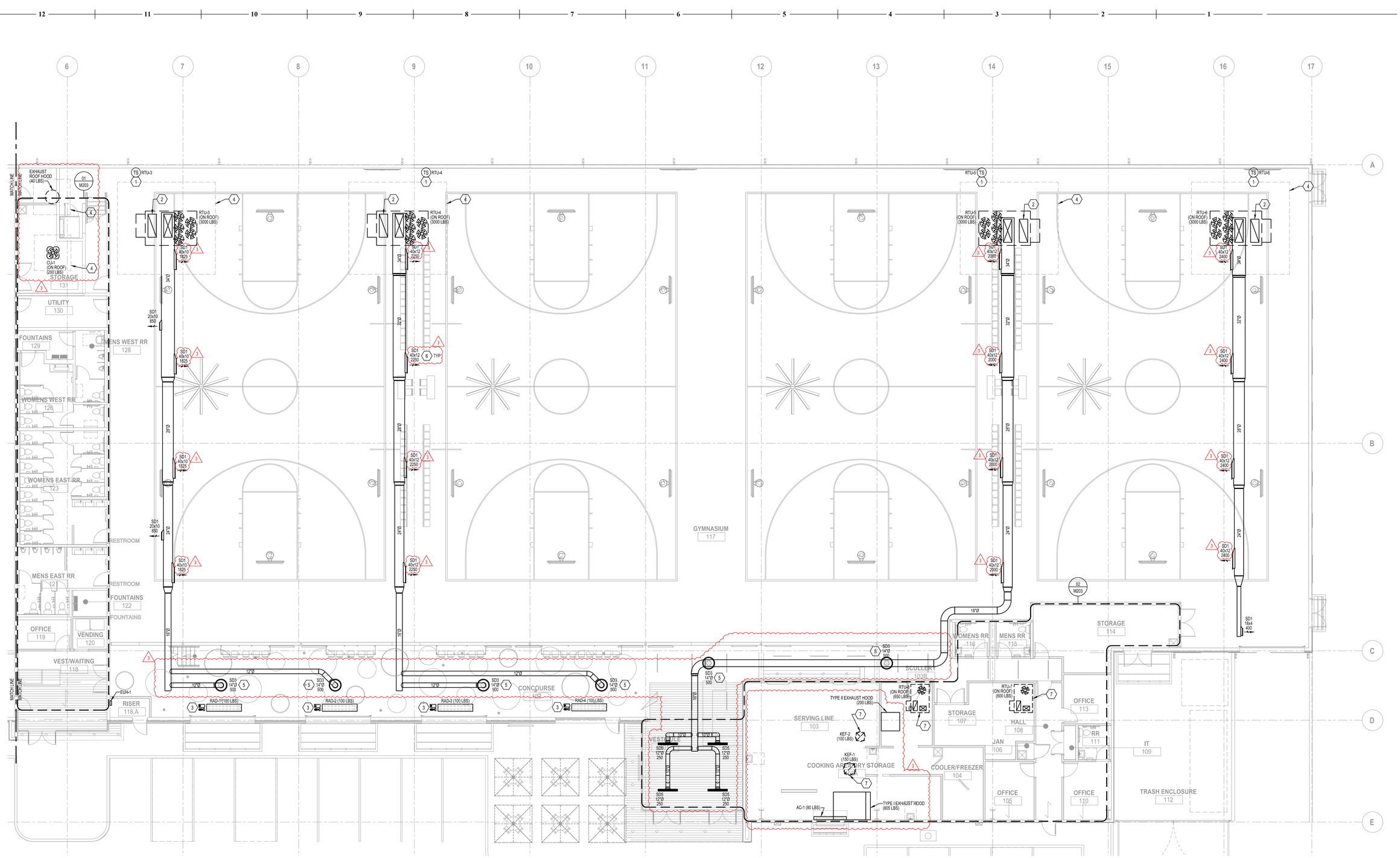
PARTIAL MECHANICAL PLAN



1 PARTIAL MECHANICAL PLAN

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

KEYED NOTES:

1. MOUNT SPACE TEMPERATURE SENSOR AT 96" AFF.
2. ROUTE FULL SIZE RETURN DUCT FROM ROOFTOP UNIT DOWN THROUGH ROOF DECK AND TERMINATE OPEN. COVER DUCT OPENING WITH 1/2"x1/2" GALVANIZED HARDWARE CLOTH.
3. ROUTE 4"Ø INTAKE AND VENT PIPING UP THROUGH ROOF AND TERMINATE WITH CONCENTRIC VENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE MOUNTING HEIGHT OF HEATER WITH OTHER CEILING ELEMENTS IN THIS AREA. MOUNTING HEIGHT SHALL NOT BE LESS THAN 8'-0" AFF AND SHALL NOT EXCEED 15'-0" AFF.
4. PROVIDE CASCADE ROOFTOP SCREEN, LOUVER PANEL STYLE, AROUND ROOFTOP EQUIPMENT. MAINTAIN ALL REQUIRED CLEARANCES FOR MAINTENANCE AND AIRFLOW.
5. COORDINATE MOUNTING HEIGHT OF DIFFUSERS WITH LIGHTS AND SUSPENDED FEATURES IN THIS AREA. MOUNT DIFFUSERS AT OR BELOW SUSPENDED EQUIPMENT TO PROVIDE ADEQUATE AIRFLOW TO CONCOURSE AREA.
6. DRUM LOUVER PROVIDED WITH ADJUSTABLE HORIZONTAL AND VERTICAL THROW DEFLECTION FROM ROTATABLE DRUM AND PIVOTING BLADES. ADJUST DRUM LOUVER TO ACHIEVE DESIRED AIRFLOW DEFLECTION. VERIFY FINAL SIZE WITH MANUFACTURER PRIOR TO ORDERING.
7. OWNER TO PROVIDE SCREENING FOR ROOFTOP EQUIPMENT ON TPO ROOF AS REQUIRED.

GENERAL NOTES

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STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010779
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

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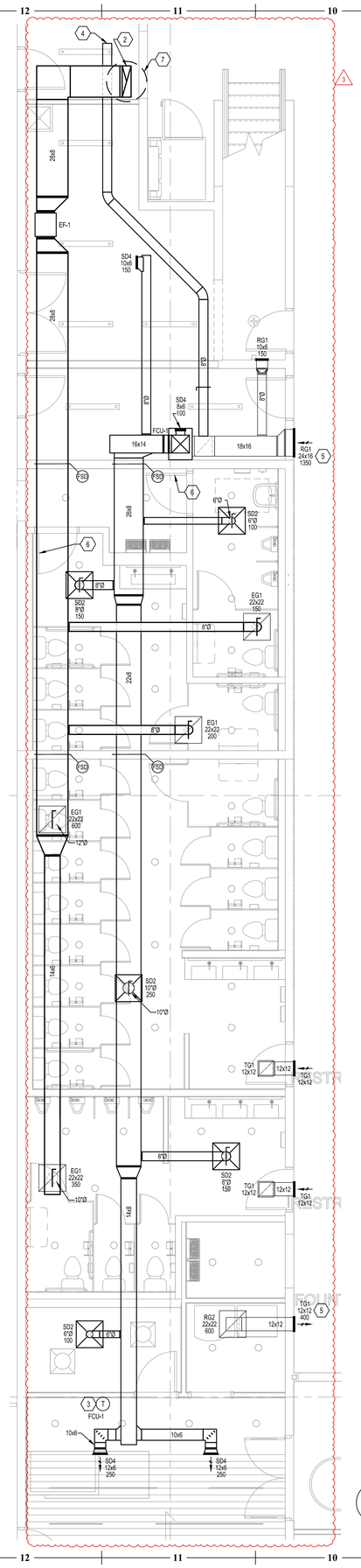
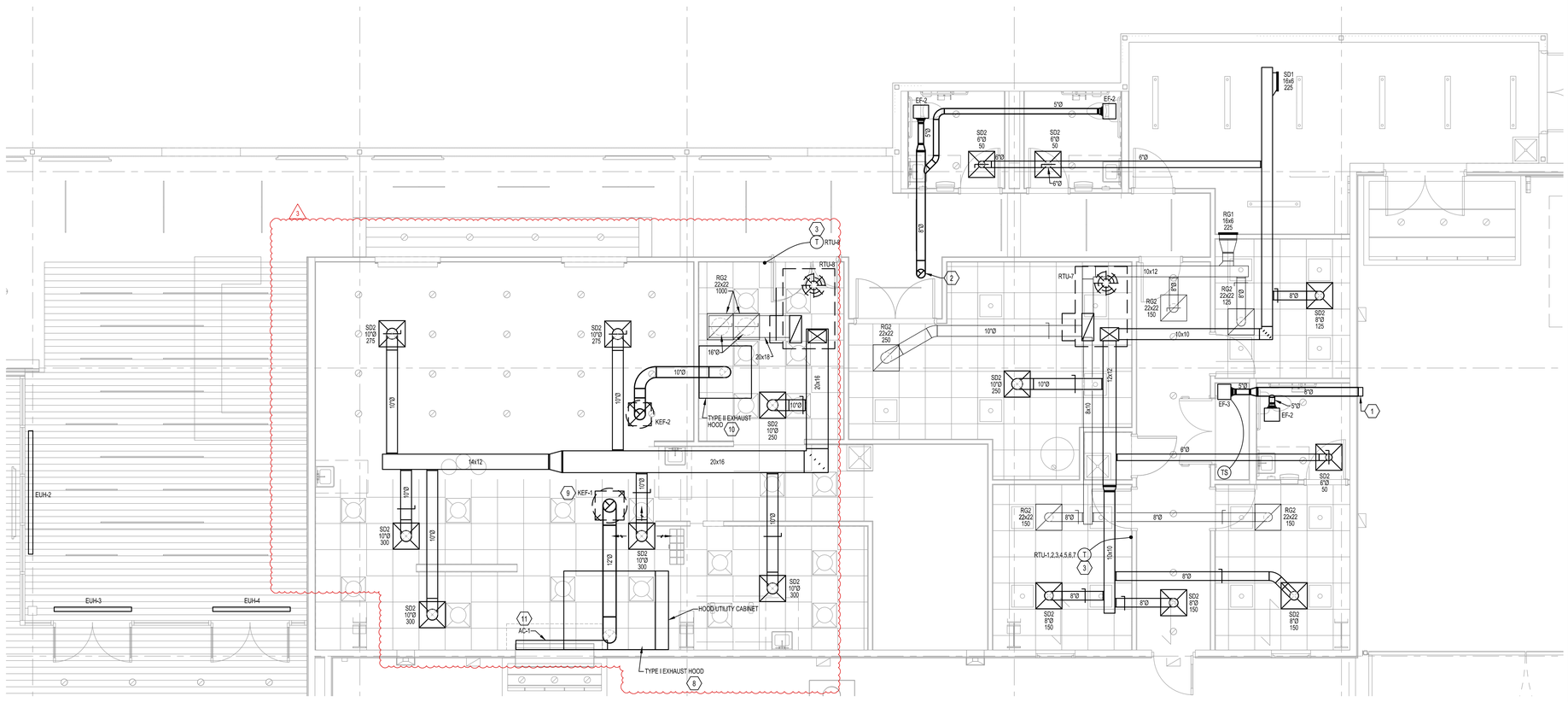
PARTIAL MECHANICAL PLAN





1 ENLARGED MECHANICAL PLAN

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

2 ENLARGED MECHANICAL PLAN

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

KEYED NOTES:

1. ROUTE EXHAUST DUCT TO EXTERIOR WALL AND TERMINATE WITH WALL CAP. MAINTAIN MINIMUM 10'-0" CLEARANCE FROM ALL MECHANICAL AIR INTAKES AND 3'-0" CLEARANCE FROM ALL BUILDING OPENINGS.
2. ROUTE EXHAUST DUCT UP THROUGH ROOF AND TERMINATE WITH ROOF HOOD. MAINTAIN MINIMUM 10'-0" FROM ALL MECHANICAL AIR INTAKES.
3. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTO-CHANGEOVER BETWEEN HEATING AND COOLING. MOUNT THERMOSTAT AT 48" AFF.
4. ROUTE OUTDOOR AIR DUCT TO EXTERIOR WALL AND TERMINATE WITH WALL CAP.
5. MOUNT GRILLE AS HIGH AS POSSIBLE.
6. UNDERCUT DOOR MINIMUM 1" FOR AIRFLOW.
7. PROVIDE ROOF HOOD FOR EXHAUST TERMINATION, GREENHECK MODEL GRSR-20 OR APPROVED EQUAL. PROVIDE WITH ROOF CURB, BACKDRAFT DAMPER, AND INSECT SCREEN.
8. CAPTIVE AIRE TYPE I EXHAUST HOOD. REFER TO CAPTIVE AIRE DRAWINGS FOR MORE INFORMATION. RTU-8 SHALL BE INTERLOCKED WITH KEF-1.
9. PROVIDE CAPTIVE AIRE PREFABRICATED DOUBLE-WALL GREASE DUCT UP TO KEF-1.
10. PROVIDE 4'-0"x4'-0" TYPE II EXHAUST HOOD FOR HIGH TEMP DISHWASHER. CAPTIVE AIRE MODEL 4824-VHB-G OR APPROVED EQUAL. ROUTE EXHAUST DUCT UP TO KEF-2 ON ROOF. MAINTAIN MINIMUM 10'-0" CLEARANCE FROM ALL MECHANICAL AIR INTAKES. 1
11. MOUNT AIR CURTAIN ABOVE PASS-THROUGH WINDOW.

GENERAL NOTES

(NOT ALL NOTES APPLY)

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STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2009018799
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

M203

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ENLARGED MECHANICAL PLANS

KITCHEN EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	MOUNTING	VOLUME (CFM)	ESP (IN)	FAN RPM	DRIVE (BELT/DIRECT)	MOTOR HP	ELECTRICAL VOLTS/PH	MOTOR FLA	WEIGHT (LBS)	NOTE
KEF-1	CAPTIVE AIRE	DU85HFA	ROOF	1883	1.5	1546	DIRECT	1.0	120/1	11.6	150	1,2
KEF-2	CAPTIVE AIRE	DU53HFA	ROOF	600	0.75	1471	DIRECT	1/3	120/1	4.3	100	3

NOTES:
1 PROVIDE WITH GREASE BOX, 14" TALL ROOF CURB WITH HINGED BASE, AND ELECTRICAL DISCONNECT.
2 FAN SHALL BE INTERLOCKED WITH KITCHEN COOKING EQUIPMENT UNDER KITCHEN HOOD.
3 PROVIDE WITH 14" HIGH ROOF CURB AND BACKDRAFT DAMPER. FAN SHALL BE INTERLOCKED WITH HIGH TEMP DISHWASHER OPERATION.

RADIANT HEATER SCHEDULE (GAS)

MARK	MANUFACTURER	MODEL	INPUT (MBH)	GAS CONNECTION (IN.)	ELECTRICAL DATA VOLTAGE	PHASE	AMPS	TUBE TYPE	TOTAL LENGH (FT)	NOTES
RAD-1,2,3,4	SPACE RAY	CB30	30	1/2	120	1	2.6	U-TUBE	9'-3"	1,2,3

NOTES:
1 HEATER SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2 PROVIDE WITH SINGLE-STAGE CONTROLS.
3 HEATER SHALL BE PROVIDED WITH END REFLECTORS AND EMITTER GUARD.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	NOTES
SD1	TITUS	DL	DRUM LOUVER	DUCT	PER PLANS	1,2,3,4,5,6
SD2	TITUS	PAS	PERFORATED	CEILING	24"x24"	1,2,3,4,5,6
SD3	TITUS	TMRA	ROUND	DUCT (SUSPENDED)	PER NECK SIZE	1,2,3,4,5,6
SD4	TITUS	300FL	LOUVERED	WALL/DUCT	NECK + 1-3/4"	1,2,3,4,5,6
SD5	TITUS	FL-20	LINEAR - 2" SLOT	CEILING/SUSPENDED	4'-0" LONG - 12" INLET	1,2,4,5,7
RG1	TITUS	350FL	LOUVERED	WALL	NECK + 1-3/4"	1,2,3,4,5,6
RG2	TITUS	PAR	PERFORATED	CEILING	24"x24"	1,2,3,4,5,6
TG1	TITUS	350FL	LOUVERED	CEILING/WALL	NECK + 1-3/4"	1,2,3,4,5,6
EG1	TITUS	PAR	PERFORATED	CEILING	24"x24"	1,2,3,4,5,6

NOTES:
1 NECK SIZE SHOWN ON DRAWINGS.
2 BAKED ENAMEL FINISH TO MATCH CEILING/WALL COLOR, COORDINATE WITH ARCHITECTURAL PLANS.
3 PROVIDE NECK FOR DUCT CONNECTION.
4 BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
5 FRAME TYPE TO MATCH CONSTRUCTION OF MOUNTING LOCATION, COORDINATE WITH ARCHITECTURAL PLANS.
6 PROVIDE VOLUME DAMPER OPERABLE FROM FACE OF DEVICE WHEN LOCATED IN HARD CEILINGS.
7 PROVIDE MANUFACTURER'S INSULATED PLENUM PACKAGE AND CABLE-OPERATED DAMPER OPERABLE FROM FACE OF DIFFUSER.
4-WAY THROW PATTERN FOR CEILING DIFFUSERS UNLESS NOTED OTHERWISE ON PLAN.

CONDENSING UNIT SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	NOMINAL TONNAGE	MOTOR HP	MOTOR QTY	COOLING CAPACITY MBH TOTAL	COOLING CAPACITY MBH SENSIBLE	SEER	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL V/PH/HZ	NOTES
CU-1	FCU-1	DAIKIN	DX13SA0484	4	1/4	1.3	46.0	38.0	13.0	8.4	15	480/3/60	1,2,3,4,5

NOTES:
1 PROVIDE EQUIPMENT PLATFORM FOR GROUND MOUNTING APPLICATION.
2 DISCONNECT TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
3 PROVIDE STARTERS FOR ALL MOTORS.
4 SIZE AND INSTALL REFRIGERANT LINES PER THE MANUFACTURERS RECOMMENDATIONS, VERIFY WITH EQUIPMENT SUPPLIER REFRIGERATION LINE LENGTH AND SIZE.
5 PROVIDE LIQUID LINE FILTER DRYER AND SIGHT GLASS.

AIR CURTAIN SCHEDULE

MARK	MANUFACTURER	MODEL	AIR VOLUME SCFM	AVG. VEL FPM (@ NOZZLE)	MOTORS HP	VOLTAGE	FLA	MOCP	WEIGHT (LBS)	NOTES
AC-1	BERNER	PE06-C-2084-A	2079	1510	2 @ 1/5	120/1/60	6.8	15	80	1,2,3,4

NOTES:
1 SUPPORT FROM STRUCTURE WITH ALL-THREAD HANGING RODS, PROVIDE WITH SPRING VIBRATION ISOLATORS.
2 PROVIDE WITH MANUFACTURER'S BASIC CONTROL PACKAGE WITH DOOR SWITCH (MAGNETIC REED STYLE).
3 COORDINATE ALL CONTROLS WIRING WITH DIVISION 16.
4 PAINT FACE PLATE IF DESIRED, COLOR PROVIDED BY ARCHITECT OR OWNER.

ELECTRIC UNIT HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	KW	CFM	WEIGHT	ELECTRICAL AMPS	MOCP	PHASE	VOLTAGE	NOTES
EUH-1	QMARK	AWH4307F	3.0	100	30.0	10.8	15	1	277	1,2,3
EUH-2	INDEECO	RCI	1.5	--	25.0	5.4	15	1	277	3,4
EUH-3	INDEECO	RCI	0.75	--	15.0	3.2	15	1	277	3,4
EUH-4	INDEECO	RCI	0.75	--	15.0	3.2	15	1	277	3,4

NOTES:
1 PROVIDE WITH SURFACE MOUNTING FRAME FOR SURFACE INSTALLATION.
2 PROVIDE WITH BUILT-IN TAMPER-RESISTANT THERMOSTAT.
3 INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4 SUSPEND FROM STRUCTURE/CEILING. PROVIDE WITH MANUFACTURER'S SINGLE-POLE THERMOSTAT.

FAN COIL UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	NOMINAL TONNAGE	SUPPLY FAN CFM	SUPPLY FAN ESP (IN)	SUPPLY FAN HP	MIN OA (CFM)	COOLING TH (MBH)	COOLING SH (MBH)	COOLING EAT (DB/WB)	HEATING ELEC HEAT (KW)	HEATING TEMP RISE (°F)	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL V/PH/HZ	NOTE
FCU-1	DAIKIN	ARUF47D14	4	1500	0.50	0.5	150	46.0	38.0	80/67	15.0	31.5	69	70	208/1/60	1,2,3,4,5

NOTES:
1 PROVIDE WITH TWO SETS OF 2" THICK THROW-AWAY FILTERS.
2 DISCONNECT TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
3 PROVIDE SECONDARY DRAIN PAN WITH FLOAT SWITCH, UNIT SHALL SHUT DOWN UPON ALARM FROM FLOAT SWITCH.
4 PROVIDE EQUIPMENT PLATFORM FOR FLOOR MOUNTING.
5 EQUIPMENT SIZED FOR AN AMBIENT OUTDOOR TEMPERATURE OF 105°F, 95.5°F DB & 75.3°F WB SUMMER DESIGN TEMPERATURE AND A WINTER DESIGN TEMPERATURE OF 9.3°F.

ROOFTOP AIR CONDITIONING UNIT SCHEDULE - NATURAL GAS HEAT

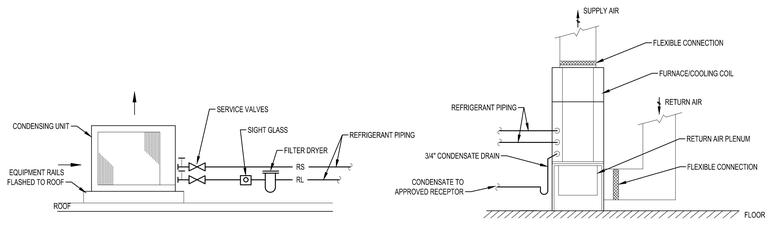
MARK	MANUFACTURER	MODEL	SUPPLY AIR	MIN OA	SUPPLY FAN ESP	SUPPLY FAN QTY	SUPPLY FAN FLA	SUPPLY FAN HP	COMPRESSOR QTY	COMPRESSOR RLA	CONDENSER FAN QTY	CONDENSER FAN FLA	COOLING COIL TOTAL (MBH)	COOLING COIL SENS. (MBH)	COOLING COIL EAT (DB/WB)	COOLING COIL EER (SEER)	HEATING DATA INPUT (MBH)	HEATING DATA OUTPUT (MBH)	UNIT ELECTRICAL DATA V/PH/HZ	UNIT ELECTRICAL DATA MCA	UNIT ELECTRICAL DATA MOCP	WEIGHT (LBS)	NOTES
RTU-1	DAIKIN	DFG3004DH	10000	2000	0.7	2	10.6	5	2	18.6	5	1.4	283.2	221.4	76.9/64.2	9.8	400.0	324.0	480/3/60	70.0	80	3000	1,2,3,4,6,7,8,10
RTU-2	DAIKIN	DFG3004DH	10000	2000	0.7	2	10.6	5	2	18.6	5	1.4	283.2	221.4	76.9/64.2	9.8	400.0	324.0	480/3/60	70.0	80	3000	1,2,3,4,6,7,8,10
RTU-3	DAIKIN	DFG3004DH	10000	2000	0.7	2	10.6	5	2	18.6	5	1.4	283.2	221.4	76.9/64.2	9.8	400.0	324.0	480/3/60	70.0	80	3000	1,2,3,4,6,7,8,10
RTU-4	DAIKIN	DFG3004DH	10000	2000	0.7	2	10.6	5	2	18.6	5	1.4	283.2	221.4	76.9/64.2	9.8	400.0	324.0	480/3/60	70.0	80	3000	1,2,3,4,6,7,8,10
RTU-5	DAIKIN	DFG3004DH	10000	2000	0.7	2	10.6	5	2	18.6	5	1.4	283.2	221.4	76.9/64.2	9.8	400.0	324.0	480/3/60	70.0	80	3000	1,2,3,4,6,7,8,10
RTU-6	DAIKIN	DFG3004DH	10000	2000	0.7	2	10.6	5	2	18.6	5	1.4	283.2	221.4	76.9/64.2	9.8	400.0	324.0	480/3/60	70.0	80	3000	1,2,3,4,6,7,8,10
RTU-7	DAIKIN	DFG0364DH	1200	100	0.5	1	2.5	1.2	1	5.8	1	0.48	35.1	27.3	80.9/67.4	(14.0)	90.0	72.0	480/3/60	10.2	15	600	1,2,3,5,7
RTU-8	DAIKIN	DFG0604DM	2000	250	0.5	1	2.5	1.2	1	7.8	1	0.85	57.4	46.1	77.7/64.8	(14.0)	115.0	92.0	480/3/60	13.0	20	650	1,2,3,4,5,6,7,9

NOTES:
1 EQUIPMENT SIZED FOR AN AMBIENT OUTDOOR TEMPERATURE OF 105°F, 95.5°F DB & 75.3°F WB SUMMER DESIGN TEMPERATURE AND A WINTER DESIGN TEMPERATURE OF 9.3°F.
2 PROVIDE MERV 8 FILTERS PRIOR TO TEST AND BALANCE WORK.
3 PROVIDE UNIT WITH UNPOWERED GFCI CONVIENCE OUTLET AND FACTORY MOUNTED DISCONNECT.
4 PROVIDE WITH DIFFERENTIAL ENTHALPY ECONOMIZER.
5 PROVIDE UNIT WITH 14" HIGH ROOF CURB.
6 PROVIDE WITH FACTORY INSTALLED RETURN SMOKE DETECTOR.
7 PROVIDE FLOAT SWITCH IN DRAIN PAN, UNIT SHALL SHUT-OFF UPON ALARM FROM FLOAT SWITCH.
8 PROVIDE WITH MODULATING POWER EXHAUST TO MAINTAIN ADEQUATE POSITIVE BUILDING PRESSURE.
9 PROVIDE WITH BAROMETRIC RELIEF.
10 PROVIDE UNIT WITH HOT GAS REHEAT.

