LEE'S SUMMIT ANIMAL HOSPITAL NORTH

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LEE'S SUMMIT, MO
64086

04.01.21
PERMIT SET

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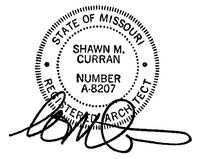


LEE'S SUMMIT ANIMAL HOSPITAL
210095

SCOPE NOTES

IN THE EVENT OF QUESTIONS REGARDING THE CONTRACT DOCUMENTS, SPECIFICATIONS, EXISTING CONDITIONS OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ARCHITECT PRIOR TO BID SUBMITTAL AND PROCEEDING WITH ANY WORK IN QUESTION.

THESE CONTRACT DOCUMENTS ARE INTENDED TO DESCRIBE ONLY THE SCOPE AND APPEARANCE OF THE REAL PROPERTY IMPROVEMENTS, INCLUDING THE PERFORMANCE AND LEVEL OF QUALITY EXPECTED OF OF ITS COMPONENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT ALL WORK COMPLETED AND MATERIALS INSTALLED BE IN FULL COMPLIANCE AT A MINIMUM, WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES HAVING JURISDICTIONAL AUTHORITY OVER THE PROJECT.

THESE CONTRACT DOCUMENTS DO NOT ATTEMPT TO INSTRUCT THE CONTRACTOR IN THE DETAILS OF HIS TRADE. THEY ARE PERFORMANCE SPECIFICATIONS IN THAT THEY DO REQUIRE THAT ALL MANUFACTURED ITEMS, MATERIALS AND EQUIPMENT BE INSTALLED IN STRICT CONFORMANCE TO THE MANUFACTURER'S RECOMMENDED SPECIFICATIONS, EXCEPT IN THE CASE WHERE THE CONTRACT DOCUMENTS ARE MORE STRINGENT. ANY MISCELLANEOUS ITEMS OR MATERIALS NOT SPECIFICALLY NOTED, BUT REQUIRED FOR PROPER INSTALLATION SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

ALL WORK SHALL BE WARRANTED SATISFACTORY, IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR, OR FOR THE PERIOD OF WARRANTY CUSTOMARY, OR STIPULATED FOR THE TRADE, CRAFT, OR PRODUCT, WHICHEVER IS LONGER. ONLY COMPETENT MECHANICS CAPABLE OF PRODUCING GOOD WORKMANSHIP CUSTOMARY TO THE TRADE SHOULD BE USED. COMMENCING WORK BY A CONTRACTOR OR SUBCONTRACTOR CONSTITUTES ACCEPTANCE OF THE CONDITIONS AND SURFACES CONCERNED. IF ANY SUCH CONDITIONS ARE UNACCEPTABLE, THE GENERAL CONTRACTOR SHALL BE NOTIFIED IMMEDIATELY, AND NO WORK SHALL BE PERFORMED UNTIL THE CONDITIONS ARE CORRECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH THE PROJECT SCOPE OF WORK, BUILDING STANDARDS, SCHEDULE AND DEADLINES. THE CONTRACTOR SHALL FURTHER BE RESPONSIBLE FOR ADVISING THE OWNER OF ALL LONG LEAD ITEMS AFFECTING THE PROJECT SCHEDULE AND SHALL UPON REQUEST FROM THE OWNER, SUBMIT ORDER CONFIRMATIONS AND DELIVERY DATES FOR SUCH LONG LEAD ITEMS TO THE OWNER.

ALL CONTRACTOR OR SUPPLIER REQUESTS FOR SUBSTITUTIONS OF SPECIFIED ITEMS SHALL BE SUBMITTED, IN WRITING, ACCOMPANIED BY THE ALTERNATIVE PRODUCT INFORMATION, TO THE ARCHITECT, NO LATER THAT TEN (10) BUSINESS DAYS, PRIOR TO BID OPENING DATE. SUBSTITUTIONS SHALL ONLY BE CONSIDERED IF THEY DO NOT SACRIFICE QUALITY, FUNCTIONALITY, APPEARANCE OR WARRANTY. UNDER NO CIRCUMSTANCES WILL THE OWNER BE REQUIRED TO PROVE THAT A PRODUCT PROPOSED FOR SUBSTITUTION IS OR IS NOT OF EQUAL QUALITY TO THE PRODUCT SPECIFIED. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SCALE THE DRAWINGS TO DETERMINE DIMENSIONS. REFER TO PLANS, SECTIONS AND DETAILS FOR ALL DIMENSIONAL INFORMATION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL SELECTED MATERIALS WHICH SHALL BE COMPLETE IN ALL RESPECTS PRIOR TO THE FINAL ACCEPTANCE, UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL PRESERVE ALL PRINTED INSTRUCTIONS AND WARRANTY INFORMATION THAT IS PROVIDED WITH EQUIPMENT OR MATERIALS USED, AND DELIVER SAID PRINTED MATTER TO THE OWNER AT THE TIME OF SUBSTANTIAL COMPLETION. THE CONTRACTOR SHALL INSTRUCT THE OWNER IN THE PROPER USE OF THE EQUIPMENT FURNISHED BY THEIR TRADE.

GENERAL CONTRACTOR SHALL PROVIDE A THOROUGH CONSTRUCTION CLEANING AT PROJECT CLOSE OUT, PRIOR TO PUNCH LIST WALK THROUGH.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL FABRICATED ITEMS, AND PHYSICAL SAMPLES OF ALL FINISH MATERIALS SPECIFIED TO THE ARCHITECT FOR REVIEW.

REVIEWED SHOP DRAWINGS AND SUBMITTALS BY OTHERS SHALL NOT BE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. THE ARCHITECT ASSUMES NO RESPONSIBILITY FOR DRAWINGS, SCHEDULES, AND/OR SPECIFICATIONS FOR WORK ON THE PROJECT PREPARED BY OTHERS.

THE ARCHITECT WILL REVIEW ALL SHOP DRAWINGS, SUBMITTALS AND SAMPLES FOR CONFORMITY WITH THE CONTRACT DOCUMENTS AND RETURN THEM TO THE CONTRACTOR WITHIN SEVEN (7) WORKING DAYS EXCEPT AS MAY OTHERWISE BE PROVIDED FOR BY THE OWNER.

THE CONTRACTOR SHALL NOT REPRODUCE AND MARK UP ANY PART OF THE CONTRACT DOCUMENTS FOR SUBMITTAL AS A SHOP DRAWING. ANY SUCH SUBMITTAL WILL BE REJECTED.

ANY SUBMITTAL REQUIRED TO BE REVIEWED MORE THAN THE INITIAL REVIEW AND ONE (1) ADDITIONAL REVIEW, WILL BE CONSIDERED TO BE IN EXCESS OF THE SCOPE OF THE PROJECT. THE TIME REQUIRED FOR THIRD AND SUBSEQUENT REVIEWS OF A SUBMITTAL WILL BE PAID FOR BY THE CONTRACTOR TO THE ARCHITECT AT THE ARCHITECT'S STANDARD BILLING RATES, PLUS REIMBURSABLE EXPENSES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ANY EXISTING CONDITIONS AND ALL CRITICAL DIMENSIONS ASSOCIATED WITH THE PROPOSED WORK. THE CONTRACTOR SHALL CONFIRM THAT ALL WORK OUTLINED WITHIN THE CONTRACT DOCUMENTS CAN BE ACCOMPLISHED AS SHOWN, PRIOR TO BID OPENING. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY CONDITIONS ENCOUNTERED WHICH MAY AFFECT BUILDING CODE COMPLIANCE, LIFE SAFETY, ISSUANCE OF CERTIFICATE OF OCCUPANCY, OR COMPLETION OF THE PROJECT AS DIRECTED IN THE CONTRACT DOCUMENTS.

NO ADDITIONAL FUNDS WILL BE APPROVED FOR WORK OMITTED FROM THE CONTRACTOR'S BID DUE TO LACK OF VERIFICATION BY THE CONTRACTOR, EXCEPT AS OTHERWISE APPROVED BY THE OWNER FOR WORK ASSOCIATED WITH HIDDEN CONDITIONS WHICH ARE NOT ACCESSIBLE PRIOR TO CONSTRUCTION.

REFER TO PROJECT MANUAL (WHEN APPLICABLE) FOR ADDITIONAL REQUIREMENTS AND DIRECTIONS.
ALL INTERIOR FINISHES SHALL COMPLY WITH CHAPTER EIGHT (8) OF THE 2018 INTERNATIONAL BUILDING CODE.

LIGHT GAGE METAL STUDS: STUDS, THEIR COMPONENTS AND THEIR CONNECTIONS SHALL BE ENGINEERED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. THE ENGINEER SHALL AFFIX THEIR SEAL AND SIGNATURE TO SHOP DRAWINGS AND CALCULATIONS SUBMITTED FOR REVIEW.

STEEL REQUIRED TO TRANSMIT GRAVITY AND/OR LATERAL LOADS TO THE STRUCTURE NOT DETAILED ON THE STRUCTURAL DRAWINGS IS THE RESPONSIBILITY OF THE METAL STUD SUPPLIER TO DESIGN, DETAIL, PROVIDE AND INSTALL.

METAL STUDS SHALL BE DESIGNED TO SUPPORT THE LOADS SHOWN IN THE DESIGN DATA IN ADDITION TO THE WEIGHT OF THE MATERIALS ATTACHED TO THE METAL STUDS. METAL STUDS SHALL BE DESIGNED USING THE LOAD COMBINATIONS IN SECTION 1605.3.1 OF THE INTERNATIONAL BUILDING CODE, 2012 EDITION. NO INCREASE IN ALLOWABLE STRESS IS ALLOWED.

DEFLECTION DUE TO LATERAL LOAD SHALL BE LIMITED TO $\frac{1}{240}$ OF THE STUD SPAN. FOR CANTILEVERS, THE DEFLECTION DUE TO LATERAL LOAD AT THE END OF THE CANTILEVER SHALL BE LIMITED TO $\frac{1}{180}$ OF THE CANTILEVER DIMENSION.

METAL STUD MANUFACTURER SHALL DETERMINE FINAL LAYOUT AND GAUGE OF STUDS TO MEET THE ARCHITECTURAL AND STRUCTURAL REQUIREMENTS.

WHERE ROUGH CARPENTRY IS IN CONTACT WITH THE GROUND, EXPOSED TO WEATHER OR IN AREAS OF HIGH RELATIVE HUMIDITY PROVIDE FASTENERS AND ANCHORAGES WITH A HOT DIP ZINC COATING OF G90 COMPLYING WITH ASTM A153 OR PROVIDE FASTENERS AND ANCHORAGES OF TYPE 304 STAINLESS STEEL.

ALL WOOD SHEATHING TO BE FIRE TREATED UNLESS NOTED OTHERWISE.

ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
ALUM	ALUMINUM
ANOD	ANODIZED
APP	APPROXIMATE
ARCH	ARCHITECT
AWT	ACOUSTICAL WALL TREATMENT
BLDG	BUILDING
BLKG	BLOCKING
B.O.	BOTTOM OF
BOT	BOTTOM
BRG	BEARING
CAB	CABINET
CJ	CONTROL JOINT
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CONST	CONSTRUCTION
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
CPT	CARPET
CT	CERAMIC TILE
CW	COLD WATER
DET, DTL	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DWG(S)	DRAWING(S)
EA	EACH
EC	EXPOSED CEILING
EIFS	EXTERIOR INSULATION FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ENG	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FIN	FINISH
FLR	FLOOR
FR	FIRE RETARDANT
FT	FEET
GA	GAUGE
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GYP BD	GYPSUM BOARD
HDWR	HARDWARE
HGT	HEIGHT
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HIGH POINT
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HW	HOT WATER
INSUL	INSULATION
JAN	JANITOR
JST	JOIST
JT	JOINT
KD	KNOCKDOWN
KIT	KITCHEN
LAM	LAMINATE
LAV	LAVATORY
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MARKER BOARD
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MO	MASONRY OPENING
MTL	METAL
N/A	NOT APPLICABLE
NR	NON-RATED/NO RATING
NIC	NOT IN CONTRACT
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFD	OVERFLOW DRAIN
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OTO	OUT TO OUT
PLAS LAM	PLASTIC LAMINATE
PLWD	PLYWOOD
PS	PROJECTION SCREEN
QT	QUARRY TILE
R	RISER
RA	RETURN AIR
RB	RESILIENT BASE
RD	ROOF DRAIN
REF	REFERENCE
REFR	REFRIGERATOR
REQD	REQUIRED
RO	ROUGH OPENING
SA	SUPPLY AIR
SCHED	SCHEDULE
SCMD	SOLID CORE METAL DOOR
SCWD	SOLID CORE WOOD DOOR
SEC	SECTION
SF	SQUARE FOOT
SIM	SIMILAR
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPENDED
TB	TACK BOARD
TEL	TELEPHONE
TLT	TOILET
T.O.	TOP OF
TRTD	TREATED
TV	TELEVISION
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VT	VINYL TILE
W/	WITH
W/O	WITHOUT
WB	WOOD BASE
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER

SYMBOLS

(NOT ALL MAY APPLY)

- WP — WORKING POINT
- # — KEYED NOTE
- # — WINDOW OR GLAZED OPENING TAG
  IF WINDOW - W#
  IF STOREFRONT - SF#
  IF CURTAINWALL - CW#
- # — ACCESSORY TAG
- # — EQUIPMENT TAG
- XXX — FINISH TAG
- ROOM NAME — ROOM TAG
- X / AXXX — ELEVATION TAG - INTERIOR OR EXTERIOR
- X / AXXX — SECTION CUT AT AREAS SHOWN SMALL SCALE
- X / AXXX — ENLARGED PLAN
- XXX' - X" / XXX — ELEVATION TARGET. FINISHED FLOOR = 0'-0" UNO
- # — REVISION
- N — PLAN OR TRUE NORTH
- BATT INSULATION - WIDTH OF FRAMING UNO
- FE — FIRE EXTINGUISHER IN SEMI-RECESSED CABINET PROVIDED / INSTALLED BY GC
- FE — SURFACE MOUNTED FIRE EXTINGUISHER PROVIDED / INSTALLED BY GC
- 100 — DOOR WITH DOOR NUMBER
- WINDOW OR GLAZED OPENING
- STUD FRAMED WALL - REFER TO INDEX SHEET FOR INFORMATION
- CMU WALL - REFER TO SECTIONS AND DETAILS
- BRICK WALL - REFER TO SECTIONS AND DETAILS
- CONCRETE WALL - REFER TO SECTIONS AND DETAILS
- EIFS OVER SUBSTRATE - REFER TO SECTIONS FOR WIDTH AND PROFILE
- EXISTING DOOR - REFER TO DOOR SCHEDULE
- EXISTING FRAMED WALL
- EXISTING WINDOW WITH SILL AND / OR STOOL
- DEMO'D DOOR
- DEMO'D WALL
- Wtr / 12" — WALL TYPE
  WALL HEIGHT IF DESIGNATED ON PLANS. IF NOT, SEE WALL TYPES THIS SHEET

CODE ANALYSIS

APPLICABLE CODES

BUILDING CODE
2018 INTERNATIONAL BUILDING CODE

PLUMBING CODE
2017 INTERNATIONAL PLUMBING CODE

ELECTRICAL CODE
2017 NATIONAL ELECTRICAL CODE

FIRE CODE
2018 INTERNATIONAL FIRE CODE

MECHANICAL CODE
2018 INTERNATIONAL MECHANICAL CODE

FUEL GAS CODE
2018 FUEL GAS CODE

INDIANA HANDICAPPED ACCESSIBILITY CODE
2009 ANSI A117.1
ADA ACCESSIBILITY GUIDELINES

OCCUPANCY (OVERALL BUILDING)

CLASSIFICATION (302.1): B

OCCUPANCY (TENANT SPACE)

CLASSIFICATION (302.1): B
ACCESSORY USES (508.2.1): N/A
NON-SEPARATED USES (508.3.2): N/A
SEPARATED USES (508.3.3): N/A

AUTOMATIC SPRINKLER SYSTEM

SPRINKLER SYSTEM REQUIRED (903): YES
SPRINKLER SYSTEM PROVIDED: YES

ALLOWABLE BUILDING HEIGHT

TABULAR HEIGHT (503): 75'

ALLOWABLE BUILDING AREA

TABULAR AREA (503): 23,000 SF

BUILDING AREA INCREASE

INCREASE FOR SPRINKLERED BUILDING (506.3): 300%
UNLIMITED AREA (507): N/A
FRONTAGE INCREASE (506.2): N/A
If = (F/P - .25) x W / 30
TOTAL ALLOWABLE AREA WITH INCREASES: 92,000
Aa = At + (At x If) + (At x Is)
Aa = FILL IN

ACTUAL BUILDING HEIGHT AND AREA

BUILDING AREA: 14,123 SF
BUILDING HEIGHT (FEET / # FLOORS): 27'
PROJECT AREA 3,880 SF

TABULAR OCCUPANT LOAD (1004.1.2)

OCCUPANT LOAD FACTOR: 1/100

ACTUAL OCCUPANT LOAD (1004.1.2)

SQUARE FOOTAGE / OCCUPANT LOAD FACTOR: 3880/100
TOTAL OCCUPANTS: 39

FIRE RESISTIVE REQUIREMENTS (601 AND 602)

CONSTRUCTION TYPE: NR
STRUCTURAL FRAME: NR
EXTERIOR BEARING WALLS: NR
INTERIOR BEARING WALLS: NR
EXTERIOR NON-BEARING WALLS: NR
INTERIOR NON-BEARING WALLS NR
FLOOR CONSTRUCTION: NR
ROOF CONSTRUCTION: NR
SHAFTS: N/A

FIRE RESISTANCE RATED CONSTRUCTION (704, 601, 602)

RATED EXTERIOR WALLS: N/A
FIRE SEPARATION DISTANCE 60'+
UNPROTECTED OPENING AREA: N/A

INTERIOR WALL AND CEILING FINISH REQUIREMENTS (803)

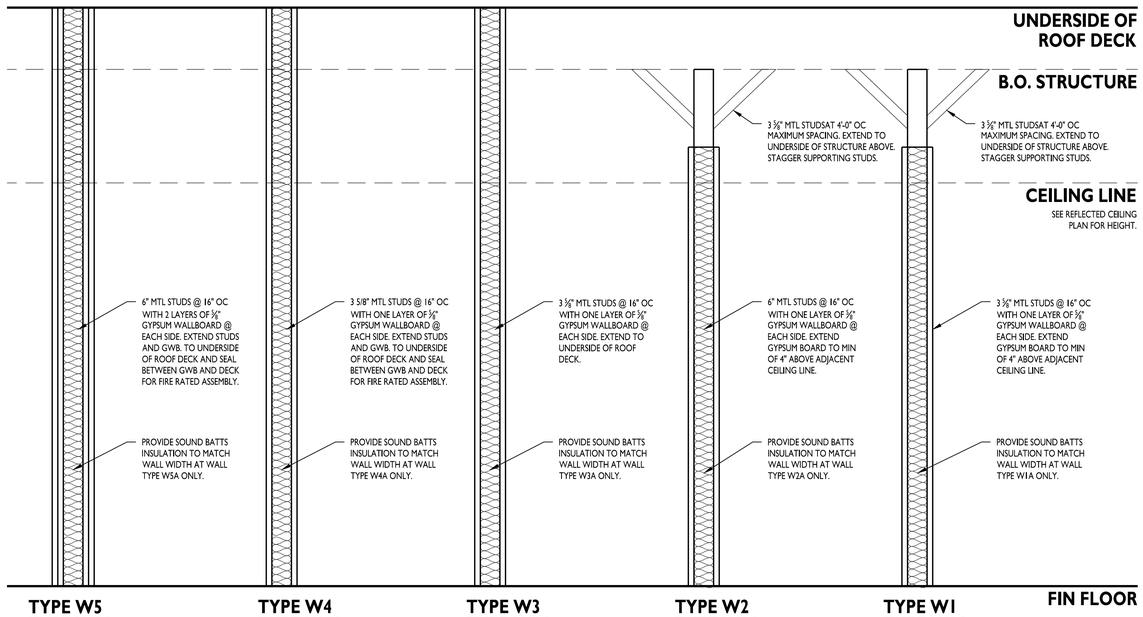
SEE FINISH SCHEDULE FOR MATERIALS
ALL MATERIALS ARE CLASS A RATED

FIRE PROTECTION SYSTEMS

STANDPIPE SYSTEM (905): EXIST
PORTABLE FIRE EXTINGUISHERS (906.1): SEE PLAN
FIRE ALARM AND DETECTION SYSTEMS (907): FILL IN
SMOKE CONTROL SYSTEMS (909): N/A
SMOKE AND HEAT VENTS (910): N/A

EGRESS

MINIMUM WIDTH FACTOR (1005.1): 0.15
REQUIRED MINIMUM WIDTH FROM SPACE (1005.1): 5.85"
MINIMUM NUMBER OF EXITS (1015): 1
ACTUAL NUMBER OF EXITS: 4
ACTUAL WIDTH OF EXITS: 144"
ALLOWABLE TRAVEL DISTANCE (1016.2): 300'
CORRIDOR CONSTRUCTION (1018.1): NR
MINIMUM CORRIDOR WIDTH (1018.2): 44"
MAXIMUM DEAD END CORRIDOR (1018.4): 50'



WALL TYPE GENERAL NOTES

A. NOTE: WALL HEIGHT AS MARKED ON PLANS IN CONJUNCTION WITH WALL TYPE SYMBOL WILL SUPERCEDE WALL HEIGHTS AS SHOWN ABOVE. SEE SYMBOLS LEGEND THIS SHEET.

B. PROVIDE DEEP LEG DEFLECTION TRACK AT TOP OF ALL METAL STUD WALLS WHERE STUDS EXTEND TO UNDERSIDE OF ROOF DECK OR STRUCTURE ABOVE.

C. USE MOLD AND MILDEW RESISTANT GYPSUM WALLBOARD ON ALL PLUMBING WALLS. USE 5/8" CEMENT BOARD INSTEAD OF GYP BOARD BEHIND ALL TILE FINISHES.

D. BRACE METAL STUD WALLS TO TOP OF STRUCTURAL STEEL ELEMENTS-ABOVE CEILING PLANE. COORDINATE REQUIRED BRACE SPACING WITH STRUCTURAL ENGINEER PRIOR TO BEGINNING CONSTRUCTION.

E. REFER TO ROOM FINISH SCHEDULE FOR ALL FINISH SELECTIONS; CEILING TYPES AND HEIGHTS; AND TYPES, SIZES AND LOCATIONS ETC.

F. ALL STUD WALLS CREATING A CONCEALED WALL SPACE TO HAVE FIREBLOCKING AT INTERVALS NOT EXCEEDING 10'-0" PER 718.2.2 IBC 2012

WALL TYPES

NOT TO SCALE

DRAWINGS

COVER

ARCHITECTURAL

A001 INDEX
A002 TYPICAL ACCESSIBILITY DETAILS
A100 LIFE SAFETY PLAN
A101 FLOOR PLAN
A102 ENLARGED RESTROOM PLANS
A110 REFLECTED CEILING PLAN
A130 EQUIPMENT PLAN
A601 DOOR SCHEDULE
A801 FINISH SCHEDULE
A820 CASEWORK ELEVATIONS
A821 CASEWORK ELEVATIONS
A822 CASEWORK ELEVATIONS
A823 CASEWORK SECTIONS & DETAILS

MECHANICAL

M001 MECHANICAL LEGEND AND DETAILS
M002 MECHANICAL DETAILS
M003 MECHANICAL SCHEDULES
M004 MECHANICAL SPECIFICATIONS
M005 MECHANICAL COMPLIANCE
M101 MECHANICAL PLAN

PLUMBING

P001 PLUMBING LEGEND AND SCHEDULES
P002 PLUMBING DETAILS
P003 PLUMBING DETAILS
P005 PLUMBING SPECIFICATIONS
P101 DOMESTIC WATER PLAN
P102 SANITARY PLAN
P201 PLUMBING SANITARY ISOMETRIC

ELECTRICAL

E001 ELECTRICAL LEGEND AND DETAILS
E002 ELECTRICAL ONE LINE AND SCHEDULES
E003 ELECTRICAL SPECIFICATIONS
E004 ELECTRICAL ENERGY CALCULATIONS
E101 LIGHTING PLAN
E102 POWER PLAN

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CERTIFICATION

PROJECT INFORMATION

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64086

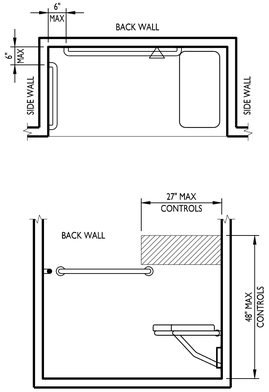
ISSUE DATES

PERMIT SET	04.01.21

210095

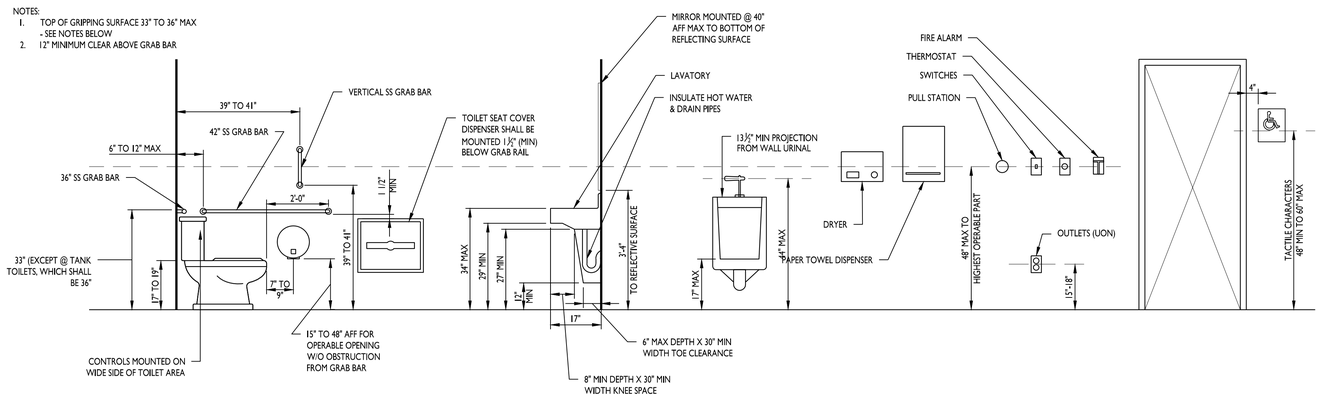
INDEX

A001



SHOWER STALL DIMENSIONS 8

1/2" = 1'-0"



TYPICAL MOUNTING HEIGHTS 1

1/2" = 1'-0"

TYPICAL ADA INFO

WATER CLOSET: WATER CLOSETS SHALL BE 17" TO 19" AFF WHEN MEASURED TO THE TOP OF THE TOILET SEAT AND THE CENTER FOR THE FIXTURE SHALL BE 18" FROM ONE WALL WITH A CLEAR FLOOR SPACE OF 60" WIDE AND 59" DEEP FOR FLOOR MOUNT AND 56" DEEP FOR WALL MOUNT. FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET.

SINK: SINK SHALL BE MOUNTED WITH THE RIM OR COUNTER NO HIGHER THAN 34" AFF PROVIDE A CLEARANCE OF AT LEAST 29" TO THE BOTTOM OF THE APRON WITH AN 8"X27" KNEE SPACE AND 6"X9" TOE SPACE. EXPOSED HOT WATER AND DRAIN PIPES UNDER SINKS SHALL BE INSULATED. FAUCETS SHALL BE LEVER-OPERATED, PUSH-TYPE AND MOTION SENSOR.

URINALS: URINALS SHALL BE STALL-TYPE OR WALL HUNG WITH THE RIM AT A MAXIMUM OF 17" AFF AND A 30" X 48" CLEAR FLOOR SPACE.

GRAB BARS: GRAB BARS SHALL BE 33" TO 36" AFF THE GRAB BAR BEHIND THE WATER CLOSET SHALL BE 36" LONG AND NO MORE THAN 6" OF OF THE SIDE WALL. THE SIDE WALL GRAB BAR SHALL BE 42" LONG AND 12" OFF THE BACK WALL.

MIRROR: MIRRORS SHALL BE MOUNTED SO THE BOTTOM OF THE REFLECTING SURFACE IS NO MORE THAN 40" AFF.

PAPER TOWEL/DRYER: PAPER TOWEL/ DRYERS SHALL BE MOUNTED NO HIGHER THAN 48" AFF.

SOAP DISPENSER: SOAP DISPENSERS SHALL BE MOUNTED NO HIGHER THAN 48" AFF.

TOILET PAPER: TOILET PAPER DISPENSERS SHALL BE INSTALLED WITHIN 36" MAX OF THE BACK WALL.

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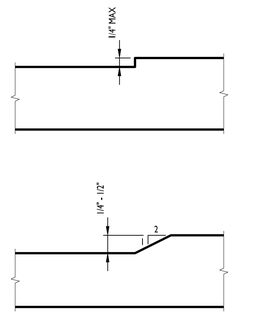
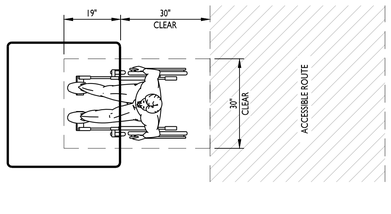
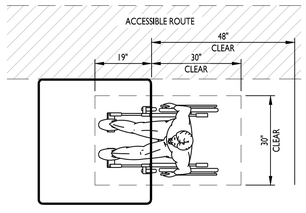


FLOOR TRANSITIONS 9

6" = 1'-0"

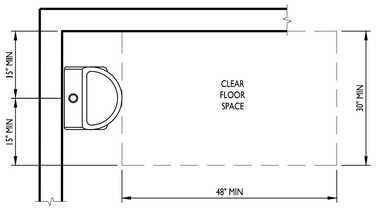




NOTE: MAINTAIN 44" MIN CLEAR AISLE EGRESS PATHS TO EXIT DOORS.

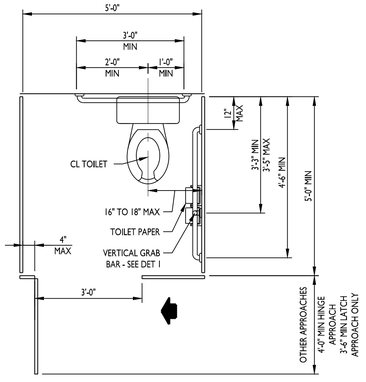
ACCESSIBLE ROUTES 6

1/2" = 1'-0"



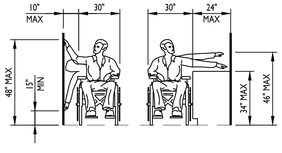
URINAL CLEAR SPACE 4

3/4" = 1'-0"



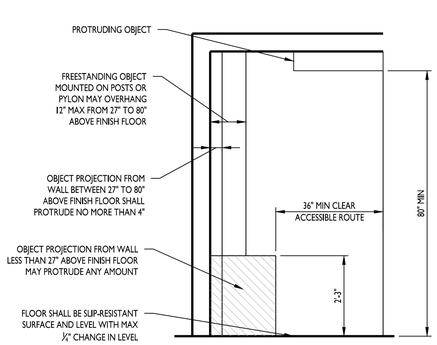
TOILET STALL DIMENSIONS 2

1/2" = 1'-0"



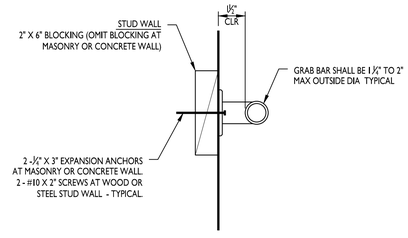
REACH RANGES 10

1/4" = 1'-0"



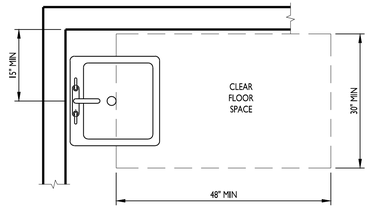
VERTICAL CLEARANCES 7

1/2" = 1'-0"



GRAB BAR DIMENSIONS 5

3" = 1'-0"



SINK CLEAR SPACE 3

3/4" = 1'-0"

CERTIFICATION

STATE OF MISSOURI
SHAWN M. CURRAN
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PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

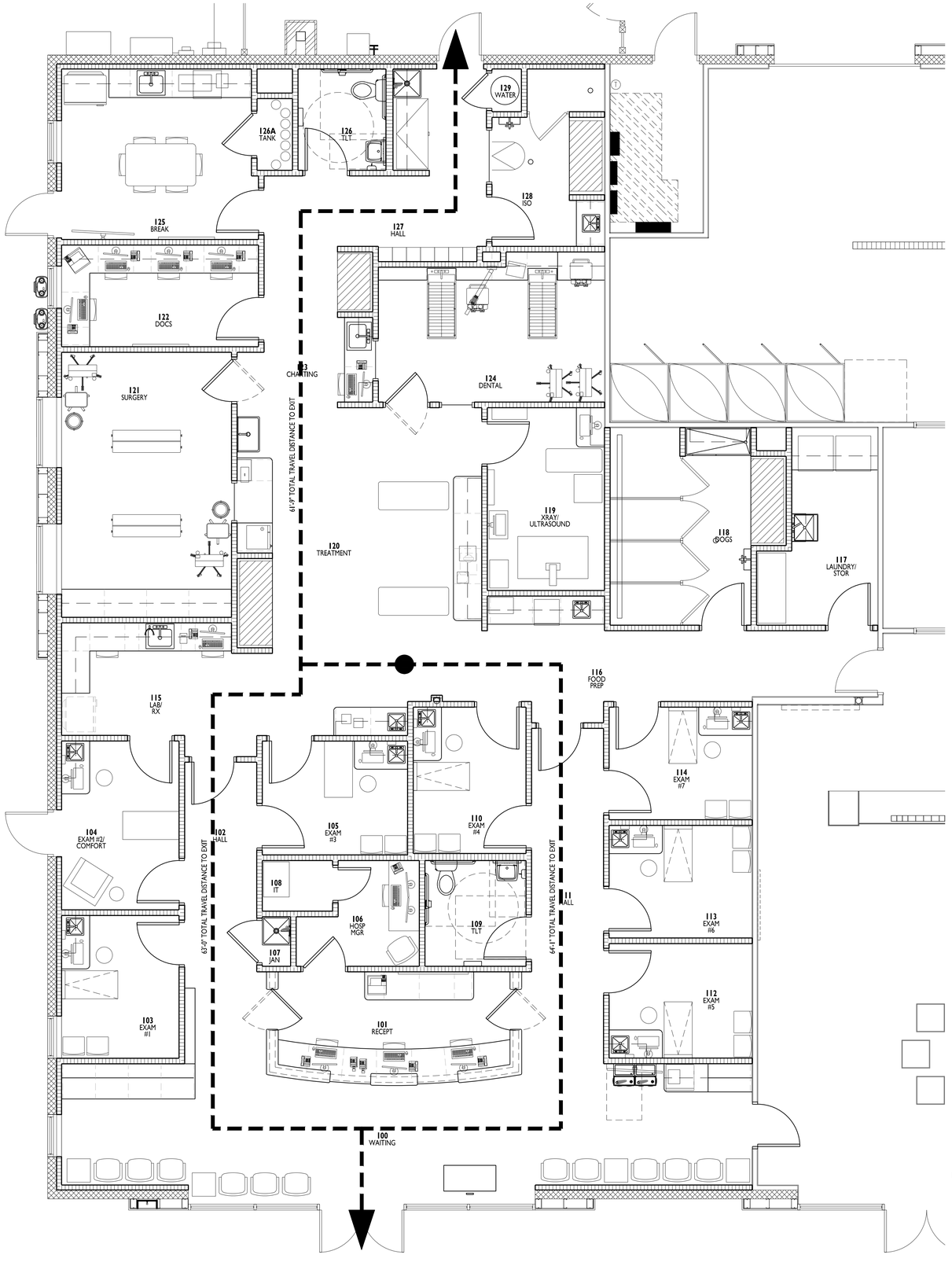
ISSUE DATES

PERMIT SET	04.01.21

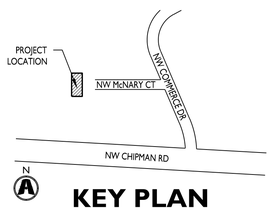
210095

TYPICAL ACCESSIBILITY DETAILS

A002



LIFE SAFETY PLAN
1/4" = 1'-0"



KEY PLAN

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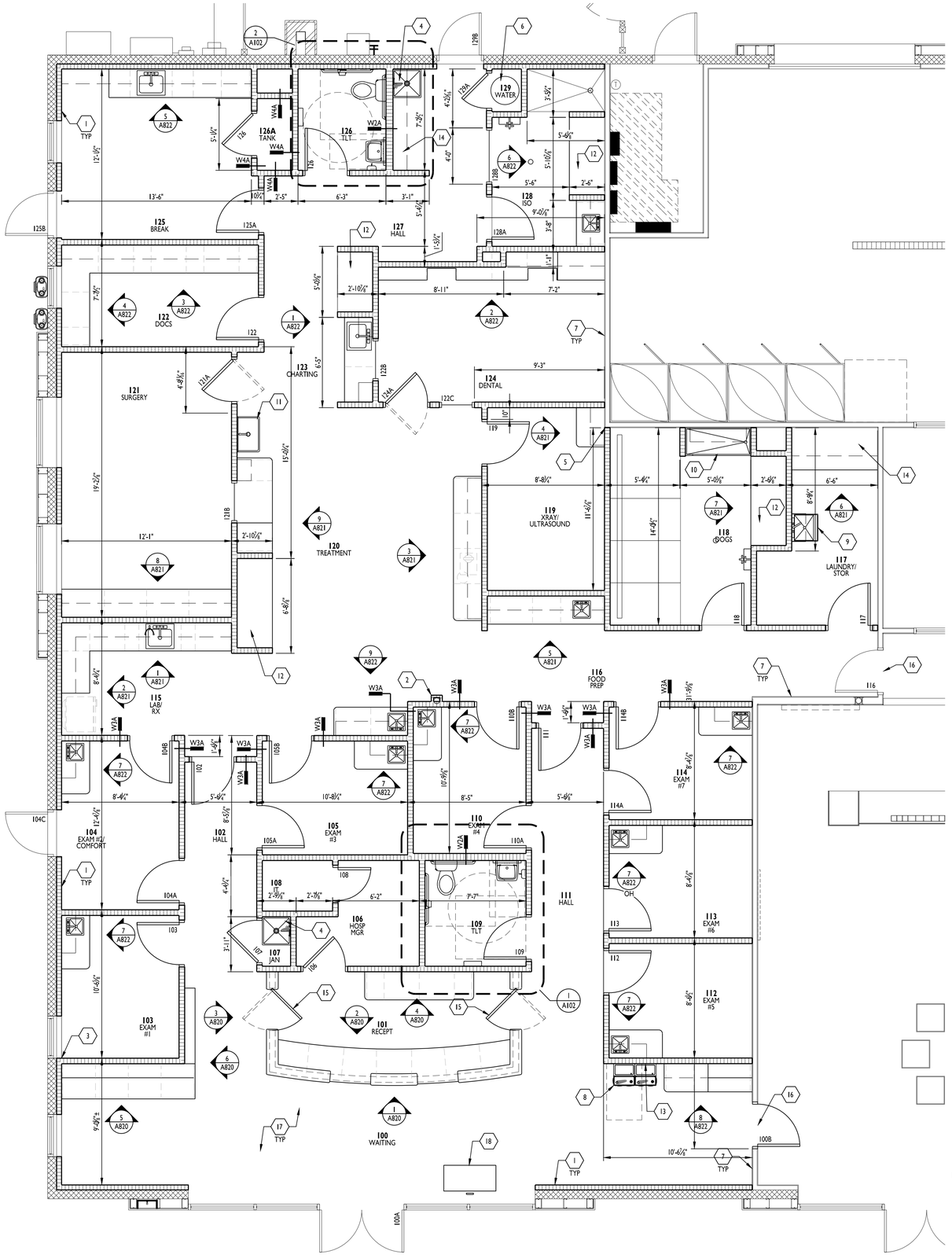
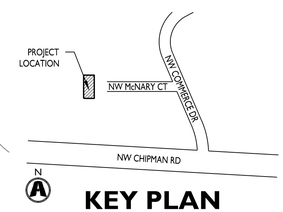
LIFE SAFETY PLAN

A100



FLOOR PLAN 1/4" = 1'-0"



KEY PLAN

GENERAL NOTES

A. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS AND JOB CONDITIONS. ANY DEVIATION FROM WHAT IS NOTED IN DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.

B. ALL DIMENSIONS SHOWN ARE FACE OF BRICK, MASONRY OR METAL STUD FRAMING, UNLESS OTHERWISE NOTED.

C. PROVIDE DEEP LEG DEFLECTION TRACK AT ALL METAL STUD CONNECTIONS WITH STRUCTURE ABOVE, TYPICAL.

D. PROVIDE FIRE RATED WOOD BLOCKING IN METAL STUD WALLS FOR ANY WALL SUPPORTED ITEMS.

E. PROVIDE APPROVED FIRE RATED STOPPING MATERIALS IN ANY OPENINGS IN FIRE RATED ASSEMBLIES.

F. REFER TO DOOR AND WINDOW SCHEDULES FOR ALL MATERIALS, FINISHES, AND HARDWARE INFORMATION.

G. REFER TO EXTERIOR ELEVATIONS FOR ALL BRICK, MASONRY, AND OTHER EXPANSION JOINT LOCATIONS.

H. ALL MATERIALS LOCATED IN CEILING PLENUM SHALL BE RATED FOR SUCH INSTALLATION OR PROTECTED TO PROVIDE COMPLIANCE. THIS INCLUDES BUT IS NOT LIMITED TO INSULATION (FHC 25/50) POWER AND LOW VOLTAGE WIRING, TELECOMMUNICATIONS CABLING, PLUMBING SUPPLY AND DRAIN LINES AND SUPPORTING BRACKETS AND/OR BLOCKING FOR CEILING HUNG ITEMS.

I. PRIOR TO ORDERING ANY PRODUCTS, CONTRACTOR SHALL SUBMIT SAMPLES TO THE ARCHITECT OF ALL FINISH MATERIALS TO BE USED ON THE PROJECT. THE CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR ANY MATERIALS ORDERED INCORRECTLY WHEN THAT MATERIAL WAS NOT REVIEWED BY THE ARCHITECT.

J. PROVIDE CONCRETE FILLED STEEL PIPE BOLLARDS AT ALL REQUIRED UTILITY EQUIPMENT LOCATIONS SUCH AS GAS METERS, ELECTRICAL TRANSFORMER PANELS, ETC., COORDINATE WITH UTILITY COMPANY AND CONTRACTORS, WHEN APPLICABLE. FOR NECESSARY LOCATIONS. REFER TO CIVIL DRAWINGS FOR BOLLARD SPECIFICATIONS AND ADDITIONAL INFORMATION.

K. ALL DOORS, UNLESS OTHERWISE NOTED, TO HAVE HINGE SIDE SET 4" FROM CORNER SHOWN TO OUTSIDE OF FRAME.

L. UNLESS SPECIFIED ELSEWHERE, ALL INTERIOR SLABS AND SLAB INFILLS TO BE FF-50/FL-35 OVERALL AND FF-35/FL-25 LOCAL.

M. ALL EXIT DOORS TO HAVE TACTILE EXIT SIGNAGE PER 703.4 OF THE ANSI 117.1 2009

N. ALL WALLS TO BE WALL TYPE W1A UNLESS NOTED OTHERWISE.

KEYED NOTES

1. TYPICAL EXTERIOR WALLS: FURR OUT W/ 3 5/8" METAL STUDS W/ R-11 BATT INSULATION. COVER WITH 6 MIL VAPOR BARRIER & 5/8" GYP BD. EXTEND TO ROOF DECK.
2. FURR OUT AROUND COLUMN W/ 1 1/2" METAL STUDS & 5/8" GYP BD.
3. ALIGN WALL FRAMING W/ EDGE OF OPENING.
4. MOP SINK. REFER TO PLUMBING DWGS. PROVIDE BOBRICK MOP HOLDER/SHELF ABOVE SINK. PROVIDE FRP ON WALL TO 48" ABOVE TOP OF MOP SINK AND 2' PAST EDGE OF MOP SINK.
5. ALIGN FINISH FACES.
6. WATER HEATER. REFER TO PLUMBING DWGS.
7. PROVIDE SOUND BATT INSULATION & 5/8" GYP BD FULL HEIGHT ON EXISTING WALL IF NOT EXISTING.
8. HI-LO ELECTRIC WATER COOLER. REFER TO PLUMBING DWGS.
9. LAUNDRY TUB. REFER TO PLUMBING DWGS.
10. DOG WASH TUB. REFER TO PLUMBING DWGS.
11. SURGICAL SCRUB SINK. REFER TO PLUMBING DWGS.
12. PLASTIC LAMINATE COUNTER OVER STAINLESS STEEL CAGES. COORDINATE WING WALL LOCATIONS W/ CASES. COUNTER TO SIT 1" ABOVE TOP OF CASE BANK.
13. PROVIDE FR BLOCKING IN WALL FOR CLIENT PROVIDED/INSTALLED TV.
14. ADJUSTABLE SHELVES. REFER TO 1/A501.
15. PLASTIC LAMINATE SWING GATE.
16. REMOVE PORTION OF EXISTING WALL FOR INSTALLATION OF NEW DOOR.
17. 5" THICK CONCRETE SLAB-ON-GRADE REINFORCED W/ 6x6xW2.9xW2.9 42# WWF ON A 10 MIL VAPOR RETARDER ON MINIMUM 4" LAYER OF WELL GRADED COMPACTED GRANULAR FILL. ALIGN W/ EXISTING SLAB. REFER TO SHELL DRAWINGS & GEOTECH REPORT FOR MORE INFORMATION.
18. RECESS SLAB FOR SCALE. COORDINATE EXTENTS W/ SUPPLIER. SCALE TO BE FLUSH W/ FINISH FLOOR HEIGHT.

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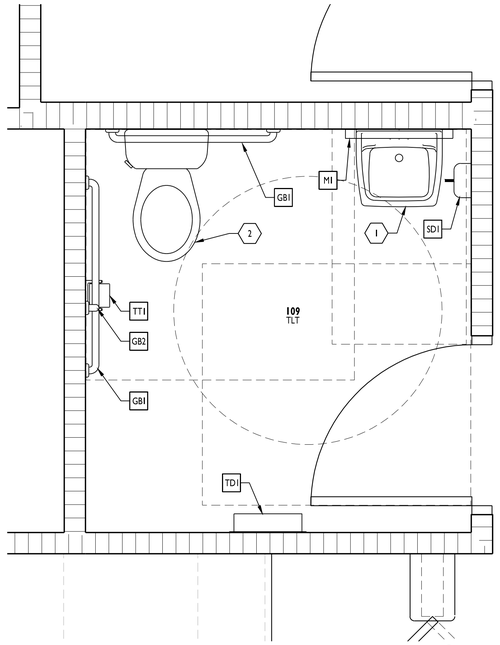
FLOOR PLAN

A101

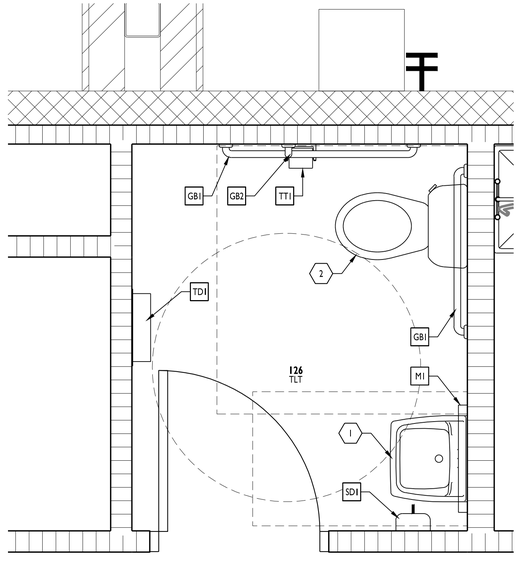
TOILET ACCESSORY SCHEDULE

MARK	SYMBOL	MFR #	DESCRIPTION
TT1		BOBRICK B-2888	MULTI-ROLL TOILET TISSUE DISPENSER
GB1		BOBRICK B-5806 X 36 B-5806 X 42	36" AND 42" GRAB BARS
GB2		BOBRICK B-5806 X 18	18" VERTICAL GRAB BAR
GB3		BOBRICK B-6861	GRAB BAR FOR SHOWER STALL
M1		BOBRICK B-165	MIRROR 2'-0" X 4'-0"
TD1		BOBRICK B-3944	TOWEL DISPENSER / WASTE RECEPTACLE
SD1		BOBRICK B-2112	SOAP DISPENSER
ND1		BOBRICK B-353 B-270	B-353: SANITARY NAPKIN DISPOSAL UNIT AT GWB LOCATIONS. B-270: SURFACE, MOUNT SANITARY NAPKIN DISPOSAL UNIT AT PARTITIONS
SS1		BOBRICK B-5181	FOLDING SEAT FOR ADA SHOWER
SH1		NOT APPLICABLE	SHOWER HEAD
TP1		GENERAL PARTITION	TOILET PARTITION AND/OR URINAL SCREEN POWDER COATED URINAL SCREEN BOTTOM 12" FROM FLOOR AND TOP 60" MAX FROM FLOOR



ENLARGED RESTROOM PLANS 1

3/4" = 1'-0"



ENLARGED RESTROOM PLANS 2

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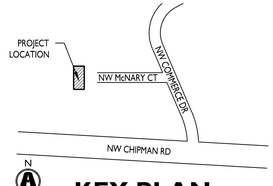
M. ALL EXIT DOORS TO HAVE TACTILE EXIT SIGNAGE PER 703.4 OF THE ANSI 117.1 2009

KEYED NOTES

1. WALL MOUNTED ADA COMPLIANT LAVATORY. PROVIDE SCALD GUARDS ON SUPPLY/WASTE LINES. REFER TO PLUMBING DWGS.
2. ADA COMPLIANT TANK TOILET. REFER TO PLUMBING DWGS.



