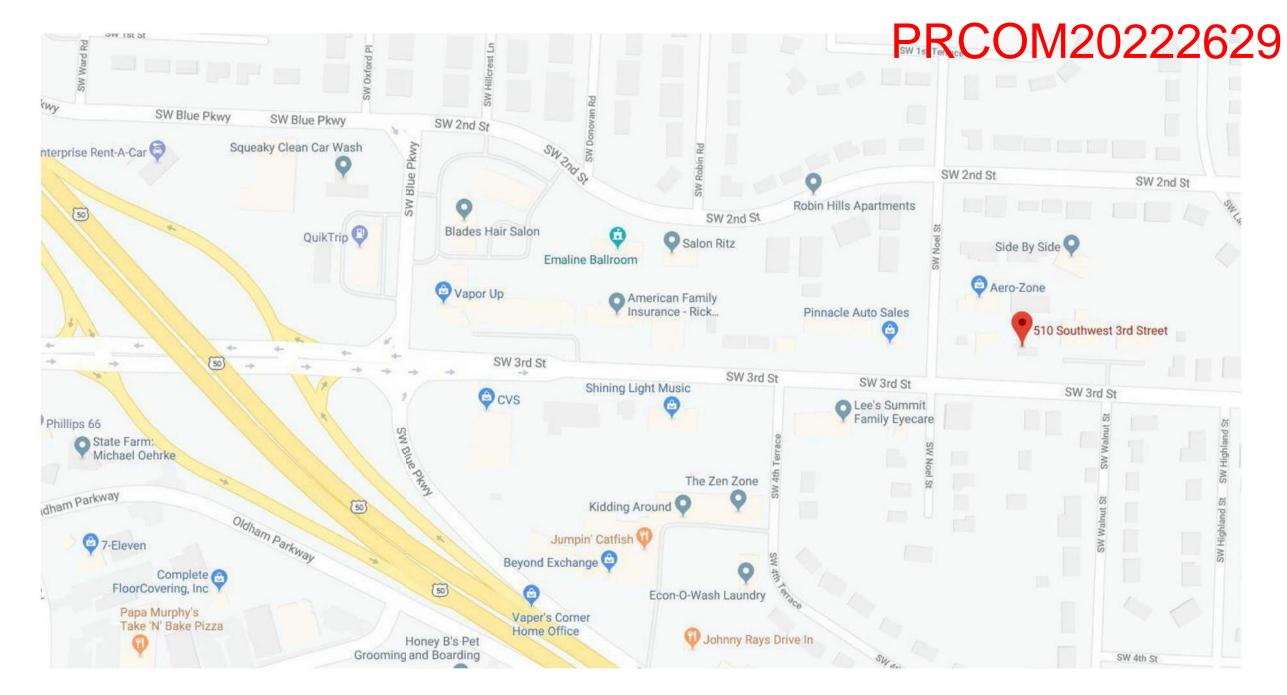
# 3RD STREET DISPENSARY - ADDITION

510 SW 3rd St., Lee's Summit, MO 64063

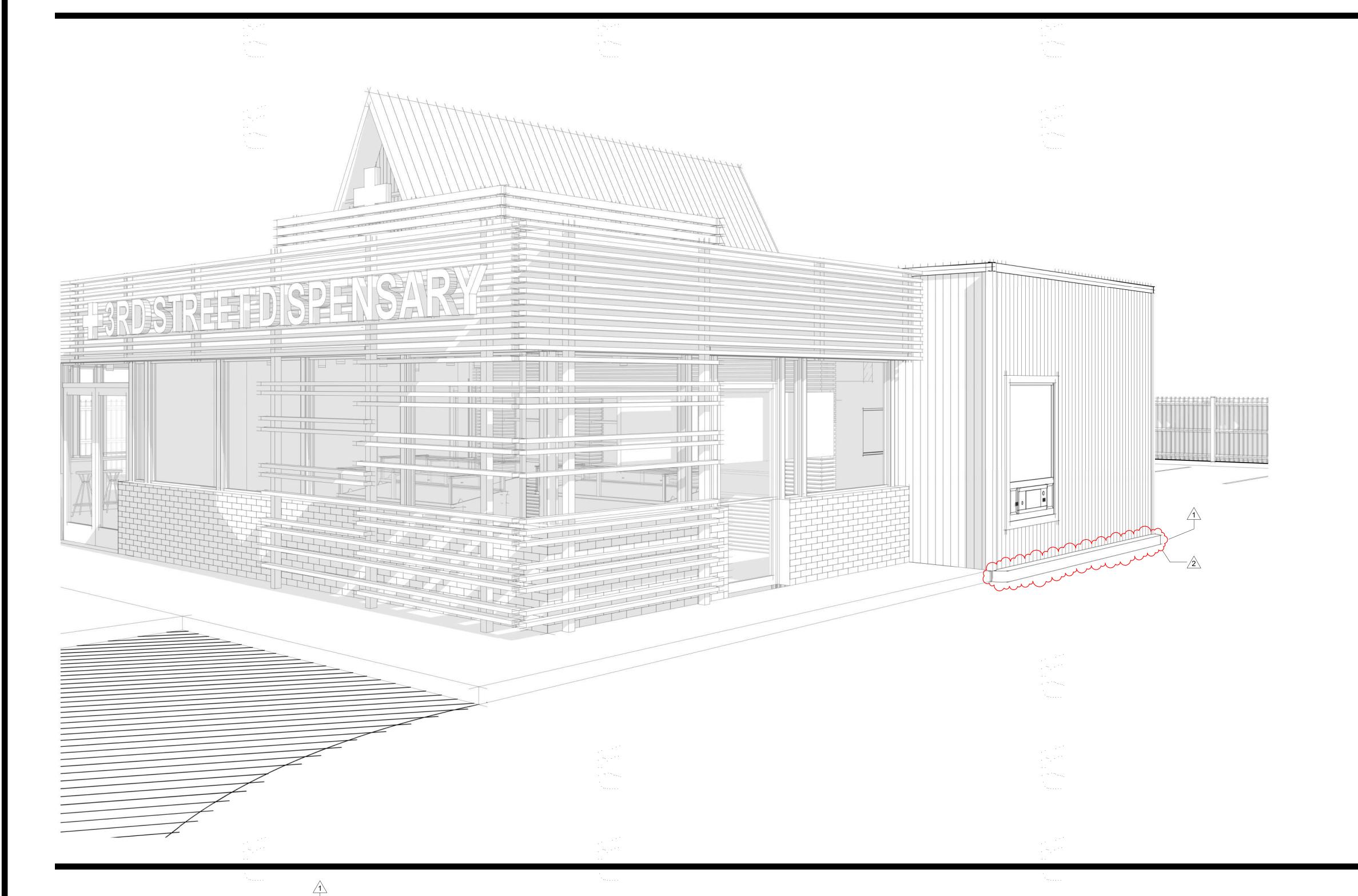
# PERMIT SET

06/10/2022

COLLINS WEBB #: 22038



VICINITY MAP



| HEET NUMBER  | SHEET NAME                                 |
|--------------|--|
| CS           | COVER SHEET                                |
| G001         | GENERAL INFORMATION                        |
| G002         | LIFE SAFETY PLAN AND PROJECT INFO.         |
| STRUC        | TURAL                                      |
| SHEET NUMBER | SHEET NAME                                 |
| S001         | STRUCTURAL GENERAL NOTES                   |
| S100         | FOUNDATION AND ROOF FRAMING PLAN           |
|              | TECTURAL                                   |
| SHEET NO.    | SHEET NAME                                 |
| A100         | ARCHITECTURAL SITE PLAN                    |
| A101         | FIRST FLOOR PLAN AND ROOF PLAN             |
| A201         | EXTERIOR ELEVATIONS, SECTIONS, AND DETAILS |
| /IEP         |  |
| SHEET NUMBER | SHEET NAME                                 |
| E101         | ELECTRICAL NOTES, SYMBOLS & ABBREVIATIONS  |
| E102         | ELECTRICAL DETAILS                         |
| E201         | ELECTRICAL POWER & LIGHTING PLAN           |
| E301         | ELECTRICAL RISER DIAGRAM & SCHEDULES       |
| E401         | ELECTRICAL SPECIFICATIONS                  |
| E402         | ELECTRICAL SPECIFICATIONS                  |
| M101         | MECHANICAL NOTES, SYMBOLS & ABBREVIATIONS  |
| M201         | MECHANICAL FLOOR PLAN                      |
| M301         | MECHANICAL SPECIFICATIONS                  |

### FINAL DEVELOPMENT PLANS

- MISSOURI ONE CALL SYSTEM 1-800-DIG-RITE "CALL BEFORE YOU DIG."

- THE CONTRACTOR SHALL CONTACT THE CITY'S DEVELOPMENT SERVICES ENGINEERING INSPECTION TO SCHEDULE A PRE-CONSTRUCTION MEETING WITH A FIELD ENGINEERING INSPECTOR PRIOR TO ANY LAND DISTURBANCE WORL AT (816) 969-1200.

- ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT'S DESIGN AND CONSTRUCTION MANUAL.

- "PER FEMA FIRM PANEL 29095C0417G, EFFECTIVE JANUARY 20, 2017, THE SITE IS IN ZONE X (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 1% ANNUAL CHANCE FLOODPLAIN."

### UTILITY CONTACT INFORMATION

- ELECTRIC: EVERGY - 888-544-5275 - WATER: LS WATER - 816-969-1950 - GAS: SPIRE - 800-582-1234 - PHONE: AT&T - 800-331-0500 - FIBER: GOOGLE FIBER - 866-777-7550

### OIL/GAS WELL PRESENCE

PER UES CONSULTING SERVICES, PHASE 1 OF THE ENVIRONMENTAL SITE ASSESSMENT DOCUMENT ON JUNE 13<sup>TH</sup>, 2019, NO OIL/GAS WELLS ARE PRESENT WITHIN THE SITE.

### **OWNER**

collins

MARK WESTHUES
MC PROPERTIES OF MISSOURI, LLC
704 NE LAKE POINTE DR.
LEE'S SUMMIT, MISSOURI 64064
P: 816.215.5180
mark@westhues.com

### ARCHITECT

COLLINS WEBB ARCHITECTURE 307B SW MARKET ST. LEE'S SUMMIT, MISSOURI 64063 P: 816.249.2270 www.collinsandwebb.com

### STRUCTURAL ENGINEER

STAND STRUCTURAL ENGINEERING INC. 8234 ROBINSON ST. OVERLAND PARK, KANSAS 66204 P: 913.214.2169 www.stand-sei.com

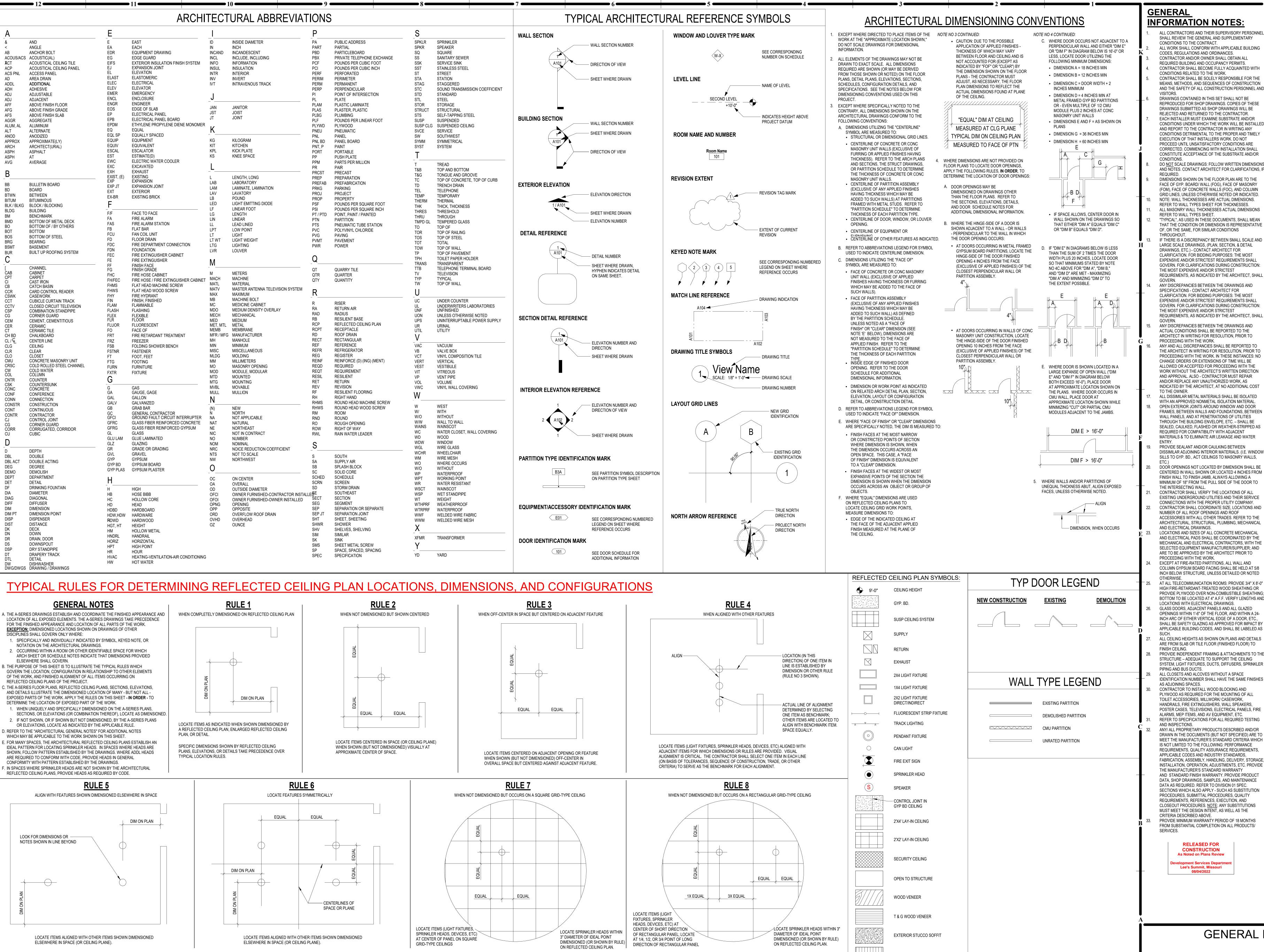
### MEP ENGINEER

ENGINEERED BUILDING SOLUTIONS, LLC 11320 W 79TH STREET OVERLAND PARK, KS 66214 P: 913.735.5654 www.ebslutionskc.com

### CONTRACTOR

WOLF 21 INC. 812A W 17TH ST. KANSAS CITY, MO 64108 P: 913.207.3643 www.wolf21.net





ALL CONTRACTORS AND THEIR SUPERVISORY PERSONNEI SHALL REVIEW THE GENERAL AND SUPPLEMENTARY ALL WORK SHALL CONFORM WITH APPLICABLE BUILDING CONTRACTOR AND/OR OWNER SHALL OBTAIN ALL REQUIRED BUILDING AND OCCUPANCY PERMITS. CONTRACTOR SHALL BECOME FULLY ACQUAINTED WITH CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, AND SEQUENCES OF CONSTRUCTION AND THE SAFETY OF ALL CONSTRUCTION PERSONNEL AND

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 AT ALL TELECOMMUNICATION ROOMS: PROVIDE 3/4" X 8'-HIGH FIRE-RETARDANT-TREATED WOOD SHEATHING OR PROVIDE PLYWOOD OVER NON-COMBUSTIBLE SHEATHING; BOTTOM TO BE LOCATED AT 4" A.F.F. VERIFY LENGTHS AND GLASS DOORS, ADJACENT PANELS AND ALL GLAZED OPENINGS WITHIN 1'-6" OF THE FLOOR, AND WITHIN A 24-

ALL CEILING HEIGHTS AS SHOWN ON PLANS AND DETAILS ARE FROM SLAB OR TILE FLOOR (FINISHED FLOOR) TO PROVIDE INDEPENDENT FRAMING & ATTACHMENTS TO T STRUCTURE – ADEQUATE TO SUPPORT THE CEILING SYSTEM, LIGHT FIXTURES, DUCTS, DIFFUSERS, SPRINKLER

ALL CLOSETS AND ALCOVES WITHOUT A SPACE IDENTIFICATION NUMBER SHALL HAVE THE SAME FINISHI CONTRACTOR TO INSTALL WOOD BLOCKING AND PLYWOOD AS REQUIRED FOR THE MOUNTING OF ALL TOILET ACCESSORIES. MILLWORK/ CASEWORK. HANDRAILS, FIRE EXTINGUISHERS, WALL SPEAKERS, POSTER CASES, TELEVISIONS, ELECTRICAL PANELS, FIRE

ALARMS, MEP ITEMS, AND AV EQUIPMENT, ETC. REFER TO SPECIFICATIONS FOR ALL REQUIRED TESTING 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, STORAG 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 PROVIDE MINIMUM WARRANTY PERIOD OF 18 MONTHS



EXTERIOR METAL PANEL SOFFIT



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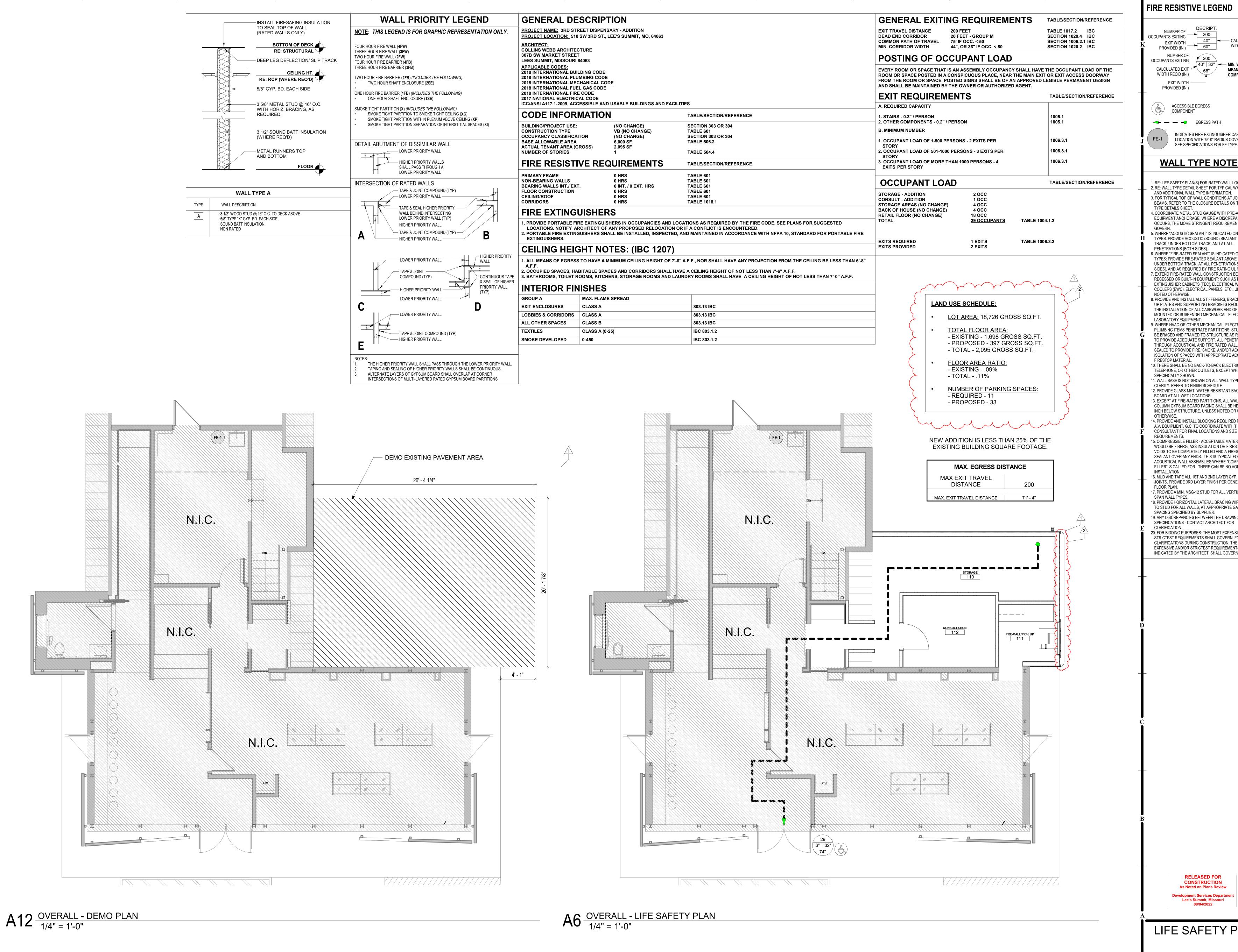
**REVISION DATES:** 

ARCHITECTURE, LLC

**COLLINS WEBB** 

COLLINS WEBB #:

GENERAL INFORMATION



FIRE RESISTIVE LEGEND

NUMBER OF OCCUPANTS EXITING 40" 

← CALCULATED EXIT EXIT WIDTH WIDTH REQ'D (IN.) PROVIDED (IN.) NUMBER OF CALCULATED EXIT MEANS OF EGRESS WIDTH REQ'D (IN.) COMPONENT (IN.) EXIT WIDTH — PROVIDED (IN.)

ACCESSIBLE EGRESS COMPONENT

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

### **WALL TYPE NOTES:**

1. RE: LIFE SAFETY PLAN(S) FOR RATED WALL LOCATIONS. 2. RE: WALL TYPE DETAIL SHEET FOR TYPICAL WALL DETAILS AND ADDITIONAL WALL TYPE INFORMATION. 3. FOR TYPICAL TOP OF WALL CONDITIONS AT JOISTS AND BEAMS, REFER TO THE CLOSURE DETAILS ON THE WALL TYPE DETAILS SHEET. 4. COORDINATE METAL STUD GAUGE WITH PRE-APPROVED EQUIPMENT ANCHORAGE. WHERE A DISCREPANCY OCCURS, THE MORE STRINGENT REQUIREMENT SHALL 5. WHERE "ACOUSTIC SEALANT" IS INDICATED ON WALL TYPES: PROVIDE ACOUSTIC (SOUND) SEALANT ABOVE TOP TRACK, UNDER BOTTOM TRACK, AND AT ALL

6. WHERE "FIRE-RATED SEALANT" IS INDICATED ON WALL TYPES: PROVIDE FIRE-RATED SEALANT ABOVE TOP TRACK, UNDER BOTTOM TRACK, AT ALL PENETRATIONS (BOTH SIDES), AND AS REQUIRED BY FIRE RATING UL NUMBER. 7. EXTEND FIRE-RATED WALL CONSTRUCTION BEHIND RECESSED OR BUILT-IN EQUIPMENT; SUCH AS FIRE EXTINGUISHER CABINETS (FEC), ELECTRICAL WATER COOLERS (EWC), ELECTRICAL PANELS, ETC., UNLESS NOTED OTHERWISE. 8. PROVIDE AND INSTALL ALL STIFFENERS, BRACING, BACK-UP PLATES AND SUPPORTING BRACKETS REQUIRED FOR THE INSTALLATION OF ALL CASEWORK AND OF ALL FLOOR

MOUNTED OR SUSPENDED MECHANICAL, ELECTRICAL OR LABORATORY EQUIPMENT. 9. WHERE HVAC OR OTHER MECHANICAL, ELECTRICAL AND PLUMBING ITEMS PENETRATE PARTITIONS: STUDS SHALL BE BRACED AND FRAMED TO STRUCTURE AS REQUIRED TO PROVIDE ADEQUATE SUPPORT. ALL PENETRATIONS THROUGH ACOUSTICAL AND FIRE RATED WALLS SHALL BE

SEALED TO PROVIDE FIRE, SMOKE, AND/OR ACOUSTICAL ISOLATION OF SPACES WITH APPROPRIATE ACOUSTICAL/ FIRESTOP MATERIAL. 10. THERE SHALL BE NO BACK-TO-BACK ELECTRICAL, TELEPHONE, OR OTHER OUTLETS, EXCEPT WHERE SPECIFICALLY SHOWN. 11. WALL BASE IS NOT SHOWN ON ALL WALL TYPES FOR CLARITY, REFER TO FINISH SCHEDULE. 12. PROVIDE GLASS-MAT, WATER RESISTANT BACKING

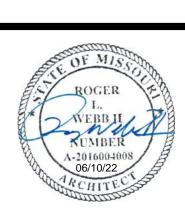
13. EXCEPT AT FIRE-RATED PARTITIONS, ALL WALL AND COLUMN GYPSUM BOARD FACING SHALL BE HELD AT 5/8 INCH BELOW STRUCTURE, UNLESS NOTED OR SHOWN 14. PROVIDE AND INSTALL BLOCKING REQUIRED FOR ALL A.V. EQUIPMENT. G.C. TO COORDINATE WITH TI CONSULTANT FOR FINAL LOCATIONS AND SIZE REQUIREMENTS. 15. COMPRESSIBLE FILLER - ACCEPTABLE MATERIALS WOULD BE FIBERGLASS INSULATION OR FIRESTOPPING. VOIDS TO BE COMPLETELY FILLED AND A FIRESTOP SEALANT OVER ANY ENDS. THIS IS TYPICAL FOR ALL

ACOUSTICAL WALL ASSEMBLIES WHERE "COMPRESSIBLE FILLER" IS CALLED FOR. THERE CAN BE NO VOIDS IN THE 16. MUD AND TAPE ALL 1ST AND 2ND LAYER GYP. BOARD JOINTS. PROVIDE 3RD LAYER FINISH PER GENERAL NOTES: 17. PROVIDE A MIN. MSG-12 STUD FOR ALL VERTICAL LONG SPAN WALL TYPES. 18. PROVIDE HORIZONTAL LATERAL BRACING WIRE WELDED TO STUD FOR ALL WALLS, AT APPROPRIATE GAGE AND SPACING SPECIFIED BY SUPPLIER. 19. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND

20. 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.