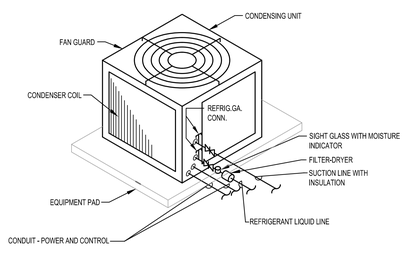
EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	MOUNTING	VOLUME (CFM)	ESP (IN)	FAN RPM	DRIVE (BELT/DIRECT)	MOTOR WATTS (HP)	ELECTRICAL VOLTS/PH	WEIGHT (LBS)	NOTE
EF-1	GREENHECK	SQ-120-VG	INLINE	1300	0.5	1435	DIRECT	(1/2)	120/1	70	1,2
EF-2	GREENHECK	SP-B90	CEILING	70	0.25	700	DIRECT	21	120/1	15	1,3
EF-3	GREENHECK	SP-LP0511-1	CEILING	110	0.25	939	DIRECT	17	120/1	15	1,4

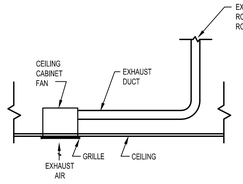
NOTES:
1 PROVIDE WITH DISCONNECT SWITCH AND BACKDRAFT DAMPER.
2 FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS. PROVIDE WITH 24"x24" CEILING ACCESS PANEL IF LOCATED ABOVE HARD CEILING.
3 FAN SHALL BE INTERLOCKED WITH RESTROOM LIGHTS. PROVIDE SPEED CONTROLLER FOR BALANCING.
4 FAN SHALL OPERATE BASED ON TEMPERATURE SENSOR IN I.T. ROOM SET AT 80°F.



7 SPLIT SYSTEM DETAIL
NOT TO SCALE

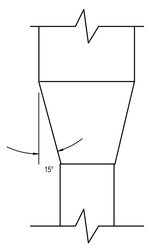


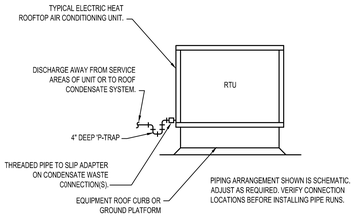
8 CONDENSING UNIT DETAIL
NOT TO SCALE



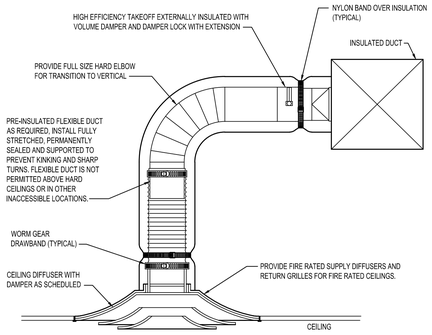
5 CEILING EXHAUST FAN DETAIL
NOT TO SCALE

6 NOT USED
NOT TO SCALE

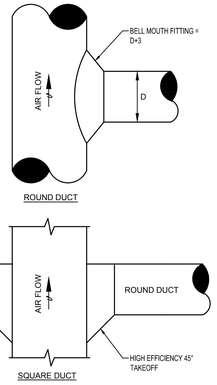




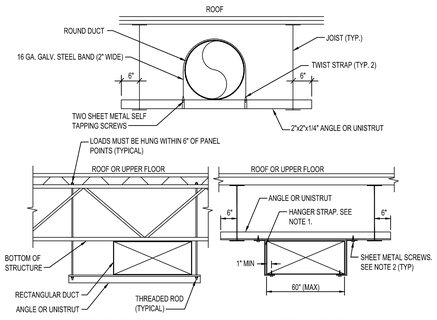
4 RTU PIPING DETAIL
NOT TO SCALE



3 CEILING DIFFUSER
NOT TO SCALE



2 DUCT TAKEOFFS AND FITTINGS
NOT TO SCALE



NOTE:
1. USE THREADED ROD FOR ALL DUCTS LARGER THAN 60" WIDE.
2. SHEET METAL SCREWS MAY BE OMITTED IF HANGER STRAP IS CONTINUOUS AND LOOPS UNDER ENTIRE DUCT.

1 DUCT HANGERS AND SUPPORTS
NOT TO SCALE

CAV collins|webb ARCHITECTURE
3078 SW Market St., Lee's Summit, Missouri 64063 | 816.249.2270 | www.collinswebb.com

PERMIT SET

TM FIELDHOUSE
1600 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64063

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REVISION DATES:
1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS AND OWNER REV. 03/22/24

STATE OF MISSOURI — RYAN BREWER — NUMBER PE-2020010799 — PROFESSIONAL ENGINEER — 03/22/2024

PROFESSIONAL SEAL

M301

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

MECHANICAL SCHEDULES AND DETAILS

15000 - BASIC MECHANICAL REQUIREMENTS

DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS, APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 15.

READ THE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL DIVISIONS OF WORK AND COORDINATE AND THE WORK OF SUBCONTRACTORS WITH ALL DIVISIONS OF WORK. PROVIDE SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.

SCHEDULE THE COMPLETION AND INSPECTION OF WORK AND THE WORK OF SUBCONTRACTORS WORK TO COMPLY WITH THE SCHEDULE AND THE PROJECT COMPLETION DATE.

VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE RESPONSIBILITY IN PERFORMANCE OF WORK.

READ ALL RELEVANT DOCUMENTS, BECOME FAMILIAR WITH THE JOB, SCOPE OF WORK, TYPE OF GENERAL CONSTRUCTION, AND THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. ALSO UNDERSTAND THE PURPOSE FOR WHICH THESE DOCUMENTS HAVE BEEN PREPARED AND BECOME COGNIZANT OF ALL THE DETAILS INVOLVED. COORDINATE WORK WITH THAT OF OTHERS.

DEFINITIONS:

FURNISH - PURCHASE AND DELIVER TO PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT.
INSTALL - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT.
PROVIDE - FURNISH AND INSTALL

GENERAL REQUIREMENTS

PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE OTHERS SHALL BE PROVIDED. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH THE ARCHITECT-ENGINEER, AS REQUIRED.

THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF CONTRACT.

WHERE THE DRAWINGS OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OR THE OWNERS CRITERIA, PROVIDE THE SYSTEM WITH THE MORE STRINGENT REQUIREMENTS AS DESIGNED AND DESCRIBED ON THESE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.

ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING, AND REPAIRING. THIS CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT SERVICE ACCESS TO ALL EQUIPMENT.

ALL WORK SHALL BE PERFORMED IN A NEAT PROFESSIONAL MANNER USING GOOD ENGINEERING PRACTICES.

UNLESS SPECIFICALLY NOTED OTHERWISE, MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW, UNDERWRITERS LABORATORIES LISTED AND LABELED AND SIZED IN CONFORMITY WITH REQUIREMENTS OF STATE AND LOCAL CODES, WHICHEVER IS MORE STRINGENT.

CODES

ALL WORK SHALL CONFORM TO THE OWNER'S CRITERIA, THE STATE'S, COUNTY'S, CITY'S AND LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY CODES AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. INQUIRE INTO AND COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS. INCLUDE ANY CHANGES REQUIRED BY CODES IN THE BID AND IF THESE CHANGES ARE NOT INCLUDED IN THE BID, THEY MUST BE QUALIFIED AS A SEPARATE LINE ITEM IN THE BID. AFTER CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE OWNER.

LICENSES, PERMITS, COMMISSIONING, INSPECTIONS & FEES

OBTAIN AND PAY FOR ALL LICENSES, PERMITS, COMMISSIONING, INSPECTIONS, AND FEES REQUIRED OR RELATED TO THIS WORK.

PROVIDE TO THE OWNER-ARCHITECT A COMMISSIONING PLAN, PRELIMINARY COMMISSIONING REPORT, FINAL COMMISSIONING REPORT, AND CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

TRADE NAMES, MANUFACTURERS AND SHOP DRAWINGS

WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUAL OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO APPROVAL IN WRITING BY ARCHITECT-ENGINEER PRIOR TO BID THROUGH SHOP DRAWING SUBMITTAL PROCESS, FOR ACCEPTANCE PRIOR TO INSTALLATION. ANY CHANGES TO ELECTRICAL SERVICE, STRUCTURAL FRAMING, ETC. OR ANY OTHER MODIFICATION THAT IS REQUIRED BY THE USE OF ALTERNATE EQUIPMENT SHALL BE COORDINATED WITH OTHER TRADES AND SHALL INCLUDE ALL COSTS IN BID FOR THE REQUIRED CHANGES. THE USE THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT NO EXPENSE TO THE OWNER.

GUARANTEE

GUARANTEE ALL MATERIALS AND WORK PROVIDED UNDER THIS CONTRACT AND MAKE GOOD, REPAIR OR REPLACE AT NO EXPENSE TO THE OWNER, ANY DEFECTIVE WORK, MATERIAL, OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF TWELVE (12) MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION. EXTENDED WARRANTIES ARE AS SPECIFIED WITH INDIVIDUAL EQUIPMENT.

QUALITY ASSURANCE

INDUSTRY STANDARDS AND CODES: UNLESS MODIFIED BY THESE SPECIFICATIONS, THE DESIGN, MANUFACTURER, TESTING AND METHOD OF INSTALLING ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL CONFORM TO THE FOLLOWING:

1. ARI CODE FOR REFRIGERATION APPARATUS
2. ANSI B9.1 SAFETY CODE FOR MECHANICAL REFRIGERATION
3. STANDARDS OF NATIONAL FIRE PROTECTION ASSOCIATION
4. SMACNA
5. ASHRAE

RECORD DRAWINGS

MAINTAIN ONE COPY OF DRAWINGS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS: LOCATION OF CONCEALED PIPING VALVES AND DUCTS, REVISIONS, ADDENDUMS, AND CHANGE ORDERS, AND SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTOR'S COORDINATION WITH OTHER TRADES.

AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. A SET OF REPRODUCIBLE DRAWINGS ALONG WITH ONE SET OF BLULINES OF THE MOST RECENT SET OF DRAWINGS WITH TEMPERATURE CONTROL DRAWINGS INCLUDED SHALL BE DELIVERED TO THE ARCHITECT UPON COMPLETION OF THE WORK AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

DISCREPANCIES IN DOCUMENTS

DRAWINGS (PLANS, SPECIFICATIONS, AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE UNCLEAR, ADVISE THE ARCHITECT-ENGINEER IN WRITING, OF VARIATIONS TO CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, ARCHITECT-ENGINEER'S INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

PHASING REQUIREMENTS

INCLUDE IN BID ALL NECESSARY SERVICE REQUIRED TO KEEP THE OPERATING PHASE OF THE PROJECT'S HVAC, PLUMBING AND SPRINKLER SERVICE IN OPERATION. IF APPLICABLE, SCHEDULE IN WRITING WITH ARCHITECT ONE WEEK PRIOR TO ANY SHUT DOWN OF THE HVAC, PLUMBING OR FIRE PROTECTION SYSTEMS.

DEMOLITION

COORDINATE THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY OTHER. COORDINATE ANY EXISTING EQUIPMENT REQUIRED TO BE LEFT INTACT.

VERIFY SCOPE OF AND THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. VERIFY ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AND ROOF/WALL/FLOOR PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT TO BE REUSED IN THIS PROJECT. ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN BID PROPOSAL.

CUTTING AND PATCHING

PERFORM ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF THE WORK UNDER THIS SPECIFICATION. NO CUTTING OF THE STRUCTURE SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OR ARCHITECT.

PATCHING SHALL BE OF THE SAME WORKMANSHIP, MATERIAL AND FINISH AND SHALL MATCH ACCURATELY ALL SURROUNDING CONSTRUCTION IN A MANNER SATISFACTORY TO THE ARCHITECT.

EXISTING UTILITIES, ETC. THAT ARE DAMAGED DURING THE CONSTRUCTION PERIOD, WHETHER OR NOT DUE TO NEGLIGENCE SHALL BE REPAIRED OR REPLACED AND LEFT IN A CONDITION SUITABLE TO THE ARCHITECT.

SLEEVES

PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2" ABOVE THE FLOOR. COORDINATE THROUGH THE ARCHITECT ANY CORE DRILLING OR CUTTING OF OPENINGS IN MASONRY FLOORS OR WALLS.

ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH CALCIUM SILICATE, SILICONE "RTV" FOAM, "3M" FIRE RATED SEALANTS OR EQUAL, SO AS TO RETAIN THEIR FIRE RATING.

SLEEVES IN BEARING AND MASONRY WALLS, FLOORS, AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE NO. 22 U.S.G. GALVANIZED STEEL MINIMUM.

HANGERS

HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS ANGLE IRON, BANDS, C-CLAMPS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK.

HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OF BAR JOIST. WHERE INTERFERENCES OCCUR, AND IN ORDER TO SUPPORT DUCTWORK OR PIPING, INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, AND OTHER EQUIPMENT. HANGER TYPES AND INSTALLATION METHODS ARE ALSO SUBJECT TO LANDLORD CRITERIA.

HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6" LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED.

PROVIDE SWAY AND SEISMIC BRACING WHERE REQUIRED BY CODE.

JOB CONDITIONS

PROTECT MATERIALS, APPARATUS AND EQUIPMENT FROM DAMAGE, MOISTURE, DIRT, DEBRIS AND WORK OF OTHER TRADES.

OPERATION MANUALS AND INSTRUCTIONS

PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS AT THE COMPLETION OF THE PROJECT. SUBMIT THREE HARD BOUND COPIES TO ARCHITECT.

SCHEDULE A MEETING WITH THE OWNER'S REPRESENTATIVE AT THE SITE TO PROVIDE DETAILED INFORMATION ON THE OPERATING AND MAINTENANCE OF EQUIPMENT.

SUBMITTALS

SUBMIT WITHIN THIRTY (30) DAYS AFTER THE DATE OF NOTICE TO PROCEED AND BEFORE PURCHASING ANY MATERIALS OR EQUIPMENT, SUBMIT TO THE ARCHITECT FOR REVIEW, A COMPLETE LIST, IN SIX (6) COPIES, OF ALL MATERIALS INCORPORATED IN THE WORK. THIS LISTING SHALL BE ARRANGED BY THE ORDER OF OCCURRENCE IN THE SPECIFICATIONS, FOLLOWED BY THE ITEMS ON THE DRAWING NOT SPECIFICALLY INCLUDED IN THE SPECIFICATIONS.

AFTER THE LIST HAS BEEN PROCESSED BY THE ARCHITECT, SUBMIT COMPLETE SHOP DRAWINGS AND PRODUCT DATA OF ALL EQUIPMENT. THESE SUBMITTALS SHALL BE SUBMITTED WITHIN THIRTY (30) DAYS AFTER THE PROCESSING DATE OF THE ORIGINAL SUBMITTAL LIST. SUBMISSIONS SHALL BE MADE EARLY ENOUGH IN PROJECT TO ALLOW FOR (10) WORKING DAYS FOR REVIEW BY ARCHITECT-ENGINEER WITHOUT CAUSING DELAYS OR CONFLICTS IN THE PROJECT'S PROGRESS.

ALL SUBMITTALS SHALL BE COMPLETE AND SHALL BE IN THREE-RING, LOOSE -LEAF BINDERS, NO CONSIDERATION WILL BE GIVEN TO PARTIAL SUBMITTALS, UNLESS NOTED OTHERWISE BY ARCHITECT. EACH ITEM SHALL HAVE A COVER PAGE STATING PROJECT, SPECIFICATION AND PARAGRAPH REFERENCE NUMBER, OR DRAWING REFERENCE NUMBER, AND SCHEDULED EQUIPMENT IDENTIFICATION NUMBER, IF APPLICABLE.

THE REVIEW OF SUBMITTALS DOES NOT RELIEVE RESPONSIBILITY OF SHOP DRAWING ERRORS IN DETAILS, SIZES, QUANTITIES, WIRING DIAGRAM ARRANGEMENTS AND DIMENSIONS WHICH DEVIATE FROM THE SPECIFICATIONS, CONTRACT DRAWINGS AND/OR JOB CONDITIONS AS THEY EXIST.

IF APPARATUS OR MATERIALS ARE SUBSTITUTED FOR THOSE SPECIFIED UNDER THIS SECTION, AND SUCH SUBSTITUTIONS NECESSITATE CHANGES IN OR ADDITIONAL CONNECTIONS, PIPING SUPPORTS OR CONSTRUCTIONS, SAME SHALL BE PROVIDE AT NO ADDITIONAL COST TO THE OWNER. ASSUME COST AND ENTIRE RESPONSIBILITY THEREOF. ARCHITECT'S PERMISSION TO MAKE SUCH SUBSTITUTION SHALL NOT RELIEVE FULL RESPONSIBILITY FOR WORK.

TEST AND BALANCE REPORT: SUBMIT AT FINAL INSPECTION OPERATION AND MAINTENANCE MANUALS: SUBMIT COPIES IN COMPLIANCE WITH SECTION, OPERATION AND MAINTENANCE MANUALS.

15400 - HEATING VENTILATION AND & AIR CONDITIONING

PRODUCTS:

ALL MATERIALS AND EQUIPMENT SHALL BE NEW. SYSTEMS SHALL FUNCTION CORRECTLY AS A WHOLE, AND IN ALL ITS PARTS, UP TO THE SPECIFIED CAPACITY. SYSTEMS OR DEVICES FAILING TO MEET PERFORMANCE REQUIREMENTS SHALL BE REPLACED, ALTERED OR REPAIRED AS REQUIRED TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS. WORK DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS, OR REPAIRS SHALL BE RESTORED TO PRIOR CONDITIONS, AT NO ADDITIONAL COST TO THE OWNER. WHERE MULTIPLE ITEMS OF EQUIPMENT OR MATERIALS ARE REQUIRED, THEY SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER. BEFORE ORDERING EQUIPMENT, THE PHYSICAL DIMENSIONS SHALL BE CHECKED TO VERIFY FIT IN SPACES ALLOTTED ON THE DRAWINGS. INSERTS, PIPE SLEEVES, AND SUPPORTS OF AIR CONDITIONING EQUIPMENT SHALL BE PROVIDED AS SPECIFIED. WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE, MASONRY OR SIMILAR WORK, THE ITEMS SHALL BE FURNISHED AT THE PROPER TIME FOR SETTING OR EMBEDMENT SO AS TO CAUSE NO DELAY. DUCTWORK AND EQUIPMENT ASSEMBLIES SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. ADDITIONAL DUCTWORK AND APPURTENANCES REQUIRED FOR PROPER OPERATION OF EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

MANUFACTURER'S NAMES AND CATALOG NUMBERS

SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAMES AND MODEL OR CATALOG NUMBERS. THIS DOES NOT INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS NECESSARILY AN "OFF THE SHELF" ITEM; REQUIREMENTS FOR SPECIFIC FINISHES, MATERIALS OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURER'S STANDARDS. ASCERTAIN THAT SUCH MODIFICATIONS ARE FULLY CONSIDERED.

DIAGRAMS, NAMEPLATES AND LABELS

EACH MAJOR COMPONENT OF EQUIPMENT SHALL HAVE THE MANUFACTURER'S NAME, ADDRESS AND CATALOG NUMBER ON A PLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE. THE NAMEPLATE OF A DISTRIBUTING AGENT WILL NOT BE ACCEPTED. ALL PIECES OF EQUIPMENT, VALVES, STARTERS, DISCONNECTS, AND ALL PNEUMATIC AND ELECTRIC CONTROL INSTRUMENTS AND APPARATUS SHALL BE IDENTIFIED WITH 1/16" THICK BLACK LAMINATED PLASTIC NAMEPLATES, WITH 3/16" HIGH WHITE LAMINATED LETTERS. SIMILAR AND LIKE EQUIPMENT SHALL BE DESIGNATED WITH NUMERICAL SUFFIX (EXAMPLE: THERMOSTAT, T-1). THE NAMEPLATE IDENTIFICATIONS SHALL COINCIDE WITH ITEMS APPEARING ON DIAGRAMS. PROVIDE A LABEL FOR THE MECHANICAL SYSTEM STATING: (NAME, ADDRESS AND PHONE NUMBER OF CONTRACTOR). LETTERS SHALL BE 1/4" HIGH AND LOCATED IN A CONSPICUOUS PLACE NEAR THE HVAC EQUIPMENT.

EXECUTION

INSTALLATION AND WORKMANSHIP

THE WORK SHALL BE PERFORMED BY QUALIFIED MECHANICS. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BE INSTALLED IN NEAT, WORKMANLIKE MANNER. MATERIALS, DEVICES OR EQUIPMENT WHICH, IN THE OPINION OF THE ARCHITECT-ENGINEER, IS IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER AT NO ADDITIONAL COST TO THE OWNER. THE WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES. WHERE THE WORK IS DEPENDENT UPON WORK OF OTHER TRADES OR WORK ALREADY IN PLACE, SUCH OTHER WORK AND WORK IN PLACE SHALL BE EXAMINED AND SHALL BE IN PROPER CONDITION AND STATE OF COMPLETION BEFORE CONTINUING THE INSTALLATION. THE INSTALLATION OF WORK SHALL, IN GENERAL, BE AS HIGH AS POSSIBLE AND LOCATED IN ACCORDANCE WITH THE DRAWINGS. DUCTWORK INDICATED SHALL BE FOLLOWED AS ACCURATELY AS POSSIBLE. ANY NECESSARY DEVIATIONS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT-ENGINEER. PROVIDE DRAWINGS SHOWING PROPOSED CHANGES. APPROVAL IS REQUIRED BEFORE CHANGES SHALL TAKE EFFECT.