KEY PLAN

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CERTIFICATION

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SHAWN M. CURRAN
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250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

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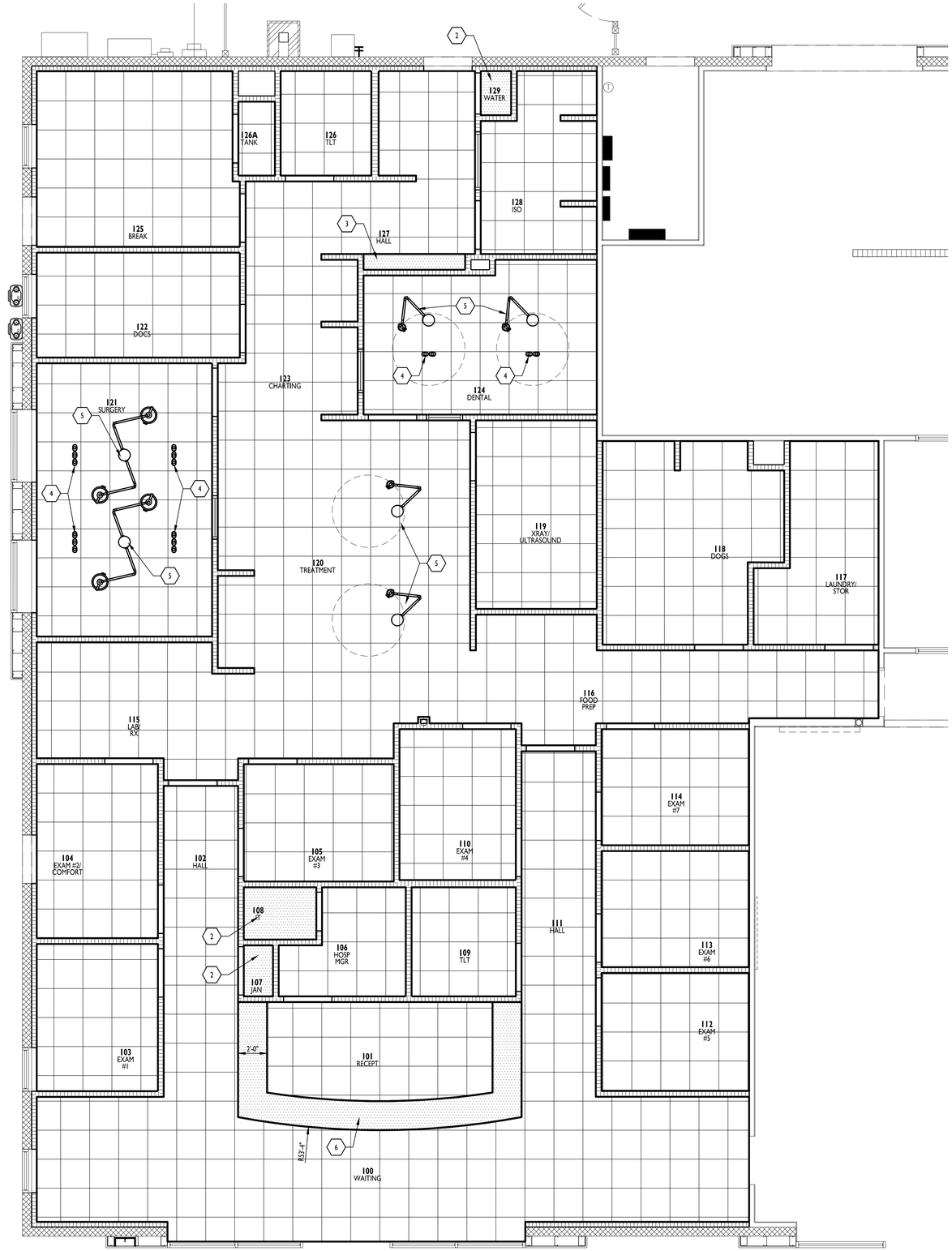
ENLARGED RESTROOM PLAN

A102



REFLECTED CEILING PLAN

1/4" = 1'-0"

N

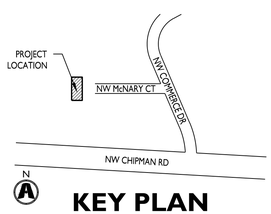
CEILING LEGEND

(NOT ALL MAY APPLY)

- CEILING MOUNT MED GAS SYSTEM
- SINGLE HEAD SURGICAL LIGHT
- DUAL HEAD SURGICAL LIGHT
- ACOUSTICAL TILE CEILING / GRID. REFER TO FINISH SCHEDULE FOR TYPE AND HEIGHT.
- GYPSUM BOARD BULKHEAD OR CEILING. HEIGHT AS NOTED ON SCHEDULE OR KEYNOTES.

KEYED NOTES

1. NOT USED
2. METAL STUD & 5/8" GYP BD CEILING AT 8'-0" AFF.
3. METAL STUD & 5/8" GYP BD BULKHEAD OVER LOCKERS. BOTTOM TO BE AT TOP OF LOCKERS. COORDINATE W/ SUPPLIER.
4. MEDICAL GAS DISTRIBUTION IN CEILING TILE. REFER TO PLUMBING DRAWINGS FOR MORE INFORMATION.
5. DENTAL/SURGICAL LIGHT PROVIDED BY CLIENT, INSTALLED BY GC. COORDINATE W/ SUPPLIER FOR STRUCTURAL SUPPORT.
6. METAL STUD & GYP BD BULKHEAD OVER DESK. BOTTOM @ 9'-0" AFF.



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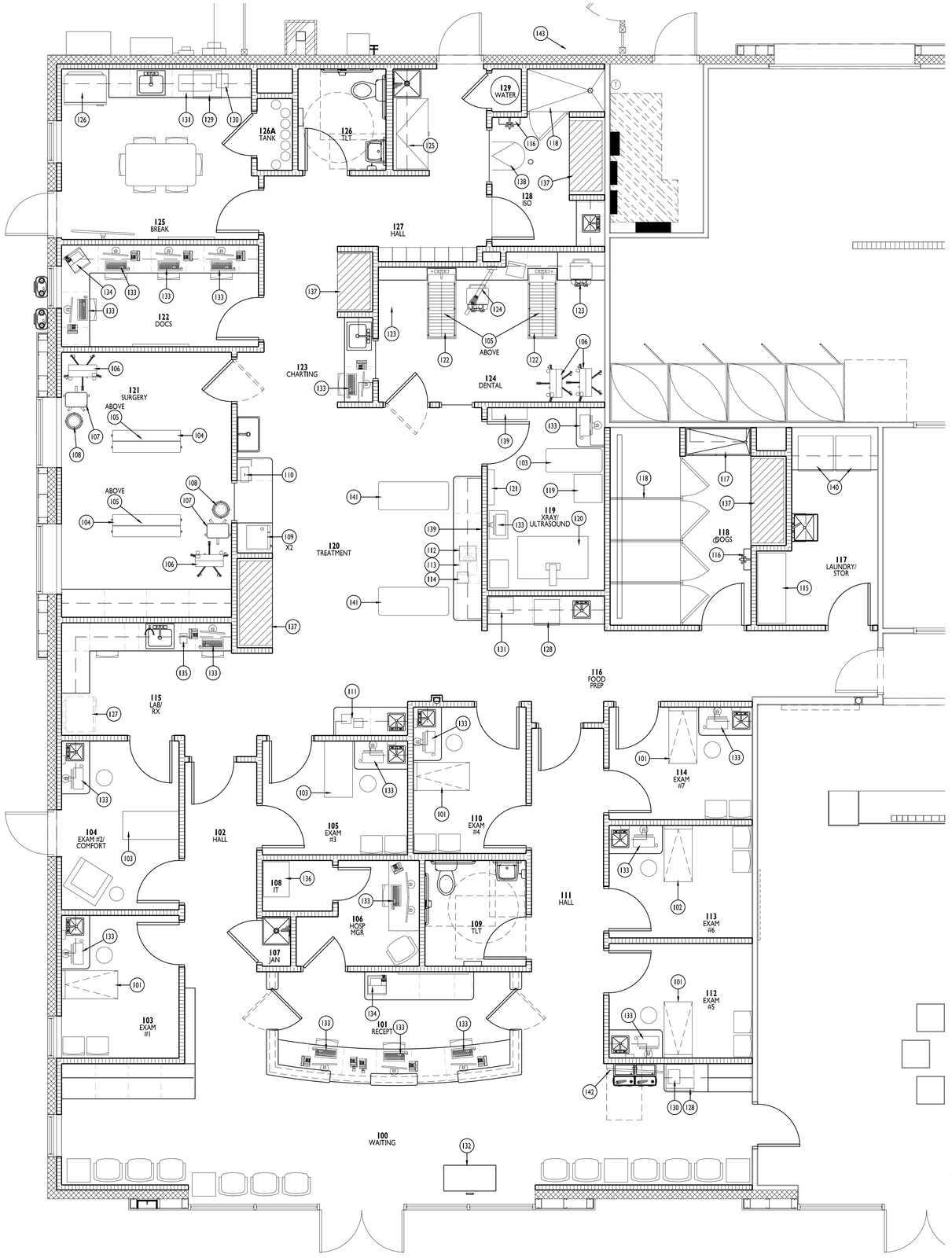
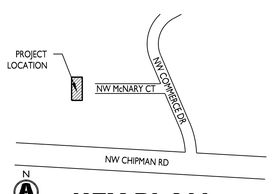
REFLECTED CEILING PLAN

A110

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NUMBER
101	WALL MOUNT EXAM TABLE, FOLDING		
102	WALL MOUNT EXAM TABLE, STATIONARY		
103	LIFT TABLE		
104	SURGERY TABLE		
105	SURGERY LIGHT		
106	ANESTHESIA MACHINE		
107	INSTRUMENT STAND		
108	KICK BUCKET		
109	AUTOCLAVE		
110	ULTRASONIC CLEANER		
111	MICROSCOPE		
112	HEMATOLOGY ANALYZER		
113	CENTRIFUGE		
114	BLOOD ANALYZER		
115	WIRE ROLLING SHELVING		
116	HOSE REEL		
117	GROOMING TUB		
118	KENNEL ENCLOSURE WALLS/GATES		
119	ULTRASOUND		
120	XRAY		
121	GLOVE DISPENSER		
122	WET TABLE		
123	DENTAL CART		
124	DENTAL XRAY		
125	CHEST FREEZER		
126	REFRIGERATOR 36"		
127	REFRIGERATOR 30"		
128	REFRIGERATOR 24" GLASS FRONT UNDER COUNTER		
129	DISHWASHER		
130	COFFEE MAKER		
131	MICROWAVE		
132	SCALE		
133	COMPUTER STATION		
134	PRINTER		
135	LABEL PRINTER		
136	SERVER RACK		
137	CAGE		
138	WALL MOUNT EXAM TABLE		
139	NARCOTIC LOCKUP		
140	WASHER / DRYER		
141	ROLLING EXAM TABLE		
142	WALL MOUNT TV		
143	O2 TANK & CAGE		





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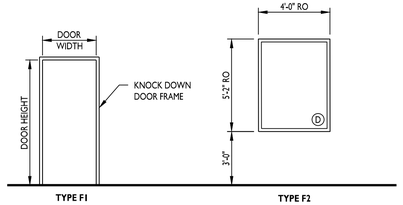
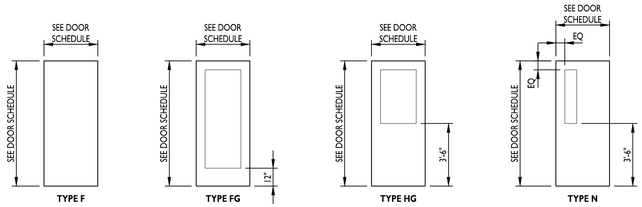
A130



DOOR FRAME TYPES

NOT TO SCALE



DOOR TYPES

NOT TO SCALE

DOOR SCHEDULE

MARK	DOOR	SIZE	MATERIAL	GLAZING	FINISH	RATING	FRAME	MATERIAL	FINISH	RATING	HARDWARE	REMARKS
100A	EXIST	EXIST	EXIST	EXIST	EXIST	-	EXIST	EXIST	EXIST	-	EXIST	
100B	HG	3'-0" x 7'-0"	SCWD	D	MATCH EXIST	-	F1	KD	P-3	-	04	
102	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	03	
103	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	01	1
104A	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	01	1
104B	F	3'-0" x 7'-0"	SCWD	-	PRE-FINISHED	-	F1	KD	P-3	-	03	2
104C	EXIST	EXIST	EXIST	EXIST	EXIST	-	EXIST	EXIST	EXIST	-	EXIST	
105A	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	01	1
105B	F	3'-0" x 7'-0"	SCWD	-	PRE-FINISHED	-	F1	KD	P-3	-	03	2
106	F	3'-0" x 7'-0"	SCWD	-	PRE-FINISHED	-	F1	KD	P-3	-	05	
107	F	3'-0" x 7'-0"	SCWD	-	PRE-FINISHED	-	F1	KD	P-3	-	01	
108	F	3'-0" x 7'-0"	SCWD	-	PRE-FINISHED	-	F1	KD	P-3	-	05	
109	F	3'-0" x 7'-0"	SCWD	-	PRE-FINISHED	-	F1	KD	P-3	-	02	3
110A	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	01	1
110B	F	3'-0" x 7'-0"	SCWD	-	PRE-FINISHED	-	F1	KD	P-3	-	03	2
111	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	03	
112	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	01	1
113	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	01	1
114A	N	3'-0" x 7'-0"	SCWD	D	PRE-FINISHED	-	F1	KD	P-3	-	01	1
114B	F	3'-0" x 7'-0"	SCWD	-	PRE-FINISHED	-	F1	KD	P-3	-	03	2
116	N	3'-0" x 7'-0"	HM	D	P-3	-	F1	KD	P-3	-	04	
117	F	3'-0" x 7'-0"	HM	-	P-3	-	F1	KD	P-3	-	03	
118	HG	3'-0" x 7'-0"	HM	D	P-3	-	F1	KD	P-3	-	03	
119	HG	3'-0" x 7'-0"	HM	D	P-3	-	F1	KD	P-3	-	01	
121A	N SIM	3'-0" x 7'-0"	ALUM	BY MFR	PRE-FINISHED	-	F1	KD	P-3	-	BY MFR	4
121B	-	-	-	-	-	-	F2	-	-	-	-	
122	F	3'-0" x 7'-0"	HM	-	P-3	-	F1	KD	P-3	-	05	
124A	N SIM	3'-0" x 7'-0"	ALUM	BY MFR	PRE-FINISHED	-	F1	KD	P-3	-	BY MFR	4
124B	-	-	-	-	-	-	F2	-	-	-	-	
124C	-	-	-	-	-	-	F2	-	-	-	-	
125A	HG	3'-0" x 7'-0"	HM	D	P-3	-	F1	KD	P-3	-	01	
125B	EXIST	EXIST	EXIST	EXIST	EXIST	-	EXIST	EXIST	EXIST	-	EXIST	
126	F	3'-0" x 7'-0"	HM	-	P-3	-	F1	KD	P-3	-	02	3
126A	F	3'-0" x 7'-0"	HM	-	P-3	45 MIN	F1	KD	P-3	45 MIN	04	
128A	HG	3'-0" x 7'-0"	HM	D	P-3	-	F1	KD	P-3	-	03	
128B	-	-	-	-	-	-	F2	-	-	-	-	
129A	F	3'-0" x 7'-0"	HM	-	P-3	-	F1	KD	P-3	-	01	
129B	EXIST	EXIST	EXIST	EXIST	EXIST	-	EXIST	EXIST	EXIST	-	EXIST	

REMARKS:

1. PROVIDE 30" TALL KICK PLATE ON EXAM ROOM SIDE OF DOOR.
2. PROVIDE 30" TALL KICK PLATE ON BOTH SIDES OF DOOR.
3. PROVIDE 12" TALL KICK PLATE ON PUSH SIDE OF DOOR.
4. ELIASON SWING DOOR.

GENERAL DOOR AND GLAZING NOTES

A. ALL PRE-FINISHED WOOD DOORS SHALL BE SOLID CORE WITH WOOD VENEER, MARSHFIELD OR EQUIVALENT. PROVIDE FINISH SAMPLE AND DOOR CONSTRUCTION DIAGRAM FOR APPROVAL AND HARDWARE BLOCKING COORDINATION. VENEER TO BE WHITE BIRCH OR MAPLE, FREE OF DARK GRAINS UNLESS OTHERWISE NOTED.

B. WOOD DOORS SHALL ONLY BE INSTALLED IN CONDITIONED SPACE.

C. ALL HARDWARE TO BE MINIMUM 6 PIN BEST COMPATIBLE SYSTEM. COORDINATE KEYING WITH OWNER.

D. TEMPERED AND ANNEALED GLASS TO BE CLEANED PER MANUFACTURER REQUIREMENTS. NYLON CLOTH METHODS PREFERRED. DO NOT USE RAZOR BLADES ON GLASS.

E. GLASS AROUND DOORS AND IN DOORS SHALL BE TEMPERED UNLESS OTHERWISE NOTED IN ELEVATIONS.

F. ANY RATED DOORS TO HAVE LABEL INSTALLED IN JAMB.

G. ALL EXITS DOORS TO HAVE TACTILE EXIT SIGNAGE PER 703.4 OF THE ANSI 117.1 2009.

H. INSTALL OWNER PROVIDED ADA COMPLIANT RESTROOM SIGNAGE, VERIFY WITH ARCHITECT.

GLAZING TYPES

A. SECTION OF GLAZING REQUIRED TO BE 1" INSULATED GREY TINTED GLASS.

B. SECTION OF GLAZING REQUIRED TO BE 1" INSULATED TEMPERED GLASS.

C. SECTION OF GLAZING REQUIRED TO BE 1/4" GLASS.

D. SECTION OF GLAZING REQUIRED TO BE 1/4" TEMPERED GLASS.

E. SECTION OF GLAZING REQUIRED TO BE 1" INSULATED TEMPERED GREY TINTED SPANDREL GLASS.

EXTERIOR GLAZING MUST MEET THE FOLLOWING SPECIFICATIONS FOR ENERGY CODE COMPLIANCE:

LOW "E" COATING

"U" VALUE - MINIMUM OF 0.28

"SHGC" VALUE - MAXIMUM OF 0.47

DOOR HARDWARE

HARDWARE SET #01

3 HINGES
1 PASSAGE SET
3 MUTES

HARDWARE SET #02

3 HINGES
1 PRIVACY LOCKSET
1 CLOSER
3 MUTES

HARDWARE SET #03

3 HINGES
1 PASSAGE SET
3 MUTES
1 CLOSER

HARDWARE SET #04

3 HINGES
1 ENTRANCE LOCKSET
1 CLOSER
3 MUTES

HARDWARE SET #05

3 HINGES
1 CLASSROOM LOCKSET
3 MUTES

HARDWARE SET #06

6 HINGES
2 KEYED EXIT DEVICES (PANIC)
2 CLOSERS
3 MUTES

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CERTIFICATION

PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

ISSUE DATES

PERMIT SET	04.01.21

210095

DOOR SCHEDULE

A601

MATERIALS SCHEDULE

MARK	MATERIAL	MANUFACTURER	COLOR	PATTERN / TEXTURE	NUMBER	REMARKS
T-1	TILE	TBD	TBD	TBD	TBD	
T-2	TILE	TBD	TBD	TBD	TBD	FROM FLOOR TO 60" AFF W/ SCHLUTER STRIP AT TOP EDGE
SC-1	STAINED CONCRETE	TBD	TBD	TBD	TBD	CONCRETE TO BE STAINED & POLISHED
B-1	BASE	TBD	TBD	4" COVE	TBD	
PL-1	PLASTIC LAMINATE	TBD	TBD	TBD	TBD	INSTALL ON ¾" PLYWOOD ON NOTED WALL TO 48" AFF W/ SCHLUTER STRIP AT TOP EDGE
PL-2	PLASTIC LAMINATE	TBD	TBD	TBD	TBD	
PL-3	PLASTIC LAMINATE	TBD	TBD	TBD	TBD	
SS-1	SOLID SURFACE	TBD	TBD	TBD	TBD	PRICE GRADE 3
SS-2	STAINLESS STEEL	TBD	TBD	TBD	TBD	
P-1	PAINT	TBD	TBD	SCRUBBABLE SATIN	TBD	
P-2	PAINT	TBD	TBD	SCRUBBABLE SATIN	TBD	
P-3	PAINT	TBD	TBD	SEMI GLOSS	TBD	
FRP-1	FIBERGLASS REINFORCED PLASTIC	TBD	TBD	SMOOTH	TBD	FLOOR TO CEILING INSTALLATION WITH NO HORIZONTAL JOINTS UNLESS NOTED OTHERWISE
ACT-1	ACOUSTICAL CEILING TILE	ARMSTRONG	ULTIMA	WHITE	1941	PRELUDE 15 / 16" GRID
ACT-2	ACOUSTICAL CEILING TILE	ARMSTRONG	ULTIMA HEALTH ZONE HIGH NRC	WHITE	1447	PRELUDE 15 / 16" GRID

ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOORING	BASE	NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL	CABINETS / COUNTERTOPS	CEILING MAT / HEIGHT	REMARKS
100	WAITING	T-1	T-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / SS-1	ACT-1 / 10-0	
101	RECEPTION	T-1	T-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / PL-3 / SS-1	ACT-1 / 10-0	
102	HALL	T-1	T-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1		ACT-1 / 10-0	
103	EXAM #1	SC-1	B-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / SS-1	ACT-1 / 10-0	
104	EXAM #2 / COMFORT	SC-1	B-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / SS-1	ACT-1 / 10-0	
105	EXAM #3	SC-1	B-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / SS-1	ACT-1 / 10-0	
106	HOSP MANAGER	T-1	T-1	P-2	P-2	P-2	P-2	-	ACT-1 / 10-0	
107	JANITOR	SC-1	B-1	P-2	P-2	P-2	P-2	-	GYP BD / 8-0	
108	IT	SC-1	B-1	P-2	P-2	P-2	P-2	-	GYP BD / 8-0	
109	TOILET	T-1	T-2	T-2 / P-2	T-2 / P-2	T-2 / P-2	T-2 / P-2	-	ACT-1 / 10-0	
110	EXAM #4	SC-1	B-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / SS-1	ACT-1 / 10-0	
111	HALL	T-1	T-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	-	ACT-1 / 10-0	
112	EXAM #5	SC-1	B-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / SS-1	ACT-1 / 10-0	
113	EXAM #6	SC-1	B-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / SS-1	ACT-1 / 10-0	
114	EXAM #7	SC-1	B-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-1 / P-1	PL-2 / SS-1	ACT-1 / 10-0	
115	LAB / RX	SC-1	B-1	P-2	P-2	P-2	P-2	PL-2 / SS-1	ACT-1 / 10-0	
116	FOOD PREP	SC-1	B-1	P-2	P-2	P-2	P-2	PL-2 / SS-1	ACT-1 / 10-0	
117	LAUNDRY / STORAGE	SC-1	B-1	P-2	P-2	P-2	P-2	PL-2	ACT-1 / 10-0	
118	DOGS	SC-1	B-1	FRP-1	FRP-1	FRP-1	FRP-1	-	ACT-2 / 10-0	
119	XRAY / ULTRASOUND	SC-1	B-1	P-2	P-2	P-2	P-2	PL-2 / SS-1	ACT-1 / 10-0	
120	TREATMENT	SC-1	B-1	P-2	P-2	P-2	P-2	PL-2 / SS-1	ACT-1 / 10-0	
121	SURGERY	SC-1	B-1	FRP-1	FRP-1	FRP-1	FRP-1	PL-2 / SS-1	ACT-2 / 10-0	
122	DOCS	SC-1	B-1	P-2	P-2	P-2	P-2	PL-2 / PL-3	ACT-1 / 10-0	
123	CHARTING	SC-1	B-1	P-2	P-2	P-2	P-2	PL-2 / SS-1	ACT-1 / 10-0	
124	DENTAL	SC-1	B-1	FRP-1	FRP-1	FRP-1	FRP-1	PL-2 / SS-1	ACT-2 / 10-0	
125	BREAK	SC-1	B-1	P-2	P-2	P-2	P-2	PL-2 / SS-1	ACT-1 / 10-0	
126	TOILET	SC-1	T-2	T-2 / P-2	T-2 / P-2	T-2 / P-2	T-2 / P-2	-	ACT-1 / 10-0	
126A	TANKS	SC-1	B-1	P-2	P-2	P-2	P-2	-	ACT-1 / 8-0	
127	HALL	SC-1	B-1	P-2	P-2	FRP-1 / P-2	FRP-1 / P-2	-	ACT-1 / 10-0	
128	ISO	SC-1	B-1	FRP-1	FRP-1	FRP-1	FRP-1	PL-2 / SS-2	ACT-2 / 10-0	
129	WATER	SC-1	B-1	P-2	P-2	P-2	P-2	-	GYP BD / 8-0	

GENERAL FINISH NOTES

A. PROCEEDING WITH THE INSTALLATION OF FINISHES WILL BE CONSTRUED THAT THE INSTALLER AND/OR FINISHER HAS INSPECTED AND ACCEPTED THE SUBSTRATE FOR RECEIVING THE WORK. NO CHANGE ORDER WILL BE ISSUED TO RECTIFY CONCEALED, UNKNOWN CONDITIONS OR UNSATISFACTORY SUBSTRATE ONCE THE FINISH WORK HAS PROCEEDED.

B. USE MANUFACTURER'S RECOMMENDED INSTALLATION METHODS AND MATERIALS FOR ALL FINISHES.

C. CONTRACTOR TO NOTIFY ARCHITECT IMMEDIATELY IF A SPECIFIED FINISH ITEM BECOMES UNAVAILABLE.

D. CONTRACTOR TO SUBMIT SHOP DRAWINGS, FLOORING TRANSITION/GRAPHIC LOCATIONS AND SUBMITTALS OF ALL INTERIOR ITEMS AND FINISH MATERIALS TO ARCHITECT REVIEW PRIOR TO PLACING ANY MATERIAL ORDERS. CONTRACTOR MUST ACCOUNT FOR SUBMITTAL REVIEW, ORDERING AND DELIVERY WHEN SCHEDULING PRODUCT INSTALLATION.

E. USE SUBFLOOR REDUCER STRIPS (UNDER FLOORING) TO LEVEL MATERIALS OF UNEQUAL HEIGHTS.

F. PROVIDE JOHNSONITE SLIM-LINE TRANSITION STRIPS WHERE FLOORING MATERIALS OF UNEQUAL THICKNESS MEET. TRANSITION STRIPS AT DOORS TO BE LOCATED UNDER THE CENTERLINE OF THE DOOR IN CLOSED POSITION. COLOR OF TRANSITION STRIPS TO BE SELECTED BY ARCHITECT.

G. ALL WALL TILE TO BE INSTALLED TO FLOOR WITH NO BASE UNLESS NOTED OTHERWISE.

H. ANY GRILLES, FIRE EXTINGUISHER CABINETS, ETC., TO BE PAINTED TO MATCH WALL COLOR ON WHICH THEY OCCUR.

I. PROVIDE OWNER WITH A MINIMUM OF ONE FULL BOX OR 2% OF EACH FINISH PRODUCT/MATERIAL SPECIFIED ON THE PROJECT.

J. ALL WOODWORK/MILLWORK SHALL CONFORM TO THE QUALITY STANDARDS OF ARCHITECTURAL WOODWORK INSTITUTE (AWI) PREMIUM GRADE. FABRICATOR SHALL BE FAMILIAR WITH AWI STANDARDS.

K. FABRICATE WOODWORK/MILLWORK ITEMS TO ACTUAL FIELD DIMENSIONS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, SAMPLES, AND/OR MATERIAL LITERATURE FOR ALL ITEMS. SHOP DRAWINGS SHALL SHOW SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH THE QUALITY STANDARDS AND DESIGN INTENT.

L. PROVIDE ALL NECESSARY FURRING AND GROUNDS FOR WOODWORK AND FINISH ITEMS. COORDINATE LOCATION OF BLOCKING WITHIN WALLS FOR ITEMS TO BE SECURED TO SURFACE. ALL FASTENERS SHALL BE CONCEALED.

M. FINISH ALL SIDES AND BACK OF MILLWORK/CASEWORK.

N. ALL COUNTERTOPS TO BE 1 ¼" THICK WITH A SQUARE EDGE, UNLESS OTHERWISE NOTED. PROVIDE COUNTER SUPPORTS AS REQUIRED.

O. PROVIDE GROMMETS IN COUNTERTOPS ABOVE RECEPTACLES. COLOR TO MATCH COUNTER SURFACE. COORDINATE WITH OWNER AND ARCHITECT ON FINAL LOCATION AND SIZE OF GROMMETS BEFORE INSTALLATION.

P. REFER TO FINISH SCHEDULE, INTERIOR ELEVATIONS AND SPECIFICATIONS FOR ALL MATERIAL INFORMATION AND LOCATIONS.

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CERTIFICATION

STATE OF MISSOURI
SHAWN M. CURRAN
NUMBER A-8207
REGISTERED ARCHITECT

PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

ISSUE DATES

PERMIT SET	04.01.21

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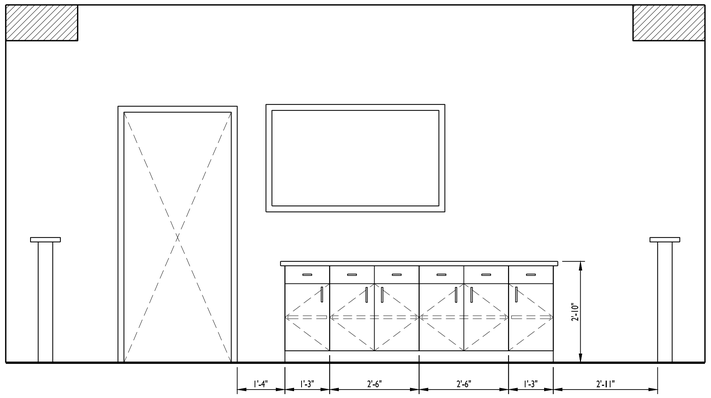
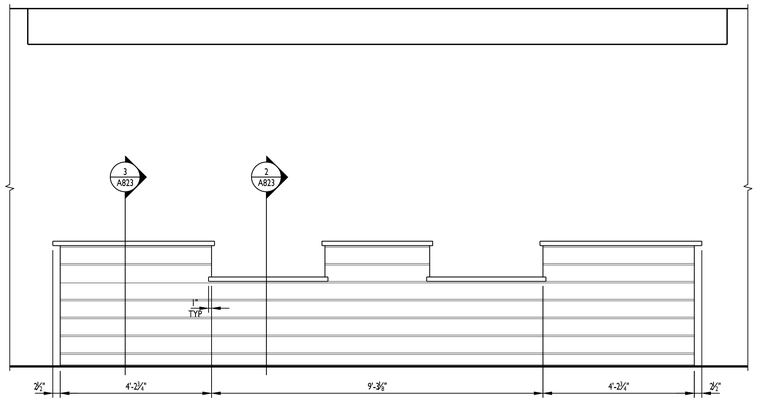
FINISH SCHEDULE

A801



ELEVATION 4
1/2" = 1'-0"



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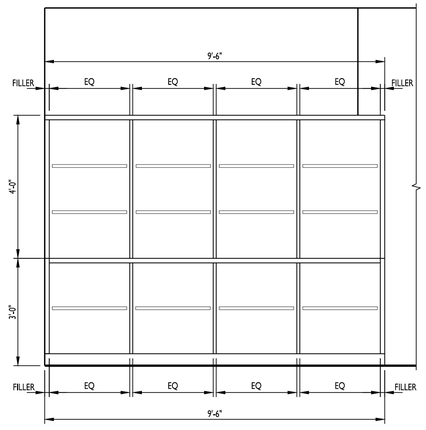

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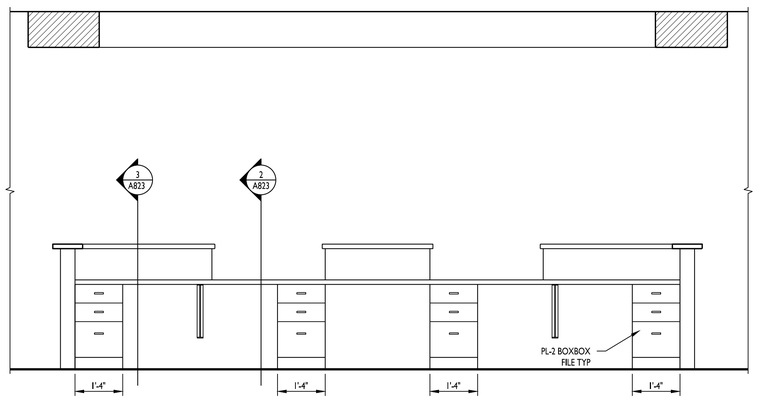

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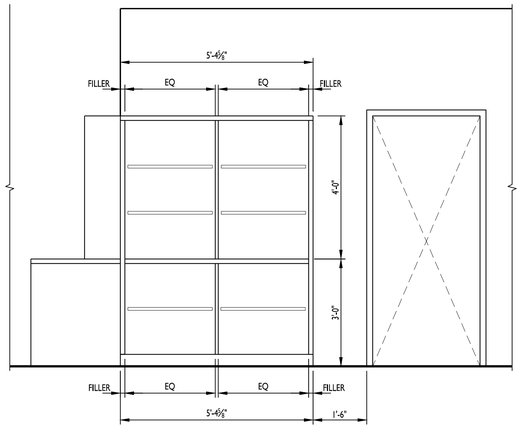

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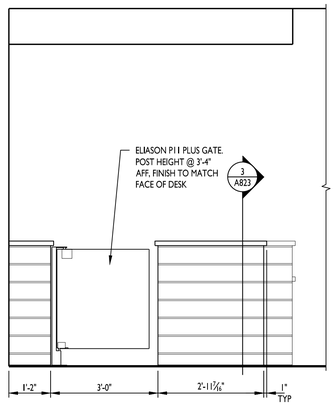

ELEVATION 3
1/2" = 1'-0"

CASEWORK GENERAL NOTES

1. UNLESS SPECIFICALLY OTHERWISE NOTED, PROVIDE SELF EDGE ALONG EXPOSED FACES OF ALL COUNTER TOPS.
2. PROVIDE WOOD F.R. BLOCKING IN WALL WHERE REQUIRED FOR WALL AND/OR BASE CABINET INSTALLATION. COORDINATE WITH CABINET MANUFACTURER PRIOR TO BLOCKING BEING INSTALLED. AT EXTERIOR WALL PROVIDE TREATED WOOD BLOCKING.
3. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADA COMPLIANT CABINETS, HANDLES, CLEAR SPACES BELOW CABINETS WHERE REQUIRED ETC WHETHER SHOWN ON THESE DETAILS OR NOT. COORDINATE WITH ARCHITECT IF ANY DISCREPANCIES ARISE.
4. IF SEPARATE SPECIFICATIONS ARE INCLUDED WITH THIS PROJECT THOSE DOCUMENTS WILL SUPERCEDE WHAT IS SHOWN AND/OR DETAILED ON THIS DRAWING. OTHERWISE THIS DRAWING AND DETAILS REPRESENT THE MINIMUM REQUIRED STANDARDS OF CONSTRUCTION FOR ALL BASE CABINETS, COUNTER TOPS, UPPER CABINETS, ETC.
5. REFER TO FLOOR PLAN FOR ALL LENGTHS OF CABINET RUNS AS WELL AS LOCATIONS. REFER TO THE REFLECTED CEILING PLAN (IF INCLUDED) FOR ALL BULKHEAD LOCATIONS AND HEIGHTS.
6. CASEWORK INSTALLER IS RESPONSIBLE FOR COORDINATING INSTALLATION OF ALL DIVISION 22 AND DIVISION 26 ITEMS (INCLUDING CUT OUTS) IN CASEWORK OR COUNTERTOPS. LOCATIONS AND CUT OUT COORDINATION ALSO REQUIRED FOR RECEPTACLES (DIVISION 26) IN MICROWAVE WALL CABINETS, DISHWASHER LOCATIONS, GARBAGE DISPOSAL LOCATIONS ,ETC.
7. PROVIDE FINISHED ENDS ON CABINETS WHERE END OF CABINET IS EXPOSED BEYOND WALL LINE, UNDER COUNTER, AT KNEE SPACE AND AT ALL SIMILAR EXPOSED AREAS.
8. UNLESS NOTED OTHERWISE PROVIDE EQUAL WIDTH FILLER/SCRIBE BETWEEN WALL AND CASEWORK AT ALL LOCATIONS WHERE NONE IS SHOWN. MAXIMUM WIDTH IS TO BE 2".
9. CONTRACTOR SHALL FIELD VERIFY AND CHECK ALL CONDITIONS, LOCATIONS AND DIMENSIONS PRIOR TO STARTING ANY WORK. REPORT ANY DISCREPANCIES TO ARCHITECT.
10. ANY AND ALL PARTS OF ANY CABINETS OR COUNTERS THAT ARE VISIBLE MUST BE FINISHED WITH MATERIAL TO MATCH ADJACENT FINISHES. NOTIFY AND COORDINATE WITH ARCHITECT IF AREAS OF UNSPECIFIED FINISHES EXIST.
11. UNLESS NOTED OTHERWISE REFER TO ROOM FINISH SCHEDULE FOR ALL CABINET FINISHES AND MATERIALS AS WELL AS ALL OTHER ASSOCIATED, MISCELLANEOUS FINISH REQUIREMENTS. UNLESS NOTED OTHERWISE ALL INTERIOR COMPONENTS TO BE WHITE MELAMINE.
12. EASE ALL EXPOSED OUTSIDE EDGES AT ALL COMPONENTS FOR ITEMS SHOWN ON THIS SHEET.
13. REFER TO ROOM FINISH SCHEDULE FOR ALL WALL BASE REQUIREMENTS.

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64086

ISSUE DATES

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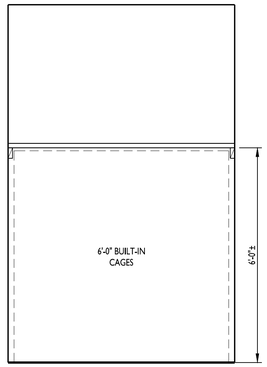
CASEWORK ELEVATIONS

A820



ELEVATION 7
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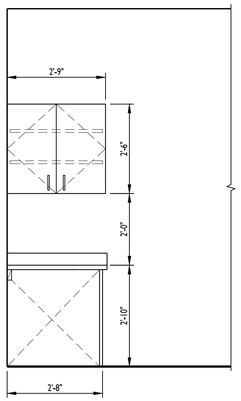

ELEVATION 4
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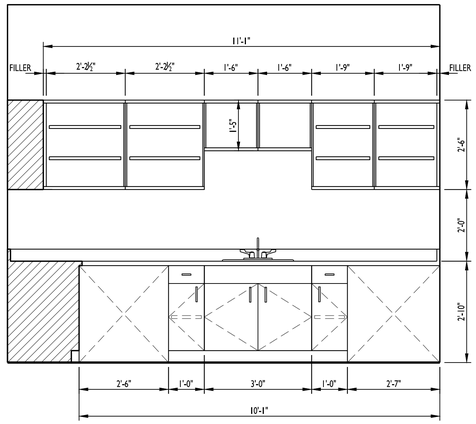

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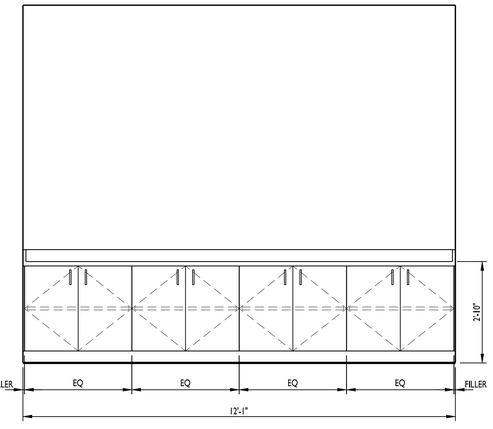

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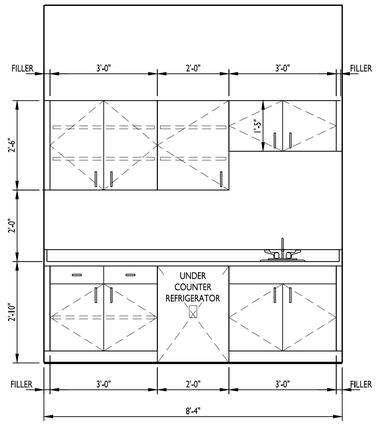
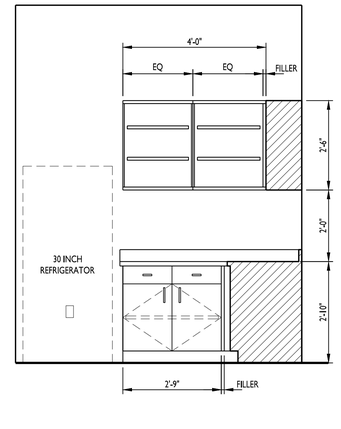


ELEVATION 5
1/2" = 1'-0"



ELEVATION 2
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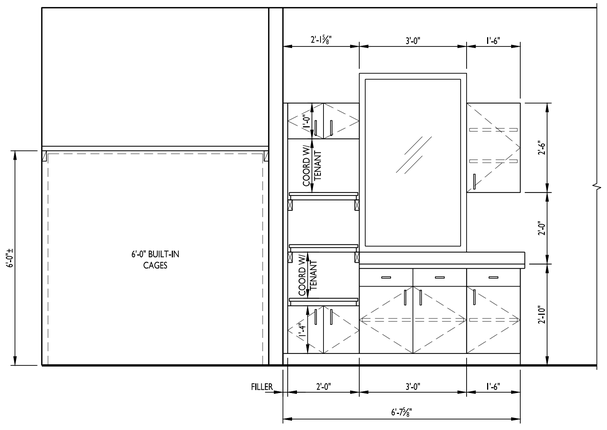

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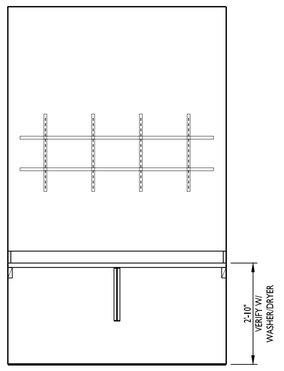

ELEVATION 6
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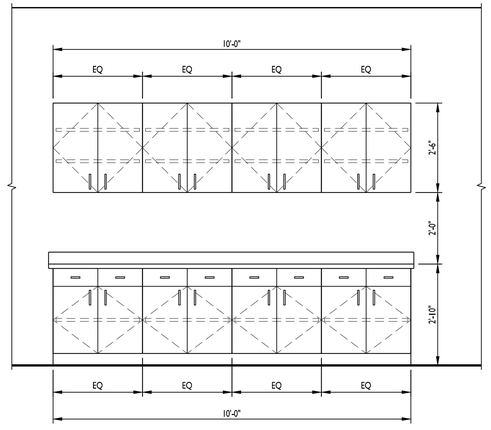

ELEVATION 3
1/2" = 1'-0"

CASEWORK GENERAL NOTES

1. UNLESS SPECIFICALLY OTHERWISE NOTED, PROVIDE SELF EDGE ALONG EXPOSED FACES OF ALL COUNTER TOPS.
2. PROVIDE WOOD F.R. BLOCKING IN WALL WHERE REQUIRED FOR WALL AND/OR BASE CABINET INSTALLATION. COORDINATE WITH CABINET MANUFACTURER PRIOR TO BLOCKING BEING INSTALLED. AT EXTERIOR WALL PROVIDE TREATED WOOD BLOCKING.
3. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADA COMPLIANT CABINETS, HANDLES, CLEAR SPACES BELOW CABINETS WHERE REQUIRED ETC WHETHER SHOWN ON THESE DETAILS OR NOT. COORDINATE WITH ARCHITECT IF ANY DISCREPANCIES ARISE.
4. IF SEPARATE SPECIFICATIONS ARE INCLUDED WITH THIS PROJECT THOSE DOCUMENTS WILL SUPERCEDE WHAT IS SHOWN AND/OR DETAILED ON THIS DRAWING. OTHERWISE THIS DRAWING AND DETAILS REPRESENT THE MINIMUM REQUIRED STANDARDS OF CONSTRUCTION FOR ALL BASE CABINETS, COUNTER TOPS, UPPER CABINETS, ETC.
5. REFER TO FLOOR PLAN FOR ALL LENGTHS OF CABINET RUNS AS WELL AS LOCATIONS. REFER TO THE REFLECTED CEILING PLAN (IF INCLUDED) FOR ALL BULKHEAD LOCATIONS AND HEIGHTS.
6. CASEWORK INSTALLER IS RESPONSIBLE FOR COORDINATING INSTALLATION OF ALL DIVISION 22 AND DIVISION 26 ITEMS (INCLUDING CUT OUTS) IN CASEWORK OR COUNTERTOPS. LOCATIONS AND CUT OUT COORDINATION ALSO REQUIRED FOR RECEPTACLES (DIVISION 26) IN MICROWAVE WALL CABINETS, DISHWASHER LOCATIONS, GARBAGE DISPOSAL LOCATIONS ,ETC.
7. PROVIDE FINISHED ENDS ON CABINETS WHERE END OF CABINET IS EXPOSED BEYOND WALL LINE, UNDER COUNTER, AT KNEE SPACE AND AT ALL SIMILAR EXPOSED AREAS.
8. UNLESS NOTED OTHERWISE PROVIDE EQUAL WIDTH FILLER/SCRIBE BETWEEN WALL AND CASEWORK AT ALL LOCATIONS WHERE NONE IS SHOWN. MAXIMUM WIDTH IS TO BE 2".
9. CONTRACTOR SHALL FIELD VERIFY AND CHECK ALL CONDITIONS, LOCATIONS AND DIMENSIONS PRIOR TO STARTING ANY WORK. REPORT ANY DISCREPANCIES TO ARCHITECT.
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12. EASE ALL EXPOSED OUTSIDE EDGES AT ALL COMPONENTS FOR ITEMS SHOWN ON THIS SHEET.
13. REFER TO ROOM FINISH SCHEDULE FOR ALL WALL BASE REQUIREMENTS.