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1 City Comments 07/05/22 2 City Comments 07/19/22



LIFE SAFETY PLAN AND PROJECT

CONSTRUCTION

Lee's Summit, Missouri 08/04/2022

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JOHN E. FUNK NUMBER . E-2000173299 . PROFESSIONAL SEAL

STRUCTURAL DESIGN CRITERIA (2018 IBC AND ASCE 7-16): **CAST IN PLACE CONCRETE:** 12. STUDS SHALL BE CONTINUOUS BETWEEN EACH DIAPHRAGM LEVEL. EXTERIOR WALL STUDS AT GROUND FLOOR SHALL BE BRACED BY KICKERS AND/OR 1. BUILDING OCCUPANCY RISK CATEGORY II. 1. SUBMIT PROPOSED MIXED DESIGNS OF EACH TYPE FOR REVIEW. STRUCTURAL CEILING FRAMING. REQUIRED MINIMUM CONCRETE COMPRESSIVE STRENGTHS AT 28 DAYS:

13. TYPICAL SILL ANCHOR RODS SHALL BE GALVANIZED 1/2" DIAMETER EMBEDDED 7" MIN INTO CONCRETE, SPACED NO FURTHER THAN 3'-0" OC, AND SHALL OCCUR WITHIN 12" OF THE ENDS OF A SILL PLATE. SPACE ANCHOR RODS MORE CLOSELY TOGETHER AT SHEAR WALLS AS SHOWN ON THE DRAWINGS. EACH SILL PLATE SHALL HAVE A MINIMUM OF 2 ANCHOR RODS. PROVIDE 2" SQUARE PLATE WASHERS

14. SUBSTITUTIONS OF SPECIFIED WOOD MEMBERS SHALL NOT BE MADE WITHOUT REVIEW OF THE ARCHITECT/ENGINEER.

a. FOOTING AND GRADE BEAM CONCRETE......4000 PSI b. SLAB ON GRADE AND STRUC SLAB ABOVE GRADE.....4000 PSI ....20 PSF 2. ALL CONCRETE MIX DESIGNS SHALL HAVE WATER TO CEMENT RATIOS LESS ...15.4 PSF W/ DRIFT THAN 0.52 (0.45 FOR MOISTURE SENSITIVE FLOORING), WITH A MAXIMUM 60/40 FINE -- MIN UNIFORM ROOF SNOW LOAD (Pm):.......20 PSF (NO DRIFT OR RAIN) TO COARSE AGGREGATE RATIO. CONCRETE MIX DESIGNS THAT DO NOT CONFORM -- RAIN ON SNOW SURCHARGE (Prs) ......5.0 PSF TO THE ABOVE STANDARD AND/OR CONTAIN WATER REDUCING ADMIXTURES SHALL .....1.0, EXPOSURE B & BE SUBMITTED WITH APPROPRIATE TEST DATA PER A.C.I.. ALL CONCRETE SHALL BE -- SNOW LOAD IMPORTANCE FACTOR (Is):.........1.0 IN CONFORMANCE WITH THE A.C.I. 301 STANDARD THAT IS REFERENCED IN THE

1.1 (just above freezing) ..1.0 (for ¼ per foot roofs) -- BASIC WIND SPEED (3 SEC GUST):... ..115 MPH .90 MPH -- WIND IMPORTANCE FACTOR (Iw):..

-- GROUND ELEVATION ABOVE SEA LEVEL.......1,000 FT -- DIRECTIONALITY FACTOR (Kd) ..... .....0.85 -- INTERNAL PRESSURE COEFF:. -- COMPONENTS AND CLADDING WIND (ULTIMATE 1.0\*W) PRESSURES (BASED ON TRIB 10 S.F., EXP. B. MAY BE REDUCED FOR COMPONENTS WITH LARGER TRIB PER BLDG CODE): WALLS AT CORNERS & EDGES:.... .....+21 / -28 PSF ALL OTHER MAIN WALL CONDITIONS:....+21 / -23 PSF ROOF CORNERS:.. ..+8 / -26 PSF ROOF EDGES: .. ...+8 / -26 PSF

2. LIVE LOADS [UNIFORM (PSF) / POINT LOADS (KIPS)]:

-- GROUND SNOW LOAD (Pg):

-- THERMAL FACTOR (Ct):.

ASD WIND SPEED, V(ASD)...

- SLOPE FACTOR (CS)...

-- WIND EXPOSURE:...

-- FLAT ROOF SNOW LOAD (Pf):

-- SNOW EXPOSURE FACTOR (Ce):..

ROOF SNOW LOAD:

4. WIND DESIGN DATA:

ALL OTHER MAIN ROOF CONDITIONS:....+8 / -22 PSF 5. EARTHQUAKE DESIGN DATA: -- SEISMIC IMPORTANCE FACTOR (le):......1.0 -- MAPPED SPECTRAL RESP ACCEL (Ss / S1):.....0.12 / 0.07 -- SITE CLASS:.. -- SPECTRAL RESPONSE COEFF (Sds / Sd1):.....0.13 / 0.11 -- SEISMIC DESIGN CATEGORY:..... -- SEISMIC FORCE RESISTING SYSTEM:.....R=6.5, WOOD -- DESIGN BASE SHEAR:... ...0.8 K (ELF AND ASD) -- SEISMIC RESPONSE COEFF (Cs):.. ....0.020 -- ANALYSIS PROCEDURE:..

### **STRUCTURAL GENERAL NOTES:**

03 Abbreviation Schedule

ARCHITECTURALLY EXPOSED

ARCHITECT OR ARCHITECTURAL

STRUCTURAL STEEL

ABOVE FINISHED FLOOR

PLUS OR MINUS

ADDITIONAL

ADJACENT

ALTERNATE

BOTTOM OF

BETWEEN

BUILDING

BLOCKING

BEAM

BOTTOM

BEARING

CHECKED

CAST IN PLACE

CONTROL JOINT

CENTERLINE

COLUMN

CONCRETE

CENTER

DIAMETER

DIAGONAL

DOWEL

EACH

DIRECTION

EXTENDED ENI

ELEVATION

ENGINEER

EACH WAY

EXISTING

EXTERIOR

FLANGE

FAR SIDE

FOOTING

GAUGE

FIELD VERIF

GALVANIZED

GRADE BEAM

HORIZONTAL

INSIDE FACE

KIPS (1000 LBS)

LIGHTWEIGHT

METAL

MANUFACTURER

NOT IN CONTRACT

NEAR SIDE

NOT TO SCALE

ON CENTER

OUTSIDE FACE

OPPOSITE

PRECAST

PARALLEI

PLATE

PENETRATION

PERPENDICULAR

PREFABRICATED

REFER TO

REINFORCING

REQUIRED

RIGID FRAME

SIMILAR

SQUARE

STANDARD

STIRRUPS

SHEAR WALI

SYMMETRIC

TRANSVERSE

TOP OF

TYPICAL

VERTICAL

WITHOUT WIDE FLANGE

WORK POINT

WITH

TOP AND BOTTON

UNLESS NOTED OTHERWISE

WELDED WIRE REINFORCEMENT

STEEL

SLIP CRITICAL

SELF DRILLING SCREW

SHORT LEG VERTICAL

SLAB ON GRADE

STAINLESS STEEL

POUNDS PER LINEAR FOOT

POUNDS PER SQUARE FOOT

POUNDS PER SQUARE INCH

REINFORCED CONCRETE

OVERSIZED

INTERIOR

GENERAL CONTRACTOR

HEADED STUD ANCHOR

LONG LEG HORIZONTAL

LONG LEG VERTICAL

HOLLOW STRUCTURAL SECTION

COMPRESSION EMBEDMENT LENGTH

COMPRESSION LAP SPLICE LENGTH

TENSION EMBEDMENT LENGTH

TENSION LAP SLICE LENGTH

POWDER ACTUATED FASTENER

PRE-ENGINEERED METAL BUILDING

FLOOR

FOUNDATION

EDGE OF DECK

EDGE OF SLAB

EXPANSION JOIN

CONNECTION

CONTINUOUS

BRACED WALL PANE

COLD FORMED STEE

COMPLETE JOINT PENETRATION

DIA OF REINF BAR. DIA OF BOLT

DEFORMED BAR ANCHOR

ANCHOR ROD

Abbreviation Name

Abbreviation

ADDNL

AESS

ARCH

B/W

BLDG

BLKG

BOT

BRG

BWP

CFS

CHKD

CIP

CLR

COL

CONC

CONN

CONT

CTR

DBA

DIA or Ø

DIAG DIR

DWL

EA

ELEV

ENGR

EOD

EOS

EW

EXIST

EXT

FDN

FLG

FLR

FTG

FV

GA

GALV

HORIZ

HSA

LLH

MFCR

NTS

OPP

OVS

PAF

PAR

PEMB

PERP

PREFAB

PRELIM

PSF

REINF

REQD

SDS

SIM

SOG

STIR

SW

SYM

TYP

UNO

VERT

WP

WWR

1. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE "INTERNATIONAL BUILDING CODE, 2018 EDITION" AS AMENDED BY THE CITY OF (LEE 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 17. FOUNDATION CONTRACTOR TO ENSURE PROPER ANCHOR ROD PROJECTION 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.

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

9. IF MECHANICAL AND ELECTRICAL EQUIPMENT SIZES, WEIGHTS, OR LOCATIONS

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

### **EARTHWORK AND FOUNDATIONS:**

1. ALL FOOTINGS SHALL BEAR A MINIMUM DEPTH BELOW GRADE OF 3'-0" ON FIRM NATIVE MATERIALS, COMPACTED OR ENGINEERED FILL CAPABLE OF SUPPORTING AN ALLOWABLE BEARING PRESSURE OF 1,500 PSF PER THE PRESUMMTIVE VALUES IN IBC. DEEPEN FOOTINGS, AND REMOVE AND REPLACE UNACCEPTABLE SOILS WITH ENGINEERED FILL AS REQUIRED TO PROVIDE THIS MINIMUM DEPTH AND SUITABLE BEARING.

2. UNDERCUT THE PAD TO A DEPTH OF 18-INCHES BELOW BOTTOM OF FLOOR SLAB ELEVATION AND REPLACE WITH LOW-VOLUME-CHANGE MATERIALS PER THE GEOTECHNICAL REPORT.

3. 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

4. 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.

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

6. 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 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 3/4" CLEAR FOR SLABS, 2" CLEAR FOR FORMED SURFACES AND 3" CLEAR FOR FOOTINGS (TYPICAL UNLESS

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.

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.

### 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 1/4" 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

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

2-#5 x 4'-0" DIAGONAL BARS AT CORNERS 16. CONTRACTOR SHALL COORDINATE ALL CURING COMPOUNDS WITH FLOOR FINISH REQUIREMENTS TO ENSURE COMPATIBILITY

(TYPICAL UNLESS NOTED): 2 - #5, EXTEND REINF 2'-0" PAST OPENINGS. PROVIDE

AND THAT ANCHOR RODS ARE HELD SECURELY IN POSITION PRIOR TO CONCRET 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

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

1. FRAMING MATERIAL: ALL WOOD FRAMING SHALL MEET OR EXCEED THE FOLLOWING: A. NOMINAL STRUCTURAL LUMBER: DOUG. FIR -- NO.2 OR BETTER, KILN-DRIED, MIN Fb = 900 PSI, MIN E = 1400 KSI. B. EXPOSED TO WEATHER: NOMINAL STRUCT LUMBER -- PRESS TREATED

2. ALL LUMBER IN DIRECT CONTACT WITH CONCRETE OR MASONRY, SUCH AS SILL PLATES AND BEARING PLATES BELOW BEAMS POCKETED IN CMU, SHALL BE TREATED LUMBER.

NO.2 OR BETTER, MIN Fb = 1000 PSI, MIN E = 1300 KSI

### 3. WOOD SHEATHING:

A. ROOF SHEATHING SHALL BE 15/32" OR 1/2" WITH AN APA SPAN RATING OF 32/16, EXPOSURE 1, MINIMUM 2 SPAN, FASTEN WITH 10d COMMON NAILS AT 6" CENTERS AT ALL PANEL EDGES AND 12" CENTERS MAXIMUM AT INTERMEDIATE FRAMING MEMBERS (IN THE FIELD). USE PLYCLIPS AT MIDSPAN. B. WALL SHEATHING FOR EXTERIOR WALLS SHALL BE 7/16" WITH AN APA SPAN RATING OF 24/16, UNLESS NOTED OTHERWISE. ALL PANEL EDGES SHALL BE BACKED WITH 2 INCH NOMINAL OR WIDER FRAMING. FASTEN WITH 8d COMMON NAILS AT 6" OC MAXIMUM AT ALL TOP PLATES, BLOCKING, BOUNDARIES AND 10" OC MAXIMUM IN THE FIELD.

4. ALL WOOD SHEATHING TO BE STAGGERED 4'X8' SHEETS. ORIENTED PERPENDICULAR TO SUPPORTING MEMBERS.

5. PROVIDE 1/8" GAP AT ALL SHEATHING PANEL EDGES AND END JOINTS UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. DUE TO CONSTRUCTION CONDITIONS, TEMPORARY EXPANSION JOINTS MAY BE REQUIRED IN FLOOR/ROOF

6. ALL HEADERS IN EXTERIOR OR INTERIOR BEARING WALLS SPANNING MORE THAN 3'-8" SHALL BE SUPPORTED ON DOUBLE STUDS UNLESS NOTED.

7. MINIMUM NAILING SHALL CONFORM TO IBC TABLE 2304.10.1. USE COMMON NAILS EXCEPT WHERE NOTED. ALL FASTENERS (BOLTS, SCREWS, NAILS, ETC) IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIP GALVANIZED. 8. LIGHT GAUGE WOOD FRAMING CONNECTORS AS NOTED ON THE PLANS FOR

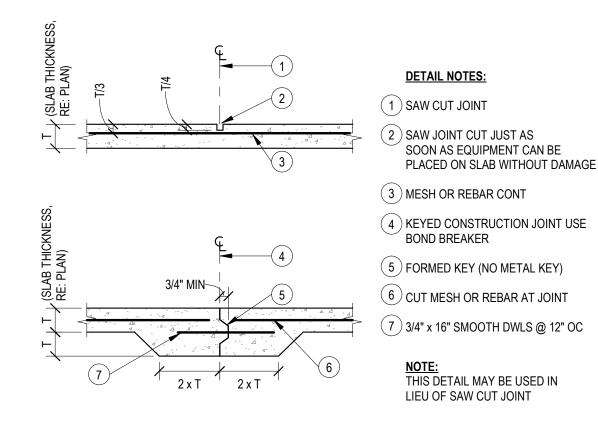
CONNECTORS BY THE SIMPSON CO. OR REVIEWED EQUIVALENT. CONNECTORS IN

DIRECT CONTACT WITH PRESSURE TREATED LUMBER SHALL HAVE "ZMAX" G185 HOT DIP GALVANIZED COATING OR REVIEWED EQUIVALENT. 9. CONNECTORS IN DIRECT CONTACT WITH PRESSURE TREATED LUMBER SHALL HAVE "ZMAX" G185 HOT DIP GALVANIZED COATING OR REVIEWED EQUIVALENT.

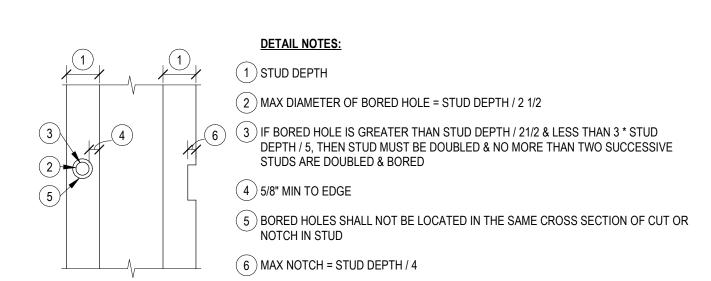
WOOD JOISTS, COLUMNS, BEAMS AND TRUSSES SHALL BE "STRONG - TIE"

10. STAINLESS STEEL FASTENERS, ANCHOR BOLTS, LIGHT GAUGE CONNECTORS, ETC. MAY BE SUBSTITUTED FOR HOT DIP GALVANIZED MATERIALS AT THE CONTRACTORS OPTION.

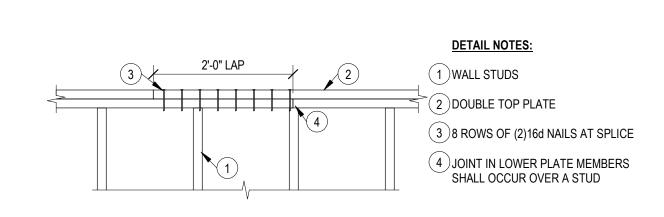
11. PROVIDE UPLIFT CONNECTORS AT EACH ROOF JOISTS TO WALL CONNECTIONS



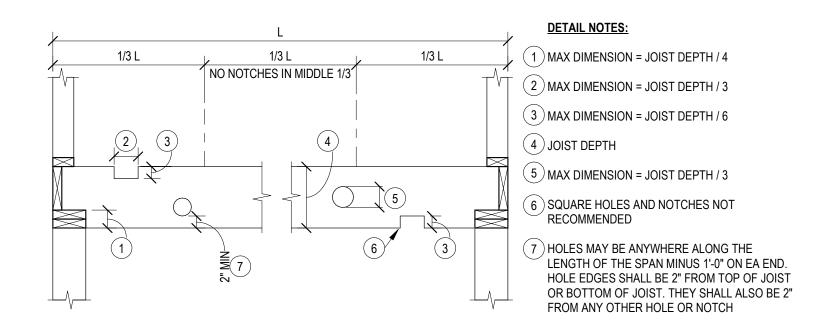
# **SLAB ON GRADE CONTROL JOINTS**



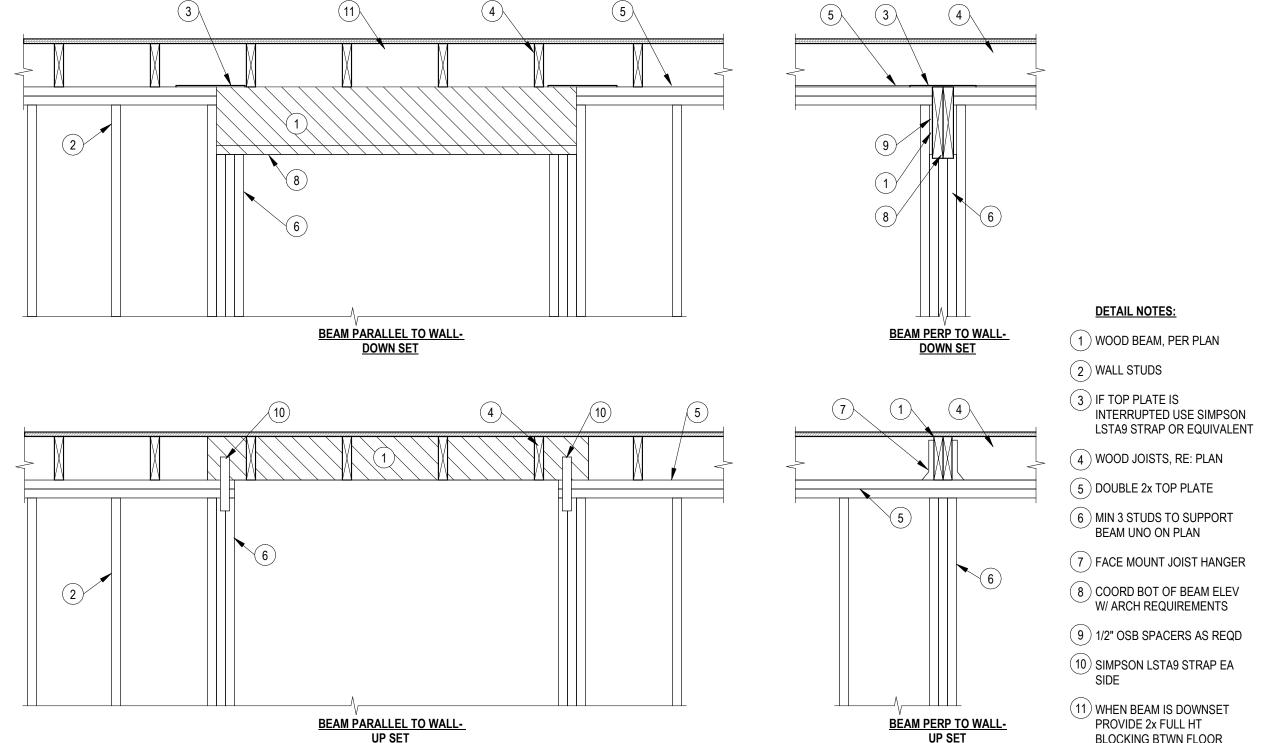
# **BORED HOLE & NOTCHES - VERT FRAMING**











LARGER OF ADJACENT

D1 & D2 OR 6",

PENETRATION DIAMETERS

DETAIL DOES NOT APPLY FOR

**REINF @ SLAB PENETRATIONS** 

PENETRATIONS LARGER THAN 12" IN

DIAMETER. SEE TYP SLAB OPENING

DETAIL FOR SUCH PENETRATIONS

WHICHEVER IS GREATER

**BEAM BEARING CONDITIONS** 

As Noted on Plans Review Lee's Summit, Missouri

BLOCKING BTWN FLOOR

**DETAIL NOTES:** 

2 ) (1) #5 x 5'-0" T&B @

PENETRATIONS

POSSIBLE

**DETAIL NOTES:** 

GENERAL NOTES

(2) DOUBLE TOP PLATE

(4) FLOOR JOISTS PARALLEL TO WALL, RE: PLAN FOR

SIZE AND SPACING

(5) PROVIDE BLOCKING IN THE

NEXT TO RIM JOIST

6 ) NAIL SHEATHING TO

7) STUD WALL ABOVE

BLOCKING

FIRST TWO JOIST SPACES

MATCH FLOOR JOISTS SIZE

& SPACE @ 4'-0" OC MAX

8) WOOD FLOOR SHEATHING

RE: GENERAL NOTES

(3) 2x RIM JOIST

(1) STUD WALLS, RE: PLAN AND

**ENDS & IN BTWN ALL** 

3 ) (1)#5 x 5'-0" T&B EA SIDE

(4) ALIGN PENETRATIONS WHERE

ARRANGE PRIMARY SLAB BARS

TO PASS BY PENETRATIONS.

DO NOT TERMINATE SLAB BARS AT PENETRATIONS

COLLINS WEBB #:

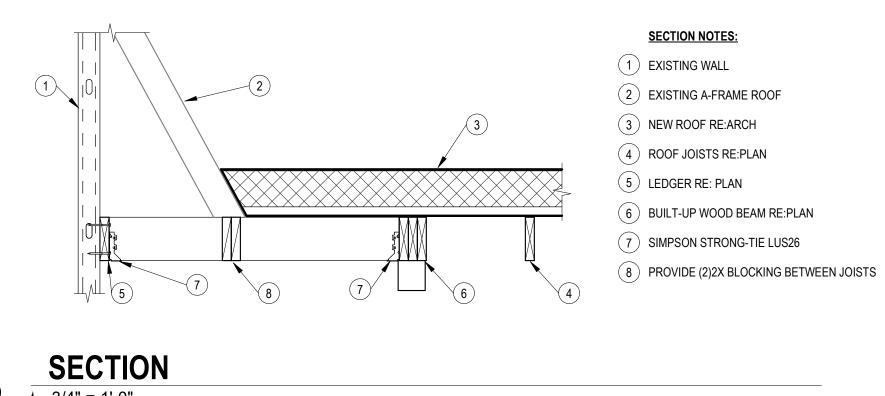
STRUCTURAL GENERAL NOTES

RELEASED FOR

CONSTRUCTION



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



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

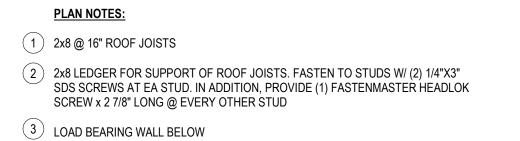
**SECTION NOTES:** 

(1) EXISTING STL BEAM

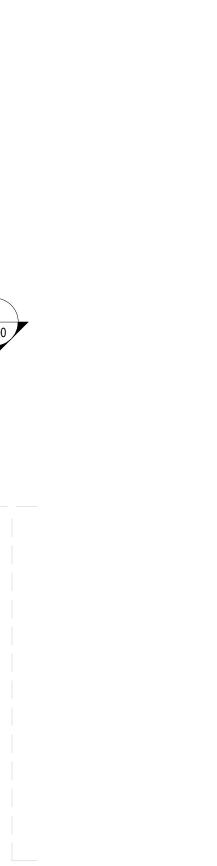
2 ) EXISTING ROOF

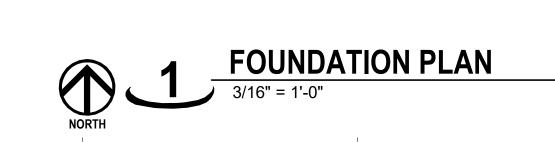
3) 2X8 ROOF JOISTS

5 ) JB28 SIMPSON STRONG-TIE



EXISTING W10X15





REINF CONT THROUGH THICKENED ) 16"x10" THICKENED SLAB, UNO. POUR MONOLITHICALLY WITH SLAB ON (2) #4 CONT @ BOTTOM OF THICKENED SLAB, UNO THICKENED SLAB

3/4" = 1'-0" **DETAIL NOTES:** TRENCH FOOTING, RE: PLAN FOR T/SLAB RE: PLAN SIZE & REINF. RE: ARCH FOR INSULATION REQUIREMENTS T/FTG RE: PLAN (2) SOG, RE: PLAN FOR SIZE & REINF (3) WALL, RE: PLAN FOR SIZE & SPACING (4) SHEATHING, RE: GENERAL (5) #4 DWL (2'-0"x2'-0") @ 24" OC & #4 (6) SILL PL TO MATCH STUD WALL TRENCH FTG SHEATHING

3/4" = 1'-0"