CUTTING AND PATCHING

LAYOUT OPENINGS FOR CUTTING BY OTHER TRADES AS REQUIRED. CUTTING OF STEEL, CONCRETE OR ANY OTHER STRUCTURAL PART MUST BE APPROVED IN WRITING BY ARCHITECT-ENGINEER PRIOR TO CUTTING.

WATERPROOFING

DO NOT CUT OR PENETRATE WATERPROOFED SURFACES, OR WATERPROOFING MEMBRANES, WITHOUT FIRST MAKING ARRANGEMENTS FOR REPAIR BY A METHOD APPROVED BY ARCHITECT-ENGINEER.

PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.

ELECTRICAL WORK

POWER WIRING FROM PANELS TO MOTOR CONTROLLERS AND FROM CONTROLLERS TO MOTORS IS SPECIFIED IN DIVISION 16. MOTOR STARTERS NOT SPECIFIED TO BE FURNISHED WITH THE MOTORS FROM THE FACTORY ARE SPECIFIED IN DIVISION 16. SUBMIT WIRING DIAGRAMS FOR APPROVAL AND FURNISH APPROVED DIAGRAMS TO THE ELECTRICAL CONTRACTOR FOR COORDINATION. ELECTRICAL CONTROL WIRING FOR CONNECTION OF TEMPERATURE CONTROLLERS, PUSH BUTTONS, INTERLOCKS IN MOTOR CONTROLLERS, AND LIKE ITEMS IS SPECIFIED IN THE CONTROL SECTION(S) IN THIS DIVISION. FURNISH ALL EQUIPMENT WITH COMPLETE INTERNAL CONTROL WIRING. ELECTRICAL WORK SPECIFIED IN THIS DIVISION SHALL CONFORM TO APPLICABLE PROVISIONS OF DIVISION 16. ALL CONTROL WIRING SHALL BE IN CONDUIT. PROVIDE MOTORS CONFORMING TO CHARACTERISTICS SHOWN ON ELECTRICAL DRAWINGS.

ACCESS DOORS (ACCESS PANELS)

PROVIDE ACCESS REQUIRED FOR MAINTENANCE, ADJUSTMENT, REMOVAL AND REPAIR OF VALVES, CONTROLS, DAMPERS, EQUIPMENT AND LIKE ITEMS. PROVIDE ACCESS DOORS (ACCESS PANELS) CONFORMING TO REQUIREMENTS OF DIVISION 8 SPECIFICATIONS. PANELS SHALL BE LOCATED TO MAKE ALL ITEMS EASILY ACCESSIBLE.

CLEAN UP

REFER TO GENERAL CONDITIONS FOR CLEAN-UP. CLEAN ALL MATERIALS AND EQUIPMENT OF DIRT, DUST, PAINT, SPOTS AND STAINS, SOIL MARKS AND OTHER FOREIGN MATTER.

FINAL INSPECTION

GIVE NOTICE TO THE ARCHITECT-ENGINEER THAT THE WORK IS READY FOR FINAL INSPECTION.

1. SUBMIT TEST AND BALANCE REPORT AND COMPLETE REQUIREMENTS AS NOTED.
2. SUBMIT LETTER FROM CONTROL MANUFACTURER CERTIFYING THAT CONTROLS HAVE BEEN CHECKED FOR OPERATION AND CALIBRATION, AND THAT THE SYSTEM IS OPERATING AS INTENDED.

FURNISH NECESSARY MECHANICS TO OPERATE SYSTEM, MAKE NECESSARY ADJUSTMENTS AND ASSIST WITH FINAL INSPECTION.

INSTRUCTION OF OWNER'S OPERATING PERSONNEL

INCLUDE THE COST OF THE SERVICES OF QUALIFIED INSTRUCTOR(S) TO INSTRUCT THE OWNER'S OPERATING PERSONNEL IN THE OPERATION, ADJUSTMENT, CARE AND MAINTENANCE OF ALL HVAC EQUIPMENT AND SYSTEMS. INSTRUCTION SHALL BE PERFORMED AT A TIME APPROVED BY THE OWNER AND AFTER ALL HVAC EQUIPMENT AND SYSTEMS ARE INSTALLED, COMPLETE, ADJUSTED AND OPERATING TO SPECIFIED REQUIREMENTS. NOTIFY THE ARCHITECT-ENGINEER WHEN INSTRUCTIONS WILL BE GIVEN. QUALIFICATIONS OF INSTRUCTORS SHALL BE SUBJECT TO APPROVAL OF THE OWNER AND EQUIPMENT MANUFACTURER. ADDITIONAL REQUIREMENTS CONCERNING OPERATION AND MAINTENANCE OF MECHANICAL EQUIPMENT AND SYSTEMS MAY BE SPECIFIED IN OTHER SECTIONS. TWO COPIES OF ACKNOWLEDGMENT OF ALL REQUIRED INSTRUCTIONS TO OWNER'S OPERATING PERSONNEL, SIGNED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE, SHALL BE SUBMITTED TO THE ARCHITECT-ENGINEER PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT. AN ADDITIONAL COPY OF THIS ACKNOWLEDGMENT IS REQUIRED IN EACH COPY OF OPERATION AND MAINTENANCE MANUALS REQUIRED IN THE SECTION, OPERATION AND MAINTENANCE MANUALS.

OPERATION AND MAINTENANCE MANUALS

FURNISH THREE COPIES OF COMPLETE OPERATION AND MAINTENANCE MANUALS TO THE ARCHITECT-ENGINEER, FOR APPROVAL AND FOR THE OWNER, ON ALL EQUIPMENT AND SYSTEMS. THE MANUALS SHALL BE BOUND IN HARD-BACK, THREE RING LOOSE-LEAF BINDERS. MANUALS SHALL CONTAIN A TITLE SHEET WITH JOB NAME, AND THE NAMES, ADDRESSES AND PHONE NUMBERS OF THE CONTRACTOR, SUBCONTRACTOR, CONTROL SUBCONTRACTOR, RELATED CONTRACTORS AND MATERIAL AND EQUIPMENT SUPPLIERS.

A COPY OF ACKNOWLEDGMENT OF INSTRUCTION TO THE OWNER'S OPERATING PERSONNEL IN THE OPERATION OF ALL MECHANICAL EQUIPMENT AND SYSTEMS, SIGNED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE. TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING HOW TO STOP AND START EACH PIECE OF EQUIPMENT; HOW TO SET THE TEMPERATURE CONTROL SYSTEM FOR NORMAL OPERATION AND NORMAL RESTARTING PROCEDURES, CAUTION AND WARNING NOTICES. APPROVED SHOP DRAWINGS, PRODUCT DATA AND PARTS AND MAINTENANCE BOOKLET FOR EACH ITEM OF MATERIAL AND EQUIPMENT FURNISHED UNDER DIVISION 15000. RECORD DRAWINGS OF ALL SYSTEMS INCLUDING ELECTRICAL AND CONTROL DIAGRAMS. TEST AND BALANCE REPORT. COPIES OF CERTIFICATES OF INSPECTION. GUARANTEES, INCLUDING EXTENDED GUARANTEES.

DELIVER THE MANUALS TO THE OWNER PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT.

HVAC/HYDRONIC PIPING

CONDENSATE DRAIN

PROVIDE CONDENSATE DRAINS FOR ALL AIR CONDITIONING UNITS AND PIPE AS DENOTED ON DRAWINGS. CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH TRAP AT THE COIL CONNECTION AND SHALL HAVE A MINIMUM SEAL DEPTH EQUAL TO THE RESPECTIVE AIR HANDLING UNIT FAN STATIC PRESSURE. DEPTH SHALL BE A MINIMUM OF 2".

HVAC INSULATION

LOW PRESSURE DUCTWORK INSULATION

EXTERNAL INSULATION SHALL BE R-6 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING. INTERNAL INSULATION SHALL BE R-6 MINIMUM LINER WITH A COATED AIR SIDE SURFACE TO PREVENT EROSION. APPLY ADHESIVES AND FASTENERS PER SMACNA AND THE MANUFACTURER. ALL TRANSVERSE EDGES TO BE COATED WITH ADHESIVE. ALL CONCEALED DUCTWORK SHALL HAVE EXTERNAL INSULATION, UNCONCEALED DUCTWORK SHALL BE INTERNALLY LINED. DUCTWORK INSTALLED IN UNCONDITIONED SPACES SHALL BE R-12 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING.

ALL AIR SUPPLY DIFFUSERS BACKS AND NECKS, SHALL BE INSULATED WITH R-6 MINIMUM MANVILLE R-SERIES SMALLITE, OR APPROVED EQUAL FIBERGLASS BLANKET INSULATION.

ADHESIVES, MASTIC, SEALANTS

ADHESIVE SHALL BE FOSTER'S 85-20. STUDWELD PINS SHALL BE SEALED WITH FOSTER'S 30-36 ADHESIVE. ALL JOINTS, SEAMS AND BREAKS IN THE VAPOR BARRIER SHALL BE SEALED WITH FOSTER'S 35-00, REINFORCED WITH 4 INCH WIDE GLASS FABRIC.

TERMINAL HEAT TRANSFER UNITS

DESCRIPTION

INSTALL AIR CONDITIONING UNITS OF THE CAPACITIES INDICATED, COMPLETE WITH GAS-FIRED HEATING SYSTEM, WHERE INDICATED ON THE DRAWINGS. UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE ASME AND ANSI CODES AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES. UNIT SHALL BE RATED IN ACCORDANCE WITH THE LATEST ARI STANDARD 21. WHERE SPECIFIED OPERATING CONDITIONS ARE OTHER THAN ARI STANDARD CONDITIONS, CAPACITIES SHALL BE INTERPOLATED FROM ARI CONDITIONS.

MANUFACTURER

UNITS SHALL BE TRANE, LENNOX, AAON OR APPROVED EQUAL.

EXHAUST FANS

INLINE EXHAUST FAN

INSTALL DIRECT DRIVE CENTRIFUGAL INLINE EXHAUST FAN BY GREENHECK OR APPROVED EQUAL WITH GALVANIZED STEEL HOUSING, BACKWARD INCLINED ALUMINUM WHEEL, ACCESS PANELS, INTEGRAL DUCT CONNECTION FLANGES, BALL BEARING MOTORS, AND CORROSION RESISTANT FASTENERS. FAN SHALL COME INSTALLED WITH NEMA-1 TOGGLE SWITCH, MOUNTED AND WIRED. SOLID STATE SPEED CONTROLLER SHIPPED LOOSE AND PSC MOTOR.

WATER SOURCE HEAT PUMPS

DESCRIPTION

INSTALL WATER SOURCE HEAT PUMP OF CAPACITIES INDICATED MANUFACTURED BY FLORIDA HEAT PUMP, MCQUAY OR AN APPROVED EQUAL. FACTORY ASSEMBLED AND RATED ACCORDING TO ARI-ISO13526-1. GALVANIZED-STEEL CASING WITH ACCESS PANELS FOR MAINTENANCE AND FILTER REPLACEMENT, KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS, FLANGED DUCT CONNECTIONS AND CABINET INSULATION OF ½" THICK, MULTI DENSITY, COATED GLASS FIBER. THE UNIT SHALL BE DESIGNED TO OPERATE WITH ENTERING FLUID TEMPERATURES BETWEEN 50°F AND 100°F IN COOLING AND BETWEEN 50°F AND 80°F IN HEATING.

THE UNITS SHALL BE WARRANTED BY THE MANUFACTURER AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR ON ALL PARTS AND FIVE (5) YEARS ON COMPRESSOR.

REFRIGERATION CIRCUITS SHALL UTILIZE R-410A. THE UNIT SHALL CONTAIN SEALED REFRIGERANT CIRCUITS INCLUDING HERMETIC COMPRESSORS, THERMAL EXPANSION VALVE METERING DEVICES, REFRIGERANT DRIER, FINED TUBE AIR-TO-REFRIGERANT HEAT EXCHANGERS, REFRIGERANT REVERSING VALVES AND SERVICE PORTS. COMPRESSORS SHALL BE HIGH EFFICIENCY, DESIGNED FOR HEAT PUMP DUTY, INTERNALLY SPRING ISOLATED (EXCEPT FOR SCROLL TYPE COMPRESSORS) FOR MAXIMUM SOUND ATTENUATION AND MOUNTED ON RUBBER VIBRATION ISOLATORS. COMPRESSOR MOTORS SHALL BE EQUIPPED WITH OVERLOAD PROTECTION. THE FINNED TUBE COIL SHALL BE CONSTRUCTED OF LANCED ALUMINUM FINS NOT EXCEEDING 14 FINS PER INCH. COILS SHALL HAVE A BAKED POLYESTER ENAMEL COATING FOR PROTECTION AGAINST MOST AIRBORNE CHEMICALS. THE COAXIAL WATER-TO-REFRIGERANT HEAT EXCHANGERS SHALL BE CONSTRUCTED OF A CONVOLUTED COPPER INNER TUBE AND STEEL OUTER TUBE WITH A DESIGNED REFRIGERANT WORKING PRESSURE OF 450 PSIG AND A DESIGNED WATER SIDE WORKING PRESSURE OF NO LESS THAN 400 PSIG.

UNITS 6 TONS AND LARGER: THE FANS SHALL BE BELT DRIVEN FORWARD CURVE TYPE WITH DYNAMICALLY BALANCED WHEEL(S). THE FAN HOUSINGS SHALL BE REMOVABLE FROM THE UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF FAN MOTORS. MOTORS SHALL BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

UNITS SMALLER THAN 6 TONS: THE FAN SHALL BE DIRECT DRIVE CENTRIFUGAL FORWARD CURVED TYPE WITH A DYNAMICALLY BALANCED WHEEL. FAN HOUSE SHALL BE REMOVABLE FROM UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF FAN MOTOR. THE MOTOR SHALL BE THREE SPEED PSC TYPE AND BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

DUCTWORK, LOW PRESSURE, GALVANIZED STEEL

QUALITY ASSURANCE

DUCTS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA)

JOB CONDITIONS

INSPECT THE DRAWINGS AND VERIFY EXISTING CONDITIONS IN THE FIELD. REPORT CONFLICTS BEFORE STARTING FABRICATION.

DUCT MATERIAL

WEIGHTS AND GAGES SHALL BE IN ACCORDANCE WITH TABLE I OF "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY SMACNA. DUCT MATERIAL SHALL BE GALVANIZED STEEL.

SPLITTER DAMPERS

SPLITTERS SHALL BE 18 GAGE GALVANIZED STEEL WITH HORIZONTAL AND VERTICAL DIMENSIONS SUFFICIENT TO CLOSE OFF AIR TO BRANCH. PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 690 DAMPER ASSEMBLY.

VOLUME DAMPERS

VOLUME DAMPERS SHALL BE 18 GAGE STEEL; SINGLE BLADE UP TO 8" X 8", OPPOSED BLADE ON ALL DUCTS OVER 8" X 8". PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 641 SELF-LOCKING REGULATOR. DAMPER RODS SHALL BE 1/2" SQUARE BARS WITH BLADES SECURELY RIVETED TO BAR.

TURNING VANES

SQUARE AND RECTANGULAR ELBOWS SHALL CONTAIN TITUS NO. AG-225 TURNING VANES.

HANGERS

IN ACCORDANCE WITH CHAPTER IV OF SMACNA.

FLEXIBLE CONNECTIONS

FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR EACH AIR HANDLING DEVICE TO PREVENT TRANSMISSION OF VIBRATIONS. MAKE FLEXIBLE CONNECTION A MINIMUM OF 4 INCHES WIDE OF VENTGLAS AS MADE BY VENTFABRICS, INC.

INSTALLATION

GENERAL: SPLIT, DIVIDE OR TURN DUCTS AS NECESSARY TO AVOID OBSTRUCTIONS AND, IN SUCH CASES, PROVIDE AIR STREAM DEFLECTORS AND INCREASE SIZE OF DUCT TO AN EQUIVALENT AREA.

SPLITTERS: RIGIDLY ATTACH SPLITTERS TO PIVOT ROD AND OPERATING LINKAGE. SET DAMPER ASSEMBLY ON RAISED INSULATED BASE ON INSULATED DUCTWORK. VOLUME

DAMPERS: SUPPLY AND MAKE-UP AIR DUCTWORK IN CONCEALED SPACES. SET REGULATOR ON RAISED BASE ON INSULATED DUCTWORK. MARK END OF DAMPER ROD TO SHOW DAMPER POSITION.

FLEXIBLE CONNECTIONS: SECURE FLEXIBLE CONNECTIONS TO DUCT AND UNIT WITH GALVANIZED STEEL STRAPS HOLDING THE MATERIAL IN FORMED GALVANIZED STEEL CHANNELS. TEST TO ENSURE PROPER INSTALLATION.

PLUGS: PROVIDE SQUARE HEAD TYPE TEST PLUGS AS REQUIRED FOR INSERTION OF TEST APPARATUS. PROVIDE A RING AND A REMOVABLE INSULATION PLUG WHERE DUCTS ARE INSULATED.

PAINTING: PAINT INTERIOR OF DUCTWORK FLAT BLACK WHERE VISIBLE THROUGH GRILLES AND REGISTERS.

SEALING: DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA "SEAL CLASS B".

CORRECTIONS

REMOVE ALL DUCTWORK FOUND TO VIBRATE, CHATTER OR PULSATE AND REPLACE WITH NEW DUCTWORK.

DUCTWORK, LOW PRESSURE, FLEXIBLE

DESCRIPTION

PROVIDE WHERE INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN, FACTORY FABRICATED AND PRE INSULATED FLEXIBLE DUCTS.

QUALITY ASSURANCE

FLEXIBLE DUCTS, INCLUDING INSULATION AND SEALANTS, SHALL CONFORM TO THE REQUIREMENTS OF NFPA 90A AND UL STANDARD 181 FOR CLASS 1 DUCTS. PERFORMANCE DATA SHALL BE BASED ON TEST PERFORMED IN ACCORDANCE WITH AIR DIFFUSION COUNCIL FLEXIBLE AIR DUCT TEST CODE FD72.

LOW PRESSURE FLEXIBLE DUCTWORK

LOW PRESSURE FLEXIBLE DUCTWORK SHALL CONSIST OF CORROSION RESISTANT SPRING STEEL HELIX BONDED TO A GLASS REINFORCED NEOPRENE SLEEVE INSULATED WITH A MINIMUM OF 1 INCH THICK, 1 POUND DENSITY FIBERGLASS INSULATION WHICH IS IN TURN COVERED WITH AN OUTER VAPOR BARRIER OF FIBER REINFORCED FOIL-SCRIM-KRAFT LAMINATE. INSULATION SHALL HAVE A THERMAL CONDUCTIVITY (K) NO GREATER THAN 0.25 AT 75 DEGREES F. DUCT FOR LOW VELOCITY SYSTEM CONNECTORS SHALL HAVE A WORKING PRESSURE OF NOT LESS THAN 1-1/2 INCHES OF WATER GAGE AND A MAXIMUM OPERATING TEMPERATURE OF NOT LESS THAN 250 DEGREES F.

DUCT CONNECTORS

WHERE FLEXIBLE DUCTS CONNECT TO LOW PRESSURE DUCTS TO FORM RUNOUTS TO INDIVIDUAL OUTLETS, PLENUMS OR LOW PRESSURE TERMINALS, PROVIDE FACTORY FABRICATED FITTINGS COMPLETE WITH MANUAL BALANCING DAMPERS HAVING LOCKING QUADRANTS. WHERE LOW PRESSURE DUCTS ARE INTERNALLY INSULATED THE CONNECTOR SHALL BE FURNISHED WITH AIR EXTENSION TO PROJECT THROUGH AND PROTECT THE INSULATION. FOR CONNECTION TO EQUIPMENT, AUXILIARY SLEEVES SHALL BE PROVIDED TO ALLOW AT LEAST 2 INCHES OF SURFACE FOR CLAMPING OF FLEXIBLE DUCTWORK. SLEEVES SHALL BE SCREWED OR BOLTED TO EQUIPMENT LIP FRAME.

CLAMPS

PROVIDE GALVANIZED SPRING STEEL CLAMPS OR PANDUIT STRAPS AT CONNECTIONS TO DUCT FITTINGS OR DEVICES.

MANUFACTURER

FLEXIBLE DUCTWORK AND COMPONENTS SHALL BE AS MANUFACTURED BY GENERAL ENVIRONMENTAL CORPORATION OR APPROVED EQUAL.

INSTALLATION

INSTALL DUCT CONNECTORS TO LOW PRESSURE DUCTS USING MANUFACTURER'S TEMPLATE FOR ALL HOLES AND SECURE THE CONNECTOR WITH SHEET METAL SCREWS HAVING FIRST APPLIED FOSTER'S 30-02 DUCT SEALANT TO THE ADJOINING SURFACES. DO NOT PRESSURIZE THE SYSTEM FOR 48 HOURS. STRETCH NEW DUCT WHEN REMOVING IT FROM CARTONS WHERE IT MAY HAVE BEEN SHIPPED IN A COMPRESSED STATE. USE THE MINIMUM LENGTH OF FLEXIBLE DUCT REQUIRED TO MAKE THE SPECIFIC CONNECTION UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. THE MAXIMUM DEVELOPED LENGTH OF FLEX DUCT IS 5'-0". AVOID SHARP BENDS. USE A MINIMUM INSIDE BEND RADIUS EQUAL TO (1) TIMES THE INSIDE DIAMETER OF THE DUCT. SUPPORT HORIZONTAL DUCT RUNS AS DETAILED IN THE CONSTRUCTION DOCUMENTS. ALLOW THE FLEXIBLE DUCT TO EXTEND STRAIGHT AWAY FROM CONNECTORS FOR A FEW INCHES PRIOR TO INITIATING ANY BEND. MAKE CONNECTIONS OF FLEXIBLE DUCT TO RIGID DUCT OR TERMINALS AS FOLLOWS:

1. APPLY FOSTER'S 30-02 SEALANT TO THE INSIDE OF THE FLEXIBLE DUCT TO DEPTH OF 3 INCHES.
2. SLIDE THE FLEXIBLE DUCT OVER THE CONNECTOR AND WRAP WITH MINIMUM OF TWO REVOLUTIONS OF REINFORCED FOIL DUCT TAPE STARTING ABOUT 2 INCHES BACK FROM END OF FLEXIBLE DUCT AND SEALING OVERLAP WITH LAST WRAP.
3. PLACE A CLAMP OR STRAP OVER THE TAPED END AND SECURE FIRMLY.
4. REPAIR ALL DAMAGE TO VAPOR BARRIER WITH FOSTER'S 35-00 REINFORCED WITH 4 INCH WIDE GLASS FABRIC AND A SECOND COAT OF FOSTER'S 35-00.

AIR DISTRIBUTION DEVICES

DESCRIPTION

AIR DISTRIBUTION DEVICES SHALL BE PROVIDED TO DELIVER THE INDICATED VOLUME OF SUPPLY AIR WITHOUT EXCEEDING THE NC RATING AS FOLLOWS:
EMPLOYEE AND CUSTOMER AREAS: NC-30.

DIFFUSERS, GRILLES AND REGISTERS

MANUFACTURER SHALL BE TITUS OR APPROVED EQUIVALENT. FOR MODEL NUMBERS AND TYPES SEE AIR DISTRIBUTION SCHEDULE ON DRAWING. DIFFUSERS, GRILLES, AND REGISTERS SHALL BE OF THE SURFACE, FLUSH, OR LAY-IN MOUNTING CORRESPONDING TO THE CEILING IN WHICH THEY ARE LOCATED. THE FINISH OF THE DIFFUSERS, GRILLE, OR REGISTER FACE PANEL SHALL BE BAKED ENAMEL, OFF WHITE COLOR. WHERE MOUNTING SCREWS ARE REQUIRED IN AIR DISTRIBUTION DEVICES, THEY SHALL BE FINISHED TO MATCH THE ADJACENT SURFACE OF THE DEVICES. SUPPLY AND RETURN GRILLES AND REGISTERS WHICH ARE SURFACE MOUNTED SHALL BE PROVIDED WITH SPONGE RUBBER GASKETED FRAMES TO PREVENT SMUDGING.