CURRAN
ARCHITECTURE
5719 LAWTON LOOP E. DR. #212
INDIANAPOLIS, IN 46216
O :: 317 . 288 . 0681
F :: 317 . 288 . 0753

CERTIFICATION

STATE OF MISSOURI
SHAWN M. CURRAN
NUMBER A-8207
REGISTERED ARCHITECT

PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

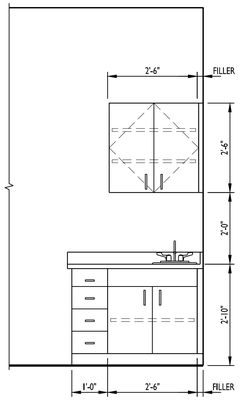
ISSUE DATES

PERMIT SET	04.01.21

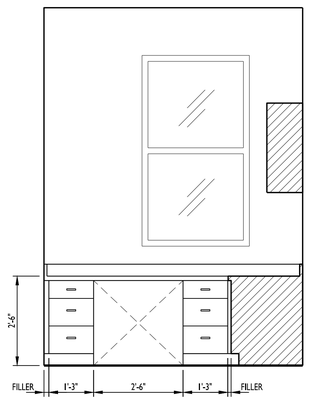
210095

CASEWORK ELEVATIONS

A821



ELEVATION 7
1/2" = 1'-0"



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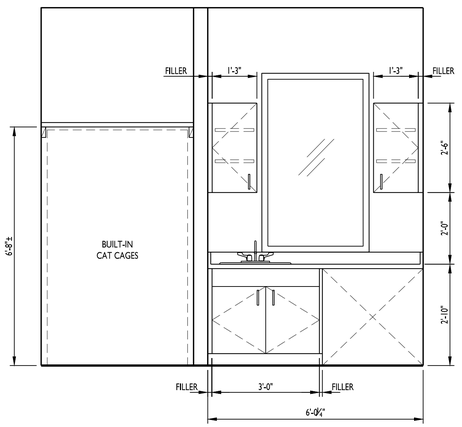
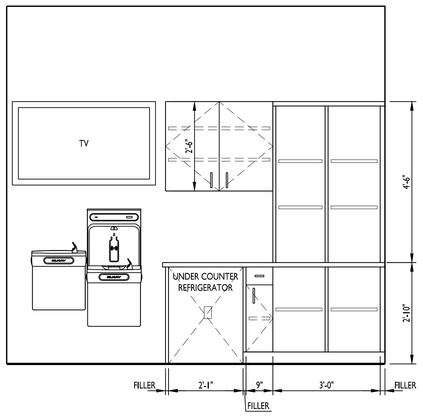
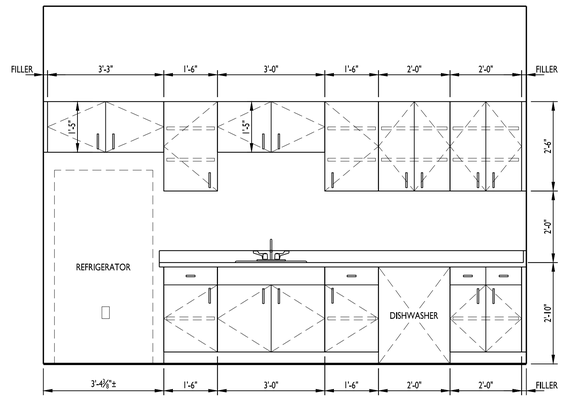
1/2" = 1'-0"



ELEVATION 1
1/2" = 1'-0"



ELEVATION 8
1/2" = 1'-0"



ELEVATION 5
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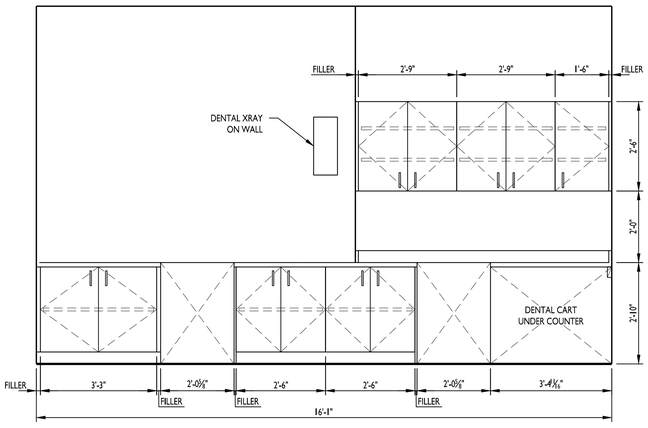
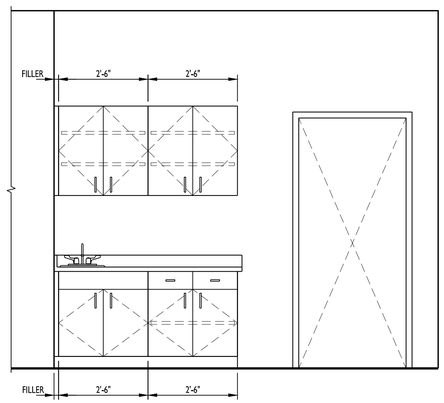
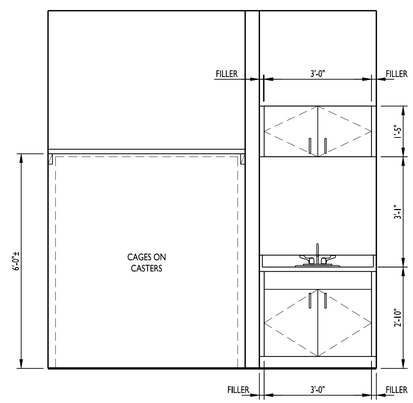


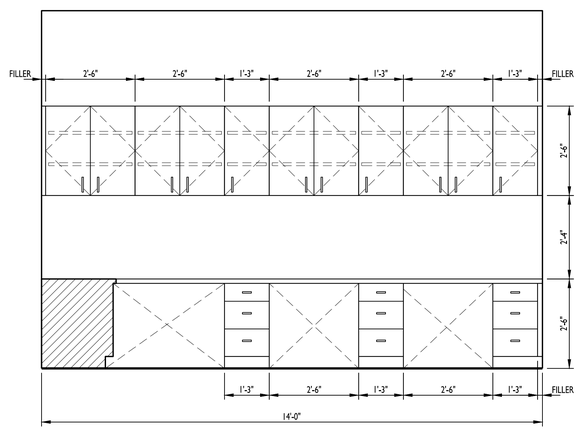
ELEVATION 2
1/2" = 1'-0"



ELEVATION 9
1/2" = 1'-0"



ELEVATION 6
1/2" = 1'-0"



ELEVATION 3
1/2" = 1'-0"

CASEWORK GENERAL NOTES

1. UNLESS SPECIFICALLY OTHERWISE NOTED, PROVIDE SELF EDGE ALONG EXPOSED FACES OF ALL COUNTER TOPS.
2. PROVIDE WOOD F.R. BLOCKING IN WALL WHERE REQUIRED FOR WALL AND/OR BASE CABINET INSTALLATION. COORDINATE WITH CABINET MANUFACTURER PRIOR TO BLOCKING BEING INSTALLED. AT EXTERIOR WALL PROVIDE TREATED WOOD BLOCKING.
3. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADA COMPLIANT CABINETS, HANDLES, CLEAR SPACES BELOW CABINETS WHERE REQUIRED ETC WHETHER SHOWN ON THESE DETAILS OR NOT. COORDINATE WITH ARCHITECT IF ANY DISCREPANCIES ARISE.
4. IF SEPARATE SPECIFICATIONS ARE INCLUDED WITH THIS PROJECT THOSE DOCUMENTS WILL SUPERCEDE WHAT IS SHOWN AND/OR DETAILED ON THIS DRAWING. OTHERWISE THIS DRAWING AND DETAILS REPRESENT THE MINIMUM REQUIRED STANDARDS OF CONSTRUCTION FOR ALL BASE CABINETS, COUNTER TOPS, UPPER CABINETS, ETC.
5. REFER TO FLOOR PLAN FOR ALL LENGTHS OF CABINET RUNS AS WELL AS LOCATIONS. REFER TO THE REFLECTED CEILING PLAN (IF INCLUDED) FOR ALL BULKHEAD LOCATIONS AND HEIGHTS.
6. CASEWORK INSTALLER IS RESPONSIBLE FOR COORDINATING INSTALLATION OF ALL DIVISION 22 AND DIVISION 26 ITEMS (INCLUDING CUT OUTS) IN CASEWORK OR COUNTERTOPS. LOCATIONS AND CUT OUT COORDINATION ALSO REQUIRED FOR RECEPTACLES (DIVISION 26) IN MICROWAVE WALL CABINETS, DISHWASHER LOCATIONS, GARBAGE DISPOSAL LOCATIONS ,ETC.
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CERTIFICATION

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LEE'S SUMMIT, MO
64086

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PERMIT SET	04.01.21

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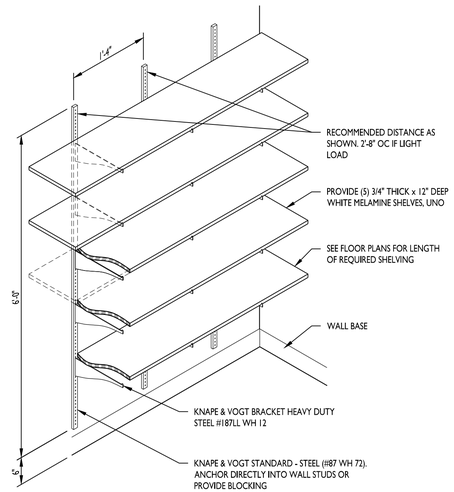
CASEWORK ELEVATIONS

A822



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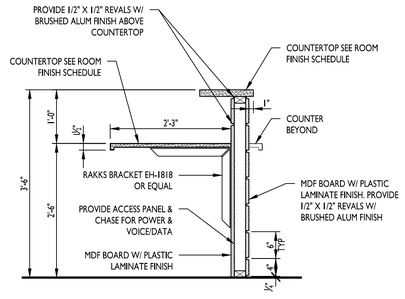
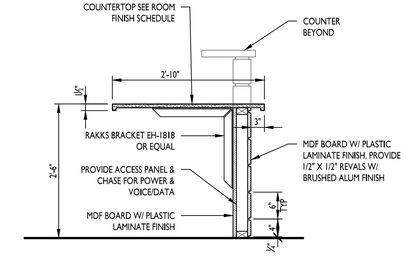


ELEVATION 2

1/2" = 1'-0"



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CASEWORK SECTIONS & DETAILS

A823

ABBREVIATIONS

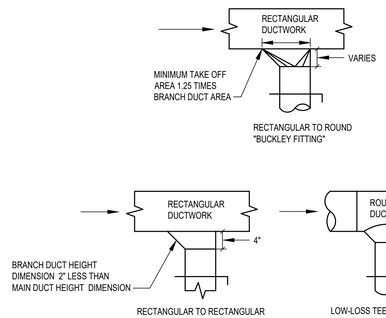
(ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

A	AMP, AMPERE
ABV	ABOVE
A/C	AIR CONDITIONER, AIR CONDITIONING, ABOVE CEILING
ACC	AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
ADJ	ADJUSTABLE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ACOUSTIC LINING
ANSI	AMERICAN NAT'L STANDARDS INSTITUTE
APD	AIR PRESSURE DROP
ARCH	ARCHITECT, ARCHITECTURAL
ARI	AIR CONDITIONING & REFRIG INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION & AC ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGRS
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY OF TESTING & MATLS
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOC.
B/F	BELOW FLOOR
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BFW	BOILER FEED WATER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BTU	BRITISH THERMAL UNIT
CA	COMBUSTION AIR
CC	CONCRETE
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHWR/CHWS	CHILLED WATER RETURN/SUPPLY
CIRC	CIRCULATING
CKT	CIRCUIT
CL	CENTERLINE
CLG	CEILING
CO	CLEANOUT
CONN	CONNECT, CONNECTION
COP	CLEANOUT PLUG
COL	COLUMN
CTE	CONNECT TO EXISTING
CW	DOMESTIC COLD WATER
CWR/CWS	CONDENSING WATER RETURN/SUPPLY
°C	DEGREES CELSIUS
D	DEPTH
DB	DRY BULB
dB	DECIBEL
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREES
DIA (OR Ø)	DIAMETER
DIM	DIMENSION
DISC	DISCONNECT
DN	DOWN
DOM	DOMESTIC
DS	DOWNSPOUT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
ELEV	ELEVATION
ELEC	ELECTRICAL
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EX	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FCO	FLOOR CLEANOUT
FD	FIRE DAMPER
FF	FINISHED FLOOR
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FT	FOOT, FEET
FW	FILTERED WATER
°F	DEGREES FAHRENHEIT
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFI, GFIC	GROUND FAULT INTERRUPTER
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRD	GROUND
GW	GREASE WASTE
H	HEIGHT
HD	HEAD, HUB DRAIN
HHWR/HHWS	HEATING HOT WATER RETURN/SUPPLY
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER, HEAT PUMP
HSTAT	HUMIDISTAT
HTG	HEATING
HTR	HEATER
HVAC	HEATING, VENTILATING & A/C
HW	DOMESTIC HOT WATER
HWR	DOMESTIC RECIRCULATED HOT WATER
HYD	HYDRANT
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH, INCHES
IN WC	INCHES OF WATER COLUMN
KVA	KILOVOLT-AMPS
KW	KILOWATTS
KWH	KILOWATT-HOUR
L	INTERNALLY LINED
LAT	LEAVING AIR TEMPERATURE
LBS, #	POUNDS
LDB	LEAVING DRY BULB
LP	LOW PRESSURE
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE, METAL HALIDE
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
MTD	MOUNTED
MUA	MAKE-UP AIR
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NC	NOISE CRITERIA
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MFR'S ASSOC.
NFPA	NATIONAL FIRE PROTECTION ASSOC.
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
O/H	OVERHEAD
OA	OUTSIDE AIR (VENTILATION AIR)
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OVERFLOW DRAINAGE, OUTSIDE DIAMETER
OPNG	OPENING
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE STEM AND YOKE
OSHA	OCCUPATIONAL SAFETY &HEALTH ADMIN.
PB	PUSH BUTTON
PD	PRESSURE DROP
PH, Ø	PHASE
PIV	POST INDICATOR VALVE
PLBG	PLUMBING
PSI	POUNDS PER SQUARE INCH
PRV	PRESSURE RELIEF VALVE
RA	RETURN AIR
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RECIRC	RECIRCULATE
REINF	REINFORCING, REINFORCED
REL	RELOCATED
REQ	REQUIRED
REV	REVISION, REVISE
REX	REMOVE EXISTING
RH	RELATIVE HUMIDITY
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
RR	REMOVE AND RELOCATE
RS	REFRIGERANT SUCTION
RWC	RAIN WATER CONDUCTOR
SA	SUPPLY AIR
SAN	SANITARY
SD	SMOKE DETECTOR, STORM DRAIN
SECT	SECTION
SF	SQUARE FEET, SQUARE FOOT
SHT	SHEET
SM	SHEET METAL
SMACNA	SHEET METAL & A/C CONT NAT'L ASSOC.
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ	SQUARE
ST	STORM WATER
STD	STANDARD
SURF	SURFACE
SUSP	SUSPEND
TDH	TOTAL DYNAMIC HEAD
TE	TENANT EXHAUST (TOILET)
THRU	THROUGH
TP	TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TWR/TWS	TOWER WATER RETURN/SUPPLY
TYP	TYPICAL
U/F	UNDERFLOOR
U/G	UNDERGROUND
U/S	UNDERSLAB
UL	UNDERWRITERS LABORATORIES, INC.
UON	UNLESS OTHERWISE NOTED
V	VOLT, VENT
VA	VOLT-AMPERE, VALVE
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VTR	VENT THROUGH ROOF
W	WATT, WIDTH
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN

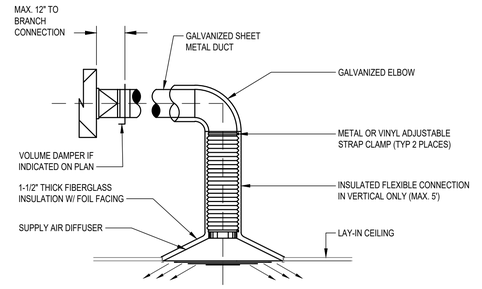
HVAC SYMBOLS

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

- SUPPLY AIR DIFFUSER - SHADING INDICATES PATTERN. NO PATTERN SHOWN EQUALS 4-WAY OR AS NOTED
- RETURN OR EXHAUST AIR GRILLE
- 12"Ø — ROUND DUCTWORK. DIAMETER IN INCHES
- 20/12 — RECTANGULAR DUCTWORK. SIZE IN INCHES, FIRST NUMBER IS SIDE SHOWN
- XX/XXL — INTERNALLY LINED DUCT
- SUPPLY OR OUTSIDE AIR DUCT
- RETURN, RELIEF OR EXHAUST AIR DUCT
- A | B / C — DIFFUSER/GRILLE LABEL: A - TYPE/DESIGNATION; B - NECK SIZE (INCHES); C - AIRFLOW (CFM)
- 90 DEGREE DUCTWORK ELBOW W/ TURNING VANES
- TURNING VANES
- RADIUS DUCTWORK ELBOW - ROUND OR RECTANGULAR
- RECTANGULAR DUCTWORK BRANCH TAKE-OFF WITH 45 DEGREE BRANCH INLET
- HIGH EFFIECENY "BUCKLEY" TAP WITH DAMPER
- DUCTWORK SIZE TRANSITION
- SUPPLY OR OUTSIDE AIR DUCT UP
- SUPPLY OR OUTSIDE AIR DUCT DOWN
- RETURN OR EXHAUST AIR DUCT UP
- RETURN OR EXHAUST AIR DUCT DOWN
- IN-LINE 90 DEGREE RISE IN DUCT
- IN-LINE 90 DEGREE DROP IN DUCT
- RISE — INCLINED RISE IN DUCT
- POINT OF CONNECTION - NEW TO EXISTING
- MANUAL VOLUME DAMPER
- MD — MOTORIZED DAMPER
- F — FIRE DAMPER
- T — THERMOSTAT
- H — HUMIDISTAT
- S — SENSOR
- C — CARBON DIOXIDE SENSOR
- SD — DUCT SMOKE DETECTOR
- 1 — DRAWING NOTE REFERENCE
- ROUND
- OVAL OR FLAT OVAL
- UC — UNDERCUT DOOR 3/4" FOR AIRFLOW



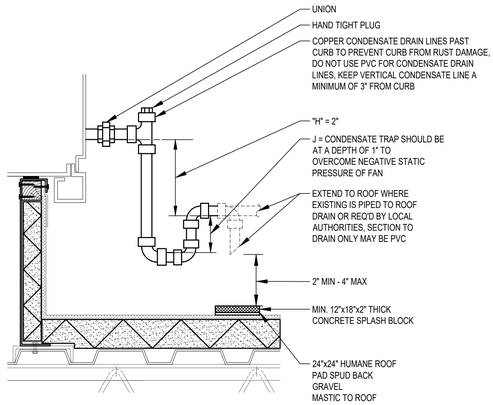
1	DUCT BRANCH TAKE-OFF DETAIL
M001	SCALE: NONE



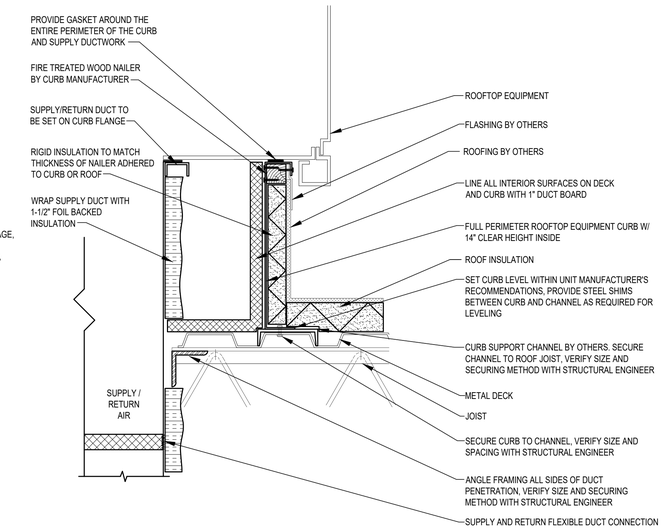
DETAIL NOTES

1. DO NOT LOCATE DAMPERS ABOVE DRYWALL/INACCESSIBLE CEILING LOCATIONS.

2	CEILING DIFFUSER MOUNTING DETAIL
M001	SCALE: NONE



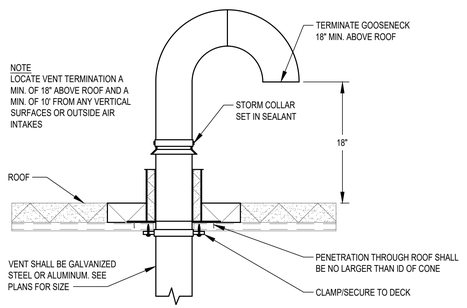
3	RTU CONDENSATE DETAIL
M001	SCALE: NONE



DETAIL NOTES

1. CONTRACTOR TO COORDINATE INSTALLATION WITH BUILDING OWNER APPROVED ROOFER FOR PROPER SEQUENCE TO PERMIT FLASHING AND COUNTERFLASHING INSTALLATION.

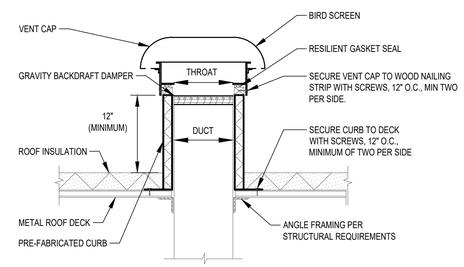
4	RTU CURB DETAIL - JOIST
M001	SCALE: NONE



DETAIL NOTES

1. SEAL ALL JOINT PER MANUFACTURER'S REQUIREMENTS. SCREWS MAY NOT PENETRATE DUCTWORK.

5	DRYER VENT THRU ROOF DETAIL
M001	SCALE: NONE



DETAIL NOTES

1. HVAC CONTRACTOR TO COORDINATE INSTALLATION WITH LANDLORD APPROVED ROOFING CONTRACTOR FOR PROPER SEQUENCE TO PERMIT FLASHING AND COUNTERFLASHING INSTALLATION.
2. GOOSENECK TERMINATION NOT PERMITTED.

6	EXHAUST AIR VENT CAP DETAIL
M001	SCALE: NONE

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CERTIFICATION

NICHOLAS DAVID GINGERICH REGISTERED No.PE11800636 STATE OF INDIANA PROFESSIONAL ENGINEER

PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

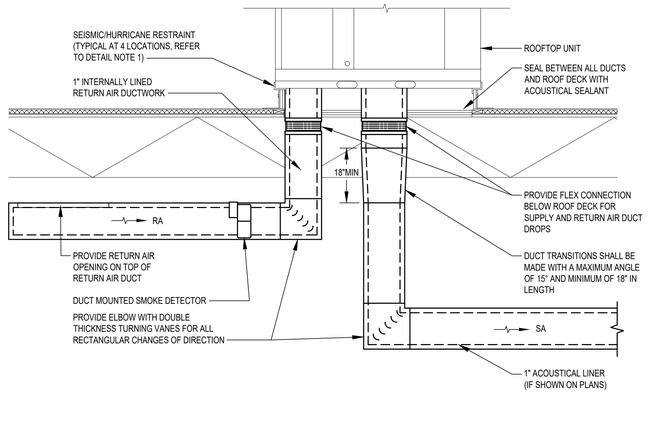
ISSUE DATES

PERMIT SET	04.01.21

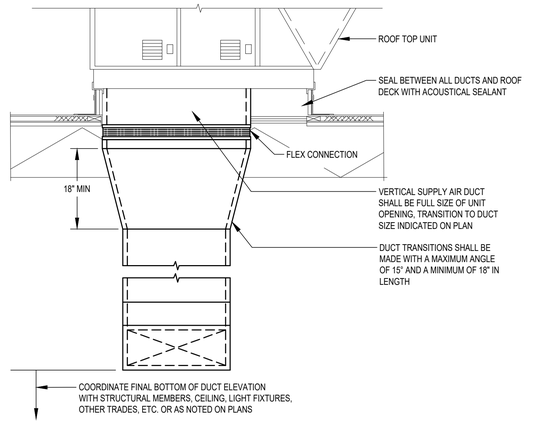
210095

MECHANICAL LEGEND AND DETAILS

M001



END VIEW

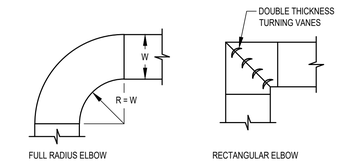


SIDE VIEW

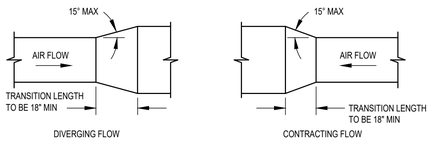
DETAIL NOTES

1. PROVIDE SEISMIC/HURRICANE RESTRAINTS WHEN REQUIRED BY CODE. SEISMIC/HURRICANE RESTRAINTS SHALL BE FURNISHED BY ROOFTOP UNIT MANUFACTURER AND INSTALLED BY CONTRACTOR. RESTRAINTS SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO EACH CORNER OF ROOF CURB.

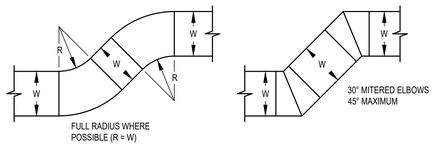
1	RTU SECTION DETAIL
M002	SCALE: NONE



LOW VELOCITY ELBOWS



RECTANGULAR TO RECTANGULAR TRANSITIONS



2	LOW VELOCITY TRANSITIONS AND OFFSETS
M002	SCALE: NONE

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MECHANICAL DETAILS

M002

ROOFTOP HVAC UNIT SCHEDULE

TAG	SERVICE	MFR	MODEL No.	NOMINAL TONS	EER	MIN OA (CFM)	SUPPLY FAN DATA				DX COOLING DATA					GAS HEATING DATA				UNIT CHARACTERISTICS				NOTES/ACCESSORIES
							AIR FLOW (CFM)	ESP (IN WC)	MOTOR (HP)	FAN (RPM)	EAT °DB/°WB (°F)	LAT °DB/°WB (°F)	SENSIBLE (MBH)	TOTAL (MBH)	COOLING STAGES	EAT/LAT (°F)	INPUT (MBH)	OUTPUT (MBH)	HEATING STAGES	VOLTAGE (V-φ-Hz)	UNIT MCA	UNIT MOCP	OPERATING WEIGHT (LBS)	
RTU-1	FRONT	TRANE	YSC092	7.5	11.2	0	2800	1.0	1.0	915	76.8/64.2	56.6/54.4	67.4	87.0	2	52.6/93.0	150/105	120/84	2	208-3-60	39.0	50.0	1182	1-19
RTU-2	BACK	TRANE	YSC092	7.5	11.2	0	2750	1.0	3.0	921	78.5/65.6	57.8/55.7	67.6	88.7	2	47.3/101.4	200/140	160/112	2	208-3-60	45.0	50.0	1182	1-19

* OUTSIDE AIR FOR VENTILATION IS PROVIDED BY ERV INTO THE RTU'S RETURN AIR SYSTEM.

NOTES/ACCESSORIES

1. 101" CONDENSING TEMPERATURE
2. REFRIGERANT - R410A
3. REFERENCE DRYBULB ECONOMIZER
4. POWER EXHAUST
5. 24" INSULATED ROOF CURB
6. UNIT MOUNTED HACR BREAKER DISCONNECT
7. UNPOWERED GFCI RECEPTACLE
8. BELT DRIVE
9. SUPPLY FAN VFD WITH SINGLE ZONE VAV CONTROLLER
10. THROUGH THE BASE ELECTRICAL AND GAS
11. HAIL GUARD - WITH TOOL LESS REMOVAL
12. PROGRAMMABLE SEVEN DAY AUTO CHANGE OVER THERMOSTAT
13. HINGED ACCESS DOORS
14. ONCE THE RTU'S ARE OPERATIONAL - PROVIDE 2" MERV 8 FILTERS. INSPECT FILTERS DAILY. REPLACE AS NEEDED BUT NOT LONGER THAN 7 DAYS UNTIL UNIT IS ADJUSTED BY BALANCE CONTRACTOR. AT THE DISCRETION OF THE TENANT CONSTRUCTION REPRESENTATIVE THIS FILTER REPLACEMENT CAN BE EXTENDED PAST THE 7 DAY LIMIT. ALL UN-USED FILTERS TO REMAIN ON SITE FOR FUTURE USE BY TENANT. NEVER OPERATE THE RTU(S) IN COOLING DURING ANY SANDING OR DEMOLITION OR IF ANY TYPE OF FINE PARTICULATE COULD BE AIR BORNE. ALL RETURN AIR GRILLES OPENING IN RETURN AIR DUCTWORK SHALL BE COVERED WITH CHEESE CLOTH OR A THROW AWAY FILTER (CHEAP CUT TO FIT FILTER ROLL) UNTIL UNITS ARE ADJUSTED BY THE BALANCING CONTRACTOR. REMOVE THIS CHEESE CLOTH FILTER UPON TESTING BY BALANCE CONTRACTOR.
15. MICRO-PROCESSOR CONTROLS
16. 5 YEAR PARTS AND LABOR COMPRESSOR WARRANTY
17. STAINLESS STEEL HEAT EXCHANGER WITH STAGED HEAT
18. 10 YEAR PARTS WARRANTY ON HEAT EXCHANGER
19. APPROVED ALTERNATES: CARRIER, AAON, YORK/JOHNSON CONTROLS, AND LENNOX

ENERGY RECOVERY VENTILATOR SCHEDULE

TAG	SERVICE	MFR	MODEL No.	FAN DATA						SUMMER PERFORMANCE DATA				WINTER PERFORMANCE DATA				UNIT CHARACTERISTICS				NOTES/ACCESSORIES
				SUPPLY AIR FLOW (CFM)	SUPPLY ESP (IN WC)	SUPPLY FAN MOTOR (HP)	EXHAUST AIR FLOW (CFM)	EXHAUST ESP (IN WC)	EXHAUST FAN MOTOR (HP)	OA EAT (°F)	SUPPLY LAT (°F)	RETURN EAT (°F)	EXHAUST LAT (°F)	OA EAT (°F)	SUPPLY LAT (°F)	RETURN EAT (°F)	EXHAUST LAT (°F)	VOLTAGE (V-φ-Hz)	UNIT MCA	UNIT MOCP	OPERATING WEIGHT (LBS)	
ERV-1	RTU-1,2	GREENHECK	ECV-40-FM-H	3250	0.50	3/4	2850	1.0	1	96.0/75.0	81.6/68.2	72.0/59.9	88.1/68.9	-1.0/-2.5	37.2/30.8	68.0/52.7	22.9/22.7	208-3-60	17.4	20	1049	1-12

NOTES/ACCESSORIES

1. UL LISTED
2. OUTDOOR INSTALLATION
3. POLYMER WHEEL WITH SILICA GEL DESICCANT
4. HINGED ACCESS PANELS
5. DIRECT DRIVE SUPPLY AND EXHAUST FAN
6. SINGLE POINT POWER
7. NON-FUSED DISCONNECT SWITCH
8. ENERGY WHEEL ECONOMIZER CONTROL - STOP WHEEL, ENTHALPY BASED (18 BTU/LB)
9. ROTATION SENSOR
10. ROOF CURB
11. MOTORIZED OUTSIDE AIR DAMPER
12. ALTERNATES APPROVED BY ENGINEER

ELECTRIC UNIT HEATER SCHEDULE

TAG	SERVICE	MFR	MODEL No.	MOUNTING	ELECTRIC HEATING DATA			FAN DATA	UNIT CHARACTERISTICS			NOTES/ACCESSORIES
					INPUT (W)	OUTPUT (BTUH)	HEATING STAGES	AIR FLOW (CFM)	VOLTAGE (V-φ-Hz)	UNIT AMPS	OPERATING WEIGHT (LBS)	
EUH-1	CORRIDOR	QMARK	CWH3150F	VERTICAL	1500	5118	1	100	120-1-60	12.5	25	1-5

NOTES/ACCESSORIES

1. ELECTRIC DISCONNECT
2. INTEGRAL THERMOSTAT
3. HIGH LIMIT SWITCH
4. WALL RECESSED MOUNTING BRACKET
5. MARKEL, BERKO, TRANE ACCEPTABLE ALTERNATE MANUFACTURES

EXHAUST FAN SCHEDULE

TAG	SERVICE	MFR	MODEL No.	AIRFLOW (CFM)	ESP (IN WC)	MOTOR (W)	SONES	VOLTAGE (V-φ-Hz)	OPERATING WEIGHT (LBS)	NOTES/ACCESSORIES
TF-1	108 IT	GREENHECK	SP-A390-VG	200	0.3	27	2.5	120-1-60	27	1-5
EF-1	128 ISO	GREENHECK	SP-A390-VG	250	0.3	38	3.0	120-1-60	27	1-4,6

NOTES/ACCESSORIES

1. DISCONNECT SWITCH - NEMA 1- FACTORY MOUNTED & WIRED
2. AMCA SEAL & U.L. LISTED
3. FAN SPEED CONTROLLER - FACTORY MOUNTED & WIRED
4. HANGING VIBRATION ISOLATORS
5. LINE VOLTAGE REVERSE ACTING COOLING THERMOSTAT WITH REMOTE TEMP SENSOR - WIRED TO STAT FAN ON TEMP. RISE ABOVE 80°F.
6. CONTROLLED BY SWITCH

AIR DISTRIBUTION SCHEDULE

TAG	SERVICE	MOUNTING	MFR	MODEL No.	MODULE/ DIFFUSER SIZE	FRAME/BORDER	NOTES/ACESSORIES
S1	SUPPLY	CEILING	TITUS	OMNI	24" X 24"	#3 LAY-IN	1,2
R1	RETURN	CEILING	TITUS	350RL	NECK SIZE +2"	#3 LAY-IN	1,3
E1	EXHAUST	CEILING	TITUS	350RL	NECK SIZE + 2"	#3 LAY-IN	1,3
E2	EXHAUST	CEILING	TITUS	350RL	NECK SIZE + 2"	#3 LAY-IN	1,3,4
T1	TRANSFER	WALL	TITUS	350RL	NECK SIZE + 2"	#1 SURFACE	1
T2	TRANSFER	CEILING	TITUS	350RL	NECK SIZE +2"	#3 LAY-IN	1,3

NOTES/ACCESSORIES

1. FINISH - WHITE POWDER COAT
2. SECTORIZING BAFFLE (SB) AS REQUIRED BY DIRECTIONAL ARROWS ON PLAN, OTHERWISE FOUR (4) WAY BLOW
3. SQUARE TO ROUND NECK ADAPTER. REFER TO PLANS FOR NECK SIZE AND DUCT SIZE
4. RAPID MOUNT FRAME

AIR BALANCE SCHEDULE

EQUIPMENT TAG	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR (CFM)	PRESSURE (CFM)
100	900		900	-	0
101	250		250	-	0
102	250		50	-	200
103	200		-	200	0
104	200		-	200	0
105	150		-	150	0
106	150		150	-	0
107	-		-	50	-50
109	50		-	100	-50
110	150		-	150	0
111	200		50	-	150
112	100		-	100	0
113	100		-	100	0
114	100		-	100	0
115,116,120,123	600		-	600	0
117	150		150	-	0
118	150		-	150	0
119	150		-	150	0
121	400		-	400	0
122	350		350	-	0
124	150		-	150	0
125	400		400	-	0
126	100		-	100	0
127	75		-	75	0
128	150		-	-	0
129	75		-	75	0
EF-1	-	-	-	250	-250
ERV-1	-	3250	-	2850	400
			TOTAL BUILDING PRESSURIZATION		400

OUTSIDE AIR SCHEDULE

ZONE DATA										SYSTEM DATA			
ZONE NAME	FLOOR AREA (SF)	REQUIRED OUTSIDE AIR (CFM/SF)	OCCUPANCY	REQUIRED OUTSIDE AIR (CFM/PERSON)	BREATHING ZONE OUTSIDE AIR (CFM)	ZONE AIR DISTRIBUTION EFFECTIVENESS	REQUIRED OUTSIDE AIR (CFM)	SUPPLY AIR (CFM)	OUTDOOR AIR FRACTION	SYSTEM NAME	SYSTEM VENTILATION EFFICIENCY	REQUIRED OUTSIDE AIR (CFM)	DELIVERED OUTSIDE AIR (CFM)
100 WAITING	429	0.06	22	7.50	191	0.8	239	900	0.266				
101 RECEPTION	156	0.06	5	5.00	34	0.8	43	250	0.172				
102 HALL	110	0.06	0	0.00	7	0.8	9	100	0.090				
103 EXAM #1	85	0.18	1	7.50	22.5	0.8	29	200	0.145				
104 EXAM #2	100	0.18	1	7.50	25.5	0.8	32	200	0.160				
105 EXAM #3	84	0.18	1	7.50	22.5	0.8	29	150	0.193				
106 HOSP MGR	67	0.06	1	5.00	9	0.8	12	150	0.080	RTU-1	0.860	476	1400
110 EXAM #4	84	0.18	1	7.50	22.5	0.8	29	150	0.193				
111 HALL	122	0.06	0	0.00	7	0.8	9	50	0.180				
112 EXAM #5	83	0.18	1	7.50	22.5	0.8	29	100	0.290				
113 EXAM #6	82	0.18	1	7.50	22.5	0.8	29	100	0.290				
114 EXAM #7	81	0.18	1	7.50	22.5	0.8	29	100	0.290				
109 TOILET	60	0.00	0	0.00	0	0.8	0	50	0.000				
115 LAB/RX	115	0.18	2	7.50	36	0.8	45	150	0.300				
116 FOOD PREP	274	0.06	2	5.00	26	0.8	33	150	0.220				
117 LAUNDRY/STOR	97	0.12	0	0.00	12	0.8	15	150	0.100				
118 DOGS	161	0.18	2	7.50	44	0.8	55	150	0.367				
119 XRAT/ULTRASOUND	109	0.18	2	7.50	35	0.8	44	150	0.293				
120 TREATMENT	276	0.18	3	7.50	72.5	0.8	91	150	0.607				
121 SURGERY	230	0.18	3	7.50	63.5	0.8	80	400	0.200				
122 DOCTORS	100	0.06	1	5.00	11	0.8	14	350	0.040	RTU-2	1.0	395	1850
123 CHARTING	97	0.06	1	5.00	11	0.8	14	150	0.093				
124 DENTAL	164	0.18	2	7.50	45	0.8	57	150	0.380				
125 BREAK	170	0.06	1	5.00	15	0.8	19	350	0.054				
127 HALL	87	0.06	0	0.00	5	0.8	7	100	0.070				
128 ISO	101	0.12	0	0.00	12	0.8	15	100	0.150				
129 WATER	59	0.12	0	0.00	7	0.8	9	100	0.090				
129 TOILET	54	0.00	0	0.00	0	0.8	0	100	0.000				

NOTES

1. SPACE OUTSIDE AIR REQUIREMENTS BASED ON IMC 2018

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MECHANICAL SCHEDULES

M003

I. GENERAL PROVISIONS

A. GENERAL CONDITIONS, CODES & STANDARDS

1. GENERAL CONDITIONS OF THE CONTRACT FOUND IN THE ARCHITECTURAL DRAWINGS, GENERAL AND SPECIAL CONDITIONS OF THE AMERICAN INSTITUTE OF ARCHITECTS (AIA) AND ANY OF THE OWNER'S GENERAL REQUIREMENTS SHALL APPLY UNLESS NOTED OTHERWISE.
2. REFER TO THE GENERAL CONDITIONS ON THE ARCHITECTURAL DOCUMENTS AND THE GENERAL AND SPECIAL CONDITIONS OF THE AIA FOR ADDITIONAL REQUIREMENTS REGARDING; SAFETY, COORDINATION & COOPERATION, WORKMANSHIP, PROTECTION, CUTTING AND PATCHING, DAMAGE TO OTHER WORK, PRELIMINARY OPERATIONS, STORAGE, ADJUSTMENTS, CLEANING, ETC.
3. ALL WORK SHALL BE IN CONFORMANCE WITH ALL LOCALLY ENFORCED, FEDERAL, STATE AND LOCAL CODES AND ORDINANCES INCLUDING ANY SPECIAL THE OWNER REQUIREMENTS IN ADDITION TO THOSE SPECIFIED.
4. CONTRACTOR SHALL PAY FOR AND OBTAIN ALL NECESSARY LICENSES, PERMITS AND INSPECTIONS REQUIRED TO PROCEED WITH THE WORK. THIS SHALL INCLUDE ALL REQUIRED COORDINATION WITH THE LOCAL UTILITY COMPANIES AND THEIR ASSOCIATED FEES OR COSTS.

B. SCOPE OF WORK

1. THIS CONTRACT SHALL INCLUDE THE FURNISHING, INSTALLING, CONNECTING, AND OPERATION OF ALL EQUIPMENT WHICH IS A PART OF THE MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS AND AS REQUIRED BY SIMILAR INSTALLATIONS. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK AND WHICH IS USUALLY INCLUDED IN WORK OF A SIMILAR CHARACTER SHALL BE FURNISHED AND INSTALLED UNDER THIS CONTRACT AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS REQUIRED TO PROVIDE THE OWNER A COMPLETE, CODE APPROVED AND OPERATIONAL MECHANICAL SYSTEM.
2. CAREFULLY READ SPECIFICATION FOR ALL PARTS OF THE WORK SO AS TO BECOME FAMILIAR WITH ALL TRADES' WORK SCOPE. CONSULT WITH OTHER TRADES TO INSURE PROPER LOCATIONS AND AVOID INTERFERENCES. ANY CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER BEFORE WORK IS COMMENCED.
3. CONTRACTORS SHALL BE HELD TO HAVE EXAMINED THE PREMISES AND SITE SO AS TO COMPARE THEM WITH THE DRAWINGS AND SPECIFICATIONS, NOTE THE EXISTING CONDITIONS AND OTHER WORK THAT WILL BE REQUIRED, AND THE NATURE OF THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. NO ALLOWANCE SHALL BE MADE TO THE CONTRACTOR BY REASON OF THIS FAILURE TO HAVE MADE SUCH EXAMINATION OR OF ANY ERROR ON HIS PART.
4. ALL EXISTING UTILITY AND MECHANICAL SERVICES SHALL BE FIELD VERIFIED. CORRECTIONS TO THE DESIGN AND INSTALLATION SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
5. PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF HVAC WORK. ALL CORE DRILLING OR CUTTING OF FIRE RATED FLOORS, SHAFTS, AND WALLS SHALL BE FIRESTOPPED PRIOR TO FINISH PATCHING. ALL PENETRATIONS SHALL BE FIRE SEALED TO MATCH THE FIRE RATING OF THE FLOORS, SHAFTS, AND WALLS PENETRATED. THIS CONTRACTOR IS RESPONSIBLE TO COORDINATE OPENINGS IN WALLS AND FLOORS WITH THE GENERAL TRADES CONTRACTOR. THE FINAL LOCATIONS AND SIZES OF ALL DUCT, PIPE AND LOUVER OPENINGS SHALL BE PROVIDED BY THIS CONTRACTOR.
6. THIS CONTRACT SHALL ALSO INCLUDE ALL LABOR, MATERIALS AND MISCELLANEOUS EXPENSES REQUIRED FOR ALL REQUIRED MECHANICAL DEMOLITION OF THE EXISTING AREAS BEING RENOVATED.
    a. THE DEMOLITION SHALL CONSIST OF THE COMPLETE REMOVAL (PROPERLY DISPOSED OFF SITE UNLESS OTHERWISE NOTED) OF ALL MECHANICAL EQUIPMENT, PIPING, DUCTWORK, MATERIALS, ETC. NOT REQUIRED IN THE FINAL DESIGN AND INSTALLATION OF THE MECHANICAL HVAC SYSTEMS FOR THE NEW RENOVATED AREAS.
    b. ALL UNUSED SERVICES SHALL BE REMOVED BACK TO THEIR RESPECTIVE MAIN AND CAPPED OR IF THE MAIN IS NOT REQUIRED, THE MAIN SHALL BE REMOVED IN IT'S ENTIRETY.
    c. COORDINATE ALL DEMOLITION WITH THE ARCHITECTURAL DOCUMENTS AND THE ARCHITECT AND THE OWNER'S GENERAL REQUIREMENTS.
7. ALL WORK INCLUDING, BUT NOT LIMITED TO PARTS, MATERIAL, EQUIPMENT AND LABOR SHALL BE GUARANTEED FOR ONE YEAR AFTER ACCEPTANCE BY THE ENGINEER AND OWNER. WHERE AN EQUIPMENT MANUFACTURER HAS A WARRANTY THAT EXCEEDS ONE YEAR, THAT WARRANTY PERIOD SHALL APPLY TO THIS PROJECT.

C. DOCUMENTS

1. THE DRAWINGS ARE DIAGRAMMATIC, ALL WORK SHALL BE PERFORMED AS INDICATED ON THE DRAWINGS UNLESS EXISTING CONDITIONS OR COORDINATION ISSUES REQUIRE CHANGES. THESE CHANGES SHALL BE MADE WITH NO ADDITIONAL COST TO THE OWNER.
2. ANY INCIDENTAL ITEMS OR LABOR, ETC. NOT INCLUDED IN THE SPECIFICATIONS OR THE DRAWINGS BUT REASONABLY IMPLIED AS NECESSARY FOR THE COMPLETE INSTALLATION OF ALL APPARATUS SHALL BE INCLUDED IN BID.
3. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED EVEN THOUGH NOT MENTIONED IN BOTH.
4. IF ERRORS ARE FOUND IN THE DRAWINGS OR SPECIFICATIONS OR DISCREPANCIES OCCUR BETWEEN THE SAME, OR BETWEEN THE FIGURES ON THE DRAWINGS, AND THE SCALE OF SAME OR BETWEEN THE LARGER AND SMALLER DRAWINGS, OR IN THE DESCRIPTIVE MATTER ON THE DRAWINGS SHALL BE REFERRED TO THE OWNER FOR REVIEW AND FINAL DECISION PRIOR TO THE BID DUE DATE.
5. THE BIDDING OF THIS WORK WILL CONTEMPLATE THE USE OF EQUIPMENT AND MATERIALS EXACTLY AS SPECIFIED HEREIN. WHERE MORE THAN ONE MANUFACTURER IS MENTIONED ANY ONE MAY BE UTILIZED. SUBSTITUTE MANUFACTURERS MAY BE OFFERED ONLY AS AN ALTERNATE TO THE SPECIFIED EQUIPMENT AND MATERIAL AND MUST BE SUBMITTED AS SPECIFIED IN THE ARCHITECTURAL DOCUMENTS.
6. MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THE SYSTEMS CAN BE OF ANY RECOGNIZED MANUFACTURE PROVIDED THESE ITEMS MEET MINIMUM STANDARDS AS SET IN THESE SPECIFICATIONS. REFER TO EACH SECTION FOR ANY SPECIFIC REQUIREMENTS.

D. COORDINATION

1. CONTRACTOR SHALL LOCATE, IDENTIFY AND PROTECT ANY EXISTING SERVICES WHICH ARE REQUIRED TO BE MAINTAINED OPERATIONAL AND SHALL EXERCISE EXTRA CAUTION IN THE PERFORMANCE OF ALL WORK TO AVOID DISTURBING SUCH FACILITIES. ALL COSTS FOR REPAIR OF DAMAGES TO SUCH SERVICES SHALL BE PAID BY THE CONTRACTOR CAUSING THE DAMAGE.
2. EACH CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO OTHER WORK CAUSED BY HIS WORK OR THROUGH THE NEGLECT OF HIS, OR HIS SUB-TRADE'S PERSONNEL. ALL PATCHING, REPAIRING, REPLACEMENT AND PAINTING, ETC. SHALL BE DONE AS DIRECTED BY THE OWNER BY THE CRAFTSMEN OF THE TRADES INVOLVED. THE COSTS OF SUCH WORK SHALL BE PAID BY THE CONTRACTOR CAUSING THE DAMAGE.

E. METHODS

1. EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL NOT BE SUPPORTED FROM ANY CEILINGS, OTHER PIPING, CONDUIT OR DUCTWORK, ROOF DECK, OR JOIST BRIDGING. ITEMS SHALL BE SUPPORTED FROM ACCEPTABLE STRUCTURAL BUILDING COMPONENTS AS DETERMINED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
2. ALL ROOF PENETRATIONS, FLASHINGS AND COUNTER FLASHINGS SHALL BE PERFORMED BY THE OWNER'S ROOFING CONTRACTOR AT THE REQUESTING CONTRACTOR'S COST.

