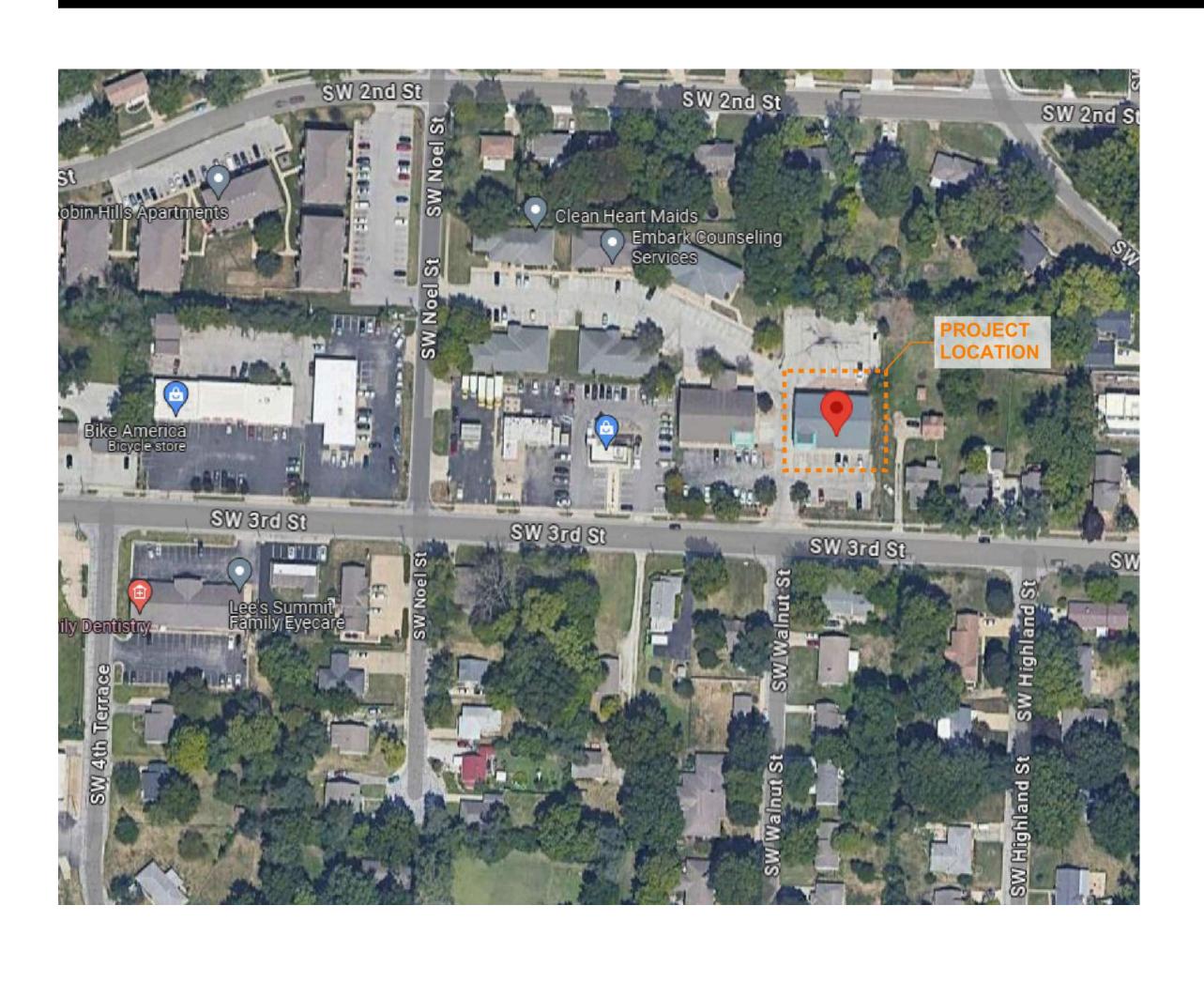
# SereniTea Boutique

500 SW 3RD ST. UNIT A LEE'S SUMMIT, MO 64063

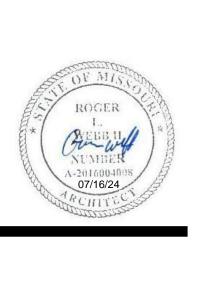
## PERMIT DOCUMENTS

16 JULY 2024

COLLINS WEBB #: 24036



#### GENERAL SHEET NAME **ARCHITECTURAL** A101 PLANS, SECTIONS, AND ELEVATIONS SHEET NUMBER MECHANICAL NOTES, SYMBOLS & ABBREVIATIONS MECHANICAL PLAN MECHANICAL SPECIFICATIONS ELECTRICAL NOTES, SYMBOLS & ABBREVIATIONS ELECTRICAL POWER PLAN ELECTRICAL LIGHTING PLAN ELECTRICAL RISER DIAGRAM & SCHEDULES ELECTRICAL SPECIFICATIONS ELECTRICAL SPECIFICATIONS PLUMBING NOTES, SYMBOLS & ABBREVIATIONS PLUMBING DETAILS AND SCHEDULES PLUMBING WASTE AND VENT PLAN PLUMBING WATER PLAN PLUMBING SPECIFICATIONS





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SERENITEA BOUTIQUE 500 SW 3RD ST. SUITE B LEE'S SUMMIT, MO 64063 P: 816.786.9506 sereniteaboutiquellc@gmail.com

#### OWNER

THE PAPERBACK BAKERY 500 SW 3RD ST. SUITE B LEE'S SUMMIT, MO 64063 P: 816.786.9506 thepaperbackbakery@gmail.com

#### CONTRACTOR

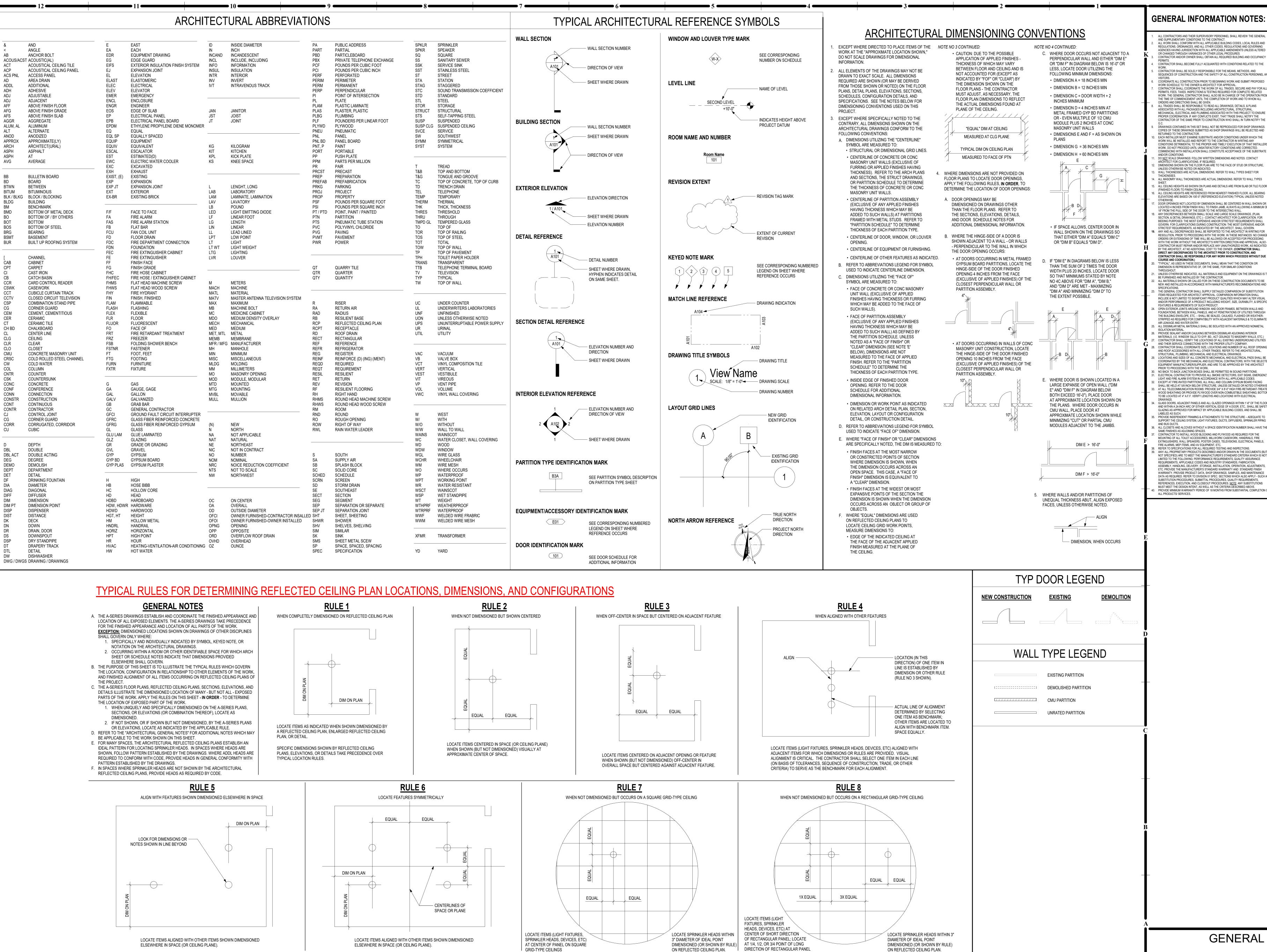
MORGAN JACOBS GENERAL CONTRACTING LLC 11420 E PUTNAM ST. SUGAR CREEK, MO 64054-1120 P: 816.200.3118

#### ARCHITECT

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

#### MEP ENGINEER

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



**GENERAL INFORMATION NOTES:** 

ALL CONTRACTORS AND THEIR SUPERVISORY PERSONNEL SHALL REVIEW THE GENERAL AND SUPPLEMENTARY CONDITIONS TO THE CONTRACT.

ALL WORK SHALL CONFORM WITH ALL APPLICABLE BUILDING CODES, LOCAL RULES AND REGULATIONS, ORDINANCES, AND ALL OTHER CODES, REGULATIONS AND GOVERNING AGENCIES HAVING JURISDICTION WITH ALL APPLICABLE AMENDMENTS UNLESS ALTERED CONTRACTOR AND/OR OWNER SHALL OBTAIN ALL REQUIRED BUILDING AND OCCUPANCY CONTRACTOR SHALL BECOME FULLY ACQUAINTED WITH CONDITIONS RELATED TO THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, AND SEQUENCES OF CONSTRUCTION AND THE SAFETY OF ALL CONSTRUCTION PERSONNEL AN COORDINATE ALL CONSTRUCTION PRIOR TO BEGINNING WORK AND SUBMIT PROPOSED WORK SCHEDULE TO THE OWNER & ARCHITECT FOR APPROVAL.
CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES, SECURE AND PAY FOR ALL

PERMITS, FEES, TAXES, INSPECTIONS & TESTING REQUIRED FOR COMPLETE RELATED WORK. THE GENERAL CONTRACTOR SHALL ALSO BE IN CHARGE OF THE OPERATION FRO THE TIME OF COMMENCEMENT UNTIL THE COMPLETION OF WORK AND TO WHOM ALL ALL TRADES SHALL BE RESPONSIBLE TO READ ALL DRAWINGS, DETAILS, & PLANS ASSOCIATED WITH ALL PACKAGES INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND PLUMBING ASSOCIATED WITH THIS PROJECT TO ENSURE

CONTRACTOR OF THE SAME PRIOR TO CONSTRUCTION WHO SHALL IN TURN NOTIFY THE DRAWINGS CONTAINED IN THIS SET SHALL NOT BE REPRODUCED FOR SHOP DRAWINGS. COPIES OF THESE DRAWINGS SUBMITTED AS SHOP DRAWINGS WILL BE REJECTED AND RETURNED TO THE CONTRACTOR. EACH INSTALLER MUST EXAMINE SUBSTRATE AND/OR CONDITIONS UNDER WHICH THE WORK WILL BE INSTALLED AND REPORT TO THE CONTRACTOR IN WRITING ANY

PROVIDE SEALANT AND/OR CAULKING BETWEEN DISSIMILAR ADJOINING INTERIOR MATERIALS. (I.E. WINDOW SILLS TO GYP. BD., ACT CEILINGS TO MASONRY WALLS, ETC CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITI AND THEIR SERVICE CONNECTIONS WITH THE PROPER UTILITY COMPANY CONTRACTOR SHALL COORDINATE SIZE, LOCATIONS AND NUMBER OF ALL ROOF OPENIN STRUCTURAL, PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS. LOCATIONS AND SIZES OF ALL CONCRETE MECHANICAL AND ELECTRICAL PADS SHALL B COORDINATED BY THE MECHANICAL AND ELECTRICAL CONTRACTORS. WITH THE SELECT EQUIPMENT MANUFACTURER/SUPPLIER; AND ARE TO BE APPROVED BY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK. NO BACK TO BACK JUNCTION BOXES SHALL BE PERMITTED IN SOUND PARTITIONS.
ELECTRICAL CONTRACTOR TO PROVIDE ALL SMOKE DETECTORS, EXIT SIGNS, EMERGENC' IGHT AND FIRE ALARM SYSTEM IN ACCORDANCE WITH ALL APPLICABLE CODES. EXCEPT AT FIRE-RATED PARTITIONS. ALL WALL AND COLUMN GYPSUM BOARD FACING SHALL BE HELD AT 5/8 INCH BELOW STRUCTURE, UNLESS DETAILED OR NOTED OTHERW

AT ALL TELECOMMUNICATION ROOMS: PROVIDE 3/4" X8-0" HIGH FIRE-RETARDANT-TRE/ WOOD SHEATHING OR PROVIDE PLYWOOD OVER NON-COMBUSTIBLE SHEATHING; BOT TO BE LOCATED AT 4" A.F.F. VERIFY LENGTHS AND LOCATIONS WITH ELECTRICAL GLASS DOORS, ADJACENT PANELS AND ALL GLAZED OPENINGS WITHIN 1'-6" OF THE FLOOR AND WITHIN A 24-INCH ARC OF FITHER VERTICAL EDGE OF A DOOR FTC. SHALL BE S. GLAZING AS APPROVED FOR IMPACT BY APPLICABLE BUILDING CODES, AND SHALL BE PROVIDE INDEPENDENT FRAMING & ATTACHMENTS TO THE STRUCTURE - ADEQUATE TO SUPPORT THE CEILING SYSTEM, LIGHT FIXTURES, DUCTS, DIFFUSERS, SPRINKLER PIPING ALL CLOSETS AND ALCOVES WITHOUT A SPACE IDENTIFICATION NUMBER SHALL HAVE TI SAME FINISHES AS ADJOINING SPACES. CONTRACTOR TO INSTALL WOOD BLOCKING AND PLYWOOD AS REQUIRED FOR THE MOUNTING OF ALL TOILET ACCESSORIES, MILLWORK/ CASEWORK, HANDRAILS, FIRE EXTINGUISHERS, WALL SPEAKERS, POSTER CASES, TELEVISIONS, ELECTRICAL PANELS FIRE ALARMS MEP ITEMS AND AVEQUIPMENT ETC. REFER TO SPECIFICATIONS FOR ALL REQUIRED TESTING AND INSPECTIONS.

ANY/ ALL PROPRIETARY PRODUCTS DESCRIBED AND/OR DRAWN IN THE DOCUMENTS (BU NOT SPECIFIED) ARE TO MEET THE MANUFACTURER'S STANDARD CRITERIA WHICH IS LIMITED TO THE FOLLOWING: PERFORMANCE REQUIREMENTS, QUALITY ASSURANCE REQUIREMENTS, APPLICABLE CODES AND INDUSTRY STANDARDS, FABRICATION,
ASSEMBLY, HANDLING, DELIVERY, STORAGE, INSTALLATION, OPERATION, ADJUSTMENT ETC. PROVIDE THE MANUFACTURER'S STANDARD WARRANTY AND STANDARD FINISH WARRANTY. PROVIDE PRODUCT DATA, SHOP DRAWINGS, SAMPLES, AND MAINTENANC DATA AS REQUIRED. REFER TO DIVISION 01 SPEC. SECTIONS WHICH ALSO APPLY - SI SUBSTITUTION PROCEDURES, SUBMITTAL PROCEDURES, QUALITY REQUIREMENTS REFERENCES, EXECUTION, AND CLOSEOUT PROCEDURES. NOTE: ANY SUBSTITUTIONS MUST MEET THE DESIGN INTENT, AS WELL AS THE CRITERIA DESCRIBED ABOVE. PROVIDE MINIMUM WARRANTY PERIOD OF 18 MONTHS FROM SUBSTANTIAL COMPLETION

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07/16/24 PROFESSIONAL SEAL

COLLINS WEBB #:

GENERAL INFORMATION

14. TOILET ROOM PARTITIONS: TOILETS = 12" TO BOT. & 70" TO TOP. URINALS = 18" TO BOT. & 60" TO TOP 15. TOILET PAPER DISPENSERS (TO C.L. OF OUTLET): STANDARD 24". ADA = 19" MIN. TO 24" MAX.

LINE OF STUD RETURN

- #14 x 2 1/2" STAINLESS

MANUFACTURER.

STEEL MOUNTING SCREWS

OR AS RECOMMENDED BY

NOTE: SAW KERF WOOD

- DO NOT CRUSH FLANGE.

METAL STUD RETURN

PULL SIDE

\*WHEN DOOR PROVIDED

WITH BOTH CLOSER AND LATCH

1' - 6"

MIN.

BLOCKING TO ACCOMMODATE

5/8" CEMENTITIOUS

2X10 F.R. PRESSURE-TREATED -

WOOD BLOCKING - FULL

WIDTH OF STUD CAVITIES.

2X6 F.R. PRESSURE-TREATED —

- CENTERLINE OF BRACKET

& STANDARD BRACKET

PULL SIDE

**ROLL-IN SHOWER** 

STALL GRAB BAR

SURFACE

MOUNTED

ACCESSORIES AT

ACCESSIBLE TOILET

NOTE: SANITARY NAPKIN DISPOSAL AT WOMEN'S & UNISEX ONLY

SHOWER STALL

GRAB BAR

SURFACE

MOUNTED

3' - 0"

MIN.

FIRE EXTINGUISHER

WOOD BLOCKING - FULL

WIDTH OF STUD CAVITIES.

2' - 0"

MIN.

2' - 0"

TYPICAL ADA SINK ENCLOSURE

PANEL CLEARANCE

TYPICAL TOILET PAPER

DISPENSER PER ICC A117.1

SURFACE MOUNTED

**BELOW GRAB BAR** 

PULL SIDE

BACKER UNIT

16. WALL MOUNTED SOAP DISPENSERS (TO C. L. OF PUSH BUTTON): STANDARD = 40". ADA = VARIES. RE: OBSTRUCTED AND UNOBSTRUCTED REACH RANGES. ADA SIDE REACH = 46" MAX. ABOVE SINK IN COUNTER. . PAPER TOWEL DISPENSER/ WASTE RECEPTACLE (TO TOWE SLOT): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX

& 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN. 18. WARM AIR HAND DRYER (TO PUSH SWITCH): STANDARD = 44" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN. 19. SANITARY NAPKIN DISPENSER (TO C.L. OF COIN SLOT): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15"

MIN. ADA SIDE REACH = 48" MAX. & 15" MIN. 20. SANITARY NAPKIN DISPOSAL (TO TOP OF UNIT): STANDARD = 28" MAX. ADA = 19" MIN. TO 24" MAX. (TO OPNG.) 21. TOILET SEAT COVER DISPENSERS (TO OPNG.): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN. 22. SHELVES: ADA = 48" MAX. 23. COAT HOOKS: STANDARD = 68". ADA = 48" MAX.