DRAINABLE LOUVERS

MANUFACTURER SHALL BE RUSKIN OR APPROVED EQUAL. FOR MODEL NUMBER AND TYPE SEE DRAWING. LOUVER FINISH SHALL BE SANDSTONE COLORED BAKED ENAMEL CONTAINING 50% KYNAR RESINS. LOUVER SHALL INCLUDE GASKETED BACKDRAFT DAMPERS WITH ADJUSTABLE WEIGHTS OR SPRINGS TO PREVENT OUTWARD AIR FLOW. ADJUST AS DIRECTED BY OWNER OR AUTHORITY HAVING JURISDICTION.

INSTALLATION

INSTALL WHERE SHOWN ON DRAWINGS. DIFFUSERS, REGISTERS AND FITTINGS SHALL BE SECURELY ATTACHED TO FINISH SURFACES, OR STRUCTURAL MEMBERS BEHIND FINISH SURFACES. LAY-IN DIFFUSERS MOUNTED IN ACOUSTICAL TILE CEILINGS SHALL BE RIGIDLY MOUNTED, ABOVE THE FACE PANEL, TO THE CEILING SUSPENSION SYSTEM. DRAINABLE LOUVERS SHALL BE INSTALLED AS RECOMMENDED BY MANUFACTURER.

CONTROLS, ELECTRIC

DESCRIPTION

THE WORK CONSISTS OF INSTALLING CONTROLS FOR THE HVAC SYSTEM.

ELECTRICAL

ELECTRICAL WORK AND MATERIALS ASSOCIATED WITH THE CONTROL SYSTEM SHALL BE INSTALLED AS WORK OF THIS SECTION BUT IN ACCORDANCE WITH DIVISION 16. POWER WIRING IS SPECIFIED UNDER DIVISION 16 AND SHOWN ON ELECTRICAL DRAWINGS. ELECTRICAL CONTROL WIRING CONDUIT AND FITTINGS ASSOCIATED WITH THE SPACE TEMPERATURE AND HUMIDITY CONTROL INCLUDING INTERLOCKING WITH MOTOR CONTROLLERS, CONTROL ACCESSORIES AND APPURTENANCES ARE TO BE PROVIDED UNDER THIS SECTION. CONTROL WIRING SHALL BE IN CONDUIT IF REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.

ELECTRIC ROOM THERMOSTATS

THERMOSTAT SHALL BE AS SPECIFIED IN THE DRAWINGS, THERMOSTATS FOR WATER SOURCE HEAT PUMPS SHALL HAVE AUTOMATIC HEATING/COOLING CHANGEOVER AND SHALL E PROVIDED WITH A LOCKABLE COVER.

SMOKE DETECTOR

SMOKE DETECTOR SHALL BE FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR AS SHOWN IN THE DRAWINGS. WIRING AND REMOTE ALARM INDICATOR FOR DUCT MOUNTED SMOKE DETECTOR SHALL BE BY ELECTRICAL CONTRACTOR. SMOKE DETECTOR SHALL BE POWERED AS SPECIFIED IN DRAWINGS.

TESTING, ADJUSTING AND BALANCING

TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT CONTRACTOR, WHO IS A CURRENTLY LICENSED ASSOCIATED AIR BALANCING COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) BALANCING CONTRACTOR. NO OTHER BALANCE REPORTS WILL BE REVIEWED OR ACCEPTED. ALL BALANCING WORK MUST BE COMPLETE AND DONE IN ACCORDANCE WITH THE MOST RECENT STANDARDS OF THEIR SOCIETY AND AS A MINIMUM SHALL INCLUDE THE INFORMATION AS SHOWN IN THE AIR BALANCE REVIEW CHECKLIST BELOW. PAYMENT OF ALL COSTS FOR TESTING AND BALANCING SHALL BE INCLUDED IN THE BID.

TESTING, ADJUSTING AND BALANCING REPORT MUST BE COMPLETE AND TURNED OVER TO TENANT'S PROJECT MANAGER ONE (1) WEEK PRIOR TO MERCHANDISING DATE. VERIFY THAT ALL EQUIPMENT AND SYSTEMS ARE COMPLETE AND OPERATIONAL ONE WEEK PRIOR TO FINAL BALANCING. IF ALL SYSTEMS ARE NOT OPERATIONAL AT THE TIME OF THE SCHEDULED BALANCING, ADDITIONAL TESTING AND BALANCING, INCLUDING ALL LABOR, TRAVEL EXPENSES, MEALS, HOTEL COSTS, ETC SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.

PRESENT FOR AIR BALANCE TO VERIFY ACCESSIBILITY TO ALL DEVICES, VERIFY ALL OPERATING SEQUENCES AND INSTALL NEW FILTERS IN ALL UNITS JUST PRIOR TO THE AIR BALANCE. ALLOW TWO DAYS ON SITE FOR BALANCING. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION, EXCEPT AS NOTED OTHERWISE. INSTALL A NEW SET OF FILTERS ONE DAY PRIOR TO TURNOVER.

BALANCE AIR AND WATER QUANTITIES TO WITHIN +/- 10% OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS OR PULLEYS NEEDED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED WITH NO ADDITIONAL COST TO THE OWNER. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS RECORDED IN THE REPORT.

SEVEN (7) COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED FOR APPROVAL.

PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED ON THESE DRAWINGS. ALL SYSTEMS UNABLE TO BE COMPLETELY BALANCED AT THE TIME OF ORIGINAL BALANCE MUST BE BALANCED IN FUTURE AT NO ADDITIONAL EXPENSE TO THE OWNER. RECHECK ANY ITEMS THAT OWNER DEEMS NECESSARY AT NO ADDITIONAL COST TO OWNER.

THE BALANCE REPORT SHALL BE ON THE AABC NATIONAL STANDARD REPORT FORMS OR THE NEBB CERTIFIED REPORT FORMS AS PUBLISHED IN THEIR MOST CURRENT EDITIONS.

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PERMIT SET

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REVISION DATES:

1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

M401

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

MECHANICAL SPECIFICATIONS

FOR QUESTIONS, CALL THE
Kansas City Mechanical
REGION 151
PHONE: (816) 384-0236
EMAIL: reg151@captiveaire.com

HOOD INFORMATION – JOB#6065542

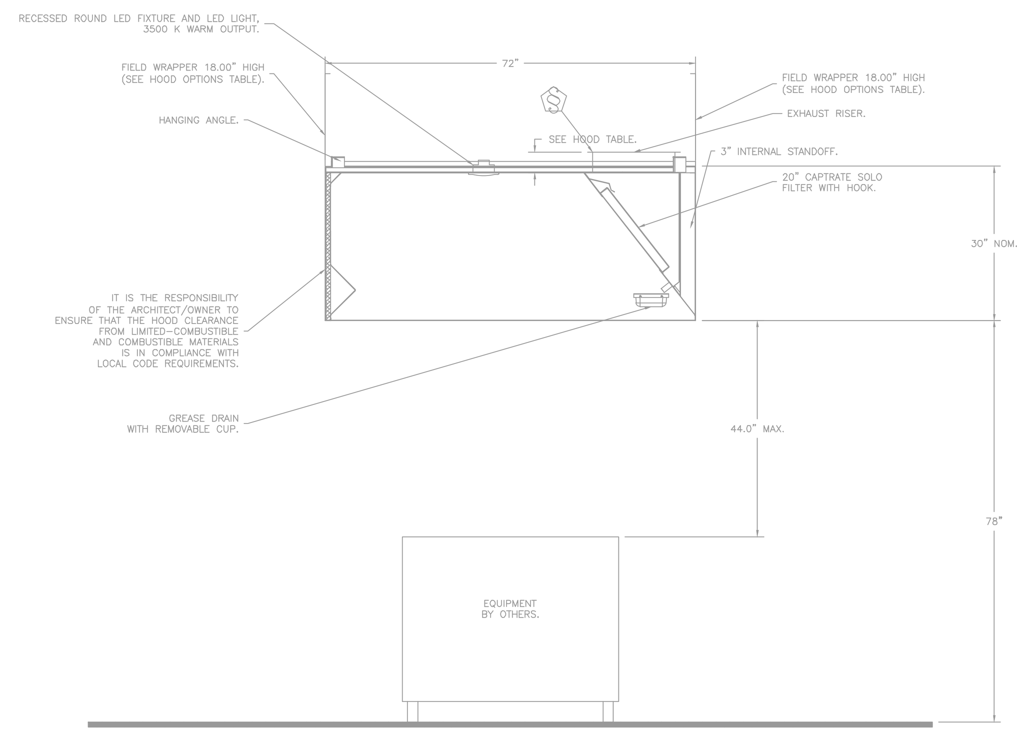
HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1	KH-1	7230 ND-2WI	CAPTIVEAIRE	7' 0"	450 DEG	I	MEDIUM	269	1883			4"	16"	1883	1349	-0.651"	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

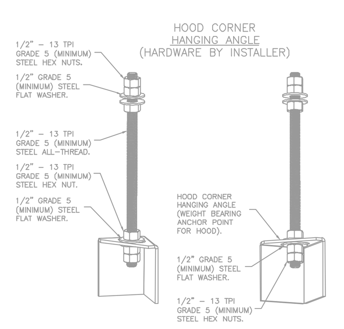
HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	LOCATION	UTILITY CABINET(S) SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	KH-1	CAPTRATE SOLO FILTER	5	20"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO	LEFT	12"x72"x30"	TANK FS	4.0	SC-110110MA	1 LIGHT 1 FAN	YES	805 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	KH-1	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT, BACK.
		FINISHED BACK- ISL/REV INSTALL 84.00" LONG, (FILTERS TO THE FRONT).



SECTION VIEW – MODEL 7230ND-2WI
HOOD – #1 (KH-1)



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" – 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" – 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

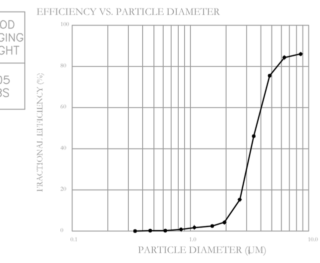
SPECIFICATION: CAPTRATE GREASE-STOP SOLO FILTER

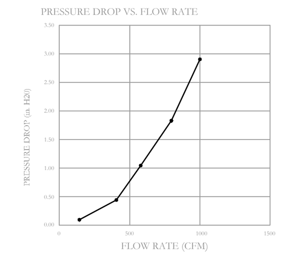
THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

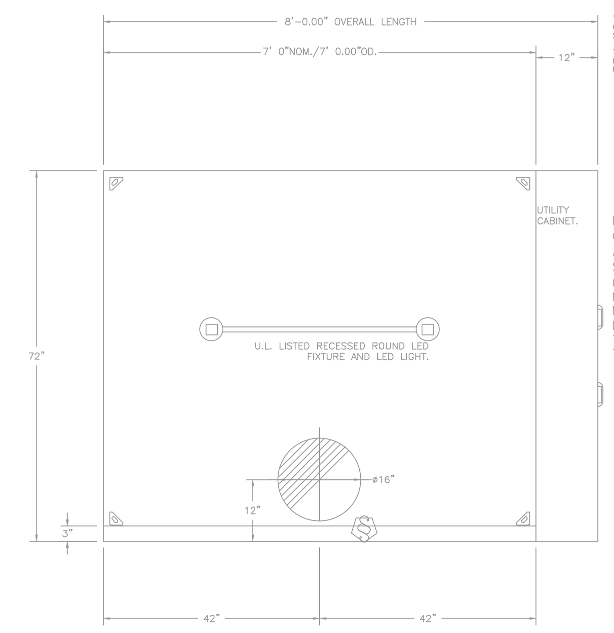
UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.
THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05.
MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.

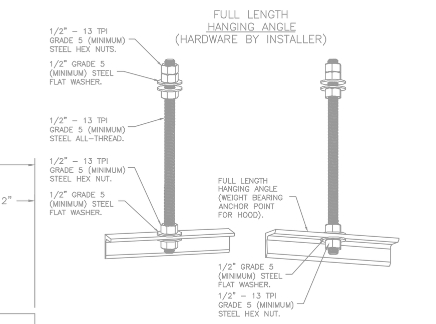




CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:.
NFPA #96.
NSF STANDARD #2.
UL STANDARD #1046.
INT. MECH. CODE (IMC).
ULC-S649.



PLAN VIEW – HOOD #1 (KH-1)
7' 0.00" LONG 7230ND-2WI



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REVISIONS — DESCRIPTION | DATE

CAPTIVEAIRE
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2300 Main Street, 9th Floor, Kansas City, MO, 64108 PHONE: (816) 384-0236 EMAIL: reg151@captiveaire.com

TM Fieldhouse Type I hood
LEES SUMMIT, MO, 64002

DATE: 6/21/2023
DWG.#: 6065542
DRAWN BY: Jayce.T
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 1

EXHAUST FAN INFORMATION – JOB#6065542

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	KEF-1	1	DU85HFA	CAPTIVEAIRE	1883	1.500	1546	TEAO-ECM	1.000	0.7080	1	115	11.6	596 FPM	93	15.1

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF-1	1	GREASE BOX
		1	ECM WIRING PACKAGE – PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY

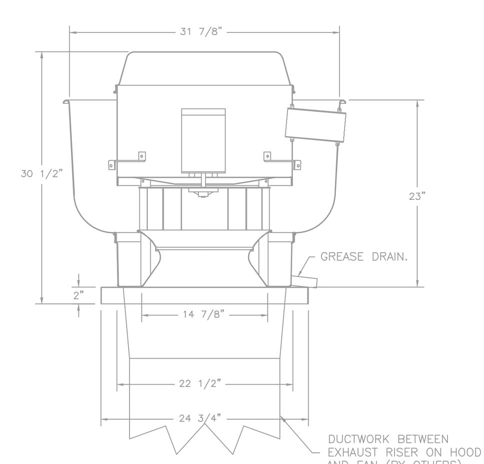
FAN ACCESSORIES

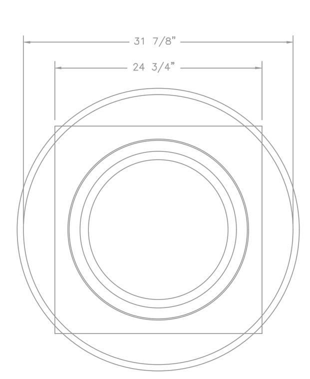
FAN UNIT NO	TAG	EXHAUST GREASE CUP	EXHAUST GRAVITY DAMPER	EXHAUST WALL MOUNT	SUPPLY SIDE DISCHARGE	SUPPLY GRAVITY DAMPER	SUPPLY MOTORIZED DAMPER	SUPPLY WALL MOUNT
1	KEF-1	YES						

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KEF-1	36 LBS	CURB	23.000"W X 23.000"L X 20.000"H VENTED HINGED.

FAN #1 DU85HFA – EXHAUST FAN (KEF-1)





TOP VIEW

FEATURES:

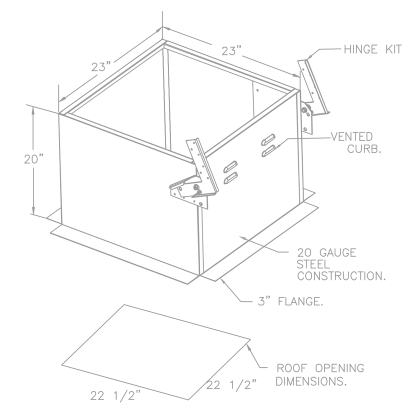
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- ECM WIRING PACKAGE – PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.



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TM Fieldhouse Type I hood
LEES SUMMIT, MO, 64002

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MASTER DRAWING
SHEET NO. 5

GREASE DUCT & CHIMNEY SPECIFICATIONS:
PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURES INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURES LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12".
DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.

IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CAPTIVEAIRE SYSTEMS RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

HVAC DISTRIBUTION NOTE

HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

ENTIRE SHEET ADDED

collins | webb ARCHITECTURE
307B SW Market St., Lee's Summit, Missouri 64063 | 816.249.2270 |
www.collinsandwebb.com

PERMIT SET

TM FIELDHOUSE
1600 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64063

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1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

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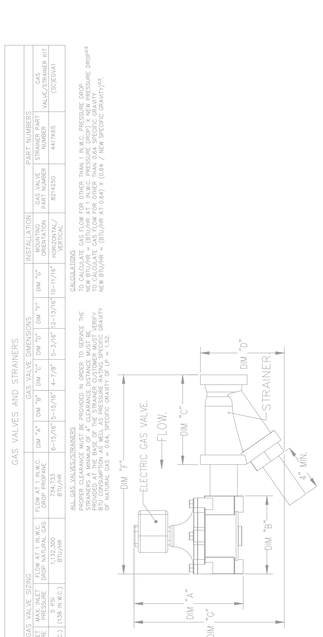
PROFESSIONAL SEAL

M501

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

HOOD AND FAN DRAWINGS



FIRE SYSTEM INFORMATION — J08E0065542

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION SYSTEM	LOCATION ON HOOD
1	FS-1	TANK FS	4.0	16	FIRE CABINET LEFT	LEFT, HOOD 1

GAS VALVE(S)

GAS VALVE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1	FS-1	SC ELECTRICAL	1.000	CAPTIVEAIRE SYSTEMS

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER – PART DESCRIPTION	QTY. BY ELECTRIC	QTY. BY GAS
1	FS-1	0 – 0 – TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
		0 – 0 – TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
		0 – 0 – 12-728021 -331144-01-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO.	1	0
		0 – 0 – 442W153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	1	0
		0 – 0 – 442W153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	1	0
		0 – 0 – 442W422 1/2" X 1/4" BRASS REDUCING BUSHING.	1	0
		0 – 0 – 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2" NPT FEMALE CONNECTION, MEGA.	1	0
		0 – 0 – 79526 1/2" PRO-PRESS TEE WITH 1/2" NPT FEMALE CONNECTION, MEGA.	1	0
		0 – 0 – 87-300001-001 TANK – PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	1	0
		0 – 0 – 87-300030-001 PRIMARY ACTUATOR KIT (PAK) ACTUATOR AND RELEASE SOLENOID	1	0
		AS WELL AS MECHANICAL LINKAGE TO MANUALLY ACTUATE THE TANK FIRE SUPPRESSION.		
		0 – 0 – 87-300175-001 HARDWARE, SIA BOLTS, TANK FIRE SUPPRESSION.	4	0
		0 – 0 – 90654504PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD.	4	0
		0 – 0 – 90972504PC PRO PRESS PG911 1/2 PRESS TEE LD.	3	0
		0 – 0 – A0034115 HARDWARE, LATCH-N-LOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	2	0
		0 – 0 – A0034332 JUNCTION BOX FOR MANUAL PULL STATION, 1.5" DEEP BACK BOX, RED COLOR.	1	0
		0 – 0 – A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES, 1/4" FLARE X 1/4" MALE NPT, BRASS, 5/8" HEX.	1	0
		0 – 0 – B145 3/8" BLACK IRON 90 ELL.	2	0
		0 – 0 – CBI-105 CHROME PLATED PIPE FITTING 3/8" NPT 90 DEGREE ELBOW.	2	0
		0 – 0 – CBI-106 CHROME PLATED PIPE FITTING 3/8" NPT TEE.	2	0
		0 – 0 – DATAKNOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION	2	0
		IN UTILITY CABINETS, TANK FIRE SUPPRESSION.		
		0 – 0 – TRIC STANDARD ST TANK BRACKET FOR FIRE SUPPRESSION.	1	0
		0 – 0 – TRIC STANDARD ST TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	3	0
		0 – 0 – WK-265952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	1	0
		16 – 16 – GL-F NOZZLE – TANK PROTECTION APPLIANCE, COVERAGE NOZZLE (INCLUDES METAL	4	0
		BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE). 4 FLOW POINTS.		
		16 – 16 – GL-F NOZZLE – TANK PROTECTION APPLIANCE, COVERAGE NOZZLE (INCLUDES METAL	4	0
		BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE). 4 FLOW POINTS.		
		34 – 34 – A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION)	4	0
		WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT, RED COLOR.	1	0

NOTES
- FIELD PIPE DROPS AS SHOWN.
- PIPING BELOW DECK, FACTORY WELDED TO APPLIANCE.
- FIELD INSTALLED PIPE, FACTORY WELDED TO APPLIANCE.
- PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- LOOSE PIPING SHIPPED WITH APPLIANCE TO BE FIELD-INSTALLED.
- SHIPPED LOOSE TO BE FIELD-INSTALLED TO THE EXACT CHROME
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING,
- ALL NOZZLES SHALL BE AIMED TO THE CENTER OF THE HOOD.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH A LENGTH OF 12 FEET OR LESS.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE TO BE FIELD-INSTALLED.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP SURFACE

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH UL 300 REQUIREMENTS.

- OL–F NOZZLE PART NUMBER REPLACES 3070–3/8H–10–SS

JOB #: 6065542
JOB NAME: TM FIELDHOUSE TYPE I HOOD.

SYSTEM SIZE: TANK–SP–1 TOTAL FP REQUIRED: 16.
HOOD # 1 20.00" LONG x 72" WIDE x 30" HIGH.
NOZZLES: 2 TYPE GL–F, QTY 16
HOOD # 1 2 METAL BLOW–OFF CAPS INCLUDED.

– HEAVY–DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL
DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY
HORIZONTAL RUNS OVER 25 FT IN LENGTH.
– MEDIUM TO LIGHT–DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY
ADDITIONAL DOWNSTREAM FIRESTATS.

LEGEND – FIRE CABINET TANK SYSTEM

1 4 GALLON TANK
2 PRIMARY ACTUATOR RELEASE
3 SECONDARY ACTUATOR RELEASE.
4 PRESSURE SUPERVISION SWITCH.
5 PRIMARY HOSE ASSEMBLY.
6 SECONDARY HOSE ASSEMBLY.
7 REMOTE MANUAL ACTUATION DEVICE.

SECTION VIEW — MODEL 7230ND–2W1
HOOD — #1

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	DESCRIPTION	DATE
1		
2		
3		
4		

TM Fieldhouse Type I hood
LEES SUMMIT, MO, 64002

DATE: 6/21/2023
DWG.#: 6065542
DRAWN BY: Joyce.T
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 4

ENTIRE SHEET ADDED

HOOD AND FAN DRAWINGS

FOR REFERENCE ONLY

PROFESSIONAL SEAL

M502

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

TM FIELDHOUSE
1600 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64063

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1 CITY COMMENTS - 06/21/23
2 CITY COMMENTS 03/22/24
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GENERAL PLUMBING NOTES

1. ALL WORK SHALL BE IN CONFORMANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
2. PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS AND ALL PLUMBING SYSTEMS EQUIPMENT MANUALS INCLUDING WARRANTIES.
3. COORDINATE THE COMPLETE INSTALLATION OF SYSTEMS TO AVOID CONFLICT WITH OTHER TRADES.
4. COORDINATE ALL ABOVE SLAB AND UNDER SLAB SANITARY, AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS, AND COLUMN FOOTINGS. ALL SOIL AND WASTE PIPING SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER.
5. COORDINATE ALL FLOOR DRAINS, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUM AND FLUSH WITHOUT CRACKS, RISE IN THE SLAB, OR VOIDS AROUND GRATES OR TOPS. ALL CLEANOUTS SHALL BE INSTALLED ALONG MAINS AT 50'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT. ANY DRAIN GRATES THAT ARE DAMAGED AS A RESULT OF OTHER CONSTRUCTION PRIOR TO RELEASE OF THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATE AT NO EXPENSE OF THE OWNER.
6. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS.
7. PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS IF REQUIRED BY CODE OR OWNER.
8. PLUMBING VENTS THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES.
9. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
10. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.
11. CONTRACTOR TO FULLY INVESTIGATE ALL EXISTING PIPING TO REMAIN TO INSURE EXISTING PIPING IS IN GOOD REPAIR. IF ANY EXISTING PIPING IS FOUND TO BE DAMAGED REPLACE WITH LIKE.