F. SUBMITTALS

1. SHOP DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT OF ALL EQUIPMENT AND ACCESSORIES PROVIDED FOR THE PROJECT WHETHER SPECIFIED HERE-IN OR ON THE DRAWINGS. REVIEW OF THE SHOP DRAWINGS SHALL BE FOR GENERAL DESIGN CONCEPT AND ADHERENCE WITH THE SPECIFICATIONS. QUANTITY OF SHOP DRAWINGS SUBMITTED SHALL BE AS SPECIFIED BY THE ARCHITECT. SHOP DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR SHOWING LOCATIONS AND MEASUREMENTS FROM COLUMNS OF ALL CONCEALED AND EXPOSED PIPING, DUCTWORK, CONDUIT, EQUIPMENT, ACCESSORIES, ETC., AND SUBMITTED PRIOR TO INSTALLATION. THE OWNER MAY MAKE REPRODUCIBLE COPIES OF THEIR DRAWINGS AVAILABLE FOR USE IN PREPARATION OF SHOP DRAWINGS, HOWEVER THE OWNER SHALL NOT BE HELD RESPONSIBLE FOR NOT CONFIRMING ALL INFORMATION ON THE DRAWINGS PRIOR TO FABRICATION AND/OR INSTALLATION.
2. PROJECT RECORD DOCUMENTS - MAINTAIN AT THE JOBSITE ONE COPY OF ALL CONTRACT DOCUMENTS CLEARLY MARKED AS “PROJECT RECORD COPY”. THESE DRAWINGS ARE TO BE MAINTAINED IN GOOD CONDITION, UPDATED DAILY FOR CHANGES ENCOUNTERED AND AVAILABLE AT ALL TIMES FOR INSPECTION BY THE OWNER. DO NOT USE FOR FIELD CONSTRUCTION! PROJECT RECORD DOCUMENTS ARE TO BE KEPT CURRENT WITH EXACT DIMENSIONS OF ALL WORK, EQUIPMENT, PIPING, VALVES, DUCTWORK, ETC. MARK ALL INFORMATION IN RED LINES AND NOTES SO AS TO BE EASILY IDENTIFIED FROM THE BASE DRAWING. UPON COMPLETION OF THE WORK, ONE SET OF THESE DOCUMENTS SHALL BE TURNED OVER TO THE OWNER AS ONE QUALIFICATION FOR FINAL PAYMENT.
3. AFTER THE BALANCING AND ACCEPTANCE TESTS ARE COMPLETED AND ACCEPTED BY THE OWNER, THREE COMPLETE SETS OF AS-BUILT DOCUMENTATION SHALL BE PROVIDED. IT SHALL INCLUDE, BUT NOT BE LIMITED TO ACCURATE PLAN DRAWINGS, SYSTEM AND CONTROL SCHEMATICS, SEQUENCE OF OPERATION, WIRING DIAGRAMS AND OPERATION AND MAINTENANCE MANUALS.

II. INSULATION

A. GENERAL

1. INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES.
2. CLEAN AND DRY SURFACES PRIOR TO INSULATING.
3. EXTEND INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS, HANGERS AND SIMILAR PENETRATIONS.
4. INSULATION JACKET AND FITTING COVER MUST BE PLENUM RATED.
5. IT IS ESSENTIAL THAT THE INTEGRITY OF THE VAPOR-BARRIER BE MAINTAINED. SEAL ALL PENETRATIONS OF THE VAPOR BARRIER BY STAPLES, HANGERS OR WHERE OTHERWISE DAMAGED.
6. MAINTAIN ACCESS TO BALANCING DAMPERS AND VALVES.
7. INSULATION SHALL BE BY OWENS-CORNING, KNAUF, OR MANVILLE.

B. HVAC DUCTWORK

1. INTERNALLY INSULATE WITH 1 INCH THICK, 1-1/2# DENSITY ACOUSTICAL INSULATION (AIR SIDE BLACK COATED TO MEET NFPA) ALL DUCTWORK NOTED AS REQUIRING SUCH. INTERNAL INSULATION SHALL BE INSTALLED PER THE REQUIREMENTS OF THE SMACNA GUIDE AND THE MANUFACTURER'S RECOMMENDATIONS. DUCT SIZES NOTED ON DRAWING ARE SHEET METAL DIMENSIONS.
2. ALL SUPPLY AND OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH 1-1/2 INCH OF 0.75 LB/CU.FT. FIBERGLASS, FOIL BACKED DUCT WRAPPING AND COMPLY WITH ENERGY CODE REQUIREMENTS.
3. ALL RETURN AIR DUCTWORK SHALL BE WRAPPED WITH 1-1/2 INCH OF 0.75 LB/CU.FT. FIBERGLASS, FOIL BACKED DUCT WRAPPING AND COMPLY WITH ENERGY CODE REQUIREMENTS.

III. HVAC

A. GENERAL

1. THE PROJECT CONSISTS OF INSTALLLATION OF NEW HVAC EQUIPMENT AND DUCT SYSTEMS. ALL MECHANICAL EQUIPMENT, DUCTWORK, ETC. MUST BE FIELD VERIFIED FOR EXACT LOCATION PRIOR TO INSTALLATION.

B. PIPING

1. OUTDOOR CONDENSATE PIPING SHALL BE TYPE “L” COPPER CONDENSATE DRAIN FOR THE ROOFTOP MOUNTED AIR CONDITIONING UNIT, INSTALLED PER THE MANUFACTURERS REQUIREMENTS AND DETAILS. DRAIN SHALL DISCHARGE INTO A ROOF DRAIN.

C. DUCTWORK AND AIR DISTRIBUTION

1. DUCTWORK ROUND OR RECTANGULAR OR SPIRAL SHALL BE OF GALVANIZED STEEL CONSTRUCTION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA “HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE” MANUAL AND THE FOLLOWING PRESSURE / SEAL SCHEDULE:
    a. DUCTWORK BETWEEN ROOFTOP UNIT AND ENERGY RECOVERY UNIT - 3" W.G. POSITIVE PRESSURE, SEAL CLASS A.
    b. OTHER SUPPLY AIR DUCTWORK - 2" W.G. POSITIVE PRESSURE, SEAL CLASS B.
    c. RETURN DUCTWORK - 2" W.G. NEGATIVE PRESSURE, SEAL CLASS B.
    d. EXHAUST DUCTWORK - 2” W.G. NEGATIVE PRESSURE, SEAL CLASS A.
2. ROUND DUCT ELBOWS SHALL BE LONG SWEEP, 1-1/2 TIMES THE CENTERLINE RADIUS UNLESS CLEARANCE IS NOT AVAILABLE AT WHICH TIME MITERED ELBOWS WITH TURNING VANES SHALL BE UTILIZED.
3. SPIRAL DUCT AND FITTINGS SHALL BE MANUFACTURED FROM G-60 GALVANIZED STEEL MEETING ASTM-A924 AND A653 REQUIREMENTS.
    a. CONSTRUCTION
        (1) BRANCH CONNECTIONS SHALL BE MADE WITH 90 CONICAL AND 45 STRAIGHT TAPS AS SHOWN ON THE DRAWINGS. BRANCH CONNECTIONS SHALL BE MADE AS A SEPARATE FITTING. FACTORY OR FIELD INSTALLATION OF TAPS INTO SPIRAL DUCT SHALL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
        (2) ELBOWS SHALL BE FABRICATED WITH A CENTERLINE RADIUS OF 1.5 TIMES THE DIAMETER. 90 AND 45 ELBOWS IN DIAMETERS 3 INCH ROUND THROUGH 12 INCH ROUND SHALL BE STAMPED OR PLEATED ELBOWS. OTHER ELBOWS SHALL BE OF THE GORED TYPE. CIRCUMFERENTIAL AND LONGITUDINAL SEAMS OF ALL FITTINGS SHALL BE A CONTINUOUS WELD OR SPOT WELDED AND SEALED WITH MASTIC. ALL WELDS SHALL BE PAINTED TO PREVENT CORROSION.
        (3) FIELD JOINTS FOR ROUND DUCTS UP TO AND INCLUDING 36 INCH DIAMETER AND OVAL DUCTS UP TO AND INCLUDING 41 INCH MAJOR AXIS SHALL BE MADE WITH A 2 INCH SLIP-FIT OR SLIP COUPLING.
4. RECTANGULAR ELBOWS SHALL BE FURNISHED WITH DOUBLE THICKNESS TURNING VANES. TURNING VANES SHALL BE FASTENED WITH A DOUBLE ROW OF SCREWS.
5. FLEXIBLE CONNECTIONS AT THE INLET AND OUTLET OF RTU'S, ERV'S AND CENTRIFUGAL FANS. INSTALL FLEXIBLE CONNECTIONS WITH 3" WIDE DOUBLE NEOPRENE COATED FLAME RETARDANT, NFPA 90A APPROVED, FIBERGLASS FLEXIBLE CONNECTION. FLEXIBLE CONNECTION TO HAVE A MINIMUM OF 24 GAGE, 3" WIDE SHEET METAL COLLARS PERMANENTLY ATTACHED TO EACH SIDE.
6. MITERED OFFSETS GREATER THAN 30 DEGREES IN EITHER DIRECTION SHALL NOT BE PERMITTED.
7. CHANGES IN DUCT SIZES SHALL BE MADE BY UNIFORM TAPER SECTION WITH A MAXIMUM INCLUDE ANGLE OF DIVERGENCE OF 15 DEGREES.
8. RECTANGULAR BALANCING DAMPERS - RUSKIN MD25 SHALL BE SINGLE BLADE UP TO 6" IN HEIGHT AND 36" IN WIDTH, AND RUSKIN MD35 MULTI-BLADE FOR LARGER SIZES. ALL ROUND BALANCING DAMPERS SHALL BE COMMERCIAL GRADE SINGLE BLADE UP TO 16" IN DIAMETER SHALL INCORPORATE LOCKING TYPE INDICATING ADJUSTMENT. BALANCING DAMPERS SHALL BE INSTALLED IN ALL BRANCH DUCTS OFF MAIN AND ON ALL TAPS OFF DUCTS TO DIFFUSERS UNLESS OTHERWISE NOTED ON DRAWINGS.
9. FINAL CONNECTIONS TO DIFFUSERS MAY BE MADE WITH FLEXIBLE AIR DUCTWORK BUT ITS USE IS LIMITED TO STRAIGHT HORIZONTAL OR VERTICAL RUNS. ALL CHANGES OF DIRECTION IN A DUCT SYSTEM (GALVANIZED OR FLEXIBLE) SHALL BE MADE WITH AN APPROPRIATE GALVANIZED ELBOW. MAXIMUM LENGTH OF ANY FLEXIBLE AIR DUCT IS 5'-0".
10. FLEXIBLE AIR DUCTS TO DIFFUSERS SHALL BE ATCO RUBBER PRODUCTS, INC. MODEL UPC #070, INSULATED (R=4.2), U.L. 181 RATED AND CLASS 1 AIR CONNECTOR. MAXIMUM LENGTH OF FLEXIBLE AIR DUCT TO DIFFUSER TO BE 5'-0".
11. DOUBLE THICKNESS INSULATED ACCESS DOORS SHALL BE PROVIDED AT ALL FIRE DAMPERS FOR ACCESS TO FUSIBLE LINK. DOOR SHALL BE SIZED TO ALLOW FOR EASY SERVICE AND ACCESSIBILITY. ACCESS DOORS SHALL BE A MINIMUM OF 24" IN THE LONGEST DIMENSION.
12. PROVIDE 3"x3"x1/4" ANGLE FRAMING AROUND THE ROOF OPENINGS FOR THE SUPPLY AND RETURN AIR DUCTWORK.
13. SUPPORT ALL SHEET METAL AND EQUIPMENT FROM ANGLE IRON CONNECTED TO STRUCTURAL STEEL. DO NOT SUSPEND DUCT OR EQUIPMENT FROM METAL DECK OR JOIST BRIDGING.
14. GRILLES, REGISTERS AND DIFFUSERS
    a. SEE SCHEDULE ON DRAWINGS

IV. HVAC EQUIPMENT

A. GENERAL

1. INSTALLATION OF ALL EQUIPMENT SHALL COMPLY WITH THE MANUFACTURER'S INSTALLATION INFORMATION AND INSTRUCTIONS, REQUIREMENTS AND ANY ADDITIONAL GUIDELINES. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL REQUIRED ACCESSORIES REQUIRED TO COMPLETE THE INSTALLATIONS.
2. HVAC EQUIPMENT SHALL BE "STARTED UP" BY A FACTORY TRAINED AND AUTHORIZED SERVICE TECHNICIAN.
3. ALL FACTORY STARTUP FORMS SHALL BE COMPLETED AND TURNED OVER TO THE OWNER WITH ALL COMPLETED WARRANTY CARDS PRIOR TO FINAL APPROVAL.

B. PACKAGE ROOFTOP HEATING AND AIR-CONDITIONING UNITS

1. SEE DRAWING FOR INDIVIDUAL UNIT PERFORMANCE REQUIREMENTS.
2. UNIT SHALL BE OF ONE-PIECE PACKAGED CONSTRUCTION COMPLETELY ASSEMBLED, WIRED AND FACTORY TESTED.
3. WIRING SHALL COMPLY WITH LATEST EDITION OF THE NEC AND SHALL INCORPORATE 3-LEG OVERLOAD PROTECTION FOR THE COMPRESSOR(S).
4. UNIT SHALL BE COMPLETE WITH PRESSURE SAFETY CONTROLS, ANTI-SHORT CYCLE PROTECTION AND CONTROLS (WHEN SPECIFICALLY NOTED ON THE DRAWINGS).

C. ELECTRIC HEATING EQUIPMENT

1. ELECTRIC UNIT HEATERS (EUH) -
    a. SEE DRAWING FOR INDIVIDUAL UNIT PERFORMANCE.

VI. CONTROLS

A. CONTROL WIRING SHALL BE PLENUM RATED CABLE WITH COLOR CODED 18 AWG WIRES (MINIMUM).
B. CONTRACTOR SHALL PROVIDE ALL WIRING BETWEEN THERMOSTAT AND EQUIPMENT (AIR HANDLER, ROOFTOP UNIT, CONDENSING UNIT, ETC.).
C. CONTRACTOR SHALL INSTALL A 120 VOLT SUPPLY AIR DUCT MOUNTED PHOTOELECTRIC SMOKE DETECTOR. DETECTOR SHALL BE FURNISHED AND WIRED, BY THE ELECTRICAL CONTRACTOR, TO SHUT DOWN UNIT UPON ACTIVATION.
D. LOCAL CONTROL PANELS SHALL BE PROVIDED FOR ALL RELAYS, TRANSDUCERS, AND OTHER FIELD INTERFACE DEVICES.
1. PANELS SHALL BE NEMA TYPE SUITABLE FOR EACH APPLICATION.
2. ALL WIRING IN PANEL SHALL BE ROUTED IN WIRING TRAYS.
3. PROVIDE FINAL, AS-BUILT CONTROL DRAWING MOUNTED INSIDE THE PANEL.
4. CONTRACTOR SHALL PROVIDE ALL WIRING AND/OR TUBING BETWEEN CONTROL PANEL(S) AND REMOTE CONTROL DEVICES.

E. THERMOSTATS

1. FURNISH AND INSTALL A HONEYWELL 7 DAY PROGRAMMABLE HEATING/COOLING THERMOSTAT AND CLEAR LOCKABLE COVER WITH APPROPRIATE CONTROL WIRING BETWEEN THERMOSTAT, ROOFTOP AS REQUIRED TO PROVIDE A COMPLETE OPERATING SYSTEM. WIRING SHALL BE MINIMUM 18 AWG.
2. THERMOSTATS SHALL BE MOUNTED WHERE INDICATED ON THE DOCUMENTS.
3. CONTRACTOR SHALL PROGRAM THERMOSTAT PER THE OWNER'S REQUIREMENTS AND TRAIN OWNER'S PERSONNEL IN THE OPERATION AND PROGRAMMING OF THE THERMOSTAT AND SYSTEM.

F. TEMPERATURE SENSORS

1. FURNISH AND INSTALL THE TEMPERATURE SENSORS WITH APPROPRIATE CONTROL WIRING BETWEEN THERMOSTAT, ROOFTOP AS REQUIRED TO PROVIDE A COMPLETE OPERATING SYSTEM. WIRING SHALL BE MINIMUM 18 AWG.
2. TEMPERATURE SENSORS SHALL BE MOUNTED WHERE INDICATED ON THE DOCUMENTS.

VII. TESTING AND BALANCING

A. TESTING AND BALANCING SHALL NOT BEGIN UNTIL THE SYSTEM HAS BEEN COMPLETED, IS IN FULL WORKING ORDER AND ALL EQUIPMENT START-UP HAS BEEN COMPLETED. ALL HVAC SYSTEMS AND EQUIPMENT SHALL BE PUT INTO FULL OPERATION AND THE OPERATION OF SAME CONTINUED DURING EACH WORKING DAY OF THE TESTING AND BALANCING.

B. AN INDEPENDENT "AABC" OR "NEBB" CERTIFIED AIR AND WATER BALANCE CONTRACTOR SHALL TEST AND BALANCE THE SYSTEM AND REPORT RESULTS TO THE ENGINEER AND THE OWNER.
1. ALL WORK SHALL BE DONE UNDER DIRECT SUPERVISION OF THE CERTIFIED BALANCING ENGINEER AND BY QUALIFIED BALANCING TECHNICIANS.
2. METHODS AND FORMS SHALL BE IN ACCORDANCE WITH THE CERTIFICATION AGENCIES RECOMMENDATIONS AND REQUIREMENTS.
3. COMPLY WITH ASHRAE RECOMMENDATIONS PERTAINING TO MEASUREMENTS, INSTRUMENTS, TESTING, ADJUSTING AND BALANCING.
4. ALL QUANTITIES SHALL BE WITHIN 10% OF THE DESIGN VALUES.
5. CONTRACTOR SHALL PROVIDE ANY SHEAVE CHANGES REQUIRED ON THE HVAC UNIT.

C. PERFORMANCE TEST

1. AFTER ALL HVAC EQUIPMENT IS INSTALLED, TESTED AND BALANCED AS SPECIFIED HEREIN THEY SHALL BE OPERATED AND PLACED UNDER SURVEILLANCE FOR A PERIOD OF AT LEAST ONE (1) DAY, THIS MAY INCLUDE THE DAY OF STARTUP, TO VERIFY THAT ALL EQUIPMENT IS PRODUCING THE REQUIRED CAPACITY. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR THE OPERATION OF THE EQUIPMENT DURING THE ENTIRE PERIOD.
2. TEST SHALL BE PERFORMED WITH ALL CONTROLS IN THE AUTOMATIC POSITION AND BUILDING LIGHTS, DAMPERS, ETC. POSITIONED TO SIMULATE NORMAL OPERATION OF THE HVAC SYSTEM.
3. DURING THE TEST, CONTROL SETTINGS MAY REQUIRE ADDITIONAL ADJUSTMENTS TO PRODUCE THE BEST BALANCED SYSTEM OPERATION. THEIR FINAL SETTING OF EACH OPERATING AND SAFETY CONTROL SHALL BE RECORDED, THEY SHALL INCLUDE, BUT NOT LIMITED TO, THERMOSTATS, LIMIT CONTROLS, AND OTHER SIMILAR ITEMS.
4. SHOULD COMPLETION OF THE INSTALLATION OCCUR AT SUCH TIME THAT THE REQUIRED PERFORMANCE TEST MUST BE CONDUCTED DURING A SEASON WHEN THE FULL OPERATION OF EITHER THE HEATING OR COOLING SYSTEM CAN NOT BE CHECKED, THE CONTRACTOR SHALL PERFORM THE TEST AND RECORD ALL SUCH DATA AS IS AVAILABLE WITH SYSTEM OPERATING AUTOMATICALLY UNDER THE PREVAILING WEATHER CONDITIONS. THAT PART OF THE SYSTEM WHICH CAN NOT BE TESTED SHALL BE DELAYED UNTIL THE WEATHER IS APPROPRIATE, AT WHICH TIME THE REMAINING PART OF THE REQUIRED TESTS SHALL BE CONDUCTED AND DATA RECORDED ACCORDINGLY.

D. ACCEPTANCE AND CHECK-OUT - CONTRACTOR SHALL PROVIDE QUALIFIED PERSONNEL, AT NO ADDITIONAL COST TO THE OWNER, AS MAY BE REQUIRED BY THE ENGINEER FOR THE PURPOSE OF VERIFYING PROPER OPERATION AND INSTALLATION OF THEIR WORK AT THE TIME OF REQUEST FOR ACCEPTANCE.

VIII. SEQUENCE OF OPERATION

A. ROOFTOP UNIT

1. WALL MOUNTED THERMOSTAT FURNISHED AS ACCESSORY TO UNIT SHALL SEQUENCE HEATING AND COOLING. PROVIDE WITH SUB-BASE TO MANUALLY SELECT HEATING, COOLING, FAN ON-OFF, AUTO OPERATION.
2. UNIT SHALL OPERATE IN OCCUPIED OR UNOCCUPIED MODES BASED UPON TIME CLOCK SEQUENCE AS DETERMINED BY OWNER.
3. UNOCCUPIED MODE - THE SUPPLY FAN WILL BE OFF, THE OUTDOOR AIR DAMPER WILL GO TO 100% CLOSED POSITION AND UNIT WILL CYCLE ON WITH CALL FOR HEATING OR COOLING.
4. OCCUPIED MODE - THE SUPPLY FAN SHALL RUN CONTINUOUSLY, THE OUTDOOR AIR DAMPER WILL OPEN TO THE MINIMUM AIR POSITION AND THE UNIT WILL GO INTO THE HEATING OR COOLING MODE, BASED UPON ROOM THERMOSTAT SETPOINT TEMPERATURE.
5. UPON A CALL FOR COOLING, AND THE OUTDOOR AIR TEMPERATURE IS 55 DEGREES F. (ADJUSTABLE) OR COOLER, THE UNIT SHALL GO INTO ECONOMIZER MODE. IF THE OUTDOOR AIR TEMPERATURE IS GREATER THAN 55 DEGREES F. (ADJUSTABLE), THE OUTSIDE AIR DAMPER SHALL GO TO MINIMUM POSITION, AND THE COMPRESSORS WILL BE ENERGIZED.
6. UPON A CALL FOR HEATING, THE ELECTRIC HEAT/GAS BURNER SHALL STAGE.
7. A LOW TEMPERATURE THERMOSTAT WILL DE-ENERGIZE THE SUPPLY FAN AND CLOSE THE OUTSIDE AIR DAMPER IF THE MIXED AIR TEMPERATURE IS SENSED AT 40 DEGREES F OR COLDER.
8. DUCT MOUNTED SMOKE DETECTOR SHALL SHUT DOWN THE UNIT, CLOSE THE OUTSIDE AIR DAMPER AND SEND A SIGNAL TO THE FIRE ALARM PANEL WHEN ACTIVATED. BOTH SAFETIES WILL REQUIRE MANUAL RESET, AND WILL ACTIVATE AN ALARM AT THE LOCAL CONTROL PANEL.

IX. LABELING

A. SUMMARY

1. SECTION INCLUDES NAMEPLATES, TAGS, STENCILS AND PIPE MARKERS.

B. REFERENCES

1. ASME A13.1 (AMERICAN SOCIETY OF MECHANICAL ENGINEERS) - SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS.

C. NAMEPLATES

1. PRODUCT DESCRIPTION: LAMINATED THREE-LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR.

D. TAGS

1. METAL TAGS:
    a. BRASS WITH STAMPED LETTERS; TAG SIZE MINIMUM 1-1/2 INCHES DIAMETER.
2. INFORMATION TAGS:
    a. CLEAR PLASTIC WITH PRINTED "DANGER," "CAUTION," OR "WARNING" AND MESSAGE; SIZE 3-1/4 X 5-5/8 INCHES WITH GROMMET AND SELF-LOCKING NYLON TIES.
3. TAG CHART: TYPEWRITTEN LETTER SIZE LIST OF APPLIED TAGS AND LOCATION IN ANODIZED ALUMINUM FRAME.

E. STENCILS

1. STENCILS: WITH CLEAN CUT SYMBOLS AND LETTERS OF FOLLOWING SIZE:
    a. DUCTWORK 1-3/4 INCHES HIGH LETTERS.
2. STENCIL PAINT: SEMI-GLOSS ENAMEL, COLORS AND LETTERING SIZE CONFORMING TO ASME A13.1.

F. PIPE MARKERS

1. COLOR AND LETTERING: CONFORM TO ASME A13.1.
2. PLASTIC PIPE MARKERS:
    a. FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING. LARGER SIZES MAY HAVE MAXIMUM SHEET SIZE WITH SPRING FASTENER.

G. LABELS

1. DESCRIPTION: POLYESTER OR LAMINATED MYLAR, SIZE 1.9 X 0.75 INCHES, ADHESIVE BACKED WITH PRINTED IDENTIFICATION.
2. CONTRACTOR TO PROVIDE LABELS AT EACH ENTRANCE DOOR TO CHILLER ROOM - “DO NOT ENTER ROOM WHEN BEACON IS FLASHING”

H. PREPARATION

1. DEGREASE AND CLEAN SURFACES TO RECEIVE ADHESIVE FOR IDENTIFICATION MATERIALS.

I. INSTALLATION

1. INSTALL IDENTIFYING DEVICES AFTER COMPLETION OF COVERINGS AND PAINTING.
2. INSTALL PLASTIC NAMEPLATES WITH CORROSIVE-RESISTANT MECHANICAL FASTENERS, OR ADHESIVE.
3. INSTALL LABELS WITH SUFFICIENT ADHESIVE TO ENSURE PERMANENT ADHESION AND SEAL WITH CLEAR LACQUER. FOR UNFINISHED CANVAS COVERING, APPLY PAINT PRIMER BEFORE APPLYING LABELS.
4. INSTALL TAGS USING CORROSION RESISTANT CHAIN. NUMBER TAGS CONSECUTIVELY BY LOCATION.
5. IDENTIFY EQUIPMENT WITH PLASTIC NAMEPLATES.
6. IDENTIFY CONTROL PANELS AND MAJOR CONTROL COMPONENTS OUTSIDE PANELS WITH PLASTIC NAMEPLATES.
7. IDENTIFY VALVES IN MAIN AND BRANCH PIPING WITH TAGS.
8. TAG AUTOMATIC CONTROLS, INSTRUMENTS, AND RELAYS. KEY TO CONTROL SCHEMATIC.
9. IDENTIFY PIPING, CONCEALED OR EXPOSED, WITH PLASTIC PIPE MARKERS, PLASTIC TAPE PIPE MARKERS OR STENCILED PAINTING. IDENTIFY SERVICE, FLOW DIRECTION, AND PRESSURE. INSTALL IN CLEAR VIEW AND ALIGN WITH AXIS OF PIPING. LOCATE IDENTIFICATION NOT TO EXCEED 20 FEET ON STRAIGHT RUNS INCLUDING RISERS AND DROPS, ADJACENT TO EACH VALVE AND TEE, AT EACH SIDE OF PENETRATION OF STRUCTURE OR ENCLOSURE, AND AT EACH OBSTRUCTION.

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CERTIFICATION

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PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

ISSUE DATES

PERMIT SET 04.01.21

210095

MECHANICAL SPECIFICATIONS

M004

COMcheck Software Version 4.1.5.1

Mechanical Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	Lee's Summit Animal Hospital North
Location:	Lees Summit, Missouri
Climate Zone:	4a
Project Type:	Alteration

Construction Site:
810A NW Commerce Dr
Lee's Summit, MO 64086

Owner/Agent:

Designer/Contractor:
TES Engineering
25760 1st St
Cleveland, OH 44145
4408712410

Mechanical Systems List

Quantity **System Type & Description**

1 RTU-1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 120 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE
Cooling: 1 each - Single Package DX Unit, Capacity = 87 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 11.20 EER, Required Efficiency: 11.00 EER + 12.6 IEER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 2800 CFM, 1.0 motor nameplate hp, 95.0 fan efficiency grade

1 RTU-2 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 160 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE
Cooling: 1 each - Single Package DX Unit, Capacity = 89 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 11.20 EER, Required Efficiency: 11.00 EER + 12.6 IEER
Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 2750 CFM, 3.0 motor nameplate hp, 95.0 fan efficiency grade

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Pratikkumar Navadiya - Mechanical Engineer | *Pratikkumar Navadiya* | 03/22/21
Name - Title | Signature | Date

COMcheck Software Version 4.1.5.1

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

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PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

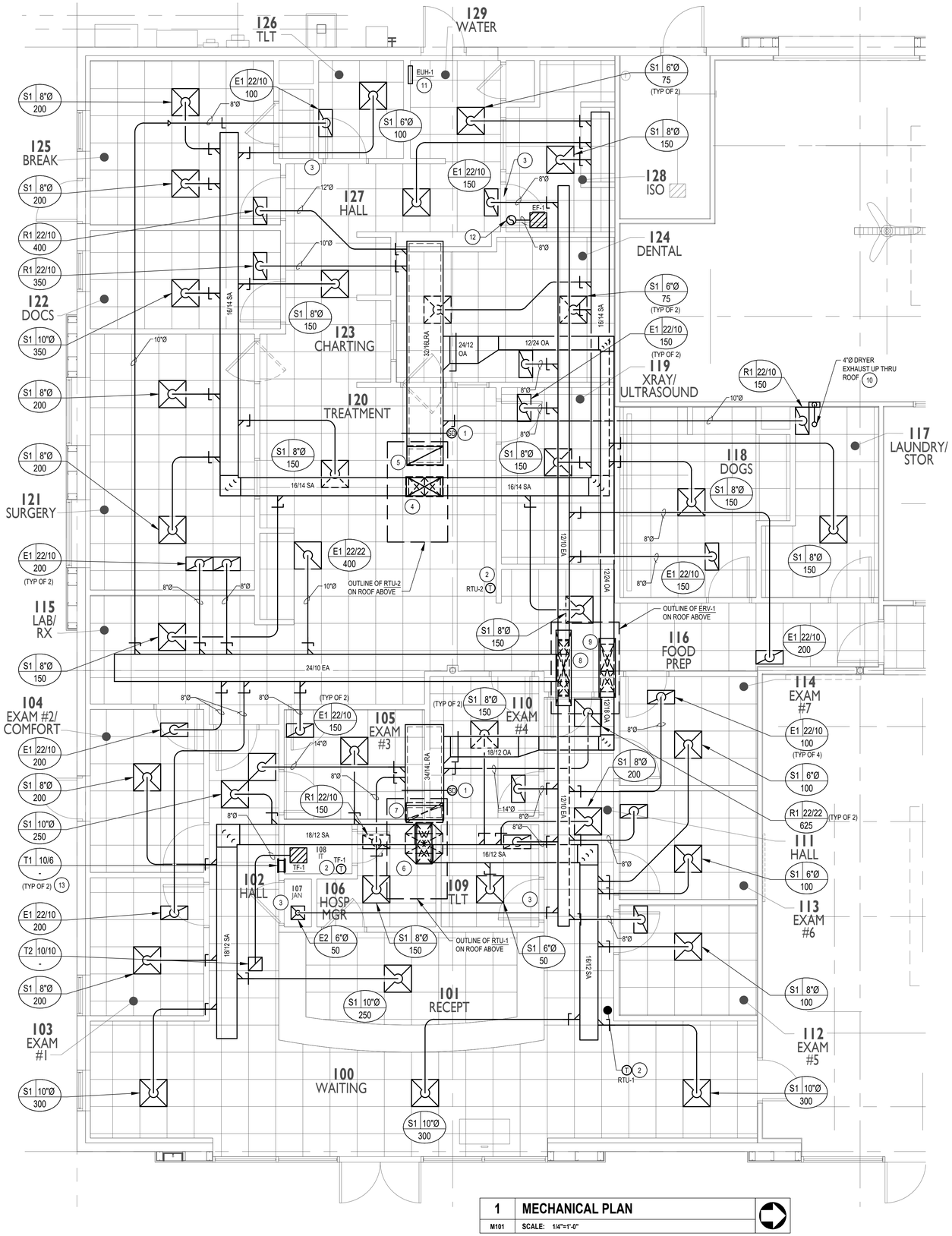
ISSUE DATES

PERMIT SET	04.01.21

210095

MECHANICAL COMPLIANCE

M005



1 MECHANICAL PLAN
M101 SCALE: 1/4"=1'-0"

GENERAL SHEET NOTES

1. EXISTING MECHANICAL INFORMATION IS BASED ON LIMITED EXISTING BUILDING DRAWINGS AND FIELD WORK. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONDITIONS FOR ACCURACY. CONTRACTOR SHALL NOTIFY OWNER, ARCHITECT AND ENGINEER OF ANY SITUATIONS THAT MODIFY OR INCREASE THE SCOPE OF WORK FROM THAT IS DESCRIBED IN THE DOCUMENTS.
3. REFER TO DRAWINGS AND PROJECT SPECIFICATIONS OF OTHER DISCIPLINES FOR ADDITIONAL PROJECT INFORMATION AND REQUIREMENTS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THE INFORMATION PRESENTED AND FIELD CONDITIONS.
4. PRIOR TO ANY ISOLATION OF SYSTEMS, SHUTDOWNS OR DEMOLITION THE CONTRACTOR SHALL PROVIDE NECESSARY INVESTIGATION AND NOTIFY THE FACILITIES ENGINEERING/MAINTENANCE PERSONNEL OF WORK TO BE PERFORMED SO AS TO AVOID ANY DETRIMENTAL SHUTDOWN OF SYSTEMS TO ADJACENT SPACES.
8. MECHANICAL SYSTEMS INSTALLATION MUST MAINTAIN INTEGRITY OF WALLS, PARTITIONS AND FLOORS DESIGNATED AS EITHER FIRE RATED OR "SMOKE TIGHT". SEAL AROUND ALL PENETRATIONS THROUGH RATED OR SMOKE TIGHT ASSEMBLIES. COORDINATE W/ARCHITECTURAL PLANS AND GENERAL CONTRACTOR.
9. LIMITED ABOVE CEILING CLEARANCES EXIST. COORDINATE LOCATION AND ELEVATION OF MECHANICAL WORK WITH ALL DUCTWORK, SPRINKLERS, LIGHT FIXTURES, AND OTHER CEILING BUILT-IN FIXTURES. CONTACT ENGINEER OR ARCHITECT IMMEDIATELY SHOULD ANY CONFLICT ARISE.
10. ALL ROOF PENETRATIONS, PATCHING AND FLASHING SHALL BE PERFORMED BY A LANDLORD APPROVED ROOFING CONTRACTOR AT THIS CONTRACTOR'S EXPENSE. COORDINATE ROOF PENETRATIONS AND ROOFTOP EQUIPMENT LOCATIONS WITH LANDLORD AND GENERAL CONTRACTOR.
11. NOTHING IS PERMITTED TO BE ATTACHED TO, SUSPENDED FROM, OR PENETRATE THE ROOF DECK. CONTRACTOR MAY ATTACH TO OR SUSPEND FROM THE TOP CHORD OF THE JOIST OR THE STRUCTURAL STEEL WHICH EXISTS ABOVE THE SPACE.
12. COORDINATE FINAL ROOFTOP UNIT LOCATIONS WITH LANDLORDS STRUCTURAL ENGINEER. ROOFTOP UNITS AND MAKE-UP AIR UNIT TO BE LOCATED WITHIN STRUCTURAL BAY. PROVIDE 10' CLEARANCE FROM UNIT OUTSIDE AIR INTAKE TO ANY EXHAUST/VENTS ON ROOF.
13. GENERAL CONTRACTOR TO LABEL ALL ROOFTOP EQUIPMENT WITH TENANT NAME, SPACE NUMBER AND EQUIPMENT IDENTIFICATION (RTU-1, ETC.), PER MALL SPECIFICATIONS AND STANDARDS.
14. REFER TO LANDLORD CRITERIA MANUAL FOR ADDITIONAL STANDARDS AND REQUIREMENTS.
15. COORDINATE ALL THERMOSTAT AND SENSOR LOCATIONS WITH FURNITURE LAYOUT AND ARCHITECTURAL PLANS. DEVICES ARE TO BE INSTALLED AND WIRED BY THE HVAC CONTRACTOR, MOUNT PER ADA REQUIREMENTS.
16. CHANGES IN DUCT SIZES SHALL BE MADE BY UNIFORM TAPER SECTION WITH A MAXIMUM INCLUDE ANGLE OF DIVERGENCE OF 15 DEGREE.
17. DUCT SIZES INDICATED REPRESENT EXTERNAL SHEET METAL DIMENSIONS AND INCLUDE ALLOWANCE FOR INTERNAL INSULATION.
18. ALL SUPPLY AND MAKE-UP AIR DUCTWORK NOT EXPOSED SHALL BE EXTERNALLY INSULATED.
19. BRANCH DUCTS SERVING DIFFUSERS SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE INDICATED UNLESS NOTED OTHERWISE.
20. PITCH POCKETS ARE NOT PERMITTED ON THE ROOF FOR CONDENSATE DRAINS, POWER OR CONTROL WIRING. ALL CONNECTIONS ARE TO BE MADE INSIDE THE EQUIPMENT CURB OR THROUGH PRE-MANUFACTURED PIPING CURB.
21. CONTRACTOR MUST REPLACE ALL AIR FILTERS IN ROOFTOP UNITS WITH NEW CLEAN FILTERS BEFORE AIR BALANCING AND PRIOR TO FINAL TURNOVER TO TENANT.

SHEET KEYNOTES

1 SMOKE DETECTOR PROVIDE IN RETURN DUCT, FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR, MOUNTED BY MECHANICAL CONTRACTOR. COORDINATE REQUIRED LENGTH OF SAMPLING TUBE WITH ELECTRICAL CONTRACTOR.

2 THERMOSTAT MOUNTED ON WALL AT 48" AFF TO BOTTOM. COORDINATE EXACT LOCATION WITH FURNITURE LAYOUT AND ARCHITECTURAL PLANS. THERMOSTAT SHALL BE WIRED TO CONTROL INTERFACE ON ASSOCIATED ROOF TOP UNIT.

3 COORDINATE WITH G.C. TO PROVIDE 1" DOOR UNDERCUT FOR TRANSFER AIR.

4 34/16L SA DOWN FROM UNIT. SPLIT INTO TWO(2) 16/14 DUCT. TRANSITION TO FULL SIZE OF UNIT SUPPLY AIR CONNECTION SIZE IN RISE, WITH FLEX CONNECTION BELOW ROOF DECK. PROVIDE ELBOW WITH TURNING VANES IN TRANSITION TO HORIZONTAL.

5 32/16L RA UP TO UNIT. TRANSITION TO FULL SIZE OF UNIT RETURN AIR CONNECTION SIZE IN RISE, WITH FLEX CONNECTION BELOW ROOF DECK. PROVIDE ELBOW WITH TURNING VANES IN TRANSITION TO HORIZONTAL.

6 36/14L SA DOWN FROM UNIT. SPLIT INTO ONE(1) 18/12 AND ONE(1) 18/12 DUCT. TRANSITION TO FULL SIZE OF UNIT SUPPLY AIR CONNECTION SIZE IN RISE, WITH FLEX CONNECTION BELOW ROOF DECK. PROVIDE ELBOW WITH TURNING VANES IN TRANSITION TO HORIZONTAL.

7 34/14L RA UP TO UNIT. TRANSITION TO FULL SIZE OF UNIT RETURN AIR CONNECTION SIZE IN RISE, WITH FLEX CONNECTION BELOW ROOF DECK. PROVIDE ELBOW WITH TURNING VANES IN TRANSITION TO HORIZONTAL.

8 50/12L EA UP TO UNIT. SPLIT INTO TWO(2) 12/10 AND ONE(1) 24/10 DUCT. TRANSITION TO FULL SIZE OF UNIT EXHAUST AIR CONNECTION SIZE IN RISE. WITH FLEX CONNECTION BELOW ROOF DECK. PROVIDE ELBOW WITH TURNING VANES IN TRANSITION TO HORIZONTAL.

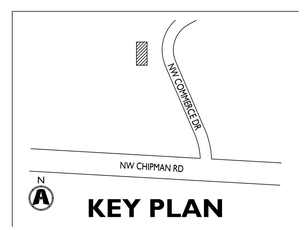
9 44/14L OUTSIDE AIR SUPPLY DOWN FROM UNIT. SPLIT INTO ONE(1) 24/12 AND ONE(1) 18/12 DUCT. TRANSITION TO FULL SIZE OF UNIT FRESH AIR CONNECTION SIZE IN RISE, WITH FLEX CONNECTION BELOW ROOF DECK. PROVIDE ELBOW WITH TURNING VANES IN TRANSITION TO HORIZONTAL.

10 PROVIDE DRYER VENT WALL BOX. TRANSITION FROM DRYER BOX CONNECTION IN WALL AND ROUTE 4"Ø UP THROUGH ROOF. REFER TO TERMINATION DETAIL FOR ADDITIONAL INFORMATION.

11 WALL MOUNTED ELECTRIC HEATER 1' AFF FROM BOTTOM OF HEATER. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.

12 8" EXHAUST UP THROUGH ROOF TO CURB AND CAP.

13 MOUNT TRANSFER GRILLE ON BOTH SIDE OF WALL AS HIGH AS POSSIBLE BELOW CEILING. GRILLE IS TO BE LOCATED IN THE SPACE BETWEEN 2 WALL STUDS WITH TRANSFER DUCT SIZE TO MATCH. FIELD COORDINATE THE EXACT LOCATION OF THE GRILLE AND ENSURE THAT THERE IS TO BE NO HORIZONTAL FRAMING, OR OTHER OBSTRUCTIONS IN THE STUD SPACE.



KEY PLAN

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ISSUE DATES

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210095
MECHANICAL PLAN

M101

ABBREVIATIONS

(ALL ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

ABV	ABOVE
ADJ	ADJUSTABLE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ANSI	AMERICAN NAT'L STANDARDS INSTITUTE
ARCH	ARCHITECT, ARCHITECTURAL
ASME	AMERICAN SOCIETY OF MECHANICAL ENGRS
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY OF TESTING & MATLS
AUX	AUXILIARY
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOC.
B/F	BELOW FLOOR
BAS	BUILDING AUTOMATION SYSTEM
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BTU	BRITISH THERMAL UNIT
CC	CONCRETE
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CLG	CEILING
CO	CLEANOUT
CONN	CONNECT, CONNECTION
COP	CLEANOUT PLUG
COL	COLUMN
CTE	CONNECT TO EXISTING
CW	DOMESTIC COLD WATER
D	DEPTH
DEG	DEGREES
DIA (OR Ø)	DIAMETER
DIM	DIMENSION
DN	DOWN
DOM	DOMESTIC
DS	DOWNSPOUT
DWG	DRAWING
EA	EACH
EC	ELECTRICAL CONTRACTOR
ELEV	ELEVATION
ELEC	ELECTRICAL
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EXH	EXHAUST
EX	EXISTING
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FS	FLOOR SINK
FLEX	FLEXIBLE
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FT	FOOT, FEET
FW	FILTERED WATER
°F	DEGREES FAHRENHEIT
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GI	GREASE INTERCEPTOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRD	GROUND
GW	GREASE WASTE
H	HEIGHT
HD	HEAD, HUB DRAIN
HP	HORSEPOWER
HVAC	HEATING, VENTILATING & A/C
HW	DOMESTIC HOT WATER
HYD	HYDRANT
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH, INCHES
IN w.c	INCHES OF WATER COLUMN (GAS)
KEC	KITCHEN EQUIPMENT CONTRACTOR
LBS, #	POUNDS
LP	LOW PRESSURE
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MTD	MOUNTED
MUA	MAKE-UP AIR
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MFR'S ASSOC.
NFPA	NATIONAL FIRE PROTECTION ASSOC.
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
O/H	OVERHEAD
OC	ON CENTER
OD	OVERFLOW DRAINAGE
OPNG	OPENING
ORD	OVERFLOW ROOF DRAIN.
OS&Y	OUTSIDE STEM AND YOKE
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMIN.
PB	PUSH BUTTON
PD	PRESSURE DROP
PH, Ø	PHASE
PIV	POST INDICATOR VALVE
PLBG	PLUMBING
PSI	POUNDS PER SQUARE INCH
PRV	PRESSURE RELIEF VALVE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REINF	REINFORCING, REINFORCED
REL	RELOCATED
REQ	REQUIRED
REV	REVISION, REVISE
REX	REMOVE EXISTING
RHW	DOMESTIC HOT WATER RETURN
RPM	REVOLUTIONS PER MINUTE
RR	REMOVE AND RELOCATE
RWC	RAIN WATER CONDUCTOR
SAN	SANITARY
SECT	SECTION
SF	SQUARE FEET, SQUARE FOOT
SHT	SHEET
SPEC	SPECIFICATION
SQ	SQUARE
ST	STORM WATER
STD	STANDARD
SURF	SURFACE
SUSP	SUSPEND
TDH	TOTAL DYNAMIC HEAD
THRU	THROUGH
TP	TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TMV	THERMOSTATIC MIXING VALVE
TYP	TYPICAL
U/F	UNDERFLOOR
U/G	UNDERGROUND
U/S	UNDERSLAB
UL	UNDERWRITERS LABORATORIES, INC.
UON	UNLESS OTHERWISE NOTED
V	VENT
VAC	VACUUM
VTR	VENT THROUGH ROOF
W/	WITH
W/O	WITHOUT
WC	WATER COLUMN

PLUMBING SYMBOLS

- ELBOW UP
- ELBOW DOWN
- VALVE IN DROP
- DIRECTION OF FLOW
- TEE OUTLET UP
- TEE OUTLET DOWN
- UNION
- EXPANSION JOINT
- BALL VALVE
- OS&Y VALVE
- SHUT-OFF VALVE
- CALIBRATED BALANCING VALVE
- CHECK VALVE
- PRESSURE REDUCING VALVE
- BUTTERFLY VALVE
- 3-WAY SELF OPERATING VALVE
- 2-WAY SELF OPERATING VALVE
- MOTOR OPERATED VALVE
- PIPE GUIDE
- HOSE BIB
- SANITARY PIPING
- SANITARY VENT PIPING
- OXYGEN PIPING
- STORM PIPING (UNDERGROUND)
- OVERFLOW DRAIN PIPING
- COLD WATER (CW) PIPING
- HOT WATER (HW) PIPING
- HOT WATER RECIRCULATION (RHW)
- NATURAL GAS PIPING
- GREASE WASTE
- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- NEW PIPING / EQUIPMENT
- PIPING ABOVE FLOOR
- PIPING BELOW FLOOR
- CAP ON END LINE
- FLOW SWITCH
- PRESSURE SWITCH
- T&P RELIEF VALVE
- PRESSURE GAUGE WITH GAUGE COCK
- THERMOMETER
- FLEXIBLE CONNECTION
- PIPE FLANGE
- THERMOMETER WELL
- GAS VALVE
- WATER METER
- GAS REGULATOR
- WALL CLEANOUT OR CLEAOUT PLUG
- FLOOR CLEANOUT
- FLOOR SINK (FS)
- FLOOR DRAIN WITH P-TRAP
- POINT OF CONNECTION - NEW TO EXISTING
- DRAWING NOTE REFERENCE
- PLUMBING FIXTURES
- GAS MANIFOLD LOCATION
- DOUBLE CHECK BACKFLOW PREVENTER
- DOMESTIC WATER RISER
- STUB UP FOR FUTURE TENANT CONNECTION
- SPRINKLER HEAD (SEMI-RECESSED)
- SPRINKLER HEAD (FULLY-RECESSED)
- SPRINKLER HEAD (UPRIGHT)

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

GAS LOAD SUMMARY SCHEDULE

TAG	DESCRIPTION	LOAD (CFH)
WH-1	WATER HEATER	76
RTU-1	ROOFTOP UNIT	150
RTU-2	ROOFTOP UNIT	200
	TOTAL CFH	426

NOTE: GAS PIPING SIZED USING LONGEST LENGTH METHOD. TOTAL DEVELOPED LENGTH OF 180 FT, INCLUDING FITTINGS. LOW PRESSURE DELIVERY TO FIXTURES, SIZED PER 2018 IFGC TABLE 404.2(4).