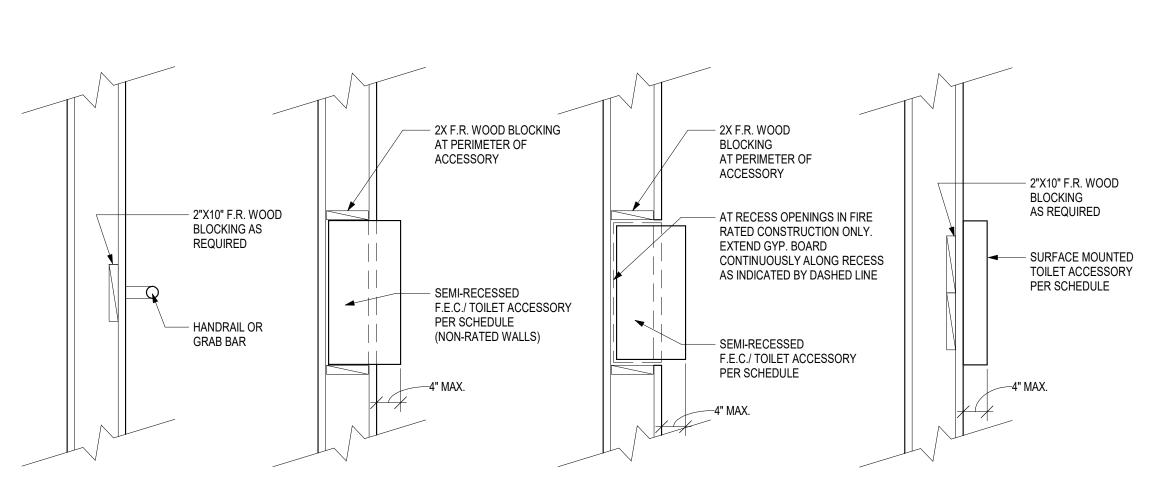
= 32" TO 39" (TO B.O. BOARD OR CHALKTRAY). STANDARD = 80" (RECOMMENDED, TO T.O. BOARD) 25. THERMOSTATS & CONTROL DEVICES (TO TOP): ADA FORWARI REACH = 48" MAX. ADA SIDE REACH = 48" MAX. 26. LIGHT SWITCHES & CARD READERS (TO C.L.): LOCATE 6" FROM DOOR JAMB. ADA = 48" MAX. 27. CONVENIENCE RECEPTACLES – ELECTRICAL/ TELEPHONE/

24. CHALKBOARDS, TACKBOARDS, & MARKERBOARDS: STANDARD

DATA (TO C.L.): STANDARD = 18". ADA = 15" MIN. 28. EXIT LIGHTS - WALL MOUNTED: 2" MIN. BELOW CEILING. 2" MIN ABOVE DOOR FRAME. EQUAL SPACE FROM CEILING TO TOP - 29. FIRE EXTINGUISHERS (TO TOP, U.N.O.): GROSS WT. 40 LBS. OF LESS = 60" MAX. GROSS WT. MORE THAN 40 LBS. = 42" MAX. ADA = 40" MAX. (B.O. CABINET)

ADA FORWARD REACH = 48" MAX. ADA SIDE REACH = 48" MAX 1. SMOKE AND/OR HEAT DETECTORS: STANDARD = CEILING HORN/ SPEAKER/ VISUAL SIGNALS: STANDARD = 80" AFF. OR BELOW CEILING - WHICHEVER IS LOWER.

33. ROOM SIGNAGE (TO C.L.): STANDARD = 60" HIGH AFF. & WITHIN 18" OF LATCH SIDE OF DOOR.







ADA TOILET

GRAB BAR

SURFACE

MOUNTED

ACCESSORY

TYPE

COMMENTS

FIRE EXTINGUISHER

CENTERLINE OF CABINET

HANDLE OR CENTERLINE OF

F.E. HANDEL IF HUNG INSIDE

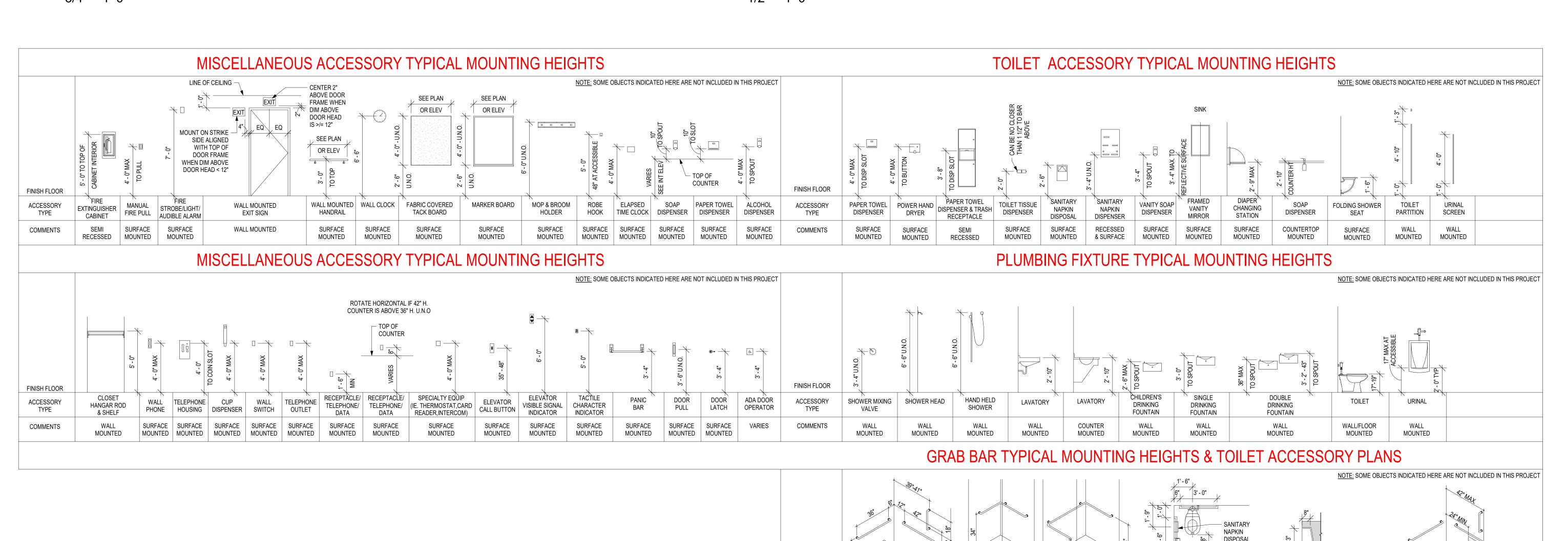
PULL SIDE

1' - 10"

\*WHEN DOOR PROVIDED WITH BOTH CLOSER AND LATCH

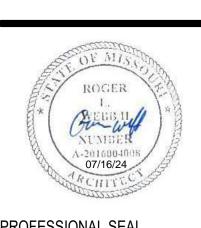
3' - 6"

1' - 10"



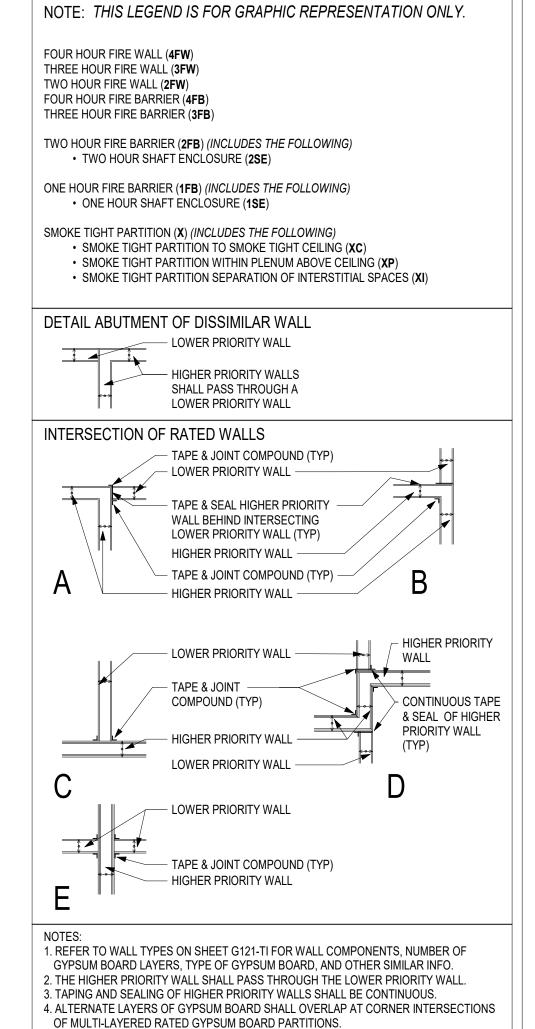
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PROFESSIONAL SEAL

ACCESSIBILITY GUIDELINES



WALL PRIORITY LEGEND

## FIRE & SMOKE RESISTIVE LEGEND DEFINITIONS

#### FIRE WALLS (FW)

TO SEPARATE CONSTRUCTION INTO SEPARATE BUILDINGS.

FIRE WALLS SERVE TO CREATE SEPARATE BUILDINGS FOR THE FOLLOWING

· CONSTRUCTION TYPE VARIES FROM ONE BUILDING TO ANOTHER. • COMPLIANCE WITH MAXIMUM ALLOWABLE AREA REQUIREMENTS.

• TO SEPARATE BUILDINGS WITH DIFFERENT LEVELS OF FIRE PROTECTION. TO ADDRESS A PROPERTY LINE DEFINING DIFFERENT OWNERSHIP. SPECIAL CONSIDERATIONS

• THE FIRE WALL REQUIRES SUFFICIENT STRUCTURAL STABILITY UNDER FIRE CONDITIONS TO ALLOW THE COLLAPSE OF CONSTRUCTION ON EITHER SIDE WITHOUT COLLAPSE OF THE WALL

· OPENINGS ARE REQUIRED TO BE PROTECTED. OPENINGS ARE LIMITED BASED ON A PERCENTAGE OF WALL LENGTH. • EXTENDING THE FIRE WALL THROUGH THE ROOF WITH A PARAPET IS REQUIRED FOR SOME CONSTRUCTION CLASSIFICATIONS. • THE REQUIRED FIRE RATING OF A FIRE WALL IS BASED ON OCCUPANCY GROUPS AND CLASS OF CONSTRUCTION.

#### • HARDWARE FOR SWING DOORS SHALL INCLUDE A LATCH AND CLOSER. FIRE BARRIERS (FB)

• TO SEPARATE INCIDENTAL USE AREAS.

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

FIRE BARRIERS HAVE THE FOLLOWING APPLICATIONS. TO CREATE HORIZONTAL EXITS. • TO SEPARATE EXIT PASSAGEWAYS. OCCUPANCY SEPARATIONS.

HOURLY FIRE RATING AS THE FIRE BARRIER, OR BETTER.

OPENINGS ARE REQUIRED TO BE PROTECTED.

 ISOLATION OF HAZARDS. • TO SEPARATE ROOMS WITH DIFFERENT LEVELS OF FIRE PROTECTION. · SMOKE BARRIERS AND SHAFT ENCLOSURES ARE FIRE BARRIERS. SEE ADDITIONAL REQUIREMENTS.

### STRUCTURAL SUPPORT OF A FIRE BARRIER IS REQUIRED TO BE OF THE SAME

**SHAFT ENCLOSURES (SE** A SHAFT ENCLOSURE IS A FIRE BARRIER FORMING THE BOUNDARY OF A VERTICAL

• HARDWARE FOR SWING DOORS SHALL INCLUDE A LATCH AND CLOSER.

PROTECT OPENINGS IN FIRE RATED FLOOR/CEILING ASSEMBLIES.

FOR EXISTING CONDITIONS THAT ARE GRANDFATHERED.

PERIMETER SMOKE SEALS.

• PENETRATIONS IN SHAFT ENCLOSURES ARE PROHIBITED UNLESS NECESSARY FOR THE FUNCTION OF THE SHAFT. WHERE ALLOWED, OPENINGS ARE REQUIRED TO BE PROTECTED. • DUCT PENETRATIONS REQUIRE COMBINATION SMOKE AND FIRE DAMPERS EXCEPT

HARDWARE FOR SWING DOORS SHALL INCLUDE A LATCH, CLOSER, AND

#### FIRE PARTITIONS (FP)

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

MEMBRANE OF A FIRE RATED CEILING FIRE PARTITIONS ARE USED IN CERTAIN OCCUPANCIES TO DO THE FOLLOWING.

• HARDWARE FOR SWING DOORS SHALL INCLUDE A LATCH AND CLOSER.

 SEPARATE DWELLING UNITS SEPARATE SLEEPING SPACES SEPARATE CORRIDORS FROM ADJACENT SPACES SEPARATE ELEVATOR LOBBIES

SEPARATE TENANT SPACES IN COVERED MALL BUILDINGS

#### **BEARING WALLS (BW)**

• OPENINGS ARE REQUIRED TO BE PROTECTED.

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

A VERTICAL, LOAD BEARING STRUCTURAL ELEMENT.

CONSTRUCTED OF HOLLOW CMU OR STUD FRAMING.

 DOORS AND WINDOWS ARE NOT REQUIRED TO BE RATED. • HVAC DUCT PENETRATIONS ARE NOT REQUIRED TO BE FIRE-DAMPERED. • PLUMBING, ELECTRICAL, SPRINKLER SYSTEM, AND CABLE PENETRATIONS ARE

1. THE FOLLOWING INFORMATION SERVES TO PROVIDE BUILDING OWNERS WITH CONCISE DEFINITIONS OF WALL TYPES RELATED TO LIFE SAFETY ISSUES. THIS • WITHIN SOME CONSTRUCTION CLASSIFICATIONS, CONSTRUCTION THAT PROVIDES INFORMATION IS NOT MEANT TO BE A SUBSTITUTE FOR APPLICABLE BUILDING CODES.

REQUIRED TO BE FIRE-STOPPED WITH FIRE SEALANT AT BOTH SIDES, FOR WALLS

REQUIREMENTS FOR EACH CLASSIFICATION SHALL APPLY. RATED DOORS IN CERTAIN OCCUPANCIES.

#### **GENERAL DESCRIPTION** PROJECT NAME: SERENITEA BOUTIQUE PROJECT LOCATION: 500 SW 3RD ST. UNIT A, LEE'S SUMMIT, MO 64063 COUNTY: JACKSON **COLLINS WEBB ARCHITECTURE** 307B SW MARKET STREET LEES SUMMIT, MISSOURI 64063 **APPLICABLE CODES:** INTERNATIONAL BUILDING CODE - 2018 ED. **INTERNATIONAL PLUMBING CODE - 2018 ED INTERNATIONAL MECHANICAL CODE - 2018 ED** INTERNATIONAL FUEL GAS CODE - 2018 ED.

INTERNATIONAL FIRE CODE - 2018 ED. NATIONAL ELECTRICAL CODE - 2017 ED. ADA STANDARDS FOR ACCESSIBLE DESIGN - 2010 ED. ICC/ANSI A117.1 -2009\_ACCESSIBILTY AND USABILITY CODE **CODE INFORMATION** TABLE/SECTION/REFERENCE **BUILDING/PROJECT USE:** MERCANTILE **IBC SECTION 302** TYPE VB (NON SPRINKLED) CONSTRUCTION TYPE **IBC TABLE 601** GROUP "M" OCCUPANCY CLASSIFICATION **IBC SECTION 303** 

**BUILDING FRAME** WOOD FRAME (EXISTING) 9,000 SQ. FT. **IBC SECTION 506.2** BASE ALLOWABLE AREA M **ACTUAL TENANT AREA (GROSS)** 1,339 SQ. FT. (EXISTING) 1 STORIES IBC TABLE 504.4 ALLOWABLE STORIES ACTUAL NUMBER OF STORIES 1 STORIES (EXISTING)

0 INT. / 0 EXT. HRS

ALLOWABLE HEIGHT 40'-0" IBC TABLE 504.3 **ACTUAL HEIGHT IN FEET EXISTING** FIRE RESISTIVE REQUIREMENTS TABLE/SECTION/REFERENCE PRIMARY FRAME **IBC TABLE 601** 

2. WHEN A WALL HAS MORE THAN ONE CLASSIFICATION, THE MOST RESTRICTIVE

3. FOR NEW CONSTRUCTION, PERIMETER SMOKE-SEALS MAY BE REQUIRED AT FIRE

#### CEILING/ROOF CORRIDORS FIRE EXTINGUISHERS

TOP OF WALL, RE: PLAN

FF 100'-0"

- WOOD CAP. CONFIRM

2X WOOD TOP PLATE

2X WOOD SILL PLATE

WALL TYPE C

FLAT WOOD CAP. COORDINATE WITH GC ON TYPE/INSTALLATION

• 2X4 WOOD STUD @ 16" O.C. TO HEIGHT NOTED.

• 2X4 WOOD STUD @ 16" O.C. TO HEIGHT NOTED.

• 2X4 WOOD STUD @ 16" O.C. TO HEIGHT NOTED.

1/2" TYPE "X" GYP. BD. EACH SIDE

1/2" TYPE "X" GYP. BD. EACH SIDE

1/2" TYPE "X" GYP. BD. ONE SIDE

NO SOUND BATT INSUL.

NO SOUND BATT INSUL.

NO SOUND BATT INSUL.

NON RATED

NON RATED

NON RATED

TYPE WALL DESCRIPTION

1/2" TYPE "X" GYP. BD. EACH SIDE

WITH CLIENT ON TYPE

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

**IBC TABLE 601** 

**IBC TABLE 601** 

**IBC TABLE 601** 

**IBC TABLE 601** 

**IBC TABLE 1020.1** 

#### **CEILING HEIGHT NOTES: (IBC 1208)**

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

#### INTERIOR FINISHES

**NON-BEARING WALLS** 

BEARING WALLS INT./ EXT.

FLOOR CONSTRUCTION

MERCANTILE - GROUP "M" MAX. FLAME SPREAD TABLE/SECTION/REFERENCE INTERIOR EXIT STAIRWAYS AND RAMPS AND EXIT PASSAGEWAYS **CLASS A** 803.1.2, 803.13 IBC CORRIDORS AND ENCLOSURE FOR EXIT ACCESS STAIRWAYS AND RAMPS | CLASS B 803.1.2, 803.13 IBC ROOMS AND ENCLOSED SPACES 803.1.2, 803.13 IBC

ROOF DECK

CEILING, RE: RCP

FF 100'-0"

— 2X WOOD TOP PLATE

- 3 1/2" SOUND BATT INSULATION

(WHERE REQ'D)

— 2X WOOD SILL PLATE

WALL TYPE AA

• 2X4 WOOD STUD @ 16" O.C. TO DECK ABOVE

• 1/2" TYPE "X" GYP. BD. EACH SIDE

NO SOUND BATT INSUL.

TYPE WALL DESCRIPTION

NON RATED

1/2" GYP. BD. EACH SIDE

DECORATIVE MATERIALS AND TRIM (INCLUDING PLASTICS) MUST COMPLY WITH IBC SECTION 806

**GENERAL EXITING REQUIREMENTS** TABLE/SECTION/REFERENCE **EXIT TRAVEL DISTANCE** IBC SECTION 1017.2 IBC SECTION 1020.4 DEAD END CORRIDOR COMMON PATH OF TRAVEL 30 FEET, OR 75 FEET IF OCC. < 50 IBC SECTION 1029.8 MIN. CORRIDOR WIDTH 44", OR 36" IF OCC. < 50 **IBC SECTION 1020.2** POSTING OF OCCUPANT LOAD EVERY ROOM OR SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE ROOM OR SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE ROOM OR SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE PERMANENT DESIGN AND SHALL BE MAINTAINED BY THE OWNER OR AUTHORIZED AGENT. EXIT REQUIREMENTS TABLE/SECTION/REFERENCE A. REQUIRED CAPACITY 1. STAIRS - 0.3" / PERSON **IBC SECTION 1005.3.1** 2. OTHER COMPONENTS - 0.2" / PERSON **IBC SECTION 1005.3.2** B. MINIMUM NUMBER 1. OCCUPANT LOAD OF 1-500 PERSONS - 2 EXITS PER STORY IBC TABLE 1006.3.2 2. OCCUPANT LOAD OF 501-1000 PERSONS - 3 EXITS PER STORY 3. OCCUPANT LOAD OF MORE THAN 1000 PERSONS - 4 EXITS PER STORY SIGNAGE 1. EVACUATION DIAGRAM PROVIDED IN ACCORDANCE WITH IBC 1001.2. OCCUPANT LOAD TABLE/SECTION/REFERENCE IBC TABLE 1004.5 **MERCANTILE** 12 OCC 1 OCC OFFICE MULTI-PURPOSE TOTAL OCCUPANT LOAD FOR BLDG. **EXITS REQUIRED THIS LEVEL** 2 EXITS IBC TABLE 1006.3.2 EXITS PROVIDED THIS LEVEL 2 EXITS (EXISTING) PLUMBING FIXTURE REQUIREMENTS **IBC TABLE 2902.1** = 1/500 BOTH MALE AND FEMALE M OCC WATER CLOSETS

M OCC LAVATORIES = 1/750 BOTH MALE AND FEMALE M OCC DRINKING FOUNTAIN = 1/1,000 M OCC SERVICE SINK = 1 **M PLUMBING FIXTURES REQUIRED WATER CLOSETS** = 1 REQUIRED = 1 REQUIRED LAVATORIES DRINKING FOUNTAIN = 1 REQUIRED

= 1 PROVIDED (EXISTING) DRINKING FOUNTAIN **= BOTTLE WATER PROVIDED** = 1 PROVIDED M: OFFICE (150 GROSS) M: PREP (200 GROSS) M: MERCANTILE (60 GROSS) 201 SQ FT 679 SQ FT 106 SQ FT 1 OCC 12 OCC

2 OCC M: MULTI-PURPOSE (15 GROSS) 273 SQ FT 19 OCC

= 1 REQUIRED

= 1 PROVIDED (EXISTING)