PLUMBING ABBREVIATIONS

AD	AREA DRAIN, ACCESS DOOR	IE	INVERT ELEVATION
AFC	ABOVE FINISH CEILING	LP	LIQUIFIED PETROLEUM
AFG	ABOVE FINISH GRADE	MBH	1000 BTU PER HOUR
AHU	AIR HANDLING UNIT	N/A	NOT APPLICABLE
BFP	BACKFLOW PREVENTER	ORD	OVERFLOW ROOF DRAIN
BOP	BOTTOM OF PIPE	OST	STORM OVERFLOW
BOS	BOTTOM OF STRUCTURE	PD	PUMP DISCHARGE
CD	CONDENSATE	PIV	POST INDICATOR VALVE
CO	CLEANOUT	PRV	PRESSURE REDUCING VALVE
CW	DOMESTIC COLD WATER	REV	REVISION
DD	DECK DRAIN	RPM	REVOLUTIONS PER MINUTE
DN	DOWN	RTU	ROOF TOP UNIT
ETR	EXISTING TO REMAIN	SAN	SANITARY
EWC	ELECTRIC WATER COOLER	SCW	SOFT DOMESTIC COLD WATER
FCO	FLOOR CLEANOUT	SHW	SOFT DOMESTIC HOT WATER
FFA	FROM FLOOR ABOVE	SDHWR	SOFT RECIRC. HOT WATER
FP	FIRE PROTECTION	ST	STORM
FS	FLOOR SINK	TFA	TO FLOOR ABOVE
G	GAS (NATURAL)	TFB	TO FLOOR BELOW
GCO	GRADE CLEANOUT	TW	TEMPERED WATER
GPM	GALLONS PER MINUTE	UH	UNIT HEATER
HB	HOSE BIBB	V	VENT PIPE
HW	DOMESTIC HOT WATER	VTR	VENT THROUGH ROOF
HWR	HOT WATER RETURN	WCO	WALL CLEANOUT
HWS	HOT WATER SUPPLY	WH	WALL HYDRANT

PLUMBING SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	GATE VALVE		FLOOR DRAIN / AREA DRAIN
	CHECK VALVE		FLOOR SINK
	PRESSURE	RD	ROOF DRAIN
	SOLENOID VALVE	ORD	OVERFLOW ROOF DRAIN
	GLOBE VALVE (STRAIGHT PATTERN)		HOT WATER RECIRCULATION PUMP
	BUTTERFLY VALVE	VTR	PLUMBING VEVT THRU ROOF
	BALL VALVE		POINT OF CONNECTION (CONNECT NEW TO EXISTING)
	GAS COCK	XXX	PLUMBING EQUIPMENT DESIGNATION
	PLUG VALVE	X / X	PLUMBING RISER OR DETAIL DESIGNATION
FCO	FLOOR CLEAN OUT	S	SANITARY SEWER PIPING
WCO	WALL CLEAN OUT	ST	STORM SEWER PIPING
CO	CLEAN OUT	V	VENT PIPING
	HOSE BIBB	CW	COLD WATER PIPING
	FREEZE PROOF WALL HYDRANT	HW	HOT WATER PIPING
	ELBOW DOWN	HWR	HOT WATER RECIRCULATING PIPING
	ELBOW UP	FW	FILTERED WATER PIPING
	TEE UP	G	GAS PIPING
	TEE DOWN	CD	CONDENSATE PIPING
	STRAINER	CA	COMPRESSED AIR PIPING
	UNION		
	CAP		

PLUMBING FIXTURE MINIMUM CONNECTION SCHEDULE

DESIGNATION	FIXTURE	C.W.	H.W.	DRAIN	VENT
WC	WATER CLOSET	1"	-	4"	2"
UR	URINAL	3/4"	-	2"	2"
LAV.	LAVATORY	1/2"	1/2"	2"	2"
EWC/DF	ELECTRIC WATER COOLER/DRINKING FOUNTAIN	1/2"	-	2"	2"
MB/SS	MOP BASIN/SERVICE SINK	1/2"	1/2"	3"	2"
SH/BT	SHOWER/BATHTUB	1/2"	1/2"	2"	2"
SK	SINK	1/2"	1/2"	2"	2"

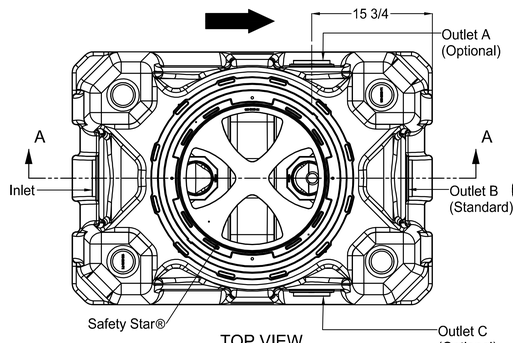
GENERAL NOTES:

1. PITCH ALL DRAINAGE PIPING 3" AND LARGER AT 1/8" PER FOOT MINIMUM UNLESS OTHERWISE NOTED. PITCH ALL DRAINAGE PIPING 2-1/2" AND SMALLER AT 1/4" PER FOOT.
2. ALL UNDERGROUND DRAINAGE PIPING SHALL BE A MINIMUM OF 2" IN SIZE.
3. PROVIDE TRAP PRIMER UNITS FOR ALL FLOOR DRAINS.
4. VERIFY/COORDINATE LOCATIONS OF ALL FIXTURES, DRAIN, ETC. WITH ARCHITECT PRIOR TO ROUGH-IN.

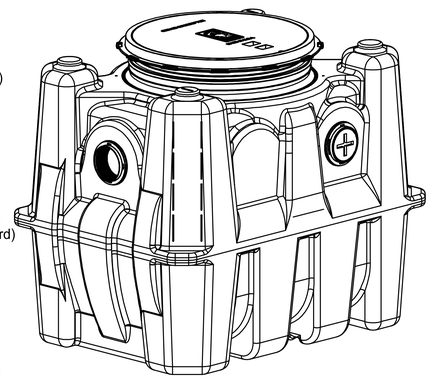
SPECIFICATIONS

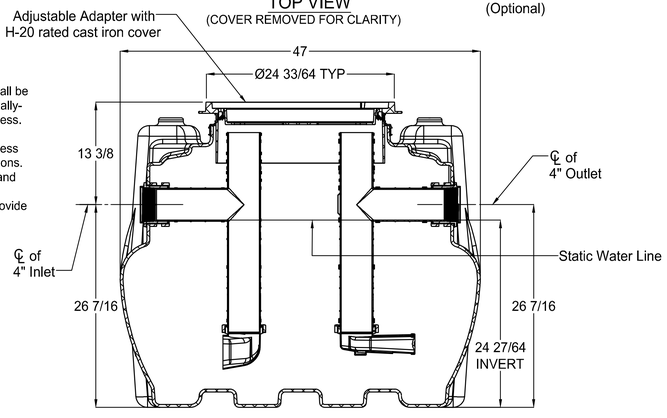
Notes:

1. 4" FPT inlet/outlet with 4" plain end adapters, single inlet and triple outlet.
2. Unit weight - w/ cast iron covers: 190 lbs. (For wet weight add 1,043 lbs.)
3. Maximum operating temperature: 150° F continuous
4. Capacities - Liquid: 125 gal.
   Grease: 861 lbs. (118 gal.) @75 GPM
   Solids: 31 gal.
5. For gravity drainage applications only.
6. Do not use for pressure applications.
7. Cover placement allows full access to tank for proper maintenance.
8. Vent not required unless per local code.
9. Engineered inlet and outlet diffusers with inspection ports are removable to inspect / clean piping.
10. Integral air relief / Anti-siphon / Sampling access.
11. Adjustable cover adapter provides up to 4" of additional height.
12. Designed for below-grade, above-grade, indoor and outdoor installations.
13. Safety Star®, access restrictor built into cover adapter, prevents accidental entry to tank (450 lb rating).

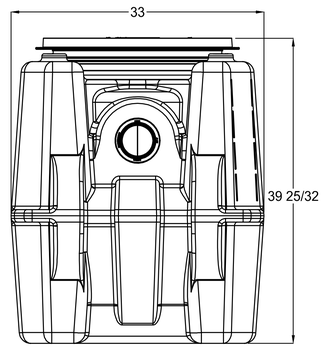


TOP VIEW
(COVER REMOVED FOR CLARITY)


ISOMETRIC VIEW



SECTION A-A



END VIEW

ENGINEER SPECIFICATION GUIDE

Schier Great Basin™ grease interceptor model # GB-75 shall be lifetime guaranteed and made in USA of seamless, rotationally-molded polyethylene with minimum 3/8" uniform wall thickness. Interceptor shall be furnished for above or below-grade installation with adjustable cover adapter, Safety Star® access restrictor built into each cover adapter, and three outlet options. Interceptor shall be certified to ASME A112.14.3 (Type D) and CSA B481.1. Interceptor flow rate shall be 75 GPM. Interceptor grease capacity shall be 861 lbs. Cover shall provide water/gas-tight seal and have minimum 16,000 lbs. load capacity.

CERTIFIED PERFORMANCE

Great Basin™ hydromechanical grease interceptors are third party performance-tested and listed by IAPMO to ASME #A112.14.3 and CSA B481.1 grease interceptor standards and greatly exceed requirements for grease separation and storage. They are compliant to the Uniform Plumbing Code and the International Plumbing Code.

Type D certification does not require a flow control

MODEL NUMBER: GB-75

PART NUMBER: 4045-007-02

DESCRIPTION: GB-75 GREASE INTERCEPTOR 75 GPM, 4" INLET/OUTLET, H-20 RATED CAST IRON COVER

DWG BY:	C. BUSENITZ	DATE:	4/14/2022	REV:	-	ECO:	-

PROPRIETARY AND CONFIDENTIAL

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PERMIT SET

TM FIELDHOUSE

1600 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64063

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REVISION DATES:

1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2009019769
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

P101

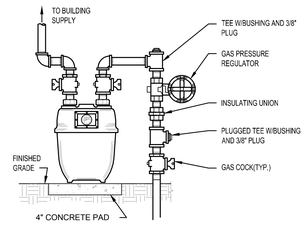
ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

PLUMBING NOTES, SYMBOLS & ABBREVIATIONS

KITCHEN EQUIPMENT SCHEDULE

(SHOWN FOR REFERENCE ONLY. COORDINATE WITH KITCHEN DRAWINGS FOR SPECIFICATIONS.)

R	ITEM	QTY	DESCRIPTION	HW	HOT WATER (GPH)	AFF	CW	C.W. A.F.F.	WST TYPE	DIR WASTE	DIR WASTE A.F.F.	GAS MBTU	GAS SIZE	GAS A.F.F.	PLUMBING COMMENTS
-	3	2	FROZEN DRINK MACHINE W/ CABINET BASE	-	-	-	1/2"	48"	FS1	1-1/2	-	-	-	-	PLUMBER TO PROVIDE BACKFLOW PREVENTER. WATERLINE TO BE ROUTED THRU WATER FILTER TO HAVE SHUT-OFF VALVE IN WATER LINE AT REAR OF MACHINE.
-	7	3	SODA ICE & BEVERAGE DISPENSER - BY VENDOR	-	-	-	-	-	-	-	-	-	-	-	VERIFY - BY VENDOR - TEE CW TO ITEM #8
-	8	3	ICE MAKER W/ WATER FILTER	-	-	-	1/2"	72"	FS1	1"	-	-	-	-	ROUTE CW THRU WATER FILTER TO ICE MAKER - TEE CW FROM ITEM #7
-	20	3	HAND SINK	1/2"	5	16"	1/2"	16"	DIR	1-1/2"	24"	-	-	-	(1) EYE WASHING FAUCET - SEE PLANS FOR LOCATION - PLUMBER TO PROVIDE TEMPERED MIXING VALVE, BACK FLOW AD PRESSURE PREVENTION DEVISCE AT EYE WASH STATION
-	27	1	36" WORK TABLE W/ SINK	1/2"	10	12"	1/2"	12"	FS1	1-1/2"	-	-	-	-	-
-	34	1	ROTATING FIRED PIZZA OVEN	-	-	-	-	-	-	-	-	84.0	3/4"	24"	-
-	35	2	DBL STACK COMBI OVEN AND VENTLESS HOOD W/ STAND - DOMESTIC	-	-	-	3/4"	48"	FS1	2"	-	-	-	-	(1) CW CONNECTION (PER DBL STACK) PLUMBED THRU FILTER AND "TEE" TO BOTH OVENS - (1) CW CONNECTION (PER DBL STACK) UNFILTERED "TEE" TO BOTH OVENS
-	47	1	WORK TABLE WITH SINK	1/2"	10	12"	1/2"	12"	FS1	1-1/2"	-	-	-	-	-
-	50	1	MOP SINK W/ SERVICE FAUCET	1/2"	10	36"	1/2"	36"	DIR	4"	-	-	-	-	P-TRAP BELOW BY PLUMBER
-	54A	1	WALK-IN COOLER UNIT	-	-	-	-	-	MOP SINK	3/4"	-	-	-	-	ROUTE TO MOP SINK W/ 1" AIRGAP
-	54B	1	WALK-IN FREEZER UNIT	-	-	-	-	-	FS1	3/4"	-	-	-	-	ROUTED TO FLOOR SINK W/ 1" AIRGAP
-	55	1	CLEAN DISHTABLE W/ 3 COMP SINK	1/2"	30	12"	1/2"	12"	FS1	1-1/2"	-	-	-	-	-
-	57	1	HIGH TEMP DISHWASHER	3/4"	40.2	12"	3/4"	12"	FS1	2"	-	-	-	-	3/4" FEMALE GARDEN HOSE FITTING FOR 110° MIN HW AND CW FOR DRAIN WATER TAMPERING.
-	58	1	SOILED DISHTABLE W/ SINK AND PRE-RINSE	1/2"	10	12"	1/2"	12"	FS1	1-1/2"	-	-	-	-	-
-	61	2	48" X 12" FLOOR TROUGH	-	-	-	-	-	DIR	4"	-	-	-	-	-
-	62	2	72" X 12" AND 84" X 12" FLOOR TROUGH	-	-	-	-	-	DIR	4"	-	-	-	-	-
-	64	1	ICE MAKER W/ BIN	-	-	-	1/2"	72"	FD	1"	-	-	-	-	CW TO BE ROUTED THRU WATER FILTER TO UNIT - MANIFOLD DRAIN WITH BIN DRAIN AND ROUTE TO FLOOR DRAIN
-	66	1	BAG-N-BOX - BY VENDOR	-	-	-	1/2"	60"	-	-	-	-	-	-	VERIFY - BY VENDOR - TEE CW TO ITEM #8
-	68	1	36" X 12" FLOOR TROUGH	-	-	-	-	-	DIR	4"	-	-	-	-	-

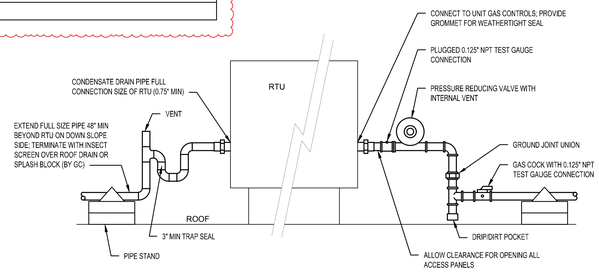


12 GAS METER DETAIL
NOT TO SCALE

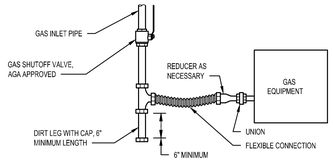
PLUMBING FIXTURE SCHEDULE

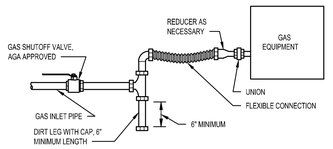
TAG	MANUFACTURER	MODEL	DRAIN	VENT	COLD WATER	HOT WATER	ELECTRICAL REQUIREMENTS	DESCRIPTION
BFP	WATTS	009-QTS	---	---	2"	---	---	BRONZE BODY REDUCED PRESSURE ZONE BACKFLOW PREVENTER WITH QUARTER TURN SHUTOFF VALVES AND STRAINER.
EWC1	ELKAY	VRC8S	2"	1-1/2"	1/2"	---	115V 5 AMPS	WALL MOUNT VANDAL RESISTANT ADA COOLER NON-FILTERED, REFRIGERATED.
EWC	ELKAY	VRC8WSK	2"	1-1/2"	1/2"	---	115V 5 AMPS	WALL MOUNT VANDAL RESISTANT ADA COOLER NON-FILTERED, REFRIGERATED WITH BOTTLE FILLING STATION.
EWH1	BRADFORD WHITE	LE350S3-3	---	---	1"	1"	480V 3 PHASE 9KW	ELECTRIC WATER HEATER 50 GALLON 42 GALLON RECOVERY AT 90 %%DF RISE. 99% EFFICIENT PROVIDE WITH AMTROL ST-12 THERMAL EXPANSION TANK.
EWH2	BRADFORD WHITE	CEHD120A	---	---	1-1/4"	1-1/4"	480V 3 PHASE 30KW	ELECTRIC WATER HEATER 119 GALLON 124 GALLON RECOVERY AT 100 %%DF RISE. 99% EFFICIENT PROVIDE WITH AMTROL ST-12 THERMAL EXPANSION TANK.
FCO	SIOUX CHIEF	834-4ANR	4"	---	---	---	---	FLOOR CLEANOUT ABS BODY AND NICKEL-BRONZE COVER
FD	SIOUX CHIEF	832-35ANR	2"	2"	---	---	---	ADJUSTABLE FLOOR DRAIN WITH GRAY ABS BODY AND ROUND NICKEL-BRONZE STRAINER AND TRAP PRIMER CONNECTION.
FS	SIOUX CHIEF	861-3PNU2	3"	2"	---	---	---	SQUAREMAX PVC FLOOR SINK WITH 3" SCHEDULE 40 HUB CONNECTION AND HALF-OPEN NICKEL-BRONZE RING/STRAINER
IMB	GUY GRAY	BIM875	---	---	1/2"	---		ICE MAKER BOX, PROVIDE WITH STOP VALVE.
FHB	WOODFORD	B65	---	---	3/4"	---	---	AUTOMATIC DRAINING FREEZELESS WALL HYDRANT WITH RECESSED BOX.
GI	SCHIER	GB-75	4"	---	---	---	---	POLYETHYLENE GREASE INTERCEPTOR RATED FOR 75 GPM, 861 LBS GREASE CAPACITY WITH 16,000 LBS LOAD RATED CAPACITY COVER. COMPLIES WITH ASME #A112.14.3
LAV1	SLOAN	DSWD-82000	2"	1-1/2"	1/2"	1/2"	---	WALL HUNG 2 STATION LAVATORY WITH SF-2450-4-BAT-BDM-CP-0.5GPM-MLM-IR-FCT BATTERY POWERED SENSOR FAUCET FOR EACH STATION. PROVIDE WITH TRUEBRO LAV GUARD PIPE WRAPS.
LAV2	AMERICAN STANDARD	9024.001EC	2"	1-1/2"	1/2"	1/2"	---	WALL-HUNG LAVATORY WITH REAR OVERFLOW. SLOAN SF-2450-4-BAT-BDM-CP-0.5GPM-MLM-IR-FCT BATTERY POWERED SENSOR FAUCET. PROVIDE TRUEBRO LAV GUARD PIPE WRAPS AND IN-WALL CARRIER.
MS	FIAT	MSBIDTG2424	3"	2"	3/4"	3/4"	---	MOLDED STONE MOP SERVICE BASIN WITH 830AA FAUCET, 832AA HOSE AND BRACKET, 889CC MOP HANGER BRACKET AND Q3X3KH 3" QUICK DRAIN CONNECTOR.
RP	TACO	007-SF5	---	---	3/4"	---	115V 0.76 AMPS	STAINLESS STEEL RECIRCULATION PUMP 9 FEET OF HEAD AT 5 GPM. PROVIDE WITH AQUASTAT AND TIMER.
TD	SIOUX CHIEF	MAXI 150 SYSTEM	4"	---	---	---	---	FIBER REINFORCED CONCRETE TRENCH DRAIN WITH DUCTILE IRON EDGE TOP AND F900 LOAD CLASS DUCTILE IRON GRATE.
UR	AMERICAN STANDARD	6002.001	2"	1-1/2"	3/4"	---	---	VITREOUS CHINA WASHDOWN URINAL WITH 6063.013.002 SENSOR-OPERATED BATTERY POWERED FLUSH VALVE.
WC1	AMERICAN STANDARD	2462.016	3"	2"	3/4"	---	---	1.6 GPF, FLUSH TANK WATER CLOSET PRESSURE-ASSISTED SIPHON JET. ELONGATED BOWL WITH CHURCH 9500C WHITE, SOLID PLASTIC, OPEN-FRONT SEAT.
WC2	AMERICAN STANDARD	2467.016	3"	2"	3/4"	---	---	ADA-COMPLIANT, 1.6 GPF, FLUSH TANK WATER CLOSET PRESSURE-ASSISTED SIPHON JET. ELONGATED BOWL WITH CHURCH 9500C WHITE, SOLID PLASTIC, OPEN-FRONT SEAT.

NOTES:
1. MODELS IN SCHEDULE ARE A BASIS OF DESIGN CONFIRM FINAL FIXTURE MODELS WITH OWNER PRIOR TO PURCHASING.
2. ALL LAVATORIES SHALL BE PROVIDED WITH ANTI-SCALD ASSE 1070 COMPLIANT VALVE.
3. PROVIDE LOOSE KEY STOPS AND FLEXIBLE RISERS.
4. ON LAVATORY INSULATE EXPOSED TAILPIECE, P-TRAP, AND WATER RISERS WITH TRU-BRO INSULATION KIT.
5. PROVIDE FLUSH VALVE HANDLE ON WIDE SIDE OF ROOM.



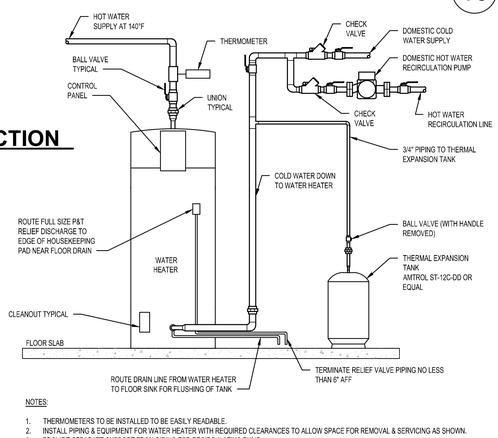
10 ROOF TOP UNIT DETAIL
NOT TO SCALE



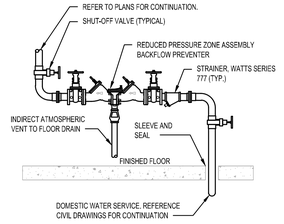


NOTES:
1. HIGH TENSILE STRENGTH STAINLESS STEEL FLEXIBLE CONNECTION, 12" LENGTH, AGA/CSA APPROVED, PRE-COATED.
2. PAINT ALL EXTERIOR GAS PIPING, YELLOW COLOR.
3. PROVIDE PRESSURE REGULATOR WHERE REQUIRED.