PLUMBING FIXTURE AND EQUIPMENT SCHEDULE

TAG	FIXTURE TYPE	CONNECTION SIZE						MFR	MODEL No.	DESCRIPTION
		O2	GAS	SAN	VENT	HW	CW			
BV-1	HOT WATER RECIRCULATION BALANCE VALVE	-	-	-	-	1/2"	-	CALEFFI	116441A(C)	THERMOSTATICALLY CONTROLLED ADJUSTABLE BALANCING VALVE SET TO 135 DEG F WITH INTEGRAL OUTLET THERMOMETER. LEAD FREE BRASS CONSTRUCTION.
EW-1	EMERGENCY EYE-WASH	-	-	-	-	3/4"	3/4"	HAWS	7611	HAWS MSR SINK MOUNT EYE/FACE WASH, SINGLE ACTION SWING-AWAY WITH AXION MSR EYE/FACE WASH HEAD DESIGNED TO MOUNTON LEFT OR RIGHT SIDE OF SINK. PROVIDE WITH HAWS MODEL 9201EW THERMOSTATIC MIXING VALVE INSTALLED BELOW COUNTER, ASSE 1071 LISTED, 4.1 GPM AT 5 PSI PRESSURE DROP. COORDINATE WITH OWNER'S REPRESENTATIVE FOR TEMPERATURE SET POINT. OTHER APPROVED MANUFACTURERS: BRADLEY, GUARDIAN
EWC-1	ELECTRIC WATER COOLER	-	-	1-1/2"	1-1/2"	-	1/2"	ELKAY	LZSTL8WSSP	BI-LEVEL WITH BOTTLE FILLING STATION, SELF-CONTAINED, WALL HUNG ELECTRIC REFRIGERATED WATER COOLER WITH SELF-CLOSING EASY-TOUCH CONTROLS ON FRONT AND BOTH RIGHT AND LEFT SIDE, WATER FILTER, ADA COMPLIANT, AND NO LEAD DESIGN. CHILLING CAPACITY OF 50 DEG. F DRINKING WATER, BASED UPON 80 DEG. F INLET WATER AND 90 DEG. F AMBIENT. ELECTRICAL DATA: 370 RATED WATTS, 5.0 FLA, 115V, 1 PHASE, 60 HZ. OTHER APPROVED MANUFACTURERS: HALSEY TAYLOR, OASIS
FCO	FLOOR CLEANOUT	-	-	SEE PLANS	-	-	-	ZURN	Z1400	ADJUSTABLE CLEANOUT, IF FLOORS ARE TILED OR TERRAZZO PROVIDE WITH EITHER NICKEL BRONZE OR CHROME FINISH, IF FLOORS ARE CARPETED PROVIDE WITH RECESSED TOP. CLEANOUTS ARE TO BE FLUSH WITH FINISHED FLOOR. OTHER APPROVED MANUFACTURERS: WADE, JOSAM, J.R. SMITH
FD-1	FLOOR DRAIN (GENERAL SERVICE)	-	-	3"	1-1/2"	-	-	JAY R. SMITH	2005-NB	FURNISH WITH DUCO CAST IRON BODY, NICKEL BRONZE STRAINER, TRAP PRIMER CONNECTION. COORDINATE WITH THE ARCHITECT FOR SQUARE OR ROUND TYPE TOP. OTHER APPROVED MANUFACTURERS: WADE, JOSAM, ZURN
FD-2	FLOOR DRAIN (PET WASH AREAS)	-	-	3"	1-1/2"	-	-	JAY R. SMITH	2005-SS	FURNISH WITH DUCO CAST IRON BODY, STAINLESS STEEL STRAINER, TRAP PRIMER CONNECTION. COORDINATE WITH THE ARCHITECT FOR SQUARE OR ROUND TYPE TOP. OTHER APPROVED MANUFACTURERS: WADE, JOSAM, ZURN
HB-1	HOSE BIBB	-	-	-	-	-	3/4"	JAY R. SMITH	5670	BRASS BODY WITH ROUGH FINISH, WHEEL HANDLE, 3/4" HOSE CONNECTION, ASSE 1011 VACUUM BREAKER
IMB-1	ICE MAKER OUTLET BOX	-	-	-	-	-	1/2"	OATEY	88531	METAL WHITE POWDER COATED LEAD FREE ICE MAKER OUTLET BOX WITH 1/2" COPPER SWEAT CONNECTION, QUARTER TURN BALL VALVE, AND WATER HAMMER ARRESTOR. OTHER APPROVED MANUFACTURERS: GUY GRAY, IPS CORP.
LAV-1	LAVATORY WALL HUNG	-	-	1-1/2"	1-1/2"	1/2"	1/2"	AMERICAN STANDARD	0355.012	"LUCERNE" WALL HUNG LAVATORY WITH FAUCET LEDGE, FAUCET HOLES ON 4" CENTERS, & WALL HANGER. FAUCET SHALL BE MOEN MODEL 8400 SINGLE HANDLE FAUCET, WITH 4" HANDLE, 1.2 GPM FLOW RATE, 4" SPREAD, CHROME PLATED FINISH. FURNISH WITH CHROME STOPS, SUPPLIES AND A 1-1/4" WHEELCHAIR LAVATORY DRAIN WITH STAINLESS STEEL GRID AND P-TRAP. PROTECT TRAP AND SUPPLIES WITH A TRAP WRAP KIT 500R AS MANUFACTURED BY BROCAR PRODUCTS INC. LAVATORY MOUNTING HEIGHT SHALL BE AS DETAILED ON ARCHITECTURAL DRAWINGS. PROVIDE TMV-1 SET TO 105°F OUTLET TEMPERATURE. OTHER APPROVED LAVATORY MANUFACTURERS: KOHLER, TOTO, MANSFIELD. OTHER APPROVED FAUCET MANUFACTURERS: CHICAGO FAUCETS, DELTA.
MS-1	MOP SINK	-	-	3"	1-1/2"	3/4"	3/4"	FIAT	MSB2424	24" X 24" X 10" HIGH, MOLDED STONE MOP SINK WITH VINYL BUMPER GUARDS E-77-AA ON ALL CURBS. PROVIDE MOP SINK WITH 832-AA HOSE AND HOSE BRACKET AND 889-CC MOP HANGER. FAUCET SHALL BE CHICAGO FAUCET 897 WITH BACK SUPPLIES ON ADJUSTABLE CENTERS, VACUUM BREAKER, AND A POLISHED CHROME FINISH. OTHER APPROVED MOP BASIN MANUFACTURERS: MUSTEE & SONS. OTHER APPROVED FAUCET MANUFACTURERS: T&S BRASS, ZURN
PET GROOMING TUB	PET GROOMING TUB	-	-	2"	1-1/2"	1/2"	1/2"	BY OWNER	BY OWNER	PET GROOMING TUB PROVIDED BY OWNER. PLUMBING CONTRACTOR TO PROVIDE PLUMBING CONNECTIONS , TMV-2, AND HAIR TRAP. COORDINATE WITH OWNER AND GC FOR ADDITIONAL INFORMATION IN FIELD.
SK-1	SINK	-	-	1-1/2"	1-1/2"	1/2"	1/2"	ELKAY	GECR2521L	"CELEBRITY, 25" x 21-1/4" x 5-3/8", 20 GAUGE-TYPE 304 STAINLESS STEEL SINGLE COMPARTMENT DROP-IN SINK WITH A 3-1/2" LEFT OFF-SET DRAIN OPENING. FAUCETS MODEL 200-AGN8AE35-317AB FAUCET, 1.5 GPM FLOW RATE, 8" CENTERS, 8" GOOSENECK SPOUT, 4" WRIST BLADE HANDLES, CHROME PLATED FINISH. PROVIDE WITH INSINKERATOR MODEL LC-50 FOOD WASTE DISPOSAL, 1/2 HP, 120V/1PH, 5 AMPS WITH DRAIN FITTING AND STOPPER. PROVIDE CHROME SUPPLIES, SERVICE STOPS AND 1-1/2" P-TRAP WITH CLEANOUT. PROVIDE TMV-1 SET TO 110°F OUTLET TEMPERATURE. OTHER APPROVED MANUFACTURERS: AMERICAN STANDARD, JUST
SK-2	SINK	-	-	1-1/2"	1-1/2"	1/2"	1/2"	ELKAY	GECR2521L	"CELEBRITY, 25" x 21-1/4" x 5-3/8", 20 GAUGE-TYPE 304 STAINLESS STEEL SINGLE COMPARTMENT DROP-IN SINK WITH A 3-1/2" LEFT OFFSET DRAIN OPENING. FAUCET SHALL BE CHICAGO FAUCETS MODEL 200-AGN8AE35-317AB FAUCET, 1.5 GPM FLOW RATE, 8" CENTERS, 8" GOOSENECK SPOUT, 4" WRIST BLADE HANDLES, AND #LK-35 STRAINER/DRAIN FITTING. PROVIDE CHROME SUPPLIES, SERVICE STOPS AND 1-1/2" P-TRAP WITH CLEANOUT. PROVIDE TMV-1 SET TO 110°F OUTLET TEMPERATURE. OTHER APPROVED MANUFACTURERS: AMERICAN STANDARD, JUST
SK-3	SINK	-	-	1-1/2"	1-1/2"	1/2"	1/2"	ELKAY	BCR15	"CELEBRITY, 15" x 15" x 6-1/8", 20 GAUGE-TYPE 304 STAINLESS STEEL SINGLE COMPARTMENT DROP-IN SINK WITH A 3-1/2" CENTER DRAIN OPENING. FAUCET SHALL BE CHICAGO FAUCETS MODEL 200-AGN8AE35-317AB FAUCET, 1.5 GPM FLOW RATE, 8" CENTERS, 8" GOOSENECK SPOUT, 4" WRIST BLADE HANDLES, AND #LK-35 STRAINER/DRAIN FITTING. PROVIDE CHROME SUPPLIES, SERVICE STOPS AND 1-1/2" P-TRAP WITH CLEANOUT. PROVIDE TMV-1 SET TO 110°F OUTLET TEMPERATURE. OTHER APPROVED MANUFACTURERS: AMERICAN STANDARD, JUST
SK-4	SCRUB SINK	-	-	1-1/2"	1-1/2"	1/2"	1/2"	ELKAY	EWSF13026KWSC	SURGEON SCRUB SINK 30" x 23" x 26", 16 GAUGE-TYPE 304 STAINLESS STEEL SINGLE COMPARTMENT WALL MOUNTED SINK WITH A 3-1/2" CENTER DRAIN OPENING, WITH KNEE OPERATED FAUCET AND SOAP DISPENSER. FAUCET SHALL BE LAMINAR FLOW PROVIDED WITH THE SINK BY ELKAY. SOAP DISPENSER SHALL BE PROVIDED WITH SINK BY ELKAY. PROVIDE CHROME SUPPLIES, SERVICE STOPS AND 1-1/2" P-TRAP. PROVIDE TMV-1 SET TO 110°F OUTLET TEMPERATURE. OTHER APPROVED MANUFACTURERS: JUST
TD-1	TRENCH DRAIN	-	-	2"	1-1/2"	-	-	JAY R. SMITH	9666	13'-0" LONG FABRICATED 14 GA TYPE 304 STAINLESS STEEL BODY WITH VANDAL-PROOF STAINLESS STEEL PERFORATED GRATE AND 2" NO-HUB BOTTOM OUTLET. GRATE HAS 1/4 INCH DIA. PERFORATIONS. OTHER APPROVED MANUFACTURERS: WADE, JOSAM, ZURN
TMV-1	THERMOSTATIC MIXING VALVE	-	-	-	-	1/2"	1/2"	CASH ACME	HG135	POINT OF USE ASSE 1070 RATED THERMOSTATIC MIXING VALVE, OUTLET TEMPERATURE: 110°F AT NON-PUBLIC BACK OF HOUSE HANDSINKS AND 105° F AT PUBLIC LAVS, 3/8" COMPRESSION RINGS, NICKEL PLATED. INSTALLED AT ALL SINGLE COMPARTMENT BAR SINKS, DUMP SINKS, HANDWASH SINKS AND LAVS. CONTRACTOR MAY CHOOSE TO USE ASSE 1070 MIXING VALVE OFFERED AS ACCESSORY BY FAUCET MANUFACTURER IN LIEU OF TMV-1. OTHER APPROVED MANUFACTURERS: BRADLEY CORPORATION, WATTS, LAWLER, ZURN, POWERS.
TMV-2	THERMOSTATIC MIXING VALVE	-	-	-	-	1/2"	1/2"	CASH ACME	HG110-HX	POINT OF USE ASSE 1070 RATED THERMOSTATIC MIXING VALVE, OUTLET TEMPERATURE: 120°F OUTLET TEMPERATURE SET POINT, NICKEL PLATED. INSTALLED AT ALL MOP SINKS AND DOG GROOMING TUBS. OTHER APPROVED MANUFACTURERS: BRADLEY CORPORATION, WATTS, LAWLER, ZURN, POWERS.
TP-1	UNDER-LAV TRAP PRIMER	-	-	-	-	-	1/2"	PRECISION PLUMBING PRODUCTS	PRO1-ULP500	UNDER-LAV AUTOMATIC TRAP PRIMER, CHROME PLATED FINISH, 1/2" INLET, 1/2" OUTLET TO FLOOR DRAIN WITH ESCUTCHEON, 3/8" OUTLET TO LAV COLD WATER SUPPLY. ASSE 1018 CERTIFIED.
UT-1	FLOOR MOUNTED UTILITY TUB	-	-	1-1/2"	1-1/2"	1/2"	1/2"	MUSTEE & SONS	19F	24" x 20" FLOOR MOUNTED ONE PIECE MOLDED THERMOPLASTIC "UTILATUB" WITH DRAIN ASSEMBLY AND FLOOR MOUNTING HARDWARE. FAUCET SHALL BE MUSTEE & SONS MODEL 93.600, 4" CENTER SET BRASS BODY AND SWING SPOUT.
WB-1	WASHING MACHINE BOX	-	-	2"	1-1/2"	1/2"	1/2"	GUY GRAY	WB-200	20 GA. BOX WITH SINGLE LEVER VALVE, 1/2"NPT BRASS SWEAT CONNECTION AND 2" PVC DRAIN. MAKE FINAL CONNECTIONS TO MACHINE. UNIT SHALL BE 82043.
WC-1	FLOOR MOUNTED WATER CLOSET (ADA)	-	-	3"	2"	-	1/2"	AMERICAN STANDARD	2467.016	"CADET" RIGHT HEIGHT, PRESSURE ASSIST, TWO-PIECE, 1.6 GPF, ELONGATED FLUSH TANK TOILET WITH ALL ASSOCIATED TRIM, FITTINGS AND HARDWARE. SEAT SHALL BE BEMIS MODEL 1950SS, WHITE SOLID PLASTIC SEAT WITH STAINLESS STEEL HARDWARE, OPEN FRONT WITH COVER. OTHER APPROVED MANUFACTURERS: KOHLER, MANSFIELD, TOTO
WH-1	GAS FIRED WATER HEATER	-	1"	-	-	1-1/4"	1-1/4"	A.O. SMITH	BTX-80	GLASS-LINED WATER HEATER WITH 50 GALLON STORAGE AND 3 YEAR WARRANTY. 120V, SINGLE PHASE, 60 HZ. 95 GPH RECOVERY AT 90 DEG F TEMPERATURE RISE. 140 DEG F STORAGE TEMPERATURE. UNIT SHALL BE COMPLETELY FACTORY PREWIRED AND SHALL BE UL LISTED. FURNISH HEATER WITH APPROPRIATE WATTS REGULATOR TEMP AND PRESSURE (T&P) RELIEF VALVE ALONG WITH A VACUUM BREAKER VALVE. SAFEWASTE RELIEF PIPE TO NEAREST FLOOR DRAIN. PROVIDE WITH CONDENSATE NEUTRALIZATION KIT. OTHER APPROVED MANUFACTURERS: STATE, AMERICAN, BRADFORD WHITE
ET-1	EXPANSION TANK	-	-	-	-	-	3/4"	AMTROL	ST-12C-DD	ASME RATED THERMAL EXPANSION TANK. 3.2 GALLON ACCEPTANCE VOLUME, 150 PSI WORKING PRESSURE, STEEL CONSTRUCTION. 65 TOTAL SYSTEM GALLONS. CONTRACTOR SHALL MEASURE THE SYSTEM PRESSURE AT POINT OF INSTALLATION AND CHARGE ET TO MEASURED PRESSURE. OTHER APPROVED MANUFACTURERS: ELBI, TACO
RP-1	HOT WATER RECIRCULATING PUMP	-	-	-	-	1/2"	-	BELL & GOSSETT	NBF-36	LEAD FREE BRONZE CONSTRUCTION, 120V/1PH, 270 WATTS, 2.30 AMPS, 3300 RPM, 2.5 GPM FLOW RATE AT 15 FEET HEAD, SET TO SPEED 1. PROVIDE AQUASTAT SET TO 140 DEG F. OTHER APPROVED MANUFACTURERS: TACO, GRUNDFOS
ZVB-1	ZONE VALVE BOX	3/4"	-	-	-	-	-	BEACONMEDAES	ZVB1-B-ENG	SINGLE ZONE VALVE BOX WITH THREE PIECE BRONZE FULL PORT, DOUBLE SEAL, BALL VALVE WITH MAXIMUM WORKING PRESSURE OF 600 PSIG. BOX CONSTRUCTED OF 18 GAUGE STEEL WITH WHITE EPOXY FINISH. ZONE VALVE AND BOX ASSEMBLY SHALL MEET ALL THE REQUIREMENTS OF NFPA 99, CSA Z7396.1-09 AND AS2896-2011. VALVE SHALL CONFORM TO MSS SP-110. TYPE K COPPER TUBE EXTENSIONS SHALL CONFORM TO ASTM B88, UNS NO. C12200, AND H58 TEMPER. GAUGES SHALL CONFORM TO ANSI B40.1. PROVIDE WITH GAS SENSOR MOUNTED INSIDE BOX.
OMC-1	OXYGEN MANIFOLD CONTROLLER	3/4"	-	-	-	-	-	BEACONMEDAES	MNE-HH4X4-O2-AS	4X4 AUTOMATIC CHANGEOVER MANIFOLD CONTROLLER AT 55 PSI DELIVERY PRESSURE. LED ELECTRONICS, NEMA 4 ENCLOSURE FOR POWER SUPPLY AND CONTROL BOARD, 1/4 TURN SHUT-OFF VALVE, STAINLESS STEEL SOLENOID VALVE, 250mA AT 120V/1PH POWER, AND MEETS THE REQUIREMENTS OF NFPA 99.
MGA-1	MEDICAL GAS ALARM	-	-	-	-	-	-	BEACONMEDAES	M3-C01-O	MEGA3 MEDICAL GAS ALARM, COMBINATION AREA AND MASTER ALARM, DISPLAY FOR UP TO 3 GASES, 10 INPUTS, AND 6 RELAY OUTPUTS. LED DISPLAY FOR GAS NAME, ROOM NAMES, PRESSURE, AND STATUS. AUDIBLE ALARM. MEETS THE REQUIREMENTS OF NFPA 99.
MGO-1	MEDICAL GAS OUTLET	1/2"	-	-	-	-	-	BEACONMEDAES	SERIES B DISS	DISS MEDICAL GAS CEILING OUTLET FOR O2, UL LISTED, CSA CERTIFIED, AND NFPA 99 COMPLIANT.

BACKFLOW PREVENTION DEVICE APPLICATION SCHEDULE

EQUIPMENT SERVED	DEVICE TYPE TO BE INSTALLED	ASSEMBLY TYPE	MANUFACTURER	MODEL	SIZE	NOTES
REFRIGERATOR ICE MAKER	ASSE 1024	DUAL CHECK	ZURN/WILKINS	700XL	1/2"	1

1. LEAD FREE CONSTRUCTION. MOUNT BFP ON INCOMING LINE TO EQUIPMENT. REFER TO DETAIL ON P003.

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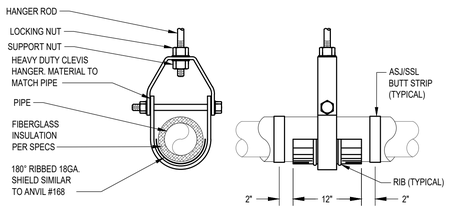
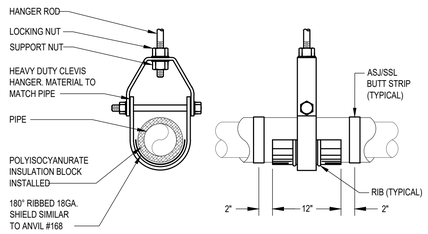
PLUMBING LEGEND AND SCHEDULES

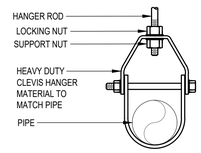
P001



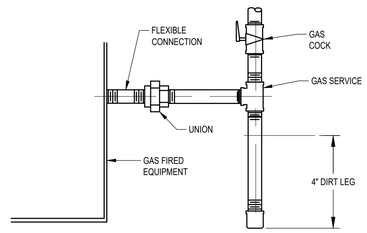
1	UP TO 1-1/4" PIPE SUPPORT DETAIL
P002	SCALE: NONE



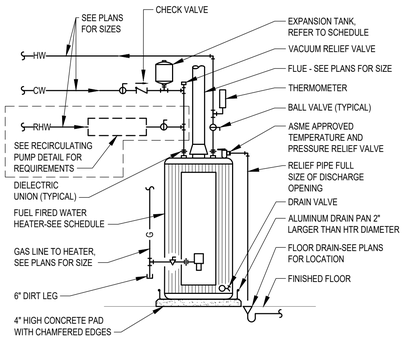
2	PIPE SUPPORT DETAIL 1-1/2" - 12"Ø
P002	SCALE: NONE



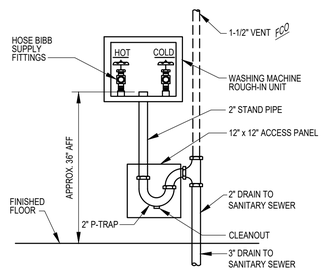
3	UNINSULATED PIPE SUPPORT DETAIL
P002	SCALE: NONE



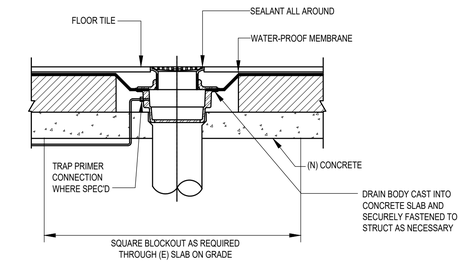
4	GAS CONNECTION DETAIL
P002	SCALE: NONE



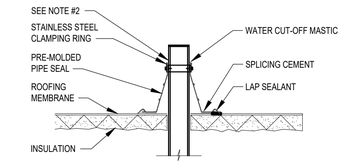
5	FUEL FIRED WATER HEATER DETAIL
P002	SCALE: NONE



9	WASHING MACHINE HOOK-UP DETAIL
P002	SCALE: NONE



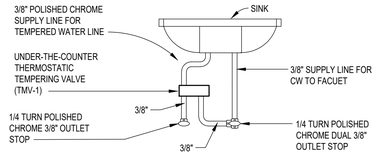
7	FLOOR DRAIN DETAIL
P002	SCALE: NONE



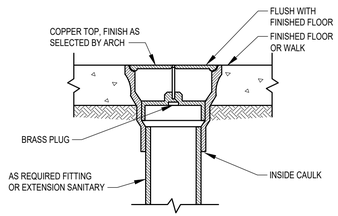
DETAIL NOTES

1. PRE-MOLDED PIPE SEAL CANNOT BE CUT VERTICALLY TO BE INSTALLED.
2. PRE-MOLDED PIPE SEAL MUST HAVE INTACT RIB AT THE TOP EDGE, REGARDLESS OF THE PIPE DIAMETER.
3. WHEN PRE-MOLDED PIPE SEAL CANNOT BE INSTALLED, USE FIELD FABRICATED PIPE SEAL.
4. FOR BALLAST SYSTEMS, REPLACE BALLAST AFTER WORK IS COMPLETED.
5. FLANGE MUST BE SET BY ROOFER. COORDINATE WITH ROOFING CONTRACTOR.
6. VENTS SHALL BE A MINIMUM OF 15'-0" FROM OUTSIDE AIR INTAKES.
7. DO NOT TRIM DECK FLANGE.

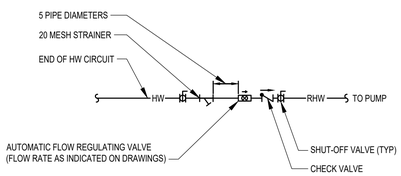
8	PIPE THROUGH ROOF DETAIL
P002	SCALE: NONE



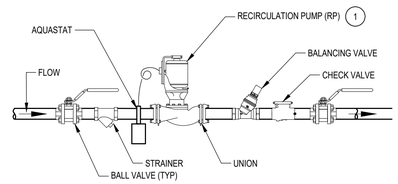
9	"TMV" THERMOSTATIC MIXING VALVE DETAIL
P002	SCALE: NONE



10	FLOOR CLEANOUT DETAIL
P002	SCALE: NONE



11	RHW CIRCUIT VALVING DETAIL
P002	SCALE: NONE



NOTES

1 REFER TO RECIRCULATION PUMP SCHEDULE FOR ADDITIONAL INFORMATION.

12	RECIRCULATING PUMP DETAIL
P002	SCALE: NONE

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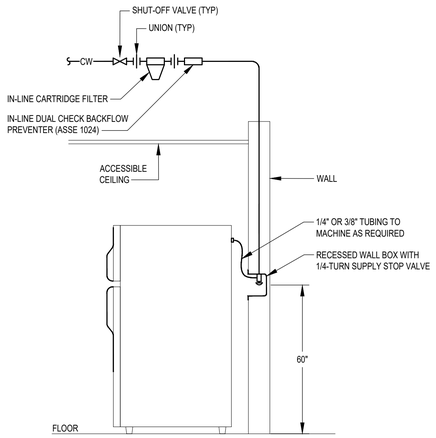
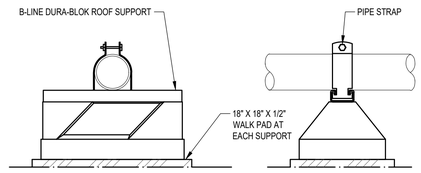
PLUMBING DETAILS

P002



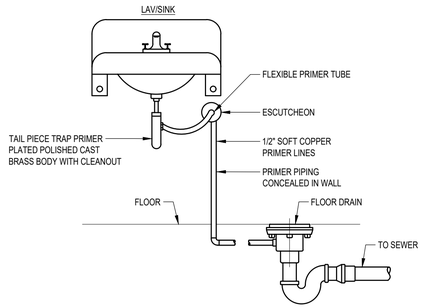
1	REFRIGERATOR WITH ICE MAKER PIPING DIAGRAM
P003	SCALE: NONE



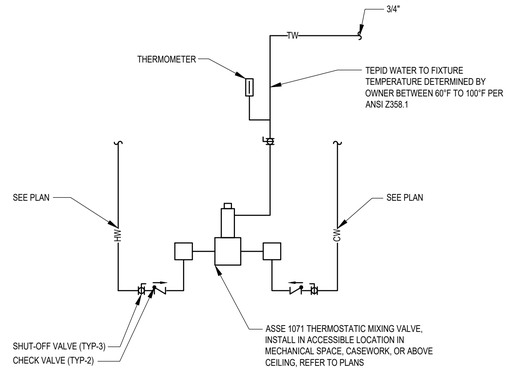
DETAIL NOTES

1. INSTALLATION SHALL BE PER MANUFACTURERS RECOMMENDATIONS.
2. WOOD BLOCK SUPPORTS ARE NOT ACCEPTABLE
3. BLACK IRON PIPING SHALL BE PAINTED; (PAINTING OF GALVANIZED PIPING IS NOT REQ'D)

2	GAS SUPPORT ON ROOF DETAIL
P003	SCALE: NONE



3	TRAP PRIMER DETAIL
P003	SCALE: NONE



4	EMERGENCY FIXTURE TMV DIAGRAM
P003	SCALE: NONE

DETAIL NOTES

1. THIS IS A GENERIC DETAIL. REFER TO THE PLANS AND SCHEDULES FOR MANIFOLD SIZE.

5	MEDICAL GAS CYLINDER MANIFOLD DETAIL
P003	SCALE: NONE

6	ZONE VALVE MOX AND AREA ALARM DETAIL
P003	SCALE: NONE

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PLUMBING DETAILS

P003

PLUMBING SPECIFICATIONS

GENERAL

REFER TO ALL OTHER DRAWINGS AND SPECIFICATIONS AND BE RESPONSIBLE FOR ALL APPLICABLE PROVISIONS THEREIN. FURNISH AND INSTALL ALL NECESSARY LABOR AND MATERIALS FOR A COMPLETE SYSTEM. ANY APPLIANCES OR MATERIALS OBVIOUSLY A PART OF THE SYSTEM AND NECESSARY FOR ITS PROPER OPERATION ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN, SHALL BE FURNISHED AND INSTALLED AS IF CALLED FOR IN DETAIL.

ALL WORK SHALL BE IN CONFORMANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES INCLUDING THE BUILDING CODE AND ANY SPECIAL OWNER REQUIREMENTS IN ADDITION TO THOSE SPECIFIED. ATTAIN AND PAY FOR ALL REQUIRED PERMITS AND FEES. EQUIPMENT AND MATERIALS SHALL BE NEW, UNLESS OTHERWISE SPECIFIED.

APPLICABLE CODES AND STANDARDS:

1. 2018 INTERNATIONAL BUILDING CODE
2. 2018 INTERNATIONAL PLUMBING CODE
3. 2018 INTERNATIONAL FUEL GAS CODE
4. 2018 NFPA 99
5. ALL FEDERAL, STATE AND LOCAL CODES OR ORDINANCES.

DRAWINGS ARE GENERALLY DIAGRAMMATIC AND DO NOT NECESSARILY SHOW EVERY FITTING, OFFSET, DROP AND RISE OF RUNS AND DETAIL. DO NOT SCALE DRAWINGS.

INSTALL EQUIPMENT AND CONTROLS IN A NEAT, WORKMANLIKE MANNER AND IN ACCORDANCE WITH GOOD PRACTICE FOR A COMPLETE, WORKABLE INSTALLATION. AVOID CONFLICT WITH LOCATIONS OF FIXTURES, APPARATUS, DUCTWORK AND PIPING, AND WHILE THESE DRAWINGS ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE, IF IT IS NECESSARY TO CHANGE THE LOCATION OF SAME TO ACCOMMODATE BUILDING CONDITIONS, MAKE CHANGES WITHOUT ADDITIONAL COST TO THE OWNER AND AS APPROVED BY THE ARCHITECT.

PROVIDE ADEQUATE ACCESS TO THE EQUIPMENT AND APPARATUS REQUIRING OPERATION, SERVICE OR MAINTENANCE WITHIN THE LIFE OF THE EQUIPMENT AND THE SYSTEM.

DO NOT RUN PIPING OR LOCATE EQUIPMENT (WITH RESPECT TO SWITCHBOARDS, PANEL BOARDS, POWER PANELS, MOTOR CONTROL CENTERS OR DRY TYPE TRANSFORMERS) WITHIN 42 INCHES OF FRONT OF EQUIPMENT, OVER EQUIPMENT, OR WITHIN 36 INCHES HORIZONTALLY OF THAT SAME SPACE.

SEAL AROUND ALL PIPES PENETRATING FIRE WALLS, SMOKE WALLS OR FLOORS IN ACCORDANCE WITH THE GENERAL TRADE'S SPECIFICATIONS.

PROVIDE WATER HAMMER ARRESTERS ON HOT AND COLD WATER PIPING IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE (PDI) STANDARD PD1-WH-201.

PROVIDE QUARTER-TURN BRASS SUPPLY STOP SHUT-OFF VALVES AT EACH PLUMBING FIXTURE.

PROVIDE CORROGATED STAINLESS STEEL FLEXIBLE HOSES FROM SUPPLY STOP SHUT-OFF VALVES TO EACH PLUMBING FIXTURE.

ALL KITCHEN FIXTURES AND EQUIPMENT SHALL HAVE HARD PIPE CONNECTIONS.

EXISTING CONDITIONS

CONTRACTOR SHALL VISIT THE SITE AND GET FAMILIARIZED WITH THE JOB CONDITIONS BEFORE SUBMITTING A PROPOSAL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS AND SIZES OF ALL EXISTING UTILITY SERVICES AND CONDITIONS PRIOR TO SUBMITTING A PROPOSAL. NO CONSIDERATION WILL BE GIVEN TO CLAIMS FOR EXTRA COST ARISING FROM CONTRACTOR'S FAILURE TO BE FULLY COGNIZANT OF JOB OR SITE CONDITIONS EXISTING AT TIME OF ACCEPTANCE OF BID.

IF DURING THIS SITE VISIT THE CONTRACTOR FINDS ANY OBSTRUCTION OR INTERFERENCE THAT MAY PROHIBIT THE PROPER INSTALLATION OF WORK, THE CONTRACTOR SHALL MAKE IT KNOWN TO THE BUILDING MANAGEMENT AND/OR OWNER BEFORE AND AT THE TIME OF SUBMITTING A PROPOSAL.

BY SUBMISSION OF THE BID, IT IS UNDERSTOOD THAT SUCH INSPECTION HAS BEEN MADE AND INCLUDES ALL THE MATERIALS AND REQUIRED RELOCATION FOR ALL WORK.

ACTIVE SERVICES, WHEN ENCOUNTERED IN WORK: PROTECT, BRACE AND / OR SUPPORT EXISTING ACTIVE SEWERS, GAS AND OTHER SERVICES REQUIRED FOR PROPER EXECUTION OF WORK. IF EXISTING ACTIVE SERVICES ARE ENCOUNTERED THAT REQUIRE RELOCATION, RELOCATE AS APPROVED. DO NOT PREVENT OR DISTURB OPERATION OF ACTIVE SERVICES THAT ARE TO REMAIN.

INACTIVE SERVICES, WHEN ENCOUNTERED IN WORK: REMOVE, CAP OR PLUG INACTIVE SERVICES AS INDICATED.

INTERRUPTION OF SERVICES: WHERE WORK MAKES TEMPORARY SHUT-DOWN OF SERVICES UNAVOIDABLE, SHUT DOWN AT NIGHT OR AT SUCH TIMES AS APPROVED BY OWNER AND THE BUILDING MANAGEMENT WHICH WILL CAUSE MINIMUM INTERFERENCE WITH ESTABLISHED OPERATING ROUTINES. ARRANGE WORK TO ASSURE THAT SERVICES WILL BE SHUT DOWN ONLY DURING THE ACTUALLY REQUIRED TIME TO MAKE NECESSARY CONNECTIONS TO EXISTING WORK.

WHERE EXISTING WALLS, CEILINGS, FLOORS, ROOFS, ETC., ARE CUT OR OTHERWISE DAMAGED DURING CONSTRUCTION, REPAIR ALL SURFACES TO THEIR ORIGINAL CONDITION.

SUBMITTALS

PREPARE SHOP DRAWINGS AND PRODUCT DATA FOR PLUMBING EQUIPMENT WITH ADEQUATE DETAILS AND SCALES AS NECESSARY TO CLEARLY SHOW CONSTRUCTION. INDICATE THE OPERATING CHARACTERISTICS AND DESIGN CONDITIONS FOR EACH REQUIRED ITEM. CLEARLY IDENTIFY EACH ITEM ON THE DRAWINGS AS TO MARK, LOCATION, AND USE.

THE SUBMITTALS WILL BE REVIEWED ONLY FOR GENERAL COMPLIANCE AND NOT FOR DIMENSIONS, QUANTITIES, ETC. THE SUBMITTALS THAT ARE RETURNED SHALL BE USED FOR PROCUREMENT. THE RESPONSIBILITY OF CORRECT PROCUREMENT REMAINS SOLELY WITH THE CONTRACTOR.

REVIEW OF SUBMITTALS SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ERRORS OR OMISSIONS AND DEVIATIONS FROM THE CONTRACT REQUIREMENTS.

AFTER THE SUBMITTAL HAS BEEN REVIEWED, IT IS UNDERSTOOD THAT THE CONTRACTOR WILL PROVIDE THE PRODUCTS, MATERIALS, AND MANUFACTURER THAT WAS SUBMITTED. THE ENGINEER WILL NOT REVIEW ANY ADDITIONAL ATTEMPTS TO RESUBMIT PRODUCT DATA AFTER A SUBMITTAL HAS BEEN REVIEWED AND APPROVED.

EACH SUBCONTRACTOR SHALL KEEP ONE SET OF DRAWINGS ON-SITE ON WHICH THEY SHALL RECORD ANY DEVIATIONS OR CHANGES FROM SUCH CONTRACT DRAWINGS MADE DURING CONSTRUCTION. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED. UPON COMPLETION OF THE PROJECT, THE RECORD DRAWINGS SHALL BE DELIVERED TO THE
OWNER.

PROVIDE PRODUCT SUBMITTALS FOR THE FOLLOWING ITEMS:

PIPES, FITTINGS, VALVES, INSULATION, AND ACCESSORIES
TRENCH DRAINS
FLOOR DRAINS
TRAP PRIMERS
SLEEVES
ESCUTCHEONS
LAVATORIES AND FAUCETS
WATER CLOSETS AND FLUSH VALVES
THERMOSTATIC MIXING VALVES
BACKFLOW PREVENTER DEVICES
HANGERS AND SUPPORTS
WATER HEATERS
PUMPS
EYEWASHES

COORDINATION

COORDINATE ALL WORK UNDER THIS DIVISION WITH WORK UNDER OTHER DIVISIONS. PROVIDE ADJUSTMENTS AS NECESSARY TO EQUIPMENT, APPARATUS, PIPING, ETC. THAT WAS INSTALLED WITHOUT REGARD FOR THE SPACE REQUIREMENTS OF OTHER TRADES. THESE CONFLICTS WILL BE REWORKED AT THE EXPENSE OF THE INSTALLING SUB-CONTRACTOR IF IT CREATES AN UNNECESSARY HINDRANCE TO THE INSTALLATION OF ANOTHER TRADES WORK. ALL ITEMS MOUNTED AT OR BELOW THE CEILING AND ANY ITEM PENETRATING THE CEILING SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.

COORDINATE PLACEMENT OF ALL PLUMBING RELATED EQUIPMENT AND DEVICES WITH OTHER TRADES. DO NOT POSITION OR INSTALL ANY PLUMBING EQUIPMENT OR DEVICES IN ANY SYSTEM IN SUCH A WAY THAT IT WILL BE INACCESSIBLE OR UN-MAINTAINABLE AFTER CONSTRUCTION IS COMPLETED.

NO OTHER TRADES ARE ALLOWED TO BE SUPPORTED FROM MATERIALS, EQUIPMENT OR DEVICES INSTALLED BY THE PLUMBING TRADES. LIKEWISE, ALL WORK INSTALLED BY THE PLUMBING TRADES MUST BE SUPPORTED FROM THE STRUCTURE ABOVE, FROM WALLS OR FROM THE FLOOR
UNLESS OTHERWISE INDICATED.

RESTORE ROADS, GROUNDS, TUNNELS, INSULATION, PIPING, BUILDING, ETC., TO THEIR ORIGINAL CONDITION WHENEVER THIS WORK CAUSES DAMAGE.

PROVIDE TO OWNER AFTER ALL EQUIPMENT IS IN OPERATION AND AT AN AGREEABLE TIME, COMPETENT INSTRUCTORS FOR THE PURPOSE OF TRAINING PERSONNEL IN ALL PHASES OF OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS.

PROTECTION OF WORK DURING CONSTRUCTION

PROVIDE PROTECTIVE COVERS, SKIDS, PLUGS OR CAPS TO PROTECT EQUIPMENT AND MATERIALS FROM DAMAGE AND DETERIORATION DURING CONSTRUCTION. CONTRACTOR SHALL TAKE PRECAUTIONS AGAINST DAMAGING OR DISRUPTING ALL BUILDING SYSTEMS INCLUDING, WIRING, CONTROLS, ETC. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTORS COST USING THE SAME QUALITY OF MATERIAL AS THE EXISTING SYSTEMS THAT WERE DAMAGED.

GUARANTEE

MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AGAINST DEFECTS FOR A PERIOD OF ONE YEAR STARTING FROM THE MUTUALLY AGREED UPON DATE OF SUBSTANTIAL COMPLETION.

CONTRACTOR REQUIREMENTS

CONTRACTOR SHALL BE LICENSED IN THIS STATE TO INSTALL COMMERCIAL PLUMBING SYSTEMS. CONTRACTOR SHALL BE CERTIFIED TO INSTALL MEDICAL GAS SYSTEMS PER NFPA 99.

GENERAL PIPING REQUIREMENTS

GENERAL: PIPING SHALL BE COMPLETE WITH PIPE FITTINGS, VALVES, COUPLING, STRAINERS, HANGER RODS, HANGERS, SUPPORTS, GUIDES, SLEEVES AND ACCESSORIES IN CONFORMANCE WITH THE LATEST CODES AND ASME, ANSI, ASTM AND MSS STANDARDS.

PROVIDE FITTINGS FOR CHANGE IN PIPE SIZE AND FOR FINAL CONNECTION AT EQUIPMENT, AS REQUIRED.

PROVIDE UNION CONNECTIONS AT EACH PIECE OF EQUIPMENT AND ON EACH SIDE OF ALL VALVES AND IN-LINE EQUIPMENT.

PROVIDE VALVED AND CAPPED CONNECTIONS AT ALL POINTS IN PIPING SYSTEMS REQUIRED FOR DRAINING SYSTEMS.

PROVIDE SLEEVES AT ALL WALL AND FLOOR PENETRATIONS.

PIPE AND FITTING MATERIALS

SANITARY (RESTROOMS AND WASTE BELOW 135 DEG F) AND VENT PIPING ABOVE AND BELOW GRADE: SCHEDULE 40 SOLID WALL PVC PER ASTM D 2665 DRAIN, WASTE AND VENT.

SANITARY (WASTE ABOVE 135 DEG F) AND VENT PIPING ABOVE GRADE: HUBLESS CAST IRON PER ASTM A 888 OR CISPI 301 AND BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE.

APPROVED MANUFACTURERS: AB&I FOUNDRY, TYLER PIPE AND COUPLING, CHARLOTTE PIPE AND FOUNDARY.

SANITARY (WASTE ABOVE 135 DEG F) AND VENT PIPING BELOW GRADE: HUB AND SPIGOT CAST IRON PIPE PER ASTM A 74 BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE.

APPROVED MANUFACTURERS: AB&I FOUNDRY, TYLER PIPE AND COUPLING, CHARLOTTE PIPE AND FOUNDARY.

DOMESTIC WATER PIPING ABOVE GRADE: HARD COPPER TUBE, TYPE L PER ASTM B88

CONDENSATE DRAIN PIPING ABOVE GRADE: HARD COPPER TUBE, TYPE DWV PER ASTM B306

NATURAL GAS PIPING ABOVE GRADE: SCHEDULE 40 BLACK STEEL PIPE PER ASTM A 53/A 53M, TYPE E OR S, GRADE B WITH THREADED OR WELDED JOINTS.

MEDICAL GAS PIPING ABOVE GRADE: HARD DRAWN COPPER TUBE, TYPE K PER ASTM B819 PER CGA G4.1 AND NFPA 99 WITH BRAZED JOINTS UTILIZING NITROGEN PURGE DURING BRAZING.

PIPE COUPLINGS

PVC SANITARY, VENT PIPING BELOW GRADE: SOCKET FITTINGS PER ASTM D 2665, MADE TO ASTM D 3311 DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE WITH SOLVENT JOINTS.

CAST IRON HUBLESS SANITARY, VENT PIPING ABOVE GRADE: HEAVY DUTY COUPLINGS PER ASTM C 1277 AND ASTM C 1540.

APPROVED MANUFACTURERS: ANACO-HUSKY, MISSION RUBBER COMPANY, CHARLOTTE PIPE AND FOUNDRY

COPPER DOMESTIC WATER PIPE ABOVE GRADE: PER ASME B16.18, CAST BRONZE OR ASME B16.22, WROUGHT COPPER AND BRONZE. JOINTS SHALL BE PER ASTM B32, SOLDER, GRADE 95TA.

BLACK STEEL NATURAL GAS PIPING ABOVE GRADE: THREADED FITTINGS PER ASME B16.3, CLASS 150, STANDARD PATTERN. WROUGHT-STEEL WELDING FITTINGS PER ASTM A 234/A 234M FOR BUTT WELDING AND SOCKET WELDING.

COPPER MEDICAL GAS PIPE: PER ASME B16.22 WROUGHT COPPER. JOINTS SHALL BE BRAZED PER MSS SP-73. INSTALL PER NFPA 99.

PIPE SUPPORTS

HORIZONTAL PIPE HANGERS SHALL BE CARBON STEEL, ADJUSTABLE CLEVIS TYPE FOR GENERAL SERVICE APPLICATIONS, COPPER PLATED WHEN IN CONTACT WITH COPPER PIPING, AND RUBBER/PLASTIC COATED WHEN IN CONTACT WITH PLASTIC PIPING. PROVIDE THERMAL HANGER SHIELD INSERTS FOR ALL INSULATED PIPING AND HANGER SHIELD FOR PLASTIC PIPING PER THE PIPE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS. HANGER RODS AND SPACING SHALL BE PER THE LOCAL CODE REQUIREMENTS.

PIPE INSULATION MATERIALS

TYPE 1:

DESCRIPTION: FIBERGLASS, MINIMUM 4 POUNDS PER CUBIC FOOT (P.C.F.) DENSITY, K FACTOR 0.23 MAXIMUM AT 75 DEGREE F MEAN, WITH FACTORY-APPLIED ALL-SERVICE JACKET (ASJ) COMPOSED OF REINFORCED KRAFT AND ALUMINUM FOIL LAMINATE. JACKET SHALL HAVE SELF-SEALING LAP TO FACILITATE CLOSING LONGITUDINAL AND END JOINTS.

STANDARD: ASTM C547, CLASS 1 (-20 DEGREE F TO 500 DEGREE F).

APPROVED MANUFACTURERS: JOHNS MANVILLE, KNAUF, OWENS CORNING

TYPE 2:

DESCRIPTION: FLEXIBLE, CLOSED CELL ELASTOMERIC, NOMINAL 6 PCF DENSITY, K FACTOR 0.27 MAXIMUM AT 75 DEGREE F MEAN.

STANDARD: ASTM C534 (-40 DEGREE F TO 220 DEGREE F):

APPROVED MANUFACTURERS: AEROFLEX, ARMACELL

INSTALLATION OF PIPE INSULATION

INSTALL INSULATION ON PIPE SYSTEMS SUBSEQUENT TO TESTING AND ACCEPTANCE OF TEST.

MAINTAIN INTEGRITY OF VAPOR-BARRIER JACKETS ON PIPE INSULATION, AND PROTECT TO PREVENT PUNCTURE OR OTHER DAMAGE. SEAL OPEN ENDS OF INSULATION WITH MASTIC. SECTIONALLY SEAL ALL BUTT ENDS OF ALL COLD WATER PIPING INSULATION AT FITTINGS WITH WHITE VAPOR BARRIER COATING.

COVER VALVES, FLANGES, FITTINGS AND SIMILAR ITEMS IN EACH PIPING SYSTEM WITH EQUIVALENT THICKNESS AND COMPOSITION OF INSULATION AS APPLIED TO ADJOINING PIPE RUN. INSTALL FACTORY MOLDED, PRECUT OR JOB FABRICATED UNITS (AT INSTALLERS OPTION) AS NECESSARY. FINISH COLD PIPE FITTINGS WITH WHITE VAPOR BARRIER COATING AND HOT PIPING WITH WHITE VINYL ACRYLIC MASTIC, BOTH REINFORCED WITH GLASS CLOTH.

EXTEND PIPING INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS, HANGERS, AND SIMILAR PIPING PENETRATIONS EXCEPT WHERE OTHERWISE INDICATED.

INSTALL PROTECTIVE METAL SHIELDS AND FOAM GLASS INSERTS WHERE PIPE HANGERS BEAR ON OUTSIDE OF INSULATION.

INSTALL INSULATION PER THE MICA MANUAL AND ALL REQUIREMENTS LISTED IN THE MANUFACTURER'S INSTALLATION MANUAL.

PIPE INSULATION SCHEDULE

DOMESTIC COLD WATER PIPING ABOVE GRADE <1-1/2":

TYPE 1: FIBERGLASS
1/2 INCH THICKNESS

TYPE 2: FLEXIBLE, CLOSED CELL ELASTOMERIC
1/2 INCH THICKNESS

DOMESTIC COLD WATER AND TRAP PRIMER PIPING BELOW GRADE:

TYPE 2: FLEXIBLE, CLOSED CELL ELASTOMERIC
1/2 INCH THICKNESS

DOMESTIC HOT WATER AND HOT WATER RECIRCULATION PIPING ABOVE GRADE <1-1/2:

TYPE 1: FIBERGLASS
1 INCH THICKNESS

TYPE 2: FLEXIBLE, CLOSED CELL ELASTOMERIC
1 INCH THICKNESS

SLEEVES

ALL PIPING PENETRATING WALLS, PARTITIONS, AND FLOORS SHALL BE SLEEVED WITH GALVANIZED STEEL PIPE SLEEVE. ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, GALVANIZED, PLAIN ENDS. SEAL ANNULAR RECESS WITH PERMANENTLY FLEXIBLE SEALANT OR FIRESTOP (AT FIRE WALLS), BOTH SIDES OF WALL. REFER TO DETAIL ON DETAILS SHEET.