SERVICE SINK

**WATER CLOSETS** 

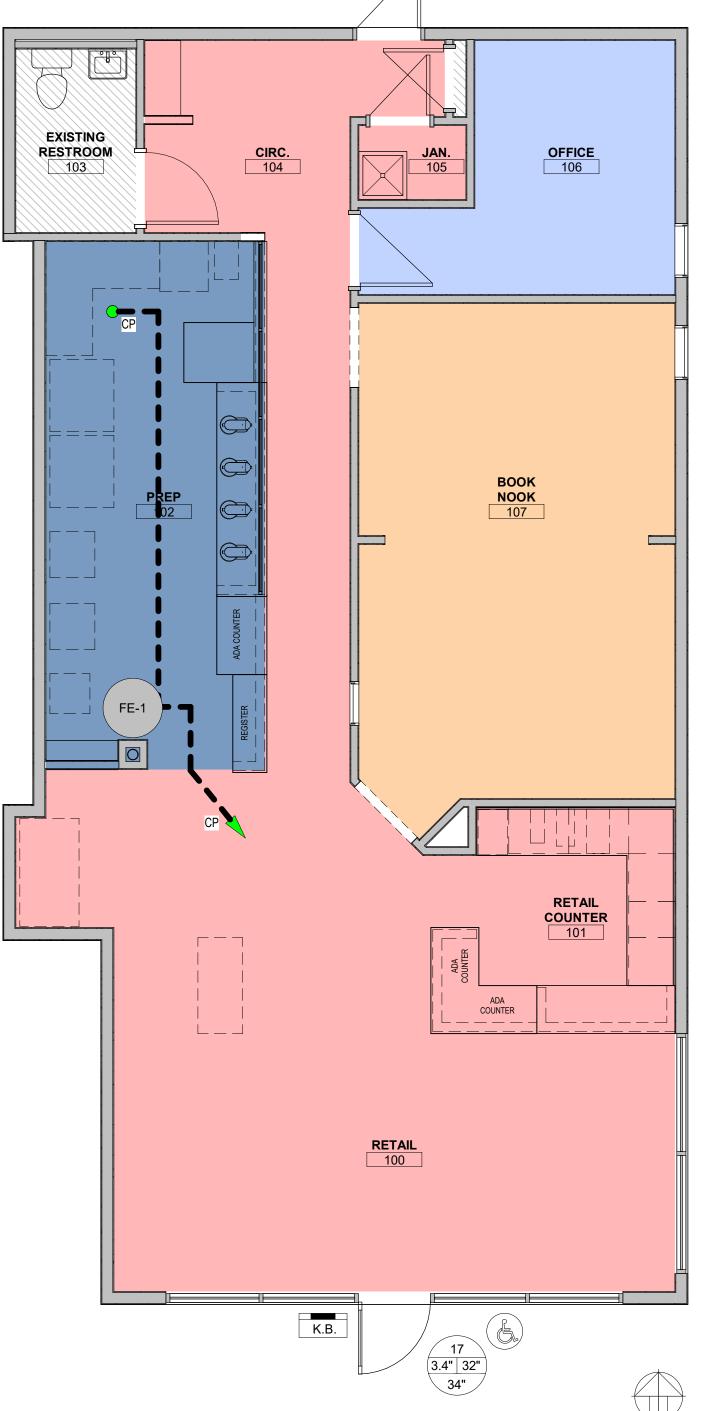
LAVATORIES

SERVICE SINK

M PLUMBING FIXTURES PROVIDED

EXISTING RESTROOM NOOK COUNTER

 $A4 \frac{1ST FLOOR - LIFE SAFETY}{1/4" = 1'-0"}$ 



FIRE RESISTIVE LEGEND

NUMBER OF OCCUPANTS EXITING 200 CALCULATED EXIT 40" 32" MIN. WIDTH OF MEANS OF EGRESS WIDTH REQ'D (IN.) COMPONENT (IN.) EXIT WIDTH -PROVIDED (IN.) KNOX BOX

ACCESSIBLE EGRESS COMPONENT ← ← EGRESS PATH INDICATES FIRE EXTINGUISHER CABINET(FE) LOCATION WITH 75'-0" RADIUS COVERAGE AREA.

**EGRESS DISTANCE..** DISTANCE COMMON PATH 26' - 0"

SEE SPECIFICATIONS FOR FE TYPE.

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**REVISION DATES:** 

SEE ADMINISTRATIVE SPECIFICATION FOR GENERAL REQUIREMENTS RELATED TO ADMINISTATION OF THIS

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

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

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

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

ANY DISCREPANCY OR CONFLICT WITHIN OR BETWEEN DRAWINGS AND ANY DISCREPANCY OR CONFLICT BETWEEN ANY DRAWING AND ANY SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. NOTWITHSTANDING, DISCREPANCIES OR CONFLICTS NOT BROUGHT TO THE ARCHITECT'S AND/ OWNERS ATTENTION AND CLARIFIED DURING THE BIDDING OF THE PROJECT WILL BE DEEMED TO HAVE BEEN BID OR PROPOSED IN THE MORE COSTLY OR DIFFICULT MANNER, AND THE BETTER QUALITY OR GREATER QUANTITY OF THE WORK SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH ARCHITECT'S INTERPRETATION. THE GENERAL CONTRACTOR SHALL KEEP A COMPLETE SET OF DOCUMENTS ON THE PROJECT SITE AT ALL TIMES FOR REFERENCE DURING CONSTRUCTION.

. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING THE CONTRACTOR'S BEST SKILLS AND ATTENTION. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER CONSTRUCTION MEANS AND METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT. . THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER ALL JOB SITE SAFETY PROCEDURES AND POLICIES. THE GENERAL CONTRACTOR SHALL HAVE A SAFETY COORDINATOR AND

BE RESPONSIBLE TO HOLD REGULARLY SCHEDULED SAFETY TRAINING WITH ALL JOB SITE PERSONNEL, INCLUDING ALL SUB CONTRACTOR PERSONNEL. NEITHER THE ARCHITECT'S OR THE OWNERS INSPECTION NOR FAILURE TO INSPECT SHALL RELIEVE THE CONTRACTOR OF ANY OBLIGATION HEREUNDER. IF ANY WORK FAILS TO CONFORM TO THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL PROMPTLY REMEDY AND/OR REPLACE THE SAME AT THE CONTRACTOR'S EXPENSE. NO ACCEPTANCE OR PAYMENT BY THE OWNER OR ARCHITECT SHALL CONSTITUTE A WAIVER OF THE

FOREGOING AND NOTHING HEREIN SHALL EXCLUDE OR LIMIT ANY WARRANTIES IMPLIED BY LAW. . THE GENERAL CONTRACTOR SHALL SO CONDUCT ITS OPERATIONS AS NOT TO UNREASONABLY INTERFERE WITH TRAFFIC ON PUBLIC THOROUGHFARES ADJACENT OR NEAR TO THE PROJECT SITE. 7. DO NOT SCALE DRAWINGS.

I. THE GENERAL CONTRACTOR REPRESENTS THAT IT POSSESSES THE SKILLS REQUIRED FOR THE WORK, ASSUMES THE RESPONSIBILITIES OF AN EMPLOYER FOR PERFORMANCE OF THE WORK, AND ACTS AS AN EMPLOYER OF ONE OR MORE EMPLOYEES BY PAYING WAGES, DIRECTING ACTIVITIES AND PERFORMING OTHER SIMILAR FUNCTIONS. THE GENERAL CONTRACTOR IS AN INDEPENDENT CONTRACTOR, FREE TO DETERMINE THE MANNER IN WHICH THE WORK IS PERFORMED. THE GENERAL CONTRACTOR SHALL PROVIDE, AND MAINTAIN IN GOOD WORKING ORDER, THE FOLLOWING ITEMS FOR USE BY THE PROJECT SUPERINTENDENT DAILY DURING THE ENTIRE DURATION OF THE PROJECT:

 A. LAPTOP WITH INTERNET ACCESS. B. DIGITAL CAMERA WITH 'DATE STAMP' CAPABILITY AND WITH PROPER CABLES TO ATTACH TO LAPTOP. EMAIL ACCESS THROUGH THE LAPTOP. D. A PRINTER/SCANNER/FAX MACHINE WITH PROPER CABLES TO ATTACH TO LAPTOP. E. CELL PHONE.

F. PROJECT INTERNET CLOUD BASED SITE FOR MANAGEMENT OF PROJECT INFORMATION. SITE WILL BE USED FOR SUBMITTAL OF SHOP DRAWINGS, RFI'S & PHOTOS. SITE SHALL BE PROCORE OR EQUAL

THE GENERAL CONTRACTOR SHALL HAVE A CONSTRUCTION SUPERINTENDENT ASSIGNED TO THIS PROJECT. AND THIS SUPERINTENDENT SHALL BE ON SITE EVERY DAY THERE IS ANY CONSTRUCTION ON THIS PROJECT. THE SUPERINTENDENT SHALL BE REACHABLE BY PHONE DURING NORMAL BUSINESS HOURS. ONCE ASSIGNED, THE SUPERINTENDENT SHALL NOT BE REMOVED OR REPLACED WITHOUT WRITTEN APPROVAL FROM OWNER & ARCHITECT, UNLESS SPECIFICALLY REQUESTED TO BE REPLACED BY OWNER

I. THE SUPERINTENDENT WILL BE REQUIRED TO PROVIDE PHOTOGRAPHS (VIA EMAIL USING A DIGITAL CAMERA) TO THE OWNER & ARCHITECT EACH FRIDAY BY NOON CST, SHOWING THE PROGRESS OF CONSTRUCTION. THE GENERAL CONTRACTOR IS ENCOURAGED TO TAKE PHOTOS SEVERAL TIMES EACH WEEK TO HELP MAINTAIN PROOF OF CONSTRUCTION PROGRESS, RECORD UNCOVERED CONDITIONS, RECORD CONDITION AND AMOUNTS OF VENDOR GOODS UPON RECEIPT, AND RECORD CONSTRUCTION THAT VARIES FROM THE CD'S (AS PART OF THE AS-BUILTS). ALL PHOTOS WILL HAVE A 'DATE STAMP'.

IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OVERSEE CONSTRUCTION OF THE PROJECT,

CONTINUALLY INSPECTING THE WORK, MATERIALS, AND WORKMANSHIP PROVIDED BY ALL OF HIS TRADESMEN. SUBCONTRACTORS, AND SUPPLIERS. EXCELLENCE IN QUALITY OF CONSTRUCTION CAN ONLY BE ACHIEVED IF THE CONTRACTOR ENFORCES HIGH STANDARDS OF ACCEPTABILITY. THE GENERAL CONTRACTOR CANNOT DELEGATE HIS RESPONSIBILITY TO THE SUBCONTRACTORS, BUT MUST CONTINUALLY MONITOR THE WORK OF IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE AND SCHEDULE ALL AGENCIES HAVING JURISDICTION

(AHJ) INSPECTIONS NECESSARY TO OBTAIN THE CERTIFICATE OF OCCUPANCY (CERTIFICATE OF COMPLIANCE). PRIOR TO THE DATE OF THE AGENCY INSPECTION, THE GENERAL CONTRACTOR SHOULD INSPECT THE PROJECT TO INSURE THAT CONSTRUCTION COMPLIES WITH THE AGENCY REQUIREMENTS. SCHEDULING FINAL INSPECTIONS WITH AGENCY REPRESENTATIVES WHEN THE PROJECT IS NOT COMPLETE MUST BE AVOIDED. COPIES OF FINAL INSPECTIONS MUST BE PROVIDED TO OWNER & ARCHITECT AS THEY ARE AVAILABLE.

PRIOR TO REQUESTING THE SUBSTANTIAL COMPLETION INSPECTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT HIS OWN PRE-SUBSTANTIAL COMPLETION INSPECTION OF THE CONSTRUCTION FOR QUALITY OF CONSTRUCTION AND COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. 4. THE FOLLOWING PEOPLE SHOULD BE IN ATTENDANCE FOR THE SUBSTANTIAL COMPLETION INSPECTION:

A. GENERAL CONTRACTOR B. GENERAL CONTRACTOR SUPERINTENDENT

MECHANICAL CONTRACTOR D. ELECTRICAL CONTRACTOR

E. PLUMBING CONTRACTOR F. PAINTING CONTRACTOR

G. FLOORING CONTRACTOR ITEMS TO BE SUBMITTED AS A PREREQUISITE TO THE REQUEST FOR THE CERTIFICATE OF SUBSTANTIAL COMPLETION AND OWNER / ARCHITECT OBSERVATION OF ITEMS TO BE COMPLETED AND CORRECTED.

A. GENERAL CONTRACTOR'S PUNCH LISTS B. HVAC TEST AND BALANCE REPORT SPRINKLER SYSTEM ACCEPTANCE INSPECTION REPORT

D. COPY OF VIDEO OF COMPLETED SEWER SYSTEM THE REVIEW TEAM SHOULD PROCEED IN AN ORGANIZED MANNER THROUGHOUT THE BUILDING INSPECTING EACH SPACE OR ROOM. THE PUNCH LIST GENERATED BY THE SUBSTANTIAL COMPLETION INSPECTION TOUR IS TO BE PREPARED BY THE CONTRACTOR. ALONG WITH THE PUNCH LIST, THE ARCHITECT SHALL PREPARE THE "CERTIFICATE OF SUBSTANTIAL COMPLETION." IMMEDIATELY AFTER RECEIPT OF THE PUNCH LIST, THE GENERAL CONTRACTOR AND SUBCONTRACTORS ARE EXPECTED TO BEGIN CORRECTION OF THE OUTSTANDING ITEMS. AFTER COMPLETION OF PUNCHLIST, THE CONTRACTOR SHALL NOTIFY OWNER & ARCHITECT IN WRITTING THAT FULL LIST OF ITENMS TO BE COMPLETED AND OR CORRECT IS FINALIZED.

THE OWNER REQUIRES THE GENERAL CONTRACTOR AND SUBCONTRACTORS TO MAINTAIN AN ACCURATE. CURRENT SET OF RECORD DOCUMENTS (AS-BUILTS) AS CONSTRUCTION PROGRESSES. ALL PERTINENT INFORMATION RELATING TO THE PROJECT MUST BE TIMELY MAINTAINED ON THE AS-BUILTS. THE AS-BUILTS MUST BE MAINTAINED ON-SITE IN THE GENERAL CONTRACTOR'S OFFICE AND WILL NOT BE USED FOR ANY OTHER PURPOSE. SINCE THE OWNER WILL OWN AND OPERATE THE FACILITY, IT IS IMPERATIVE THAT ALL PARTIES MAINTAIN ACCURATE INFORMATION REGARDING THE ACTUAL CONSTRUCTION OF THE PROJECT.

ALL DEVIATIONS FROM THE CONTRACT SET OF DRAWINGS MUST BE NOTED ON THE AS-BUILTS IN RED WITH CLOUDS FOR CLEAR IDENTIFICATION. THE OWNER WILL REVIEW THE AS-BUILTS FOR ACCURACY AND COMPLETENESS MONTHLY, DURING THE PAYMENT APPLICATION REVIEW PROCESS. FAILURE TO POST CHANGES TO THE PROJECT ON THE AS BUILTS AS IDENTIFIED DURING THE ON-SITE MONTHLY REVIEW WILL BE CAUSE TO SUSPEND PAYMENT UNTIL RECTIFIED. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ENFORCE THE TIMELY POSTING OF AS-BUILT CHANGES WITH THE SUBCONTRACTORS.

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

THE CATEGORIES LISTED BELOW SHOULD BE SUBMITTED AT THE SAME TIME.

A. A DISK WITH ALL PHOTOS TAKEN DURING CONSTRUCTION. CHANGE ORDERS AND ALL ADDENDA ATTACHED AND POSTED TO THE AS-BUILT DRAWINGS.

C. AS-BUILT DRAWINGS: ONE HARD COPY TO REMAIN ON SITE AND IN PLAN TUBE; ONE ELECTRONIC COPY TO BE SENT WITH CLOSE-OUT PAPERWORK.

D. MATERIALS SELECTION DATA - PROVIDE ALL APPROVED SUBMITTALS. E. OPERATION AND MAINTENANCE MANUALS (O&M) - PROVIDE O&M MANUALS BOXED AND BOUND. THIS

ITEM IS OF SIGNIFICANT IMPORTANCE TO MSI FUTURE MAINTENANCE ACTIVITIES. F. ALL HVAC TEST AND BALANCE REPORTS.

G. RELEASE OF LIEN (AIA FORM 706A), PAYMENT OF DEBT (AIA FORM 706).

WARRANTIES, CERTIFICATES, AFFIDAVITS: 2. ALL INFORMATION INCLUDED IN THIS CATEGORY WILL BE FURNISHED IN ONE (1) COPY AND BOUND IN A STURDY THREE-RING BINDER WITH A LABEL ON THE OUTSIDE READING "GENERAL CLOSE-OUT DOCUMENTS" TO INCLUDE AN INDEX OF THE CONTENTS. ALL AIA DOCUMENTS WILL BE ORIGINAL (WITH RED LETTERING ON THE BOTTOM OF THE FORM) AND NOTARIZED. IF THE ELECTRONIC

VERSION IS USED A COPY WITH ORIGINAL SIGNATURES WILL BE SUBMITTED. THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR WILL HAVE SEPARATE TABS IDENTIFYING EACH BY NAME. THE GENERAL CONTRACTOR WILL LIST EACH SUBCONTRACTOR ALPHABETICALLY AND WILL CHECK TO INSURE THAT A "RELEASE OF LIEN" - AIA FORM G706A AND A "PAYMENT OF DEBT-AIA FORM G706 IS INCLUDED FOR HIMSELF AND EACH SUBCONTRACTOR. THE GENERAL CONTRACTOR WILL INCLUDE A "CONSENT OF SURETY" - AIA FORM G707, IN ADDITION, THE GENERAL CONTRACTOR WILL INCLUDE BEHIND HIS TAB THE FOLLOWING INFORMATION:

A. A LIST OF NAMES, BUISNESS ADDRESSES, PHONE NUMBERS AND EMAIL ADRESSES FOR THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR.

B. AN ANNOTATED COPY OF THE SUBSTANTIAL COMPLETION PUNCH LIST INDICATING ACTION TAKEN ON FACH ITEM

C. WARRANTIES, CERTIFICATES AND AFFIDAVITS SHALL BE INCLUDED FOR ANY EQUIPMENT, MATERIALS OR SYSTEMS, COMBINED WITH ALL OF THE ABOVE INFORMATION AND PLACED BEHIND THE TAB OF THE CONTRACTOR THAT ISSUED IT.

**DIVISION 6 - WOOD AND PLASTICS** 

06 1000 - ROUGH CARPENTRY 1. PROVIDE SUFFICIENT FIRE RETARDANT TREATED WOOD BLOCKING AT ALL STUDS FOR SECURING OF WALL & CEILING ITEMS, WHETHER FURNISHED BY OWNER OR CONTRACTOR.

2. CONCEALED WOOD IS TO BE FIRE RETARDANT TREATED UNLESS NOTED OTHERWISE. 3. PRESERVATIVE TREATED LUMBER IS REQUIRED FOR ALL ITEMS TO REMAIN IN CONTACT WITH CONCRETE OR

MASONRY TO CONFORM TO AWPA STANDARD 5. 4. PLYWOOD SHALL BE CD GRADE APA FIR OR YELLOW PINE. ALL PLY-WOOD TO BE FIRE RATED WHERE WALLS ARE INDICATED AS RATED CONSTRUCTION. 5. BLOCKING SHALL BE CLOSELY FITTED, ACCURATELY SET TO REQUIRED LINES & LEVELS, SECURELY CONNECTED

& RIGIDLY FIXED IN PLACE, USING NAILS, SCREWS, &/OR BOLTS AS INDICATED OR REQUIRED BY GOOD PRACTICE AND MANUFACTURER'S RECOMMENDATIONS 06 2000 - FINISH CARPENTRY A. <u>SUBMITTALS</u>: SAMPLES OF FINISH MATERIALS, CATALOG CUTS OF HARDWARE, AND SHOP DRAWINGS INCLUDING DIMENSIONED PLANS, ELEVATIONS, AND SECTIONS.