11 GAS EQUIPMENT PIPE CONNECTION
NOT TO SCALE



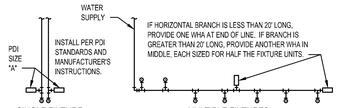
NOTES:
1. THERMOMETERS TO BE INSTALLED TO BE EASILY READABLE.
2. INSTALL PIPING & EQUIPMENT FOR WATER HEATER WITH REQUIRED CLEARANCES TO ALLOW SPACE FOR REMOVAL & SERVICING AS SHOWN.
3. PROVIDE SEPARATE SUPPORT FROM PIPING FOR RECIRCULATING PUMP.
4. INSTALL WATER HEATER PER MANUFACTURER'S WRITTEN INSTRUCTIONS/RECOMMENDATIONS.
5. ROUTE WATER HEATER P&T RELIEF AND DISCHARGE NEAR FLOOR SINK/DRAIN.
6. PROVIDE VACUUM RELIEF VALVE AS REQUIRED BY LOCAL CODE.
7. PIPE INSULATION NOT SHOWN FOR DRAWING CLARITY.



NOTE:
1. SECURE PIPING TO WALL WITH UNISTRUT AND PIPE CLAMPS 30" ON CENTERS MINIMUM.
2. COORDINATE AND FIELD ORIENT ALL PIPING SO AS NOT TO INTERFERE WITH SPRINKLER PIPING AND/OR ASSOCIATED DEVICES.

9 DOMESTIC WATER ENTRY
NOT TO SCALE

8 WATER HEATER PIPING
NOT TO SCALE



SINGLE FIXTURE

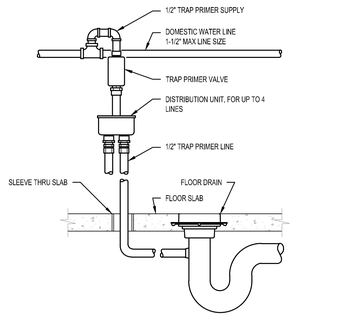
PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1-11
B	3/4"	12-32
C	1"	33-60
D	1-1/4"	61-113
E	1-1/2"	114-154
F	2"	154-330

MULTIPLE FIXTURES

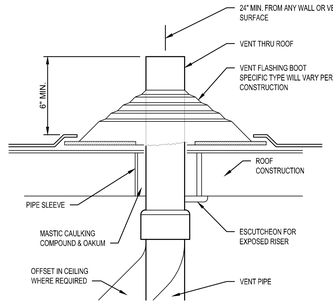
FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	10	--
TANK WATER CLOSET	5	--
URINAL	5	--
LAVATORY/SINK	1.5	1.5
JANITOR'S SINK	3	3
SHOWER/BATHTUB	2	2

PROVIDE WATER HAMMER ARRESTERS ON ALL QUICK CLOSING VALVES, INSTALLED AS CLOSE TO THE FIXTURES AS POSSIBLE TO CONTROL THE EFFECTS OF WATER HAMMER INSTALLATION SHALL COMPLY WITH ALL LOCAL CODES AND ORDINANCES. DO NOT PROVIDE AIR CHAMBERS. PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE # 1010 AND ANSI # A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS PER THE TABLES SHOWN ABOVE.

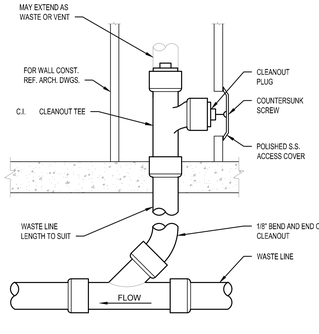
7 WATER HAMMER ARRESTERS
NOT TO SCALE



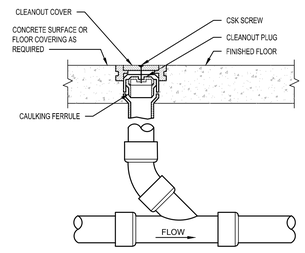
6 TRAP SEAL PRIMER DETAIL
NOT TO SCALE



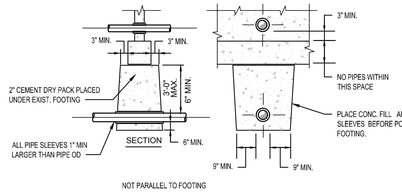
5 VENT THROUGH ROOF DETAIL (VTR)
NOT TO SCALE



4 WALL CLEANOUT
NOT TO SCALE

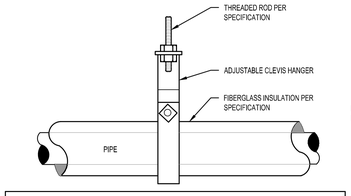


3 FLOOR CLEANOUT
NOT TO SCALE

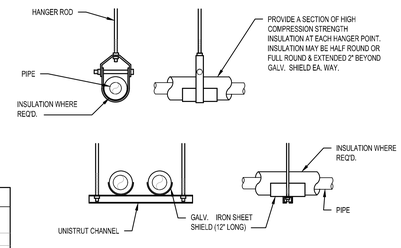


NOT PARALLEL TO FOOTING

2 PIPE AT CONCRETE FOOTING
NOT TO SCALE



WATER PIPING (COPPER TYPE "L")				
PIPE SIZE	WEIGHT / FT. WITH WATER (IN LBS.)	MAX SPACING	LOAD / HGR	ROD SIZE
1/2"	.38	6'	2.28	3/8"
3/4"	.66	6'	3.96	3/8"
1"	1.04	6'	6.24	3/8"
1-1/4"	1.43	6'	8.58	3/8"
1-1/2"	1.82	6'	19.2	3/8"
2"	3.09	10'	30.8	3/8"
2-1/2"	4.52	10'	45.2	3/8"



NOTES:
1. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAMS.
2. PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.

1 PIPE HANGING DETAIL
SCALE: NTS

CAV collins | webb ARCHITECTURE
3078 SW Market St., Lee's Summit, Missouri 64063 | 816.249.2270 |
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PERMIT SET

TM FIELDHOUSE
1600 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64063

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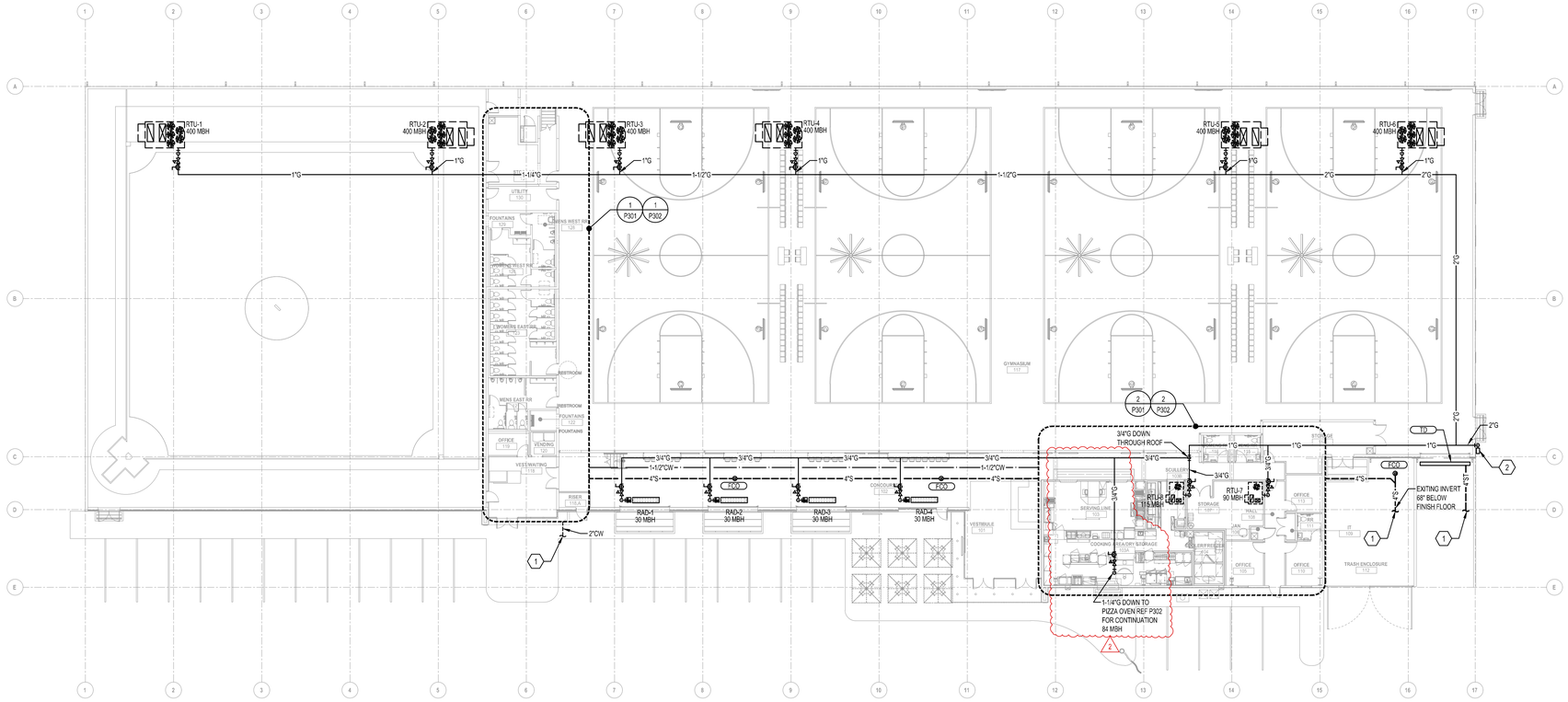
REVISION DATES:
1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS AND OWNER REV. 03/22/24

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020019759
PROFESSIONAL ENGINEER
03/22/2024
PROFESSIONAL SEAL

P102

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

PLUMBING DETAILS AND SCHEDULES



1 PLUMBING OVERALL PLAN

SCALE: 1/16" = 1'-0"

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET P101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
3. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS.
4. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT SPECIFIED IN PLUMBING FIXTURES AND EQUIPMENT SCHEDULES ON THESE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS INDICATED ON PLUMBING SCHEDULES AND AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.

KEYED NOTES:

1. REFERENCE CIVIL DRAWINGS FOR CONTINUATION.
2. COORDINATE WITH GAS UTILITY FOR INSTALLATION OF NEW GAS SERVICE. SYSTEM SIZED AT 2 PSI WITH A TOTAL DEVELOPED LENGTH OF 550' AND TOTAL GAS LOAD OF 2,809 MBH. (2)

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REVISION DATES:

1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

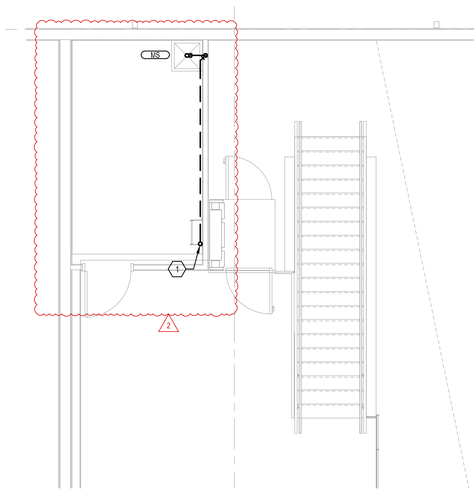
STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2009010759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

P201

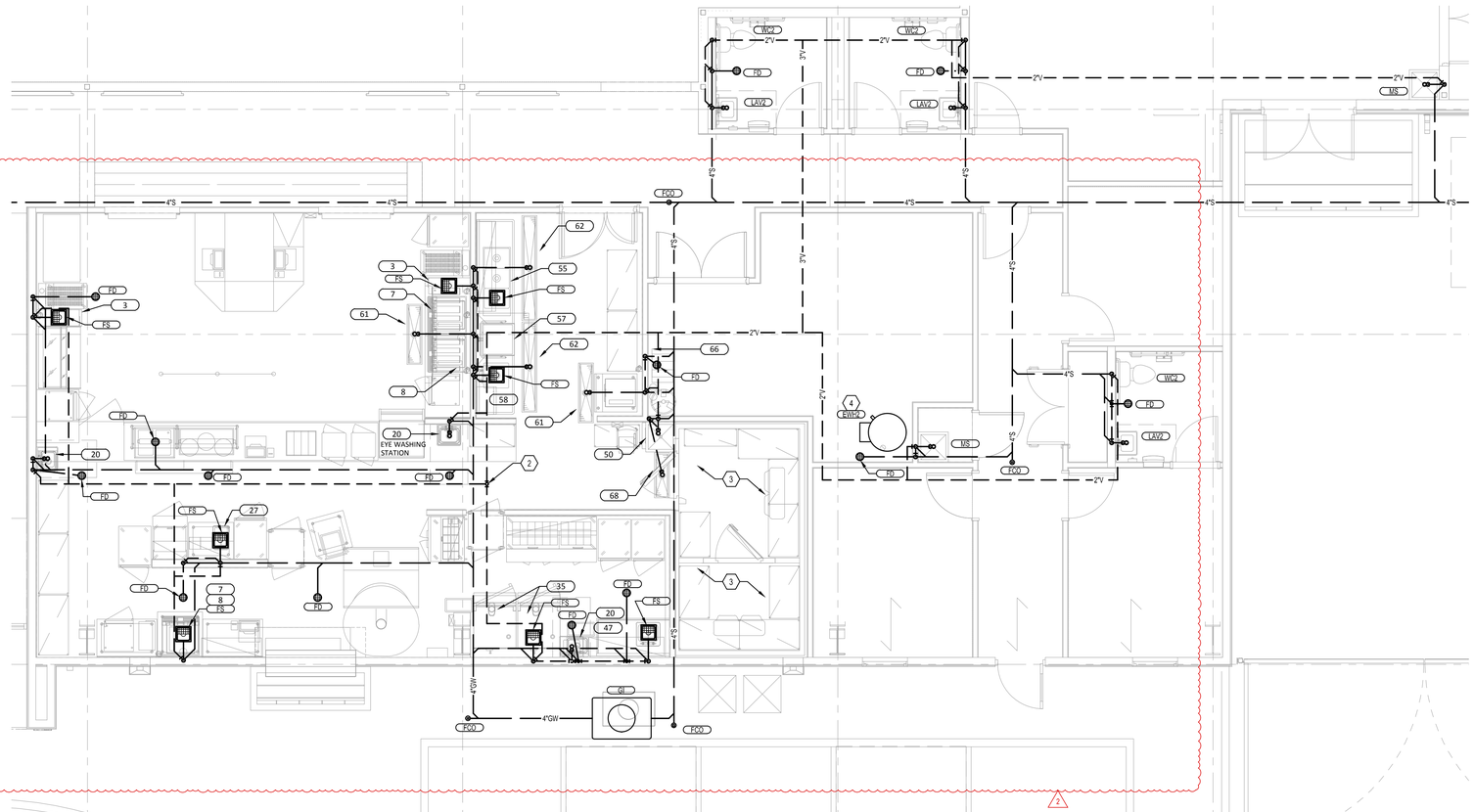
ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

PLUMBING OVERALL PLAN



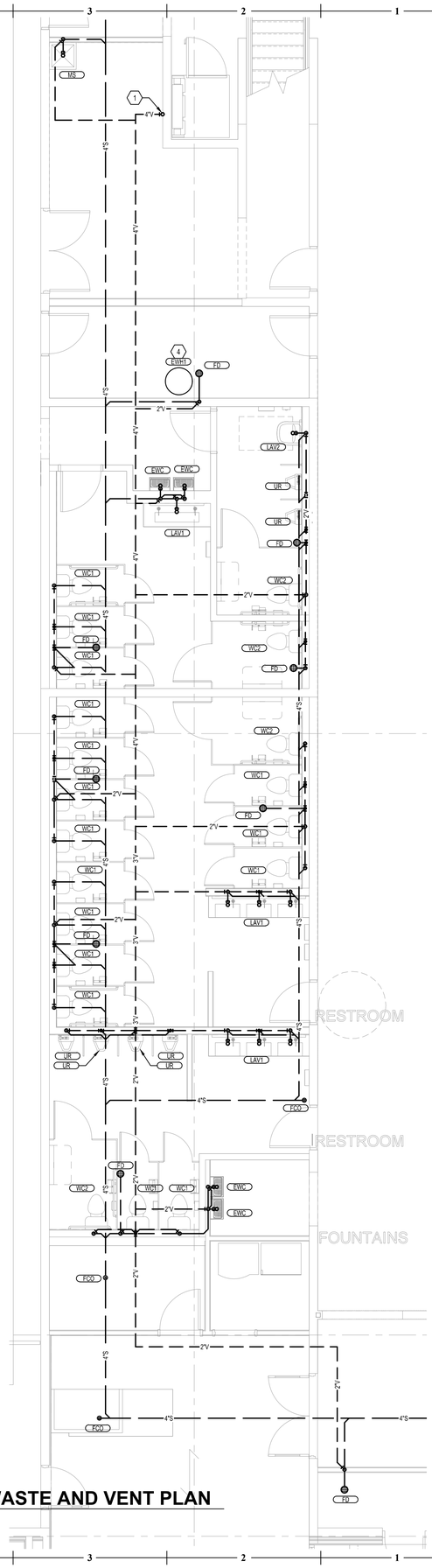
3 PLUMBING WASTE AND VENT MEZZANINE PLAN

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



2 PLUMBING WASTE AND VENT PLAN

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



1 PLUMBING WASTE AND VENT PLAN

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

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET P101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
3. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS.
4. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT SPECIFIED IN PLUMBING FIXTURES AND EQUIPMENT SCHEDULES ON THESE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS INDICATED ON PLUMBING SCHEDULES AND AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.

KEYED NOTES:

1. 4"V UP TO 4"VTR. COORDINATE ROUTING UP THROUGH MEZZANINE IN WALL. VERIFY FINAL PLACEMENT WITH ALL ROOF TOP EQUIPMENT. MAINTAIN A MINIMUM 10' FROM ALL FRESH AIR INTAKES AND 1' FROM ALL VERTICAL SURFACES.
2. 3"V UP TO 3"VTR. COORDINATE FINAL PLACEMENT WITH ALL ROOF TOP EQUIPMENT. MAINTAIN A MINIMUM 10' FROM ALL FRESH AIR INTAKES AND 1' FROM ALL VERTICAL SURFACES.
3. INSTALL COOLER/FREEZER CONDENSATE DRAIN LINES ALONG COOLER WALLS AS HIGH AS POSSIBLE WHILE MAINTAINING A MINIMUM 1/4" PER FOOT FALL. ROUTE PIPING TO FLOOR DRAIN BY WATER HEATER AND TERMINATE OVER FLOOR DRAIN WITH AIR GAP PER CODE.
4. ROUTE WATER HEATER T&P DRAIN LINE TO FLOOR DRAIN AND TERMINATE OVER FLOOR DRAIN WITH AIR GAP PER CODE.
5. ROUTE DRAIN LINE FROM OWNER PROVIDED ICE WELL THROUGH WALL TO FLOOR SINK. TERMINATE OVER FLOOR SINK WITH AIR GAP PER CODE.

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1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

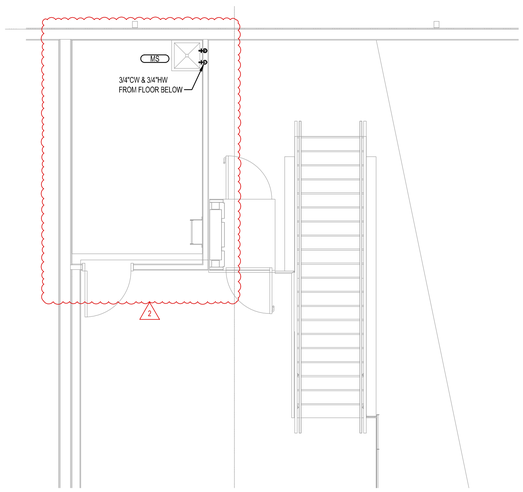
STATE OF MISSOURI
RYAN BREYER
NUMBER PE-2020013799
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

P301

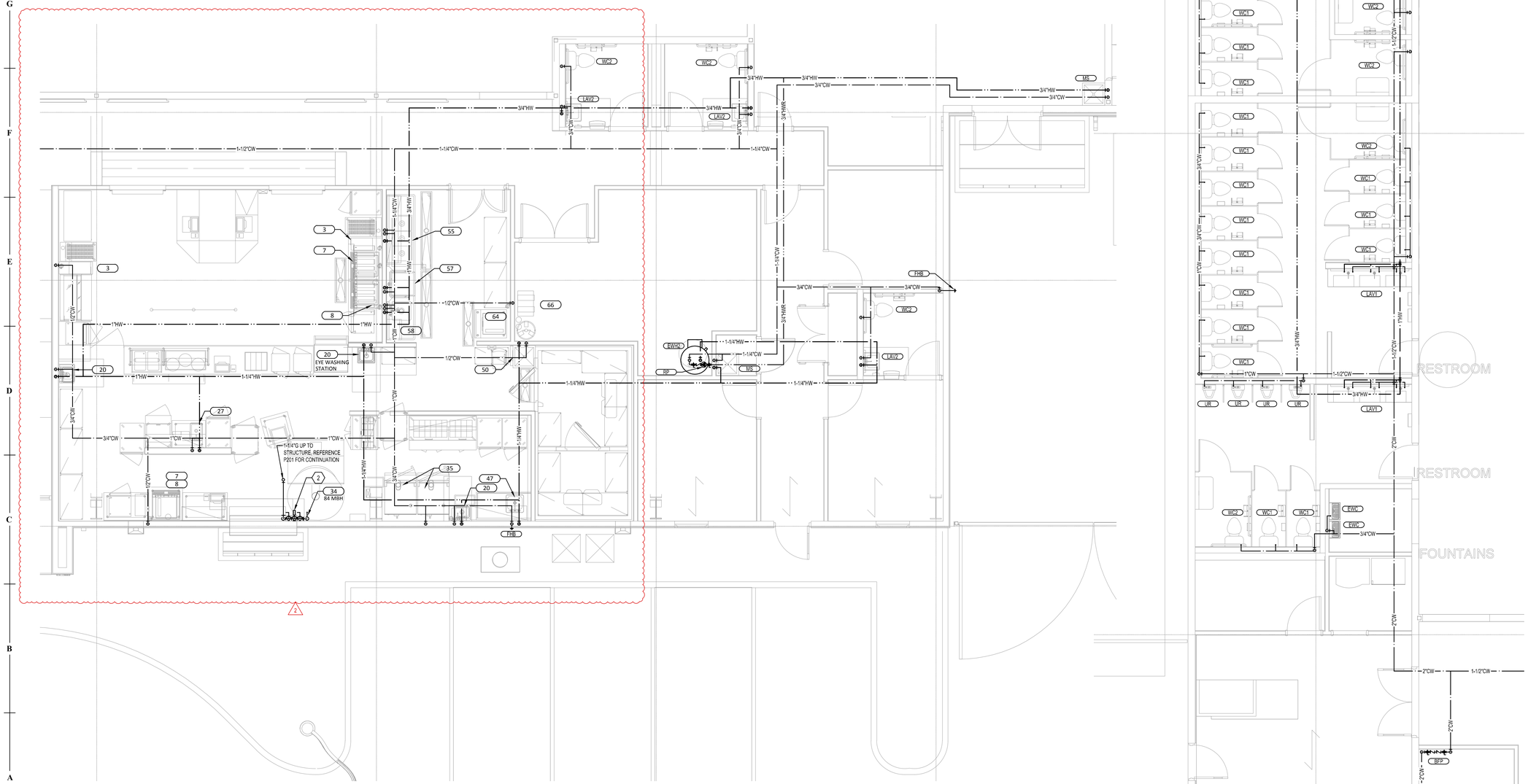
ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

PLUMBING WASTE AND VENT PLAN



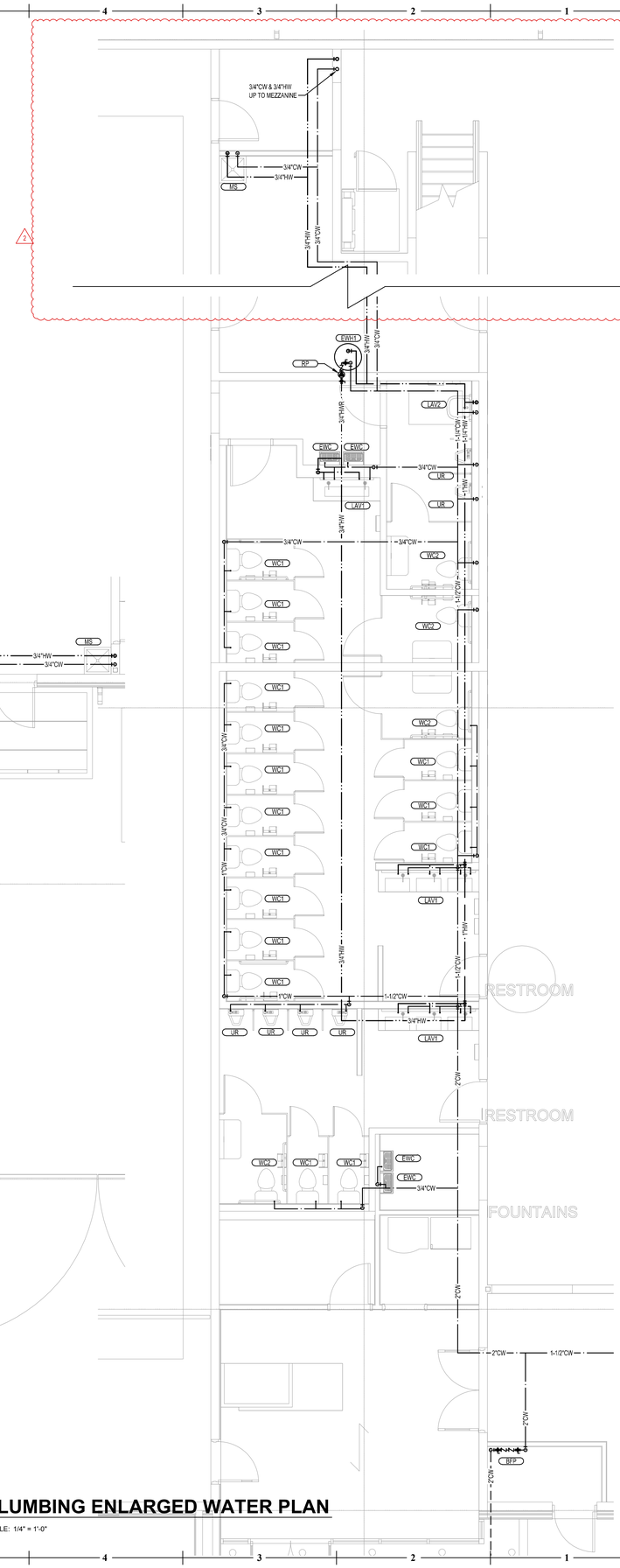
3 PLUMBING ENLARGED WATER MEZZANINE PLAN

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



2 PLUMBING ENLARGED WATER PLAN

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



1 PLUMBING ENLARGED WATER PLAN

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

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET P101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
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KEYED NOTES:

1. 3/4"CW DOWN TO OWNER PROVIDED FILTER. AFTER FILTER ROUTE WATER LINES TO ICE MACHINE AND SODA MACHINE. INSTALL ALL BACKFLOW PREVENTION, VALVING AND FILTERS AS PER MANUFACTURER'S RECOMMENDATIONS AND LOCAL CODES.
2. PROVIDE SOLENOID ACTUATED EMERGENCY GAS SERVICE SHUT-OFF VALVE BELOW CEILING FOR CONNECTION TO THE EXHAUST HOOD SUPPRESSION SYSTEM. COORDINATE SOLENOID VALVE WITH TYPE OF ANSUL SYSTEM PROVIDED.