**DETAIL NOTES** 

1 INTERIOR LOAD BEARING WALL.

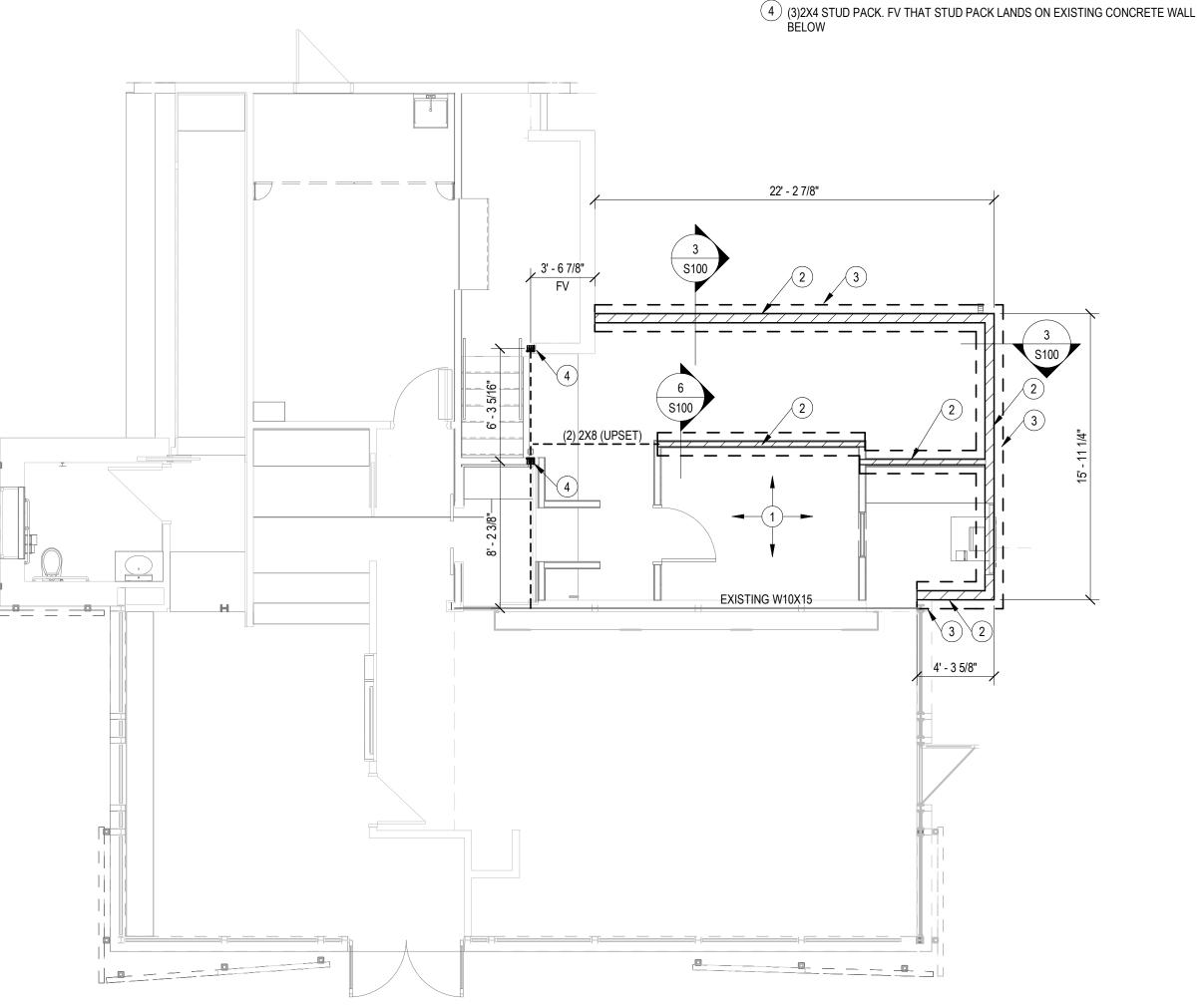
ANCHORS AT 4' OC MAX

ATTACH TO FLOOR W/ 1/2"x4" SCREW

2 SLAB ON GRADE, RE: PLAN. RUN SLAB

### **PLAN NOTES:**

- 1 4" CONCRETE SLAB ON GRADE. RE:GENERAL NOTES FOR REINFORCING, GRANULAR FILL, VAPOR BARRIER AND JOINTING REQUIREMENTS
- (2) 2x6 @16" OC
- 3 16" WIDE x 3'-0" DEEP TRENCH FOOTING. REINF W/ (2)#4 TOP & BOT AND #3 TIES @ 24" OC







FOUNDATION AND ROOF FRAMING PLAN

**DETAIL NOTES:** 

(1) 2x WALL, RE: PLAN

2 JOIST RE: PLAN

5 FINISH, RE: ARCH

6 DOUBLE 2x TOP PL

**DETAIL NOTES:** 

1) 2x WALL, RE: PLAN

2 ) JOIST RE: PLAN

(5) FINISH, RE: ARCH

6 DOUBLE 2x TOP PL

4 2x LEDGER

3 SHEATHING RE: PLAN

4 2x LEDGER

3 SHEATHING RE: PLAN

T/LEDGER VARIES

**5** STUD PARALLEL 3/4" = 1'-0"

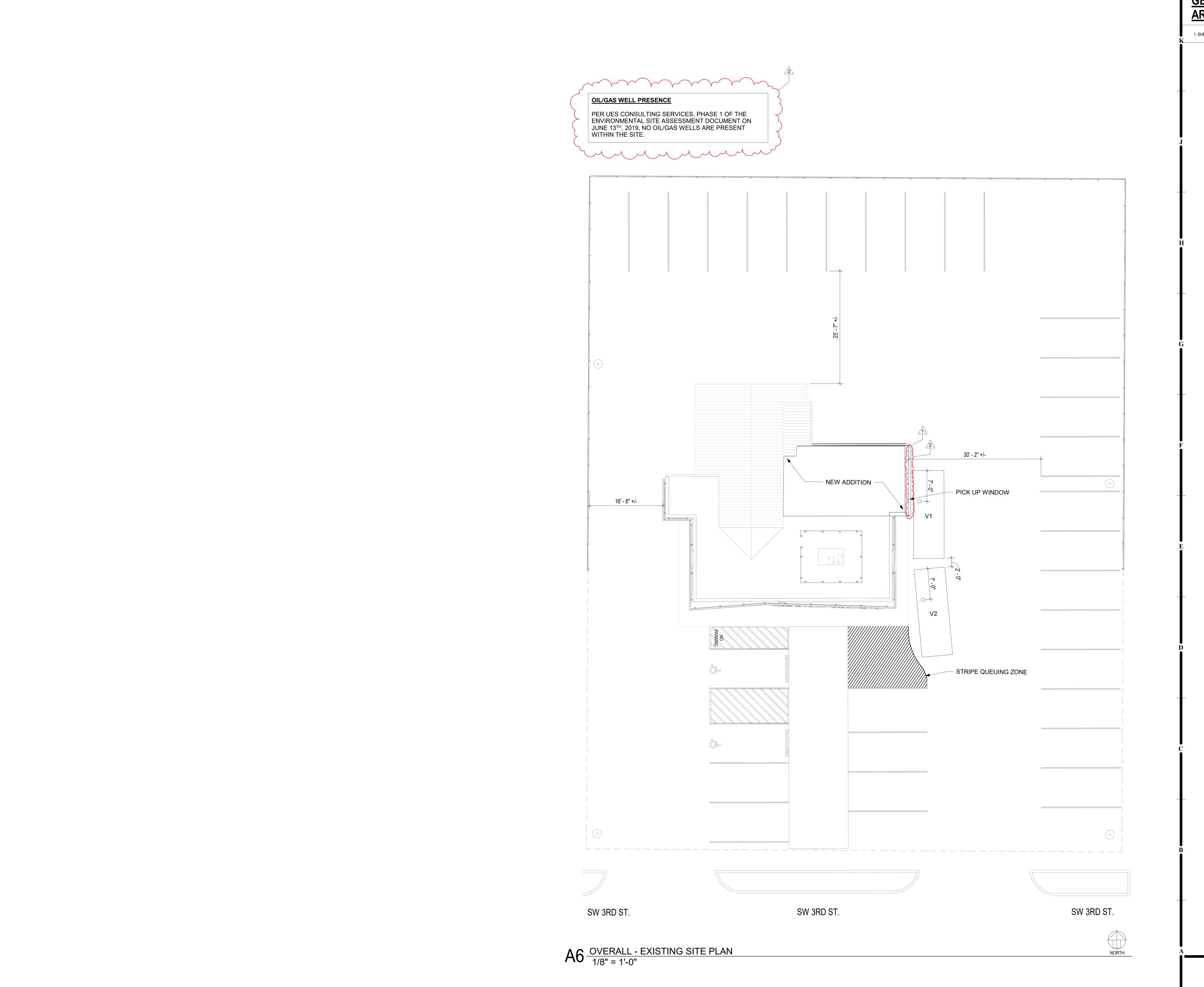
T/LEDGER RE: PLAN

STUD PERPENDICULAR

3/4" = 1'-0"

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ARCHITECTURE, LLC **REVISION DATES:** 



**GENERAL NOTES ARCHITECTURAL SITE:** 

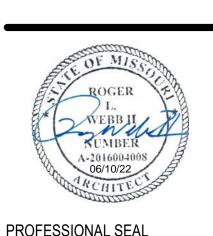
1. SHEET FOR REFERENCE ONLY.

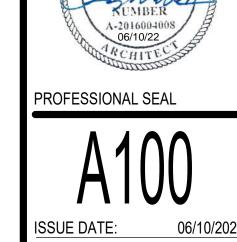


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1 City Comments 07/05/22 2 City Comments 07/19/22

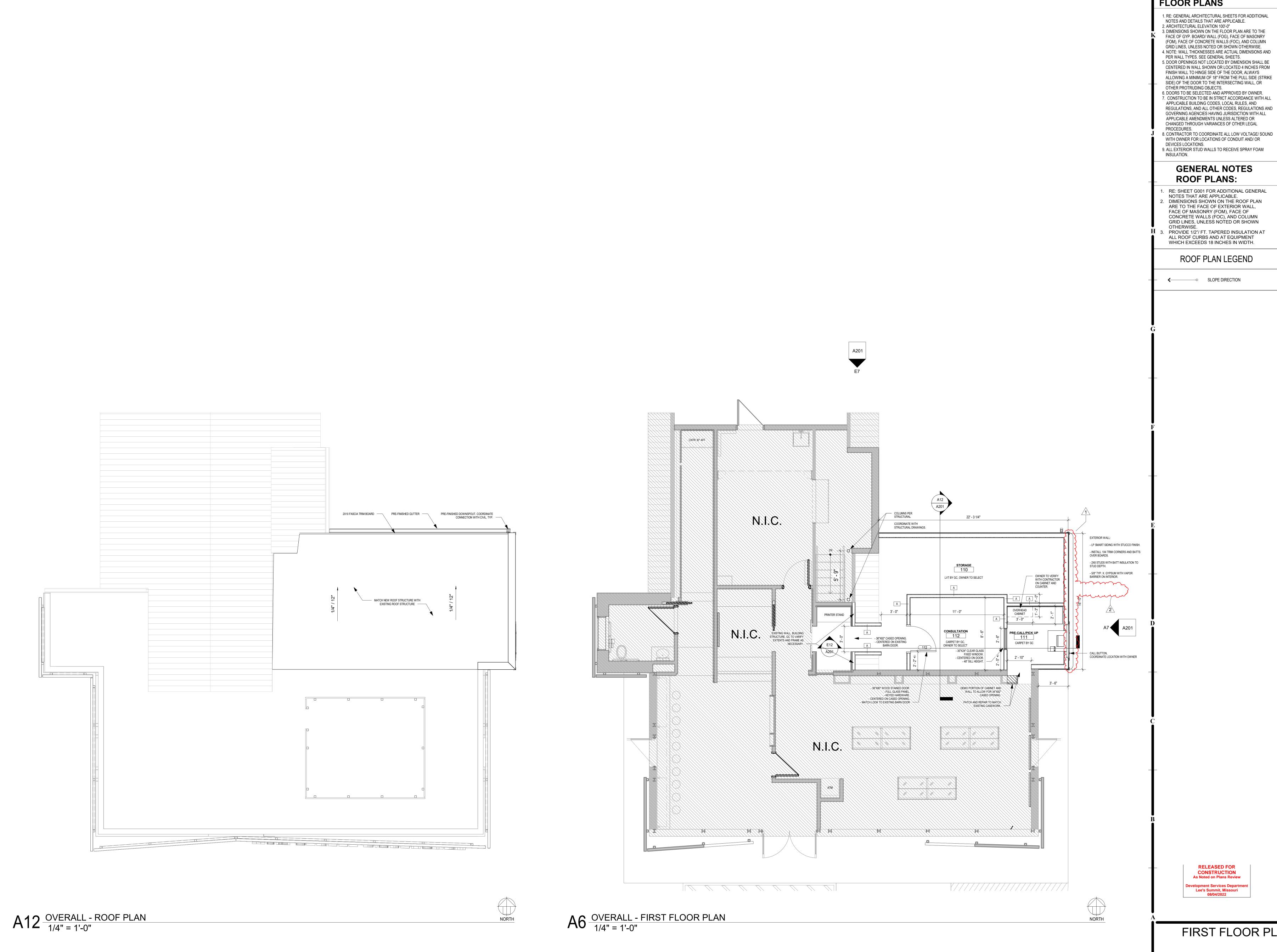




ARCHITECTURAL SITE PLAN

RELEASED FOR CONSTRUCTION As Noted on Plans Review

Development Services Department Lee's Summit, Missouri 08/04/2022



**GENERAL NOTES:** FLOOR PLANS

> 1. RE: 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 GYP. BOARD/ WALL (FOG), FACE OF MASONRY (FOM), 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. DOORS TO BE SELECTED AND APPROVED BY OWNER. 7. CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH ALL APPLICABLE BUILDING CODES, LOCAL RULES, AND

CHANGED THROUGH VARIANCES OF OTHER LEGAL 8. CONTRACTOR TO COORDINATE ALL LOW VOLTAGE/ SOUND WITH OWNER FOR LOCATIONS OF CONDUIT AND/ OR 9. ALL EXTERIOR STUD WALLS TO RECEIVE SPRAY FOAM

### **GENERAL NOTES ROOF PLANS:**

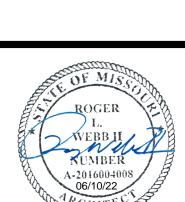
. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE. 2. DIMENSIONS SHOWN ON THE ROOF PLAN ARE TO THE FACE OF EXTERIOR WALL, FACE OF MASONRY (FOM), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN m H 3. PROVIDE 1/2"/ FT. TAPERED INSULATION AT ALL ROOF CURBS AND AT EQUIPMENT

ROOF PLAN LEGEND

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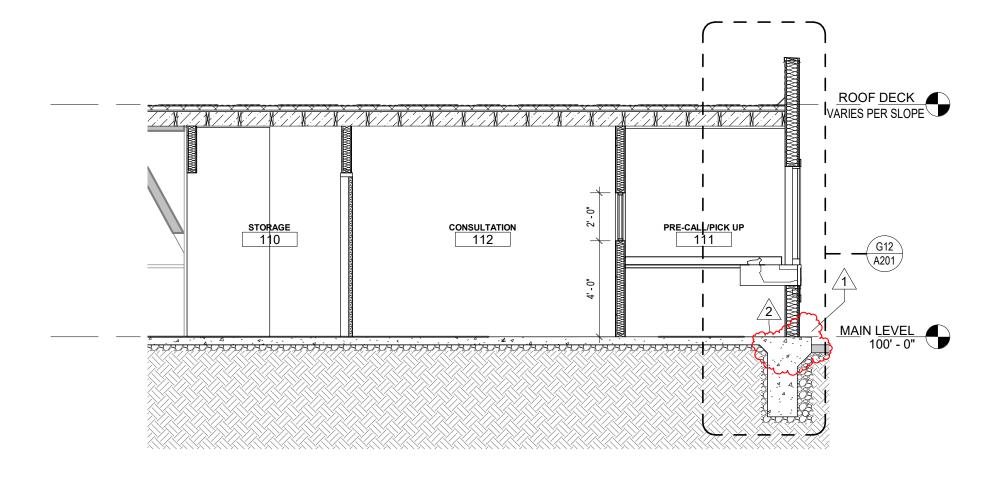
ARCHITECTURE, LLC

**REVISION DATES:** 1 City Comments 07/05/22 2 City Comments 07/19/22

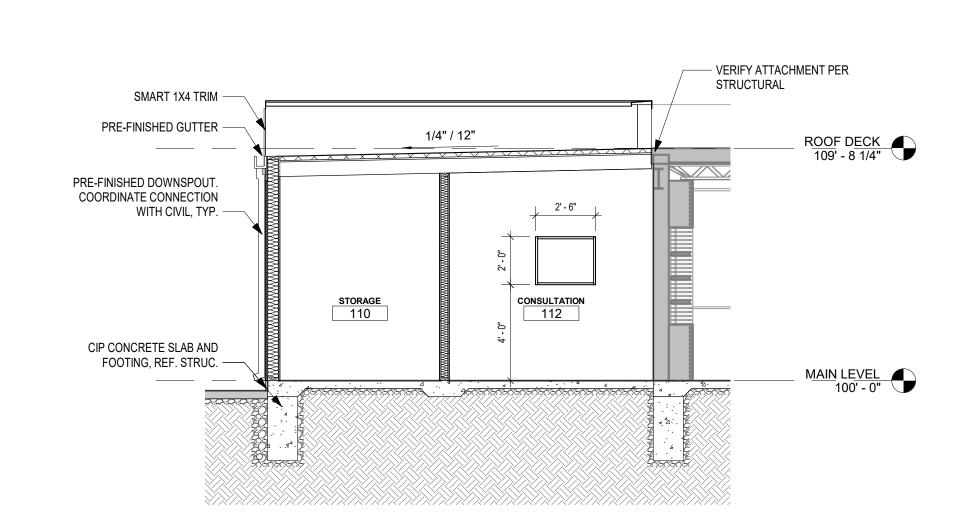


FIRST FLOOR PLAN AND ROOF PLAN

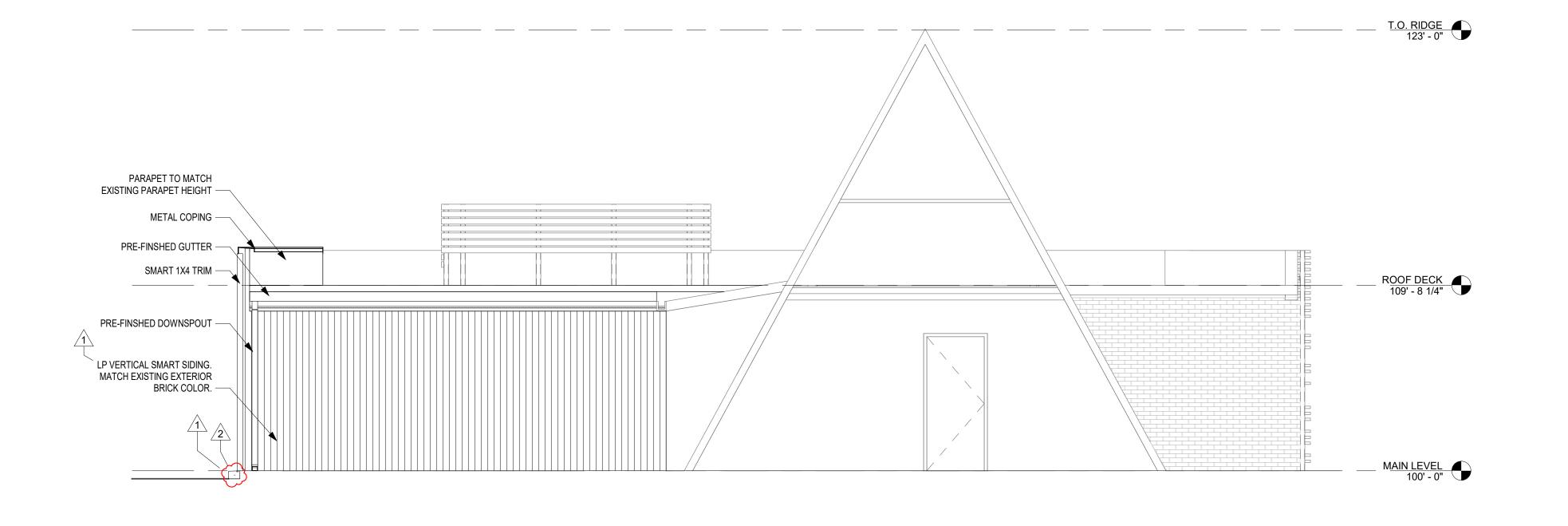
G12 DETAIL - DRIVE-THRU WINDOW 1/2" = 1'-0"



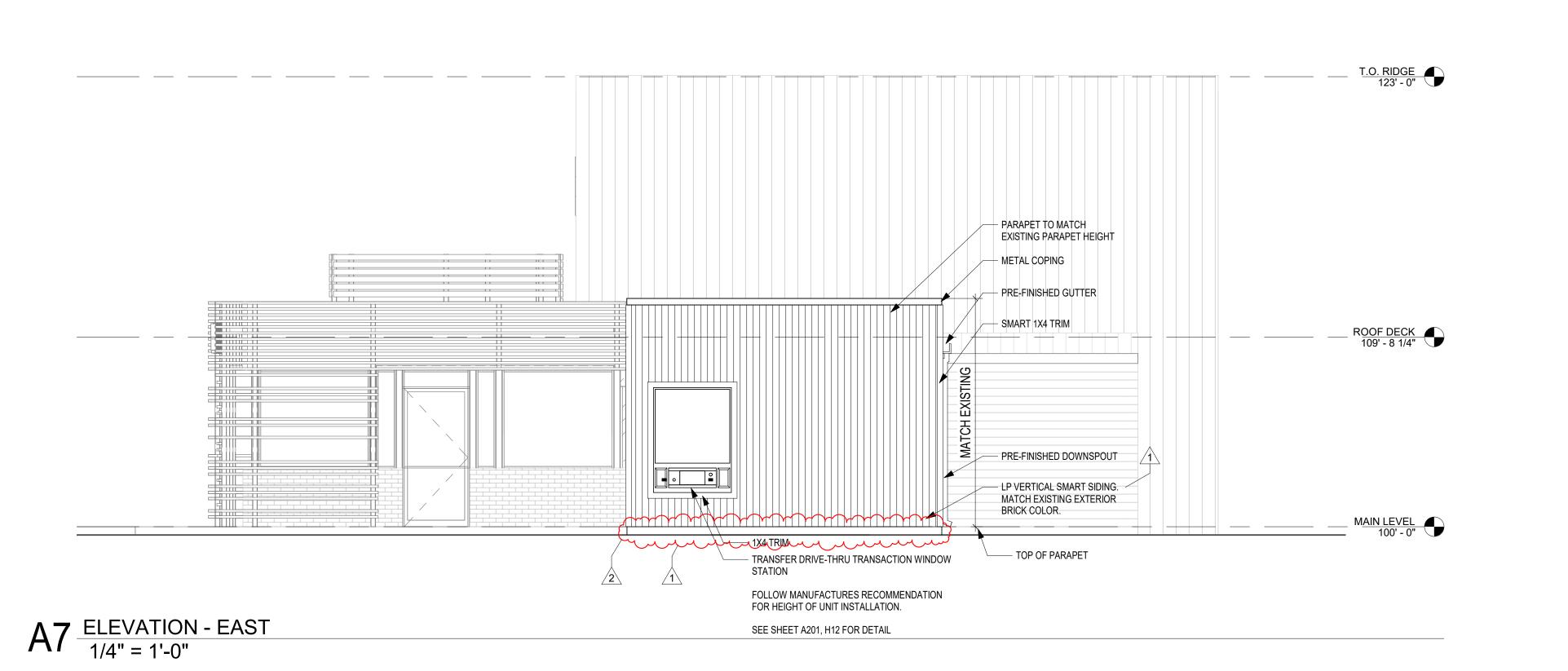
E12 SECTION - EAST TO WEST 1/4" = 1'-0"



A12 SECTION - NORTH TO SOUTH 1/4" = 1'-0"



E7 ELEVATION - NORTH 1/4" = 1'-0"

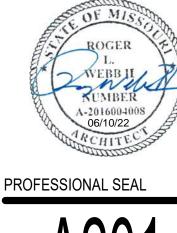




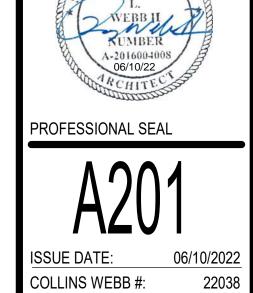
1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE. 2. DIMENSIONS SHOWN ON THE EXTERIOR ELEVATIONS ARE TO THE FACE OF STUD WALL, FACE OF MASONRY (FOM), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS OTHERWISE NOTED OR INDICATED. 3. RE: THE WINDOW TYPES SHEET FOR ALL EXTERIOR WINDOW TYPES AND GLASS TYPES.