B. QUALITY STANDARD: ARCHITECTURAL WOODWORK INSTITUTE'S "ARCHITECTURAL WOODWORK QUALITY 1. SOFTWOOD LUMBER: MAXIMUM MOISTURE CONTENT OF 6 PERCENT; WITH VERTICAL GRAIN, OF QUALITY SUITABLE FOR SCHEDULED FINISH. 2. HARDWOOD LUMBER: MAXIMUM MOISTURE CONTENT OF 6 PERCENT; WITH VERTICAL GRAIN, OF QUALITY

SUITABLE FOR SCHEDULED FINISH 3. SHEET MATERIALS: SOFTWOOD PLYWOOD, EXPOSED TO VIEW: FACE SPECIES AS INDICATED, PLAIN SAWN, MEDIUM DENSITY FIBERBOARD CORE; PS 1 GRADE A-B, GLUE TYPE AS RECOMMENDED FOR D. INTERIOR WOODWORK

COMPLETE FABRICATION BEFORE SHIPPING TO PROJECT SITE TO MAXIMUM EXTENT FEASIBLE. DISASSEMBLE ONLY AS NEEDED FOR SHIPPING AND INSTALLING. WHERE NECESSARY FOR FITTING AT PROJECT SITE, PROVIDE FOR SCRIBING AND TRIMMING. 2. BACKOUT AND GROOVE BACKS OF FLAT MEMBERS, KERF BACKS OF OTHER WIDE, FLAT MEMBERS, EXCEPT WHERE ENDS WILL BE EXPOSED IN FINISHED WORK.

E. <u>INSTALLATION</u>: 1. DO NOT DELIVER OR INSTALL WOODWORK UNTIL BUILDING IS ENCLOSED. WET WORK IS COMPLETED. HVAC IS OPERATING, AND WOODWORK IS CONDITIONED TO PREVAILING CONDITIONS OF SPACE WHERE INSTALLED. MAINTAIN TEMPERATURE BETWEEN 55 F. AND 75 F. FOR 72 HOURS BEFORE BEGINNING INSTALLATION AND FOR DURATION OF PROJECT.

2. INSTALL WOODWORK LEVEL AND PLUMB AND SHIM AS REQUIRED WITH CONCEALED SHIMS TO 8 TOLERANCE OF 1 "/96" AND TO COMPLY WITH REFERENCED QUALITY STANDARD FOR GRADE SPECIFIED. 3. SCRIBE AND CUT WOODWORK TO FIT ADJOINING WORK, SEAL CUT SURFACES, AND REPAIR DAMAGED

4. INSTALL TRIM WITH MINIMUM NUMBER OF JOINTS POSSIBLE USING FULL-LENGTH PIECES TO GREATEST EXTENTPOSSIBLE. STAGGER JOINTS IN ADJACENT AND RELATED MEMBERS. 5. LUMBER FOR TRANSPARENT FINISH (STAINED OR CLEAR): USE PIECES MADE OF SOLID LUMBER STOCK. 6. LUMBER FOR PAINTED FINISH: AT CONTRACTOR'S OPTION, USE PIECES WHICH ARE EITHER GLUED-UP OR MADE OF SOLID LUMBER STOCK.

7. DISCARD UNITS OF MATERIAL WHICH ARE UNSOUND, WARPED, BOWED, TWISTED, IMPROPERLY TREATED, NOT ADEQUATELY SEASONED OR TOO SMALL TO FABRICATE WORK WITH MINIMUM OF JOINTS OR OPTIMUM JOINTING ARRANGEMENTS, OR WHICH ARE DEFECTIVELY MANUFACTURED WITH RESPECT TO SURFACES, SIZES OR PATTERNS 8. INSTALL THE WORK PLUMB, LEVEL, TRUE AND STRAIGHT WITH NO DISTORTIONS. SHIM AS REQUIRED USING CONCEALED SHIMS.

9. SCRIBE AND CUT WORK TO FIT ADJOINING WORK, AND REFINISH CUT SURFACES OR REPAIR DAMAGED FINISH AT CUTS. 10. SAND WORK SMOOTH AND SET EXPOSED NAILS AND SCREWS.

11. APPLY WOOD FILLER IN EXPOSED NAIL AND SCREW INDENTATIONS. 12. FINISH WORK SHALL BE SMOOTH, FREE FROM ABRASION, TOOL MARKS, RAISED GRAIN MARKINGS, OR SIMILAR DEFECTS ON EXPOSED SURFACES.

06 4100 - ACHITECTURAL WOOD CASEWORK

A. <u>SUBMITTALS</u>: SAMPLES OF FINISH MATERIALS, CATALOG CUTS OF HARDWARE, AND SHOP DRAWINGS INCLUDING DIMENSIONED PLANS, ELEVATIONS, AND SECTIONS. INDICATE COMPONENT PROFILES, FASTENING METHODS, JOINTING DETAILS, AND ACCESSORIES 1. SCALE OF DRAWINGS: 1-1/2 INCH TO 1 FOOT, MINIMUM.

PROVIDE THE INFORMATION REQUIRED BY AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS). 3. SAMPLES: SUBMIT ACTUAL SAMPLES OF ARCHITECTURAL CABINET CONSTRUCTION, MINIMUM 12 INCHES SQUARE, ILLUSTRATING PROPOSED CABINET, COUNTERTOP, AND SHELF UNIT SUBSTRATE AND FINISH. B. <u>QUALITY STANDARD</u>: ARCHITECTURAL WOODWORK INSTITUTE'S "ARCHITECTURAL WOODWORK QUALITY

. FABRICATOR QUALIFICATIONS: COMPANY SPECIALIZING IN FABRICATING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM FIVE YEARS OF DOCUMENTED EXPERIENCE. 1. QUALITY STANDARD: CUSTOM GRADE, IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI

(NAAWS), UNLESS NOTED OTHERWISE. WOOD VENEER FACED CABINET: CONCEALED SURFACES: MANUFACTURER'S OPTION 3. PLASTIC LAMINATE FACED CABINETS: CUSTOM GRADE WITH WHITE MELAMINE INTERIOR, MATCHING PLASTIC LAMINATE EDGEBANDING.

LAMINATES AS INDICATED IN SCHEDULES. COMPLY WITH MANUFACTURER INSTRUCTIONS. 2. ADHESIVE: TYPE RECOMMENDED BY FABRICATOR TO SUIT APPLICATION. 3. FASTENERS: SIZE AND TYPE TO SUIT APPLICATION. 4. BOLTS, NUTS, WASHERS, LAGS, PINS, AND SCREWS: OF SIZE AND TYPE TO SUIT APPLICATION; GALVANIZED OR CHROME-PLATED FINISH IN CONCEALED LOCATIONS AND STAINLESS STEEL OR CHROME-

PLATED FINISH IN EXPOSED LOCATIONS. 5. CONCEALED JOINT FASTENERS: THREADED STEEL. 6. GROMMETS: STANDARD PLASTIC, PAINTED METAL, OR RUBBER GROMMETS FOR CUT-OUTS, IN COLOR TO MATCH ADJACENT SURFACE.

7. HARDWARE: BHMA A156.9, TYPES AS RECOMMENDED BY FABRICATOR FOR QUALITY GRADE SPECIFIED. 8. ADJUSTABLE SHELF SUPPORTS: STANDARD SIDE-MOUNTED SYSTEM USING RECESSED METAL SHELF STANDARDS OR MULTIPLE HOLES FOR PIN SUPPORTS AND COORDINATED SELF RESTS, POLISHED CHROME FINISH, FOR NOMINAL 1 INCH SPACING ADJUSTMENTS

9. DRAWER SLIDES: TYPE: EXTENSION TYPES AS INDICATED. 10. HINGES: EUROPEAN STYLE CONCEALED SELF-CLOSING TYPE, [<>] STEEL WITH POLISHED FINISH. 11. SOFT CLOSE ADAPTER: CONCEALED, FRAME-MOUNTED, SCREW-ADJUSTABLE DAMPER; STEEL WITH POLISHED FINISH.

12. FINISH WORK IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS). INSTALLATION:

1. INSTALL NO INTERIOR FINISH CARPENTRY OR MILLWORK UNTIL SPACES ARE ENCLOSED, DRY, AND CAPABLE OF BEING HEATED. MAINTAIN TEMPERATURE BETWEEN 55 F. AND 75 F. FOR 72 HOURS BEFORE BEGINNING INSTALLATION AND FOR DURATION OF PROJECT.

2. VERIFY ADEQUACY OF BACKING AND SUPPORT FRAMING. 3. VERIFY LOCATION AND SIZES OF UTILITY ROUGH-IN ASSOCIATED WITH WORK OF THIS SECTION. 4. SET AND SECURE CUSTOM CABINETS IN PLACE, ASSURING THAT THEY ARE RIGID, PLUMB, AND LEVEL. 5. USE FIXTURE ATTACHMENTS IN CONCEALED LOCATIONS FOR WALL MOUNTED COMPONENTS. 6. USE CONCEALED JOINT FASTENERS TO ALIGN AND SECURE ADJOINING CABINET UNITS.

7. CAREFULLY SCRIBE CASEWORK ABUTTING OTHER COMPONENTS, WITH MAXIMUM GAPS OF 1/32 INCH. DO NOT USE ADDITIONAL OVERLAY TRIM FOR THIS PURPOSE. 8. SECURE CABINETS TO FLOOR USING APPROPRIATE ANGLES AND ANCHORAGES.

9. CLEAN CASEWORK, COUNTERS, SHELVES, HARDWARE, FITTINGS, AND FIXTURES.

06 4250 - INTERIOR ARCHITECTURAL WOODWORK A. <u>SUBMITTALS</u>: SAMPLES OF FINISH MATERIALS, CATALOG CUTS OF HARDWARE, AND SHOP DRAWINGS INCLUDING DIMENSIONED PLANS, ELEVATIONS, AND SECTIONS. INDICATE COMPONENT PROFILES, FASTENING METHODS, JOINTING DETAILS, AND ACCESSORIES. 1. SCALE OF DRAWINGS: 1-1/2 INCH TO 1 FOOT, MINIMUM.

. PROVIDE THE INFORMATION REQUIRED BY AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS). 3. SAMPLES: SUBMIT ACTUAL SAMPLES OF ARCHITECTURAL CABINET CONSTRUCTION, MINIMUM 12 INCHES SQUARE, ILLUSTRATING PROPOSED CABINET, COUNTERTOP, AND SHELF UNIT SUBSTRATE AND FINISH. 4. SHOW LOCATIONS AND SIZES OF FURRING, BLOCKING, AND HANGING STRIPS, INCLUDING CONCEALED BLOCKING AND REINFORCEMENT SPECIFIED IN OTHER SECTIONS. B. QUALITY STANDARD: ARCHITECTURAL WOODWORK INSTITUTE'S "ARCHITECTURAL WOODWORK QUALITY

C. QUALITY ASSURANCE

. FABRICATOR QUALIFICATIONS: COMPANY SPECIALIZING IN FABRICATING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM FIVE YEARS OF DOCUMENTED EXPERIENCE. 1. ENVIRONMENTAL LIMITATIONS: DO NOT DELIVER OR INSTALL WOODWORK UNTIL BUILDING IS ENCLOSED,

WET WORK IS COMPLETE, AND HVAC SYSTEM IS OPERATING AND MAINTAINING TEMPERATURE BETWEEN 60 AND 90 DEG F (16 AND 32 DEG C) AND RELATIVE HUMIDITY BETWEEN 25 AND 55 PERCENT DURING THE REMAINDER OF THE CONSTRUCTION PERIOD. 2. FIELD MEASUREMENTS: WHERE WOODWORK IS INDICATED TO FIT TO OTHER CONSTRUCTION, VERIFY DIMENSIONS OF OTHER CONSTRUCTION BY FIELD MEASUREMENTS BEFORE FABRICATION, AND INDICATE MEASUREMENTS ON SHOP DRAWINGS. COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS TO AVOID DELAYING THE WORK.

3. LOCATE CONCEALED FRAMING, BLOCKING, AND REINFORCEMENTS THAT SUPPORT WOODWORK BY FIELD MEASUREMENTS BEFORE BEING ENCLOSED, AND INDICATE MEASUREMENTS ON SHOP DRAWINGS. 1. GENERAL: PROVIDE MATERIALS THAT COMPLY WITH REQUIREMENTS OF AWI'S QUALITY STANDARD FOR

EACH TYPE OF WOODWORK AND QUALITY GRADE SPECIFIED, UNLESS OTHERWISE INDICATED. 2. INTERIOR WOODWORK GRADE: UNLESS OTHERWISE INDICATED, PROVIDE CUSTOM-GRADE INTERIOR OODWORK COMPLYING WITH REFERENCED QUALITY STANDARD. 3. PRODUCTS: COMPLY WITH DRAWING DETAILS AND SPECIES OF WOOD OR LAMINATED PRODUCTS

4. COMPONENTS AND THEIR ASSEMBLY SHALL MEET STRUCTURAL PERFORMANCE OF INTENDED PRODUCT 5. IN THE ABSENCE OF SPECIFIED THICKNESS VALUES, ALL COMPONENTS AND ASSEMBLIES SHALL MEET

THE MINIMUM THICKNESS AND MATERIAL REQUIREMENTS OF THOSE TESTED AND USED TO ESTABLISH THE STRUCTURAL PERFORMANCE VALUES. 6. FURRING, BLOCKING, SHIMS, AND HANGING STRIPS: SOFTWOOD OR HARDWOOD LUMBER, KILN DRIED TO

LESS THAN 15 PERCENT MOISTURE CONTENT. 7. ANCHORS: SELECT MATERIAL, TYPE, SIZE, AND FINISH REQUIRED FOR EACH SUBSTRATE FOR SECURE ANCHORAGE.PROVIDE NONFERROUS-METAL OR HOT-DIP GALVANIZED ANCHORS AND INSERTS ON INSIDE

FACE OF EXTERIOR WALLS AND ELSEWHERE AS REQUIRED FOR CORROSION RESISTANCE. PROVIDE

TOOTHED-STEEL OR LEADEXPANSION SLEEVES FOR DRILLED-IN-PLACE ANCHORS. 8. ADHESIVES, GENERAL: ADHESIVES SHALL NOT CONTAIN UREA FORMALDEHYDE.

1. BEFORE INSTALLATION, CONDITION WOODWORK TO AVERAGE PREVAILING HUMIDITY CONDITIONS IN

VERIFY ADEQUACY OF BACKING AND SUPPORT FRAMING. E. INSTALL WOODWORK LEVEL, PLUMB, TRUE, AND STRAIGHT. SHIM AS REQUIRED WITH CONCEALED SHIMS. INSTALL LEVEL AND PLUMB (INCLUDING TOPS) TO A TOLERANCE OF 1/8 INCH IN 96 INCHES (3 MM IN 2400

4. VERIFY LOCATION AND SIZES OF UTILITY ROUGH-IN ASSOCIATED WITH WORK OF THIS SECTION. 5. USE FIXTURE ATTACHMENTS IN CONCEALED LOCATIONS FOR WALL MOUNTED COMPONENTS. 6. USE CONCEALED JOINT FASTENERS TO ALIGN AND SECURE ADJOINING CABINET UNITS. 7. CAREFULLY SCRIBE CASEWORK ABUTTING OTHER COMPONENTS, WITH MAXIMUM GAPS OF 1/32 INCH. DO NOT USE ADDITIONAL OVERLAY TRIM FOR THIS PURPOSE. REFINISH CUT SURFACES, AND REPAIR DAMAGED FINISH AT CUTS.

8. ANCHOR WOODWORK TO ANCHORS OR BLOCKING BUILT IN OR DIRECTLY ATTACHED TO SUBSTRATES.

SECURE WITH COUNTERSUNK, CONCEALED FASTENERS AND BLIND NAILING AS REQUIRED FOR COMPLETE INSTALLATION, USE FINE FINISHING NAILS OR FINISHING SCREWS FOR EXPOSED FASTENING. COUNTERSUNK AND FILLED FLUSH WITH WOODWORK AND MATCHING FINAL FINISH IF TRANSPARENT FINISH IS INDICATED 9. REPAIR DAMAGED AND DEFECTIVE WOODWORK, WHERE POSSIBLE, TO ELIMINATE FUNCTIONAL AND

VISUAL DEFECTS; WHERE NOT POSSIBLE TO REPAIR, REPLACE WOODWORK. ADJUST JOINERY FOR UNIFORM APPEARANCE. 10. CLEAN WOODWORK ON EXPOSED AND SEMIEXPOSED SURFACES. TOUCH UP SHOP-APPLIED FINISHES TO RESTORE DAMAGED OR SOILED AREAS.

**DIVISION 7 - THERMAL AND MOISTURE PROTECTION** 

A. <u>SUBMITTALS</u>: PRODUCT DATA: PROVIDE DATA ON PRODUCT CHARACTERISTICS, PERFORMANCE RATINGS, AND

B. <u>MANUFACTURERS</u> 3M FIRE PROTECTION PRODUCTS: HTTPS://WWW.3M.COM/3M/EN\_US/P/C/BUILDING-MATERIALS/FIREPROTECTION/ 2. HILTI, INC: HTTPS://WWW.HILTI.COM/C/CLS\_FIRESTOP\_PROTECTION\_7131

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

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

E814 TO HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF PENETRATED ASSEMBLY. 1. INSTALLATIONS SHALL CONFORM TO UL REQUIREMENTS OF THE ASSEMBLY WHICH FIRESTOPPING IS TO BECOME PART OF THE BUILT ASSEMBLY.

07 9200 - JOINT SEALANTS A. <u>SUBMITTALS</u>: PRODUCT DATA, AND SCHEDULE OF LOCATIONS FOR EACH TYPE OF SEALANT SUBMITTED. 1. JOINT-SEALANT SCHEDULE: INCLUDE THE FOLLOWING INFORMATION:

A. JOINT-SEALANT APPLICATION, JOINT LOCATION, AND DESIGNATION. B. JOINT-SEALANT MANUFACTURER AND PRODUCT NAME. . JOINT-SEALANT FORMULATION. D. JOINT-SEALANT COLOR

B. ENVIRONMENTAL LIMITATIONS: DO NOT PROCEED WITH INSTALLATION OF JOINT SEALANTS WHEN AMBIENT AND SUBSTRATE TEMPERATURE CONDITIONS ARE OUTSIDE LIMITS PERMITTED BY JOINT SEALANT MANUFACTURER OR

COMPATIBILITY: PROVIDE JOINT SEALANTS, JOINT FILLERS, AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER SERVICE AND APPLICATION CONDITIONS. 1. COLORS OF EXPOSED JOINT SEALANTS: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE. INTERIOR JOINTS IN CERAMIC TILE AND OTHER HARD SURFACES IN KITCHENS, TOILET ROOMS, AND AROUND PLUMBING FIXTURES: SINGLE COMPONENT, MILDEW-RESISTANT SILICONE SEALANT, ASTM C 920, TYPE S;

GRADE NS. CLASS 25; USES NT, G, A, AND O; FORMULATED WITH FUNGICIDE INTERIOR JOINTS AROUND PERIMETERS OF DOORS AND FRAMES: LATEX SEALANT, SINGLE COMPONENT NONSAG, MILDEW-RESISTANT, PAINTABLE, ACRYLIC EMULSION SEALANT COMPLYING WITH ASTM C 834. 3. ACOUSTICAL SEALANT FOR EXPOSED INTERIOR JOINTS: NONSAG, PAINTABLE, NONSTAINING, LATEX SEALANT

4. ACOUSTICAL SEALANT FOR CONCEALED JOINTS: NONDRYING, NONHARDENING, NONSKINNING, NONSTAINING, GUNNABLE, SYNTHETIC-RUBBER SEALANT RECOMMENDED FOR SEALING INTERIOR CONCEALED JOINTS TO REDUCE TRANSMISSION OF AIRBORNE SOUND. 5. EXTERIOR CONCRETE PANELS, NATURAL STONES, MASONRY, ALUMINUM CURTAINWALLS, METAL PANELS AND WINDOW PERIMETERS.

A. BASIS OF DESIGN PRODUCTS: TREMCO INCORPORATED; SPECTREM 1. DOW CORNING CORPORATION; 790. PECORA CORPORATION; 890NST.

HILTI

6. EXTERIOR JOINTS IN HORIZONTAL TRAFFIC SURFACES. ISOLATION AND CONTRACTION JOINTS IN CAST-IN-PLACE CONCRETE SLABS. URETHANE JOINT SEALANT: MULTICOMPONENT, NONSAG, TRAFFIC GRADE, CLASS 7. FIRESTOP SEALANTS:INSTALL AT FIRE RATED ASSEMBLIES AND AS DIRECTED WITHIN UL REFERENCES A. BASIS OF DESIGN PRODUCTS:

JOINT SEALANT BACKING: 1. GENERAL: PROVIDE SEALANT BACKINGS OF MATERIAL THAT ARE NONSTAINING: ARE COMPATIBLE WITH JOINT SUBSTRATES, SEALANTS, PRIMERS, AND OTHER JOINT FILLERS; AND ARE APPROVED FOR APPLICATIONS INDICATED BY SEALANT MANUFACTURER BASED ON FIELD EXPERIENCE AND LABORATORY TESTING. 2. CYLINDRICAL SEALANT BACKINGS: ASTM C 1330, TYPE C (CLOSED-CELL MATERIAL WITH A SURFACE SKIN). AND OF SIZE AND DENSITY TO CONTROL SEALANT DEPTH AND OTHERWISE CONTRIBUTE TO PRODUCING OPTIMUM SEALANT PERFORMANCE.

3. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT 4. MANUFACTURER FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT. PROVIDE SELF-ADHESIVE TAPE WHERE APPLICABLE. F. MISCELLANEOUS MATERIALS: 1. PRIMER: MATERIAL RECOMMENDED BY JOINT-SEALANT MANUFACTURER WHERE REQUIRED FOR ADHESION

OF SEALANT TO JOINT SUBSTRATES INDICATED, AS DETERMINED FROM PRECONSTRUCTION JOINT-SEALANT-SUBSTRATE TESTS AND FIELD TESTS 2. CLEANERS FOR NONPOROUS SURFACES: CHEMICAL CLEANERS ACCEPTABLE TO MANUFACTURERS OF SEALANTS AND SEALANT BACKING MATERIALS, FREE OF OILY RESIDUES OR OTHER SUBSTANCES CAPABLE OF

STAINING OR HARMING JOINT SUBSTRATES AND ADJACENT NONPOROUS SURFACES IN ANY WAY, AND FORMULATED TO PROMOTE OPTIMUM ADHESION OF SEALANTS TO JOINT SUBSTRATES. 3. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MFR. FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT. 4. MASKING TAPE: NONSTAINING, NONABSORBENT MATERIAL COMPATIBLE WITH JOINT SEALANTS AND

SURFACES ADJACENT TO JOINTS. INSTALLATION: COMPLY WITH ASTM C 1193; ASTM C 919 FOR ACOUSTICAL JOINTS; AND AS FOLLOWS: 1. REMOVE ALL LOOSE MATERIAL, CLEAN AND PRIME JOINTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, AND PROTECT ADJACENT SURFACES.

2. INSTALL BOND-BREAKER TAPE WHERE JOINT BACKINGS ARE NOT USED. 3. INSTALL SEALANT TOOLED CONCAVE, FREE OF AIR POCKETS, FOREIGN EMBEDDED MATTER, RIDGES, AND SAGS, AND PROTECT UNTIL FULLY CURED. SEALANT WITH DUST AND DEBRIS EMBEDDED IN SURFACE SHALL BE CAUSE FOR REJECTION.

<u>DIVISION 8 - OPENINGS</u>

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

3. PRODUCTS: REFER TO HARDWARE SCHEDULE AND ARCHITECTURAL DRAWINGS. 1. STRIKES. PROVIDE MANUFACTURER'S STANDARD WROUGHT BOX STRIKE FOR EACH LATCH OR LOCK BOLT, WITH STRIKE PLATES FOR INTERIOR DOORS WHERE WOOD DOOR FRAMES ARE USED. 2. IN GENERAL, HARDWARE FINISH SHALL BE US15 (SATIN NICKEL) UNLESS SPECIFIED DIFFERENTLY ON HARDWARE SCHEDULE. 3. SUPPLY CAL ROYAL HDFS3 FLEXIBLE DOOR STOPS IN THE APARTMENT DWELLING UNITS. USE 2 IVHP-23 HINGE STOPS WHERE FLEXIBLE STOPS CANNOT BE USED.

4. SUPPLY OUT SWINGING EXTERIOR DOORS WITH NON REMOVABLE PINS. . <u>INSTALLATION</u>: 1. MOUNT HARDWARE UNITS AT HEIGHTS INDICATED IN "RECOMMENDED LOCATIONS FOR BUILDERS HARDWARE FOR STANDARD STEEL DOORS AND FRAMES" BY THE DOOR AND HARDWARE INSTITUTE, EXCEPT AS SPECIFICALLY INDICATED OR REQUIRED TO COMPLY WITH GOVERNING REGULATIONS, AND EXCEPT AS MAY BE OTHERWISE DIRECTED BY ARCHITECT. MOUNT HARDWARE IN UNITS DESIGNATED FOR USE BY THE HANDICAPPED AT HEIGHTS RECOMMENDED FOR USE BY THE HANDICAPPED. INSTALL EACH HARDWARE ITEM IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. WHEREVER CUTTING AND FITTING IS REQUIRED TO INSTALL HARDWARE ONTO OR INTO SURFACES WHICH ARE LATER TO BE PAINTED OR FINISHED IN ANOTHER WAY, COORDINATE REMOVAL, STORAGE AND REINSTALLATION OR APPLICATION OF SURFACE PROTECTIONS WITH FINISHING WORK SPECIFIED IN THE DIVISION 9 SECTIONS. DO NOT INSTALL SURFACE MOUNTED ITEMS UNTIL FINISHES HAVE BEEN COMPLETED ON THE SUBSTRATE.

3. SET UNITS LEVEL, PLUMB AND TRUE TO LINE AND LOCATION. ADJUST AND REINFORCE THE ATTACHMENT SUBSTRATE AS NECESSARY FOR PROPER INSTALLATION AND OPERATION. 4. DRILL AND COUNTERSINK UNITS WHICH ARE NOT FACTORY PREPARED FOR ANCHORAGE FASTENERS. SPACE FASTENERS AND ANCHORS IN ACCORDANCE WITH INDUSTRY STANDARDS.

5. METAL THRESHOLDS SHALL BE SET IN A SOLID BED OF NON STAINING THIOKOL BASE CAULKING. 6. ADJUST AND CHECK EACH OPERATING ITEM OF HARDWARE AND EACH DOOR, TO ENSURE PROPER 7. OR FUNCTION OF EVERY UNIT. REPLACE UNITS WHICH CANNOT BE ADJUSTED TO OPERATE FREELY AND

SMOOTHLY AS INTENDED FOR THE APPLICATION MADE. 8. FINAL ADJUSTMENT: WHEREVER HARDWARE INSTALLATION IS MADE MORE THAN ONE MONTH PRIOR TO ACCEPTANCE OR OCCUPANCY OF A SPACE OR AREA. RETURN TO THE WORK DURING THE WEEK PRIOR TO ACCEPTANCE OR OCCUPANCY, AND MAKE FINAL CHECK AND ADJUSTMENT OF ALL HARDWARE ITEMS IN SUCH SPACE OR AREA. CLEAN OPERATING ITEMS AS NECESSARY TO RESTORE PROPER FUNCTION AND FINISH OF HARDWARE AND DOORS. ADJUST DOOR CONTROL DEVICES TO COMPENSATE FOR FINAL OPERATION OF HEATING AND VENTILATING EQUIPMENT.

08 1416 - FLUSH WOOD DOORS

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

B. BASIS OF DESIGN: RE: SHEET A101, DETAIL A6 FOR GENERAL NOTE REGARDING DOOR SCHEDULE REMARKS DOORS: COORDINATE FINAL SELECTION OF DOOR TYPE/MAUF. WITH GC OR CLIENT.

1. FACTORY FIT DOORS TO SUIT FRAME OPENINGS TO COMPLY WITH REFERENCED STANDARD. COMPLY WITH NFPA 80 FOR FIRE-RESISTANCE RATED DOORS. 2. FACTORY MACHINE DOORS FOR HARDWARE THAT IS NOT SURFACE APPLIED. CUT AND TRIM OPENINGS TO COMPLY WITH REFERENCED STANDARDS.

4. LITE KITS: MATCHING WOOD STOPS 5. FACTORY FINISH DOORS FOR TRANSPARENT FINISH WITH STAIN AND MANUFACTURER'S STANDARD FINISH COMPARABLE TO AWI, SYSTEM TR-4, CONVERSION VARNISH OR AWI SYSTEM TR-6, CATALYZED POLYURETHANE.

I. REFER TO DOOR INSTALLATION INSTRUCTIONS ONCE DOOR TYPE/MANUF. HAS BEEN SELECTED BY GC OR

09 2116 - GYPSUM BOARD ASSEMBLIES

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

3. WIRE HANGERS: ASTM A 641/A 641M, CLASS 1 ZINC COATING, SOFT TEMPER. .0162" DIAMETER. B. PANEL PRODUCTS: PROVIDE IN THICKNESS AND TYPE INDICATED IN THE CONSTRUCTION DRAWINGS IN MAXIMUM LENGTHS AVAILABLE TO MINIMIZE END-TO-END BUTT JOINTS AND AS FOLLOWS: 1. GYPSUM WALLBOARD: ASTM C 36, TYPE 'X' WITH TAPERED EDGES, SAG-RESISTANT TYPE FOR CEILING

2. WATER-RESISTANT GYPSUM BACKING BOARD: ASTM C 630, TYPE 'X' ON ALL TOILET ROOM AND SHOWER ROOM WALLS, BEHIND ALL PLUMBING FIXTURES, AND AS INDICATED. 1. TRIM: ASTM 1047, FORMED FROM GALVANIZED OR ALUMINUM COATED STEEL SHEET, ROLLED ZINC, OR

B. EXPOSED PANEL EDGES: PROVIDE LC-BEAD (J-BEAD) UNLESS NOTED OTHERWISE; USE TEAR-

AWAY BEAD WHERE GYP. BD. MEETS WINDOW FRAMES OR CEILING GRID. C. CONTROL JOINTS: PROVIDE WHERE INDICATED OR APPROXIMATELY 30'-0" MAX. CONTACT ARCHITECT FOR LOCATIONS IF NOT INDICATED. 2. SOUND-ATTENUATION BLANKETS: ASTM C 665, TYPE I (UNFACED)

A. OUTSIDE CORNERS: PROVIDE CORNER BEAD UNLESS NOTED OTHERWISE

3. ACOUSTICAL SEALANT: COMPLY WITH ASTM C 834, NONSAG, PAINTABLE, NONSTAINING LATEX. 1. FRAMING: COMPLY WITH ASTM C 754 AND ASTM C 840 AND WITH U.S. GYPSUM'S "GYPSUM CONSTRUCTION HANDBOOK" ISOLATE FRAMING FROM BUILDING STRUCTURE TO PREVENT TRANSFER OF LOADING IMPOSED BY STRUCTURAL MOVEMENT AND PROVIDE BRACING AS NECESSARY FOR PROPER SUPPORT

2. GYPSUM PANELS AND FINISH: COMPLY WITH ASTM C 840 AND GA-216. ISOLATE GYPSUM BOARD ASSEMBLIES FROM ABUTTING STRUCTURAL AND MASONRY WORK AND FINISH AS FOLLOWS: A. LEVEL 1 (EMBED TAPE AT JOINTS): AT CONCEALED AREAS UNLESS A HIGHER LEVEL IS INDICATED OR REQUIRED FOR FIRE-RESISTANCE-RATED ASSEMBLY. B. LEVEL 2 (EMBED TAPE AND APPLY SEPARATE FIRST COAT OF JOINT COMPOUND TO TAPE.

FASTENERS, AND TRIM FLANGES AND SAND SMOOTH AFTER EACH COAT): AT SUBSTRATES BEHIND C. LEVEL 4 (EMBED TAPE AND APPLY SEPARATE FIRST, FILL, AND FINISH COATS OF JOINT COMPOUND TO TAPE, FASTENERS, AND TRIM FLANGES AND SAND SMOOTH AFTER EACH COAT): AT ALL WALLS RECEIVING FLAT, EGGSHELL, OR SATIN SHEEN PAINT OR WALLCOVERING) D. LEVEL 5 (EMBED TAPE, APPLY SEPARATE FIRST, FILL, AND FINISH COATS OF JOINT COMPOUND TO TAPE, FASTENERS, AND TRIM FLANGES, AND APPLY THIN SKIM COAT OF JOINT COMPOUND OVER ENTIRE SURFACE AND SAND SMOOTH AFTER EACH COAT): AT ALL WALLS RECEIVING SEMI-GLOSS OR GLOSS SHEEN PAINT, AND ALL GYPSUM BOARD CEILINGS).

09 5100 - ACOUSTICAL CEILINGS A. SUBMITTALS: PRODUCT DATA ONLY

WHETHER INDICATED OR NOT.

B. <u>ATTIC STOCK</u>: FURNISH 2% OF EACH TYPE OF CEILING TILE PACKAGED WITH PROTECTIVE COVERING AND C. ACOUSTICAL TILE PRODUCTS: PROVIDE CEILING TILE IN TYPE AND SIZES INDICATED IN THE CONSTRUCTION

OCUMENTS COMPLYING WITH ASTM E 1264. CLASS A MATERIALS. TESTED PER ASTM E 84.

D. SUSPENSION SYSTEM: PROVIDE HEAVY DUTY, DIRECT-HUNG, SUSPENSION SYSTEMS AS INDICATED IN THE ONSTRUCTION DOCUMENTS COMPLYING WITH ASTM C 635. FURNISH ALUMINUM GRID IN SHOWERS, KITCHENS AND OTHER HIGH-HUMIDITY AREAS. 1. ATTACHMENT DEVICES: SIZE FOR FIVE (5) TIMES THE DESIGN LOAD INDICATED IN ASTM C 635, TABLE 1,

DIRECT HUNG UNLESS OTHERWISE INDICATED. 2. WIRE HANGERS, BRACES, AND TIES: ZINC-COATED CARBON-STEEL WIRE; ASTM A 641/ (A 641 M), CLASS 1 ZINC COATING, SOFT TEMPER WITH A YIELD STRENGTH AT LEAST THREE (3) TIMES THE HANGER DESIGN LOAD (ASTM C 635, TABLE 1, DIRECT HUNG), BUT NOT LESS THAN 0.135" DIAMETER WIRE. 3. SEISMIC STRUTS: MANUFACTURER'S STANDARD PRODUCT DESIGNED TO ACCOMMODATE SEISMIC

ROOMS EMPLOYING DRY CHEMICAL FIRE-SUPPRESSION SYSTEMS, AND OTHER AREAS AS INDICATED. E. INSTALLATION: COMPLY WITH ASTM C 636 AND CISCA'S "CEILING SYSTEMS HANDBOOK". . SEQUENCE WORK TO ENSURE ACOUSTICAL CEILINGS ARE NOT INSTALLED UNTIL BUILDING IS ENCLOSED, SUFFICIENT HEAT IS PROVIDED, DUST GENERATION ACTIVITIES HAVE TERMINATED, AND OVERHEAD WORK IS COMPLETED, TESTED, AND APPROVED 2. INSTALL CEILING GRID AS INDICATED TO BE SYMMETRICAL ABOUT BOTH AXES OF EACH ROOM USING NOT

4. HOLD-DOWN CLIPS: PROVIDE HOLD-DOWN CLIPS ON CEILING TILE IN ENTRANCE VESTIBULES, COMPUTER

LESS THAN HALF-SIZE TILE UNLESS INDICATED OTHERWISE ON THE REFLECTED CEILING PLAN. SUPPORT SUSPENSION SYSTEM INDEPENDENTLY OF DUCTS, PIPES, AND CONDUITS. 4. SUPPORT FIXTURE LOADS USING SUPPLEMENTARY HANGERS LOCATED WITHIN 6" OF EACH CORNER OR SUPPORT FIXTURES INDEPENDENTLY. 5. PROVIDE MATCHING PERIMETER MOLDING INSTALLED IN BEAD OF ACOUSTICAL SEALANT AT ALL LOCATIONS WHERE CEILING INTERSECTS VERTICAL SURFACES. USE MATCHING PRE-FORMED CLOSURES

6. FIELD-CUT EDGES SHALL MATCH PROFILE OF FACTORY EDGES.

AT ROUND OR CURVED OBSTRUCTIONS

09 9000 - PAINTING AND COATING A. SUBMITTALS: PRODUCT DATA AND THREE (3) DRAW-DOWN SAMPLES OF EACH COLOR AND SHEEN SPECIFIED. B. <u>ATTIC STOCK</u>: FURNISH ONE (1) GALLON OF EACH PAINT COLOR AND SHEEN, IN CONTAINERS, PROPERLY C. PRODUCTS: PROVIDE MANUFACTURER'S BEST QUALITY PAINTS OF COLOR AND SHEEN AS INDICATED IN THE CONSTRUCTION DOCUMENTS THAT ARE FORMULATED AND RECOMMENDED BY MANUFACTURER FOR

SUBSTRATES. D. PAINT SYSTEMS 1. ALL PAINT, STAIN, AND VARNISH SHALL BE PRODUCTS OF DEVOE, KWAL, SHERWIN WILLIAMS, PPG INDUSTRIES, PRATT & LAMBERT OR APPROVED EQUAL

ALL MATERIAL SHALL BE OF THE STANDARD RESIDENTIAL GRADE OF THE TYPES DESIGNATED.

APPLICATION INDICATED. PROVIDE MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH

3. ALL MATERIAL SHALL BE DELIVERED TO THE JOB SITE IN THE ORIGINAL, UNOPENED, LABELED CONTAINERS. COLORS NOT SPECIFICALLY CALLED FOR IN THE PAINT SCHEDULE WILL BE SELECTED BY THE ARCHITECT. E. APPLICATION / INSTALLATION EQUIPMENT: APPLY COATINGS BY BRUSH, ROLLER, SPRAY, OR OTHER APPLICATORS ACCORDING TO COATING MANUFACTURER'S WRITTEN INSTRUCTIONS. WHEN SPRAYED, EXTERIOR COATINGS SHALL BE

BACK-ROLLED FOLLOWING SPRAY APPLICATION. USE ROLLERS FOR FINISH COAT ON INTERIOR WALLS 2. PREPARE CONCRETE MASONRY BLOCK TO BE COATED. REMOVE EFFLORESCENCE, CHALK, DUST, DIRT, GREASE, OILS, AND RELEASE AGENTS. ROUGHEN AS REQUIRED TO REMOVE GLAZE. IF HARDENERS OR SEALERS HAVE BEEN USED TO IMPROVE CURING, USE MECHANICAL METHODS TO PREPARE SURFACES. 3. PIGMENTED (OPAQUE) FINISHES: COMPLETELY COVER SURFACES TO PROVIDE A SMOOTH, OPAQUE SURFACE OF UNIFORM APPEARANCE. PROVIDE A FINISH FREE OF CLOUDINESS, SPOTTING, HOLIDAYS, LAPS, BRUSH MARKS, RUNS, SAGS, ROPINESS, OR OTHER SURFACE IMPERFECTIONS. 4. APPLY PRODUCTS PER MANUFACTURER RECOMMENDED GUIDELINES. PRODUCT COVERAGE MINIMUM

ONE COAT OF PRIMER AND TWO FINAL COATS ON MATERIALS.APPLY PRODUCTS TO MATERIALS

APPROVED BY MANUFCTURER PRODUCT DATA SHEETS. INTERIOR WORK:

1. GYPSUM BOARD WALLS EXCEPT IN KITCHENS, BATHROOMS, LAUNDRIES AND COMMON AREA CORRIDORS, UNLESS SCHEDULED FOR WALLCOVERING 2. GYPSUM BOARD WALLS IN KITCHENS, BATHROOMS, AND LAUNDRIES UNLESS

SCHEDULED FOR WALLCOVERING OR TILE. 3. GYPSUM BOARD WALLS IN COMMON

AREA CORRIDORS

4. (CMU) - CONCRETE MASONRY UNIT WALLS.

5. GYPSUM BOARD CEILINGS

6. DOOR CASINGS, BASE, WOOD, MILL-

WORK, ETC. (PRE-PRIMED.)

7. PRIMED HARDWOOD DOORS. 8. ALL MISCELLANEOUS FERROUS METAL.

GRILLES, REGISTERS, ETC.

9. ANY OPEN STRUCTURE PAINTING

10. ANY OTHER PAINTING WORK REQUIRED BY THE DRAWINGS.

ONE COAT OF PRIME LATEX PAINT AND ONE FINISH COAT OF LATEX EGGSHELL WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.) ONE COAT OF EPOXY COMPATABLE PRIMER PAINT AND ONE FINISH COAT OF EPOXY EGGSHELL WALL

PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.) ONE COAT OF PRIME LATEX PAINT AND ONE FINISH COAT OF SCRUBABLE LATEX FLAT WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.)

BLOCK FILLER/PRIMER. APPLIED AT A DRY FILM THICKNESS OF NOT LESS THAN 7.0 MILS. TWO FINISH COATS ACRYLIC EGGSHELL FINISH OVER PRIMER.

TWO COATS OF LATEX FLAT PAINT. TWO COATS OF

ONE COAT APPLICABLE PRIMER FOR SURFACES TO

BLOCK FILLER: PPG PAINTS; 6-15XI SPEEDHIDE

INTERIOR/EXTERIOR HI FILL ACRYLIC MASONRY

CLASS II VAPOR RETARDER PAINT AT CEILINGS ADJACENT TO ATTICS. ONE PRIME COAT OF LATEX PAINT, ONE

COAT LATEX PAINT AND ONE FINISH COAT

ONE COAT OF LATEX PAINT AND ONE FINISH COAT OF LATEX SEMI-GLOSS PAINT. TWO COATS METAL PAINT TO MATCH INCLUDING ADJACENT SURFACES UNLESS FACTORY

OF SEMI-GLOSS PAINT.

PREFINISHED WHITE.

BE PAINTED UNLESS FACTORY PRIMED: TWO COATS OF DRYFALL PAINT SPRAY APPLIED. FINISH TO MATCH SIMILAR CONDITIONS.