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1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24
AND OWNER REV.

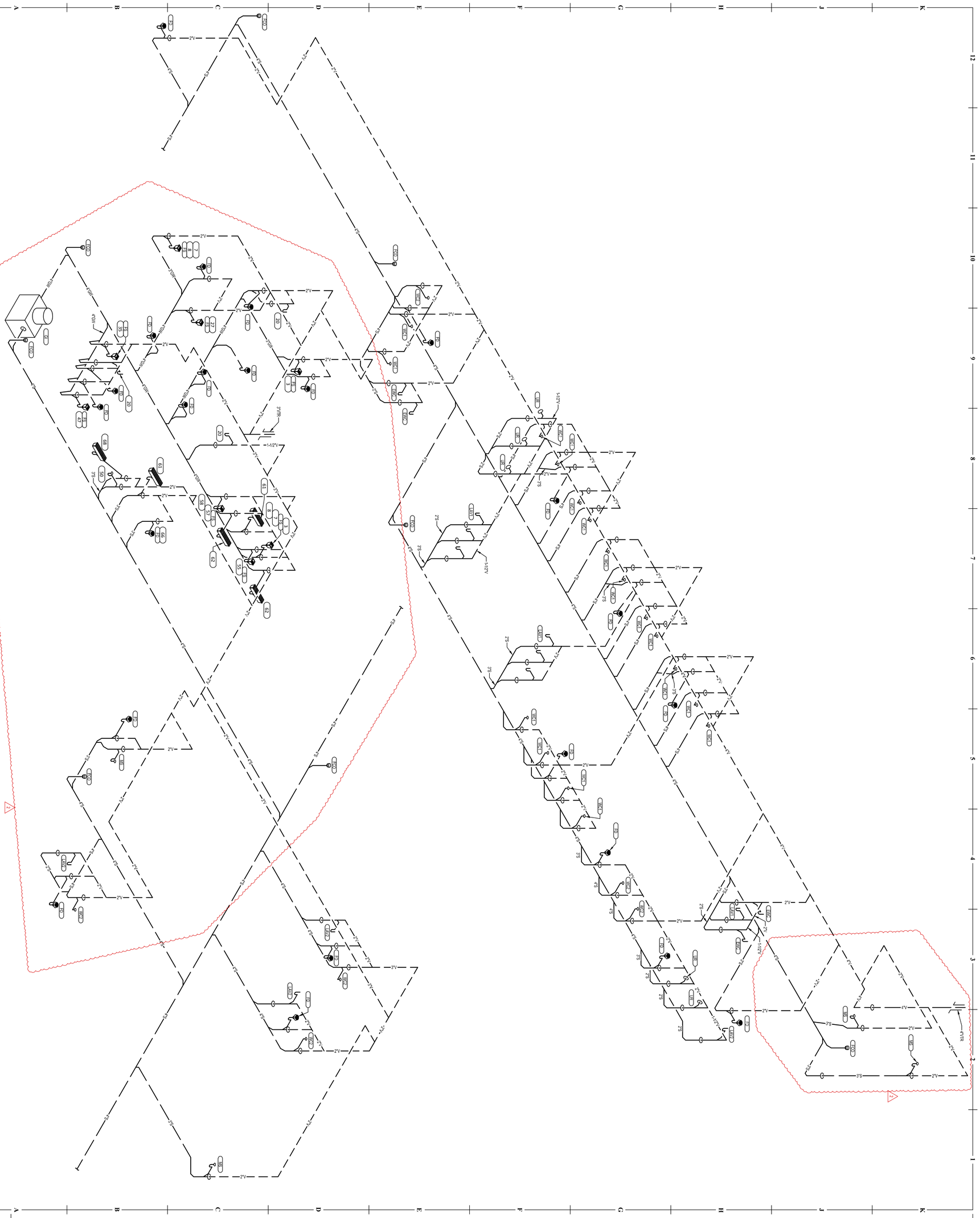
STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2009019769
REGISTERED PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

P302

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

PLUMBING WATER AND GAS PLAN



PLUMBING RISERS

P401

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PROFESSIONAL SEAL

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2 CITY COMMENTS AND OWNER REV. 03/22/24

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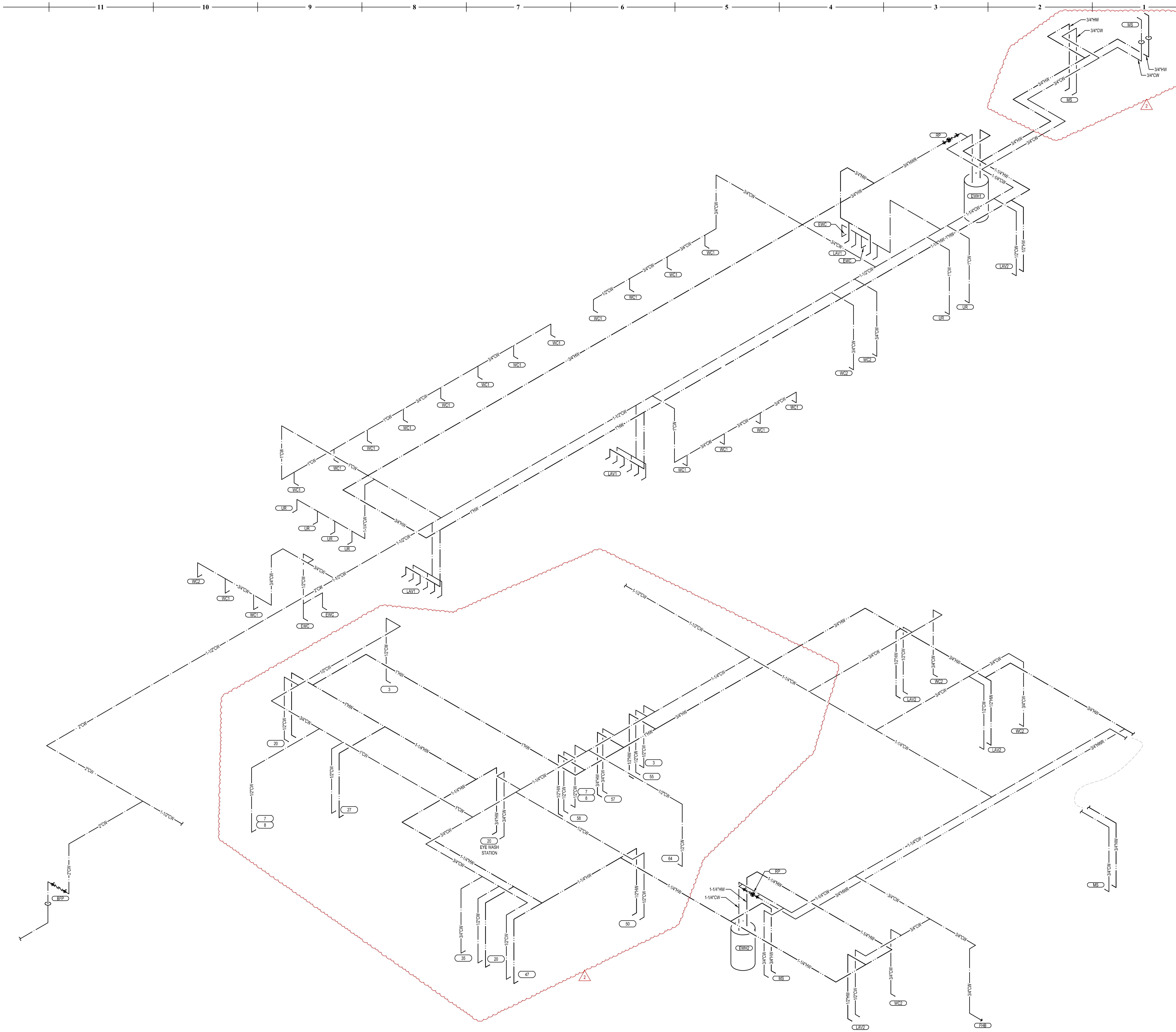

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STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010759
PROFESSIONAL ENGINEER
03/22/2024

PROFESSIONAL SEAL

P402

ISSUE DATE: 2 MAY 2023
COLLINS WEBB #: 22103

PLUMBING RISERS

15400 - PLUMBING WORK

DESCRIPTION
ALL PLUMBING AND ASSOCIATED WORK IN DIVISION 15 IS GOVERNED BY THIS SECTION. PROVIDE LABOR AND MATERIALS NECESSARY TO PROVIDE THE WORK AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. REFER TO OTHER DIVISIONS FOR CONTINUATION OF EXTERIOR AND ALLIED WORK.

QUALITY ASSURANCE
OBTAIN AND PAY FOR ALL PERMITS, INSPECTIONS AND CONNECTION FEES REQUIRED BY GOVERNING BODIES IN CONNECTION WITH THE WORK. DELIVER CERTIFICATES OF INSPECTION TO THE OWNER'S REPRESENTATIVE. ALL WORK SHALL COMPLY WITH GOVERNING CODES, ORDINANCES, AND REGULATIONS OF CITY, COUNTY AND STATE.

SUBMITTALS
SHOP DRAWINGS: SUBMIT MATERIALS, PRODUCTS, EQUIPMENT AND SYSTEMS AS SPECIFIED UNDER EACH PLUMBING SECTION IN THIS DIVISION IN ACCORDANCE WITH THE GENERAL CONDITIONS. SHOW PIPE SIZES, LOCATION, SLOPES OF HORIZONTAL RUNS, FITTINGS, VALVES, METERS, GAGES AND CONNECTIONS.

PRODUCT DATA: SUBMIT ON MATERIALS, FIXTURES, AND EQUIPMENT UNLESS OTHERWISE SPECIFIED OR ACKNOWLEDGED IN WRITING.

SAMPLES: SUBMIT WHEN SPECIFIED OR REQUESTED.

RECORD DOCUMENTS
REFER TO GENERAL CONDITIONS FOR REQUIREMENTS CONCERNING RECORD DOCUMENTS. ADDITIONAL REQUIREMENTS MAY BE SPECIFIED IN DIVISION 1. UNLESS SEPIAS OF THE DRAWINGS ARE TO BE FURNISHED BY THE ARCHITECT-ENGINEER FOR PREPARATION OF RECORD DRAWINGS, FURNISH OWNER'S REPRESENTATIVE WITH TWO SETS OF ACCURATELY MARKED COPIES OF THE DRAWINGS, INSTEAD OF ONE SET AS REQUIRED BY THE GENERAL CONDITIONS, INDICATING ALL CHANGES FROM ORIGINAL DRAWINGS AS INSTALLED.

PRODUCT HANDLING
PIPE, FIXTURES AND ACCESSORIES SHALL BE PROTECTED FROM DAMAGE IN SHIPMENT, HANDLING, STORAGE AND INSTALLATION: FROM MOISTURE, DIRT AND DEBRIS. PIPE, CLEANOUT AND FLOOR DRAIN OPENINGS SHALL BE TEMPORARILY PLUGGED WITH TEST PLUGS UNTIL FINAL CONNECTIONS ARE MADE.

GUARANTEE AND SERVICE
REFER TO GENERAL CONDITIONS FOR GUARANTEE. WHERE EXTENDED GUARANTEES ARE CALLED FOR, FURNISH THREE COPIES TO BE INSERTED INTO OPERATION AND MAINTENANCE MANUALS.

GENERAL
PLUMBING SYSTEMS SHALL BE PROVIDED COMPLETE. SHOULD A SYSTEM, OR ANY PART THEREOF FAIL TO MEET PERFORMANCE REQUIREMENTS, NECESSARY REPLACEMENTS, ALTERATIONS OR REPAIRS, AS REQUIRED BY THE OWNER'S REPRESENTATIVE, SHALL BE MADE TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS AND ALL BUILDING CONSTRUCTION AND FINISHES DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS OR REPAIRS SHALL BE RESTORED TO PRIOR CONDITION, AT NO ADDITIONAL COST TO THE OWNER.

WHERE MULTIPLE ITEMS OF EQUIPMENT OR MATERIALS ARE REQUIRED THEY SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER.

INSERTS, PIPE SLEEVES, HANGERS, SUPPORTS, FIXTURES, TRIM DRAINS AND ANCHORAGE OF PLUMBING SHALL BE PROVIDED AS SPECIFIED HEREIN. WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE, MASONRY OR SIMILAR WORK, THE ITEMS SHALL BE FURNISHED AND LAYOUT MADE AT THE PROPER TIME FOR THE SETTING OR EMBEDMENT THEREOF SO AS TO CAUSE NO DELAY IN THE WORK.

MANUFACTURER'S NAMES AND CATALOG NUMBERS
SPECIFIED REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAMES AND MODEL OR CATALOG NUMBERS. THIS DOES NOT NECESSARILY INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS AN "OFF THE SHELF" ITEM. REQUIREMENTS FOR SPECIFIC FINISHES, MATERIAL OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURERS' STANDARDS. MODIFICATIONS SHALL BE FULLY CONSIDERED.

CHARTS AND TAGS
IN AREAS HAVING VALVES, PROVIDE SINGLE LINE DIAGRAMS FRAMED UNDER GLASS AND MOUNTED ON EQUIPMENT ROOM WALL. THE DIAGRAMS SHALL GIVE NAME, NUMBER DESIGNATION AND LOCATION OF VALVE.

VALVES SHALL BE IDENTIFIED WITH 1/16 INCH THICK WHITE LAMINATED PLASTIC NAMEPLATES WITH 3/16 INCH HIGH BLACK LAMINATED LETTERS. THE NAMEPLATE IDENTIFICATION SHALL COINCIDE WITH ITEMS APPEARING ON DIAGRAMS. ATTACH NAMEPLATES TO VALVES WITH NON-CORROSIVE CHAIN OR WIRE.

ACCESS DOORS
PROVIDE ACCESS DOORS AS INDICATED AND SPECIFIED IN DRAWINGS

INSTALLATION AND WORKMANSHIP
THE WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ANY MATERIAL, APPARATUS OR EQUIPMENT WHICH, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, IS IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER AT NO ADDITIONAL COST TO THE OWNER.

THE LOCATION OF PLUMBING PIPING SHALL BE COORDINATED TO ENSURE THAT IT CLEARS OPENINGS AND STRUCTURAL MEMBERS; THAT PIPING INDICATED AS CONCEALED CAN BE PROPERLY CONCEALED IN WALLS OR PARTITIONS AND THAT IT DOES NOT INTERFERE WITH LIGHTS, DUCTWORK OR EQUIPMENT HAVING FIXED LOCATIONS. MAKE NECESSARY HORIZONTAL OR VERTICAL OFFSETS WITH PIPE FITTINGS TO INSTALL THE SYSTEM IN THE AVAILABLE SPACE. CONCEAL OR INSTALL TIGHT TO STRUCTURE (IF EXPOSED) UNLESS OTHERWISE NOTED.

PIPING SHALL BE EXPOSED IN FINISHED AREAS ONLY WHERE INDICATED OR WITH THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

WHERE DRAIN OR WATER CONNECTIONS NECESSARY TO THE OPERATION OF FIXTURES OR EQUIPMENT ARE NOT SPECIFICALLY SHOWN ON DIAGRAMS, EXTEND NECESSARY BRANCHES TO THE CLOSEST INDICATED BRANCH OR MAIN, AT NO ADDITIONAL COST TO THE OWNER.

EACH FIXTURE, EQUIPMENT DRAIN OR FLOOR DRAIN SHALL BE SEPARATELY TRAPPED UNLESS OTHERWISE INDICATED OR SPECIFIED.

PLUMBING PIPING AND EQUIPMENT SHALL NOT BE FIELD PAINTED, OR PRIMED BEYOND THE DEGREE OF APPLICATION FROM THE FACTORY SOURCE, OR EXCEPT AS REQUIRED BY APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.

WATERPROOFING
DO NOT CUT OR PENETRATE WATERPROOFED SURFACES OR WATERPROOFING MEMBRANES WITHOUT FIRST MAKING ARRANGEMENTS FOR REPAIR BY A METHOD APPROVED BY THE OWNER'S REPRESENTATIVE.

ACCESS DOORS
INSTALL AS REQUIRED FOR MAINTENANCE, ADJUSTMENT, REMOVAL AND REPAIR OF VALVES, EQUIPMENT AND LIKE ITEMS. DOORS SHALL BE CONVENIENTLY LOCATED AND OF SUFFICIENT SIZE.

PIPING PROVISIONS FOR FIXTURES AND EQUIPMENT SPECIFIED IN OTHER SECTIONS OR FURNISHED BY THE OWNER
ROUGH IN LOCATIONS SHALL BE DETERMINED FOR SERVICES. PROVIDE ALL NECESSARY PLUMBING SERVICES, ACCESSIBLE VALVES ON PLUMBING BRANCHES AND MAKE ALL FINAL CONNECTIONS.

PLUMBING OPERATION AND MAINTENANCE MANUALS

DESCRIPTION
FURNISH TWO COPIES OF COMPLETE OPERATION AND MAINTENANCE MANUALS TO THE OWNER'S REPRESENTATIVE, FOR APPROVAL AND FOR THE OWNER, ON PLUMBING EQUIPMENT AND SPECIALTIES. THE MANUAL SHALL BE BOUND IN HARD-BACK, THREE-RING LOOSE-LEAF BINDERS.

MANUAL CONTENTS
TITLE SHEET WITH JOB NAME, AND THE NAMES, ADDRESSES AND PHONE NUMBERS OF THE CONTRACTOR, SUBCONTRACTOR, CONTROL SUBCONTRACTOR, RELATED CONTRACTOR AND MATERIAL AND EQUIPMENT SUPPLIERS.

INDEX OF CONTENTS
TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING HOW TO OPERATE EACH PIECE OF EQUIPMENT, AND CAUTION AND WARNING NOTICES.

APPROVED SHOP DRAWINGS, PRODUCT DATA AND PARTS AND MAINTENANCE BOOKLET FOR EACH ITEM OF PLUMBING, EQUIPMENT SPECIFIED IN DIVISION 15.

COPIES OF CERTIFICATES OF INSPECTION, WHERE INSPECTION IS REQUIRED. GUARANTEES, INCLUDING EXTENDED GUARANTEES.

DELIVERY
DELIVER THE MANUALS TO THE OWNER'S REPRESENTATIVE PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT.

PLUMBING PIPING

DESCRIPTION
FURNISH AND INSTALL PLUMBING PIPING WHERE SHOWN ON DRAWINGS AND AS SPECIFIED.

PIPING MATERIALS
OPTIONS
1. CAST IRON HUBLESS SANITARY PIPE AND FITTINGS: CISPI STD. 301.
2. CAST IRON SOIL PIPE AND FITTINGS, SERVICE WEIGHT: ASTM A 74.
3. CAST IRON SOIL PIPE AND FITTINGS, EXTRA HEAVY WEIGHT: ASTM A 74.
4. STEEL PIPE: ASTM A 53.
5. MALLEABLE IRON FITTINGS, 150 LB.: ASTM A 197.
6. PIPE THREADS: ANSI B2.1.
7. NIPPLES, PIPE (THREADED): FED SPEC. WW-N-351.
8. COPPER WATER TUBE: ASTM B 88.
9. WROUGHT COPPER AND BRONZE SOLDER-JOINT PRESSURE FITTINGS: ANSI B16.29.
10. WROUGHT COPPER AND WROUGHT COPPER ALLOY SOLDER-JOINT DRAINAGE FITTINGS: ANSI BL6.29.
11. CAULKING LEAD: FED. SPEC. QQ-C-40 (2).
12. SHEET LEAD: FED. SPEC. QQ-L-201.
13. SHEET COPPER: ASTM B 152.
14. NO-HUB STAINLESS STEEL COUPLING AND GASKETS: CISPI STD. S-301.
15. WHERE ACCEPTABLE BY LOCAL AUTHORITY HAVING JURISDICTION SOLID WALL ABS PIPING MAY BE USED FOR WASTE PIPING.
   15.A. PVC/ABS PIPING CANNOT BE USED IN RETURN AIR PLENUM APPLICATION.