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EXTERIOR ELEVATIONS, SECTIONS, AND DETAILS

**RELEASED FOR** 

CONSTRUCTION
As Noted on Plans Review

Lee's Summit, Missouri 08/04/2022

| AND MANDRESS (MY MADPRESS )  AR AND AND MADERS  AR AND AND MADPESS   KY MADPRESS    APC   ABOYE FINSH COUNTER   KW MADPRESS    APC   ABOYE FINSH COUNTER   KW MADPRESS    APC   ABOYE FINSH COUNTER    APC   ABOYE FINSH CO |             |  | <u> </u> |  |        |
|--|-------------|--|----------|--|--------|
| ART   ART   ART   ART   ART   ART   ART  |             | ELECTRICA  | AL ABBRI |  |        |
| ACR PARTS   AMPRES   | AC          | ALTERNATING CURRENT                                    | KCM      | THOUSAND CIRCULAR MILLS                    |        |
| ### ABOVE FINISH COUNTER ### ABOVE FINISH COUN | AHU         | AIR HANDLING UNIT                                      | KVA      | KILOVOLT-AMPERES (1000 VOLT-AMPERES)       | •      |
| APC   ARC FAULT CHICATO INTERRUPTER  | A. OR AMPS. | AMPERES  | KV       | KILOVOLT (1000 VOLTS)                      |        |
| ABOVE PRISISED FLOOR   | AFC         | ABOVE FINISH COUNTER                                   | KW       | KILOWATTS (1000 WATTS)                     |        |
| MCS  | AFCI        | ARC FAULT CIRCUIT INTERRUPTER                          | KWH      | KILOWATT HOURS                             |        |
| AUC  | AFF         | ABOVE FINISHED FLOOR                                   | MLO      | MAIN LUGS ONLY                             |        |
| ATS AUTOMATIC TRANSPER SMITCH  BOP BUILDING CONTROL POWER IFOR HYACBUILDING CONTROLS]  NEC NATIONAL ELECTRICAL CODE  NO NORMALLY OLOSED  BITC BRANCH TO FORLINE FUNNISH AND INSTALL RECEPTACLE NF NO NORMALLY OLOSED  CONDUTTIFIC "IS EMPTY CONDUIT)  CF CELING FAN OF THE SEMENT CONDUIT)  CF CELING FAN OF THE SEMENT CONDUIT)  CG CONDUTTIFIC "IS EMPTY CONDUIT)  CG CELING FAN OF THE SEMENT CONDUIT)  CG CELING FAN OF THE SEMENT CONDUIT |             |  | MCB      | MAIN CIRCUIT BREAKER                       |        |
| BOP   BULDING CONTROL POWER (FOR HYAGBULDING CONTROLS)   NEC   NATIONAL ELECTRICAL CODE  | AIC         | AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)            | MW       | MICROWAVE (COORD MTG HT W/ ARCHITECT)      | L      |
| BTC BRANCH TO CONNECTION POINT AND CONNECT EQUIPMENT NO NORMALLY COSED  BTF BRANCH TO FIXTURE, FURNISH AND INSTALL RECEPTACLE N° NOT FURNED  C CONDUTT (F.C.* IS EMPTY CONDUIT) OPCI OWNER FURNISHED CONTRACTOR INSTALLED  CF CELING FAN OFOI OWNER FURNISHED CONTRACTOR INSTALLED  CF CELING FAN OFOI OWNER FURNISHED OWNER INSTALLED  CM COPTER MAKER PHU PAREL  CT COCKTOP PH OR 0 PHASE  D DEDICATED CIRCUIT P POLE  D DEDICATED CIRCUIT P POLE  D DEDICATED CIRCUIT P POLE  D DO DUPLEX CONVINCE OUTLET P PC POLYWINYL-OH, ORIDE  DP DISPOSER RF REFRIGERATOR  DY DRYCR  BYD SURSASHER RG RANGE  BYD SURSOF PROTECTED EWICE  EMT ELETRICAL METALLIC TUBING T TAMPERPROOF RECEPTACLE  EF EMAUST FAN TO TIME CLOCK  EF ELECTRIC CONTRACTOR PRIMER TO TIME CLOCK  EFP ELECTRIC CONTRACTOR COLOR (NATER-COOLED DRINKING FOUNTAIN)  EVEN ELECTRIC CONTRACTOR COLOR (NATER-COOLED DRINKING FOUNTAIN)  EX EXISTING U UNDERWRITERS  FILE ELECTRIC CONTRACTOR COLOR (NATER-COOLED DRINKING FOUNTAIN)  EX EXISTING U UNDERWRITERS LABORATORIES  FILE AND COLOR (NATER-COOLED DRINKING FOUNTAIN)  EX EXISTING U UNDERWRITERS LABORATORIES  FILE AND COLOR (NATER-COOLED DRINKING FOUNTAIN)  EX EXISTING U UNDERWRITERS LABORATORIES  FILE AND COLOR (NATER-COOLED DRINKING FOUNTAIN)  EX EXISTING U UNDERWRITERS LABORATORIES  FILE OR OLUND FAULT GROUT INTERRUPTER U U UNDERWRITERS LABORATORIES  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE OR OLUND FAULT GROUT INTERRUPTER U V WOLTS.  FILE | ATS         | AUTOMATIC TRANSFER SWITCH                              | NIC      | NOT IN CONTRACT                            |        |
| BTC  | BCP         | BUILDING CONTROL POWER (FOR HVAC/BUILDING CONTROLS)    | NEC      | NATIONAL ELECTRICAL CODE                   |        |
| BFF BRANCH TO FIXTURE. FURNISH AND INSTALL RECEPTACLE C CONDUTT (E.C. IS EMPTY CONDUIT) OF CI OWNER FURNISHED CONTRACTOR INSTALLED CF GEILING FAM OFFIC OWNER FURNISHED CONTRACTOR INSTALLED  CM OFFICE WAKER PHL PANEL CT COOKTOP PH OR Ø PH ASE  D DEDICATED GROUTT P P POLE D DEDICATED GROUTT P P POLE D DEDICATED GROUTT P P POLE D DUFFEX CONVENCE OUTLET P P POLE D DUFFEX CONVENCE OUTLET P P POLE D D DISPOSER RF RF REFINEBRATOR DY DISPOSER RF RF REFINEBRATOR RF REFINEBRATOR RECEPTACLE RF EXHAUST FAN TO BE REMOVED TITB TELEVISION RECEPTACLE RF ELECTRON TRAP PRIMER TY TELEVISION RECEPTACLE RF RESIDENCONDUTT UC UNDERCOUNTER REFINEBRATOR (OR ICE MACHINE)  FEX ELECTRON TRAP PRIMER RF REFINEBRATOR REFINE |             |  | NC       | NORMALLY CLOSED                            |        |
| CC         CONDUTT ("EC." IS EMPTY CONDUIT)         OFCI         OWNER PURISHED CONTRACTOR INSTALLED           CF         CEILING FAN         OFOI         OWNER PURISHED CONTRACTOR INSTALLED           CM         COFFEE MAKER         PNL         PANEL           CT         COCKTOP         PH OR Ø         PH ASE           CT         DEDICATED CIRCUIT         P         PLE           DCO         DUFLEX COMPIRICE OUTLET         PV         POLYVINYL CHLORIDE           DD         DISPOSER         RF         REFRICERATOR           DW         DISHMASHER         RG         RANGE           DY         DRYER         SPD         SURGE PROTECTIVE DEVICE           EMT         ELETRICAL METALLIC TUBING         T         TAMPERPROCOK RECEPTACLE           EF         EXHAUST FAN         TC         TIMECLOCK           ER         EXISTINO TO BE REMOVED         TTB         TELEVISION RECEPTACLE           EW         ELECTRONC TRAP PUMIER         TY         TELEVISION RECEPTACLE           EW         EXISTINO         US         UNDERFLOOR           FEX         ELECTRONC TRAP PUMIER         TY         TELEVISION RECEPTACLE           EX         EXISTING         US         UNDERFLOOR   | BTC         | BRANCH TO CONNECTION POINT AND CONNECT EQUIPMENT       | NO       | NORMALLY OPEN                              |        |
| CF CELLING FAN OFOI OWNER FURNISHED OWNER INSTALLED  CM COFFEE MAKER PANEL  CT COOKTOP PANEL  DECO COOKTOP PHOR PANEL  DECO DEDICATED CIRCUIT  P P POLE  DECO DUPLEX CONVINCE OUTLET PVC POLLYNING ENCORATED  DP DISPOSER REPROSERATOR  RF REFIGERATOR  DW DISHMASHER REPROSERATOR  DY DRYER  ELETRICAL METALLIC TUBING T TAMPERREPORE  EF EXAMST FAN TO TIMECLOCK  EF EXSISTING TO BE REMOVED  TIMECLOCK  ELECTRIC WATER COOLER (MATER-COOLED DRINKING FOUNTAIN) UC UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EX EXISTING TO BE LEVENOUT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  ELECTRIC WATER COOLER (MATER-COOLED DRINKING FOUNTAIN) UC UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EX EXISTING TO BE CRUCKED  EVEN FLEXIBLE CONDUIT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EX EXISTING TO BE CRUCKED  FLEX FLEXIBLE CONDUIT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UL UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVEN FLEXIBLE CONDUIT UNDERCOUNTER UNDERCOUNTER REPROSERATOR (OR ICE MACHINE)  EVE | BTF         | BRANCH TO FIXTURE, FURNISH AND INSTALL RECEPTACLE      | NF       | NOT FUSED                                  |        |
| CF CELING FAN COFFEE MAKER PANEL PANEL CT COOKTOP PHOR 0 PHOR 0 PHOR 0 DEDICATED CIRCUIT PO POLE DCO DUPLEX CONVINCE OUTLET PVC POLEVINING FOUNTAIN) DCO DUPLEX CONVINCE OUTLET PVC POLEVINING FOUNTAIN) DF DISPOSER RF REFRIGERATOR DW DISHWASHER RF REFRIGERATOR DW DISHWASHER RF REFRIGERATOR ELETRICAL METALLIC TUBING T TAMPERROOF RECEPTACLE EKT ELETRICAL METALLIC TUBING T TAMPERROOF RECEPTACLE EKT ELETRICAL METALLIC TUBING T TO TIMECLOCK EKT ELECTRONIC TRAP PRIMER TV TELEVISION RECEPTACLE EWC ELECTRIC WATER COOLER (MATER-COOLED DRINKING FOUNTAIN) UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE) EX EXSITING TO BE FEMALY UL UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE) EX EXIST FAN UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE) EX EXIST WATER COOLER (MATER-COOLED DRINKING FOUNTAIN) UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE) EX EXIST FAN UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE) EX EXIST WATER COOLER (MATER-COOLED DRINKING FOUNTAIN) UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE) EX EXIST WATER COOLER (MATER-COOLED DRINKING FOUNTAIN) UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE) EX EXIST REFRIGERATOR (OR ICE MACHINE) EX EXEST REFRIGERATOR (OR ICE MACHINE) EX EXEST REFRIGERATOR (OR ICE MACHINE) EX EXEST REFRICERATOR E | С           | CONDUIT ("E.C." IS EMPTY CONDUIT)                      | OFCI     | OWNER FURNISHED CONTRACTOR INSTALLED       |        |
| CM COFFEE MAKER CT COOKTOP CT COOKTOP PHOR Ø PHASE  D DEDICATED CROUTT P POLE  DCO DUPLEX CONVENCE OUTLET PYC POLYVINYL CHLORIDE  DP DISPOSER RF REFRIGERATOR  DF DISPOSER RF REFRIGERATOR  DF DISPOSER RF REFRIGERATOR  RG RANE  DY DISPOSER RF REFRIGERATOR  SPD SURGE PROTECTIVE DEVICE  ENT ELETRICAL METALLIC TUBING T TAMPERPROOF RECEPTACLE  EF EXHAUST FAN TC TIMECLOCK  ER EXISTING TO BE REMOVED TTB TELEPHONE TERMINAL BOARD  ETP ELECTRIC NATER COOLER (MATER-COOLED DRINKING FOUNTAIN) UC UNDERFLOOR  EX EXISTING TO BE REMOVED TO UNIT UL UNDERFLOOR  FLEX FLEXIBLE CONDUIT UL UNDERFLOOR  GROUND FAULT INTERRUPTER UN OL UNDERSOUND  GFG GROUND FAULT INTERRUPTER V VOLTS GROUND FAULT INTERRUPTER V VOLTAMPERS  GRO GROUND FAULT INTERRUPTER V VOLTAMPERS  GRO GROUND FAULT INTERRUPTER V VOLTAMPERS  GRO GROUND FAULT INTERRUPTER PROTECTED VA VOLTAMPERS  GRO GROUND FAULT INTERRUPTER PROTECTED V VOLTAMPERS  GRO GROUND FAULT INTERRUPTER PROTECTED V VALUETAMPERS  GRO GROUND FAULT INTERRUPTER PROTECTED V VOLTAMPERS  GRO GROUND FAULT INTERRUPTER PROTECTED V VOLTAMPERS  GRO GROUND FAULT THERRUPTER PROTECTED V VALUETAMPERS  GRO GROUND FAULT THERRUPTER PROTECTED V VOLTAMPERS  GRO GROUND FAULT THERRUPTER PROTECTED V VALUETAMPERS  GRO GROUND FAULT THERRUPTER PROTECTED V VOLTAMPERS  GRO GROUND FAULT THERRUPTER PROTECTED V VALUETAMPERS  GRO GROUND FAULT THERRUPTER PROTECTED V VALUETAMPERS  GRO GROUND FAULT THERRUPTER PROTECTED V VALUETAMPERS  GRO GROUND FAULT THERRUPTER PROTECTED V VOLTAMPERS  GRO FOR OND WARRING DRAWER  HT HORSEPOWER (PROVIDE W ZOAM PG FI BREAKER) WA WASHER  HT HEAT TRACE POWER (PROVIDE W ZOAM PG FI BREAKER) WO WALLOWN WEATHER PROOF  | CF          | ,  | OFOI     | OWNER FURNISHED OWNER INSTALLED            |        |
| CT COOKTOP PHASE D DEDICATED CRUIT PPOLE DDCO DUPLEX CONVENCE QUILET PPOLE DCO DUPLEX CONVENCE QUILET PPOLE DPOLE  |             | COFFEE MAKER   | PNL      | PANEL                                      |        |
| DEDICATED CIRCUIT DED DISPOSER DISPOSER RF RFRICERATOR DW DISHWASHER DY DRYER SPD SURGE PROTECTIVE DEVICE EMIT ELETRICAL METALLIC TUBING T T TAMPERPROF RECEPTACLE EF EXHAUST FAN TC TIMECLOCK ER EXISTING TO BE REMOVED TIB TELEPHONE TERMINAL BOARD ELECTRIC WATER COOLER (NATER-COOLED DRINKING FOUNTAIN) UC UNDERROUNTER REFRIGERATOR (OR ICE MACHINE) EX EXISTING FU FAN COLI UNIT UG UNDERROUND FU FAN COLI UNIT FU GROUND FAULT INTERRUPTER T GROUND FAULT INTERRUPTER T GROUND FAULT INTERRUPTER T H HORIZONTAL MOUNT (RECEPTACLE) H P HORSEPOWER H H HORSEPOWER WALL OVER WAL |             | COOKTOP  | PH OR Ø  | PHASE                                      |        |
| DP DISPOSER RF REFRIGERATOR  DW DISHWASHER RG RANGE  DY DRYER  SPD SURGE PROTECTIVE DEVICE  EMT ELETRICAL METALLIC TUBING  T TAMPERPROOF RECEPTACLE  EF EXAUST FAN  TC TIMECLOCK  ER EXISTING TO BE REMOVED  TTB TELEPHONE TERMINAL BOARD  ETP ELECTRONIC TRAP PRIMER  TV TELEVISION RECEPTACLE  EWC ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)  UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)  EX EXISTING  FLEX FLEXBLE CONDUIT  UL UNDERROUND  FCU FAN COIL UNIT  UL UNDERROUND  FCU FAN COIL UNIT  UL UNDERROUND  FCU GROUND FAULT INTERRUPTER  V V VOLTS  GFIP GROUND FAULT INTERRUPTER  FOR OND OF AULT INTERRUPTER PROTECTED  VA VOLTAMPERES  GRO GROUND  GROUND FAULT INTERRUPTER PROTECTED  VA VOLTAMPERES  GRO GROUND  HO VENTILATION HOOD  W WATTS  HP HORSEPOWER  HT HORSEPOWER  HT HORSEPOWER  HEAT TRACE POWER (PROVIDE WE 20A1P GFI BREAKER)  HEAT HERTZ  WP WEATHERPROOF   |             | DEDICATED CIRCUIT                                      |          | POLE                                       |        |
| DP DISPOSER RF REFRIGERATOR  DW DISHWASHER RG RANGE  DY DRYER  SPD SURGE PROTECTIVE DEVICE  EMT ELETRICAL METALLIC TUBING  T TAMPERPROOF RECEPTACLE  EF EXAUST FAN  TC TIMECLOCK  ER EXISTING TO BE REMOVED  TTB TELEPHONE TERMINAL BOARD  ETP ELECTRONIC TRAP PRIMER  TV TELEVISION RECEPTACLE  EWC ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)  UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)  EX EXISTING  FLEX FLEXBLE CONDUIT  UL UNDERROUND  FCU FAN COIL UNIT  UL UNDERROUND  FCU FAN COIL UNIT  UL UNDERROUND  FCU GROUND FAULT INTERRUPTER  V V VOLTS  GFIP GROUND FAULT INTERRUPTER  FOR OND OF AULT INTERRUPTER PROTECTED  VA VOLTAMPERES  GRO GROUND  GROUND FAULT INTERRUPTER PROTECTED  VA VOLTAMPERES  GRO GROUND  HO VENTILATION HOOD  W WATTS  HP HORSEPOWER  HT HORSEPOWER  HT HORSEPOWER  HEAT TRACE POWER (PROVIDE WE 20A1P GFI BREAKER)  HEAT HERTZ  WP WEATHERPROOF   | DCO         | DUPLEX CONVIENCE OUTLET                                | PVC      | POLYVINYL CHLORIDE                         |        |
| DW DISHWASHER RG RANGE  DY DRYER SPD SURGE PROTECTIVE DEVICE  ENT ELETRICAL METALLIC TUBING T T TAMPERPROOF RECEPTACLE  EF EXHAUST FAN TC TIMECLOCK  ER EXISTING TO BE REMOVED TIB TELEPHONE TERMINAL BOARD  ETP ELECTRONIC TRAP PRIMER TV TELEVISION RECEPTACLE  EWC ELECTRONIC TRAP PRIMER TV TELEVISION RECEPTACLE  EXISTING SURJECT COLER (WATER-COOLED DRINKING FOUNTAIN) UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)  EX EXISTING  EX EXISTING  FLEX FLEXIBLE CONDUIT UG UNDERROUND  FLEX FLEXIBLE CONDUIT UL UNDERROUND  FOU FAN COIL UNIT  GROUND FAULT INTERRUPTER  UN.O. UNLESS NOTED OTHERWISE  GFI GROUND FAULT INTERRUPTER  V VOLTS  GFIP GROUND FAULT INTERRUPTER  FOR OND FAULT INTERRUPTER PROTECTED  WA VOLT-AMPERES  GRO GROUND  H HORIZONTAL MOUNT (RECEPTACLE)  WP WASHER  HT HORSEPOWER  HT HORSEPOWER  HEAT TRACE POWER (PROVIDE W! 20A/1P GFI BREAKER)  HEAT HEAT TRACE POWER (PROVIDE W! 20A/1P G |             |  | RF       | REFRIGERATOR                               |        |
| EMT ELETRICAL METALLIC TUBING  F EXHAUST FAN  TC TIMECLOCK  ER EXISTING TO BE REMOVED  TTB TELEVISION RECEPTACLE  EWC ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)  UC UNDERROUND  EX EXISTING  ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)  UF UNDERROUND  EX EXISTING  FLEX FLEIBLE CONDUIT  UG UNDERROUND  FLOU FAN COIL UNIT  UL UNDERWITERS LABORATORIES  GFGI GROUND FAULT INTERRUPTER  UN.O. UNLESS NOTEO OTHERWISE  GFI GROUND FAULT INTERRUPTER  UN.O. VOLTS  GFIP GROUND FAULT INTERRUPTER PROTECTED  WA VOLTA-MERES  GROUND FAULT INTERRUPTER PROTECTED  WA VOLTA-MERES  H HORIZONTAL MOUNT (RECEPTACLE)  WP WATTS  HP HORSEPOWER  HAT TRACE POWER (PROVIDE WI 20A1P GFI BREAKER)  HVAC HEATING, & AIR CONDITIONING  W WASHIER PROOF   |             | DISHWASHER   | RG       |  |        |
| EF EXHAUST FAN TO TIMECLOCK  ER EXISTING TO BE REMOVED TIB TELEPHONE TERMINAL BOARD  ETP ELECTRONIC TRAP PRIMER TV TELEVISION RECEPTACLE  EWC ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN) UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)  EX EXISTING UF UNDERGROUND  FLEX FLEXIBLE CONDUIT UG UNDERGROUND  FCU FAN COIL UNIT UL UNDERWRITERS LABORATORIES  GFOI GROUND FAULT CIRCUIT INTERRUPTER UN.O. UNLESS NOTED OTHERWISE  GFI GROUND FAULT INTERRUPTER VV VOLTS  GFIP GROUND FAULT INTERRUPTER VV VOLTS  GROUND FAULT INTERRUPTER POTECTED VA VOLTAMPERES  GRD GROUND GROUND (RECEPTACLE) VFD VARIABLE FREQUENCY DRIVE  H HORIZONTAL MOUNT (RECEPTACLE) WW WATTS  HP HORSEPOWER WA WASHER  HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER) WD WALL OVEN  HZ HERTZ  HERTZ  HERTZ  TELEPHONE TERMINAL BOARD  TO IMMEDIAL SHAPH AND SHAPH  TELEPHONE TERMINAL BOARD  TO THE LECTRONIC TRANINAL BOARD  TO UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)  TO UNDERGROUND  TO UNDER | DY          | DRYER  | SPD      | SURGE PROTECTIVE DEVICE                    |        |
| ER EXISTING TO BE REMOVED THE FEMENAL BOARD  ETP ELECTRONIC TRAP PRIMER  ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)  EX EXISTING  EX EXISTING  EV UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)  EX EXISTING  FLEX FLEXIBLE CONDUIT  FOU FAN COIL UNIT  GROUND FAULT CIRCUIT INTERRUPTER  GROUND FAULT INTERRUPTER  GROUND FAULT INTERRUPTER  FOR GROUND WATER FREQUENCY DRIVE  FOR GROUND WATER FREQUENCY DRIVE  FOR WATER FR | EMT         | ELETRICAL METALLIC TUBING                              | Т        | TAMPERPROOF RECEPTACLE                     |        |
| ETP ELECTRONIC TRAP PRIMER  TV TELEVISION RECEPTACLE  EWC ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)  UC UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)  EX EXISTING  UF UNDERFLOOR  FLEX FLEXIBLE CONDUIT  UG UNDERGOUND  FCU FAN COIL UNIT  UL UNDERWITERS LABORATORIES  GFCI GROUND FAULT ORCUIT INTERRUPTER  UN.O. UNLESS NOTED OTHERWISE  GFI GROUND FAULT INTERRUPTER VA VOLTS  GFIP GROUND FAULT INTERRUPTER VA VOLT-AMPERES  GRD GROUND  GROUND  GROUND  GROUND  GROUND  HORIZONTAL MOUNT (RECEPTACLE)  HOR HORSEPOWER  HOR HORSEPOWER  HOR HORSEPOWER  HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)  HVAC HEATING, VENTILATING, & AIR CONDITIONING  W WATHERPROOF  HEATING  WP WEATHERPROOF  | EF          | EXHAUST FAN  | TC       | TIMECLOCK                                  |        |
| EWC ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)  EX EXISTING  UF UNDERFLOOR  FLEX FLEXIBLE CONDUIT  UU UNDERWRITERS LABORATORIES  FFCI GROUND FAULT CIRCUIT INTERRUPTER  FILEY GROUND FAULT INTERRUPTER  UN.O.  UNLESS NOTED OTHERWISE  GFO GROUND FAULT INTERRUPTER PROTECTED  VA VOLTS  GFO GROUND FAULT INTERRUPTER PROTECTED  VD VENDING MACHINE (24"AFF)  H HORIZONTAL MOUNT (RECEPTACLE)  HD VENTILATION HOOD  HD VENTILATION HOOD  HD WATTS  HP HORSEPOWER  HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)  HZ HERTZ  WP WEATHERPROOF   | ER          | EXISTING TO BE REMOVED                                 | TTB      | TELEPHONE TERMINAL BOARD                   |        |
| EX EXISTING UF UNDERFLOOR FLEX FLEXIBLE CONDUIT UG UNDERGROUND FCU FAN COIL UNIT UL UNDERWRITERS LABORATORIES GFCI GROUND FAULT CIRCUIT INTERRUPTER U.N.O. UNLESS NOTED OTHERWISE GFI GROUND FAULT INTERRUPTER V V VOLTS GFIP GROUND FAULT INTERRUPTER PROTECTED VA VOLT-AMPERES GRD GROUND FAULT INTERRUPTER PROTECTED VA VOLT-AMPERES GRD GROUND VD VENDING MACHINE (24"AFF) H HORIZONTAL MOUNT (RECEPTACLE) VFD VARIABLE FREQUENCY DRIVE HD VENTILATION HOOD W WATTS HP HORSEPOWER WA WASHER HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER) WD WARMING DRAWER HVAC HEATING, VENTILATING, & AIR CONDITIONING WO WALL OVEN HZ HERTZ WE WEATHERPROOF  | ETP         | ELECTRONIC TRAP PRIMER                                 | TV       | TELEVISION RECEPTACLE                      |        |
| FLEX FLEXIBLE CONDUIT FCU FAN COIL UNIT UL UNDERWRITERS LABORATORIES  GFCI GROUND FAULT CIRCUIT INTERRUPTER UN.O. UNLESS NOTED OTHERWISE  GFI GROUND FAULT INTERRUPTER V VOLTS  GFIP GROUND FAULT INTERRUPTER PROTECTED VA VOLT-AMPERES  GRD GROUND FAULT INTERRUPTER PROTECTED VD VENDING MACHINE (24"AFF)  H HORIZONTAL MOUNT (RECEPTACLE) VFD VARIABLE FREQUENCY DRIVE  HD VENTILATION HOOD W WATTS  HP HORSEPOWER HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER) WD WARMING DRAWER  HZ HEATING, VENTILATING, & AIR CONDITIONING W WALL OVEN  HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER) WD WALL OVEN  | EWC         | ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN) | UC       | UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE) |        |
| FCU FAN COIL UNIT UL UNDERWRITERS LABORATORIES  GFCI GROUND FAULT CIRCUIT INTERRUPTER  GFI GROUND FAULT INTERRUPTER  GFI GROUND FAULT INTERRUPTER  GFI GROUND FAULT INTERRUPTER PROTECTED  VA VOLTS  GFIP GROUND FAULT INTERRUPTER PROTECTED  VA VOLT-AMPERES  GRD GROUND  H HORIZONTAL MOUNT (RECEPTACLE)  VFD VARIABLE FREQUENCY DRIVE  HD VENTILATION HOOD  W WATTS  HP HORSEPOWER  HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)  HZ HEATING, VENTILATING, & AIR CONDITIONING  W WALL OVEN  WEATHERPROOF   | EX          | EXISTING   | UF       | UNDERFLOOR                                 |        |
| GFCI GROUND FAULT CIRCUIT INTERRUPTER  GFI GROUND FAULT INTERRUPTER  V VOLTS  GFIP GROUND FAULT INTERRUPTER PROTECTED  VA VOLT-AMPERES  GRD GROUND  HORIZONTAL MOUNT (RECEPTACLE)  VFD VARIABLE FREQUENCY DRIVE  HD VENTILATION HOOD  W WATTS  HP HORSEPOWER  HT HEAT TRACE POWER (PROVIDE W/20A/1P GFI BREAKER)  HZ HERTZ  WP WEATHERPROOF  | FLEX        | FLEXIBLE CONDUIT                                       | UG       | UNDERGROUND                                |        |
| GFI GROUND FAULT INTERRUPTER PROTECTED VA VOLTS GFIP GROUND FAULT INTERRUPTER PROTECTED VA VOLT-AMPERES GRD GROUND GROUND GROUND VD VENDING MACHINE (24"AFF) H HORIZONTAL MOUNT (RECEPTACLE) VFD VARIABLE FREQUENCY DRIVE HD VENTILATION HOOD WATTS HP HORSEPOWER HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER) WD WARMING DRAWER HX HEAT ING, VENTILATING, & AIR CONDITIONING WO WALL OVEN HZ HERTZ  HERTZ  V VOLTS VOLTS VA VOLT-AMPERES VA VOLT-AMPER | FCU         | FAN COIL UNIT  | UL       | UNDERWRITERS LABORATORIES                  |        |
| GRIP GROUND FAULT INTERRUPTER PROTECTED  VA VOLT-AMPERES  VD VENDING MACHINE (24"AFF)  H HORIZONTAL MOUNT (RECEPTACLE)  VFD VARIABLE FREQUENCY DRIVE  HD VENTILATION HOOD  W WATTS  HP HORSEPOWER  HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)  HVAC HEATING, VENTILATING, & AIR CONDITIONING  WO WALL OVEN  HZ HERTZ  WP WEATHERPROOF   | GFCI        | GROUND FAULT CIRCUIT INTERRUPTER                       | U.N.O.   | UNLESS NOTED OTHERWISE                     |        |
| GRD GROUND H HORIZONTAL MOUNT (RECEPTACLE) VFD VARIABLE FREQUENCY DRIVE HD VENTILATION HOOD W WATTS HP HORSEPOWER HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER) WD WARMING DRAWER HVAC HEATING, VENTILATING, & AIR CONDITIONING W WALL OVEN HZ WEATHERPROOF  | GFI         | GROUND FAULT INTERRUPTER                               | V        | VOLTS                                      |        |
| H HORIZONTAL MOUNT (RECEPTACLE)  HD VENTILATION HOOD  W WATTS  HP HORSEPOWER  HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)  HVAC HEATING, VENTILATING, & AIR CONDITIONING  WO WALL OVEN  HZ HERTZ  WP WEATHERPROOF  | GFIP        | GROUND FAULT INTERRUPTER PROTECTED                     | VA       | VOLT-AMPERES                               |        |
| HD VENTILATION HOOD  HP HORSEPOWER  HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)  HVAC HEATING, VENTILATING, & AIR CONDITIONING  HZ HERTZ  WP WATTS  WA WASHER  WA WASHER  WD WARMING DRAWER  WO WALL OVEN  WEATHERPROOF  | GRD         | GROUND   | VD       | VENDING MACHINE (24"AFF)                   |        |
| HP HORSEPOWER HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER) HVAC HEATING, VENTILATING, & AIR CONDITIONING WO WALL OVEN HZ HERTZ WP WEATHERPROOF  | Н           | HORIZONTAL MOUNT (RECEPTACLE)                          | VFD      | VARIABLE FREQUENCY DRIVE                   |        |
| HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)  HVAC HEATING, VENTILATING, & AIR CONDITIONING  WO WALL OVEN  HZ HERTZ  WP WEATHERPROOF  | HD          | VENTILATION HOOD                                       | W        | WATTS                                      |        |
| HT HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)  HVAC HEATING, VENTILATING, & AIR CONDITIONING  WO WALL OVEN  HZ HERTZ  WP WEATHERPROOF  | HP          | HORSEPOWER   | WA       | WASHER                                     |        |
| HVACHEATING, VENTILATING, & AIR CONDITIONINGWOWALL OVENHZHERTZWPWEATHERPROOF   | HT          |  | WD       | WARMING DRAWER                             |        |
| HZ HERTZ WP WEATHERPROOF   |             | HEATING, VENTILATING, & AIR CONDITIONING               | WO       | WALL OVEN                                  |        |
|  | HZ          | HERTZ  | WP       | WEATHERPROOF                               | ——   L |
|  | IG          | ISOLATED GROUND (DUPLEX RECEPTS NEMA 5-20RIG)          | WP/WR    | WEATHERPROOF/WEATHER RESISTANT             |        |