09 9600 HIGH PERFORMACE COATINGS

1. SUBMIT UNDER PROVISIONS OF SECTION 01300. PRODUCT DATA: MANUFACTURER'S DATA SHEETS INCLUDING; A. INSTALLATION GUIDE

B. PRODUCT DATA SHEET D. HPD (HEALTH PRODUCT DECLARATION)

E. PFAS-PFC LETTER 1. SELECTION SAMPLES: PROVIDE (2) SETS OF APPLICABLE COLOR CHARTS OR CHIPS REPRESENTING ALL STANDARD COLORS AVAILABLE FROM THE MANUFACTURER.

2. VERIFICATION SAMPLES: PROVIDE VERIFICATION SAMPLES OF EACH PRODUCT SPECIFIED ON A MINIMUM SIZE OF 6" SQUARE SHOWING ACTUAL PRODUCTS, COLORS, AND TEXTURE. 3. INSTALLER QUALIFICATIONS: SUBMIT LIST OF SUCCESSFULLY COMPLETED PROJECTS WITH REFERENCES OF SAME OR SIMILAR SCOPE OF WORK.

1.2 QUALITY ASSURANCE: A. QUALIFICATIONS: SUCCESSFUL EXPERIENCE WITH OTHER PROJECTS OF THE SCOPE AND SCALE OF THE WORK DESCRIBED IN THIS SECTION. B. TRAINING: CONFIRMATION BY MANUFACTURER THAT THE INSTALLER HAS SUCCESSFULLY COMPLETED

AN AUTHORIZED TRAINING WORKSHOP OF THE FLOORING SYSTEM(S). C. MOCK-UP: PROVIDE A MOCK-UP DEMONSTRATING ACTUAL SURFACE PREPARATION METHODS TO BE USED THEN PRODUCE ACTUAL FINISHES TO CONFIRM ACCEPTABLE APPEARANCE AND WORKMANSHIP. AREA TO BE DETERMINED BY ARCHITECT

APPROVALS OF EACH COMPLETED PHASE MUST BE ACCEPTED PRIOR TO PROCEEDING. . REFINISH, IF APPLICABLE TO RECEIVE FINAL APPROVALS. 1.3 <u>DELIVERY, STORAGE & HANDLING:</u> A. DELIVERY: DELIVER MATERIALS IN MANUFACTURER'S ORIGINAL, UNOPENED, UNDAMAGED CONTAINERS WITH IDENTIFICATION LABELS INTACT.

MAXIMUM TEMPERATURE OF 90 DEGREES F. DO NOT FREEZE!

C. HANDLING: ALL CONTAINERS MUST BE TIGHTLY CLOSED WHEN NOT IN USE TO PREVENT ACCIDENTAL CONTAMINATION BY FOREIGN ELEMENTS. 1.4 PROJECT/SITE CONDITIONS MAINTAIN ENVIRONMENTAL CONDITIONS (TEMPERATURE, HUMIDITY, VENTILATION) ACCORDING TO THE

B. STORAGE & PROTECTION: STORE MATERIALS PROTECTED FROM EXPOSURE TO HARMFUL

ENVIRONMENTAL CONDITIONS AND AT A MINIMUM TEMPERATURE OF 50 DEGREES F AND AT A

MANUFACTURER'S INSTRUCTIONS. DO NOT INSTALL AN EXTERIOR PROJECT WHEN RAIN IS IMMINENT WITHIN THE FIRST 24 HOURS.

A. PROJECT WARRANTY: REFER TO CONDITIONS OF THE CONTRACT FOR PROJECT WARRANTY B. MANUFACTURER'S WARRANTY: SUBMIT FOR OWNERS ACCEPTANCE, MANUFACTURER'S STANDARD LIMITED WARRANTY AGAINST MANUFACTURER DEFECTS EXECUTED BY AUTHORIZED COMPANY OFFICIAL. MANUFACTURER'S WARRANTY IS IN ADDITION TO, AND NOT A LIMITATION OF, OTHER RIGHTS OWNER MAY HAVE UNDER CONTRACT DOCUMENTS.

2.1 MANUFACTURER: ACCEPTABLE MANUFACTURERS: A. ECO SAFETY, INC. D/B/A ECO SAFETY PRODUCTS 2921 W CULVER STREET, #4B, PHOENIX, AZ. 85009

2.4 <u>W.B. BIO-BASED POLYURETHANE FLOOR COATING:</u>

A. PRODUCT: ECO-TUFF FLOOR COATING

PART 2 PRODUCTS

TELEPHONE: 602.305.9397 FAX: 602.305.6431 EMAIL: HYPERLINK "MAILTO:INFO@ECO-SAFETY.COM" INFO@ECO-SAFETY.COM WEBSITE: HYPERLINK "HTTP://WWW.ECOSAFETYPRODUCTS.COM"<a href="https://www.ecosafetyproducts.com">www.ecosafetyproducts.com</a> SUBSTITUTIONS: SUBMIT INFO ON ALTERNATE MANUFACTURERS FOR REVIEW BY ARCHITECT.

1. TEXTURE OPTIONS: FINE RECYCLED GLASS POWDER (NS-80)

B. DESCRIPTION: A HIGH PERFORMANCE INTERIOR/EXTERIOR WATER-BASED ACRYLIC-URETHANE SAFETY COATING UTILIZING RENEWABLE RESOURCE AND RECYCLED INGREDIENTS. CONTAINS A GLASS POWDER FOR A SLIP RESISTANT, YET NON ABRASIVE TEXTURE. ENGINEERED FOR HIGH TRAFFIC AND EXTREME WEATHER ENVIRONMENTS. SURFACE PREPARATION: REMOVE ALL BOND BREAKERS AND PREPARE SUBSTRATE FOR OPTIMUM BONDING AND PENETRATION BY MECHANICAL GRINDING AND/OR CHEMICAL ETCHING AND CLEANING.

1. COLOR PIGMENT OPTIONS: STANDARD AND I.R. (INFRARED REFLECTIVE) D. ECO-TUFF SYSTEM PRODUCTS & SURFACE PREPARATION CLEANERS (FOR CLEAR CONCRETE WITH

A MINIMUM SURFACE PROFILE OF CSP-1 TO CSP-3 IS REQUIRED AS WITH ANY HIGH TRAFFIC TEXTURED

1. SURFACE PREP 1: EE3-8000 ECO-ETCH PRO ETCHER & CLEANER SURFACE PREP 2: EF-500 ECOFAST 500 DEGREASER/CLEANER CONCENTRATE 3. PRIMER COAT: ET-6900 ECO-TUFF QUICK PRIME PRIMER SEALER 4. 1ST COAT:

 ET-6900 ECO-TUFF CLEAR COAT RECYCLED GLASS FINE POWDER: NS-RG80 5. FINISH COAT: ET-6900 ECO-TUFF CLEAR COAT

E. ECO-TUFF SYSTEM PRODUCTS & SURFACE PREPARATION CLEANERS (FOR CLEAR CONCRETE, SMOOTH TEXTURE) 1. SURFACE PREP 1: EE3-8000 ECO-ETCH PRO ETCHER & CLEANER

2. SURFACE PREP 2: EF-500 ECOFAST 500 DEGREASER/CLEANER CONCENTRATE

3. PRIMER COAT: ET-6900 ECO-TUFF QUICK PRIME PRIMER SEALER 4. 1ST COAT: ET-6900 ECO-TUFF CLEAR COAT 5. FINISH COAT: ET-6900 ECO-TUFF CLEAR COAT F. ECO-TUFF SYSTEM PRODUCTS & SURFACE PREPARATION CLEANERS (FOR COLOR WITH AGGREGATE

1. SURFACE PREP 1: EE3-8000 ECO-ETCH PRO ETCHER & CLEANER

2. SURFACE PREP 2: EF-500 ECOFAST 500 DEGREASER/CLEANER CONCENTRATE 3. PRIMER COAT: ET-7007 ECO-TUFF WHITE PRIMECOAT 4. 1ST COAT: ET-6800 ECO-TUFF FLOOR COATING

TEXTURE, MATTE FINISH)

 RUBBER AGGREGATE: NS-RBR-F RECYCLED GLASS FINE POWDER: NS-RG80 5. FINISH MATERIAL: ET-6800 ECO-TUFF FLOOR COATING

G. ECO-TUFF SYSTEM PRODUCTS & SURFACE PREPARATION CLEANERS (FOR COLOR WITH AGGREGATE TEXTURE, GLOSS FINISH) 1. SURFACE PREP 1: EE3-8000 ECO-ETCH PRO ETCHER & CLEANER 2. SURFACE PREP 2: EF-500 ECOFAST 500 DEGREASER/CLEANER CONCENTRATE

4. 1ST COAT: ET-6800 ECO-TUFF FLOOR COATING RUBBER AGGREGATE: NS-RBR-F

RECYCLED GLASS FINE POWDER: NS-RG80

6. FINISH MATERIAL: ET-6900 ECO-TUFF CLEAR COAT

3. PRIMER COAT: ET-7007 ECO-TUFF WHITE PRIMECOAT

FINISH MATERIAL: ET-6800 ECO-TUFF FLOOR COATING

4. 1ST COAT: ET-6800 ECO-TUFF FLOOR COATING

5. 2ND COAT: ET-6800 ECO-TUFF FLOOR COATING

3. PRIMER COAT: ET-7007 ECO-TUFF WHITE PRIMECOAT

H. ECO-TUFF SYSTEM PRODUCTS & SURFACE PREPARATION CLEANERS (FOR COLOR WITH SMOOTH TEXTURE, MATTE FINISH) 1. SURFACE PREP 1: EE3-8000 ECO-ETCH PRO ETCHER & CLEANER 2. SURFACE PREP 2: EF-500 ECOFAST 500 DEGREASER/CLEANER CONCENTRATE

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**REVISION DATES:** 

PROFESSIONAL SEAL

COLLINS WEBB #: 24036 **GENERAL PROJECT** 

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ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 24036

GENERAL PROJECT SPECIFICATIONS



**GENERAL NOTES: DEMOLITION PLANS** 

> 1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.

2. CONTRACTOR TO VISIT PROJECT SITE AND BUILDING PRIOR TO BID.

. BUILDING AND SITE TO REMAIN SECURE DURING DEMOLITION AND CONSTRUCTION. 4. PROTECT ALL ITEMS TO REMAIN (WALLS, PLUMBING FIXTURES, PIPING, HVAC UNITS, COLUMNS, ETC). CONTRACTOR TO PROTECT EXISTING FINISHES ADJACENT

TO DEMOLITION WORK. CONTRACTOR TO PATCH AND REPAIR ALL WORK. ESPECIALLY WORK ADJACENT TO EXISTING AREAS, AS CONTRACTOR TO REPAIR ANY AREAS DAMAGED DURING

DEMOLITION. CONTRACTOR TO REPAIR ANY PUNCTURES OR TEARS TO THE VAPOR BARRIER AT THE EXTERIOR WALLS. CONTRACTOR TO COORDINATE DEMOLITION OPENINGS WITH NEW PLANS AND ELEVATIONS. 10. REMOVE EXISTING GYP BOARD OR PLASTER AS NECESSARY, TO PROVIDE NEW BLOCKING IN EXISTING WALLS FOR NEW CASEWORK AND EQUIPMENT.

DEMOLITION. PROTECT EXISTING CONDITIONS AND MAINTAIN WEATHER TIGHTNESS FOR ALL OCCUPIED/UNOCCUPIED SPACES. BOTH VERTICALLY AND HORIZONTALLY FOR THE ENTIRE <u>DURATION THAT THE BUILDING IS EXPOSED TO THE</u> **ELEMENTS. PATCH/REPAIR/REPLACE AS REQUIRED.** 

#### **GENERAL NOTES:**

. SEE GENERAL ARCHITECTURAL SHEETS FOR ADDITIONAL

NOTES AND DETAILS THAT ARE APPLICABLE. . ARCHITECTURAL ELEVATION 100'-0" 3. DIMENSIONS SHOWN ON THE FLOOR PLAN ARE TO THE FACE OF STUD (FOS), FACE OF MASONRY (FOM), FACE OF

CONCRETE WALLS (FOC), AND COLUMN GRID LINES. UNLESS NOTED OR SHOWN OTHERWISE. 4. NOTE: WALL THICKNESSES ARE ACTUAL DIMENSIONS AND PER WALL TYPES. SEE GENERAL SHEETS. . DOOR OPENINGS NOT LOCATED BY DIMENSION SHALL BE CENTERED IN WALL SHOWN OR LOCATED 4 INCHES FROM

ALLOWING A MINIMUM OF 18" FROM THE PULL SIDE (STRIKE SIDE) OF THE DOOR TO THE INTERSECTING WALL, OR OTHER PROTRUDING OBJECTS. 3. ALL ALCOVES WITHOUT A SPACE IDENTIFICATION NUMBER SHALL HAVE THE SAME FINISHES AS THE ADJOINING

MAINTAIN AND PROTECT EXISTING EXPANSION JOINTS DURING CONSTRUCTION. PATCH/REPAIR/REPLACE TO MATCH EXISTING RATINGS AS REQUIRED ON THE SHELL PORTION OF PROJECT. 8. ALL WOOD PRODUCTS TO BE FIRE-RETARDANT, INCLUDING BLOCKING AND PLYWOOD.

9. COORDINATE FINAL SELECTION OF EQUIPMENT TYPES WITH GC OR CLIENT PRIOR TO INSTALLATION. 10. ALL COUNTERTOPS TO BE 25" DEEP, UNLESS OTHERWISE NOTED/DIMENSIONED ON PLANS. COORDINATE COUNTERTOP MATERIAL/MANUF. WITH GC OR CLIENT PRIOR TO INSTALLATION. 11. ALL BASE CABINETRY TO BE 23"D.

12. COORDINATE PLEXIGLASS TYPE/MANUF. WITH GC OR CLIENT PRIOR TO INSTALLATION. 13. COORDINATE FLOORING FINISH TYPE/MANUF. WITH CLIENT. 14. RE: PLUMBING FOR LOCATION OF FLOOR DRAIN. 15. COORDINATE WITH THE CLIENT ON FINAL PAINT COLOR,

#### **GENERAL NOTES:** REFLECTED CEILING PLANS

1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE. 2. RE: DETAILS FOR ADDITIONAL CONDITIONS AND CEILING HEIGHT INFORMATION.

RE: ELECTRICAL SHEETS AND SPECIFICATIONS FOR DETAILED INFORMATION ON LIGHT FIXTURE SCHEDULE. 4. RE: MECHANICAL SHEETS AND SPECIFICATIONS FOR DETAILED INFORMATION ON DIFFUSERS. 5. RE: MECHANICAL SHEETS FOR LOCATIONS OF SOUND

DIMENSIONS SHOWN ON THE REFLECTED CEILING PLANS ARE TO THE FACE OF GYP. BOARD (FOG), AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN OTHERWISE. AREAS HIGHLIGHTED IN GREY ARE EXISTING CONDITIONS. . ANY REPLACEMENT OF EXISTING LIGHT FIXTURES ARE TO BE COORDINATED WITH CLEINT AND ELECTRICAL. 9. ALL NEW LIGHT FIXTURES TO BE LED. COORDINATE WITH

CLIENT AND ELECTRICAL. 10. ALL CEILINGS TO BE 9'-0" A.F.F., UNLESS NOTED OTHERWISE. 1. ALL CEILING HEIGHTS AS SHOWN ON PLANS AND DETAILS ARE FROM SLAB OR TILE FLOOR (FINISHED FLOOR) TO FINISH

12. CEILING TILES/GRID TO BE CENTERED IN THE ROOM, UNLESS NOTED OTHERWISE. RECESSED LIGHTING, SPEAKERS, SMOKE DETECTORS, ETC AND PENDANT LIGHT FIXTURES - SHALL BE CENTERED IN CEILING TILE OR GYP. BD. CEILING, UNLESS NOTED

14. COORDINATE ALL PENDANT MOUNTED LIGHT FIXTURES IN EQUIPMENT AREAS WITH EXPOSED STRUCTURE. 15. COORDINATE ALL CEILING MOUNTED EQUIPMENT WITH CASEWORK BELOW.

16. IF THERE IS A CONFLICT BETWEEN ANY ABOVE-CEILING MECHANICAL / ELECTRICAL / PLUMBING WORK & THE SCHEDULED OR SHOWN CEILING HEIGHT, CONTACT THE ARCHITECT IMMEDIATELY FOR CLARIFICATION. 7. PROVIDE OVERALL CEILING COORDINATION DRAWING SHOWING ALL DEVICES DURING SHOP SUBMITTAL PROCESS 18. ALL LIGHTING BY G.C. OR CLIENT COORD. WITH MILLWORK

CONTRACTOR FOR LOCATION. 19. ALL EGRESS DOORS TO HAVE AN INTERIOR SIGN, TYP. 20. EXIT PATHS TO HAVE EXIT SIGNS AS REQUIRED BY CODE, 21. ELECTRICAL CONTRACTOR TO HAVE PRE-CONSTRUCTION

MEETING WITH CLIENT PRIOR TO ROUGH-IN FOR FINAL LIGHT 22. COORDINATE ALL FINAL LIGHT FIXTURES WITH CLIENT. 23. RE: PLUMBING FOR LOCATION OF FLOOR DRAIN.

#### **INTERIOR ELEVATIONS**

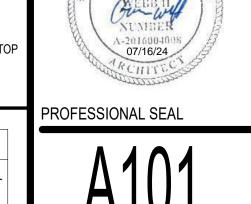
1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE. RE: SHEET G002 ACCESSIBILITY GUIDELINES FOR MOUNTING HEIGHTS OF FIXTURES AND ACCESSORIES. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO MILLWORK/ CASEWORK FABRICATION & INSTALLATION. . CONTRACTOR SHALL PROVIDE & INSTALL GROMMETS AT 48" O.C. MAX. AT ALL WORK STATIONS WITH OPEN KNEE SPACE. COORDINATE LOCATIONS DIRECTLY WITH ELECTRICAL/DATA DRAWINGS FOR OUTLET LOCATIONS. COLOR TO BE SELECTE

BY GC OR CLIENT. . RE: EQUIPMENT DRAWINGS & SPECS. FOR EQUIPMENT ITEMS SHOWN DASHED, PROVIDED BY EQUIP. CONSULTANT AND/ OR SUPPLIED BY OWNER. COORDINATE WITH OTHER TRADES AS NECESSARY

ALL COUNTERTOPS TO BE 25" DEEP. UNLESS OTHERWISE NOTED ON PLANS. COORDINATE COUNTERTOP TYPE/SPEC. WITH CLIENT OR GC PRIOR TO INSTALLATION. 7. COORDINATE/FINALIZE ALL FIXTURE AND EQUIPMENT SELECTIONS WITH CLIENT OR GC PRIOR TO INSTALLATION. **B** 8. COORDINATE ALL PAINT COLORS/SPECS. WITH CLIENT. 9. COORDINATE FINAL BASE CABINET TYPES/LAYOUT WITH

CLIENT, PRIOR TON INSTALLATION. 10. ALL COUNTERTOPS TO BE 25" DEEP, UNLESS OTHERWISE NOTED/DIMENSIONED ON PLANS. COORDINATE COUNTERTOP MATERIAL/MANUF. WITH GC OR CLIENT PRIOR TO INSTALLATION. 11. ALL BASE CABINETRY TO BE 23"D.