PIPE LABELS

GENERAL REQUIREMENTS FOR MANUFACTURED PIPE LABELS: PREPRINTED, COLOR-CODED, WITH LETTERING INDICATING SERVICE, AND SHOWING FLOW DIRECTION.

SELF-ADHESIVE PIPE LABELS: PRINTED PLASTIC WITH CONTACT-TYPE, PERMANENT-ADHESIVE BACKING.

PIPE LABEL CONTENTS: INCLUDE IDENTIFICATION OF PIPING SERVICE USING SAME DESIGNATIONS OR ABBREVIATIONS AS USED ON DRAWINGS; ALSO INCLUDE PIPE SIZE AND AN ARROW INDICATING FLOW DIRECTION.

LETTERING SIZE: SIZE LETTERS ACCORDING TO ASME A13.1 FOR PIPING

LOCATION OF PIPE LABELS:

NEAR EACH VALVE AND CONTROL DEVICE. NEAR EACH BRANCH CONNECTION, EXCLUDING SHORT TAKEOFFS FOR FIXTURES AND TERMINAL UNITS. WHERE FLOW PATTERN IS NOT OBVIOUS, MARK EACH PIPE AT BRANCH. NEAR PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND INACCESSIBLE ENCLOSURES. AT ACCESS DOORS, MANHOLES, AND SIMILAR ACCESS POINTS THAT PERMIT VIEW OF CONCEALED PIPING. NEAR MAJOR EQUIPMENT ITEMS AND OTHER POINTS OF ORIGINATION AND TERMINATION. SPACED AT MAXIMUM INTERVALS OF 50 FEET ALONG EACH RUN. REDUCE INTERVALS TO 25 FEET IN AREAS OF CONGESTED PIPING AND EQUIPMENT.

PIPE LABEL COLOR SCHEDULE:

DOMESTIC WATER PIPING: SAFETY GREEN BACKGROUND WITH WHITE LETTERS.

SANITARY, VENT PIPING: SAFETY PURPLE BACKGROUND WITH WHITE LETTERS.

NATURAL GAS: SAFETY YELLOW BACKGROUND WITH BLACK LETTERS.

MEDICAL GAS PIPING: SAFETY BLUE BACKGROUND WITH WHITE LETTERS.

APPROVED MANUFACTURERS: BRADY CORPORATION, BRIMAR INDUSTRIES, AND SETON.

VALVE TAGS

VALVE TAGS: STAMPED OR ENGRAVED WITH 1/4-INCH HIGH LETTERS FOR PIPING SYSTEM ABBREVIATION AND 1/2-INCH HIGH NUMBERS.

TAG MATERIAL: ALUMINUM, 0.032-INCH MINIMUM THICKNESS, AND HAVING PREDRILLED OR STAMPED HOLES FOR ATTACHMENT HARDWARE.

FASTENERS: STAINLESS STEEL BEADED CHAIN.

VALVE SCHEDULES: FOR EACH PIPING SYSTEM, ON 8-1/2-BY-11-INCH BOND PAPER. TABULATE VALVE NUMBER, PIPING SYSTEM, SYSTEM ABBREVIATION (AS SHOWN ON VALVE TAG), LOCATION OF VALVE (ROOM OR SPACE), NORMAL-OPERATING POSITION (OPEN, CLOSED, OR MODULATING), AND VARIATIONS FOR IDENTIFICATION. MARK VALVES FOR EMERGENCY SHUTOFF AND SIMILAR SPECIAL USES.

APPROVED MANUFACTURERS: BRADY CORPORATION, BRIMAR INDUSTRIES, AND SETON.

INSTALL TAGS ON VALVES AND CONTROL DEVICES IN PIPING SYSTEMS EXCEPT CHECK VALVES, VALVES WITHIN FACTORY-FABRICATED EQUIPMENT UNITS, SHUTOFF VALVES, FAUCETS, CONVENIENCE AND LAWN-WATERING HOSE CONNECTIONS, AND SIMILAR ROUGHING-IN CONNECTIONS OF END-USE FIXTURES AND UNITS. LIST TAGGED VALVES IN A VALVE SCHEDULE.

VALVE-TAG APPLICATION SCHEDULE: TAG VALVES ACCORDING TO SIZE, SHAPE, AND COLOR SCHEME AND WITH CAPTIONS SIMILAR TO THOSE INDICATED IN THE FOLLOWING:

VALVE-TAG SIZE AND SHAPE: ALL SERVICES: 1-1/2 INCHES, ROUND.

ESCUTCHEONS

ONE-PIECE, CAST-BRASS TYPE: WITH POLISHED, CHROME-PLATED FINISH AND SETSCREW FASTENER. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS AND CEILINGS. INSTALL ESCUTCHEONS WITH INSIDE DIAMETER TO CLOSELY FIT AROUND PIPE, TUBE, AND INSULATION OF PIPING AND WITH OUTSIDE DIAMETER THAT COMPLETELY COVERS OPENING.

DOMESTIC WATER VALVES

COPPER PIPE SYSTEMS:

VALVES SHALL BE TWO PIECE, FULL PORT AND INSTALLED WHERE INDICATED ON DRAWINGS AND WHERE NECESSARY FOR PROPER AND SAFE OPERATION AND MAINTENANCE.

VALVES FOR DOMESTIC WATER PIPE SYSTEMS SHALL BE SUITABLE FOR THE SERVICE PRESSURE AND TEMPERATURE.

BALL VALVES ARE ACCEPTABLE FOR USE AS A SHUT-OFF VALVE.

BALANCING VALVES SHALL BE THERMOSTATIC TYPE.

APPROVED VALVE MANUFACTURERS: CALEFFI, BELL AND GOSSETT, APOLLO, HAMMOND, NIBCO, WATTS.

NATURAL GAS VALVES

VALVES 1/2" THROUGH 2" SHALL BE NON-LUBRICATED BRONZE PLUG VALVES.

VALVES 2" THROUGH 4" SHALL BE NON-LUBRICATED CAST IRON PLUG VALVES.

APPROVED MANUFACTURERS: HOMESTEAD, DEZURIK

MEDICAL GAS VALVES

VALVES SHALL BE THREE PIECE, FULL PORT , AND MEET THE REQUIREMENTS OF NFPA 99. INSTALLED WHERE INDICATED ON DRAWINGS AND WHERE NECESSARY FOR PROPER AND SAFE OPERATION AND MAINTENANCE.

VALVES SHALL BE SUITABLE FOR THE SERVICE PRESSURE AND TEMPERATURE.

BALL VALVES ARE ACCEPTABLE FOR USE AS A SHUT-OFF VALVE.

APPROVED VALVE MANUFACTURERS: APOLLO, NIBCO, BEACON MEDAES.

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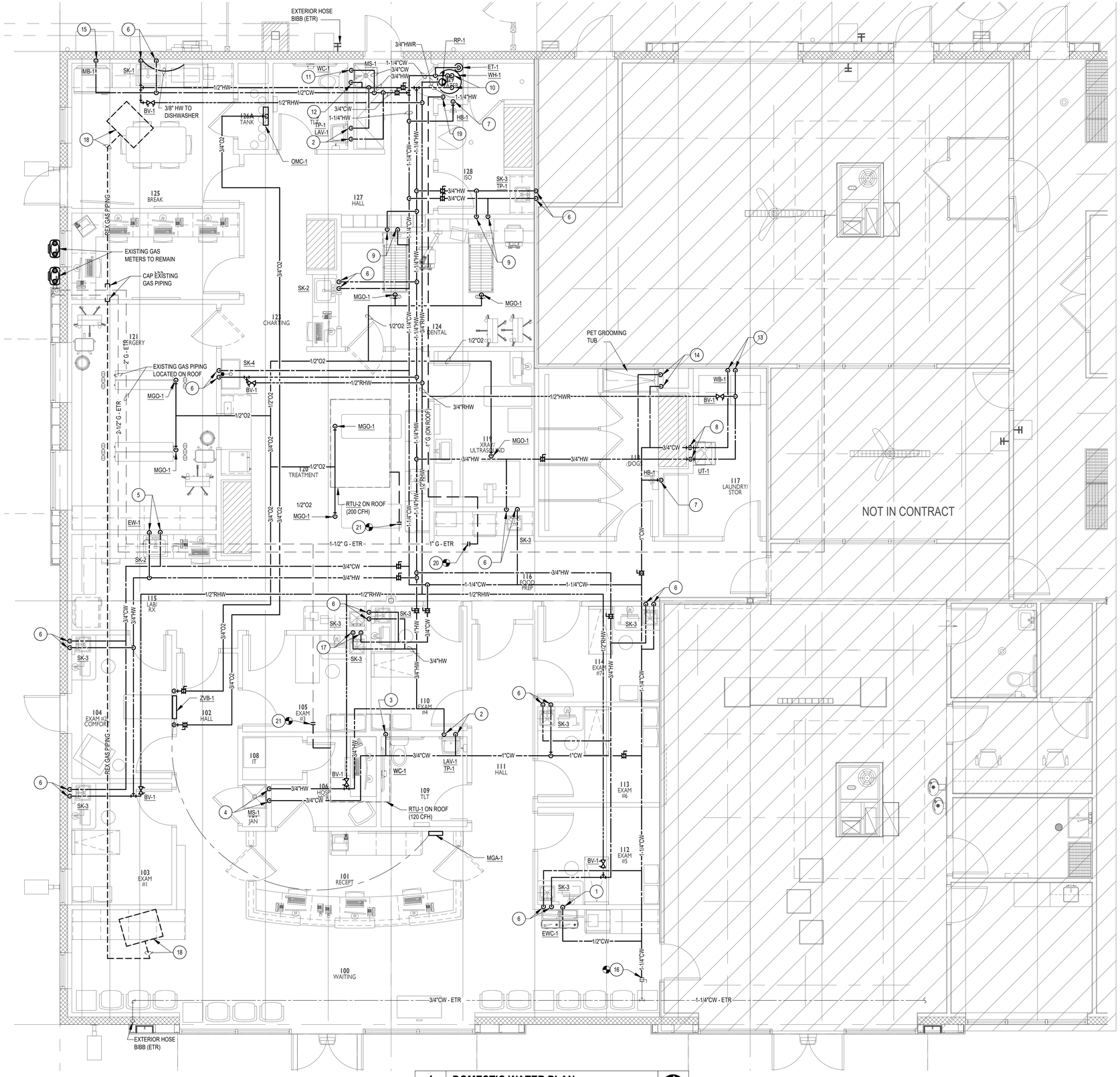
PLUMBING SPECIFICATIONS

P004



1 **DOMESTIC WATER PLAN**

P101 SCALE: 1/4"=1'-0"

GENERAL SHEET NOTES

1. EXISTING PLUMBING INFORMATION IS BASED ON LIMITED EXISTING BUILDING DRAWINGS AND FIELD WORK. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONDITIONS FOR ACCURACY. CONTRACTOR SHALL NOTIFY OWNER, ARCHITECT AND ENGINEER OF ANY SITUATIONS THAT MODIFY OR INCREASE THE SCOPE OF WORK FROM THAT IS DESCRIBED IN THE DOCUMENTS.
2. ANYTHING NOT NOTED AS EXISTING IS TO BE FURNISHED AND INSTALLED AS PART OF THIS PROJECT.
3. REFER TO DRAWINGS AND PROJECT SPECIFICATIONS OF OTHER DISCIPLINES FOR ADDITIONAL PROJECT INFORMATION AND REQUIREMENTS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THE INFORMATION PRESENTED AND FIELD CONDITIONS.
4. PRIOR TO ANY ISOLATION OF SYSTEMS, SHUTDOWNS OR DEMOLITION THE CONTRACTOR SHALL PROVIDE NECESSARY INVESTIGATION AND NOTIFY THE FACILITIES ENGINEERING/MAINTENANCE PERSONNEL OF WORK TO BE PERFORMED SO AS TO AVOID ANY DETRIMENTAL SHUTDOWN OF SYSTEMS TO ADJACENT SPACES.
5. PROTECT EQUIPMENT, FIXTURES, PIPING, DUCTWORK, ETC. INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION. WHEN PERMITTED BY THE ARCHITECT, ITEMS MAY BE REMOVED TO A SUITABLE, PROTECTED STORAGE LOCATION DURING SELECTIVE DEMOLITION AND THEN CLEANED AND REINSTALLED IN THEIR ORIGINAL LOCATIONS.
6. WHERE PIPE, DUCTWORK, INSULATION, FIXTURES OR EQUIPMENT TO REMAIN IS DAMAGED OR DISTURBED, REMOVE THE DAMAGED PORTIONS AND INSTALL NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY. WHERE IDENTICAL MATERIALS ARE UNAVAILABLE OR CANNOT BE USED, USE MATERIALS WHOSE INSTALLED PERFORMANCE EQUALS OR SURPASSES THAT OF THE EXISTING MATERIALS.
7. MAINTAIN AND RESTORE, IF INTERRUPTED BY DEMOLITION OR IN THE PATH OF NEW CONSTRUCTION, ALL UTILITIES PASSING THROUGH AND SERVING OUTSIDE OF DEMOLITION AREA.
8. PLUMBING INSTALLATION MUST MAINTAIN INTEGRITY OF WALLS, PARTITIONS AND FLOORS DESIGNATED AS EITHER FIRE RATED OR "SMOKE TIGHT". SEAL AROUND ALL PENETRATIONS THROUGH RATED OR SMOKE TIGHT ASSEMBLIES. COORDINATE WITH ARCHITECTURAL PLANS AND GENERAL CONTRACTOR.
9. SPACE ABOVE CEILING IS INDICATED TO BE A RETURN AIR PLENUM. CONSTRUCTION MATERIALS ABOVE CEILING SHALL BE NONCOMBUSTIBLE, OR HAVE A MAXIMUM 25 FLAME SPREAD AND 50 SMOKE DEVELOPMENT FINISH RATING. WIRING SHALL BE LABELED PLENUM RATED PER NFPA 70.
10. PROVIDE STOP VALVES AT EVERY FIXTURE ON BOTH HOT AND COLD WATER SUPPLY LINES. VALVES, ESCUTCHEONS, FITTINGS, ETC. MUST BE CHROME PLATED. WHERE EXPOSED, CHROME PLATED PIPE IS TO BE USED.
11. ALL SANITARY PIPING INSTALLED UNDERGROUND IS TO BE PITCHED @ 1% SLOPE EXCEPT FOR 2" LINES WHICH SHALL BE PITCHED AT 2% SLOPE.
12. ALL OVERHEAD PIPING IS TO BE ROUTED TIGHT TO BUILDING STRUCTURE.
13. DO NOT ROUTE ANY WATER CONVEYING PIPING OVER ELECTRICAL EQUIPMENT.
14. ALL ACCESSIBLE P-TRAPS MUST BE PROVIDED WITH BOTTOM CLEANOUT PLUGS.
15. INSULATE EXPOSED P-TRAPS, HOT AND COLD VALVES AND PIPING SERVING HANDICAPPED LAVATORIES.
16. NOTHING IS PERMITTED TO BE ATTACHED TO, SUSPENDED FROM, OR PENETRATE THE ROOF DECK. CONTRACTOR MAY ATTACH TO OR SUSPEND FROM THE TOP CHORD OF THE JOIST OR THE STRUCTURAL STEEL WHICH EXISTS ABOVE THE SPACE.
17. ALL CONCEALED PIPING SHALL BE TESTED AND PROVEN LEAK PROOF AND FREE FROM DEFECTS PRIOR TO CONCEALMENT.
18. ALL FLOOR DRAINS AND CLEANOUTS ARE TO BE INSTALLED FLUSH WITH THE FINISHED FLOOR.

SHEET KEYNOTES

1 1/2" CW DN TO EWC-1

2 1/2" CW AND 1/2" HW DN TO LAV-1

3 1/2" CW DN TO WC-1

4 3/4" CW AND 3/4" HW DN TO MS-1

5 3/4" CW AND 3/4" HW DN TO SK-2 AND EW-1. EXTEND 3/4" TEMPERED WATER FROM EW-1 MIXING VALVE TO EW-1

6 1/2" CW AND 1/2" HW DN TO SINK

7 1/2" CW DN TO HB-1

8 1/2" CW AND 1/2" HW DN TO UT-1

9 1/2" CW AND 1/2" HW DN TO DENTAL SINK

10 1-1/4" CW AND 1-1/4" HW DN TO WH-1

11 3/4" CW DN TO WC-1 AND MS-1

12 3/4" HW DN TO MS-1

13 1/2" CW AND 1/2" HW DN TO WB-1

14 3/4" CW DN TO GROOMING TUB.

15 1/2" DN TO IMB-1

16 1-1/4" CW CONNECT TO EXISTING 1-1/4" CW MAIN IN THIS AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING MAIN PRIOR TO COMMENCING WORK.

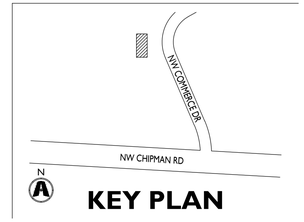
17 1/2" CW AND 1/2" HW DN TO SINKS.

18 REMOVE EXISTING GAS FIRED HEATER AND ALL ASSOCIATED PIPING AND ACCESSORIES. CAP PIPING IN THE CEILING SPACE.

19 1" GAS PIPING DN THROUGH ROOF WITH CURB TO WATER HEATER.

20 1" GAS PIPING CONNECT TO EXISTING 1" GAS PIPING ON ROOF IN THIS AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING GAS PIPING PRIOR TO COMMENCING WORK.

21 1-1/4" GAS PIPING CONNECT TO EXISTING 1-1/4" GAS PIPING ON ROOF IN THIS AREA, EXTEND NEW 1-1/4" GAS PIPING TO ROOFTOP UNIT. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING GAS PIPING PRIOR TO COMMENCING WORK.



KEY PLAN

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ISSUE DATES

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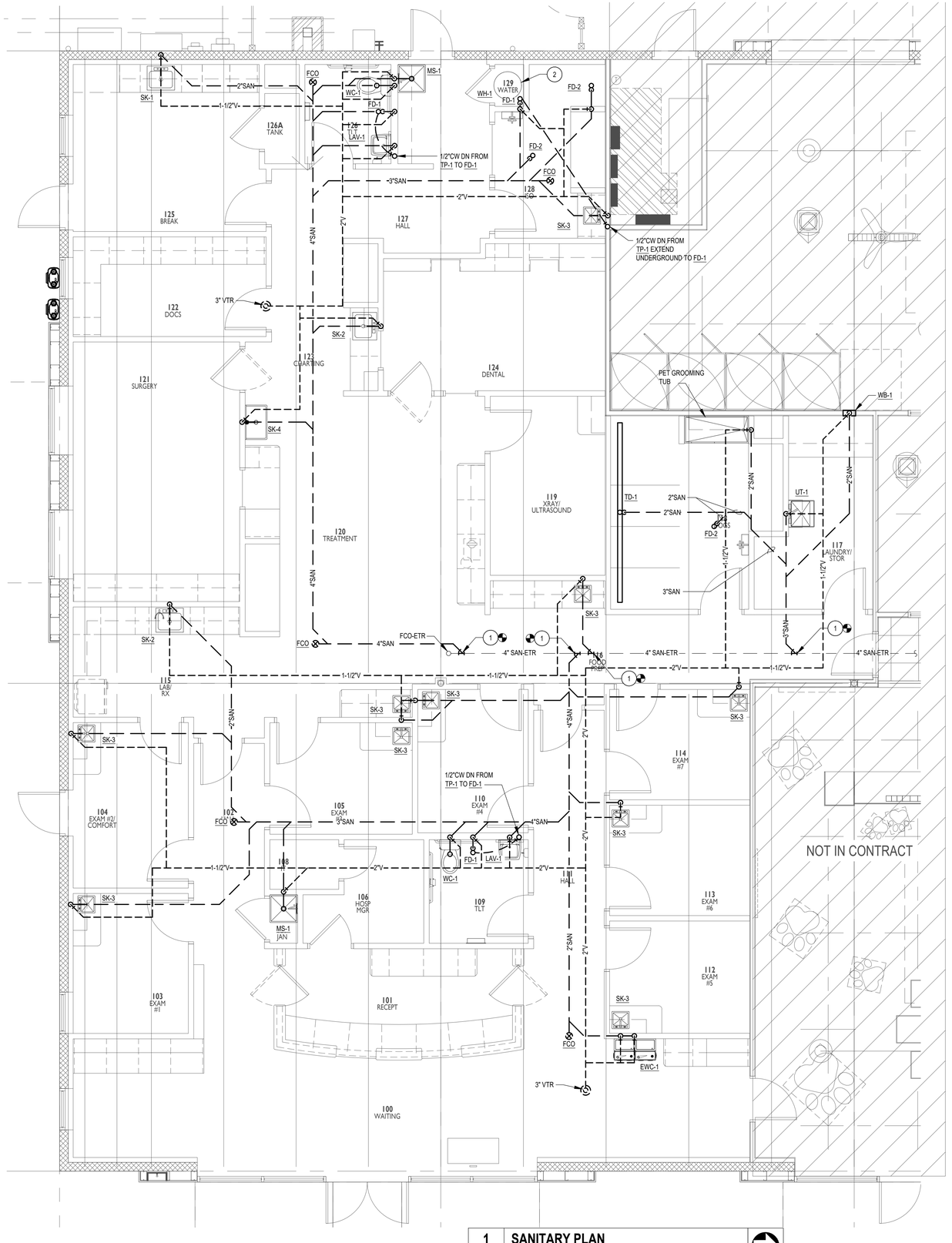
DOMESTIC WATER PLAN

P101



1 SANITARY PLAN

P102 SCALE: 1/4"=1'-0"

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5. PROTECT EQUIPMENT, FIXTURES, PIPING, DUCTWORK, ETC. INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION. WHEN PERMITTED BY THE ARCHITECT, ITEMS MAY BE REMOVED TO A SUITABLE, PROTECTED STORAGE LOCATION DURING SELECTIVE DEMOLITION AND THEN CLEANED AND REINSTALLED IN THEIR ORIGINAL LOCATIONS.
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7. MAINTAIN AND RESTORE, IF INTERRUPTED BY DEMOLITION OR IN THE PATH OF NEW CONSTRUCTION, ALL UTILITIES PASSING THROUGH AND SERVING OUTSIDE OF DEMOLITION AREA.
8. PLUMBING INSTALLATION MUST MAINTAIN INTEGRITY OF WALLS, PARTITIONS AND FLOORS DESIGNATED AS EITHER FIRE RATED OR "SMOKE TIGHT". SEAL AROUND ALL PENETRATIONS THROUGH RATED OR SMOKE TIGHT ASSEMBLIES. COORDINATE WITH ARCHITECTURAL PLANS AND GENERAL CONTRACTOR.
9. SPACE ABOVE CEILING IS INDICATED TO BE A RETURN AIR PLENUM. CONSTRUCTION MATERIALS ABOVE CEILING SHALL BE NONCOMBUSTIBLE, OR HAVE A MAXIMUM 25 FLAME SPREAD AND 50 SMOKE DEVELOPMENT FINISH RATING. WIRING SHALL BE LABELED PLENUM RATED PER NFPA 70.
10. PROVIDE STOP VALVES AT EVERY FIXTURE ON BOTH HOT AND COLD WATER SUPPLY LINES. VALVES, ESCUTCHEONS, FITTINGS, ETC. MUST BE CHROME PLATED. WHERE EXPOSED, CHROME PLATED PIPE IS TO BE USED.
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13. DO NOT ROUTE ANY WATER CONVEYING PIPING OVER ELECTRICAL EQUIPMENT.
14. ALL ACCESSIBLE P-TRAPS MUST BE PROVIDED WITH BOTTOM CLEANOUT PLUGS.
15. INSULATE EXPOSED P-TRAPS, HOT AND COLD VALVES AND PIPING SERVING HANDICAPPED LAVATORIES.
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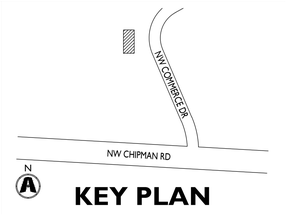
17. ALL CONCEALED PIPING SHALL BE TESTED AND PROVEN LEAK PROOF AND FREE FROM DEFECTS PRIOR TO CONCEALMENT.
18. ALL FLOOR DRAINS AND CLEANOUTS ARE TO BE INSTALLED FLUSH WITH THE FINISHED FLOOR.

SHEET KEYNOTES

1 CONNECT SANITARY PIPING TO EXISTING 4" SAN MAIN UNDER SLAB IN THIS AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION PRIOR TO COMMENCING WORK.

2 EXTEND 3" AIR INTAKE AND 3" FLUE EXHAUST UP THROUGH ROOF SEPARATELY WITH GOOSENECK DOWN. TERMINATE 4 FEET ABOVE FINISHED ROOF LEVEL WITH BIRD SCREEN. ENSURE 4 FEET OF HORIZONTAL SEPARATION BETWEEN INTAKE AND EXHAUST. INTAKE AND FLUE MATERIAL SHALL BE UL 1738 LISTED PVC MANUFACTURED BY IPEX.



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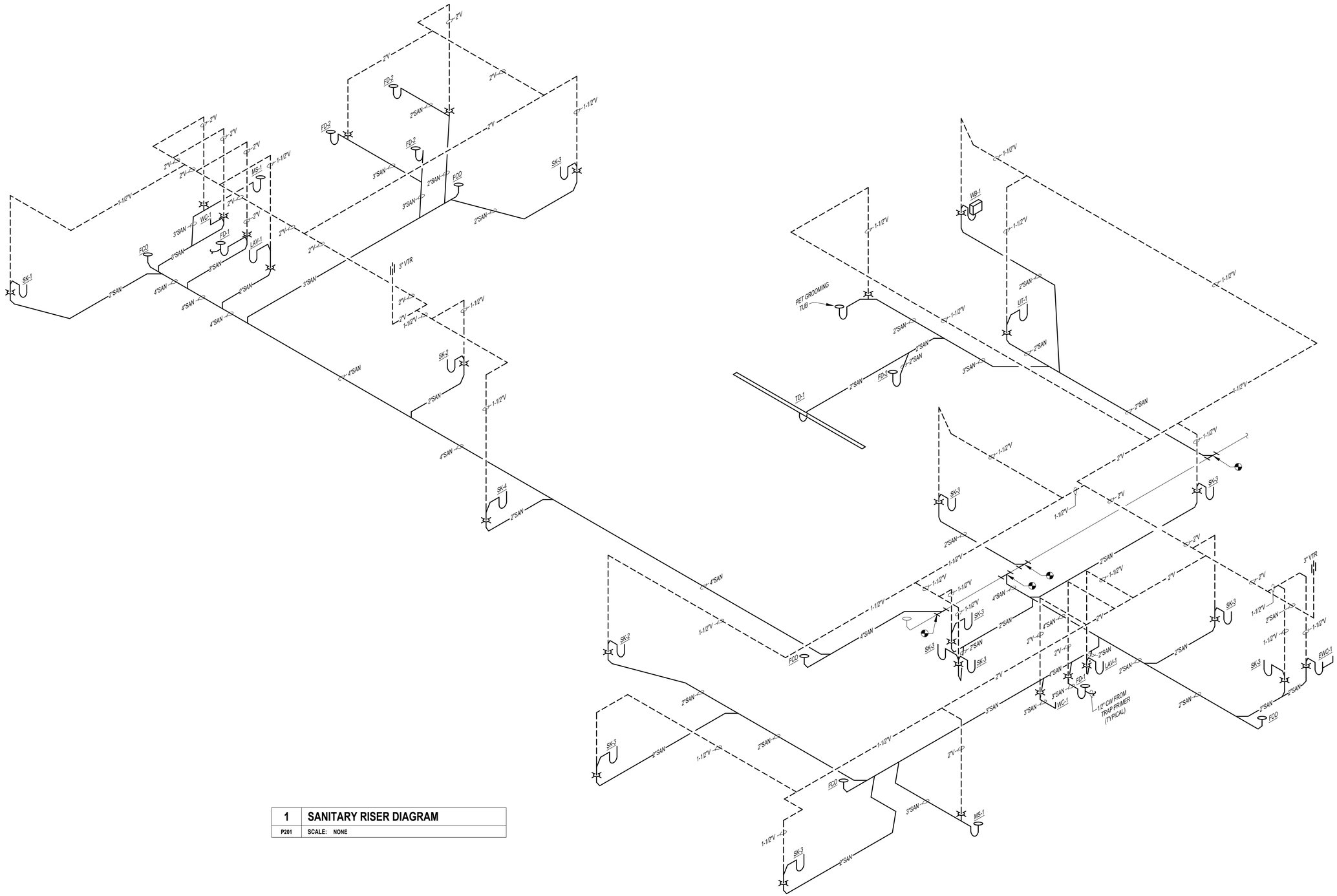
SANITARY PLAN

P102



1	SANITARY RISER DIAGRAM
P201	SCALE: NONE

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ISSUE DATES

PERMIT SET	04.01.21

210095

PLUMBING SANITARY ISOMETRIC

P201

ABBREVIATIONS

A	AMPERES
ADA	AMERICANS WITH DISABILITIES ACT
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ANSI	AMERICAN NATL STANDARDS INSTITUTE
ARCH	ARCHITECT, ARCHITECTURAL
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
A/V	AUDIO/VISUAL
BAS	BUILDING AUTOMATION SYSTEM
BKR	BREAKER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CATV	CABLE TELEVISION SYSTEM
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CFM	CUBIC FEET PER MINUTE
CKT	CIRCUIT
CLG	CEILING
CT	CURRENT TRANSFORMER
CW	COLD WATER
D	DEEP, DEPTH
DACT	DIGITAL ALARM COMMUNICATING TRANSMITTER
dB	DECIBEL
DDC	DIRECT DIGITAL CONTROL
Δ	DELTA
DIA	DIAMETER
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ETR	EXISTING TO REMAIN
EMT	ELECTRICAL METALLIC TUBING
EWC	ELECTRICAL WATER COOLER
EXH	EXHAUST
EX, EXIST	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FARA	FIRE ALARM REMOTE ANNUNCIATOR
FLA	FULL LOAD AMPS
FPC	FIRE PROTECTION CONTRACTOR
FT	FOOT, FEET
G,GRD	GROUND
GC	GENERAL CONTRACTOR
GFI, GFCI	GROUND FAULT INTERRUPTER
HID	HIGH INTENSITY DISCHARGE
HTR	HEATER
HVAC	HEATING, VENTILATING & A/C
IBC	INTERNATIONAL BUILDING CODE
IN	INCH, INCHES
KVA	KILOVOLT-AMPS
KW	KILOWATTS
KWH	KILOWATT-HOUR
L	LENGTH
LED	LIGHT EMITTING DIODE
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MH	METAL HALIDE
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
MUA	MAKE UP AIR
MTD	MOUNTED
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MFR'S ASSOC.
NFPA	NATIONAL FIRE PROTECTION ASSOC.
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
O/H	OVERHEAD
OSHA	OCCUPATIONAL SAFETY &HEALTH ADMIN.
P	POLE
PB	PUSH BUTTON
PC	PLUMBING CONTRACTOR
PF	POWER FACTOR
PH	PHASE
PVC	POLYVINYL CHLORIDE
RCP	REFLECTED CEILING PLAN
REV	REVISION
REX	REMOVE EXISTING
RGS	RIGID GALVANIZED STEEL
RLA	RUNNING LOAD AMPS
RM	ROOM
RR	REMOVE AND RELOCATE
RTU	ROOF TOP UNIT
SE	SERVICE ENTRANCE
SF	SQUARE FEET, SQUARE FOOT
T/C	TIME CLOCK
THRU	THROUGH
TRANS	TRANSFORMER
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES, INC.
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTED POWER SUPPLY
VA	VOLT-AMPERE
W	WATT, WIDTH
W/	WITH
WP	WEATHERPROOF
XFMR	TRANSFORMER
Y	WYE

POWER SYMBOLS

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

- A-1 — HOMERUN TO PANEL "A", CIRCUIT #1. PROVIDE 2#12AWG CONDUCTORS (MINIMUM SIZE) AND 1#12AWG GROUNDING CONDUCTOR IN 3/4" CONDUIT (MINUMUM SIZE) UNLESS OTHERWISE NOTED. REFER TO SPECIFICATIONS FOR ADDITIONAL GROUNDING REQUIREMENTS.
- INFLOOR/UNDERFLOOR OR UNDERGROUND CONDUIT AND WIRE
- CIRCUITRY TURNING UP
- ELECTRICAL PANEL BOARD - 208Y/120V-3Ø-4W
- ELECTRICAL PANEL BOARD - 480Y/277V-3Ø-4W
- DRY TYPE TRANSFORMER, REFER TO PLANS FOR SIZE/VOLTAGE
- JUNCTION BOX - CEILING OR WALL MOUNTED
- DISCONNECT SWITCH UNFUSED: "AS" - INDICATES SWITCH SIZE (AMPS)
- DISCONNECT SWITCH FUSED: "AS" - INDICATES SWITCH SIZE (AMPS); "AF" - INDICATES FUSE SIZE (AMPS)
- COMBINATION MOTOR STARTER/DISCONNECT SWITCH, REFER TO PLANS FOR SIZING
- TOGGLE SWITCH DISCONNECT, 120/277V, 20A, 1-HP RATED UON
- MOTOR, REFER TO PLANS FOR SIZE
- SINGLE RECEPTACLE

RECEPTACLE NOTES (APPLICABLE FOR ALL TYPES):
- RATED 125V, 20A UON
- MOUNTED AT 18"AFF UON
- "+54" INDICATES MOUNTED AT 54" AFF
- "WP" INDICATES WEATHERPROOF COVER
- "IG" INDICATES ISOLATED GROUND TYPE
- REFER TO SPECIFICATIONS FOR DEVICE AND COVERPLATE FINISHES

- DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLE
- CONTROLLED DUPLEX OR DOUBLE DUPLEX RECEPTACLE
- GFCI DUPLEX OR DOUBLE DUPLEX RECEPTACLE
- DUPLEX OR DOUBLE DUPLEX RECEPTACLE PROTECTED VIA GFCI BREAKER, PROVIDE LABELING AS REQUIRED BY NEC
- DUPLEX OR DOUBLE DUPLEX RECEPTACLE MOUNTED AT 8" ABOVE COUNTER UON
- CONTROLLED DUPLEX OR DOUBLE DUPLEX RECEPTACLE MOUNTED AT 8" ABOVE COUNTER UON
- GFCI DUPLEX OR DOUBLE DUPLEX RECEPTACLE MOUNTED AT 8" ABOVE COUNTER UON
- DUPLEX OR DOUBLE DUPLEX RECEPTACLE MOUNTED 8" ABOVE COUNTER UON AND PROTECTED VIA GFCI BREAKER, PROVIDE LABELING AS REQUIRED BY NEC
- DUPLEX OR DOUBLE DUPLEX RECEPTACLE, MOUNTED IN CEILING
- DUPLEX OR DOUBLE DUPLEX RECEPTACLE, MOUNTED IN FLOOR BOX
- COMBINATION DUPLEX OR DOUBLE DUPLEX RECEPTACLE AND VOICE/DATA OUTLET, MOUNTED IN FLOOR BOX
- DUPLEX RECEPTACLE, MOUNTED IN FIRE RATED POKE-THROUGH DEVICE
- COMBINATION DUPLEX RECEPTACLE AND VOICE/DATA OUTLET, MOUNTED IN FIRE RATED POKE-THROUGH DEVICE
- SPECIAL PURPOSE RECEPTACLE

SPECIAL PURPOSE RECEPTACLE NOTES:
- REFER TO PLANS FOR AMPERAGE AND NEMA CONFIGURATION
- "L" INDICATES TWIST LOCK RECEPTACLE
- "+54" INDICATES MOUNTED AT 54" AFF
- "WP" INDICATES WEATHERPROOF COVER
- "GFI" INDICATES GFCI RECEPTACLE
- "IG" INDICATES ISOLATED GROUND TYPE

- SPECIAL PURPOSE RECEPTACLE PROTECTED VIA GFCI BREAKER
- COMBINATION DUPLEX RECEPTACLE AND CATV DEVICE
- COMBINATION DUPLEX RECEPTACLE AND CATV DEVICE, CEILING MOUNTED
- COMBINATION DUPLEX RECEPTACLE AND DUAL USB DEVICE
- LIGHT/RECEPTACLE MOUNTED ON MECHANICAL UNIT
- JUNCTION BOX AND DISCONNECT SWITCH FOR SIGNAGE "WP" INDICATES WEATHER PROOF"
- DOOR BELL, REFER TO PLANS FOR SPECIFICATIONS
- LOW VOLTAGE TRANSFORMER, REFER TO PLANS FOR SPECIFICATION
- LOW VOLTAGE PUSHBUTTON, REFER TO PLANS FOR SPECIFICATIONS
- POWER POLE, REFER TO PLANS FOR TYPE AND AMPERAGE
- POWER/COMMUNICATIONS FURNITURE FEED, CEILING OR WALL MOUNTED
- POWER/COMMUNICATIONS FURNITURE FEED, IN FIRE RATED POKE-THROUGH DEVICE
- THERMOSTAT, PROVIDE SINGLE GANG BOX WITH PLASTER RING AND 3/4" CONDUIT TO ABOVE THE ACCESSIBLE CEILING. REFER TO MECHANICAL PLANS FOR LOCATIONS.

LIGHTING SYMBOLS

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

- A-1 — HOMERUN TO PANEL "A", CIRCUIT #1. PROVIDE 2#12AWG CONDUCTORS (MINIMUM SIZE) AND 1#12AWG GROUNDING CONDUCTOR IN 3/4" CONDUIT (MINUMUM SIZE) UNLESS OTHERWISE NOTED. REFER TO SPECIFICATIONS FOR ADDITIONAL GROUNDING REQUIREMENTS.
- INFLOOR/UNDERFLOOR OR UNDERGROUND CONDUIT AND WIRE
- CIRCUITRY TURNING UP
- LIGHT FIXTURE: "A" INDICATES FIXTURE TYPE, "L-13" INDICATES CIRCUIT NUMBER, "a" INDICATES SWITCH CONTROL. REFER TO LUMINAIRE SCHEDULE FOR DESCRIPTION.
- NIGHT LIGHT FIXTURE WIRED AHEAD OF SWITCHES AND TIME CLOCK
- EMERGENCY LIGHT FIXTURE PROVIDED WITH INTEGRAL BATTERY OR WIRED TO EMERGENCY LIGHTING CIRCUIT
- ILLUMINATED "EXIT" SIGN, WALL MOUNTED. PROVIDE DIRECTIONAL ARROWS AS INDICATED ON FLOOR PLANS.
- ILLUMINATED "EXIT" SIGN, CEILING MOUNTED/SUSPENDED. PROVIDE DIRECTIONAL ARROWS AS INDICATED ON FLOOR PLANS.
- ILLUMINATED "EXIT" SIGN, DUAL HEADS, WALL MOUNTED. PROVIDE DIRECTIONAL ARROWS AS INDICATED ON FLOOR PLANS.
- ILLUMINATED "EXIT" SIGN, DUAL HEADS, CEILING MOUNTED/SUSPENDED. PROVIDE DIRECTIONAL ARROWS AS INDICATED ON FLOOR PLANS.
- EXTERIOR EMERGENCY EGRESS FIXTURE WITH DUAL HEADS, WEATHERPROOF
- EMERGENCY LIGHTING BATTERY UNIT WITH DUAL HEADS, WALL MOUNTED
- EMERGENCY LIGHTING BATTERY UNIT WITH DUAL HEADS, CEILING MOUNTED/SUSPENDED
- SWITCH - SINGLE POLE TOGGLE TYPE - 120/277V, 20A, 1-HP RATED, MOUNTED AT 48" AFF UNLESS OTHERWISE NOTED.

SWITCH NOTES (APPLICABLE FOR ALL TYPES):
- "3" INDICATES THREE WAY SWITCH, "4" INDICATES FOUR WAY SWITCH
- "+54" INDICATES MOUNTED 54" ABOVE FINISHED FLOOR
- "C" INDICATES SWITCH MOUNTED 8" ABOVE COUNTER
- "a" INDICATES SWITCHED FIXTURE CONTROL
- "OS" INDICATES DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH
- "VS" INDICATES DUAL TECHNOLOGY VACANCY SENSOR SWITCH
- "D" INDICATES DIMMER SWITCH - TYPE AS INDICATED ON PLANS
- REFER TO SPECIFICATIONS FOR DEVICE AND COVERPLATE FINISHES

- DUAL TECHNOLOGY OCCUPANCY SENSOR, CEILING MOUNTED
- DUAL TECHNOLOGY VACANCY SENSOR, CEILING MOUNTED
- INTERIOR DAYLIGHT SENSOR, CEILING MOUNTED
- EXTERIOR PHOTOCELL SENSOR, ROOF MOUNTED
- LIGHTING CONTROL EQUIPMENT: LCP = LIGHTING CONTROL PANEL; TC = TIME CLOCK; LC = LIGHTING CONTACTOR

TECHNOLOGY SYMBOLS

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

- HOMERUN TO EQUIPMENT INDICATED, REFER TO PLANS AND SPECIFICATIONS FOR ALL REQUIREMENTS
- INFLOOR/UNDERFLOOR CONDUIT/WIRE
- CIRCUITRY TURNING UP
- TELEPHONE FIRE RATED PLYWOOD BACKBOARD, SIZE INDICATED ON PLAN
- JUNCTION BOX, CEILING OR WALL MOUNTED
- DATA ONLY DEVICE, REFER TO DEVICE NOTES

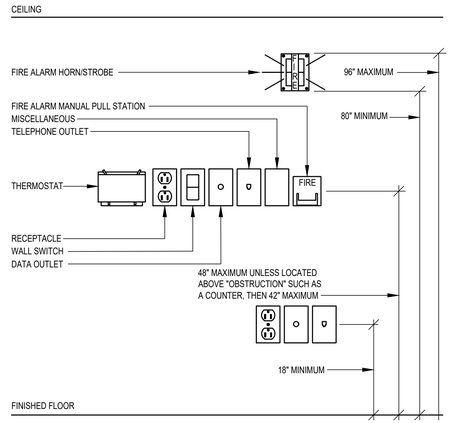
TECHNOLOGY DEVICE NOTES (APPLICABLE FOR ALL TYPES):
- MOUNTED AT 18"AFF UON
- PROVIDE SINGLE GANG BOX WITH PLASTER RING AND 3/4" CONDUIT TO ABOVE THE ACCESSIBLE CEILING UON
- "+54" INDICATES MOUNTED AT 54" AFF
- "C" INDICATES MOUNTED AT 8" ABOVE COUNTER
- REFER TO SPECIFICATIONS FOR DEVICE AND COVERPLATE FINISHES

- VOICE ONLY DEVICE
- COMBINATION VOICE/DATA DEVICE
- COMBINATION DUPLEX RECEPTACLE AND CATV DEVICE
- COMBINATION DUPLEX RECEPTACLE AND CATV DEVICE, MOUNTED IN CEILING
- COMBINATION VOICE/DATA DEVICE, MOUNTED IN CEILING
- COMBINATION DUPLEX OR DOUBLE DUPLEXRECEPTACLE AND VOICE/DATA DEVICE, MOUNTED IN FLOOR BOX
- COMBINATION DUPLEX RECEPTACLE AND VOICE/DATA DEVICE, MOUNTED IN POKE-THROUGH DEVICE
- POWER/COMMUNICATIONS FURNITURE FEED, CEILING OR WALL MOUNTED
- POWER/COMMUNICATIONS FURNITURE FEED, IN FIRE RATED POKE-THROUGH DEVICE
- SECURITY CAMERA, REFER TO PLANS FOR REQUIREMENTS
- WIRELESS ACCESS POINT, REFER TO PLANS FOR REQUIREMENTS
- KEYPAD, REFER TO PLANS FOR REQUIREMENTS
- GLASS BREAK, REFER TO PLANS FOR REQUIREMENTS
- DOOR CONTACT, REFER TO PLANS FOR REQUIREMENTS
- MOTION SENSOR, REFER TO PLANS FOR REQUIREMENTS
- ELECTRIC STRIKE, REFER TO PLANS FOR REQUIREMENTS
- MAGNETIC DOOR LOCK, REFER TO PLANS FOR REQUIREMENTS

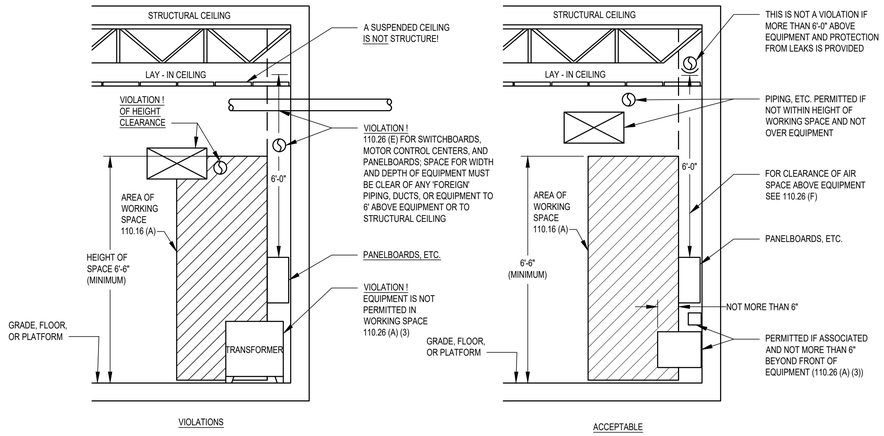
FIRE ALARM SYMBOLS

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

- FIRE ALARM PANEL:
  - FACP = FIRE ALARM CONTROL PANEL
  - FAEP = FIRE ALARM EXTENDER PANEL
  - FAAP = FIRE ALARM ANNUCIATOR PANEL
  - FACU = FIRE ALARM CONTROL UNIT
- FIRE ALARM MANUAL PULL STATION, MOUNTED AT 48" AFF
- FIRE ALARM BELL ONLY ALARM SIGNAL, WALL MOUNTED AT 80" AFF
- FIRE ALARM BELL ONLY ALARM SIGNAL, CEILING MOUNTED/SUSPENDED
- FIRE ALARM HORN ONLY ALARM SIGNAL, WALL MOUNTED AT 80" AFF
- FIRE ALARM HORN ONLY ALARM SIGNAL, CEILING MOUNTED/SUSPENDED
- FIRE ALARM HORN/STROBE ALARM SIGNAL, WALL MOUNTED AT 80" AFF
- FIRE ALARM HORN/STROBE ALARM SIGNAL, CEILING MOUNTED/SUSPENDED
- FIRE ALARM VISUAL ONLY ALARM SIGNAL, WALL MOUNTED AT 80" AFF
- FIRE ALARM VISUAL ONLY ALARM SIGNAL, CEILING MOUNTED/SUSPENDED
- FIRE ALARM SPEAKER/STROBE ALARM SIGNAL, WALL MOUNTED AT 80" AFF
- FIRE ALARM SPEAKER/STROBE ALARM SIGNAL, CEILING MOUNTED/SUSPENDED
- PHOTOELECTRIC SMOKE DETECTOR, CEILING MOUNTED/SUSPENDED
- DUCT MOUNTED PHOTOELECTRIC SMOKE DETECTOR WITH SAMPLING TUBE, FURNISHED AND WIRED BY EC, MOUNTED BY MC. EC SHALL PROVIDE REMOTE INDICATOR LIGHT/AUDIBLE ALARM LOCATED IN OCCUPIED SPACE.
- FIXED TEMPERATURE HEAT DETECTOR, CEILING MOUNTED/SUSPENDED
- CARBON MONOXIDE DETECTOR, CEILING MOUNTED/SUSPENDED
- VALVE SUPERVISORY SWITCH
- WATER FLOW DETECTOR SWITCH



1	TYPICAL MOUNTING HEIGHTS (UON)
E001	SCALE: NONE



2	SUMMARY OF NEC 110.26 CLEARANCE REQUIREMENTS
E001	SCALE: NONE

GENERAL ELECTRICAL NOTES

A. INSTALL ALL EXPOSED RACEWAYS PARALLEL OR PERPENDICULAR TO WALLS OR STRUCTURAL MEMBERS. CONDUITS SHALL BE RUN SO THAT THE STRUCTURAL SURFACE (INCLUDING ALL RADIUSES AND CONTOURS) AND SHALL BE INSTALLED SUCH THAT THEY DO NOT OBSTRUCT PASSAGEWAYS OR ACCESS TO EQUIPMENT. ALL VISIBLE CONDUITS SHALL BE INSTALLED IN A NEAT AND ORDERLY FASHION AND MULTIPLE RACEWAYS SHALL BE INSTALLED AND GROUPED TOGETHER WHERE POSSIBLE. ALL RACEWAYS VISIBLE TO THE PUBLIC SHALL BE APPROVED BY THE ARCHITECT, OWNER, AND GENERAL CONTRACTOR PRIOR TO ROUGH-IN. PROVIDE CLEAR AND LEGIBLE CONDUIT ROUTING PLANS TO THE ARCHITECT AND GENERAL CONTRACTOR FOR REVIEW TWO WEEKS PRIOR TO SCHEDULED WORK.