| GENERAL | ELECTRICAL | NOTES |
|---------|------------|-------|

W/UNIT DISCONNECT PROVIDED WITH UNIT

1. DO NOT SCALE FROM THESE DRAWINGS.

KILOAMPERE (1000 AMPERES)

1. DO NOT SCALE FROM THESE DRAWINGS.
2. REFER TO ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES.

COORDINATE EACH LIGHT FIXTURE INSTALLATION(S) W/ ACTUAL CEILING TO BE FURNISHED.
 ALL BRANCH CIRCUITS W/O CONDUCTOR & CONDUIT INDICATIONS SHALL BE ROUTED TO 20A-1P BREAKER W/ 2#12,1#12EG,3/4"C.

- 5. INDIVIDUAL COMPONENTS OF THIS LIGHT FIXTURE SCHEDULE SHALL NOT BE INTERPRETED SEPARATELY FROM THE ENTIRE SCHEDULE. THAT IS, THE ENTIRE FIXTURE SPECIFICATION INCLUDING ALL COLUMNS IN THE LIGHT FIXTURE SCHEDULE AND ALL SUPPORTING INFORMATION IN THESE DOCUMENTS. ANY CONFLICT BETWEEN MODEL NUMBERS AND OTHER COLUMNS OF THE SCHEDULE SHALL BE IDENTIFIED IN WRITING TO THE ARCHITECT. IN THE CASE OF A CONFLICT, CONTRACTOR SHALL BASE BID ON THE MORE EXPENSIVE INTERPRETATION.
- ARCHITECT. IN THE CASE OF A CONFLICT, CONTRACTOR SHALL BASE BID ON THE MORE EXPENSIVE INTERPRETATION.
  6. 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.
  7. ELECTRICAL EQUIPMENT (PANELBOARDS, TRANSFORMERS, DISTRIBUTION EQUIPMENT, ETC.) IS SHOWN TO SCALE ON THE FLOOR PLANS.
- 8. SWITCHBOARDS SHOWN ON PLANS WITH BACKS AGAINST A WALL SHALL BE FRONT ACCESSIBLE ONLY. EQUIPMENT REQUIRING REAR ACCESS WILL NOT BE ACCEPTABLE.
  9. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE EQUIPMENT THAT WILL FIT IN THE SPACES ALLOWED FOR ON THE PLANS AND COMPLY WITH ALL THE CODE REQUIRED CLEARANCES.
  10. IF THE ELECTRICAL CONTRACTOR PROVIDES EQUIPMENT THAT DOES NOT FIT IN THE SPACES INDICATED, OR THAT WILL NOT LEAVE THE REQUIRED CODE CLEARANCES, OR EQUIPMENT REQUIRING CHANGES IN THE
- DESIGN INDICATED ON THESE DRAWINGS, HE SHALL PAY ALL COSTS INVOLVED TO CORRECT THE INSTALLATION.

  11. 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.

  12. PANELBOARDS, DISCONNECT SWITCHES, AND SIMILAR DEVICES TO HAVE ENGRAVED, SELF-ADHESIVE, LAMINATED ACRYLIC LABEL (BLACK W/ WHITE LETTERING).

| MANUAL   DESCRIPTION   | 1  |  |                 | Е            | LECTRICAL SYMBO                                   | OLS             |                |   |              |          |
|--|--|--|-----------------|--------------|---|-----------------|----------------|---|--------------|----------|
|  | SYMBOL                                       | DESCRIPTION  | MOUNTING        | SYMBOL       | DESCRIPTION                                       | MOUNTING        | SYMBOL         | DESCRIPTION                                     | MOUNTING     |          |
| Description   Color    | O <sub>A</sub>                               |  | CEILING         | Ю            |   | WALL - 15"AFF   | 'LA'           | l ·   |              | K<br>    |
| Description      | Ô <sub>A</sub>                               |  | CEILING         | ₩            |   |                 | 'HA'           |   |              |          |
| Description of the control of the    | Юд   |  | WALL            | ₽            |   | ABOVE FINISHED  | 'DPA'          |   |              |          |
|  | Ø <sub>A</sub> IØ <sub>A</sub>               |  | CEILING/WALL    | #            |   |                 | 'TR-LA'        | DRY TYPE TRANSFORMER                            |              |          |
|  | <b>—</b> На                                  |  |                 | ₽            |   | WALL - 15"AFF   | <u>Ф</u><br>0  | JUNCTION BOX                                    |              |          |
|  | A A  |  | CEILING         |              |   |                 | 60/40          |   |              |          |
| 12   SECTION   12     | A A  |  | WALL            | •            |   | FLOOR - FLUSH   | ⊠              | MOTOR STARTER                                   |              |          |
|  |  |  | CEILING         | <b>*</b>     |   | FLOOR - FLUSH   | ⊠r             |   |              |          |
|  |  |  | WALL            | <del> </del> |   | FLOOR - FLUSH   | ·              | ENCLOSED CIRCUIT BREAKER                        |              |          |
| ■  | <b>/////////////////////////////////////</b> |  |                 | •            |   | CEILING - FLUSH | S <sub>M</sub> | MANUAL MOTOR SWITCH ("P" INDICATES PILOT LIGHT) |              |          |
| S  |  |  | WALL - 9'-0"AFF |              | MULTI-OUTLET ASSEMBLY                             |                 | /2/            | MOTOR (# INDICATES HORSEPOWER)                  |              |          |
| S  | <b>₹</b> xv <b>1⊕</b> 1                      | EXIT LIGHT (ARROW(S) AS INDICATED, SHADE INDICATES FACE, LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE) | CEILING/WALL    | (PK1)        | •   | FLOOR - FLUSH   |                | CONDUIT IN OR UNDER FLOOR/GRADE                 |              | Н        |
| S, DESCRIPTION CONTROL STATE OF CONTROL OF C | S  | SINGLE POLE SWITCH 20A (120/277V)  | WALL - 48"AFF   |              |   |                 |                | CONDUIT EXPOSED                                 |              |          |
| Square       | $S_3$  | THREE WAY SWITCH 20A (120/277V)  | WALL - 48"AFF   | PK2          | FOR POWER AND DATA FURNITURE FEED, DATA FEED TO   | FLOOR - FLUSH   |                | T T T T T T T T T T T T T T T T T T T           |              |          |
| Section   Sec    | S <sub>4</sub>                               | FOUR WAY SWITCH 20A (120/277V) 2   | WALL - 48"AFF   | (PK3)        | •   | FLOOR - FLUSH   |                | EQUIPMENT CONNECTION                            |              |          |
| Source sention   | S <sub>K</sub>                               | KEY OPERATED SWITCH 2  | WALL - 48"AFF   |              | , ,   |                 |                | CONDUIT IN CEILING OR WALL                      |              |          |
| S; PROTECT CONSIDER    Signature   State   St  | S <sub>DS</sub>                              | DOOR SWITCH  | WALL            | PK4          | EQUAL, FOR LARGE CAPACITY DATA FURNITURE FEED, TO | FLOOR - FLUSH   |                |   | CEILING/WALL |          |
| Sign Time switch will    Mail  | S <sub>P</sub>                               | PILOT LIGHT SWITCH 2   | WALL - 48"AFF   | (PK5)        |   | FLOOR - FLUSH   |                |   | CEILING/WALL | G G      |
| COMMERS SWITCH ISSZE AS REQUIRED;   2  | S <sub>TS</sub>                              | TIME SWITCH  | WALL            |              |   |                 | DC             | SECURITY DOOR STATUS CONTACTS                   |              |          |
| Control   Cont   | Н  | DIMMER SWITCH (SIZE AS REQUIRED)   | WALL - 48"AFF   | PK6          | EQUAL, A/V STYLE POKE-THRU. COORDINATE POKE-      | FLOOR - FLUSH   | EL             | ELECTRICAL LOCK                                 |              |          |
| PLOY NOT THE CONTROL STATION (2) WALL 49 WELL 2-DUPLEX RECEPTS, CORPINANTE DATA/COMM REQUIREMENTS WILLY CONSULTANT.  PHOTOELECTRIC CELL  WALL 49 WELL 2-DUPLEX RECEPTS CORPINANTE DATA/COMM REQUIREMENTS WILLY CONSULTANT.  POWER PACK (2) ACCESSIBLE CELLING  POWER PACK (2) CELLING.  WALL 15 WELL 1 |  | 1 2 1  | CEILING/WALL    |              |   |                 | •              | PUSH BUTTON                                     |              | +        |
| PHOTOELECTRIC CELL  REQUIREMENTS WILLY CONSULTANT.  WINDEMOLD BIOS SERIES FLOOR BOX. OR EQUAL, 2 OR 3 GANG BOXES AS REQUIRED, COORDINATE DATA/COMM FLOOR -FLUSH  POWER PACK  POWER PACK  ACCESSIBLE CELLING  DATA, TELEPHONE, OR COMBO TELEDATA DUTLET PROVIDE PILLISTING IN COMDULT TO ACCESSIBLE CELLING  PLOOR  PROVIDE PILLISTING IN COMBULT TO ACCESSIBLE CELLING  WALL - 55'AFF  TELEPHONE TERMINAL BACKBOARD  WALL  WALL - AS NOTED OR REF. ARCH. DIVIS.  TELEPHONE TERMINAL BACKBOARD  WALL  TELEPHONE TERMINAL BACKBOARD  WALL  WALL - AS NOTED OR REF. ARCH. DIVIS.  WALL  TELEVISION DUTLET  WALL  WALL |  | LOW-VOLTAGE CONTROL STATION 2  | WALL - 48"AFF   | FB1          |   | FLOOR - FLUSH   |                |   |              |          |
| ☑     CARD READER (VERIFY JUNCTION BOX REQUIREMENTS)     ☑     ACCESSIBLE CELLING       ☑     POWER PACK     ②     ACCESSIBLE CELLING       ☑     DATA. TELEPHONE. OR COMBO TELEDATA OUTLET PROVIDED PULLISTRING IN CONDUIT TO ACCESSIBLE CEILING     WALL - 157AFF       ☑     DATA, TELEPHONE, OR COMBO TELEDATA OUTLET PROVIDE PULLISTRING IN CONDUIT TO ACCESSIBLE CEILING     FLOOR       ☑     TELEPHONE TERMINAL BACKBOARD     WALL - AS NOTED OR REF. ARCH DWGS.       ☑     CLOCK QUILET     WALL - AS NOTED OR REF. ARCH DWGS.       ☑     TELEVISION OUTLET     WALL  | PC   | PHOTOELECTRIC CELL   |                 |              | REQUIREMENTS W/ LV CONSULTANT.                    |                 |                |   |              |          |
| PP POWER PACK  CELLING  DATA, TELEPHONE, OR COMBO TELEDATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING  DATA, TELEPHONE, OR COMBO TELEDATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING  DATA, TELEPHONE, OR COMBO TELEDATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING  TIB' TELEPHONE TERMINAL BACKBOARD  WALL  WALL - AS NOTED OR REF. ARCH. DWGS.  TELEVISION OUTLET  WALL  WA | CR   | CARD READER (VERIFY JUNCTION BOX REQUIREMENTS)   |                 | FB2          | GANG BOXES AS REQUIRED. COORDINATE DATA/COMM      | FLOOR - FLUSH   |                |   |              | F        |
| DATA, TELEPHONE, OR COMBO TELEJOATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING  DATA, TELEPHONE, OR COMBO TELEJOATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING  TELEPHONE TERMINAL BACKBOARD  WALL   | PP   | POWER PACK 2   |                 | FB3          | , , ,   | FLOOR - FLUSH   |                |   |              |          |
| DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING  WALL  TIB  TELEPHONE TERMINAL BACKBOARD  WALL -AS NOTED OR REF. ARCH. DWGS.  TELEVISION OUTLET  WALL   | M  |  |                 |              |   |                 |                |   |              |          |
| TELEPHONE TERMINAL BACKBOARD  WALL AS NOTED OR REF. ARCH. DWGS.  TELEVISION OUTLET  WALL AS NOTED OR REF. ARCH. DWGS.  |  | DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET   | FLOOR           |              |   |                 |                |   |              | +        |
| © CLOCK OUTLET OR REF. ARCH. DWGS.  TELEVISION OUTLET WALL  WALL  OR REF. ARCH. DWGS.  | 'TTB'  |  | WALL            |              |   |                 |                |   |              |          |
| TELEVISION OUTLET WALL  OWGS.  HOUSE TELEVISION OUTLET WALL  OWGS.  OWG  | ©  | CLOCK OUTLET   | OR REF. ARCH.   |              |   |                 |                |   |              |          |
|  |  | TELEVISION OUTLET  |                 |              |   |                 |                |   |              | <b>E</b> |
|  | _  | TELEVISION OUTLET  | FLOOR           |              |   |                 |                |   |              |          |
| SPEAKER OUTLET (#-#) INDICATES TYPE-ZONE  CEILING  | <b>1 1 2 3 3 3 3 3 3 3 3 3 3</b>             |  | CEILING         |              |   |                 |                |   |              |          |

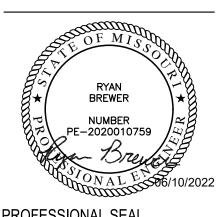
1 ALL ELECTRICAL SYMBOLS NOT NECESSARILY USED.

(a,b,c,..) INDICATES SWITCHING SCHEME TO RELATED FIXTURES.



3RD STREET DISPENSARY - ADDI

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ISSUE DATE: 10 JUNE, 2022
COLLINS WEBB #: 22038

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ELECTRICAL NOTES,
SYMBOLS &
ABBREVIATIONS

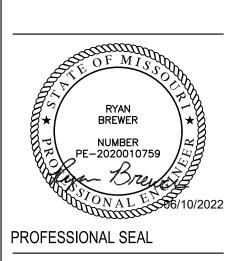


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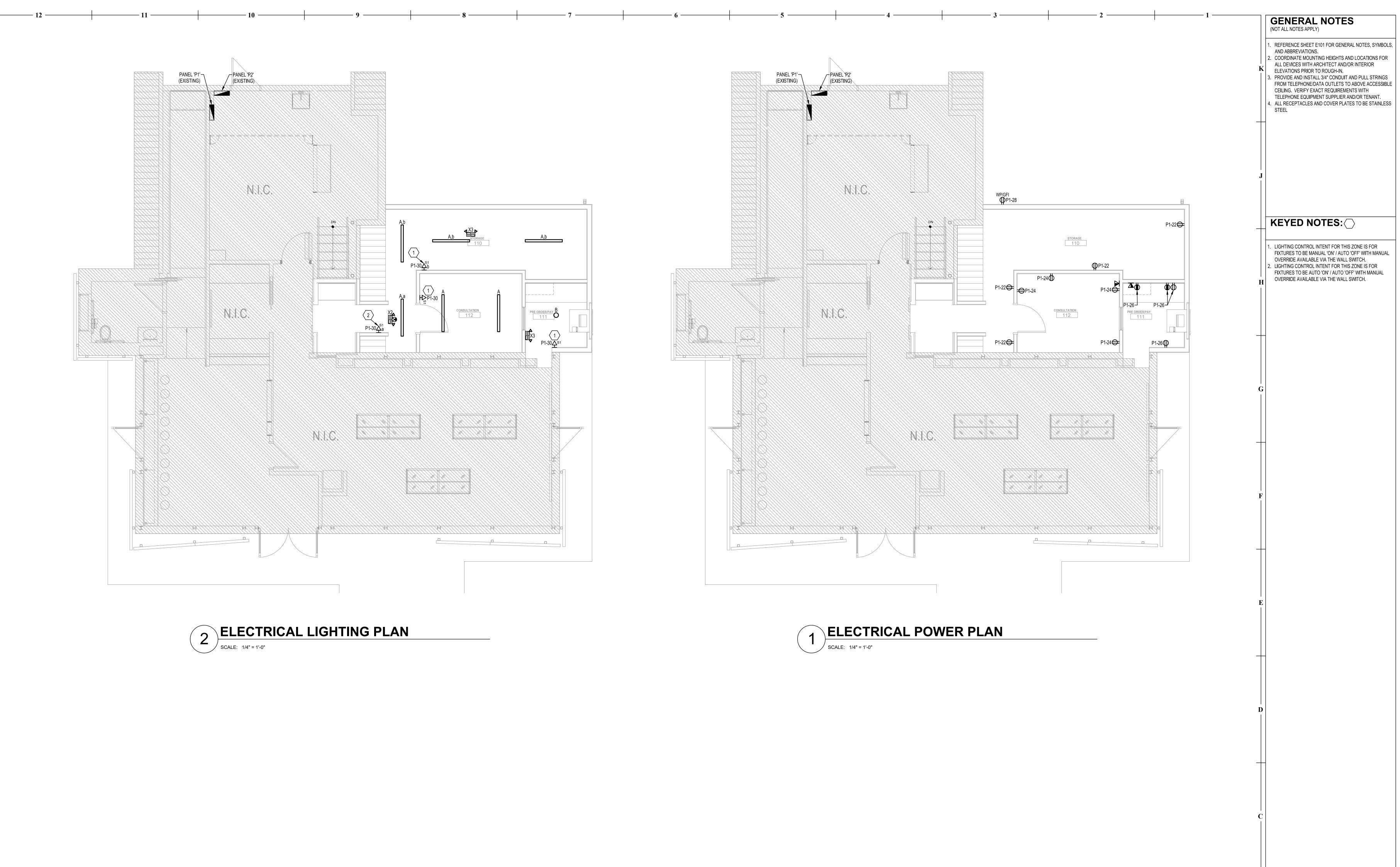


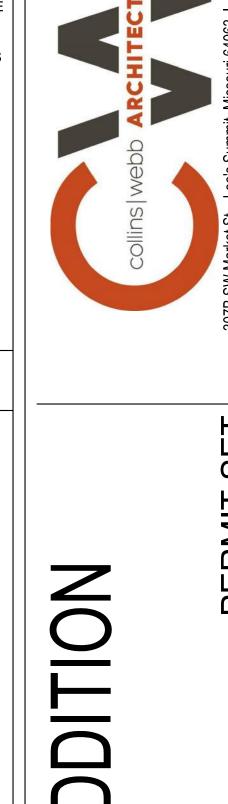


COLLINS WEBB #: 22038 **ELECTRICAL** 

DETAILS

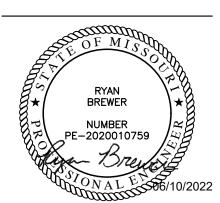
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Development Services Departme Lee's Summit, Missouri 08/04/2022

ISSUE DATE: 10 JUNE, 2022 COLLINS WEBB #: 22038 ELECTRICAL POWER &

LIGHTING PLAN

| FIXT. |   |     | LAMPS | FIXT. | TOTAL |                        | REMARKS/MOUNTING       |       |  |
|-------|---|-----|-------|-------|-------|------------------------|------------------------|-------|--|
| TYPE  | <b>DESCRIPTION &amp; MANUFACTURER OPTIONS</b>   | NO. | TYPE  | VOLT  | WATTS | FINISH                 | REMARKS/MOUNTING       | NOTES |  |
| Α     | 4' Lensed LED Strip Fixture  M# LITHONIA #ZL1N SERIES   | 1   | LED   | UNV   | 42W   | Standard               | Surface (Ceiling)      | 2     |  |
| В     | Owner Provided Light Fixture  | 1   | LED   | UNV   | TBD   | Coord. w/<br>Architect | Verify                 |       |  |
| 2.212 | M# TO BE DETERMINED  Combination LED Exit Sign and Emergency Light Fixture, Universal Mount, Emergency Battery Pack. Provide Arrows as Indicated. | 1   | LED   | UNV   | 2W    | Standard               | Wall/Ceiling/Pendant   | 1     |  |
| X2    | M# EVENLITE#TCXCOM-R-U-W DUAL LITE#EVC-U-R-W  |     |       |       |       |                        |                        |       |  |
| Х3    | LED Emergency Light w/ (2) 2-Watt Adjustable LED Heads and Emergency Battery Backup  M# EVENLITE#TCL-4-W DUAL LITE#EV4D-02L                       | 2   | LED   | UNV   | 5W    | White                  | Surface (Wall/Ceiling) | 1     |  |

|            |               | LIGHT      | ING CONTROLS       | SCHEDULE                    |       |
|------------|---------------|------------|--------------------|-----------------------------|-------|
| IXTURE TAG | MANUFACTURER  | MODEL #    | SETTINGS           | DESCRIPTION                 | NOTES |
| S1 S       | SENSOR SWITCH | WSX SERIES | ON: REFER TO PLAN  | WALL MOUNT OCCUPANCY SENSOR | 1     |
|            |               |            | OFF: REFER TO PLAN | LINE VOLTAGE - SINGLE RELAY |       |