JOINTS AND CONNECTIONS
OPTIONS
1. CAST IRON, HUB AND SPIGOT: PACKED WITH OAKUM AND FINISHED WITH LEAD NOT LESS THAN 1 INCH DEEP; WELL CAULKED.
2. CAST IRON, NO-HUB: NEOPRENE GASKET AND CORRUGATED 304 STAINLESS STEEL SHIELD IN CONJUNCTION WITH 4 STAINLESS STEEL CLAMPS FOR 4" AND SMALLER, 6 CLAMPS FOR 5" AND LARGER.
3. BETWEEN LEAD AND BRASS: FERRULES OR SOLDERING NIPPLES WITH WIPED JOINTS 3/8" THICK AND 3/4" EACH SIDE OF JOINTS.
4. SCREWED JOINTS: AMERICAN NATIONAL STANDARD WITH PIPE FREE FROM CUTTING AND BURRS. THREE THREADS EXPOSED MAXIMUM.
5. SOLDERED JOINTS: 95-5 TIN-ANTIMONY SOLDER. SLIP JOINTS: USE FOR PLUMBING TRAP SEALS ON INLET SIDE ONLY.
6. BETWEEN COPPER AND FERROUS MATERIALS: INSULATING DIELECTRIC UNION.
7. FLANGED JOINTS: FURNISH WITH COMPANION FLANGE AND CLOTH INSERTED RUBBER GASKET.
8. FLANGED BOLTS: ASTM A 354, MINIMUM GRADE BD, ALLOY STEEL WITH HEX NUTS IN COMPLIANCE WITH ANSI B18.22 AND STANDARD ROLLED STEEL WASHERS.
9. ASSEMBLY FOR HUBLESS PIPING: AS RECOMMENDED BY THE MANUFACTURER.
10. CHANGES IN PIPE SIZE SHALL BE MADE WITH REDUCERS, INCREASERS OR REDUCING FITTINGS. BUSHINGS WILL NOT BE PERMITTED.

INSTALLATION
BEFORE INSTALLING PIPE IN ANY PART OF THE SYSTEM, THE PIPE SHALL BE CLEANED INSIDE AND MADE FREE OF OIL, DIRT, AND FOREIGN MATTER. PROPERLY ALIGN AND INSTALL IN NEAT ARRANGEMENT, TRUE TO THE LINES OF THE BUILDING. PITCH LINE AT A CONSTANT SLOPE FOR PROPER DRAINAGE.

EXCEPT AS NOTED OTHERWISE ON DRAWINGS, PIPING SHALL BE HELD AS HIGH AS POSSIBLE, BETWEEN STRUCTURES AND THROUGH JOIST WEBBING, WITH DUE REGARD TO CONFLICTS WITH OTHER SYSTEMS AND THEIR REQUIREMENTS FOR SPACE.

PIPING, INCLUDING NO-HUB PIPING, SHALL BE INSTALLED STRAIGHT AND TRUE TO VERTICAL AND HORIZONTAL LINES. DEFLECTION SHALL NOT EXCEED ONE DEGREE. WHEN NECESSARY TO ACHIEVE THIS ALIGNMENT PROVIDE ADDITIONAL HANGERS OR BRACING.

APPLY LUBRICANT TO SCREW JOINT MALE THREADS.

METAL TO BE SOLDERED SHALL BE CLEANED AND FLUXED AS SUITABLE FOR THE SOLDER USED.

NOTCHING OF COPPER TUBING OR PLASTIC PIPING FOR CONNECTIONS WILL NOT BE PERMITTED.

PLUMBING SPECIALITES

PIPE SLEEVES
SCHEDULE 40 BLACK STEEL, GALVANIZED 26 GAGE STEEL, PROVIDE FOR ALL PIPES THROUGH WALLS AND FLOORS.

ESCUTCHEONS
PROVIDE FOR ALL PIPING THROUGH WALLS, FLOORS AND CEILING WERE PIPING IS EXPOSED TO VIEW IN FINISHED AREA. ESCUTCHEONS SHALL BE CHROMIUM PLATED, TWO PIECE, HINGED WITH SET SCREW.

UNIONS
PROVIDE GROUND JOINT BRASS UNIONS OR FLANGES ON EACH PIPING CONNECTION TO EQUIPMENT.

PROVIDE DIELECTRIC UNIONS BETWEEN COPPER AND STEEL PIPING CONNECTION TO EQUIPMENT.

VACUUM BREAKERS
SHALL CONFORM TO THE REQUIREMENTS OF THE REFERENCED PLUMBING CODE AND SHALL BE PROVIDED FOR HOSE BIBBS, FLUSHOMETERS AND ANY FIXTURE OR EQUIPMENT WATER SUPPLY HAVING A THREADED OUTLET.

FLASHING
VENT FLASHING SHALL COMPLY WITH ROOFING MANUFACTURER'S WRITTEN SPECIFICATIONS

CLEANOUTS
CLEANOUTS ON NO-HUB PIPE SHALL BE STANDARD NO-HUB FITTINGS.
CLEANOUTS ON CAST IRON HUB AND SPIGOT PIPING, SHALL BE CADMIUM PLATED.
APPROVED MANUFACTURERS: ZURN, JOSAM OR JONESPEC.

TRAP PRIMERS
PROVIDE WHERE INDICATED ON DRAWINGS. PRECISION PRODUCTS WITH DISTRIBUTION UNIT OR APPROVED EQUAL.

PIPE SLEEVES
1. EXTEND SLEEVE 1/4 INCH BEYOND FINISHED SURFACE.
2. SET SLEEVE BEFORE POURING CONCRETE.
3. PROVIDE CLEARANCE BETWEEN SLEEVE AND PIPE OR BETWEEN SLEEVE AND INSULATION TO ALLOW FOR PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION.
4. INSULATION SHALL PASS CONTINUOUS THROUGH THE SLEEVE.
5. CAULK BETWEEN SLEEVE AND PIPE OR SLEEVE AND INSULATION. PREFABRICATED, PRE-INSULATED, "PIPE SHIELDS" WILL BE ACCEPTABLE FOR PIPES PASSING THROUGH FLOORS, EXTERIOR WALLS, FIRE WALLS AND FIRE RESISTIVE WALLS AND PARTIITONS.
6. ESCUTCHEONS: FIT AROUND INSULATION WHERE PRESENT. PROVIDE DEEP ESCUTCHEON PLATES WHERE PIPE SLEEVES EXTEND ABOVE FLOORS.
7. WATER HAMMER ARRESTERS: INSTALL WHERE SHOWN ON DRAWINGS.
8. CLEANOUTS: INSTALL WHERE SHOWN ON DRAWINGS AND AT BASE OF ALL RISERS. PROVIDE ADDITIONAL CLEANOUTS WHERE REQUIRED BY LOCAL CODES AND FOR CONVENIENCE OF TESTING AND ERECTION AT CONTRACTOR'S OPTION.
9. FRAMES AND COVERS SHALL BE FLUSH WITH ADJOINING ARCHITECTURAL FINISH.

PLUMBING VALVES

DESCRIPTION
INSTALL IN ACCESSIBLE LOCATION.
VALVES SHALL NOT BE INSTALLED WITH THE STEMS BELOW THE HORIZONTAL POSITION.

VALVES, GATE, 125# UNION BONNET. RISING STEM
3 INCH AND SMALLER:
1. SCREWED: ITT GRINNELL #3080 OR APPROVED EQUAL.
2. SOLDER JOINT: ITT GRINNELL #3080 SJ OR APPROVED EQUAL.

VALVES, BALL (MAY BE USED IN LIEU OF GATE VALVES UP TO 2"): 2" AND SMALLER NIBCO #T580; TWO PIECE BRONZE BODY, WITH SCREWED ENDS, CHROME PLATED BRONZE BALL WITH CONVENTIONAL PORT, 400 PSI, BLOW OUT PROOF STEM.

VALVES, GLOBE 150# TEFLON DISC. UNION BONNET
3 INCH OR SMALLER:
1. SCREWED: ITT GRINELL #3240 OR APPROVED EQUAL.
2. SOLDER JOINT: ITT GRINELL #3240 SJ OR APPROVED EQUAL.

VALVES, CHECK 125# REMOVABLE REGRINDABLE DISC A. 3 INCH AND SMALLER, HORIZONTAL:
1. SCREWED: ITT GRINELL #3300 OR APPROVED EQUAL.
2. SOLDER JOINT: ITT GRINELL #3300 SJ OR APPROVED EQUAL.

3 INCH AND SMALLER, VERTICAL:
1. FOR SCREWED AND SOLDER JOINT INSTALLATION. SAME AS SECTION A OR APPROVED EQUAL. PROVIDE ADAPTERS FOR SOLDER JOINT CONNECTION. 2.05 HOSE BIBBS A. SEE FIXTURE SCHEDULE ON DRAWINGS. B. PLUG COCKS, 125# BRONZE COCKS. TWO (2) INCH AND SMALLER SHALL BE CRANE NO. 250 OR APPROVED EQUAL.

INSTALLATION
INSTALL VALVES WHERE SHOWN ON DRAWINGS.

PLUMBING HANGERS AND SUPPORTS

DESCRIPTION
PROVIDE HANGERS FOR ALL PIPING NOT INDICATED BELOW GRADE. USE HANGERS CAPABLE OF ADJUSTMENT.

HANGERS AND SUPPORTS
HANGERS FOR BLACK OR GALVANIZED STEEL PIPE SHALL BE GRINNELL, MODEL NO. 65 OR APPROVED EQUAL.

HANGERS FOR CAST IRON PIPE SHALL BE GRINNELL, MODEL NO. 260 OR APPROVED EQUAL.

HANGERS FOR COPPER TUBING SHALL BE GRINNELL, MODEL NO. 97 C OR APPROVED EQUAL.

TRAPEZE HANGERS OF A TYPE APPROVED BY THE OWNER'S REPRESENTATIVE MAY BE USED WHERE PIPES ARE DESIGNED TO RUN PARALLEL AT THE SAME ELEVATION.

PROVIDE ISOLATION HANGER WITH PROTECTIVE SHIELD, GRINNELL, MODEL NO. 300 103 OR APPROVED EQUAL, FOR ALL INSULATED PIPING. AT HANGER POINTS, PROVIDE 6 INCH LONG SECTION OF 1/2 INCH THICK CALCIUM SILICATE SECTIONAL PIPE INSULATION WITH FACTORY LONGITUDINAL LAP. SEAL BUTT JOINTS WITH INSULATING CEMENT.

STRAP HANGERS: NOT PERMITTED.

RISER CLAMPS: PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL, GRINNELL MODEL NO. 261

INSERTS: IN CONCRETE, GRINNELL MODEL NO. 285 OR APPROVED EQUAL, HAVING ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS READHEAD SD1 OR APPROVED EQUAL. POWDER PROPELLED PERMITTED IN NEW CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED PRIOR TO INSTALLATION. IN EXISTING CONSTRUCTION, START SLUGIN NO. 6800 SERIES OR APPROVED EQUAL.

SIDE BEAM CLAMPS: PROVIDE WHEN SUPPORTING FROM STRUCTURAL STEEL MEMBERS, GRINNELL, MODEL 225 OR APPROVED EQUAL.

OTHER SUPPORTS: OBTAIN OWNER'S REPRENTATIVE APPROVAL FOR OTHER METHODS OF SUPPORT.

SPACING OF HANGERS
PROVIDE HANGER AT EACH CHANGE OF DIRECTION.

SPACE HANGERS AND SUPPORTS TO PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES WITH SPACING NO GREATER AND ROD NO SMALLER THAN SHOWN ON THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

FERROUS PIPING AND COPPER TUBING:

DIAMETER OF PIPE	MAXIMUM SPACING	ROD SIZE	
1/2" THROUGH 1-1/2"	6 FT.	3/8"	
2" THROUGH 3"	10 FT.	1/2"	
4" THROUGH 5"	12 FT.	5/8"	
6" AND LARGER	16 FT.	3/4" D.	

CAST IRON PIPING:

DIAMETER OF PIPE	MAXIMUM SPACING	ROD SIZE	
2" AND 3"	EACH JOINT	3/8"	
4" AND 5"	EACH JOINT	1/2"	
6" AND 8"	EACH JOINT	3/4"	
10" THROUGH 15"	EACH JOINT	3/4"	(TWO HANGERS)

RISER CLAMPS
INSTALL AT EACH LEVEL BELOW THE FLOOR. SUSPEND FROM TWO HANGER RODS AND INSERTS WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED.

TESTING OF PLUMBING PIPING

DESCRIPTION
CONDUCT ALL TESTS AFTER PIPING IS INSTALLED AND BEFORE PIPING IS CONCEALED OR COVERED.

PROVIDE ALL NECESSARY TEMPORARY PIPING CLOSURES.

PROVIDE ALL TESTING EQUIPMENT, MATERIALS AND SUPPLIES.

SYSTEMS SHALL REMAIN UNDER TEST FOR SUFFICIENT LENGTH OF TIME TO PROVE TIGHTNESS THEREOF AND FOR ADEQUATE OBSERVATION BY THE ARCHITECT-ENGINEER.

MATERIALS OTHER THAN THOSE SPECIFIED FOR JOINING WILL NOT BE PERMITTED IN THE PIPING SYSTEMS FOR THE PURPOSE OF STOPPING LEAKS.

ALL LEAKS DISCLOSED BY THE TESTING PROCEDURES SHALL BE REPAIRED AND TESTING REPEATED UNTIL THE SYSTEM IS PROVEN TIGHT.

TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

SUBMITTALS
STERILIZATION: PROVIDE A DATED LETTER TO THE ARCHITECT-ENGINEER'S REPRESENTATIVE STATING THAT PIPING SYSTEM HAS BEEN STERILIZED AND FLUSHED AS SPECIFIED.

PIPING TEST
DOMESTIC HOT AND COLD WATER PIPING SHALL BE FILLED, THEN TESTED TO A HYDROSTATIC PRESSURE OF 150 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM OF ONE HOUR.

SANITARY PIPING, PREVIOUS TO CONNECTION OF FIXTURES, SHALL BE FILLED WITH WATER TO THE TOP OF THE SYSTEM AND PROVEN TIGHT. WHEN TESTING THE SYSTEM BY SECTIONS THE MINIMUM HEIGHT OF THE WATER COLUMN SHALL BE 10 FEET. EXAMINE ALL JOINTS FOR LEAKS.

NEW FIRE STANDPIPE SYSTEM SHALL BE TESTED TO A HYDROSTATIC PRESSURE OF 200 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM OF TWO HOURS.

GAS PIPING SHALL BE TESTED WITH NITROGEN TO 50 PSIG. PRESSURE SHALL BE MEASURED WITH A MANOMETER. MAINTAIN TEST PRESSURE FOR A MINIMUM OF 30 MINUTES.

STERILIZATION
AFTER TESTS ARE COMPLETED ALL WATER SUPPLY SYSTEMS SHALL BE FILLED WITH A SOLUTION CONTAINING 100 PPM OF AVAILABLE CHLORINE AND ALLOWED TO STAND FOR A PERIOD TO TWO HOURS BEFORE BEING FLUSHED WITH CLEAN WATER.

PLUMBING, FIXTURES, TRIM AND DRAINS

MANUFACTURER
MANUFACTURER SHALL BE AS SCHEDULED OR BY APPROVED EQUAL.

PIPING
PIPING TO SERVE FIXTURES AND EQUIPMENT AND EXPOSED TO VIEW IN FINISHED AREAS SHALL BE BRASS, CHROMIUM PLATED.

SUPPORTS
PROVIDE ALL BRACKETS, PLATES, ANCHORS AND FASTENING DEVICES REQUIRED FOR ANCHORING THE FIXTURES RIGIDLY IN PLACE. RISERS TO SHOWER HEADS SHALL BE ANCHORED TO THE WALL CONSTRUCTION TO PREVENT MOVEMENT.

FIXTURES
PROVIDE PLUMBING FIXTURES AS SCHEDULED ON DRAWINGS, AMERICAN STANDARD, KOHLER, ELJER OR APPROVED EQUAL.

PLUMBING DRAINS
FURNISH WITH SEEPAGE FLANGE WHERE INSTALLED WITH PANS OR FLASHING, FURNISH CLAMPING RING.

ALL DRAINS SHALL BE OF THE SAME MANUFACTURER.

FURNISH FLOOR DRAINS WITH PRIMER CONNECTIONS WHERE INDICATED ON THE DRAWINGS. IN LIEU OF CAST-IN PRIMER CONNECTIONS ON THE DRAIN BODY, A TEE BETWEEN THE DRAIN BODY AND THE TRAP, TO RECEIVE THE PRIMER DISCHARGE WILL BE ACCEPTABLE.

PROVIDE FLOOR DRAINS WITH 4 INCH DEEP SEAL TRAPS.

PROVIDE ALL DRAINS AS SCHEDULED ON DRAWINGS OR APPROVED EQUAL.

INSTALLATION
DRAIN SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS; ACCESSIBLE AND LOCATED TO SUIT EQUIPMENT APPROVED FOR INSTALLATION. WHERE FLUSH VALVES ARE SPECIFIED WITH FIXTURES, THE SUPPLY TO THE VALVE IN EACH ROOM SHALL BE AT THE SAME HEIGHT FOR THE TYPE OF FIXTURE AND THE VALVE SHALL BE SET IN PLACE SO THAT THE CENTER LINE OF THE VALVE DISCHARGE IS DIRECTLY ABOVE THE CENTER LINE OF FIXTURE STUD. BENDING OF NIPPLE BETWEEN THE VALVE AND THE STUD TO ACHIEVE CONNECTION WILL NOT BE PERMITTED.

CHROME PLATED PIPING REQUIRING THE USE OF WRENCH SHALL BE PROTECTED FROM DAMAGE.

BOLT WATER CLOSET CARRIER TO FLOOR.

GAS PIPING

PIPING
SHALL COMPLY WITH THE REQUIREMENTS OF NFPA NO. 54 AND THE LOCAL GAS COMPANY.

PIPE SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE FITTINGS

INSTALLATION
PIPING SHALL COMPLY WITH THE REQUIREMENTS OF NFPA NO. 54 AND THE LOCAL GAS COMPANY.

INSTALL GAS SHUT-OFF AND GAS MANIFOLDS AS INDICATED OR REQUIRED.

DOMESTIC HOT AND COLD WATER

DESCRIPTION
THE WORK INCLUDES FURNISHING AND INSTALLING HOT AND COLD WATER PIPING AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

PIPING
HOT AND COLD WATER PIPING SHALL BE COPPER WATER TUBE HARD TEMPER, TYPE "L" WITH WROUGHT SOLDER FITTINGS ABOVE FLOOR AND SOFT TEMPER TYPE "K" WITH WROUGHT SOLDER FITTINGS BELOW GRADE.

GATE VALVES
SPECIFIED IN SECTION, PLUMBING VALVES .

INSTALLATION
NOTCHING OF PIPE FOR CONNECTION NOT PERMITTED.

WHERE POSSIBILITY OF BACKFLOW FROM THE DRAIN TO THE SUPPLY FITTING EXISTS, INSTALL VACUUM BREAKERS.

NOT MORE THAN ONE LAVATORY, SINK, OR SIMILAR FIXTURE SHALL BE SUPPLIED BY A 1/2 INCH BRANCH. LINEAR DIMENSIONS NOT TO EXCEED 5 FEET.

MAKE CONNECTION TO EQUIPMENT AND FIXTURES INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN.

HOT WATER BRANCH CONNECTIONS TO DISTRIBUTION MAINS SHALL BE TOP TAKE-OFF, SWING JOINT TYPE.

ALL PIPING INSTALLED BELOW GROUND SHALL RECEIVE TWO COATS OF KOPPERS NO. 50 OR APPROVED EQUAL.

PLUMBING INSULATION

DESCRIPTION
INSULATION SHALL NOT BE INSTALLED UNTIL TESTING PROCEDURES HAVE BEEN COMPLIED WITH AND ALL SURFACES HAVE BEEN CLEANED AND FREE OF DIRT, GREASE AND COMPLETELY DRIED.

MATERIALS SHALL COMPLY WITH UL 723, FLAME SPREAD RATING, HOT SURFACE TEST PERFORMANCE, AND SMOKE DEVELOPED RATING.

SUBMITTALS
SAMPLES AND MANUFACTURER'S PRODUCT DATA: SUBMIT SAMPLES OF INSULATION AND ADHESIVE AND PRODUCT DATA LISTING RECOMMENDATIONS FOR USE AND COMPLIANCE WITH NFPA 90.

INSULATION
INSULATION FOR HOT AND COLD WATER PIPING, SHALL BE SECTIONAL GLASS FIBER AS MANUFACTURED BY OWENS CORNING FIBERGLASS TYPE ASJ/SSLII OR APPROVED EQUAL, WITH FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT JACKET.

INSULATION FOR EXPOSED HOT AND COLD WATER PIPING SHALL BE SECTIONAL GLASS FIBER AS MANUFACTURED BY OWENS CORNING FIBERGLASS TYPE ASJ/SSLII OR APPROVED EQUAL, WITH FACTORY APPLIED, .016 EMBOSSED ALUMINUM JACKET.

ADHESIVE SHALL BE BENJAMIN FOSTER 30-36, OR APPROVED EQUAL, WHITE INSULATION LAGGING ADHESIVE.

VAPOR BARRIER MASTIC SHALL BE BENJAMIN FOSTER NO. 82-07, WHITE, OR APPROVED EQUAL.

INSTALLATION
HOT AND COLD WATER PIPING: SHALL BE INSULATED WITH 1/2 INCH THICK GLASS FIBER INSULATION HAVING A FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT JACKET WITH A MINIMUM R-4.0 PER INCH. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL JACKET LEGS AND BUTT JOINT STRIPS WITH ADHESIVE.

INSULATE FITTINGS FOR PIPING UP TO 3 INCHES IPS WITH MOLDED GLASS FIBER. INSULATE FITTINGS FOR PIPING LARGER THAN 3 INCHES WITH MOLDED FITTINGS OR SEGMENTED SECTIONS, WIRED IN PLACE TO THE SAME THICKNESS AS ADJACENT INSULATION. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 6 OUNCE CANVAS PIPING INCLUDING THE FITTING CHANGE FROM HORIZONTAL TO VERTICAL. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL OFF ENDS OF INSULATION WITH VAPOR BARRIER MASTIC AT EACH FITTING AND AT 21 FOOT INTERVALS ON CONTINUOUS RUNS.

INSTALL THE FACTORY APPLIED FIRE RETARDANT JACKET VAPOR BARRIER SO THAT IT WILL LAP SMOOTHLY AND SECURELY AT THE LONGITUDINAL LAP AND ADHERE IT WITH VAPOR BARRIER MASTIC. ADHERE 3 INCH WIDE BUTT STRIPS X SMOOTHLY OVER ALL END JOINTS WITH THE VAPOR BARRIER MASTIC TO ASSURE A CONTINUOUS VAPOR BARRIER - NO STAPLES ALLOWED. INSULATE DRAIN BODIES AND FITTINGS WITH METERED SEGMENTS OF PIPE INSULATION, OVERSIZED PIPE INSULATION OR MOLDED FITTINGS. COAT WITH TWO, 1/8 INCH COATS OF VAPOR BARRIER MASTIC REINFORCED WITH GLASS FABRIC EXTENDING 2 INCHES ONTO ADJACENT PIPES. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 8 OUNCE CANVAS. TERMINATE INSULATION NEATLY AT CLEANOUTS ON STORM AND COLD DRAIN PIPING. DO NOT COVER CLEANOUTS.

DOMESTIC WATER HEATING

DESCRIPTION
PROVIDE DOMESTIC WATER HEATING EQUIPMENT WHERE SHOWN ON DRAWINGS AND SPECIFIED.

DISCHARGE PIPE
RELIEF VALVE DISCHARGE SHALL BE COPPER WATER TUBE, TYPE M.

INSTALLATION
WATER HEATER SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS.

DISCHARGE PIPE SHALL HAVE TERMINATING END CUT AT 45 DEGREE ANGLE.

TERMINATE RELIEF VALVE DRAIN AS SHOWN ON THE DRAWINGS.

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REVISION DATES:
1 CITY COMMENTS - 06/21/23
3 CITY COMMENTS 03/22/24 AND OWNER REV.

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010759
PROFESSIONAL ENGINEER
03/22/2024
PROFESSIONAL SEAL

P501

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PLUMBING SPECIFICATIONS