B. ENSURE THAT ALL MECHANICAL EQUIPMENT DISCONNECTING MEANS ARE READILY ACCESSIBLE AND PROVIDED WITH NEC REQUIRED CLEARANCES. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR AND GENERAL CONTRACTOR PRIOR TO ROUGH-IN.

C. COORDINATE ALL CEILING MOUNTED DEVICES AND LIGHT FIXTURES AND ALL FLOOR MOUNTED DEVICES AND EQUIPMENT WITH THE STRUCTURAL ENGINEERING PLANS, ARCHITECTURAL PLANS, AND THE GENERAL CONTRACTOR IN THE FIELD PRIOR TO ROUGH-IN. ALL ELECTRICAL CONNECTIONS SHALL MEET LOCAL, STATE, AND NATIONAL CODE REQUIREMENTS.

D. PROVIDE FINAL CONNECTION TO ALL ELECTRICALLY POWERED EQUIPMENT UNLESS OTHERWISE NOTED. COORDINATE SCOPE OF WORK WITH GENERAL, MECHANICAL, PLUMBING, FIRE PROTECTION CONTRACTORS. COORDINATE ALL WORK BETWEEN TRADES AND FIELD CONDITIONS.

E. PROVIDE ALL REQUIRED MISCELLANEOUS SUPPORTS FOR A COMPLETE AND FUNCTIONAL ELECTRICAL INSTALLATION, INCLUDING BUT NOT LIMITED TO: MISCELLANEOUS STEEL, UNI-STRUT, ALL-THREAD, AIRCRAFT CABLE, ETC. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

F. REFER TO THE "MEP" SERIES OF DRAWINGS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT CONNECTION REQUIREMENTS. COORDINATE FINAL SCOPE OF WORK IN THE FIELD. VERIFY ALL EQUIPMENT CHANGES WITH MECHANICAL OR PLUMBING CONTRACTOR AND MAKE ADJUSTMENTS AS NECESSARY TO CIRCUIT BREAKERS, FEEDERS, PANEL SCHEDULES, ETC. NOTE ALL CHANGES ON AS-BUILT PLANS.

G. VERIFY DIRECTION OF DOOR SWING PRIOR TO ROUGH-IN OF ALL LIGHTING CONTROL DEVICES. DEVICES SHALL BE READILY ACCESSIBLE AND NOT LOCATED BEHIND OPEN DOORS, WALL MOUNTED SHELVING, OR OTHER EQUIPMENT. COORDINATE WITH GENERAL CONTRACTOR AND FIELD CONDITIONS.

H. REFER TO ARCHITECTURAL CEILING PLANS FOR ALL FIXTURE LOCATIONS WITHIN A CEILING OR CEILING GRID. IN AREAS WITHOUT CEILINGS, FIXTURES SHALL BE CENTERED, ALIGNED, OR SPACED BETWEEN ARCHITECTURAL OR STRUCTURAL ELEMENTS. COORDINATE EXACT LAYOUT IN THE FIELD, VERIFY LOCATIONS WITH ARCHITECT AND GENERAL CONTRACTOR PRIOR TO ROUGH-IN.

I. LIGHTING CONTROL VENDOR SHALL PROVIDE FINAL LIGHTING CONTROL DRAWINGS DURING CONSTRUCTION SUBMITTAL PHASE. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL SYSTEM REQUIREMENTS FOR A FULLY FUNCTIONAL SYSTEM.

J. EXIT SIGNS SHALL BE LOCATED SO THAT THEY ARE NOT BLOCKED FROM VIEW BY LIGHT FIXTURES, ARCHITECTURAL ELEMENTS, EQUIPMENT, SHELVING, ETC. EXIT SIGNS AT EGRESS DOORWAYS SHALL BE CENTERED ABOVE DOOR UNLESS OTHERWISE NOTED. DIRECTIONAL INDICATORS SHALL BE VERIFIED WITH THE EGRESS PATHWAYS AS INDICATED ON THE LIFE SAFETY PLAN. COORDINATE ALL EXIT SIGN LOCATIONS WITH ARCHITECT AND GENERAL CONTRACTOR PRIOR TO ROUGH-IN.

K. PROVIDE GFCI PROTECTION FOR ALL RECEPTACLES AS REQUIRED PER NEC 210.8. GFCI RECEPTACLES SHALL BE READILY ACCESSIBLE. IN LOCATIONS WHERE THE RECEPTACLE IS NOT READILY ACCESSIBLE, PROVIDE A GFCI CIRCUIT BREAKER FOR PROTECTION. DO NOT INSTALL GFCI RECEPTACLES POWERED FROM GFCI CIRCUIT BREAKERS.

L. INSTALL ALL LUMINAIRES PER NEC 410.10. ALL WET LOCATION FIXTURES, INCLUDING BUT NOT LIMITED TO: IN-GRADE, EXTERIOR CANOPY, WALL MOUNTED, ETC. SHALL BE PROTECTED FROM WATER PENETRATION. ALL FIXTURES AND COMPONENTS SHALL BE LISTED FOR INTENDED USE.

M. ALL SYSTEMS AND COMPONENTS, INCLUDED BUT NOT LIMITED TO: POWER WIRING, LOW VOLTAGE WIRING, SECURING METHODS, ETC., INSTALLED WITHIN PLENUMS SHALL BE PLENUM RATED.

N. CONDUITS SHALL BE INSTALLED 1-1/2" BELOW UNDERSIDE OF ROOF DECK PER NEC 300.4.

O. ALL LOW VOLTAGE LIGHTING CONTROL WIRING, INCLUDING BUT NOT LIMITED TO: 0-10V WIRING, DMX WIRING, ETC., SHALL BE PLENUM RATED OR SHALL BE INSTALLED WITHIN CONDUIT. LOW VOLTAGE CONDUCTORS SHALL NOT BE ROUTED WITHIN THE SAME CONDUIT AS POWER CONDUCTORS. CONTROL WIRING SHALL BE INSTALLED AS REQUIRED BY MANUFACTURER AND NEC REQUIREMENTS.

P. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL UTILITY CONNECTION REQUIREMENTS WITH LOCAL UTILITY COMPANY UPON COMMENCING WORK.

Q. ALL TELEPHONE AND COMMUNICATION CABLING ENTERING THE BUILDING SHALL BE PROTECTED VIA SURGE SUPPRESSION DEVICE. COORDINATE ALL REQUIREMENTS IN FIELD WITH UTILITY COMPANY, INSTALL ALL REQUIRED COMPONENTS.

R. ALL POWER AND CONTROL WIRING FOR FIRE ALARM SYSTEMS, SECURITY SYSTEMS, ETC. (REGARDLESS OF VOLTAGE) SHALL BE INSTALLED WITHIN CONDUIT. COORDINATE ALL REQUIREMENTS WITH ARCHITECT AND ELECTRICAL ENGINEER PRIOR TO ROUGH-IN.

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PROJECT INFORMATION

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250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

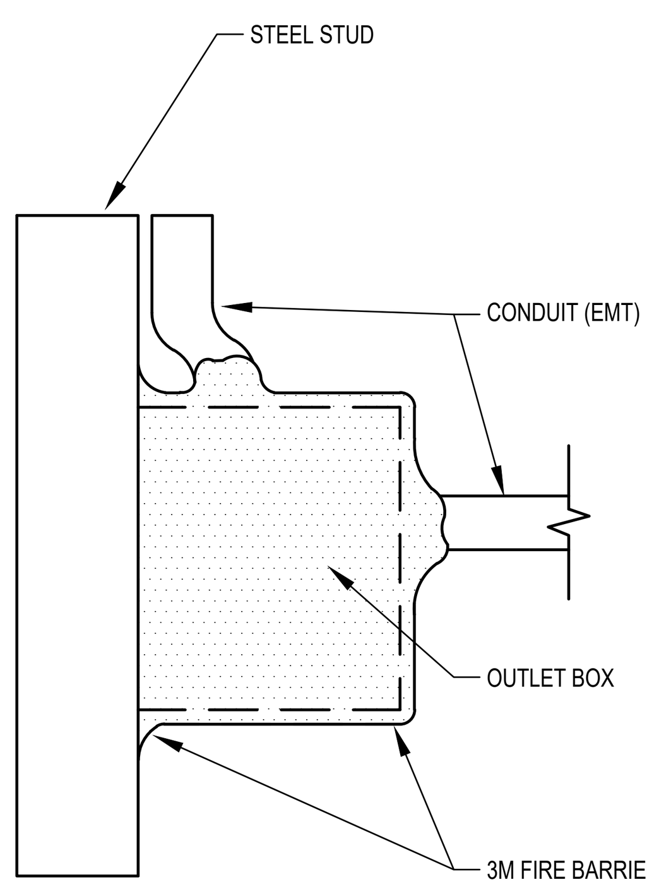
ISSUE DATES

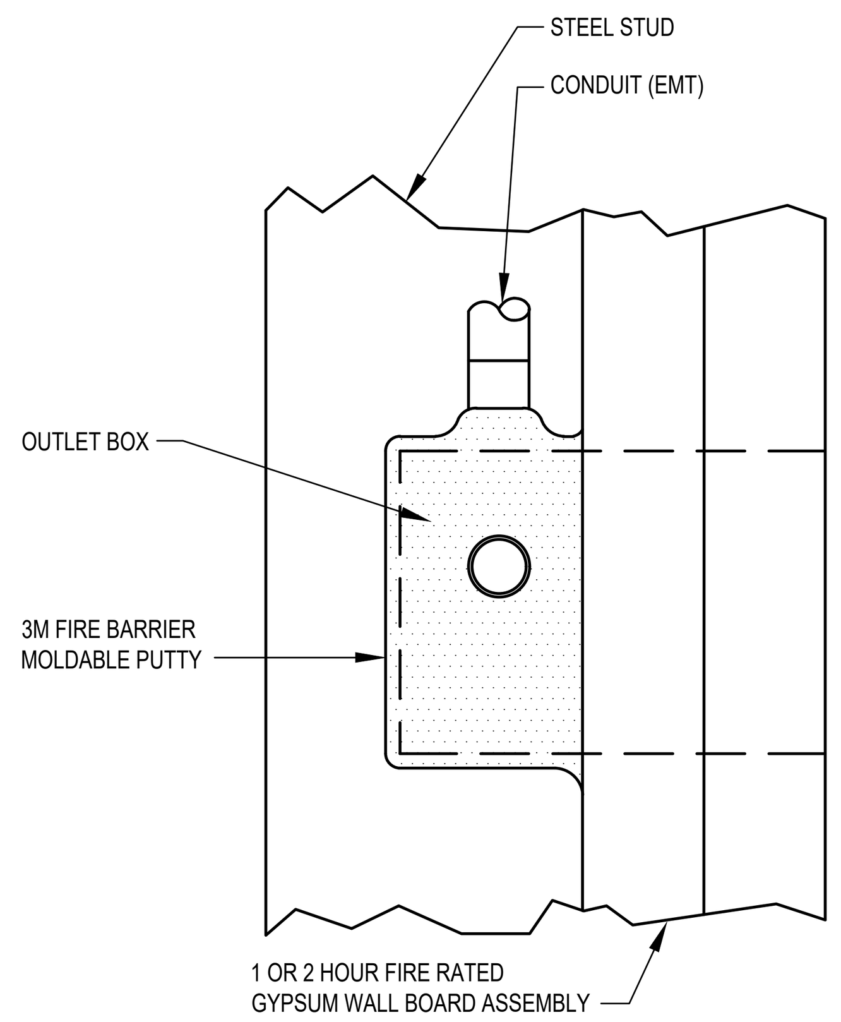
PERMIT SET	04.01.21

210095

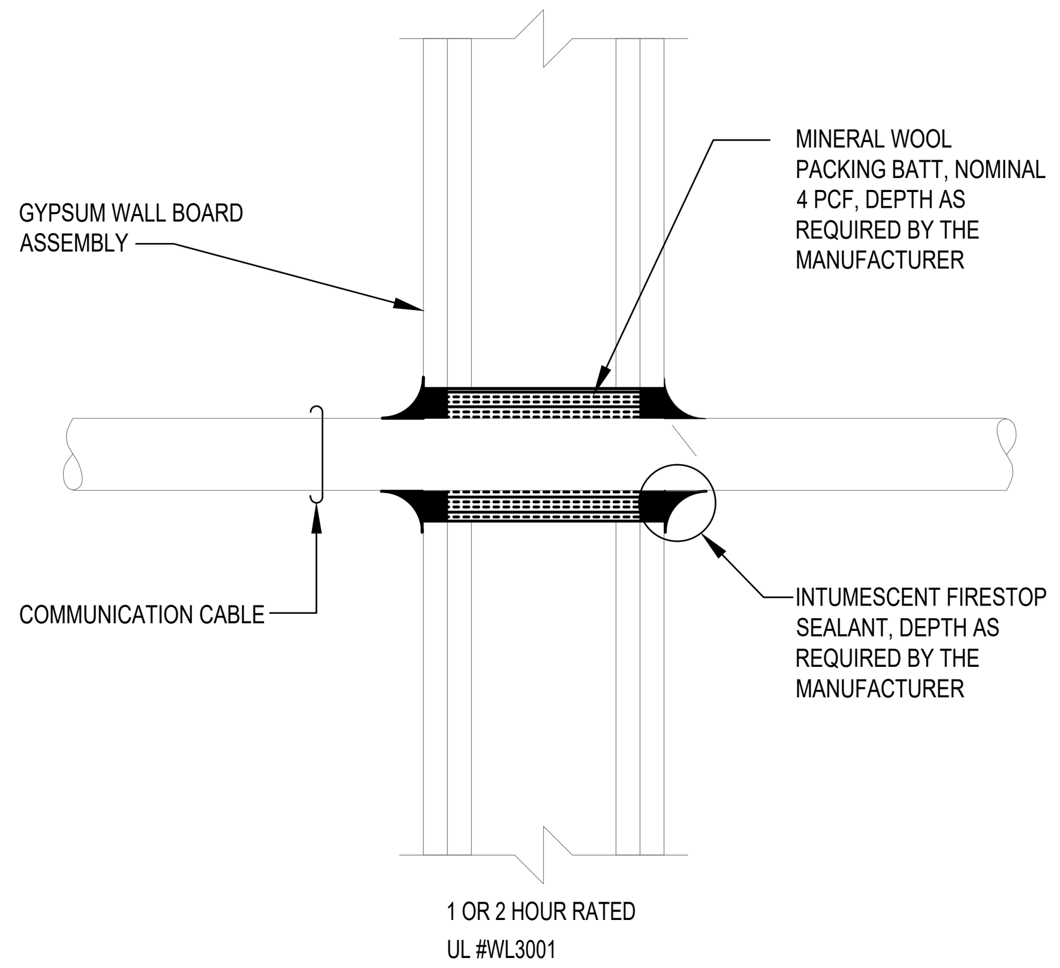
ELECTRICAL LEGEND AND DETAILS

E001

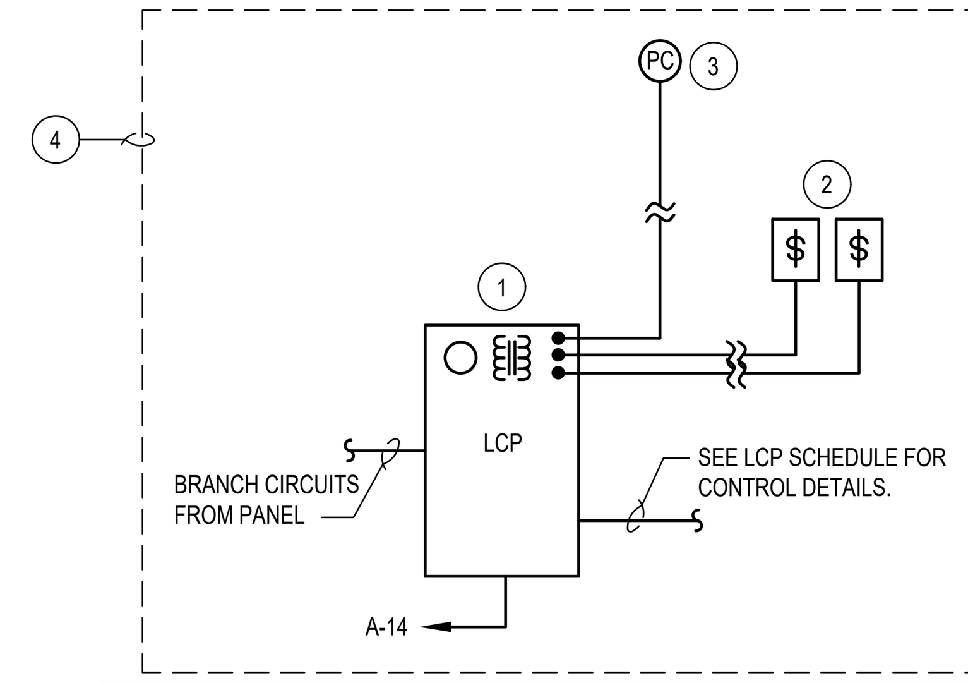




3	2HR FIRESTOP - OUTLET BOX IN GYP
E002	SCALE: NONE



4	2HR FIRESTOP - CABLE THRU GYP
E002	SCALE: NONE



LIGHTING RELAY PANEL LCP SCHEDULE

RELAY		CONTROL	LOAD		
NO.	TYPE**	ZONE	VAC	CIRCUIT #	CIRCUIT NAME
1	SM	ZONE #1	120	A-4	LIGHT FIXTURES
2	SM	ZONE #1	120	A-6	LIGHT FIXTURES
3	DM	ZONE #1	120	A-60	DENTAL/XRAY RM LTS
4	DM	ZONE #1	120	A-66	SURGERY ROOM LIGHTS
5	SM	ZONE #2	120	A-10	SIGN
6	SM	ZONE #2	120	A-12	SHOW WINDOW
7	SM	ZONE #2	120	-	SPARE
8	SM	ZONE #2	120	-	SPARE

LIGHTING ZONES NOTE:
LIGHTING ZONES HAVE BEEN ASSIGNED AS FOLLOWS:

ZONE 1 - INTERIOR LIGHTING*
ZONE 2 - SIGNS*

VERIFY ZONING AND SCHEDULE WITH OWNER.

* VERIFY ZONING AND SCHEDULE WITH OWNER.
** VERIFY ZONING AND SCHEDULE WITH OWNER. MINIMUM SCHEDULING IS PHOTOCELL ON AND PHOTOCELL OFF.

SM = SWITCHING MODULE, DM = DIMMING MODULE. REFER TO DETAIL FOR EQUIPMENT CATALOG INFORMATION.

ALL LIGHTING SHOWN IN AREAS WITH LOCAL OCCUPANCY SENSOR CONTROL TO BE A STAND ALONE SYSTEM NOT ON THIS RELAY PANEL.

ALL OTHER EXISTING EXTERIOR LIGHTS TO BE POWERED AND CONTROLLED VIA LANDLORD HOUSE PANEL.

DETAIL KEYNOTES

1 24-HOUR, 7-DAY TIMECLOCK, HUBBELL CX-08-2-S-08-3L-M.

2 PROVIDE (2) MANUAL OVERRIDE SWITCHES, WEATHERPROOF, IN LOCKABLE ENCLOSURE. LABEL SWITCH "INTERIOR LIGHTING OVERRIDE" AND "SIGN OVERRIDE". COORDINATE EXACT SWITCH LOCATION WITH OWNER.

3 PHOTOCELL ON AT DUSK, PHOTOCELL OFF AT DAWN AUTOMATICALLY.

4 COORDINATE ALL WIRING WITH EQUIPMENT MANUFACTURER PRIOR TO ROUGH IN.

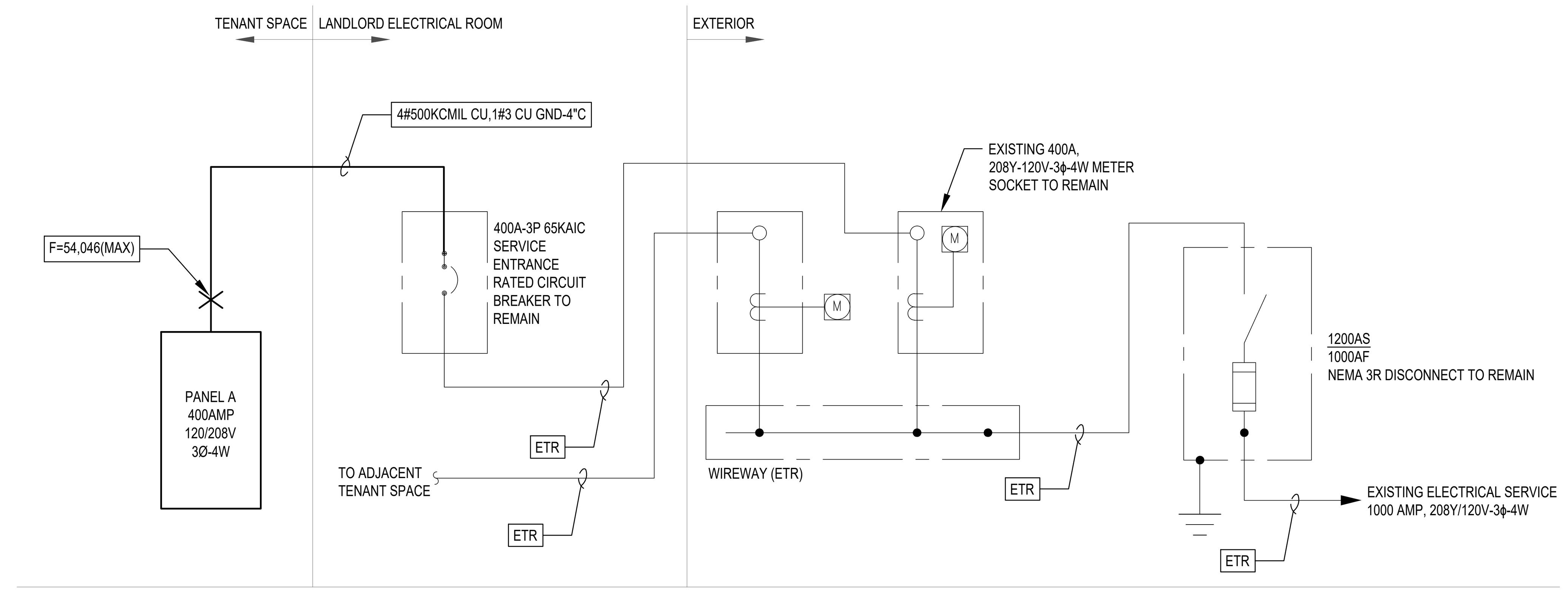
CONTRACTOR IS TO HOMERUN 18/4 WIRE BACK TO THE RELAY PANEL FROM EACH OVERRIDE LOCATION.

2	LIGHTING CONTROL DIAGRAM
E002	SCALE: NONE

LIGHTING FIXTURE SCHEDULE

TYPE	LAMP	WATTAGE	DESCRIPTION	MANUFACTURER	CATALOG #	VOLT	REMARKS
A	LED	29	2x2' LED ARCHITECTURAL TROFFER, 80 CRI, 3500K, 3420 LUMENS, GRID LAY IN CEILING, CURVE SHIELDING, 0-10V DIMMING, DAMP LOCATION LISTED	COLUMBIA LIGHTING	LCAT22-35-ML-G-ED-U	120	
B	LED	24	4' LED UNDERCABINET LIGHT 3500K, 1666 LUMENS, 90 CRI, 120V, INTEGRAL ROCKER SWITCH.	COLUMBIA LIGHTING	CUC4-CS-ED120	120	COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN
C	LED	39	2x2' LED ARCHITECTURAL TROFFER, 80 CRI, 3500K, 4398 LUMENS, GRID LAY IN CEILING, CURVE SHIELDING, 0-10V DIMMING, DAMP LOCATION LISTED	COLUMBIA LIGHTING	LCAT22-35-VL-G-ED-U	120	
D	LED	83	2'X2' LED SURGICAL LIGHT, 80CRI, 3500K, 10828 LUMENS, STANDARD 0-10V DIMMING	LEGRAND KENALL	M4SEDI-22-75L-35K8-DCC-120-2F-2H-ASYM	120	
EM	LED	5.4	LED THERMOPLASTIC EMERGENCY LIGHT, WHITE HOUSING,1300 LUMENS, AND SELF DIAGNOSTICS. WALL OR CEILING MOUNTED TO ELECTRICAL OUTLET BOXES. DAMP LOCATION LISTED.	COMPASS	CU2HLHOSD	120	COORDINATE FINAL MOUNTING HEIGHT AND LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN
EXC	LED	4.1	WHITE THERMOPLASTIC LED EXIT SIGN AND COMBINATION EMERGENCY LIGHT WITH RED LETTERS, UNIVERSAL FACE, CEILING OR WALL MOUNTED, SELF-DIAGNOSTICS, NICAD BATTERY. UNIVERSAL INPUT	COMPASS	CCRSD	120	COORDINATE FINAL MOUNTING HEIGHT AND LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN
F	LED	27	LED ROUND 15" SURFACE MOUNTED DOWNLIGHT 1600 LUMENS, 3500K, WHITE FINISH.	WAC LIGHTING	FM-115-3500K-WT	120	
G	LED	20	LED ROUND 13" SURFACE MOUNTED DOWNLIGHT 1600 LUMENS, 3500K, WHITE FINISH.	WAC LIGHTING	FM-113-3500K-WT	120	
H	LED	30	2X2 EDGE-LIT FLAT PANEL 3500K, 3338 LUMENS, 0-10V DIMMABLE DRIVER DOWN TO 10%	COLUMBIA LIGHTING	CFP22-33-35	120	
K	LED	25	2' LED WALL MOUNTED OVER THE COUNTER LIGHT, 80CRI, 3500K, 1664 LUMENS, SURFACE MOUNTED, FROSTED LENSE AND FLAT PLASTIC END CAPS, 0-10V DIMMING	COLUMBIA LIGHTING	CWM-2-35-ML-SM-FR-FP-ED-U	120	COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN
L	LED	47	4' LED SURFACE MOUNTED FIXTURE, 3500K, 5449-6763 LUMEN RANGE, RIBBED CLEAR ACRYLIC SHIELDING, 0-10V DIMMING	COLUMBIA LIGHTING	LXEM-4-35-HL-RA-ED-U	120	PROVIDE ALL ACCESSORIES FOR A SURFACE MOUNTED INSTALLATION
M	LED	44	2' LED SURFACE MOUNTED FIXTURE, 3500K, 4254-5416 LUMEN RANGE, RIBBED CLEAR ACRYLIC SHIELDING, 0-10V DIMMING	COLUMBIA LIGHTING	LXEM-2-35-HL-RA-ED-U	120	PROVIDE ALL ACCESSORIES FOR A SURFACE MOUNTED INSTALLATION

NOTES:
1. REVIEW CAT# WITH ARCHITECT PRIOR TO ORDERING. PROVIDE ALL MOUNTING, SUPPORTS, AND ACCESSORIES AS NEEDED FOR A COMPLETE SYSTEM. TYPICAL
2. REFER TO PLANS FOR FIXTURE COUNTS AND MOUNTING HEIGHTS.
3 COORDINATE DIRECTIONAL ARROW FOR EXIT SIGNS IN FIELD AND WITH ARCHITECT. SEE PLANS FOR MORE INFORMATION ON DIRECTIONAL ARROWS.



1	ONE LINE DIAGRAM
E002	SCALE: NONE

PANEL NAME	CIRCUIT BREAKER REMARKS	PANEL CHARACTERISTICS				CIRCUIT BREAKER TYPE/ACCESSORY	OPTIONS
A	CC=CONTROLLED CIRCUIT, EX=EXISTING LOAD TO REMAIN, ML=MODIFIED LOAD ON EXISTING BREAKER, CL=CIRCUIT WIRED THROUGH CURRENT LIMITER	400 BUS	400 MCB	208 / 120 3-Ø, 4-W	65K AIC	A=AFCI, S=SHUNT TRIP, H=HACR G=GFCI, L= C/B LOCK, HT=HANDLE TIE NB=NEW CIRCUIT BREAKER, IG=ISOLATED GROUND	MOUNTING: FLUSH; BUS MATERIAL: COPPER

Ckt No	Breaker	(Remarks)	LOAD DESCRIPTION	Load Type	Load VA	L1	L2	L3	Load VA	Load Type	LOAD DESCRIPTION	Breaker	(Remarks)	Ckt No
1	20/1	H	EUH-1	H	1,500	■			557	L	LIGHT FIXTURES	20/1		2
3	20/1		RP-1	X	276		■		518	L	LIGHT FIXTURES	20/1	CC	4
5	20/1		WH-1	X	600			■	942	L	LIGHT FIXTURES AND EF-1	20/1	CC	6
7	20/1		WAITING AREA GENERAL RECEPT	R	1,080	■			1,162	L	EXAM ROOM LIGHTS	20/1		8
9	20/1		SCALE	R	200		■		1,200	L	SIGN	20/1	CC	10
11	20/1		WAITING COFFEE COUNTER RECEPT	R	720			■	360	L	SHOW WINDOW	20/1	CC	12
13	20/1		WAITING AREA TV	R	200	■			200	X	LCP	20/1	L	14
15	20/1	G	EWC	X	180		■		540	R	DENTAL GENERAL RECEPTACLES	20/1		16
17	20/1		RECEPTION WORK STATIONS	R	540			■	720	R	DENTAL GENERAL RECEPTACLES	20/1		18
19	20/1		RECEPTION COPIER	R	360	■			500	X	DENTAL POWER	20/1	L	20
21	20/1		HVAC RECEPT	R	360		■		500	X	DENTAL POWER	20/1	L	22
23	20/1		EXAM ROOM #1, #2 AND LAB WORKSTATIONS	R	900			■	720	R	SURGERY GENERAL RECEPTACLES	20/1		24
25	20/1		LAB COUNTER RECEPT	R	540	■			540	R	SURGERY GENERAL RECEPTACLES	20/1		26
27	20/1		LAB FRIDGE	R	180		■		720	R	SURGERY TABLE POWER	20/1		28
29	20/1		TREATMENT AREA/FOOD PREP COUNTER	R	540			■	720	R	SURGERY TABLE POWER	20/1		30
31	20/1		CHARTING WORKSTATIONS	R	360	■			720	R	XRAY RECEPTACLES	20/1		32
33	20/1		DOC ROOM WORKSTATIONS	R	720		■		180	R	XRAY RECEPTACLES	20/1		34
35	20/1		DOC ROOM PRINTER	R	200			■	180	R	XRAY RECEPTACLES	20/1		36
37	20/1	G	BREAK ROOM FRIDGE	R	200	■			1,800	X	XRAY POWER	20/1		38
39	20/1		BREAK ROOM COUNTER RECEPT	R	360		■		1,800	X	XRAY POWER	20/1		40
41	20/1		MICROWAVE	R	1,500			■	1,800	X	XRAY POWER	20/1		42
43	20/1	G	DISHWASHER	R	500	■			1,800	X	XRAY POWER	20/1		44
45	20/1		BREAK ROOM TV	R	200		■		500	X	MEDICAL GAS CONTROL PANELS	20/1		46
47	20/1	G	CHEST FREEZER	R	500			■		X	SPARE	20/1		48
49	20/1		GENERAL RECEPTACLES	R	540	■			50	M	TF-1	20/1		50
51	20/1		FOOD PREP MICROWAVE	R	1,500		■		1,176	M	FOOD DISPOSAL	20/1		52
53	20/1		FOOD PREP FRIGE	R	500			■	14,560	X	X-RAY	150/2		54
55	20/1		EXAM ROOM #3, #4 & MANGER OFFICE	R	1,080	■			14,560	X				56
57	20/1		EXAM ROOM #5, #6 & #7	R	1,080		■		540	R	RECEPTION TV AND POWER	20/1		58
59	20/1		SERVER	R	360			■	913	L	SURGERY/DENTAL/XRAY ROOM LIGHTING	20/1	CC	60
61	20/1		SERVER	R	180	■			400	L	SURGER/DENTAL/TREATMENT LIGHTS	20/1		62
63	50/2		DRYER	R	4,000		■		200	X	OXYGEN MANIFOLD CONTROLLER	20/1		64
65				R	4,000			■	400	L	SURGERY ROOM LIGHTS	20/1	CC	66
67	30/1		WASHER	X	2,000	■				X	SPARE	20/1		68
69	20/1		LAUNDRY ROOM/DOG RECEPTACLES	R	720		■			X	SPARE	20/1		70
71	20/1		SPARE	X				■		X	SPARE	20/1		72
73	20/1		SPARE	X		■			2,089	M	ERV-1	20/3	H	74
75	20/1		SPARE	X			■		2,089	M				76
77	20/1		SPARE	X				■	2,089	M				78
79	50/3	H	RTU-1	M	4,732	■			5,403	M	RTU-2	50/3	H	80
81				M	4,732		■		5,403	M				82
83				M	4,732			■	5,403	M				84
PANEL NOTES:						■			0	NO SUBFEED LOAD		SUBFEED LUGS		
							■		0					
								■	0					

Lighting Load		Total Lighting Load "L" (KVA)	6.45	43.05	Total Connected Load in KVA - Phase A
Demand %	1.25	Total Track lighting Load "D" (KVA)	0.00	29.87	Total Connected Load in KVA - Phase B
Show Window		Total Receptacle Load "R" (KVA)	29.70	43.90	Total Connected Load in KVA - Phase C
Length (FT)		Total Show Window Load "C" (KVA)	0.00	116.83	Total Connected Load in KVA - All Phases
HVAC Load		Total Motor Load "M" (KVA)	37.90	324.3	Total Connected Load in Amps
Demand %	1.00	Total Electric Heat Load "H" (KVA)	1.50	108.59	Total NEC Demand Load in KVA - All Phases
Misc Load		Total Misc Load "X" (KVA)	41.28	301.4	Total NEC Demand Load in Amps
Demand %	1.00	Kitchen Appliance Load "K" (KVA)	0.00		

ELECTRICAL LOAD SUMMARY

LOAD DESCRIPTION			KW (CONNECTED)	NEC DEMAND	KW (DEMAND)
Total Lighting Load "L"			6.45	125%	8.07
Total Track lighting Load "D"	0	FT	0.00	NEC	0.00
Total Receptacle Load "R"			29.70	NEC	19.85
Total Show Window Load "C"	0	FT	0.00	NEC	0.00
Total Motor Load "M"			37.90	100%	37.90
Total Electric Heat Load "H"			1.50	100%	1.50
Total Misc Load "X"			41.28	100%	41.28
Kitchen Appliance Load "K"			0.00	65%	0.00
FUTURE LOAD			0.00	100%	0.00
TOTAL LOAD (KW)			116.83		108.59
TOTAL LOAD (AMPS)			324.3		301.4

TRACK LIGHTING LENGTH IS INDICATED AS 0 BECAUSE THE TRACK LIGHTING LOAD "D" IS CALCULATED AT 80% OF THE CURRENT LIMITING DEVICE.

CURRAN ARCHITECTURE
5719 LAWTON LOOP E. DR.
#212 INDIANAPOLIS, IN 46216
O :: 317 . 288 . 0681
F :: 317 . 288 . 0753

DRAWN BY: RAS CHECKED BY: EJR

T/E/S ENGINEERING
25760 First Street
Cleveland, OH 44145
P 440 871 2410
F 440 871 7954
tesengineering.com

CERTIFICATION

EDWARD JOSEPH RADZISZEWSKI REGISTERED No. PE11900159 STATE OF INDIANA PROFESSIONAL ENGINEER

PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

ISSUE DATES

PERMIT SET	04.01.21

210095

ELECTRICAL ONE LINE AND SCHEDULES

E002

ELECTRICAL SPECIFICATIONS

DIVISION 26 - ELECTRICAL

I. GENERAL PROVISIONS

A. GENERAL CONDITIONS, CODES & STANDARDS

1. GENERAL CONDITIONS OF THE CONTRACT FOUND IN THE ARCHITECTURAL DRAWINGS, GENERAL AND SPECIAL CONDITIONS OF THE AMERICAN INSTITUTE OF ARCHITECTS (AIA) AND ANY OF THE OWNER'S GENERAL REQUIREMENTS SHALL APPLY UNLESS NOTED OTHERWISE.
2. REFER TO THE GENERAL CONDITIONS ON THE ARCHITECTURAL DOCUMENTS AND THE GENERAL AND SPECIAL CONDITIONS OF THE AIA FOR ADDITIONAL REQUIREMENTS REGARDING; SAFETY, COORDINATION & COOPERATION, WORKMANSHIP, PROTECTION, CUTTING AND PATCHING, DAMAGE TO OTHER WORK, PRELIMINARY OPERATIONS, STORAGE, ADJUSTMENTS, CLEANING, ETC.
3. ALL WORK SHALL BE IN CONFORMANCE WITH ALL LOCALLY ENFORCED, FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES INCLUDING ANY SPECIAL THE OWNER REQUIREMENTS IN ADDITION TO THOSE SPECIFIED.
4. CONTRACTOR SHALL PAY FOR AND OBTAIN ALL NECESSARY LICENSES, PERMITS AND INSPECTIONS REQUIRED TO PROCEED WITH THE WORK. THIS SHALL INCLUDE ALL REQUIRED COORDINATION WITH THE LOCAL UTILITY COMPANIES AND THEIR ASSOCIATED FEES OR COSTS.
5. ALL EQUIPMENT AND MATERIALS USED SHALL BE NEW AND UL LISTED FOR THE APPLICATION, AND SHALL BEAR AN APPROPRIATE UL LABEL.

B. SCOPE OF WORK

1. THIS CONTRACT SHALL INCLUDE THE FURNISHING, INSTALLING, CONNECTING, AND OPERATION OF ALL EQUIPMENT WHICH IS A PART OF THE ELECTRICAL SYSTEMS AS SHOWN ON THE DRAWINGS AND AS REQUIRED BY SIMILAR INSTALLATIONS. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK AND WHICH IS USUALLY INCLUDED IN WORK OF A SIMILAR CHARACTER SHALL BE FURNISHED AND INSTALLED UNDER THIS CONTRACT AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS REQUIRED TO PROVIDE THE OWNER A COMPLETE, CODE APPROVED AND OPERATIONAL ELECTRICAL SYSTEM.
2. CAREFULLY READ SPECIFICATION FOR ALL PARTS OF THE WORK SO AS TO BECOME FAMILIAR WITH ALL TRADES' WORK SCOPE. CONSULT WITH OTHER TRADES TO INSURE PROPER LOCATIONS AND AVOID INTERFERENCES. ANY CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER BEFORE WORK IS COMMENCED.
3. CONTRACTORS SHALL BE HELD TO HAVE EXAMINED THE PREMISES AND SITE SO AS TO COMPARE THEM WITH THE DRAWINGS AND SPECIFICATIONS, NOTE THE EXISTING CONDITIONS AND OTHER WORK THAT WILL BE REQUIRED, AND THE NATURE OF THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. NO ALLOWANCE SHALL BE MADE TO THE CONTRACTOR BY REASON OF THIS FAILURE TO HAVE MADE SUCH EXAMINATION OR OF ANY ERROR ON HIS PART.
4. ALL EXISTING UTILITY AND ELECTRICAL SERVICES SHALL BE FIELD VERIFIED. CORRECTIONS TO THE DESIGN AND INSTALLATION SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
5. PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF ELECTRICAL WORK. ALL CORE DRILLING OR CUTTING OF FIRE RATED FLOORS, SHAFTS, AND WALLS SHALL BE FIRESTOPPED PRIOR TO FINISH PATCHING. ALL PENETRATIONS SHALL BE FIRE SEALED TO MATCH THE FIRE RATING OF THE FLOORS, SHAFTS, AND WALLS PENETRATED.
6. TEMPORARY ELECTRICAL SERVICE, LIGHTING, AND RELATED WIRING SHALL BE PROVIDED TO OSHA REQUIREMENTS FOR THE USE OF ALL TRADES DURING CONSTRUCTION.
7. TEMPERATURE AND INTERLOCK CONTROL COMPONENTS AND ALL RELATED WIRING AND CONDUIT SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
8. THIS CONTRACT SHALL ALSO INCLUDE ALL LABOR, MATERIALS AND MISCELLANEOUS EXPENSES REQUIRED FOR ALL REQUIRED ELECTRICAL DEMOLITION OF THE EXISTING AREAS BEING RENOVATED.
   a. THE DEMOLITION SHALL CONSIST OF THE COMPLETE REMOVAL (PROPERLY DISPOSED OFF SITE UNLESS OTHERWISE NOTED) OF ALL ELECTRICAL EQUIPMENT, WIRING, CONDUIT, MATERIALS, ETC. NOT REQUIRED IN THE FINAL DESIGN AND INSTALLATION OF THE ELECTRICAL SYSTEMS FOR THE NEW RENOVATED AREAS.
   b. ALL UNDERGROUND SERVICES NOT BEING REUSED SHALL BE CAPPED BELOW THE FLOOR, WIRING REMOVED, AND FLOOR PENETRATIONS REPAIRED TO MATCH ADJACENT SURFACES.
   c. ALL ABOVE GROUND CIRCUITS SHALL BE REMOVED BACK TO THE SOURCE UNLESS INDICATED OTHERWISE.
   d. COORDINATE ALL DEMOLITION WITH THE ARCHITECTURAL DOCUMENTS, THE ARCHITECT, AND THE OWNER'S GENERAL REQUIREMENTS.
9. ALL WORK INCLUDING, BUT NOT LIMITED TO PARTS, MATERIAL, EQUIPMENT AND LABOR SHALL BE GUARANTEED FOR ONE YEAR AFTER ACCEPTANCE BY THE ENGINEER AND OWNER. WHERE AN EQUIPMENT MANUFACTURER HAS A WARRANTY THAT EXCEEDS ONE YEAR, THAT WARRANTY PERIOD SHALL APPLY TO THIS PROJECT.

C. DOCUMENTS

1. THE DRAWINGS ARE DIAGRAMMATIC; ALL WORK SHALL BE PERFORMED AS INDICATED ON THE DRAWINGS UNLESS EXISTING CONDITIONS OR COORDINATION ISSUES REQUIRE CHANGES. THESE CHANGES SHALL BE MADE WITH NO ADDITIONAL COST TO THE OWNER.
2. ANY INCIDENTAL ITEMS OR LABOR, ETC. NOT INCLUDED IN THE SPECIFICATIONS OR THE DRAWINGS BUT REASONABLY IMPLIED AS NECESSARY FOR THE COMPLETE INSTALLATION OF ALL APPARATUS SHALL BE INCLUDING IN BID.
3. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED EVEN THOUGH NOT MENTIONED IN BOTH.
4. IF ERRORS ARE FOUND IN THE DRAWINGS OR SPECIFICATIONS, OR DISCREPANCIES OCCUR BETWEEN THE SAME, OR BETWEEN THE FIGURES ON THE DRAWINGS AND THE SCALE OF SAME, OR BETWEEN THE LARGER AND SMALLER DRAWINGS, OR IN THE DESCRIPTIVE MATTER ON THE DRAWINGS, SUCH ERRORS SHALL BE REFERRED TO THE OWNER FOR REVIEW AND FINAL DECISION PRIOR TO THE BID DUE DATE.
5. THE BIDDING OF THIS WORK WILL CONTEMPLATE THE USE OF EQUIPMENT AND MATERIALS EXACTLY AS SPECIFIED HEREIN. WHERE MORE THAN ONE MANUFACTURER IS MENTIONED ANY ONE MAY BE UTILIZED. SUBSTITUTE MANUFACTURERS MAY BE OFFERED ONLY AS AN ALTERNATE TO THE SPECIFIED EQUIPMENT AND MATERIAL AND MUST BE SUBMITTED AS SPECIFIED IN THE ARCHITECTURAL DOCUMENTS.
6. MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THE SYSTEMS CAN BE OF ANY RECOGNIZED MANUFACTURE PROVIDED THESE ITEMS MEET MINIMUM STANDARDS AS SET IN THESE SPECIFICATIONS. REFER TO EACH SECTION FOR ANY SPECIFIC REQUIREMENTS.

D. COORDINATION

1. CONTRACTOR SHALL LOCATE, IDENTIFY AND PROTECT ANY EXISTING SERVICES WHICH ARE REQUIRED TO BE MAINTAINED OPERATIONAL AND SHALL EXERCISE EXTRA CAUTION IN THE PERFORMANCE OF ALL WORK TO AVOID DISTURBING SUCH FACILITIES. ALL COSTS FOR REPAIR OF DAMAGES TO SUCH SERVICES SHALL BE PAID BY THE CONTRACTOR CAUSING THE DAMAGE.
2. EACH CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO OTHER WORK CAUSED BY HIS WORK OR THROUGH THE NEGLECT OF HIS, OR HIS SUB-TRADE'S PERSONNEL. ALL PATCHING, REPAIRING, REPLACEMENT AND PAINTING, ETC. SHALL BE DONE AS DIRECTED BY THE OWNER BY THE CRAFTSMEN OF THE TRADES INVOLVED. THE COSTS OF SUCH WORK SHALL BE PAID BY THE CONTRACTOR CAUSING THE DAMAGE.
3. IT IS ESSENTIAL THAT ALL WORK AT THE PROJECT BE DONE AT SUCH TIME AND IN SUCH MANNER AS NOT TO INTERFERE WITH THE OPERATIONS OF THE SPACE, ADJACENT SPACES, OR FACILITY. A WORK SCHEDULE SHALL BE ARRANGED WITH THE OWNER, INCLUDING PREMIUM TIME WORK TO FACILITATE WORK WITH A MINIMUM OF INTERFERENCE TO THE OWNER'S OPERATIONS.

E. METHODS

1. EXCAVATIONS SHALL BE MADE IN OPEN TRENCHES. FLOORS SHALL BE SAW CUT. CONDUIT SHALL BE LAID ON AN APPROPRIATELY GRADED 6" BED OF CLEAN AND DRY SAND. ENGINEERED FILL SHALL BE USED TO BACKFILL TO 6" ABOVE THE CONDUIT. BACKFILL THE REMAINDER OF THE TRENCH UTILIZING THE EXCAVATED MATERIAL IF APPROVED BY THE ARCHITECT OR THE OWNER. IF THE EXCAVATED MATERIALS ARE NOT ACCEPTABLE, ENGINEERED FILL ACCEPTABLE TO THE ARCHITECT SHALL BE UTILIZED TO BACKFILL THE REMAINDER OF THE TRENCH. BACKFILL SHALL BE ACCOMPLISHED IN 9" LIFTS WITH ALL LIFTS COMPACTED TO 95% PROCTOR. PATCH FLOOR TO MATCH EXISTING.
2. EQUIPMENT, CONDUIT, ETC. SHALL NOT BE SUPPORTED FROM ANY CEILINGS, OTHER PIPING, OTHER CONDUIT OR DUCTWORK, ROOF DECK, OR JOIST BRIDGING. ITEMS SHALL BE SUPPORTED FROM ACCEPTABLE STRUCTURAL BUILDING COMPONENTS AS DETERMINED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
3. ALL ROOF PENETRATIONS, FLASHINGS AND COUNTER FLASHINGS SHALL BE PERFORMED BY THE OWNER'S ROOFING CONTRACTOR AT THE REQUESTING CONTRACTORS COST.