2. Provide Lensed LED Strip Fixture Similar to Existing Lensed LED Strips in Facility.

|      | BUS AN  | E/PHASE:<br>IPERAGE:<br>AIN TYPE: | 225A     | V, 1PH, 3\ | <b>N</b>      |   |                |                        |       |     | 1        | AFC VALUE:<br>NC RATING:<br>MOUNTING: |               | EMA 1) |      |                    |         |                      | SE    |                  | GF<br>ED GROU<br>NTRANCE | ND BUS   |      | T250.122 | 2)      |       |
|------|---|-----------------------------------|----------|------------|---------------|---|----------------|------------------------|-------|-----|----------|---------------------------------------|---------------|--------|------|--------------------|---------|----------------------|-------|------------------|--------------------------|----------|------|----------|---------|-------|
|      |   |                                   |          |            |               |   |                |                        |       |     |          |                                       | LL LOADS IN V |        |      |                    |         |                      |       |                  |                          |          |      |          |         |       |
| LTG  | RCPT  | MOTOR                             | HEAT     | COOL       | MISC          | KITCHEN                                 | BLEV.          | DESCRIPTION            | AMP   | P   | WRE      | CKT#                                  | PHASE         | CKT#   | WIRE | Р                  | AMP     |                      | LTG   | RCPT             | MOTOR                    | HEAT     | COOL | MISC     | KITCHEN | ELEV  |
| 512  | 1   |                                   |          |            |               | - 3                                     |                | BOH LIGHTING           | 20    | 1   | EX       | 1                                     | A             | 2      | EX   | 1                  | 20      | BASEMENT RCPTS       | 47.0  | 540              |                          | 3        |      |          |         | 3     |
| _    | 720   |                                   |          | 10         |               | - 2                                     |                | SALES RCPTS            | 20    | 1   | EX       | 3                                     | В             | 4      | EX   | 1                  | 20      | LOBBY/RETAIL LTG     | 711   |                  |                          |          |      |          |         | ir.   |
|      | 540   |                                   |          |            |               |   |                | SALES RCPTS            | 20    | 1   | EX       | 5                                     | A             | 6      | EX   | 1                  | 20      | EXTERIOR LTG         | 1200  |                  |                          |          |      |          |         |       |
|      | 540   | _                                 |          |            |               |   |                | SALES RCPTS            | 20    | 1   | EX       | 7                                     | В             | 8      | EX   | 1                  | -       | DISPLAY CASE LTG     | 1000  |                  |                          |          | _    |          |         |       |
|      | 360   |                                   |          |            |               | - 2                                     |                | SALES RCPTS            | 20    | 1   | EX       | 9                                     | A             | 10     | EX   | 1                  | 20      | EXTERIOR SIGNAGE     | 1500  |                  |                          |          |      |          |         |       |
|      | 1200  |                                   |          |            |               |   |                | SALES RCPTS            | 20    | 1   | EX       | 11                                    | В             | 12     | EX   | 1                  | 20      | EXTERIOR SIGNAGE     | 1500  |                  |                          |          |      |          |         |       |
|      | 250   | -                                 |          |            | -             | -                                       |                | LOBBY RCPTS            | 20    | 1   | EX       | 13                                    | A             | 14     | EX   | 1                  | 20      | EXTERIOR SIGNAGE     | 1500  |                  |                          | J.       |      | 100      |         |       |
| _    | 900   | _                                 |          |            |               |   |                | COFFEE MAKER           | 20    | 1   | EX       | 15                                    | В             | 16     | EX   | 1                  | 15      | APS-1                |       |                  | 70                       |          | _    | 122      |         |       |
| _    | -   |                                   |          |            |               |   |                | SPARE                  | 15    | 2   |          | 17                                    | A             | 18     | EX   | 1                  | 15      | FAN F-1              | 4505  |                  | 72                       |          |      |          |         |       |
|      |   |                                   |          |            |               |   |                | COMMUNE.               | 58500 | 100 | C Street | 19                                    | В             | 20     | EX   | 1                  | 20      | EXTERIOR SIGNAGE     | 1500  |                  |                          |          |      |          |         |       |
|      | 180   | _                                 |          |            |               |   |                | BATHROOM RCPTS         | 20    | 1   | EX       | 21                                    | A             | 22     | 12   | 1                  | 20      | STORAGE RCPTS        |       | 720              |                          |          |      | _        |         |       |
|      | 720   |                                   |          |            |               |   |                | OFFICE RCPTS           | 20    | 1   | EX       | 23                                    | В             | 24     | 12   | 1                  | 20      | CONSULTATION RCPTS   |       | 720              |                          |          |      |          |         |       |
|      | 1700  | _                                 |          |            |               |   |                | TV RCPTS               | 20    | 1   | EX       | 25                                    | A             | 26     | 12   | 1                  | 20      | PRE-ORDER RCPTS      |       | 720              |                          |          |      |          |         |       |
|      | 1000  |                                   |          |            |               |   |                | OFFICE RCPTS           | 20    | 1   | EX       | 27                                    | В             | 28     | 12   | 1                  | 20      | EXTERIOR WP/GFI      |       | 180              |                          |          |      |          |         |       |
|      | 720   |                                   |          |            |               |   |                | PREPISTOR ROPTS        | 20    | 1   | EX       | 29                                    | A             | 30     | 12   | 1                  | 20      | STOR/CONSULT/PRELTG  | 302   |                  |                          |          |      |          |         |       |
|      | 540   |                                   |          |            |               |   |                | STORAGE ROPTS          | 20    | 1   | EX       | 31                                    | В             | 32     |      | 1                  | 20      | SPARE                |       |                  |                          |          |      |          |         |       |
|      | 900   | 1                                 |          |            |               |   |                | MICROWAVE              | 20    | 1   | EX       | 33                                    | A             | 34     |      |                    |         | SPACE ONLY           |       |                  |                          |          |      |          |         |       |
|      | 1200  | 1                                 |          | 0 1        | 3             | - 8                                     |                | REFRIGERATOR           | 20    | 1   | EX       | 35                                    | В             | 36     |      |                    |         | SPACE ONLY           |       |                  |                          | 3        |      |          |         | ķ     |
|      | 900   | _                                 |          |            |               | - 3                                     |                | BACK PREP ROPTS        | 20    | 1   | EX       | 37                                    | A             | 38     |      | _                  |         | SPACE ONLY           |       | _                |                          | _        |      | _        |         | _     |
| 512  | 540<br>12910  | 0                                 | 12       |            |               | 20 11                                   | 12             | BASEMENT ROPTS TOTALS  | 20    | 1   | EX       | 39                                    | В             | 40     |      | Щ.                 |         | SPACE ONLY<br>TOTALS | 9213  |                  |                          |          |      | _        |         |       |
| 112  | 12810   | 1 4 2                             | 0        | 0<br>NE    | 0<br>C CODE R | 0<br>EFERENCES                          | 0              | TIOINES                |       | 1   |          |                                       |               |        |      |                    | 0000000 | TOTALS               |       | 2880<br>ASE LOAD | 72<br>SUMMAR             | O<br>RY  | 0    | 122      | 0       | 0     |
| 100% | OF 1ST 10   | KVA, 50%                          | OF REMA  | NING       |               |   |                |                        |       | 1   |          |                                       |               |        |      | T                  | OTAL    | PHASE                | LTG   | ROPT             | MOTOR                    | HEAT     | COOL | MISC     | KITCHEN | BLEV. |
| 125% | OF LARGE  | ST MOTOR                          | + 100% S | UM OF REM  | IAINING M     | OTORS                                   |                |                        |       |     |          |                                       |               |        |      | 1                  | 2616    | A                    | 5014  | 7530             | 72                       | 0        | 0    | 0        | 0       | 0     |
| ELEV | ATOR DEM  | ANDFACTO                          | ORBASE   | ON NEC T   | 320.14.       |   |                |                        |       |     |          |                                       |               |        |      |                    | 13093   | В                    | 4711  | 8260             | 0                        | 0        | 0    | 122      | 0       | 0     |
|      |   |                                   |          |            | NEL APPE      | EVIATIONS                               | in the second  |                        | -     | -   |          |                                       |               |        |      |                    |         | 100                  |       |                  |                          | <u> </u> |      |          |         |       |
| co   | OLNO EAL  | LT BREAKE                         | 0        | EA         | THE ADDR      |   | Marana and a   | RGENCY LOCKING TAB     | -     | -   |          |                                       |               |        |      | H-                 | 25709   | CONNECTED VA         | 9725  | 15790            | SUMMAR<br>72             | 1 0      | 0    | 122      | 0 1     | 0     |
|      | JINT TRIP BI  |                                   | N.       |            |               | 0.0000000000000000000000000000000000000 | ALCOHOLD STORY | ROVIDE RED LOCKING TAB |       |     |          |                                       |               |        |      | -                  |         | DEMAND FACTORS       | 1.25  | 15/90            | **                       | 1.00     | 1.00 | 1.00     | 1.00    | 1,00  |
|      |   |                                   |          |            |               | CONTRACTOR OF STREET                    |                | LOCKABLE BREAKER       |       |     |          |                                       |               |        |      | -                  | 25245   | DEMAND VA            | 12156 | 12895            | 72                       | 0        | 0    | 122      | 0       | 0     |
|      | ARC FAULT BREAKER LCK - PROVIDE PADLOCKABLE BREAKER  F - COMBO ARCIGROUND FAULT BREAKER OL - REFER TO ONE-LINE DIA GRAM FOR WIRE SIZE |                                   |          |            |               |   | 176            |                        |       |     |          |                                       |               | H.     | 0    | SHOW WINDOW DEMAND | 12130   | 12000                | 12    | 1 0              | 1 0                      | 122      | 0    |          |         |       |
|      |   | JIT AND WIE                       |          |            |               |   |                | ROLLED VIA RELAY PANEL | M.C   |     |          |                                       |               |        |      | $\vdash$           | 0       | TRACK LTG DEMAND     |       |                  |                          |          |      |          |         |       |
| CAR  | THE CITC  | JII AND WE                        | MOI ON   | MIN        | PANEL I       |   | ii CUNII       | TOLLED VIA RELAT PANEL |       | +   |          |                                       |               |        |      |                    | 0%      | SPARE                |       |                  |                          |          |      |          |         |       |
|      |   |                                   |          |            | , mean        |   |                |                        |       | 1   |          |                                       |               |        |      |                    | 25245   | DEMAND VA + SPARE    |       |                  |                          |          |      |          |         |       |
|      |   |                                   |          |            |               |   |                |                        |       |     |          |                                       |               |        |      |                    | 105.2   | TOTAL DESIGN AMPS    | 8     |                  |                          |          |      |          |         |       |

|         | US AMF   | PHASE:<br>PERAGE:<br>IN TYPE: | 125A     |           | N        |             |           |  |      |     | A   | AFC VALUE:<br>IC RATING:<br>MOUNTING: |             | EMA 1) |      |     |      |                    | SE   |        | GR<br>ED GROUI<br>NTRANCE |      | NO   | T250,122 | 2)      |      |
|---------|----------|-------------------------------|----------|-----------|----------|-------------|-----------|--|------|-----|-----|---------------------------------------|-------------|--------|------|-----|------|--------------------|------|--------|---------------------------|------|------|----------|---------|------|
|         |          |                               |          |           |          |             |           |  |      |     |     | A                                     | LL LOADS IN | /A     | ľ    |     |      |                    |      |        |                           |      |      |          |         |      |
| TG      | RCPT     | MOTOR                         | HEAT     | COOL      | MISC     | KITCHEN     | BLEV      | DESCRIPTION  | AMP  | P   | WRE | CKT#                                  | PHASE       | CKT#   | WIRE | P   | AMP  | DESCRIPTION        | LTG  | ROPT   | MOTOR                     | HEAT | COOL | MISC     | KITCHEN | ELEV |
|         |          |                               |          |           | 3145     |             |           |  |      |     |     | 1                                     | A           | 2      | EX   | 2   | 25   | WATER HEATER       |      |        |                           |      |      | 2000     |         |      |
|         |          |                               |          |           | 3145     |             |           | RTU-1  | 35   | 3   | EX  | 3                                     | В           | 4      | -    | 2   | 25   | WATERHEATER        |      |        |                           |      |      | 2000     |         |      |
|         | - 1      |                               |          |           | 3145     |             |           |  |      |     |     | 5                                     | C           | 6      |      | 1   | 20   | SPARE              |      |        |                           |      |      |          |         |      |
|         | - 9      | - 8                           |          |           | 3100     | - 8         |           | HP-1   | 40   | 2   | EX  | 7                                     | A           | 8      |      | 1   | 20   | SPARE              |      |        |                           |      |      |          |         | G .  |
|         | - 3      | - 8                           |          | 8 8       | 3100     | 3           |           | 100 and  | 40   | . 5 |     | 9                                     | В           | 10     |      | 1   |      | 208V SPACE         |      |        |                           |      |      |          |         | 8    |
|         |          |                               |          |           | 1035     |             |           | HP-2   | 15   | 2   | EX  | 11                                    | С           | 12     |      | 1   | 20   | SPARE              |      |        |                           |      |      |          |         |      |
|         |          |                               |          |           | 1035     |             |           | 11.52  | 100  |     |     | 13                                    | A           | 14     |      | 1   | 20   | SPARE              |      |        |                           |      |      |          |         |      |
|         | - 3      | - 3                           |          | 9         |          | 1           |           | 208V SPACE   | 15 1 | 1   | - 2 | 15                                    | В           | 16     |      |     |      | 208V SPACE         |      |        |                           |      |      |          |         | 2    |
|         | - 3      | = 3                           |          |           |          |             |           | SPARE  | 20   | 1   |     | 17                                    | C           | 18     |      |     |      | SPACEONLY          |      |        |                           | 3 -  |      |          |         | 8    |
|         |          |                               |          |           |          |             |           | SPARE  | 20   | 1   |     | 19                                    | A           | 20     |      |     |      | SPACE ONLY         |      |        |                           |      |      |          |         |      |
|         |          |                               |          |           |          |             |           | 208V SPACE   |      | 1   |     | 21                                    | В           | 22     |      |     |      | 208V SPACE         |      |        |                           |      |      |          |         |      |
|         | - 1      |                               |          | 9 9       |          |             |           | SPARE  | 20   | 1   |     | 23                                    | С           | 24     |      |     |      | SPACEONLY          |      |        |                           |      |      |          |         | 8    |
|         |          | - 8                           |          | i i       |          | - 8         |           | SPARE  | 20   | 1   | - 3 | 25                                    | A           | 26     |      |     | ā .  | SPACE ONLY         |      |        |                           | ē .  | 8 8  |          |         | 8    |
|         |          |                               |          |           |          |             |           | 208V SPACE   |      | 1   |     | 27                                    | В           | 28     |      | П   |      | 208V SPACE         |      |        |                           |      |      |          |         |      |
|         |          |                               |          |           |          |             |           | SPARE  | 20   | 1   |     | 29                                    | C           | 30     |      | П   |      | SPACEONLY          |      |        |                           |      |      |          |         |      |
| 0 1     | 0        | 0                             | 0        | 0         | 17705    | 0           | 0         | TOTALS   | 200  |     |     |                                       |             |        |      | 3   | 3    | TOTALS             | 0    | 0      | 0                         | 0    | 0    | 4000     | 0       | 0    |
|         |          |                               |          | ME        | c cone s | EFERENCES   |           | 의  | 9    | 1   |     |                                       |             |        |      |     |      |                    | DH   | SELOAD | SUMMARY                   | v .  |      |          |         |      |
| 0% OF   | ST 10 K  | VA. 50% C                     | F REMAIN | 7004555   | O OODEN  | D D D TO TO | *::       |  | -    | 1   |     |                                       |             |        |      | TO  | DTAL | PHASE              | LTG  | RCPT   | MOTOR                     | HEAT | COOL | MISC     | KITCHEN | BLEV |
| 5% OF   | ARGES    | T MOTOR +                     | 100% SI  | JM OF REM | AINING M | OTORS       |           |  |      |     |     |                                       |             |        |      | - 5 | 280  | Α                  | 0    | 0      | 0                         | 0    | 0    | 9280     | 0       | 0    |
| EVATO   | R DEMA   | ND FACTO                      | RBASED   | ON NEC TO | 320.14.  |             |           |  |      |     |     |                                       |             |        |      | - 8 | 3245 | В                  | 0    | 0      | 0                         | 0    | 0    | 8245     | 0       | 0    |
|         |          |                               |          |           |          |             |           |  |      |     |     |                                       |             |        |      | - 4 | 1180 | c                  | 0    | 0      | 0                         | 0    | 0    | 4180     | 0       | 0    |
|         |          |                               |          | PA        | NEL ABBE | REVIATIONS  | 3         |  |      | 1   |     |                                       |             |        |      |     |      | t                  | PAI  |        | SUMMAR                    | γ.   |      |          |         | 0 0  |
| GROUN   | D FAUL   | BREAKER                       | i        |           |          | EM - PROV   | IDE BMER  | RGENCY LOCKING TAB   | *    | 1   |     |                                       |             |        |      | 2   | 1705 | CONNECTED VA       | 0    | 0      | 0                         | 0    | 0    | 21705    | 0       | 0    |
| SHUNT   | TRIP BRI | AKER                          |          |           |          | FA - FIRE   | ALARM, P  | ROVIDE RED LOCKING TAB   |      |     |     |                                       |             |        |      |     | **   | DEMAND FACTORS     | 1.25 |        | **                        | 1.00 | 1.00 | 1.00     | 1.00    | 1.00 |
| ARC FA  | ULTBR    | EAKER                         |          |           |          | LCK - PRO   | VIDE PAD  | LOCKABLE BREAKER   |      |     |     |                                       |             |        |      | 2   | 1705 | DEMAND VA          | 0    | 0      | 0                         | 0    | 0    | 21705    | 0       | 0    |
| F - 001 | (BO AR   | GROUND                        | FAULT BE | REAKER    |          | OL - REFE   | R TO ONE  | LINE DIA GRAM FOR WIRE S   | ZE   |     |     |                                       |             |        |      |     | 0    | SHOW WINDOW DEMAND |      |        |                           |      |      |          |         | (1)  |
| ROVID   | ISOLA"   | ED GROUN                      | ID.      |           |          | RP - CIRCL  | JIT CONTR | ROLLED VIA RELAY PANEL   |      |     |     |                                       |             |        |      |     | 0    | TRACK LTG DEMAND   |      |        |                           |      |      |          |         |      |
|         |          |                               | 200      |           | PANEL    | NOTES       |           | AND THE PARTY OF T |      | 1   |     |                                       |             |        |      | - 3 | 0%   | SPARE              |      |        |                           |      |      |          |         |      |
|         |          |                               |          |           |          |             |           |  |      | 1   |     |                                       |             |        |      | 2   | 1705 | DEMAND VA + SPARE  |      |        |                           |      |      |          |         |      |
|         |          |                               |          |           |          |             |           |  |      |     |     |                                       |             |        |      |     | 52.2 | TOTAL DESIGN AMPS  |      |        |                           |      |      |          |         |      |

| BR         | ANCH CIRCU | JIT VOLTAGE<br>PH                   | DROP WIRI<br>ASE CIRCUI |      | LE FOR SING | SLE  |  |  |  |  |  |  |  |
|------------|------------|-------------------------------------|-------------------------|------|-------------|------|--|--|--|--|--|--|--|
| BRANCH CKT | WIRE SIZE  | MAXIMUM BRANCH CIRCUIT LENGTHS (FT) |                         |      |             |      |  |  |  |  |  |  |  |
| RATING (A) | (AWG)      | 120V                                | 208V                    | 240V | 277V        | 480V |  |  |  |  |  |  |  |
|            | 12         | 50                                  | 100                     | 110  | 150         | 250  |  |  |  |  |  |  |  |
| 204        | 10         | 100                                 | 175                     | 200  | 250         | 425  |  |  |  |  |  |  |  |
| 20A        | 8          | 150                                 | 275                     | 325  | 375         | 675  |  |  |  |  |  |  |  |
|            | 6          | 250                                 | 450                     | 550  | 625         | 1000 |  |  |  |  |  |  |  |
|            | 10         | 50                                  | 100                     | 125  | 150         | 275  |  |  |  |  |  |  |  |
| 204        | 8          | 100                                 | 175                     | 200  | 250         | 400  |  |  |  |  |  |  |  |
| 30A        | 6          | 150                                 | 300                     | 350  | 400         | 700  |  |  |  |  |  |  |  |
|            | 4          | 275                                 | 500                     | 575  | 650         | 1000 |  |  |  |  |  |  |  |

### NOTES:

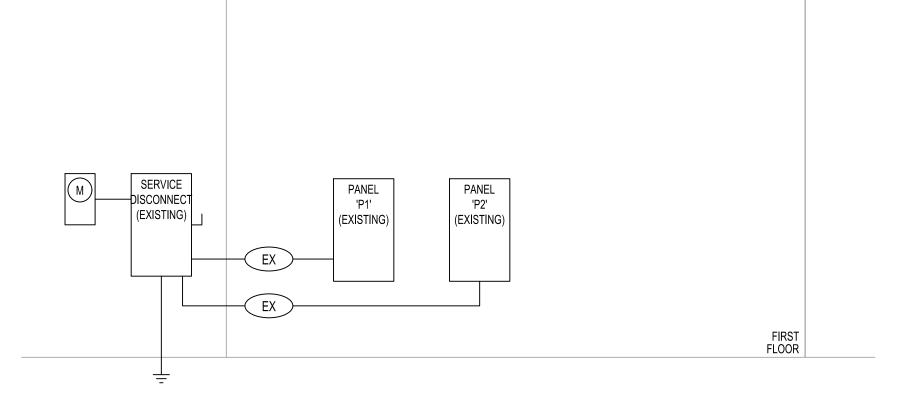
- PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
   CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 7 CURRENT CARRYING COPPER CONDUCTORS IN A SINGLE STEEL CONDUIT.
   LIMITS FOR CONDUCTOR LENGTH SHOWN ARE BASED ON A MAXIMUM OF 3 PERCENT VOLTAGE DROP TO COMPLY WITH THE NEC
- E. CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 7 CURRENT CARRYING COPPER CONDUCTORS IN A SINGLE STEEL CONDUIT.

  LIMITS FOR CONDUCTOR LENGTH SHOWN ARE BASED ON A MAXIMUM OF 3 PERCENT VOLTAGE DROP TO COMPLY WITH THE NEC FOR CIRCUITS LOADED GREATER THAN 64% OF BRANCH BREAKER RATING. THE CONTRACTOR SHALL PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

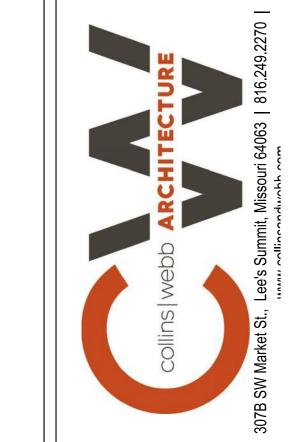
WIRE SIZES CALLED OUT IN PANEL SCHEDULES DO NOT ACCOUNT FOR VOLTAGE DROP. CONTRACTOR TO INCREASE WIRE SIZES AS REQUIRED UTILIZING VOLTAGE DROP TABLE PROVIDED.

## GENERAL NOTES 1. THIS RISER DIAGRAM REPRESENTS (AS A

1. THIS RISER DIAGRAM REPRESENTS (AS ACCURATELY AS POSSIBLE) THE ELECTRICAL DISTRIBUTION SYSTEM. FIELD VERIFY ALL SIZES OF EQUIPMENT, CONDUCTORS, FUSES, ETC. ALL EQUIPMENT AND CONDUCTORS ARE EXISTING TO REMAIN UNLESS NOTED OTHERWISE.



| 1 | ELECTRICAL RISER DIAGRAM |
|---|--------------------------|
|   | SCALE: NO SCALE          |



KEYED NOTES:

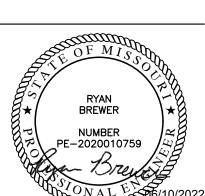
**GENERAL NOTES** 

. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

(NOT ALL NOTES APPLY)

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REVISION DATES:



RELEASED FOR
CONSTRUCTION
As Noted on Plans Review

Development Services Department
Lee's Summit, Missouri
08/04/2022

E301

ISSUE DATE: 10 JUNE, 2022
COLLINS WEBB #: 22038

ELECTRICAL RISER DIAGRAM & SCHEDULES

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

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 DIFFERS FROM CONTEMPLATED DESIGN, MAKE NECESSARY ADJUSTMENTS TO TO THE OWNER) ASSOCIATED WITH LIGHTING AND LIGHTING CONTROLS COMMISSIONING. ALL COMMISSIONING DOCUMENTATION SHALL BE CERTIFIED AND GIVEN TO OWNER AND DESIGN PROFESSIONAL.

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.

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

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 AND CATALOG NUMBERS DOES NOT INDICATE THAT THE EQUIPMENT SPECIFIED IN ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS

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.

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

DAMAGED OR DEFECTIVE EQUIPMENT: INSPECT ALL ELECTRICAL EQUIPMENT AND REQUIREMENTS. 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.

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

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 QUIPMENT 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.

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

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 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.

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 CONDUCTOR FOR NO. 10 AWG AND SMALLER; CONCENTRIC, COMPRESSED 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 ALL BRANCH CIRCUITS SHALL BE ANNEALED (SOFT) COPPER COMPLYING WITH AND PATCHING NECESSARY FOR THE INSTALLATION OF THIS WORK. NO CUTTING ICEA S-95-658/NEMA WC70; SOLID CONDUCTOR FOR NO. 10AWG AND SMALLER; IN CONSTRUCTIVE PARTS OF THE BUILDING LIKELY TO IMPAIR ITS STRENGTH SHALL BE DONE WITHOUT THE ARCHITECT-ENGINEER'S WRITTEN APPROVAL.

EXCAVAT**I**ON AND BACKFIL

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.

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 IN SOME INSTANCES, SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE THROUGH-PENETRAION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE CONTROL WIRING; STRANDED COPPER CONDUCTORS, 600V INSULATION, OF THE MANUFACTURER'S NAME AND MODEL OR CATALOG NUMBERS. USE OF NAMES TRAY PENETRAIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND PROPER TYPE, SIZE AND NUMBER AS REQUIRED TO ACCOMPLISH SPECIFIED ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E 814, BY UNDERWRITER'S LABORATORIES, INC., OR OTHER NRTL ACCEPTABLE TO

ACCEPTABLE MANUFACTURERS - HILTI, INC., 3M CORP, RECTORSEAL, SPECIFY TECHNOLOGY INC., UNITED STATES GYPSUM COMPANY.

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 SHOULD ANY APPARATUS BE SUBJECTED TO POSSIBLE INJURY DUE TO WATER, IT 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

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

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.

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,

ELECTRIC METALLIC TUBING: GALVANIZED OR SHERADIZED AND MANUFACTURED 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.

GENERAL: SERVICE LATERALS AND PANELBOARD FEEDERS SHALL BE OF ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70; SOLID STRANDED FOR NO. 8 AWG AND LARGER. ALL FEEDER CONDUCTORS NO 8 AWG AND LARGER; STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION.