WALL FINISH LEGEND ---- WALL PROTECTION (FRP) FULL HEIGHT



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PLANS, SECTIONS, AND **ELEVATIONS** 

MECHAN	VICAL ABBREVIATIONS
ADDDEVIATION	(ALPHABETICAL BY ABBREVIATION)
ABBREVIATION ABV	LONG FORM  ABOVE
AC OR ACU	
AHAP	AIR-CONDITIONING UNIT  AS HIGH AS POSSIBLE
AHU	AIR-HANDLING UNIT
AUTO	AUTOMATIC
BLW	BELOW
C	CHILLER
CD	CONDENSATE
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
CH CH	CABINET HEATER
CHP	CHILLED WATER PUMP
CLNG OR CLG	CEILING
CONC	CONCRETE
CP OR CWP	CONDENSER WATER PUMP
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER SOPPLY  CONDENSER WATER RETURN
CRAC OR CACU	CONDENSER WATER RETURN  COMPUTER ROOM AIR-CONDITIONING UNIT
CREF	CHILLER ROOM EXHAUST FAN
CRU	CONDENSATE (STEAM) RETURN UNIT
CT	COOLING TOWER CELL
СТИ	CONDENSATE (STEAM) TRANSFER UNIT
CU	CONDENSING UNIT
DV	CONSTANT VOLUME TERMINAL BOX
DEF	DISHWASER EXHAUST FAN
DMPR	DAMPER
DN	DOWN
EA .	EACH
EBH	ELECTRIC BASEBOARD HEATER
EDH	ELECTRIC DUCT-MOUNTED HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
FD	FIRE DAMPER
FCU	FAN-COIL UNIT
FF.	FINAL FILTER
FFCH	FORCED-FLOW CABINET HEATER
FFU	FAN FILTER UNIT
FP	FAN POWERED TERMINAL BOX
GPM	GALLONS PER MINUTE
HC	HEATING COIL
HUM	HUMIDIFIER
HWP OR HP	HEATING WATER PUMP
HX	HEAT EXCHANGER
KEF	KITCHEN (GREASE HOOD) EXHAUST FAN
KW	KILOWATTS
LD	LINEAR SUPPLY DIFFUSER
MOT	MOTORIZED
MTD	MOUNTED
	MAKE-UP AIR FAN
MUAF	
MUAHU	MAKE-UP AIR-HANDLING UNIT

OUTSIDE AIR

OPENING

OPG OR OPNG

OUTSIDE AIR FAN

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

	NICAL ABBREVIATIONS
	CONT.
	(ALPHABETICAL BY ABBREVIATION)
ABBREVIATION	LONG FORM
PF	PRE-FILTER
PLNM	PLENUM
RA	RETURN AIR
RAF	RETURN AIR FAN
RAG OR RG	RETURN AIR GRILLE
RAR OR RR	RETURN AIR REGISTER
RAS	RETURN AIR SILENCER
RE:	IN REFERENCE TO
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAF OR SF	SUPPLY AIR FAN
SAG OR SG	SUPPLY AIR GRILLE
SAR OR SR	SUPPLY AIR REGISTER
SAS	SUPPLY AIR SILENCER
SCHP	SECONDARY CHILLED WATER PUMP
SD	SMOKE DAMPER OR DETECTOR
SPCHP	SPECIAL PROCESS CHILLED WATER PUMP
TA	THROW AWAY (FILTER TYPE)
TDEF	TRUCK DOCK EXHAUST FAN
TEF	TOILET EXHAUST FAN
TRANS	TRANSITION OR TRANSFER
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
VV	VARIABLE VOLUME TERMINAL BOX
W/	WITH
XFMR OR TFMR	TRANSFORMER
XT OR EX	EXPANSION TANK

	DUCTWORK LEGEN R TO SPECIFICATIONS SECTIONS 15815 AND 15820 FOR ADDITIONAL IN	FORMATION)
SINGLE LINE	DESCRIPTION	DOUBLE LINE
<del></del>	ROUND ELBOW DOWN	
	ROUND ELBOW UP	
<del>-)/~)-</del>	OFFSET TO CHANGE ELEVATION (AT 30° WHEN POSSIBLE. ARROW SLOPES DN, U.N.O.)	
	ROUND RADIUS ELBOW	<u> </u>
	90° STRAIGHT TEE	
	90° CONICAL TEE	
	45° LATERAL TAP	
	45° LATERAL CONICAL TEE	
<b>—</b>	SIZE OR SHAPE TRANSITION	
w	ROUND FLEXIBLE DUCT	٤======
<del>-</del>	RECTANGULAR ELBOW DOWN	<b>\</b>
<b>—</b> ×	RECTANGULAR ELBOW UP	<b>-</b>
<del>][*]</del>	OFFSET TO CHANGE ELEVATION (AT 30° WHERE POSSIBLE. ARROW SLOPES DN., U.N.O.)	\$11 <sup>-</sup>
	RECTANGULAR RADIUS ELBOW	
	RECTANGULAR ELBOW WITH TURNING VANES	\\\\\\\\\
	SPLIT BRANCH TAKE-OFF WITH SQUARE ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF WITH RADIUS ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF TEE WITH STATIONARY SPLITTER DAMPER	
	BRANCH TAKE-OFF WITH 45° LEAD IN TAP	<u> </u>
	INSULATED/LINED DUCTWORK (U.N.O.)	<b>—</b>
<del>-      </del>	SQUARE FACED CEILING DIFFUSER 4-WAY DIRECTIONAL THROW (U.N.O.)	<b>\</b>
<del></del>	ROUND FACED CEILING DIFFUSER	<b>†</b> ()
OR FI	CEILING RETURN OR EXHAUST AIR GRILLE OR REGISTER	<b>2</b>
<u></u>	SIDEALL SUPPLY GRILLE OR REGISTER	<del></del>
	SUPPLY DUCT RISER	
	RETURN, EXHAUST OR OUTSIDE AIR DUCT RISER	
+	MANUAL BALANCING DAMPER	<u> </u>
+•	AUTOMATIC (MOTOR-OPERATED) DAMPER	
+	FIRE DAMPER	
+	GRAVITY BACKDRAFT DAMPER	
· •	COMBINATION FIRE AND SMOKE DAMPER WITH SMOKE DETECTOR	
	SMOKE DAMPER (AUTOMATIC) WITH SMOKE DETECTOR	<u> </u>
(S)	DUCT MOUNTED SMOKE DETECTOR	S TOR

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

	OTHER SYMBOLS
SYMBOL	DESCRIPTION
•	INDICATES CONNECTION TO EXISTING DUCT OR PIPE

## GENERAL EQUIPMENT **DESIGNATION KEY:**

☐ EQUIPMENT ABBREVIATION AHU-R-2 

→ SCHEDULE DESIGNATION NUMBER. LEVEL OR BUILDING:

### MECHANICAL GENERAL NOTES

PRIOR TO SUBMITTING BID, VISIT THE SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING

- CONDITIONS OF THE PROJECT. REVIEW GENERAL NOTES, SPECIFICATIONS AND ALL OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID. COORDINATE THE INSTALLATION OF MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. DUCTWORK AND PIPING SHALL BE ROUTED TO AVOID CONFLICTS WITH
- ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO
  - REMAIN FOR NEW INSTALLATION DURING WORK. REPAIR ANY DAMAGE CAUSED DURING CONSTRUCTION AT NO COST TO THE OWNER.
- ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING IS SHOWN AT APPROXIMATE LOCATIONS. FIELD
- MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND SHALL MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. FIELD VERIFY FINAL LOCATIONS TO INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND
- REFER TO ARCHITECTURAL DRAWINGS FOR ALL RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. CHASE AND PENETRATIONS INTENDED FOR DUCTWORK AND PIPING SHALL BE
- VERIFIED WITH ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION. COORDINATE LOCATION OF ROOF PENETRATIONS WITH THE EXISTING CONDITIONS AND ARCHITECTURAL DRAWINGS.
- SEAL ALL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE
- CONSTRUCTION SPECIFICATIONS. FIREPROOF ALL PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
- COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL, AND DUCT INSTALLATION REQUIREMENTS. LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES SHALL BE ADJUSTED AS REQUIRED TO
- ACCOMMODATE FINAL CEILING AND LIGHTING LOCATIONS. DUCTWORK CROSSING FIRE RATED WALL OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26
- GAUGE SHEET METAL. PROVIDE FIRE AND/OR FIRE/SMOKE DAMPERS IN DUCTWORK AT CEILINGS AND WALLS AS REQUIRED BY
- BUILDING CODE AUTHORITY HAVING JURISDICTION. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE. PROVIDE WALL AND/OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO ALL FIRE AND/OR
- FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 6"x6" AND SHALL BE INSTALLED WITH 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 6"x6" ACCESS DOOR.
- THERMOSTATS AND HUMIDISTATS SHALL BE LOCATED AND SET BY MECHANICAL CONTRACTOR AND WIRED IN CONDUIT BY ELECTRICAL CONTRACTOR. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. MOUNTING HEIGHTS SHALL BE 48" AFF TO MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS.
- COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH ANY WALL MOUNTED ITEMS INDICATED ON THE ARCHITECTURAL DRAWINGS. CONTRACTOR WILL NOT BE REIMBURSED FOR
- RELOCATION OF ANY WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION. ALL BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS, AND GRILLES SHALL HAVE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY. RECTANGULAR/ROUND BRANCH
- DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE
- RIGID DUCTWORK INSULATION: PROVIDE R-6 MINIMUM INSULATION WRAP ON ALL CONCEALED DUCTWORK. PROVIDE R-6 MINIMUM INTERNAL DUCT LINER ON ALL EXPOSED DUCTWORK. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE DIMENSIONS, SHEET METAL SIZES SHALL INCREASE
- ACCORDINGLY. PROVIDE R-12 MINIMUM INSULATION ON ALL DUCTWORK INSTALLED IN UNCONDITIONED SPACES. REFER TO SPECIFICATIONS FOR MORE INFORMATION. FLEXIBLE DUCT WORK SHALL BE THERMAFLEX TYPE MKE, FLEXMASTER TYPE 8M, OR APPROVED EQUAL, SHALL BE LISTED UNDER 181 AS CLASS 1 AIR DUCT AND SHALL BE PROVIDED WITH INTEGRAL R-6
- MINIMUM FIBERGLASS INSULATION. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORT TO AVOID SHARP BENDS AND SAGGING. WALL MOUNTED DIFFUSERS AND GRILLES SHALL BE PROVIDED WITH SUITABLE MOUNTING FRAME TO MATCH WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.

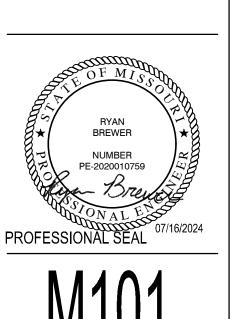
## GENERAL MECHANICAL NOTES:

- 1. REFER TO ARCHITECTURAL PLANS FOR RATED WALLS AND PARTITIONS. VERIFY FIRE AND/OR SMOKE DAMPER LOCATIONS AT DUCTS OR OPENINGS PENETRATING THESE
- 2. REFER TO ARCHITECTURAL PLANS FOR ROOM NAMES AND NUMBERS. 3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING
- DIFFUSERS, REGISTERS, AND GRILLES. 4. VERIFY LOCATIONS OF THERMOSTATS WITH ARCHITECT AND OWNER PRIOR TO
- INSTALLATION. 5. VERIFY LOCATIONS OF EXPOSED DUCTS WITH ARCHITECT PRIOR TO INSTALLATION.
- 6. DUCT DIMENSIONS INDICATED ON PLANS ARE FREE AREA DIMENSIONS. 7. SUPPLY AND RETURN AIR DUCT SHALL BE INTERNALLY LINED WHERE SPECIFIED.
- 8. ALL LOUVER SIZES ON MECHANICAL PLANS ARE GIVEN IN FREE AREA REQUIRED. REFER TO
- ARCHITECTURAL PLANS FOR DIMENSIONS AND LOCATIONS. 9. COORDINATE TERMINAL BOX AND BALANCING DAMPER LOCATIONS CAREFULLY TO INSURE
- PROPER AND ADEQUATE ACCESS TO FILTERS, MOTORS, CONTROL VALVES, CONTROL PANLES, ETC. PROVIDE ACCESS PANELS AS SPECIFIED WHERE REQUIRED TO ASSURE THIS
- 10. CEILING PLENUM SPACE IS VERY TIGHT. WHERE REQUIRED, DUCTS OR PIPES SHALL BE ROUTED BETWEEN LIGHT FIXTURES AND UP AND OVER OTHER DUCTS OR PIPES USING THE SPACES BETWEEN STRUCTURAL JOISTS OR BEAMS WHERE APPLICABLE. CONTRACTOR SHALL BE RESPONSIBLE FOR CAREFULLY COORDINATING ALL TRADES. EXISTING UNKNOWN CONDITIONS MAY AFFECT EXACT DUCT OR PIPE ROUTING, OR EXISTING CONDITIONS MAY NEED TO BE MODIFIED TO ACCOMMODATE DUCTS AND PIPES.



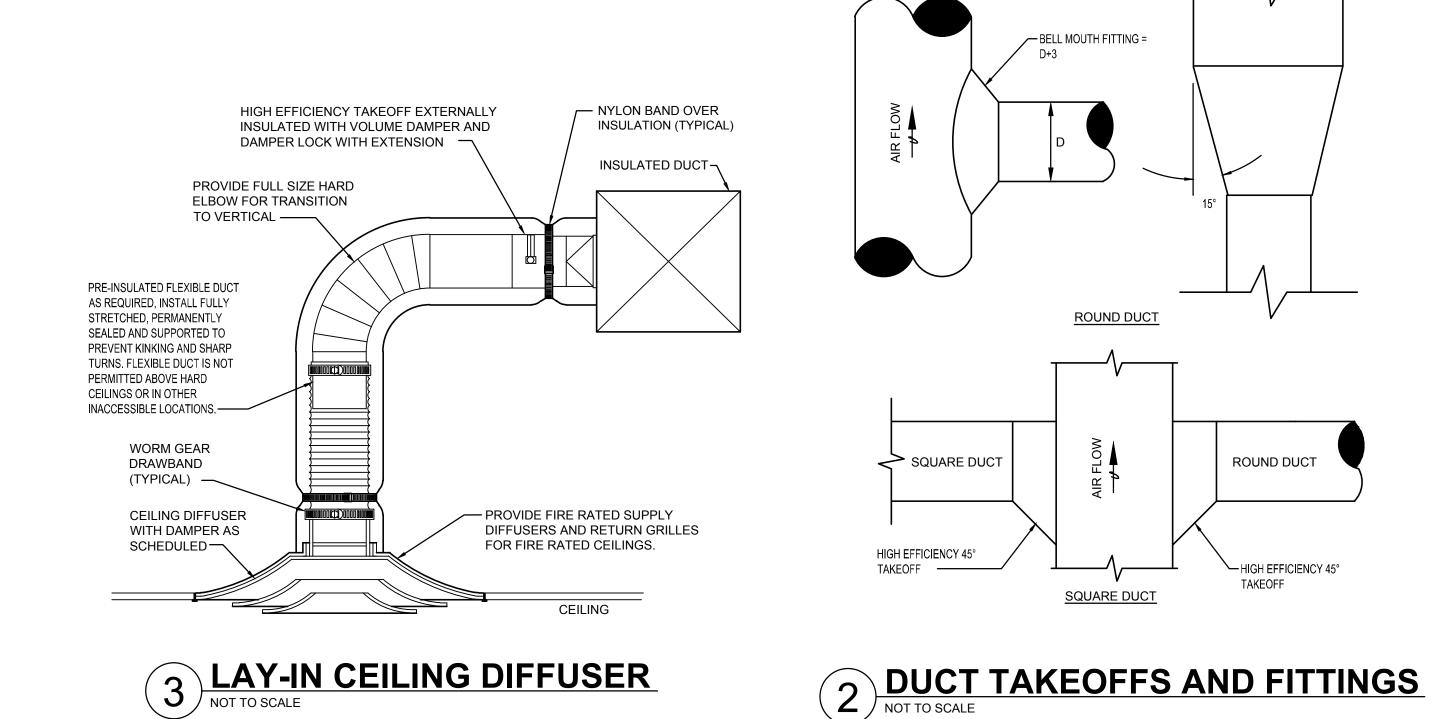
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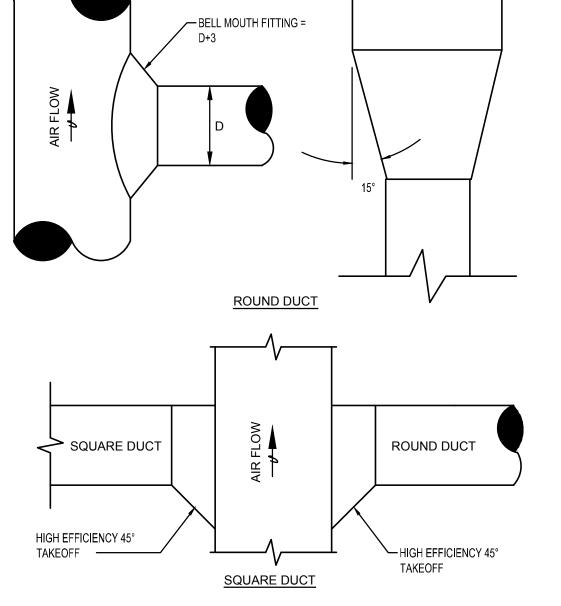
**REVISION DATES:** 



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MECHANICAL NOTES, SYMBOLS, AND ABBREVS.





- TWIST STRAP (TYP. 2)

2"x2"x1/4" ANGLE OR UNISTRUT

ROOF OR UPPER FLOOR

ANGLE OR UNISTRUT

60" (MAX)

RECTANGULAR DUCT
PARALLEL TO STRUCTURE

— HANGER STRAP. SEE

SHEET METAL SCREWS.

ROUND DUCT -

TWO SHEET METAL SELF

TAPPING SCREWS ———

POINTS (TYPICAL)

RECTANGULAR DUCT PERPENDICULAR TO STRUCTURE

NOTE:

ROOF OR UPPER FLOOR

LOADS MUST BE HUNG WITHIN 6" OF PANEL

THREADED ROD

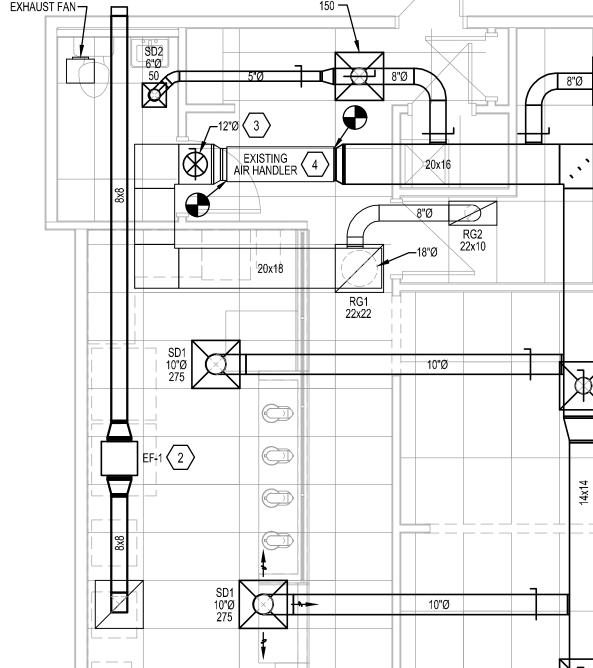
(TYPICAL)——

16 GA. GALV. STEEL BAND (2" WIDE)

BOTTOM OF STRUCTURE —

RECTANGULAR DUCT —

ANGLE OR UNISTRUT —



EXISTING HEAT 4



#### **KEYED NOTES:**

**GENERAL NOTES** 

SYMBOLS, AND ABBREVIATIONS.

REFERENCE SHEET M1.01 FOR GENERAL NOTES,

(NOT ALL NOTES APPLY)

RELOCATE EXISTING THERMOSTAT FOR EXISTING AIR HANDLER TO LOCATION INDICATED. MOUNT TOP OF THERMOSTAT AT MAXIMUM 48" AFF PER ADA REQUIREMENTS. 2. ROUTE EXHAUST DUCT TO EXTERIOR WALL AND TERMINATE WITH WALL CAP, EF-1 SHALL RUN CONTINUOUSLY DURING OPERATING HOURS. 3. ROUTE 12"Ø FRESH AIR DUCT FROM RETURN DUCT UP THROUGH ROOF AND TERMINATE WITH ROOF HOOD.

Boutique ea

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ARCHITECTURE, LLC **REVISION DATES:** 

EXISTING 5-TON SPLIT SYSTEM TO REMAIN. FIELD VERIFY EXACT LOCATION OF INDOOR AND OUTDOOR UNITS. BALANCE SUPPLY AIRFLOW OF INDOOR UNIT TO 2000 CFM AND FRESH AIR INTAKE TO 400 CFM.

3/8" ALL THREADED STEEL RODS SUPPORT FROM BUILDING STRUCTURE LENGTH OF RODS TO SUIT SPACE — STEEL SPRING AND RUBBER IN SHEAR TYPE VIBRATION ISOLATORS — FLEXIBLE CONNECTION MOUNTING BRACKET —— → AIR FLOW FLEXIBLE CONNECTION —



## 3 DUCT HANGERS AND SUPPORTS NOT TO SCALE

1. USE THREADED ROD FOR ALL DUCTS LARGER THAN 60" WIDE.

SHEET METAL SCREWS MAY BE OMITTED IF HANGER STRAP IS CONTINUOUS AND LOOPS UNDER ENTIRE DUCT.