F. SUBMITTALS

1. SHOP DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT OF ALL EQUIPMENT AND ACCESSORIES PROVIDED FOR THE PROJECT WHETHER SPECIFIED HERE-IN OR ON THE DRAWINGS. REVIEW OF THE SHOP DRAWINGS SHALL BE FOR GENERAL DESIGN CONCEPT AND ADHERENCE WITH THE SPECIFICATIONS. QUANTITY OF SHOP DRAWINGS SUBMITTED SHALL BE AS SPECIFIED BY THE ARCHITECT. SHOP DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR SHOWING LOCATIONS AND MEASUREMENTS FROM COLUMNS OF ALL CONCEALED AND EXPOSED PIPING, DUCTWORK, CONDUIT, EQUIPMENT, ACCESSORIES, ETC., AND SUBMITTED PRIOR TO INSTALLATION. THE OWNER MAY MAKE REPRODUCIBLE COPIES OF THEIR DRAWINGS AVAILABLE FOR USE IN PREPARATION OF SHOP DRAWINGS, HOWEVER THE OWNER SHALL NOT BE HELD RESPONSIBLE FOR NOT CONFIRMING ALL INFORMATION ON THE DRAWINGS PRIOR TO FABRICATION AND/OR INSTALLATION.
2. PROJECT RECORD DOCUMENTS - MAINTAIN AT THE JOBSITE ONE COPY OF ALL CONTRACT DOCUMENTS CLEARLY MARKED AS "PROJECT RECORD COPY". THESE DRAWINGS ARE TO BE MAINTAINED IN GOOD CONDITION, UPDATED DAILY FOR CHANGES ENCOUNTERED AND AVAILABLE AT ALL TIMES FOR INSPECTION BY THE OWNER. DO NOT USE FOR FIELD CONSTRUCTION! PROJECT RECORD DOCUMENTS ARE TO BE KEPT CURRENT WITH EXACT DIMENSIONS OF ALL WORK, EQUIPMENT, DISTRIBUTION CONDUIT, CIRCUITS, ETC. MARK ALL INFORMATION IN RED LINES AND NOTES SO AS TO BE EASILY IDENTIFIED FROM THE BASE DRAWING. UPON COMPLETION OF THE WORK, ONE SET OF THESE DOCUMENTS SHALL BE TURNED OVER TO THE OWNER AS ONE QUALIFICATION FOR FINAL PAYMENT.
3. THREE COMPLETE SETS OF AS-BUILT DOCUMENTATION SHALL BE PROVIDED. IT SHALL INCLUDE, BUT NOT BE LIMITED TO ACCURATE PLAN DRAWINGS, WIRING DIAGRAMS AND OPERATION AND MAINTENANCE MANUALS.

II. PRODUCTS

A. CONDUIT

1. CONDUIT SHALL BE HEAVY WALL RIGID GALVANIZED STEEL WHERE EXPOSED AND SUBJECT TO DAMAGE, 8'-0" AFF AND BELOW, AND IN WET LOCATIONS WHERE INDICATED ON THE DRAWINGS. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC AND SHALL BE CONCRETE ENCASED (3" MINIMUM) WHERE INDICATED ON THE DRAWINGS. A TRANSITION SHALL BE MADE TO HEAVY WALL RIGID GALVANIZED STEEL BEFORE PVC CONDUITS PENETRATE THE FLOOR SLAB. INTERIOR CONDUITS SHALL BE ELECTRICAL METALLIC TUBING (EMT). METAL CLAD (MC) CABLE MAY BE USED IF APPROVED BY THE OWNER, AND INSTALLED IN LOCATIONS PERMITTED BY CODE.
2. FLEXIBLE METAL CONDUIT SHALL BE USED FROM OUTLET BOX TO INDIVIDUAL RECESSED LIGHT FIXTURES, AND FOR FINAL CONNECTIONS TO MOTORS AND OTHER DEVICES SUBJECT TO VIBRATION.

B. CONDUIT FITTINGS AND BOXES

1. INTERIOR OUTLET BOXES SHALL BE STANDARD GALVANIZED SHEET STEEL TYPE, NOT LESS THAN 14 GAUGE IN THICKNESS, WITH KNOCKOUT OPENINGS, EXTENSIONS, PLASTER RINGS AND COVER PLATES TO ACCOMMODATE THE DEVICES INSTALLED. COVER PLATES SHALL BE SMOOTH PLASTIC TO MATCH DEVICE COLOR. USE STEEL PLATES WITH ROUNDED CORNERS FOR SURFACE BOXES. OUTDOOR (WET LOCATION) OUTLET BOXES SHALL BE CAST ALUMINUM TYPE WITH DEVICE COVERS TO SUIT.
2. OUTLET BOXES SHALL NOT BE LESS THAN 4 INCHES SQUARE, 1-1/2 INCHES DEEP.
3. COUPLINGS AND CONNECTORS FOR EMT SHALL BE DIE CAST ZINC OR STEEL. BUSHING SHALL BE GROUNDING TYPE WITH INSULATING PLASTIC INSERT.
4. FLOOR BOXES SHALL BE FLUSH SERVICE TYPE., RECTANGULAR CAST METAL CONSTRUCTION CANGABLE ADJUSTABLE WITH BRASS (ALUMINUM) COVER AND TRIM/FLANGE AS REQUIRED. COVER TYPE SHALL BE AS INDICATED ON LEGEND.

C. WIRE AND CABLE

1. CONDUCTORS FOR POWER AND LIGHTING SHALL BE NEW 600-VOLT, 90°C, TYPE XHHW, THHW, OR THWN INSULATION, MINIMUM SIZE #12-AWG, EXCEPT FOR CONTROL WIRING WHICH MAY BE #14-AWG. OTHER SIZES SHALL BE AS NOTED ON THE DRAWINGS. CONDUCTORS SHALL BE COPPER, UNLESS OTHERWISE APPROVED BY THE OWNER.
2. BRANCH CIRCUIT RUNS EXCEEDING 100 FEET IN TOTAL LENGTH FROM THE PANELBOARD TO THE LAST DEVICE, SHALL BE #10-AWG CONDUCTORS UNLESS OTHERWISE NOTED.
3. COMPRESSION TYPE LUGS AND CONNECTORS SHALL BE USED FOR ALL TERMINATIONS AND SPLICES.
4. ALL LOW VOLTAGE COMMUNICATIONS, FIRE ALARM, DATA, SECURITY, TELEPHONE AND ALL OTHER MISCELLANEOUS LOW VOLTAGE WIRING INSTALLED IN CEILING SHALL BE PLENUM RATED.

D. WIRING DEVICES

1. DUPLEX RECEPTACLES SHALL BE GROUNDING TYPE, NEMA 5-20R, RATED FOR 20 AMPS, 125 VOLTS, WITH PROVISIONS FOR BACK AND SIDE WIRING.
2. CONTROLLED RECEPTACLES SHALL BE PROVIDED WITH IDENTIFIABLE MARKINGS.
3. SWITCHES SHALL BE TOGGLE OPERATED, QUIET TYPE, RATED FOR 20 AMPS, 120/277 VOLTS, WITH PROVISIONS FOR BACK AND SIDE WIRING. THREE WAY AND FOUR WAY SWITCHES SHALL BE PROVIDED WHERE INDICATED.
4. DIMMERS SHALL BE LUTRON "NOVA T-STAR" SERIES, OF A RATING, VOLTAGE AND WATTAGE SUITABLE FOR LOAD SERVED.
5. COLORS OF DEVICES SHALL BE SELECTED BY ARCHITECT.
6. WIRING DEVICES SHALL BE SPECIFICATION GRADE, AS MANUFACTURED BY HUBBELL, PASS & SEYMOUR, ARROW HART, LEVITON AND GENERAL ELECTRIC.

E. LIGHTING AND RECEPTACLE PANELBOARDS

1. BRANCH CIRCUIT PANELBOARDS SHALL BE DEAD FRONT TYPE, WITH MAIN LUGS OR MAIN OVERCURRENT DEVICE AS INDICATED, BRANCH OVERCURRENT DEVICES AS NOTED AND AN EQUIPMENT GROUND BAR, ALL IN A SURFACE OR FLUSH MOUNTED SHEET STEEL ENCLOSURE. MINIMUM SHORT CIRCUIT CAPACITY SHALL BE 10,000 AMPS SYMMETRICAL FOR 120/208V UNLESS NOTED OTHERWISE.
2. ELECTRICAL PANELS MOUNTED ON INTERIOR OF BUILDING SHALL BE NEMA 1 TYPE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
3. CIRCUIT BREAKERS SHALL BE BOLT ON TYPE; WITH MOLDED PLASTIC CASE; 1, 2, OR 3 POLE AS INDICATED. QUICK-MAKE, QUICK-BREAK, AND THERMAL-MAGNETIC TRIP DEVICE.
4. ALL BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR RATED, UNLESS OTHERWISE NOTED.
5. ALL EQUIPMENT RATED 100A OR LESS SHALL HAVE 60 DEGREE C MINIMUM TERMINATIONS. ALL EQUIPMENT RATED OVER 100A SHALL HAVE 75 DEGREE MINIMUM TERMINATIONS.
6. INDIVIDUAL SINGLE POLE CIRCUIT BREAKERS, WITH IDENTIFIED TIES, OR 2/3 POLE BREAKERS SHALL BE PROVIDED FOR EACH UNGROUNDED CONDUCTOR IN ALL MULTI-WIRE BRANCH CIRCUITS.
7. PANELBOARDS SHALL BE AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, SIEMENS, AND EATON.

F. SAFETY SWITCHES AND MOTOR STARTERS

1. SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE AS INDICATED ON THE DRAWINGS. SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK, HEAVY DUTY VISIBLE BLADE TYPE. ENCLOSURES SHALL BE RATED FOR INSTALLATION IN DESIGNATED AREA AS INDICATED ON PLANS. INTERIOR ENCLOSURES SHALL BE NEMA 1 TYPE UNLESS OTHERWISE INDICATED ON THE DRAWINGS. EXTERIOR ENCLOSURES SHALL BE NEMA 3R TYPE UNLESS OTHERWISE INDICATED ON THE DRAWINGS. FUSES SHALL BE DUAL ELEMENT - TIME DELAY TYPE.
2. MAGNETIC MOTOR STARTERS SHALL BE COMBINATION TYPE WITH THERMAL OVERLOAD, INTEGRAL FUSED SAFETY SWITCH, H-O-A SELECTOR SWITCH, CONTROL TRANSFORMER, RUNNING PILOT LIGHT, NEMA TYPE 1 ENCLOSURE, AND (2) NORMALLY OPEN AND (2) NORMALLY CLOSED AUXILIARY CONTACTS.
3. ALL MOTORS OVER 1/8 HP SHALL BE PROVIDED WITH THERMAL OVERLOAD PROTECTION. OVERLOAD PROTECTION SHALL BE PROVIDED INTEGRAL WITH THE MOTOR WINDINGS AND/OR MOTOR CONTROLLER (PROVIDED BY OTHERS) UNLESS OTHERWISE INDICATED ON DRAWINGS.
4. ALL EQUIPMENT RATED 100A OR LESS SHALL HAVE 60 DEGREE C MINIMUM TERMINATIONS. ALL EQUIPMENT RATED OVER 100A SHALL HAVE 75 DEGREE MINIMUM TERMINATIONS.

G. LUMINAIRES AND LAMPS

1. ALL LUMINAIRES SHALL BE SPECIFIED ON THE LUMINAIRE SCHEDULE.
2. EMERGENCY LIGHTING AS INDICATED, SHALL PROVIDE A MINIMUM OF ONE FOOTCANDLE ALONG THE PATH OF EGRESS. EMERGENCY FIXTURE SUPPLIER SHALL PROVIDE FOOTCANDLE PRINTOUT TO VERIFY EMERGENCY LIGHT LEVELS.

III. EXECUTION

A. GENERAL MISCELLANEOUS

1. ALL CONDUIT RUN IN FINISHED AREAS SHALL BE CONCEALED. CONDUIT SMALLER THAN 3/4" SHALL NOT BE USED FOR ANY CIRCUIT HOMERUNS.
2. RACEWAYS EXPOSED TO DIFFERENT TEMPERATURES SHALL BE FILLED WITH AN APPROVED MATERIAL IN ACCORDANCE WITH ARTICLE 300.7 OF THE NATIONAL ELECTRICAL CODE.
3. HANGERS, SUPPORTS, OR FASTENINGS SHALL BE PROVIDED AT EACH ELBOW, AT THE ENDS OF STRAIGHT RUNS TERMINATING AT BOXES OR CABINETS, AND AT INTERMEDIATE POINTS AS REQUIRED BY CODE. CONDUITS OR BOXES SHALL NOT BE SUPPORTED BY CEILING SUPPORT WIRES OR OTHER CEILING SUPPORTING HARDWARE.
4. ACCESS PANELS SHALL BE PROVIDED FOR ALL JUNCTION BOXES AND PULL BOXES INSTALLED ABOVE DRYWALL CEILINGS, COORDINATE SIZE AND LOCATION WITH ARCHITECT.
5. FIXTURE SUPPORTS SHALL BE IN ACCORDANCE WITH ARTICLE 410-30 OF THE NATIONAL ELECTRICAL CODE, OR ANY LOCAL CODES WHICH MY APPLY.
6. PROVIDE PERMANENT NAMEPLATES WITH DESIGNATIONS FOR PANELBOARDS, FEEDER DEVICES, DISTRIBUTION EQUIPMENT AND STARTERS.
7. PROVIDE TYPEWRITTEN DIRECTORY CARDS WITH BRANCH CIRCUIT IDENTIFICATION FOR BRANCH CIRCUIT PANELBOARDS. PANELBOARDS, FEEDER DEVICES, DISTRIBUTION EQUIPMENT AND STARTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS IN ACCORDANCE WITH NEC 110.16.
8. INSTALL HANDLE GUARDS ON ALL BREAKERS FOR NIGHT LIGHTING, EMERGENCY AND SIMILAR CIRCUITS.
9. THE ELECTRICAL CONTRACTOR SHALL BALANCE PANELBOARD LOADING TO WITHIN 10% ON EACH PHASE BASED ON INSTALLED CONDITIONS. LOAD BALANCING CIRCUIT CHANGES SHALL BE PERFORMED OUTSIDE THE NORMAL OCCUPANCY WORKING SCHEDULE AND AT A TIME DIRECTED BY LANDLORD.
10. ALL FLUSH MOUNTED PANELBOARDS SHALL HAVE (3) 3/4" EMPTY CONDUITS INSTALLED TO ABOVE ACCESSIBLE CEILING FOR FUTURE USE.
11. THE FINAL LOCATIONS OF ALL EQUIPMENT, OUTLETS, ETC. SHALL BE SUBJECT TO REASONABLE CHANGES IN LOCATION UP TO THE TIME OF ROUGHING-IN, AT NO ADDITIONAL COST TO THE OWNER.
12. CONTACT ELECTRIC POWER COMPANY AND MAKE NECESSARY ARRANGEMENTS FOR ELECTRIC SERVICE.
13. CONTACT TELEPHONE COMPANY AND MAKE NECESSARY ARRANGEMENTS FOR TELEPHONE SERVICE.
14. AT ALL TIMES KEEP PREMISES AND BUILDING IN A NEAT AND ORDERLY CONDITION, FOLLOWING OWNER'S INSTRUCTION IN REGARD TO STORING OF MATERIALS, PROTECTIVE MEASURES AND DISPOSING OF DEBRIS.
15. ALL SERVICE EQUIPMENT SHALL BE IDENTIFIED AS BEING SUITABLE FOR USE AS SERVICE EQUIPMENT. SERVICE EQUIPMENT SHALL BE FIELD MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT AND THE DATE THE CALCULATION WAS PERFORMED. FIELD MARKING SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE INSTALLATION ENVIRONMENT.
16. RACEWAYS BELOW DRIVEWAYS, PARKING LOTS, AND ANY RACEWAYS INSTALLED BELOW GRADE SHALL BE INSTALLED A MINIMUM OF 24" BELOW FINISHED GRADE PER NEC 300-5.

B. GROUNDING

1. GROUND ALL CONDUITS, CABINETS, MOTORS, PANELS, AND OTHER EXPOSED NON-CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH NEC ARTICLE 250.
2. GROUNDING OF THE ELECTRICAL SYSTEM SHALL BE BY MEANS OF AN INSULATED GROUNDING CONDUCTOR INSTALLED WITH ALL FEEDERS AND BRANCH CIRCUIT CONDUCTORS IN ALL CONDUITS.

FIRE ALARM NOTES

1. PRINCIPAL OCCUPANCY CLASSIFICATION IS GROUP B.
2. SPACE IS PROVIDED WITH FULL SPRINKLER COVERAGE.
3. OCCUPANT LOAD IS LESS THAN 500.
4. A FIRE ALARM SYSTEM IS REQUIRED.
5. AIR HANDLING SYSTEMS WITH AN AGGREGATE CAPACITY OVER 2,000 CFM REQUIRE DUCT SMOKE DETECTORS WITH LOCAL VISIBLE AND AUDIBLE SUPERVISORS' SIGNAL MOUNTED IN AN APPROVED LOCATION. DUCT SMOKE DETECTOR MONITORING SHALL BE BY OTHERS UNDER SEPARATE CONTRACT WITH THE OWNER.
6. FIRE ALARM SYSTEM INSTALLED OR MODIFIED BY THIS CONTRACTOR IS TO BE VERIFIED AND CERTIFIED BY AHJ AT THIS CONTRACTOR'S EXPENSE.
7. FIRE ALARM SYSTEM MANUFACTURER TO MATCH EXISTING BUILDING FIRE ALARM SYSTEM. COORDINATE IN FIELD.

FIRE ALARM SPECIFICATIONS

1. A COMPLETE EXTENSION OF THE EXISTING FIRE ALARM SYSTEM SHALL BE PROVIDED AS DESCRIBED ON THE DRAWINGS. ALL DEVICES, WIRING, BACKBOXES, PROGRAMMING, START-UP, INSTRUCTION AND TESTING REQUIRED FOR A COMPLETE OPERATING SYSTEM SHALL BE PROVIDED.
2. THE ELECTRICAL CONTRACTOR SHALL FURNISH SHOP DRAWINGS, COMPLETE WITH EQUIPMENT CUTS AND FLOOR PLANS (WITH WIRING INDICATED), AS WELL AS BATTERY CALCULATIONS, AND VOLTAGE DROP CALCULATIONS FOR REVIEW AND APPROVAL BY THE ARCHITECT, ENGINEER, AND ALL AUTHORITIES HAVING JURISDICTION. FLOOR PLAN DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR AND/OR SUPPLIER. NICET 4 CERTIFICATION AND STAMP IS ACCEPTABLE, IF APPROVED BY THE AUTHORITY HAVING JURISDICTION.
3. THE ELECTRICAL CONTRACTOR SHALL FURNISH FIRE ALARM DRAWINGS, CALCULATIONS, AND EQUIPMENT INFORMATION FOR ALL REQUIRED LOCAL MUNICIPALITY, OR STATE PERMITS. THE ELECTRICAL CONTRACTOR SHALL ARRANGE AND COORDINATE ALL REQUIRED TESTING AND INSPECTIONS REQUIRED BY THE LOCAL MUNICIPALITY FIRE DEPARTMENT. THE ELECTRICAL CONTRACTOR SHALL INCLUDE FIRE DEPARTMENT COSTS IN BID.
4. ALL HVAC UNITS OR GROUP OF HVAC UNITS WITH A COMMON PLENUM AND A DESIGN CAPACITY GREATER THAN 2000 CFM SHALL AUTOMATICALLY SHUT DOWN ASSOCIATED HVAC UNIT OR UNITS. WHERE A DUCT SMOKE DETECTOR IS NOT VISIBLE OR ACCESSIBLE FROM THE FLOOR, REMOTE AUDIBLE/VISUAL ALARM INDICATOR/TEST SWITCHES SHALL BE PROVIDED IN AN APPROVED LOCATION, AT A HEIGHT ACCESSIBLE AND VISIBLE FROM THE FLOOR. HVAC DUCT DETECTORS SHALL BE CONNECTED TO A CENTRAL STATION MONITORING SYSTEM UNDER SEPARATE CONTRACT WITH THE OWNER.
5. FIRE ALARM SIGNAL SHALL INITIATE THE FOLLOWING ACTIONS:
   a. CONTINUOUSLY OPERATE ALARM NOTIFICATION APPLIANCES.
   b. IDENTIFY ALARM AND SPECIFIC INITIATION DEVICE AT FIRE CONTROL PANEL.
   c. INTERRUPT TENANT SOUND SYSTEM.
   d. UNLOCK ELECTRIC DOORS IN EGRESS PATHS.
   e. SHUT DOWN AIR HANDLING SYSTEMS.
   f. SWITCH HVAC EQUIPMENT CONTROLS TO FIRE ALARM MODE.
   g. CLOSE SMOKE DAMPERS IN AIR DUCTS OF DESIGNATED AIR-CONDITIONING DUCT SYSTEMS.
6. ALL FIRE ALARM VISIBLE DEVICES SHALL BE ADA COMPLIANT. STROBE INTENSITIES AS DELEGATED DESIGN BY SYSTEM VENDOR. CEILING MOUNTED DEVICES SHALL HAVE A RATING WITH THE LISTED REQUIREMENTS FOR A SPECIFIC CEILING HEIGHT.
7. ALL WALL MOUNTED STROBES, SPEAKER-STROBES, OR HORN STROBES SHALL BE MOUNTED SUCH THAT THE LENS IS NOT LESS THAN 80 INCHES AND NOT MORE THAN 96 INCHES ABOVE THE FINISHED FLOOR.
8. ALL AUDIBLE NOTIFICATION APPLIANCES SHALL BE SET TO ACHIEVE A SOUND PRESSURE AT LEAST 15dB ABOVE THE AVERAGE AMBIENT SOUND LEVEL.
9. ALL CABLES FOR THE FIRE ALARM SYSTEM SHALL BE RATED FOR THE INTENDED USE.
10. FIRE ALARM SYSTEM MONITORING SHALL BE BY OTHERS UNDER SEPARATE CONTRACT WITH THE OWNER.
11. PROVIDE A SEPARATE LINE ITEM COST FOR A (1), (3), (5) YEAR MAINTENANCE, TESTING AND MONITORING AGREEMENT. AGREEMENT TO INCLUDE MONITORING TO A UL LISTED CENTRAL STATION PER NFPA 72 REQUIREMENTS, ALL CODE REQUIRED TESTING OF THE FIRE ALARM SYSTEM PER NFPA 72 AND OBC (MONTHLY VISUAL INSPECTION SHALL BE BY THE OWNER), CLEANING OF DEVICES SHALL BE DONE UPON SYSTEM REQUEST, AND ALL COST ASSOCIATED WITH MAINTENANCE OF THE SYSTEM SHALL BE PROVIDED (DUE TO DEFECTIVE EQUIPMENT ONLY). PROVIDE A YEARLY REPORT TO THE OWNER.
12. FIRE ALARM SYSTEM SHALL MATCH BASE BUILDING SYSTEM MANUFACTURER.

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CERTIFICATION

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STATE OF INDIANA
PROFESSIONAL ENGINEER

PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

ISSUE DATES

PERMIT SET	04.01.21

210095

ELECTRICAL SPECIFICATIONS

E003

COMcheck Software Version 4.1.5.1

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Lee's Summit Animal Hospital North
Project Type: Alteration

Construction Site:
810A NW Commerce Dr
Lee's Summit, MO 64086

Owner/Agent:

Designer/Contractor:
TES Engineering
25760 1st St
Cleveland, OH 44145
4408712410

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-BREAK 125 (Common Space Types:Lounge/Breakroom)	202	0.62	125
2-TLT 126 (Common Space Types:Restrooms)	56	0.85	48
3-HALL 127 (Common Space Types:Corridor/Transition <8 ft wide)	261	0.66	172
4-WATER 129 (Common Space Types:Storage <50 sq.ft.)	10	0.46	5
5-ISO 128 (Common Space Types:Laundry/Washing Area)	105	0.43	45
6-DOCS 122 (Common Space Types:Copy/Print Room)	117	0.56	66
7-DENTAL 124 (Healthcare Facility:Operating Room)	175	2.17	380
8-SURGERY 121 (Healthcare Facility:Operating Room)	225	2.17	488
9-XRAY/ULTRASOUND 119 (Healthcare Facility:Imaging)	116	1.06	123
10-TREATMENT (Healthcare Facility:Recovery)	275	1.03	283
11-FOOD PREP 116 (Common Space Types:Corridor/Transition <8 ft wide)	306	0.66	202
12-LAB/RX (Healthcare Facility:Imaging)	127	1.06	135
13-HALL 102 (Common Space Types:Corridor/Transition <8 ft wide)	119	0.66	79
14-HALL 111 (Common Space Types:Corridor/Transition <8 ft wide)	130	0.66	86
15-DOGS 118 (Common Space Types:Storage)	171	0.63	108
16-LAUNDRY/STORAGE 117 (Common Space Types:Laundry/Washing Area)	108	0.43	46
18-EXAM #2/COMFORT 104 (Healthcare Facility:Exam/Treatment)	118	1.68	198
17-EXAM #1 103 (Healthcare Facility:Exam/Treatment)	99	1.68	166
19-EXAM #3 105 (Healthcare Facility:Exam/Treatment)	89	1.68	150
20-EXAM #4 110 (Healthcare Facility:Exam/Treatment)	91	1.68	153
21-EXAM #5 112 (Healthcare Facility:Exam/Treatment)	91	1.68	153
22-EXAM #6 113 (Healthcare Facility:Exam/Treatment)	90	1.68	151
23-EXAM #7 114 (Healthcare Facility:Exam/Treatment)	90	1.68	151
24-IT 108 (Common Space Types:Electrical/Mechanical)	21	0.43	9
25-JAN 107 (Common Space Types:Storage)	9	0.63	6
26-HOSP MGR (Common Space Types:Office - Enclosed)	61	0.93	57
27-TLT 109 (Common Space Types:Restrooms)	61	0.85	52
28-WAITING 109 (Common Space Types:Lobby - General)	643	1.00	643
29-126A TANK (Common Space Types:Electrical/Mechanical)	20	0.43	9
		Total Allowed Watts =	4287

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
BREAK 125 (Common Space Types:Lounge/Breakroom 202 sq.ft.)				
LED 1: H: Other:	1	4	30	120
TLT 126 (Common Space Types:Restrooms 56 sq.ft.)				
LED 1 copy 1: H: Other:	1	1	30	30
LED 3: K: Other:	1	1	25	25
HALL 127 (Common Space Types:Corridor/Transition <8 ft wide 261 sq.ft.)				
LED 4 copy 1: A: Other:	1	5	29	145
LED 33: B: Other:	1	1	24	24
WATER 129 (Common Space Types:Storage <50 sq.ft. 10 sq.ft.)				
LED 6: G: Other:	1	1	20	20
ISO 128 (Common Space Types:Laundry/Washing Area 105 sq.ft.)				
LED 4 copy 2: A: Other:	1	2	29	58
LED 32: M: Other:	1	1	44	44
DOCS 122 (Common Space Types:Copy/Print Room 117 sq.ft.)				
LED 4 copy 3: H: Other:	1	3	30	90
DENTAL 124 (Healthcare Facility:Operating Room 175 sq.ft.)				
LED 9: D: Other:	1	2	83	166
LED 39 copy 1: MED LIGHT: Other: Exemption:Medical/dental task lighting	1	2	100	Exempt
SURGERY 121 (Healthcare Facility:Operating Room 225 sq.ft.)				
LED 9 copy 1: D: Other:	1	4	83	332
LED 39: MED LIGHT: Other: Exemption:Medical/dental task lighting	1	4	100	Exempt
XRAY/ULTRASOUND 119 (Healthcare Facility:Imaging 116 sq.ft.)				
LED 4 copy 1: D: Other:	1	2	83	166
TREATMENT (Healthcare Facility:Recovery 275 sq.ft.)				
LED 4 copy 4: A: Other:	1	2	29	58
LED 9 copy 2: D: Other:	1	2	83	166
LED 39 copy 2: MED LIGHT: Other: Exemption:Medical/dental task lighting	1	2	100	Exempt
FOOD PREP 116 (Common Space Types:Corridor/Transition <8 ft wide 306 sq.ft.)				
LED 4 copy 5: A: Other:	1	5	29	145
LED 33 copy 1: B: Other:	1	1	24	24
LED 9 copy 3: D: Other:	1	1	83	83
LAB/RX (Healthcare Facility:Imaging 127 sq.ft.)				
LED 4 copy 6: A: Other:	1	2	29	58
LED 33 copy 2: B: Other:	1	1	24	24
HALL 102 (Common Space Types:Corridor/Transition <8 ft wide 119 sq.ft.)				
LED 4 copy 8: A: Other:	1	3	29	87
HALL 111 (Common Space Types:Corridor/Transition <8 ft wide 130 sq.ft.)				
LED 4 copy 7: A: Other:	1	3	29	87
DOGS 118 (Common Space Types:Storage 171 sq.ft.)				
LED 4 copy 8: L: Other:	1	2	47	94
LED 32 copy 1: M: Other:	1	4	44	176
LAUNDRY/STORAGE 117 (Common Space Types:Laundry/Washing Area 108 sq.ft.)				
LED 4 copy 9: H: Other:	1	3	30	90
EXAM #2/COMFORT 104 (Healthcare Facility:Exam/Treatment 118 sq.ft.)				
LED 4 copy 2: D: Other:	1	2	83	166
EXAM #1 103 (Healthcare Facility:Exam/Treatment 99 sq.ft.)				
LED 4 copy 3: D: Other:	1	2	83	166
EXAM #3 105 (Healthcare Facility:Exam/Treatment 89 sq.ft.)				

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
LED 4 copy 4: D: Other:	1	2	83	166
EXAM #4 110 (Healthcare Facility:Exam/Treatment 91 sq.ft.)				
LED 4 copy 5: D: Other:	1	2	83	166
EXAM #5 112 (Healthcare Facility:Exam/Treatment 91 sq.ft.)				
LED 4 copy 6: D: Other:	1	2	83	166
EXAM #6 113 (Healthcare Facility:Exam/Treatment 90 sq.ft.)				
LED 4 copy 7: D: Other:	1	2	83	166
EXAM #7 114 (Healthcare Facility:Exam/Treatment 90 sq.ft.)				
LED 4 copy 8: D: Other:	1	2	83	166
IT 108 (Common Space Types:Electrical/Mechanical 21 sq.ft.)				
LED 1 copy 2: F: Other:	1	1	27	27
JAN 107 (Common Space Types:Storage 9 sq.ft.)				
LED 6 copy 1: G: Other:	1	1	20	20
HOSP MGR (Common Space Types:Office - Enclosed 61 sq.ft.)				
LED 4 copy 9: H: Other:	1	2	30	60
TLT 109 (Common Space Types:Restrooms 61 sq.ft.)				
LED 1 copy 3: H: Other:	1	1	30	30
LED 3 copy 1: K: Other:	1	1	25	25
WAITING 109 (Common Space Types:Lobby - General 643 sq.ft.)				
LED 4 copy 10: A: Other:	1	6	29	174
LED 4 copy 11: C: Other:	1	2	39	78
126A TANK (Common Space Types:Electrical/Mechanical 20 sq.ft.)				
LED 32 copy 1: M: Other:	1	1	44	44
		Total Proposed Watts =		3932

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in *COMcheck* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

RACHEL SPAUDIE-ELECTRICAL ENGINEER	*Rachel Spaudie*	03/16/2012
Name - Title	Signature	Date

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PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

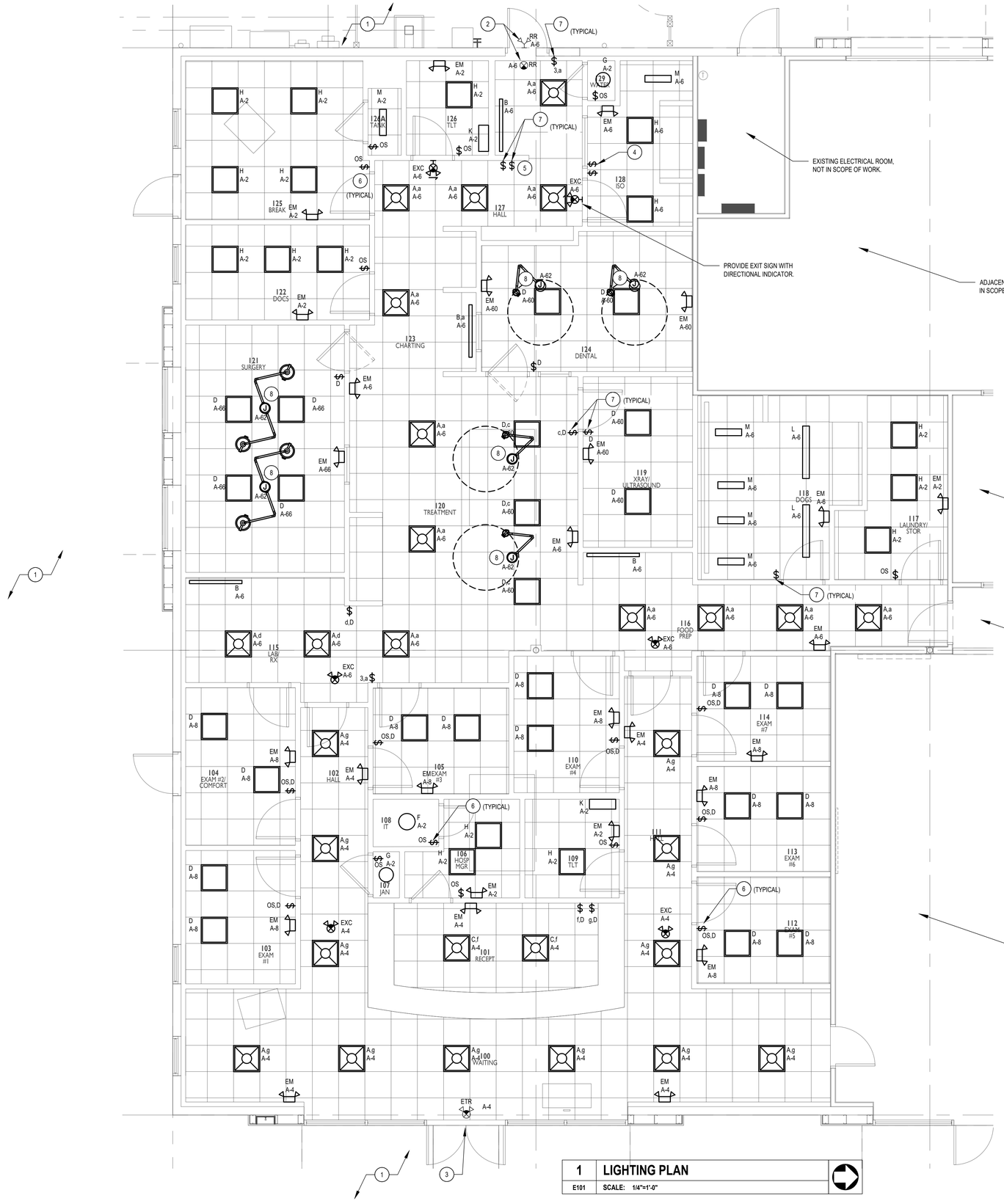
ISSUE DATES

PERMIT SET	04.01.21

210095

ELECTRICAL ENERGY CALCULATIONS

E004



1 LIGHTING PLAN
E101 SCALE: 1/4"=1'-0"

GENERAL LIGHTING NOTES

A. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING INCREASED WIRE SIZES DUE TO FIELD CONDITIONS RESULTING IN EXTENDING CONDUIT PATHS. GROUND WIRE SIZES ARE REQUIRED TO BE ADJUSTED PER ARTICLE 250 OF THE NEC WHEN WIRES ARE INCREASED FOR VOLTAGE DROP.

B. ELECTRICAL CONTRACTOR TO REFER TO ARCHITECTURAL DRAWINGS FOR ALL LIGHT FIXTURE LOCATIONS.

C. ALL BRANCH CIRCUIT WIRING SHALL BE #12 AWG UNLESS OTHERWISE NOTED. EACH BRANCH CIRCUIT SHALL HAVE A SEPARATE NEUTRAL CONDUCTOR.

EXIT/EMERGENCY LIGHTING NOTES

A. IN ADDITION TO THE EXIT IDENTIFICATION LIGHTS, SPACE MUST BE EQUIPPED WITH EMERGENCY ILLUMINATION. ALL EMERGENCY LIGHTS MUST BE UL APPROVED AND HAVE A CONVENIENCE TEST FEATURE. DURATION AND LIGHT LEVELS TO BE SPECIFIED BY FIRE AND BUILDING CODES.

B. WIRE ALL NIGHT LIGHTING, EXIT SIGNS, EMERGENCY FIXTURES AHEAD OF LOCAL SWITCHING, UNLESS OTHERWISE NOTED.

SHEET KEYNOTES

1 EXISTING EXTERIOR LIGHTS PROVIDED UNDER SHELL PACKAGE. LIGHTS POWERED AND CONTROLLED BY LANDLORD.

2 EXISTING EMERGENCY EXTERIOR LIGHT FIXTURE AND INTERIOR EXIT SIGN PROVIDED UNDER SHELL PACKAGE TO BE RELOCATED TO NEW EXTERIOR DOOR LOCATION. VERIFY LOCATION WITH ARCHITECT. RE-CIRCUIT AS SHOWN TO NEW TENANT PANELBOARD.

3 EXISTING EMERGENCY EXTERIOR LIGHT FIXTURE PROVIDED UNDER SHELL PACKAGE TO REMAIN. EXISTING IOTA 125W INVERTER TO SUPPLY REMOTE POWER FOR EXTERIOR EGRESS FIXTURE TO REMAIN. MAINTAIN LIGHT FIXTURE, EQUIPMENT, AND ALL ASSOCIATED CONDUIT AND WIRING FOR EMERGENCY EGRESS LIGHT.

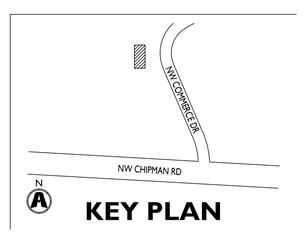
4 E.C. TO PROVIDE SWITCH FOR CONTROL OF EF-1. E.C. TO LABEL SWITCH ACCORDINGLY.

5 LOCATION OF (2) OVERRIDE SWITCHES. COORDINATE FINAL LOCATION WITH OWNER PRIOR TO ROUGH-IN.

6 OCCUPANCY SWITCHES ARE TO BE A STAND ALONE SYSTEM FROM THE RELAY PANEL LIGHTING CONTROLS.

7 E.C. TO COORDINATE WITH LIGHTING RELAY CONTROL PANEL MANUFACTURER AND PROVIDE APPLICABLE SWITCHES FOR CONTROL AS REQUIRED FOR A COMPLETE SYSTEM.

8 E.C. TO PROVIDE CONNECTION FOR MEDICAL ILLUMINATION LIGHTS, COORDINATE WITH MANUFACTURER FOR INSTALLATION REQUIREMENTS. VERIFY FINAL LOCATION OF JUNCTION BOX WITH OWNER AND MANUFACTURER PRIOR TO ROUGH-IN.



KEY PLAN

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CERTIFICATION

EDWARD JOSEPH RADISZEWSKI REGISTERED No. PE11900159 STATE OF INDIANA PROFESSIONAL ENGINEER

PROJECT INFORMATION

LEE'S SUMMIT ANIMAL HOSPITAL NORTH

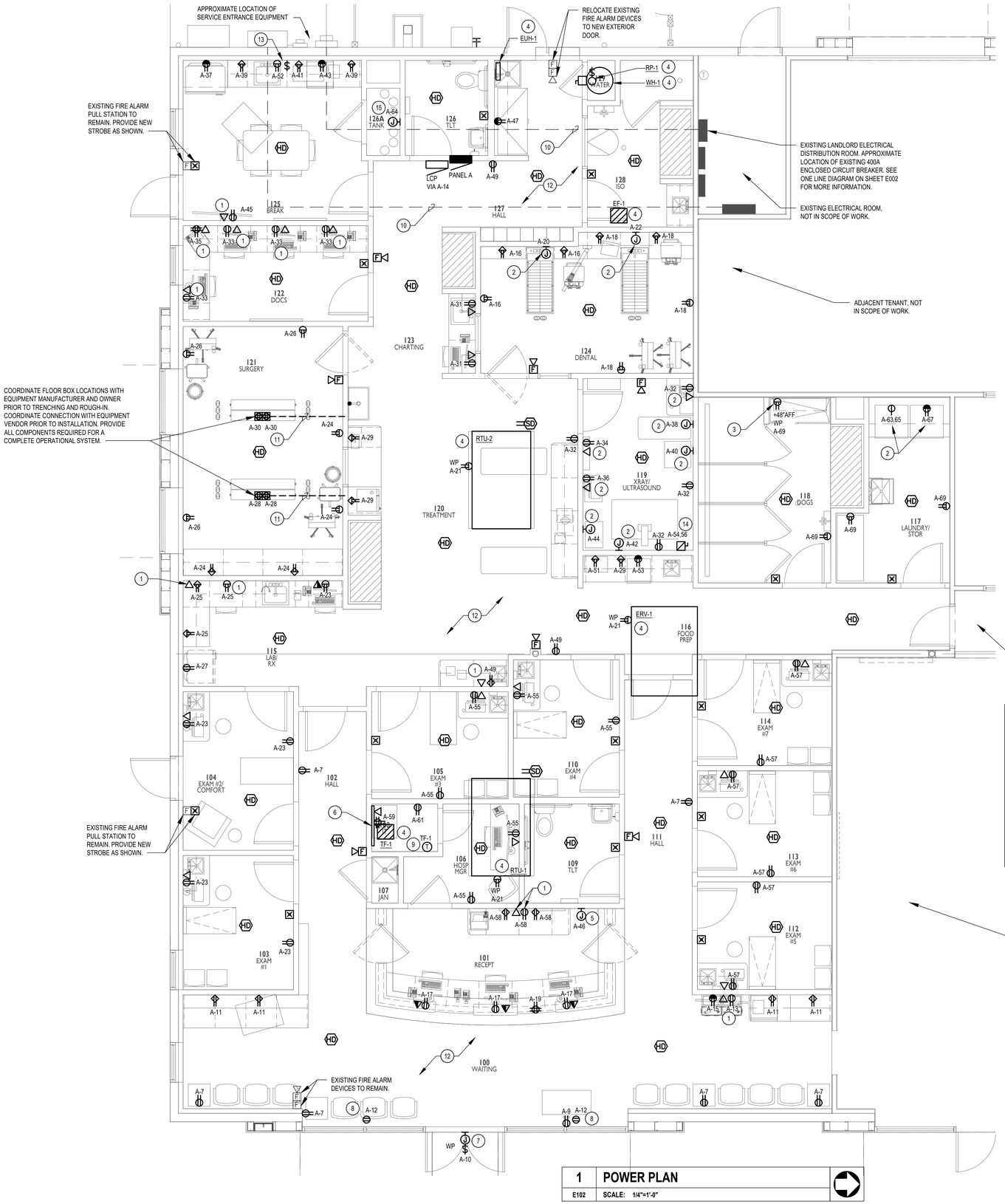
250 NW McNARY COURT
LEE'S SUMMIT, MO
64086

ISSUE DATES

PERMIT SET	04.01.21

210095
LIGHTING PLAN

E101



GENERAL SHEET NOTES

1. ALL BRANCH CIRCUIT WIRING SHALL BE #12 AWG UNLESS OTHERWISE NOTED. EACH BRANCH CIRCUIT SHALL HAVE A SEPARATE NEUTRAL CONDUCTOR.
2. REFER TO EQUIPMENT CONNECTION SCHEDULE ON THIS SHEET FOR CIRCUITING AND ADDITIONAL INFORMATION.
3. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING INCREASED WIRE SIZES DUE TO FIELD CONDITIONS RESULTING IN EXTENDING CONDUIT PATHS. GROUND WIRE SIZES ARE REQUIRED TO BE ADJUSTED PER ARTICLE 250 OF THE NEC WHEN WIRES ARE INCREASED FOR VOLTAGE DROP.

SHEET KEYNOTES

1 COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS.

2 E.C. TO VERIFY POWER REQUIREMENTS WITH MANUFACTURER. COORDINATE INSTALLATION WITH MANUFACTURER.

3 VERIFY FINAL LOCATION AND MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.

4 SEE MECHANICAL/PLUMBING EQUIPMENT CONNECTION SCHEDULE THIS SHEET FOR MORE INFORMATION.

5 E.C. TO PROVIDE POWER FOR MEDICAL GAS CONTROL PANEL AT 120V. VERIFY CONNECTIONS, MOUNTING HEIGHT, LOCATION, AND REQUIREMENTS WITH MANUFACTURER PRIOR TO INSTALLATION.

6 PROVIDE 3'X4'X3/4" FIRE RATED PLYWOOD BACKBOARD. E.C. TO PROVIDE 2"C WITH PULL STRING FROM LANDLORD ELECTRICAL ROOM/MAIN BUILDING TELEPHONE BOARD. PROVIDE #6 GND AT FIRE RATED PLYWOOD TELEPHONE BACKBOARD.

7 E.C. TO PROVIDE JUNCTION BOX AND LOCAL WP DISCONECT SWITCH FOR EXTERIOR SIGNAGE. VERIFY FINAL MOUNTING HEIGHT AND LOCATION PRIOR TO ROUGH-IN.

8 E.C. TO PROVIDE SHOW WINDOW RECEPTACLE LOCATED PER NEC 210.62.

9 LINE VOLTAGE THERMOSTAT PROVIDED BY THE MC, E.C. TO PROVIDE CONDUIT AND WIRING FROM EF-1 TO THERMOSTAT.

10 APPROXIMATE ROUTING OF EXISTING CONDUIT RUN UNDER SLAB FROM EXTERIOR ELECTRICAL EQUIPMENT TO EXISTING LANDLORD ELECTRICAL ROOM.

11 ROUTE 1" C AND WIRING TO NEAREST WALL. VERIFY ROUTING IN FIELD.

12 EXISTING BUILDING FIRE ALARM SYSTEM TO REMAIN. PROVIDE NEW NOTIFICATION DEVICES FOR COVERAGE. COORDINATE EXISTING SYSTEM REQUIREMENTS IN FIELD. NEW DEVICES SHALL BE COMPATIBLE WITH EXISTING EQUIPMENT.

13 E.C. TO PROVIDE A RECEPTACLE UNDER SINK FOR FOOD WASTE DISPOSAL. FOOD WASTE DISPOSAL 120V, 1/2HP. PROVIDE A SWITCH ABOVE COUNTER FOR CONTROL OF RECEPTACLE AND DISPOSAL COORDINATE FINAL LOCATION WITH OWNER PRIOR TO ROUGH-IN.

14 E.C. TO PROVIDE 200A, 2P, FUSED DISCONNECT SWITCH WITH 150AF FOR X-RAY MACHINE. COORDINATE FINAL LOCATION AND POWER REQUIREMENTS WITH MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE 2#1/0,1#6 GND IN 2"C

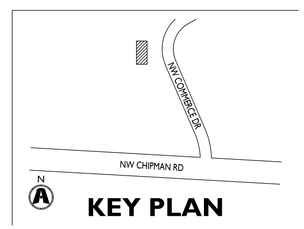
15 E.C. TO PROVIDE POWER FOR OXYGEN MANIFOLD CONTROLLER AT 120V. VERIFY CONNECTIONS, MOUNTING HEIGHT, LOCATION, AND REQUIREMENTS WITH MANUFACTURER PRIOR TO INSTALLATION.

MECHANICAL/PLUMBING EQUIPMENT CONNECTION SCHEDULE

NAME	VOLTAGE	PHASE	MCA	MOCP	CONDUIT/WIRE	PANEL	CIRCUIT #	NOTES
ERV-1	208	3	17.4	20	(3)#12,(1)#12GND-3/4"C	A	74,76,78	2
EF-1	120	1	0.4	20	(2)#12,(1)#12GND-3/4"C	A	6	3,5
EUH-1	120	1	12.5	20	(2)#12,(1)#12GND-3/4"C	A	1	3
RP-1	120	1	2.3	20	(2)#12,(1)#12GND-3/4"C	A	3	4
RTU-1	208	3	39	50	(3)#6,(1)#10GND-1"C	A	79,81,83	1
RTU-2	208	3	45	50	(3)#6,(1)#10GND-1"C	A	80,82,84	1
TF-1	120	1	1	20	(2)#12,(1)#12GND-3/4"C	A	50	3
WH-1	120	1	5	20	(2)#12,(1)#12GND-3/4"C	A	5	4

NOTES:
1. EQUIPMENT PROVIDED WITH UNIT MOUNTED CIRCUIT BREAKER DISCONNECT & UNPOWERED CONVENIENCE OUTLET.
2. EQUIPMENT PROVIDED WITH NON-FUSED DISCONNECT SWITCH.
3. EQUIPMENT PROVIDED WITH ELECTRICAL DISCONNECT.
4. E.C. TO PROVIDE A CODE SIZED DISCONNECT SWITCH.
5. FAN TO BE CONTROLLED WITH WALL SWITCH.

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



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