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 UNATTENDED USE AS APPLICABLE. 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,

AS RECOMMENDED BY THE SYSTEM EQUIPMENT MANUFACTURER. 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 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.

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 BREAKER STATUS. CIRCUIT BREAKERS SHALL BE UL LISTED IN ACCORDANCE 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.

WITCHES: 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

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.

DESCRIBED BELOW UNDER "PLATES".

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 CIRCUIT BREAKERS: CIRCUIT BREAKERS OF THE PROPER SIZE, RATING, AND IN ACCORDANCE WITH ANSI STANDARD C80.3. FITTINGS 1/2 INCH THROUGH 2 INCH STRAP AND EQUIPPED WITH SCREW TERMINAL. HUBBELL #IG-5362\* OR EQUAL. RECEPTACLES, SPECIAL PURPOSE: SPECIAL PURPOSE OUTLETS SHALL BE AS

> 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

ACCEPTABLE MANUFACTURERS: HUBBELL, PASS & SEYMOUR, LEVITON AND

SCHEDULED ON DRAWINGS.

FURNISH AND INSTALL FLUSH CABINETS AND ENCLOSURES AS SHOWN ON THE PLANS AND AS HEREIN SPECIFIED. UNIT SHALL BE PROVIDED WITH DEAD FRONT OUTLET COVER PLATES: TELEPHONE OUTLET COVER PLATES SHALL MATCH 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 RACEWAYS: MATERIALS FOR TELEPHONE RACEWAY SYSTEM WORK SHALL BE IN REQUIRED TO MEET FIELD CONDITIONS. EXACT BACKBOX SIZE TO BE COORDINATED WITH EQUIPMENT SUPPLIER.

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 TELEPHONE SERVICE CONDUIT LAYOUT SHALL HAVE THE JOB SITE APPROVAL OF SHALL BE HEAVY DUTY, QUICK-MAKE, QUICK-BREAK FUSED OR UNFUSED SWITCH AN AUTHORIZED REPRESENTATIVE OF THE TELEPHONE CO. COORDINATE WORK 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 SUCH AS LOW VOLTAGE CONTROL AND SHIELDED INSTRUMENT WIRING, SHALL BE SHALL BE FURNISHED COMPLETE WITH PROPER FUSES.

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. TELEPHONE CO. THE TELEPHONE TERMINAL BOARD SHALL BE PROVIDED WITH A PROVIDE STANDARD KNOCKOUTS ON REMOVABLE BOX ENDS. FABRICATE FROM DOUBLE DUPLEX RECEPTACLE LOCATED WHERE INDICATED ON THE DRAWINGS. SHEET STEEL AND FINISH WITH BAKED ON GRAY ENAMEL OVER RUST INHIBITOR. THE TERMINAL BOARD SHALL BE CONSTRUCTED OF 4' X 8' X 3/4" PLYWOOD WITH EACH FRONT SHALL HAVE A DOOR MOUNTED ON SEMI-CONCEALED HINGES WITH TWO (2) COATS OF FLAME RETARDANT PAINT UNLESS NOTED OTHERWISE ON STEEL INTERLOCKED ARMOR; THHN- OR XHHW-INSULATED CONDUCTORS; COLOR 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 PROVIDE FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS SUITABLE FOR 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 SYLVANIA, OR OSRAM. MOLDED CASE CIRCUIT BREAKERS ONE, TWO OR THREE POLE WITH INTEGRAL CROSSBAR FOR MULTI-POLE UNITS, EQUIPPED WITH AN OVERCENTER, TRIP-FREE, LED LIGHT FIXTURES ARE TO BE PROVIDED WITH COMPATIBLE DRIVER AND MUST TOGGLE-TYPE OPERATING ACTION AND POSITIVE HANDLE INDICATION OF 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

APPROVED MANUFACTURERS: SQUARE-D CO. OR EQUAL BY GE, SIEMENS AND/OR

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

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.

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

SOLID STATE, WITH SPST DRY CONTACT RATED FOR 1800-VA TUNGSTEN OR

CHANNELS. BATTERY BACKUP FOR SCHEDULES AND TIME CLOCK.

1000-VA INDUCTIVE, TO OPERATE CONNECTED RELAY, CONTACTOR COILS OR MICROPROCESSOR INPUT, COMPLYING WITH UL 773A.

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.

THOSE SPECIFIED FOR ADJACENT WIRING DEVICES, INCLUDING THOSE WITH

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.

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 DRAWINGS.

FIXTURES ARE SPECIFIED IN THE SCHEDULE BY MANUFACTURER'S NAME AND CATALOG NUMBER.

ALL RECESSED LIGHT FIXTURES SHALL BE PROVIDED WITH FACTORY INSTALLED

IN THE ORIGINAL PACKING CASES AND SLEEVES AND SHALL BE OF THE SAME

ALL LAMPS USED ON THIS PROJECT SHALL BE NEW, DELIVERED TO THE JOB SITE

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

HID BALLASTS SHALL BE AUTO TRANSFORMER REACTOR, HIGH POWER FACTOR POTTED AND ENCASED TO MINIMIZE SOUND. APPROVED MANUFACTURERS: GE,

OR OSRAM.

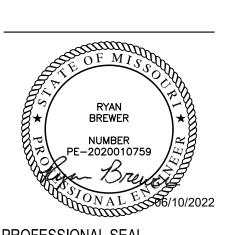
BE COORDINATED WITH CONTROL TYPE INDICATED. CONTRACTOR IS RESPONSIBLE TO ENSURE CONTROLS ARE CAPABLE OF PROPERLY CONTROLLING LIGHT FIXTURES AS INDICATED WITHIN THESE DRAWINGS.

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.

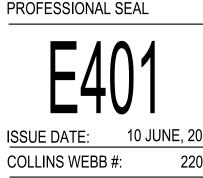
GENERAL PURPOSE, UL-LISTED/LABELED 150 DEGREES C TEMPERATURE RISE ABOVE 40 DEGREES C AMBIENT. INSULATING MATERIALS: EXCEED NEMA ST-020 STANDARDS, RATED FOR 220 DEGREES C, UL-COMPONENT RECOGNIZED INSULATION SYSTEM. PHASES, VOLTAGES, AND SIZES: AS INDICATED ON THE DRAWINGS. SOUND LEVEL: NOT EXCEEDING NEMA 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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**ELECTRICAL SPECIFICATIONS** 

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REQUIRING ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, PUMPS. WATER HEATERS, AND HVAC EQUIPMENT, AND ALL LINE-VOLTAGE CONTROL AND EMPTY CONDUIT SYSTEMS INSTALLED FOR COMMUNICATION SYSTEMS, PUBLIC TELEPHONES, OWNER ITEMS AND OTHER SYSTEMS AS INDICATED ON DRAWINGS GROUND RECEPTACLES AND POWER OUTLETS TO THE CONDUIT SYSTEM WITH A SHALL BE INSTALLED COMPLETE WITH NYLON PULL WIRES PROPERLY TAGGED AT GREEN GROUNDING CONDUCTOR SIZE IN ACCORDANCE WITH N.E.C. AND BOTH ENDS FOR IDENTIFICATION. SWITCHES AS REQUIRED. AFTER INSTALLING WIRING, VERIFY THAT EACH MOTOR WHERE BUILDING VENTILATION CONDITIONS ARE SUCH THAT AIR MAY FLOW

TO REMOVE ALL "BURRS" AND ALL FIELD CUT THREADS SHALL BE PAINTED WITH

CONTINUOUSLY IN CONDUITS, CAUSING CONDENSATION AND THE COLLECTION OF EQUIPMENT CONNECTED TO THE ELECTRICAL SYSTEM SHALL BE GROUNDED 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 METALLIC CONDUIT SYSTEM. THIS REQUIREMENT INCLUDES ALL FLEXIBLE SWITCHES, AND SIMILAR APPARATUS SHALL BE FLEXIBLE CONDUIT WHERE PERMITTED. WHERE EQUIPMENT IS INSTALLED OUTDOORS OR EXPOSED TO PROVIDE PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT WITHOUT EXTRA MOISTURE, USE LIQUIDTIGHT FLEXIBLE CONDUIT WITH WATERTIGHT FITTINGS.

EQUIPMENT LEVELING, HANGERS AND SUPPORTS

WHITE LEAD BEFORE COUPLINGS ARE APPLIED.

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 GROUND CONDUCTOR - SIZE AS PER N.E.C. REQUIREMENTS, SOFT DRAWN OR PROTECTIVE DEVICES FOR ALL EQUIPMENT, AND CORRECT OVERLOAD HEATERS 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 INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15, FOR ALL THERMOSTATS, PLUS THE WEIGHT OF A MAN. TEMPERATURE CONTROL DEVICES. AND CONTROLS. INCLUDING. BUT NOT LIMITED

WHERE SEVERAL RACEWAYS ARE SUPPORTED ON A COMMON TRAPEZE HANGER, TO, NIGHT-STATS, WATER HEATER INTERLOCKS, TIME SWITCHES AND OVERRIDE 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" ACCESSIBLE CEILINGS, IF APPROVED AND LISTED FOR THIS PURPOSE, BUT SHALL 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 ERECT EQUIPMENT PARTS AT SUCH TIME AND IN SUCH MANNER AS TO MINIMIZE SUPPORTS IS TO COMBINE AS MANY PIPES, CONDUITS, ETC., AS IS POSSIBLE INTERFERENCES AND DELAYS IN THE EXECUTION OF THE WORK CARE SHALL BE USED IN THE ERECTION AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS HANGER. PRIOR TO SELECTING THE HORIZONTAL MEMBER, ALL TRADES, TO AVOID MARRING SURFACES OF THE WORK. DAMAGES SHALL BE REPAIRED AT 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

WIRING OF MECHANICAL EQUIPMENT

LOAD HAS THE CORRECT PHASE ROTATION.

PROVIDE ALL RACEWAYS AND POWER WIRING FOR ALL DIVISION 15 EQUIPMENT

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

VERIFY THE ACTUAL "MAXIMUM OVERCURRENT PROTECTION" DEVICE RATINGS

AND "MINIMUM CIRCUIT AMPACITY" CONDUCTOR SIZING FOR MECHANICAL

SOMEWHAT FROM THE CONDUCTOR AND EQUIPMENT SIZES SHOWN ON 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

PROVIDE ALL RACEWAYS, POWER WIRING, AND LINE-VOLTAGE CONTROL AND

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

BE INSTALLED IN CONDUIT WITHIN WALLS AND WHERE EXPOSED IN THE WORK

EQUIPMENT REQUIRING ELECTRICAL SERVICE SHALL NOT BE ENERGIZED OR

AND ARE PRESENT OR HAVE WAIVED THEIR RIGHT TO BE PRESENT. WHERE

EQUIPMENT TO BE PLACED IN SERVICE INVOLVES SERVICE OR CONNECTION

REQUIRED TO ALL MISCELLANEOUS EQUIPMENT FURNISHED BY OTHERS, OR

UNDER OTHER DIVISIONS OF THE WORK. THIS SHALL INCLUDE POWER AND

COMPLIANCE WITH THE DRAWING AND ANY NOTES THEREON IS REQUIRED. PROVIDE OPENINGS THROUGH WALLS. PARTITIONS. FLOORS. AND ROOFS AS

OTHERWISE SPECIFIED. FIRE WALL AND/OR FLOOR INTEGRITY SHALL BE

CONCRETE FLOORS AND ROOFS, SHALL BE FABRICATED FROM STANDARD GALVANIZED STEEL PIPE WITH ENDS FINISHED SMOOTH, BURR FREE, WITHOUT

BE FABRICATED SUCH THAT WATERPROOFING CAN BE FLASHED ONTO AND

EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. THESE RACEWAYS SHALL BE

DRAWINGS INDICATE THE REQUIRED SIZE OF ALL RACEWAYS (EXCEPT AS

ROUTING. HOWEVER, THE INSTALLER IS RESPONSIBLE FOR PROPER

CONDUIT SHALL BE CONSTRUED AS ELECTRICAL RACEWAYS AND SHALL

CONFORM TO THE FOLLOWING: CONCEALED IN SUSPENDED CEILINGS AND

PULLING CONDUCTORS AND TO PROVIDE A NEATLY INSTALLED APPEARANCE.

GRS CONDUIT SHALL BE CUT WITH POWER OR HACKSAW AND CLEANLY REAMED

EQUIPMENT AND CONDITIONS PERMITTING, POWER CONDUIT BENDS SHALL

INTERIOR PARTITIONS - EMT WITH SET SCREW TYPE FITTINGS. UNDERGROUND

SHARP EDGES. SLEEVES IN WALLS, ROOFS, AND FLOORS OF OTHER

PROVIDE SLEEVES FOR ELECTRICAL WORK PASSING THROUGH WALLS,

N.E.C. ARE INCLUDED IN THE WORK OF THIS DIVISION. DO ALL ROUGHING-IN AND

CONTROL WIRING. WIRING DEVICES AND COVER-PLATES FOR BUILT-IN

EQUIPMENT ARE INCLUDED IN THE WORK OF THIS DIVISION. SAFETY

FINAL CONNECTIONS FROM APPROVED SHOP DRAWINGS ONLY.

METHOD OF PROCEDUR

BE COMPLETE.

NO ADDITIONAL COST TO THE OWNER.

REQUIRED FOR ELECTRICAL WORK.

AROUND THE SLEEVE.

AND N.E.C. FILL.

BUILDING EXTERIOR - GRS.

IN. - 24 IN. RADIUS; 3 IN. - 36 IN. RADIUS.

FOR ALL MOTORS, WHEN STARTERS ARE PROVIDED UNDER DIVISION 16.

COST TO THE OWNER. NOTIFY THE ENGINEER OF ALL CHANGES REQUIRED IN THE

DRAWINGS; HOWEVER, IN NO CASE, REDUCE THE SIZE OF CONDUCTORS INDICATED ON THE DRAWINGS WITHOUT AUTHORIZATION FROM THE ENGINEER.

EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. BASE ELECTRICAL INSTALLATIONS ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY

PLACED IN SERVICE UNTIL ALL INTERESTED PARTIES HAVE BEEN DULY NOTIFIED EXCEPT FOR SUCH ITEMS AS ARE NORMALLY WIRED AT THEIR POINT OF MANUFACTURE AND SO DELIVERED - AND UNLESS SPECIFICALLY NOTED TO THE WITH THE PROPER TRIM, FRAMES, SUPPORTS, AND HANGER AND OTHER CONTRARY HEREIN - THE ELECTRICAL TRADE SHALL DO ALL ELECTRICAL WIRING MISCELLANEOUS APPURTENANCES TO PROPERLY COORDINATE WITH SAID FROM ANOTHER CONTRACTOR OR THE OWNER, NOTIFY THE OWNER IN WRITING WHEN THE EQUIPMENT WILL BE READY. THE OWNER SHALL BE NOTIFIED AS FAR OF EVERY CHARACTER. IT IS THE INTENT OF THESE SPECIFICATIONS AND IN ADVANCE AS POSSIBLE, OF THE DATE THE VARIOUS ITEMS OF EQUIPMENT WILL 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 THE WORK OF THIS TRADE INCLUDES ROUGH-IN FOR AND FINAL CONNECTION AND 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 OPERATION. USED SHALL BE AS SPECIFIED HEREIN. DISCONNECTS AND OTHER MISCELLANEOUS PROTECTIVE DEVICES REQUIRED BY

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.

AND EQUIPMENT PROVIDED OR CONNECTED IN THIS CONTRACT. ALL SURFACES WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE ENCLOSED IN SHALL BE PROPERLY POLISHED AND SHALL BE FREE OF PAINT AND ALL OTHER THE SAME RACEWAY, CONDUCTORS ARE TO BE DERATED PER N.E.C. AND WIRE DIRT OR DEBRIS. TOUCHUP OR COMPLETELY REFINISH ALL EQUIPMENT PARTITIONS, ROOFS, AND FLOORS. SLEEVES SHALL EXTEND THROUGH FLOORS. SIZE INCREASED AS REQUIRED. WHERE THE INCREASED CONDUCTOR SIZE WALLS AND PARTITIONS AND SHALL BE CUT FLUSH WITH EACH SURFACE UNLESS REQUIRES, INCREASE THE RACEWAY SIZE AS WELL. FOR CONTROL WIRING, USE CONSTRUCTION. PROPERLY PROTECT THE FRONTS OF ALL PANELBOARDS, #14 AWG MINIMUM. FOR FIXTURE WIRING, AS PERMITTED BY N.E.C., USE #18 AWG SWITCHBOARDS AND SIMILAR EQUIPMENT TO PREVENT MARRING AND OTHER RESTORED AFTER PENETRATION. SLEEVES IN CONCRETE AND MASONRY WALLS, MINIMUM. FOR SIGNAL AND COMMUNICATIONS SYSTEMS USE WIRE SIZE AS DEFACING. SPECIFICALLY REQUIRED BY THE SYSTEM SUPPLIER.

MAKE CONNECTIONS TO TERMINALS USING PRESSURE TYPE CONNECTORS. CONSTRUCTION AND THROUGH SUSPENDED CEILINGS SHALL BE FABRICATED SOLDERED JOINTS ARE PROHIBITED. ALL JOINTS IN CONDUCTORS SHALL BE FROM 22 U.S. GAUGE GALVANIZED STEEL. FLOOR SLEEVES SHALL EXTEND THREE MADE AT AN ACCESSIBLE LOCATION WITHIN A BOX BY TWISTING THE BARE INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. SPACE BETWEEN CONDUCTOR ENDS TOGETHER AND APPLYING A WIRE CONNECTOR IN ALL SIZES SPACES PRIOR TO LEAVING THE PREMISES. FLOOR SLEEVES AND PASSING CONDUIT SHALL BE FILLED WITH DUCT SEAL UP TO THE MAXIMUM CAPACITY OF THE CONNECTOR. JOINTS SHALL BE TAPED PACKING AND CAULKED WITH WATERPROOF COMPOUND AS APPROVED. WHERE WITH AN APPROVED ELECTRICAL TAPE. SPLICES FOR CONDUCTORS LARGER CONDUITS PASS THROUGH WATERPROOFED FLOORS OR WALLS, SLEEVES SHALL THAN #10 AWG SHALL BE MADE WITH AN APPROVED COMPRESSION (SQUEEZE) CONNECTOR INSULATED WITH NOT LESS THAN TWO LAYERS OF ELECTRICAL FILL TEST ALL CIRCUITS TO ASSURE THEM TO BE FREE OF GROUNDS AND SHORTS. TAPE TO 1.5 TIMES THE THICKNESS OF INSULATION, FOLLOWED BY TWO (MINIMUM) LAYERS OF HALF-LAPPED ELECTRICAL TAPE FOR MECHANICAL ALL POWER AND LIGHTING CIRCUITS SHALL BE RUN IN METALLIC RACEWAYS N.E.C.

RUN ABOVE ACCESSIBLE CEILINGS SHALL BE RUN USING INSULATED, PLENUM SERVED AND ITS LOCATION SHALL BE INDICATED. PROVIDE A MINIMUM OF 8 IN. NAMEPLATE. ADJUST THE SIZE OF THE OVERLOAD HEATER AS REQUIRED TO AHJ. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION. METALLIC CONDUIT PROVIDE FOR A FUTURE DEVICE IN THE BOX.

FOR THESE SYSTEMS SHALL BE PROVIDED ONLY WHERE RUN INSIDE WALLS. THE HEREINAFTER SPECIFIED), THE POINTS OF TERMINATION AND THE SUGGESTED EACH BOX SHALL BE OF PROPER SIZE TO ACCOMMODATE THE DEVICE AND FUNCTION FOR WHICH IT IS SHOWN. BOXES FOR WALL DEVICES SHALL BE COORDINATION WITH BUILDING STRUCTURE AND THE WORK OF OTHER TRADES. FURNISHED COMPLETE WITH PLASTER RING OR TILE RING ACCORDING TO WALL 100% DEMAND, THE UNBALANCE SHALL NOT EXCEED 10%. DURING FINAL FURNISH ALL REQUIRED BENDS, ELBOWS, FITTINGS, JUNCTION AND PULL BOXES, CONSTRUCTION WHERE REQUIRED. BOXES FOR INSTALLATION IN MASONRY WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS, THAT MAY BE REQUIRED WALLS SHALL BE SPECIAL SQUARE CORNER MASONRY TYPE. BOXES FOR TO SATISFY CODES AND THE STANDARDS OF GOOD PRACTICE. WHERE CONDUITS MOUNTING OF LIGHTING FIXTURES SHALL BE FOUR INCH OCTAGON, EQUIPPED FOR BOTH BRANCH AND FEEDER CIRCUITS ARE RUN CONCEALED, THEY MAY BE WITH 3/8 IN. "NO-BOLT" FIXTURE STUD. BOXES FOR FLOOR OUTLETS SHALL BE RUN OUT OF SQUARE TO THE BUILDING PROVIDING THE SHORTEST POSSIBLE RUN CONCRETE PROOF STEEL BOXES WITH ADJUSTABLE TOPS AND DEVICES AS IS UTILIZED. RACEWAY SIZES ARE BASED ON THE USE OF COPPER CONDUCTORS 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.

OR BELOW INTERIOR SLABS - GRS. (NOTE: PVC CONDUIT IS PERMITTED OUTSIDE TELEPHONE, ALARM, AND SIGNAL SYSTEM OUTLET BOXES SHALL BE STANDARD FOR PARKING AREA LIGHTING, SIGNS, ETC. ELBOWS SHALL BE GRS). EXPOSED ON 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 CONDUIT BENDS SHALL BE MADE TO THE LARGEST POSSIBLE RADIUS FOR EASE IN ADAPTER RING.

LOCATE ALL OUTLETS AS INDICATED ON DRAWINGS, HOWEVER, AT INSTALLATION CONFORM TO THE FOLLOWING: 1-1/2 IN. - 18 IN. RADIUS: 2 IN. - 24 IN. RADIUS: 2-1/2 INSPECT ARCHITECTURAL DRAWINGS AND LOCATE LOCAL SWITCHES ON THE STRIKE SIDE OF THE DOOR.

INTO A HOLE IN THE BACK OF THE BOX AND USED FOR NO OTHER PURPOSE. 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

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

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).

GROUND-RODS - 1/2" DIA., 10' LONG, COPPERWELD

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 WITHIN SAFE STRUCTURAL LIMITS, ON EACH HORIZONTAL SECTION OF A TRAPEZE 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 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

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVAL FROM LOCAL CODE AUTHORITIES AND MAKING ANY REVISIONS DIRECTED BY THEM ON EMERGENCY AND EXIT LIGHTING.

THOROUGHLY CLEAN ALL FIXTURES, SWITCHES, OTHER DEVICES, PANELBOARDS,

FURNISHED WITH FACTORY FINISHES THAT IS DAMAGED DURING DELIVERY OR

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

TESTING AND LOAD BALANCING

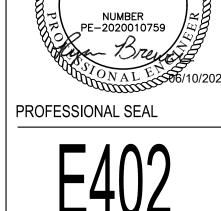
LIGHT AND TEST EACH LAMP. PROVE AND TEST THE AVAILABLE VOLTAGE ON THE LOAD SIDE OF EACH DISCONNECT. VERIFY PROPER OPERATION OF THE PROTECTION. LOCATE ALL SPLICES IN BOXES OR FITTINGS OF PROPER SIZE PER DISCONNECT. VERIFY THE PHASE SEQUENCE, VOLTAGE, AND ROTATION AT EACH MOTOR IN THE PRESENCE OF THE INSTALLER. RUN EACH MOTOR WITH ITS CONTROL AS NEARLY AS POSSIBLE UNDER OPERATING CONDITIONS FOR A RUN CONCEALED IN ALL FINISHED AREAS, AND WHERE RUN EXPOSED SHALL BE IDENTIFY ALL WIRES AND CABLES WITH BRADY ADHESIVE WIRE MARKERS AT SUFFICIENT LENGTH OVER TIME TO DEMONSTRATE CORRECT ALIGNMENT, WIRING SQUARE TO THE BUILDING AND HELD TIGHT TO THE BUILDING CONSTRUCTION. EACH BOX, PANEL, AND OUTLET. IDENTIFICATION SHALL, AS A MINIMUM, INDICATE CAPACITY, SPEED, AND OVERALL SATISFACTORY OPERATION. CHECK THAT THE LOW VOLTAGE, TELEPHONE, INTERCOM, MUSIC, ALARM AND SECURITY WIRING THE PANEL AND CIRCUIT SUPPLYING THE OUTLET. AT THE PANEL END, THE LOAD PROPER OVERLOAD HEATERS HAVE BEEN INSTALLED BY READING THE MOTOR RATED CABLE. PROVIDE LOW VOLTAGE CABLE IN CONDUIT IF REQUIRED BY LOCAL SLACK WIRE AT EACH OUTLET FOR MAKING CONNECTION TO THE DEVICE OR 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 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





**ELECTRICAL** SPECIFICATIONS

ISSUE DATE:

COLLINS WEBB #:

| ABBREVIATION | LONG FORM   |
|--------------|---|
| ABV          | ABOVE   |
| AC OR ACU    | AIR-CONDITIONING UNIT                             |
| AHAP         | AS HIGH AS POSSIBLE                               |
| AHU          | AIR-HANDLING UNIT                                 |
| AUTO         | AUTOMATIC   |
| BLW          | BELOW   |
| С            | CHILLER   |
| CD           | CONDENSATE  |
| CF           | CABINET FAN                                       |
| CFM          | CUBIC FEET PER MINUTE                             |
| СН           | 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                    |
| СТ           | COOLING TOWER CELL                                |
| СТИ          | 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 ORM       | FAN POWERED TERMINAL BOX                          |
| GPM          | GALLONS PER MINUTE                                |
| HC           | HEATING COIL                                      |
| HUMD OR HD   | HUMIDIFIER  HEATING WATER RUMP                    |
| HWP OR HP    | HEATING WATER PUMP                                |
| HX           | HEAT EXCHANGER  KITCHEN (GREASE HOOD) EXHAUST FAN |
| KEF          | KITCHEN (GREASE HOOD) EXHAUST FAN KILOWATTS       |
| LD           | LINEAR SUPPLY DIFFUSER                            |
| MOT          | MOTORIZED   |
| MUI          | MOTORIZED   |

MOUNTED

MAKE-UP AIR FAN

OUTSIDE AIR OUTSIDE AIR FAN

OPENING

MAKE-UP AIR-HANDLING UNIT

NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

| IECHANICAL ABBREVIATIONS |                                |  |  |  |  |  |  |  |  |  |
|--------------------------|--------------------------------|--|--|--|--|--|--|--|--|--|
| CONT.                    |                                |  |  |  |  |  |  |  |  |  |
|                          | (ALPHABETICAL BY ABBREVIATION) |  |  |  |  |  |  |  |  |  |
| ABBREVIATION             | LONG FORM                      |  |  |  |  |  |  |  |  |  |
| F                        | PRE-FILTER                     |  |  |  |  |  |  |  |  |  |
| LNM                      | PLENUM                         |  |  |  |  |  |  |  |  |  |

|              | (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 |
| Ā            | THROW AWAY (FILTER TYPE)           |
| DEF          | TRUCK DOCK EXHAUST FAN             |
| EF           | TOILET EXHAUST FAN                 |
| RANS         | TRANSITION OR TRANSFER             |
| ΥP           | TYPICAL                            |
| JH           | UNIT HEATER                        |
| JNO          | UNLESS NOTED OTHERWISE             |
| /F           | VENTILATION FAN                    |
| /FD          | VARIABLE FREQUENCY DRIVE           |
| / V          | VARIABLE VOLUME TERMINAL BOX       |
| N/           | WITH                               |

NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

TRANSFORMER

EXPANSION TANK

XFMR OR TFMR

|                    | DUCTWORK LEGEN TO SPECIFICATIONS SECTIONS 15815 AND 15820 FOR ADDITIONAL     |                |
|--------------------|--|----------------|
| SINGLE<br>LINE     | DESCRIPTION  | DOUBLE<br>LINE |
| <del></del>        | ROUND ELBOW DOWN   |                |
| <b>—</b> •         | ROUND ELBOW UP   |                |
| <del>)</del>       | OFFSET TO CHANGE ELEVATION (AT 30° WHEN POSSIBLE. ARROW SLOPES DN, U.N.O.)   |                |
|                    | ROUND RADIUS ELBOW   | T)             |
|                    | 90° STRAIGHT TEE   |                |
|                    | 90° CONICAL TEE  |                |
|                    | 45° LATERAL TAP  |                |
|                    | 45° LATERAL CONICAL TEE  |                |
| -                  | SIZE OR SHAPE TRANSITION   |                |
| <b>—</b> ww        | ROUND FLEXIBLE DUCT  | ٤ ا            |
|                    | RECTANGULAR ELBOW DOWN   |                |
| <b>—</b>           | RECTANGULAR ELBOW UP   | <b>-</b>       |
| <del>] [*]</del>   | OFFSET TO CHANGE ELEVATION (AT 30° WHERE POSSIBLE. ARROW SLOPES DN., U.N.O.) | <b>₹</b>       |
|                    | RECTANGULAR RADIUS ELBOW   |                |
|                    | RECTANGULAR ELBOW WITH TURNING VANES   | \\\\\\\\\      |
|                    | SPLIT BRANCH TAKE-OFF WITH SQUARE ELBOW<br>& SPLITTER DAMPER                 |                |
|                    | SPLIT BRANCH TAKE-OFF WITH RADIUS ELBOW<br>& SPLITTER DAMPER                 |                |
|                    | SPLIT BRANCH TAKE-OFF TEE WITH STATIONARY<br>SPLITTER DAMPER                 |                |
|                    | BRANCH TAKE-OFF WITH 45° LEAD IN TAP   |                |
|                    | INSULATED/LINED DUCTWORK (U.N.O.)  |                |
| <del>-      </del> | SQUARE FACED CEILING DIFFUSER 4-WAY<br>DIRECTIONAL THROW (U.N.O.)            | <b>&gt;</b>    |
| <del></del>        | ROUND FACED CEILING DIFFUSER   | ¥ (i)          |
| OR OR              | CEILING RETURN OR EXHAUST AIR GRILLE<br>OR REGISTER                          | <b>\</b>       |
| <u>‡</u>           | SIDEALL SUPPLY GRILLE OR REGISTER  | <del></del>    |
|                    | SUPPLY DUCT RISER  |                |
|                    | RETURN, EXHAUST OR OUTSIDE AIR DUCT RISER                                    |                |
| +                  | MANUAL BALANCING DAMPER  | 士士             |
| +                  | AUTOMATIC (MOTOR-OPERATED) DAMPER  |                |
| +                  | FIRE DAMPER  |                |
| +                  | GRAVITY BACKDRAFT DAMPER   |                |
|                    | COMBINATION FIRE AND SMOKE DAMPER WITH                                       | <u> </u>       |

NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

COMBINATION FIRE AND SMOKE DAMPER WITH

DUCT MOUNTED SMOKE DETECTOR

SMOKE DAMPER (AUTOMATIC) WITH SMOKE DETECTOR

SMOKE DETECTOR

|              | STANDARD          |  |
|--------------|-------------------|--|
| MI           | ECHANICAL SYMBOLS |  |
| OL           | DESCRIPTION       |  |
| <b>←</b>     | GATE VALVE        |  |
| <del></del>  | BALL VALVE        |  |
| 1—           | GLOBE VALVE       |  |
| <del></del>  | BUTTERFLY VALVE   |  |
| <del>-</del> | PLUG VALVE        |  |
| <b>←</b>     | ANGLE VALVE       |  |
|              |                   |  |

| SYMBOL       | DESCRIPTION                                | _ |
|--------------|--|---|
| <del></del>  | GATE VALVE                                 | ╛ |
| <del></del>  | BALL VALVE                                 | ╛ |
| <b>──</b>    | GLOBE VALVE                                |   |
| <del></del>  | BUTTERFLY VALVE                            |   |
|              | PLUG VALVE                                 |   |
| <b>~</b>     | ANGLE VALVE                                |   |
| _₹           | CHECK VALVE                                |   |
|              | AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH) |   |
| <b>-</b>     | AUTOMATIC CONTROL VALVE (3-WAY)            |   |
| 7-           | AUTOMATIC CONTROL VALVE (ANGLE)            |   |
|              | AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH) |   |
| <b>—</b>     | SOLENOID VALVE                             |   |
| <b>—</b>     | PRESSURE REDUCING VALVE                    |   |
| À            | PRESSURE RELIEF VALVE                      |   |
|              | GAUGE COCK                                 |   |
| , <u>F</u>   | PRESSURE GAUGE WITH GAUGE COCK             |   |
|              | THERMOMETER                                |   |
| Y            | THERMOMETER WELL                           |   |
| •            | TEST PLUG                                  |   |
| (F)          | FLOW METER                                 |   |
| Φ            | TEMPERATURE SENSOR                         |   |
| ®            | PRESSURE SENSOR                            |   |
|              | DIFFERENTIAL PRESSURE SWITCH               |   |
|              | IMMERSION THERMOSTAT                       |   |
| <u> </u>     | MANUAL AIR VENT                            |   |
| ~            | AUTOMATIC AIR VENT                         |   |
| <u> </u>     | FLOW SWITCH                                |   |
| <del></del>  | ORIFICE                                    |   |
|              | PIPE SLEEVE THRU WALL OR FLOOR             |   |
| <del></del>  | EXPANSION JOINT                            |   |
| <u>~</u>     | FLEXIBLE PIPE JOINT                        |   |
|              | PIPE GUIDE                                 |   |
|              | ANCHOR                                     |   |
| <del>-</del> | STRAINER (Y-TYPE)                          |   |
| <u> </u>     | STRAINER (BASKET TYPE)                     |   |
| <u> </u>     | UNION                                      |   |
| <del></del>  | CONCENTRIC REDUCER                         |   |
|              | ECCENTRIC REDUCER                          |   |
|              | DIRECTION OF FLOW                          |   |
| <u> </u>     | DIRECTION OF SLOPE                         |   |
| 0            | THERMOSTAT                                 |   |
|              | HUMIDISTAT                                 |   |
| (FSC)        | FAN SPEED CONTROLLER                       |   |
| —cs—         | CONDENSER WATER SUPPLY                     |   |
| — CR —       | CONDENSER WATER RETURN                     |   |
| <u> </u>     |  |   |

### MECHANICAL GENERAL NOTES

- 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. 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.
- 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.
- ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED. 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 MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND

- 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. COORDINATE LOCATION OF ROOF PENETRATIONS WITH THE EXISTING CONDITIONS AND
- ARCHITECTURAL DRAWINGS. 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. 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.
- LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE FINAL CEILING AND LIGHTING LOCATIONS. DUCTWORK CROSSING FIRE RATED WALL OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26
- GAUGE SHEET METAL. 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. 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. . 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. 6. 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. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE . 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. 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.

OTHER SYMBOLS DESCRIPTION

NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

SYMBOL INDICATES CONNECTION TO EXISTING DUCT OR PIPE

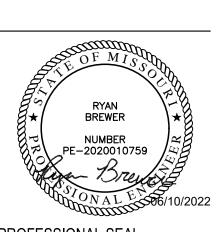
### GENERAL EQUIPMENT **DESIGNATION KEY:**

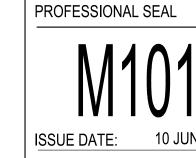
□ EQUIPMENT ABBREVIATION LEVEL OR BUILDING:



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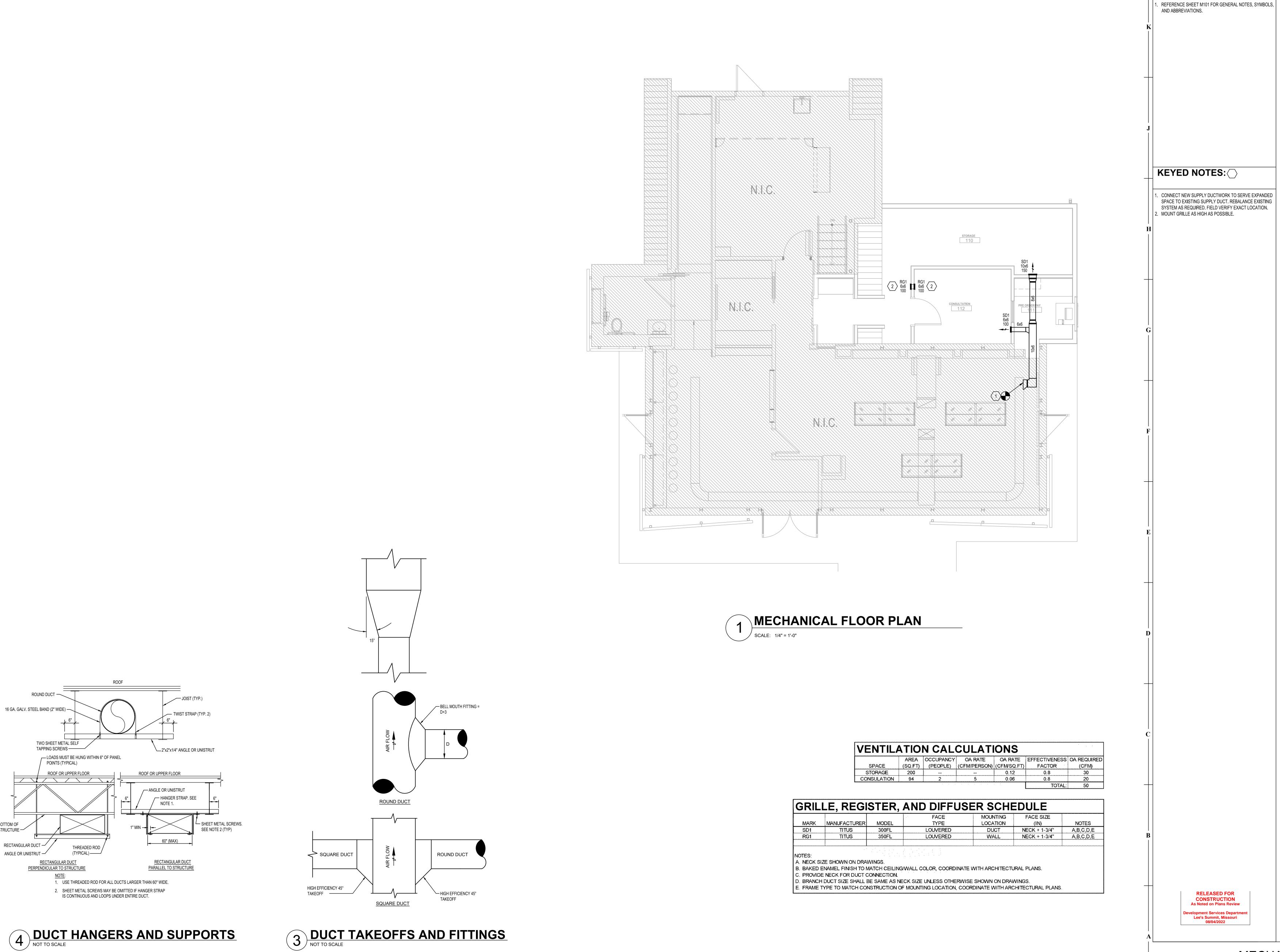




**RELEASED FOR** CONSTRUCTION
As Noted on Plans Review

Development Services Departm Lee's Summit, Missouri 08/04/2022

COLLINS WEBB #: 22038 MECHANICAL NOTES, SYMBOLS & ABBREVIATIONS



KEYED NOTES:

**GENERAL NOTES** 

(NOT ALL NOTES APPLY)

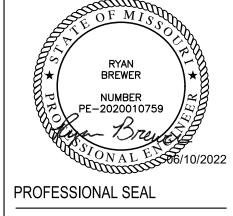
CONNECT NEW SUPPLY DUCTWORK TO SERVE EXPANDED SPACE TO EXISTING SUPPLY DUCT. REBALANCE EXISTING SYSTEM AS REQUIRED. FIELD VERIFY EXACT LOCATION.

 MOUNT GRILLE AS HIGH AS POSSIBLE.

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**REVISION DATES:** 





ISSUE DATE: 10 JUNE, 2022 COLLINS WEBB #: 22038

MECHANICAL FLOOR PLAN

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

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. WHICH THESE DOCUMENTS HAVE BEEN PREPARED AND BECOME COGNIZANT OF ALL THE HVAC, PLUMBING OR FIRE PROTECTION SYSTEMS. DETAILS INVOLVED. COORDINATE WORK WITH THAT OF OTHERS.

INSTALL - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION VERIFY SCOPE OF AND THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND 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 IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OR ARCHITECT. WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF

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

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

ALL WORK SHALL CONFORM TO THE OWNER'S CRITERIA, THE STATE'S, COUNTY'S, CITY'S 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

### 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 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) SCHEDULE A MEETING WITH THE OWNER'S REPRESENTATIVE AT THE SITE TO PROVIDE MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION. EXTENDED DETAILED INFORMATION ON THE OPERATING AND MAINTENANCE OF EQUIPMENT. 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 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 JOB CONDITIONS AS THEY EXIST. PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

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.

INCLUDE IN BID ALL NECESSARY SERVICE REQUIRED TO KEEP THE OPERATING PHASE OF TYPE OF GENERAL CONSTRUCTION, AND THE ARCHITECTURAL, STRUCTURAL, MECHANICAL THE PROJECT'S HVAC, PLUMBING AND SPRINKLER SERVICE IN OPERATION. IF APPLICABLE, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. ALSO UNDERSTAND THE PURPOSE FOR SCHEDULE IN WRITING WITH ARCHITECT ONE WEEK PRIOR TO ANY SHUT DOWN OF THE

COORDINATE THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY FURNISH - PURCHASE AND DELIVER TO PROJECT SITE COMPLETE WITH EVERY NECESSARY OTHER, COORDINATE ANY EXISTING EQUIPMENT REQUIRED TO BE LEFT INTACT.

> ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE, VERIFY ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, CONCRETE, MASONRY OR SIMILAR WORK, THE ITEMS SHALL BE FURNISHED AT THE 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

PERFORM ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF TH NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH WORK UNDER THIS SPECIFICATION. NO CUTTING OF THE STRUCTURE SHALL BE PERMITTED

PATCHING SHALL BE OF THE SAME WORKMANSHIP, MATERIAL AND FINISH AND SHALL

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.

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 AND LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL PIPING. SLEEVES SHALL BE NO. 22 U.S.G. GALVANIZED STEEL MINIMUM.

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.

### 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.

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.

CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE 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

> 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

### 5400 - HEATING VENTILATION AND & AIR CONDITIONING

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 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.

### SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAMES AND POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN 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 MATCH ACCURATELY ALL SURROUNDING CONSTRUCTION IN A MANNER SATISFACTORY TO 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.

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 SEALED WITH FOSTER'S 35-00, REINFORCED WITH 4 INCH WIDE GLASS FABRIC. 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 <u>TERMINAL HEAT TRANSFER UNITS</u> 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.

AYOUT 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.

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.

### 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. PROVIDE ACCESS REQUIRED FOR MAINTENANCE, ADJUSTMENT, REMOVAL AND REPAIR OF VALVES, CONTROLS, DAMPERS, EQUIPMENT AND LIKE ITEMS. PROVIDE ACCESS DOORS

PANELS SHALL BE LOCATED TO MAKE ALL ITEMS EASILY ACCESSIBLE.

(ACCESS PANELS) CONFORMING TO REQUIREMENTS OF DIVISION 8 SPECIFICATIONS.

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.

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.

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. SERVICING OF FAN MOTOR, THE MOTOR SHALL BE THREE SPEED PSC TYPE AND BE QUALIFICATIONS OF INSTRUCTORS SHALL BE SUBJECT TO APPROVAL OF THE OWNER AND PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION. 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 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

ON DRAWINGS. CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH TRAP AT THE COIL INCHES WIDE OF VENTGLAS AS MADE BY VENTFABRICS, INC. 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".

EXTERNAL INSULATION SHALL BE R-6 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS SPLITTERS: RIGIDLY ATTACH SPLITTERS TO PIVOT ROD AND OPERATING LINKAGE. SET OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING. INTERNAL INSULATION DAMPER ASSEMBLY ON RAISED INSULATED BASE ON INSULATED DUCTWORK. VOLUME 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

ON RAISED BASE ON INSULATED DUCTWORK. MARK END OF DAMPER ROD TO SHOW 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

ALL AIR SUPPLY DIFFUSERS BACKS AND NECKS, SHALL BE INSULATED WITH R-6 MINIMUN MANVILLE R-SERIES SMALLITE, OR APPROVED EQUAL FIBERGLASS BLANKET INSULATION.

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

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

### UNITS SHALL BE TRANE, LENNOX, AAON OR APPROVED EQUAL.

### EXHAUST FANS

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 SWITCH. MOUNTED AND WIRED. SOLID STATE SPEED CONTROLLER SHIPPED LOOSE AND PSC MOTOR.

### WATER SOURCE HEAT PUMPS

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 INDIVIDUAL OUTLETS, PLENUMS OR LOW PRESSURE TERMINALS, PROVIDE FACTORY CONNECTIONS, FLANGED DUCT CONNECTIONS AND CABINET INSULATION OF 1/2" 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 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 EXTEND STRAIGHT AWAY FROM CONNECTORS FOR A FEW INCHES PRIOR TO INITIATING FAN MOTORS. MOTORS SHALL BE PERMANENTLY LUBRICATED AND HAVE THERMAL

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

### <u>DUCTWORK, LOW PRESSURE, GALVANIZED STEEL</u>

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)

INSPECT THE DRAWINGS AND VERIFY EXISTING CONDITIONS IN THE FIELD. REPORT CONFLICTS BEFORE STARTING FABRICATION.

WEIGHTS AND GAGES SHALL BE IN ACCORDANCE WITH TABLE I OF "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY SMACNA. DUCT MATERIAL SHALL BE GALVANIZED STEEL.

SPLITTERS SHALL BE 18 GAGE GALVANIZED STEEL WITH HORIZONTAL AND VERTICAL PERSONNEL IN THE OPERATION OF ALL MECHANICAL EQUIPMENT AND SYSTEMS, SIGNED DIMENSIONS SUFFICIENT TO CLOSE OFF AIR TO BRANCH. PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 690 DAMPER ASSEMBLY

> 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 DAMPERS WITH ADJUSTABLE WEIGHTS OR SPRINGS TO PREVENT OUTWARD AIR FLOW. WITH BLADES SECURELY RIVETED TO BAR.

SQUARE AND RECTANGULAR ELBOWS SHALL CONTAIN TITUS NO. AG-225 TURNING VANES.

### IN ACCORDANCE WITH CHAPTER IV OF SMACNA.

EQUIVALENT AREA.

LEXIBLE CONNECTIONS SHALL BE PROVIDED FOR EACH AIR HANDLING DEVICE TO PROVIDE CONDENSATE DRAINS FOR ALL AIR CONDITIONING UNITS AND PIPE AS DENOTED PREVENT TRANSMISSION OF VIBRATIONS. MAKE FLEXIBLE CONNECTION A MINIMUM OF 4

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

DAMPERS: SUPPLY AND MAKE-UP AIR DUCTWORK IN CONCEALED SPACES. SET REGULATOR

FLEXIBLE CONNECTIONS: SECURE FLEXIBLE CONNECTIONS TO DUCT AND UNIT WITH GALVANIZED STEEL STRAPS HOLDING THE MATERIAL IN FORMED GALVANIZED STEEL

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

PAINTING: PAINT INTERIOR OF DUCTWORK FLAT BLACK WHERE VISIBLE THROUGH GRILLES ELECTRICAL CONTRACTOR. SMOKE DETECTOR SHALL BE POWERED AS SPECIFIED IN

SEALING: DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA "SEAL CLASS B".

REMOVE ALL DUCTWORK FOUND TO VIBRATE, CHATTER OR PULSATE AND REPLACE WITH

DUCTWORK, LOW PRESSURE, FLEXIBLE

CHANNELS. TEST TO ENSURE PROPER INSTALLATION.

PROVIDE WHERE INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN, FACTORY FABRICATED AND PRE INSULATED FLEXIBLE DUCTS.

## FLEXIBLE DUCTS, INCLUDING INSULATION AND SEALANTS, SHALL CONFORM TO THE

DATA SHALL BE BASED ON TEST PERFORMED IN ACCORDANCE WITH AIR DIFFUSION COUNCIL FLEXIBLE AIR DUCT TEST CODE FD72. LOW PRESSURE FLEXIBLE DUCTWORK SHALL CONSIST OF CORROSION RESISTANT SPRING PRESENT FOR AIR BALANCE TO VERIFY ACCESSIBILITY TO ALL DEVICES, VERIFY ALL CORROSION RESISTANT FASTENERS. FAN SHALL COME INSTALLED WITH NEMA-1 TOGGLE STEEL HELIX BONDED TO A GLASS REINFORCED NEOPRENE SLEEVE INSULATED WITH A OPERATING SEQUENCES AND INSTALL NEW FILTERS IN ALL UNITS JUST PRIOR TO THE AIR MINIMUM OF 1 INCH THICK. 1 POUND DENSITY FIBERGLASS INSULATION WHICH IS IN TURN BALANCE. ALLOW TWO DAYS ON SITE FOR BALANCING. THE COMPLETE AIR BALANCE COVERED WITH AN OUTER VAPOR BARRIER OF FIBER REINFORCED FOIL-SCRIM-KRAFT

REQUIREMENTS OF NFPA 90A AND UL STANDARD 181 FOR CLASS 1 DUCTS. PERFORMANCE

### OPERATING TEMPERATURE OF NOT LESS THAN 250 DEGREES F.

WHERE FLEXIBLE DUCTS CONNECT TO LOW PRESSURE DUCTS TO FORM RUNOUTS TO 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.

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

PROVIDE GALVANIZED SPRING STEEL CLAMPS OR PANDUIT STRAPS AT CONNECTIONS TO DUCT FITTINGS OR DEVICES.

FLEXIBLE DUCTWORK AND COMPONENTS SHALL BE AS MANUFACTURED BY GENERAL ENVIRONMENTAL CORPORATION OR APPROVED EQUAL.

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 AIRBORNE CHEMICALS. THE COAXIAL WATER-TO-REFRIGERANT HEAT EXCHANGERS SHALL NOT PRESSURIZE THE SYSTEM FOR 48 HOURS. STRETCH NEW DUCT WHEN REMOVING IT BE CONSTRUCTED OF A CONVOLUTED COPPER INNER TUBE AND STEEL OUTER TUBE WITH 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

ANY BEND. MAKE CONNECTIONS OF FLEXIBLE DUCT TO RIGID DUCT OR TERMINALS AS

1. APPLY FOSTER'S 30-02 SEALANT TO THE INSIDE OF THE FLEXIBLE DUCT TO DEPTH OF 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. 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

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.

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.

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 ADJUST AS DIRECTED BY OWNER OR AUTHORITY HAVING JURISDICTION.

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.

THE WORK CONSISTS OF INSTALLING CONTROLS FOR THE HVAC SYSTEM.

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.

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 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

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.

SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION, EXCEPT AS NOTED LAMINATE. INSULATION SHALL HAVE A THERMAL CONDUCTIVITY (K) NO GREATER THAN 0.25 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

> SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS RECORDED IN THE REPORT.

DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS OR PULLEYS NEEDED TO

ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED WITH NO ADDITIONAL COST TO

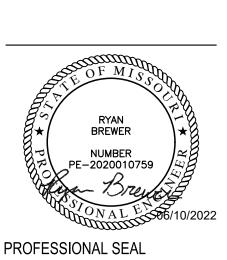
THE OWNER. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT.

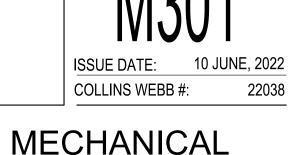
SEVEN (7) COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED FOR APPROVAL. PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED ON THESE DRAWINGS. ALL SYSTEMS UNABLE TO BE COMPLETELY BALANCED AT THE TIME OF ORIGINAL BALANCE MUST BE BALANCED IN FUTURE AT NO ADDITIONAL EXPENSE 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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**REVISION DATES:** 





**SPECIFICATIONS** 

CONSTRUCTION As Noted on Plans Revie