		·,	AND DIFFUSE		ENGLISH STATE OF THE STATE OF T	<del>1</del>
			FACE	MOUNTING	FACE SIZE	1000
MARK	MANUFACTURER	MODEL	TYPE	LOCATION	(IN)	NOTES
SD1	PRICE	SCD	SQUARE CONE	CEILING	24"x24"	1,2,3,4,5,6,7
SD2	PRICE	SCD	SQUARE CONE	CEILING	12"x12"	1,2,3,4,5,6,7
RG1	PRICE	80	EGGCRATE	CEILING	24"x24"	1,3,4,6,7
RG2	PRICE	80	EGGCRATE	CEILING	24"x12"	1,3,4,6,7
EG1	PRICE	PDDR	PERFORATED	CEILING	24"x24"	1,3,4,6,7

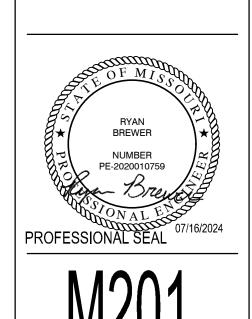
MECHANICAL PLAN

1 NECK SIZE SHOWN ON DRAWINGS.

2 4-WAY THROW PATTERN, UNLESS SHOWN OTHERWISE ON DRAWINGS (REFER TO FLOW ARROWS IF INDICATED ON DRAWINGS). 3 BAKED ENAMEL FINISH TO MATCH CEILING/WALL COLOR, COORDINATE WITH ARCHITECTURAL PLANS. 4 PROVIDE NECK FOR DUCT CONNECTION.

5 BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS. 6 FRAME TYPE TO MATCH CONSTRUCTION OF MOUNTING LOCATION, COORDINATE WITH ARCHITECTURAL PLANS. 7 PROVIDE WITH VOLUME DAMPER OPERABLE FROM FACE OF DIFFUSER/GRILLE IN HARD CEILINGS.

EXHAUST FAN SCHEDULE												
				VOLUME	ESP	FAN	DRIVE	MOTOR	ELECTRICAL	WEIGHT		
MARK	MANUFACTURER	MODEL	MOUNTING	(CFM)	(IN)	RPM	(BELT/DIRECT)	HP	VOLTS/PH	(LBS)	NOTE	
EF-1	GREENHECK	SQ-90-VG	INLINE	300	0.5	1540	DIRECT	1/6	240/1/60	60	1,2	



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MECHANICAL PLAN

READ THE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL DIVISIONS OF WORK AND COORDINATE AND THE WORK OF SUBCONTRACTORS WITH ALL DIVISIONS OF WORK. PROVIDE SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.

SCHEDULE THE COMPLETION AND INSPECTION OF WORK AND THE WORK OF SUBCONTRACTORS WORK TO COMPLY WITH THE SCHEDULE AND THE PROJECT COMPLETION DATE.

VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE RESPONSIBILITY IN PERFORMANCE OF WORK.

READ ALL RELEVANT DOCUMENTS, BECOME FAMILIAR WITH THE JOB, SCOPE OF WORK, TYPE OF GENERAL CONSTRUCTION, AND THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. ALSO UNDERSTAND THE PURPOSE FOR MATCH EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN WHICH THESE DOCUMENTS HAVE BEEN PREPARED AND BECOME COGNIZANT OF ALL THE DETAILS INVOLVED. COORDINATE WORK WITH THAT OF OTHERS.

FURNISH - PURCHASE AND DELIVER TO PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT. INSTALL - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER PERFORM ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF THE LOCATION IN THE PROJECT PROVIDE - FURNISH AND INSTALL

#### GENERAL REQUIREMENTS

PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE OTHERS SHALL BE PROVIDED. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH THE ARCHITECT-ENGINEER, AS REQUIRED.

THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR. WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF

WHERE THE DRAWINGS OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OR THE OWNERS CRITERIA, PROVIDE THE SYSTEM WITH THE MORE STRINGENT REQUIREMENTS AS DESIGNED AND DESCRIBED ON THESE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.

ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING, AND REPAIRING, THIS CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT SERVICE ACCESS TO ALL EQUIPMENT

ALL WORK SHALL BE PERFORMED IN A NEAT PROFESSIONAL MANNER USING GOOD ENGINEERING PRACTICES.

UNLESS SPECIFICALLY NOTED OTHERWISE, MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW, UNDERWRITERS LABORATORIES LISTED AND LABELED AND SIZED IN CONFORMITY WITH REQUIREMENTS OF STATE AND LOCAL CODES, WHICHEVER IS MORE STRINGENT.

ALL WORK SHALL CONFORM TO THE OWNER'S CRITERIA, THE STATE'S, COUNTY'S, CITY'S AND LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY METHODS ARE ALSO SUBJECT TO LANDLORD CRITERIA. CODES AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS, INQUIRE INTO AND COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS. INCLUDE ANY CHANGES REQUIRED BY CODES IN THE BID AND IF THESE CHANGES ARE NOT INCLUDED IN THE BID. THEY MUST BE QUALIFIED AS A SEPARATE LINE ITEM IN THE BID. AFTER CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE OWNER.

LICENSES, PERMITS, COMMISSIONING, INSPECTIONS & FEES

OBTAIN AND PAY FOR ALL LICENSES, PERMITS, COMMISSIONING, INSPECTIONS, AND FEES REQUIRED OR RELATED TO THIS WORK.

PROVIDE TO THE OWNER-ARCHITECT A COMMISSIONING PLAN, PRELIMINARY COMMISSIONING REPORT, FINAL COMMISSIONING REPORT, AND CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

#### TRADE NAMES, MANUFACTURERS AND SHOP DRAWINGS

WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUAL OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO APPROVAL IN WRITING BY ARCHITECT-ENGINEER PRIOR TO BID THROUGH SHOP DRAWING SUBMITTAL PROCESS, FOR ACCEPTANCE PRIOR TO INSTALLATION. ANY CHANGES TO ELECTRICAL SERVICE, STRUCTURAL FRAMING, ETC. OR ANY OTHER MODIFICATION THAT IS REQUIRED BY THE USE OF ALTERNATE EQUIPMENT SHALL BE COORDINATED WITH OTHER TRADES AND SHALL INCLUDE ALL COSTS IN BID FOR THE REQUIRED CHANGES. THE USE THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT NO EXPENSE TO THE OWNER.

GUARANTEE ALL MATERIALS AND WORK PROVIDED UNDER THIS CONTRACT AND MAKE GOOD, REPAIR OR REPLACE AT NO EXPENSE TO THE OWNER, ANY DEFECTIVE WORK, MATERIAL. OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF TWELVE (12) MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION. EXTENDED DELAYS OR CONFLICTS IN THE PROJECT'S PROGRESS. WARRANTIES ARE AS SPECIFIED WITH INDIVIDUAL EQUIPMENT.

#### **QUALITY ASSURANCE**

INDUSTRY STANDARDS AND CODES: UNLESS MODIFIED BY THESE SPECIFICATIONS, THE DESIGN, MANUFACTURER, TESTING AND METHOD OF INSTALLING ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL CONFORM TO THE FOLLOWING: 1. ARI CODE FOR REFRIGERATION APPARATUS

2. ANSI B9.1 SAFETY CODE FOR MECHANICAL REFRIGERATION 3. STANDARDS OF NATIONAL FIRE PROTECTION ASSOCIATION ASHRAE

MAINTAIN ONE COPY OF DRAWINGS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS: LOCATION OF CONCEALED PIPING VALVES AND DUCTS, REVISIONS, ADDENDUMS, AND CHANGE ORDERS, AND SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTOR'S COORDINATION WITH OTHER TRADES.

AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. A SET OF REPRODUCIBLE DRAWINGS ALONG WITH ONE SET OF BLULINES OF THE MOST RECENT SET OF DRAWINGS WITH TEMPERATURE CONTROL DRAWINGS INCLUDED SHALL BE DELIVERED TO THE ARCHITECT UPON COMPLETION OF THE WORK AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

#### DISCREPANCIES IN DOCUMENTS

GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS. EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE

UNCLEAR, ADVISE THE ARCHITECT-ENGINEER IN WRITING, OF VARIATIONS TO CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, ARCHITECT-ENGINEER'S INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

#### PHASING REQUIREMENTS

INCLUDE IN BID ALL NECESSARY SERVICE REQUIRED TO KEEP THE OPERATING PHASE OF THE PROJECT'S HVAC, PLUMBING AND SPRINKLER SERVICE IN OPERATION. IF APPLICABLE, SCHEDULE IN WRITING WITH ARCHITECT ONE WEEK PRIOR TO ANY SHUT DOWN OF THE HVAC, PLUMBING OR FIRE PROTECTION SYSTEMS.

COORDINATE THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY OTHER. COORDINATE ANY EXISTING EQUIPMENT REQUIRED TO BE LEFT INTACT.

VERIFY SCOPE OF AND THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. VERIFY ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AND ROOF/WALL/FLOOR PATCHED/REPAIRED TO THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT TO BE REUSED IN THIS PROJECT. ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO THERMOSTAT, T-1). THE NAMEPLATE IDENTIFICATIONS SHALL COINCIDE WITH ITEMS POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN

WORK UNDER THIS SPECIFICATION. NO CUTTING OF THE STRUCTURE SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OR ARCHITECT. PATCHING SHALL BE OF THE SAME WORKMANSHIP, MATERIAL AND FINISH AND SHALL

MATCH ACCURATELY ALL SURROUNDING CONSTRUCTION IN A MANNER SATISFACTORY TO

EXISTING UTILITIES, ETC. THAT ARE DAMAGED DURING THE CONSTRUCTION PERIOD, WHETHER OR NOT DUE TO NEGLIGENCE SHALL BE REPAIRED OR REPLACED AND LEFT IN A CONDITION SUITABLE TO THE ARCHITECT.

ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED AND INSTALLED EVEN PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL OR PARTITION AND SHALL CHANGES SHALL TAKE EFFECT. IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WHICH SHALL EXTEND 2" ABOVE THE FLOOR. COORDINATE THROUGH THE ARCHITECT ANY CORE DRILLING OR CUTTING OF OPENINGS IN MASONRY FLOORS OR WALLS.

> ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH CALCIUM SILICATE, SILICONE "RTV" FOAM, "3M" FIRE RATED SEALANTS OR EQUAL, SO AS TO RETAIN THEIR FIRE RATING.

SLEEVES IN BEARING AND MASONRY WALLS, FLOORS, AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE NO. 22 U.S.G. GALVANIZED STEEL MINIMUM.

HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS ANGLE IRON, BANDS, C-CLAMPS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK

HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OF BAR JOIST. WHERE INTERFERENCES OCCUR. AND IN ORDER TO SUPPORT DUCTWORK OR PIPING, INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, AND OTHER EQUIPMENT. HANGER TYPES AND INSTALLATION

HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION, INSTALL 6" LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED. PROVIDE SWAY AND SEISMIC BRACING WHERE REQUIRED BY CODE.

DTECT MATERIALS, APPARATUS AND EQUIPMENT FROM DAMAGE, MOISTURE, DIRT, DEBRIS AND WORK OF OTHER TRADES.

OPERATION MANUALS AND INSTRUCTIONS

PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS AT THE COMPLETION OF THE PROJECT. SUBMIT THREE HARD BOUND COPIES TO ARCHITECT. SCHEDULE A MEETING WITH THE OWNER'S REPRESENTATIVE AT THE SITE TO PROVIDE DETAILED INFORMATION ON THE OPERATING AND MAINTENANCE OF EQUIPMENT.

SUBMIT WITHIN THIRTY (30) DAYS AFTER THE DATE OF NOTICE TO PROCEED AND BEFORE PURCHASING ANY MATERIALS OR EQUIPMENT, SUBMIT TO THE ARCHITECT FOR REVIEW, A COMPLETE LIST, IN SIX (6) COPIES, OF ALL MATERIALS INCORPORATED IN THE WORK. THIS LISTING SHALL BE ARRANGED BY THE ORDER OF OCCURRENCE IN THE SPECIFICATIONS, FOLLOWED BY THE ITEMS ON THE DRAWING NOT SPECIFICALLY INCLUDED IN THE SPECIFICATIONS.

AFTER THE LIST HAS BEEN PROCESSED BY THE ARCHITECT. SUBMIT COMPLETE SHOP DRAWINGS AND PRODUCT DATA OF ALL EQUIPMENT. THESE SUBMITTALS SHALL BE SUBMITTED WITHIN THIRTY (30) DAYS AFTER THE PROCESSING DATE OF THE ORIGINAL SUBMITTAL LIST. SUBMISSIONS SHALL BE MADE EARLY ENOUGH IN PROJECT TO ALLOW FOR (10) WORKING DAYS FOR REVIEW BY ARCHITECT-ENGINEER WITHOUT CAUSING

ALL SUBMITTALS SHALL BE COMPLETE AND SHALL BE IN THREE-RING, LOOSE -LEAF BINDERS, NO CONSIDERATION WILL BE GIVEN TO PARTIAL SUBMITTALS, UNLESS NOTED OTHERWISE BY ARCHITECT. EACH ITEM SHALL HAVE A COVER PAGE STATING PROJECT, SPECIFICATION AND PARAGRAPH REFERENCE NUMBER, OR DRAWING REFERENCE NUMBER, AND SCHEDULED EQUIPMENT IDENTIFICATION NUMBER, IF APPLICABLE.

THE REVIEW OF SUBMITTALS DOES NOT RELIEVE RESPONSIBILITY OF SHOP DRAWING ERRORS IN DETAILS, SIZES, QUANTITIES, WIRING DIAGRAM ARRANGEMENTS AND DIMENSIONS WHICH DEVIATE FROM THE SPECIFICATIONS, CONTRACT DRAWINGS AND/OR JOB CONDITIONS AS THEY EXIST.

IF APPARATUS OR MATERIALS ARE SUBSTITUTED FOR THOSE SPECIFIED UNDER THIS SECTION, AND SUCH SUBSTITUTIONS NECESSITATE CHANGES IN OR ADDITIONAL CONNECTIONS, PIPING SUPPORTS OR CONSTRUCTIONS, SAME SHALL BE PROVIDE AT NO ADDITIONAL COST TO THE OWNER. ASSUME COST AND ENTIRE RESPONSIBILITY THEREOF. ARCHITECT'S PERMISSION TO MAKE SUCH SUBSTITUTION SHALL NOT RELIEVE FULL RESPONSIBILITY FOR WORK.

#### 15400 - HEATING VENTILATION AND & AIR CONDITIONING

ALL MATERIALS AND EQUIPMENT SHALL BE NEW. SYSTEMS SHALL FUNCTION CORRECTLY AS A WHOLE, AND IN ALL ITS PARTS, UP TO THE SPECIFIED CAPACITY. SYSTEMS OR DEVICES FAILING TO MEET PERFORMANCE REQUIREMENTS SHALL BE REPLACED, ALTERED DRAWINGS (PLANS, SPECIFICATIONS, AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE OR REPAIRED AS REQUIRED TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS. WORK DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS, OR REPAIRS SHALL BE RESTORED TO PRIOR CONDITIONS, AT NO ADDITIONAL COST TO THE OWNER. WHERE

MULTIPLE ITEMS OF EQUIPMENT OR MATERIALS ARE REQUIRED. THEY SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER. BEFORE ORDERING EQUIPMENT, THE PHYSICAL DIMENSIONS SHALL BE CHECKED TO VERIFY FIT IN SPACES ALLOTTED ON THE DRAWINGS. INSERTS, PIPE SLEEVES, AND SUPPORTS OF AIR CONDITIONING EQUIPMENT SHALL BE PROVIDED AS SPECIFIED. WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE, MASONRY OR SIMILAR WORK, THE ITEMS SHALL BE FURNISHED AT THE PROPER TIME FOR SETTING OR EMBEDMENT SO AS TO CAUSE NO DELAY, DUCTWORK AND EQUIPMENT ASSEMBLIES SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. ADDITIONAL DUCTWORK AND APPURTENANCES REQUIRED FOR PROPER OPERATION OF EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

MODEL OR CATALOG NUMBERS. THIS DOES NOT INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS NECESSARILY AN "OFF THE SHELF" ITEM; REQUIREMENTS FOR SPECIFIC FINISHES, MATERIALS OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURER'S STANDARDS. ASCERTAIN THAT SUCH MODIFICATIONS ARE FULLY

EACH MAJOR COMPONENT OF EQUIPMENT SHALL HAVE THE MANUFACTURER'S NAME, ADDRESS AND CATALOG NUMBER ON A PLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE. THE NAMEPLATE OF A DISTRIBUTING AGENT WILL NOT BE ACCEPTED. ALL PIECES OF EQUIPMENT, VALVES, STARTERS, DISCONNECTS, AND ALL PNEUMATIC AND ELECTRIC CONTROL INSTRUMENTS AND APPARATUS SHALL BE IDENTIFIED WITH 1/16" THICK BLACK LAMINATED PLASTIC NAMEPLATES, WITH 3/16" HIGH WHITE LAMINATED LETTERS. SIMILAR AND LIKE EQUIPMENT SHALL BE DESIGNATED WITH NUMERICAL SUFFIX (EXAMPLE:

APPEARING ON DIAGRAMS. PROVIDE A LABEL FOR THE MECHANICAL SYSTEM STATING:

(NAME, ADDRESS AND PHONE NUMBER OF CONTRACTOR). LETTERS SHALL BE 1/4" HIGH

#### AND LOCATED IN A CONSPICUOUS PLACE NEAR THE HVAC EQUIPMENT.

THE WORK SHALL BE PERFORMED BY QUALIFIED MECHANICS. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BE INSTALLED IN NEAT, WORKMANLIKE MANNER. MATERIALS, DEVICES OR EQUIPMENT WHICH. IN THE OPINION OF THE ARCHITECT-ENGINEER. IS AT NO ADDITIONAL COST TO THE OWNER, THE WORK SHALL BE COORDINATED WITH THE PRESSURE WORK OF OTHER TRADES. WHERE THE WORK IS DEPENDENT UPON WORK OF OTHER EXAMINED AND SHALL BE IN PROPER CONDITION AND STATE OF COMPLETION BEFORE CONTINUING THE INSTALLATION. THE INSTALLATION OF WORK SHALL, IN GENERAL, BE AS HIGH AS POSSIBLE AND LOCATED IN ACCORDANCE WITH THE DRAWINGS. DUCTWORK INDICATED SHALL BE FOLLOWED AS ACCURATELY AS POSSIBLE. ANY NECESSARY DEVIATIONS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT-ENGINEER. PROVIDE DRAWINGS SHOWING PROPOSED CHANGES. APPROVAL IS REQUIRED BEFORE

LAYOUT OPENINGS FOR CUTTING BY OTHER TRADES AS REQUIRED. CUTTING OF STEEL. CONCRETE OR ANY OTHER STRUCTURAL PART MUST BE APPROVED IN WRITING BY ARCHITECT-ENGINEER PRIOR TO CUTTING.

DO NOT CUT OR PENETRATE WATERPROOFED SURFACES, OR WATERPROOFING

MEMBRANES, WITHOUT FIRST MAKING ARRANGEMENTS FOR REPAIR BY A METHOD APPROVED BY ARCHITECT-ENGINEER. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE

WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.

POWER WIRING FROM PANELS TO MOTOR CONTROLLERS AND FROM CONTROLLERS TO MOTORS IS SPECIFIED IN DIVISION 16. MOTOR STARTERS NOT SPECIFIED TO BE WIRING DIAGRAMS FOR APPROVAL AND FURNISH APPROVED DIAGRAMS TO THE ELECTRICAL CONTRACTOR FOR COORDINATION, ELECTRICAL CONTROL WIRING FOR CONNECTION OF TEMPERATURE CONTROLLERS, PUSH BUTTONS, INTERLOCKS IN MOTOR CONTROLLERS, AND LIKE ITEMS IS SPECIFIED IN THE CONTROL SECTION(S) IN THIS DIVISION. FURNISH ALL EQUIPMENT WITH COMPLETE INTERNAL CONTROL WIRING. ELECTRICAL WORK SPECIFIED IN THIS DIVISION SHALL CONFORM TO APPLICABLE PROVISIONS OF DIVISION 16. ALL CONTROL WIRING SHALL BE IN CONDUIT. PROVIDE MOTORS CONFORMING TO CHARACTERISTICS SHOWN ON ELECTRICAL DRAWINGS.

ROVIDE ACCESS REQUIRED FOR MAINTENANCE, ADJUSTMENT, REMOVAL AND REPAIR OF VALVES, CONTROLS, DAMPERS, EQUIPMENT AND LIKE ITEMS. PROVIDE ACCESS DOORS (ACCESS PANELS) CONFORMING TO REQUIREMENTS OF DIVISION 8 SPECIFICATIONS. PANELS SHALL BE LOCATED TO MAKE ALL ITEMS EASILY ACCESSIBLE.

REFER TO GENERAL CONDITIONS FOR CLEAN-UP. CLEAN ALL MATERIALS AND EQUIPMENT OF DIRT, DUST, PAINT, SPOTS AND STAINS, SOIL MARKS AND OTHER FOREIGN MATTER. GIVE NOTICE TO THE ARCHITECT-ENGINEER THAT THE WORK IS READY FOR FINAL

INSPECTION. 1. SUBMIT TEST AND BALANCE REPORT AND COMPLETE REQUIREMENTS AS NOTED. 2. SUBMIT LETTER FROM CONTROL MANUFACTURER CERTIFYING THAT CONTROLS HAVE BEEN CHECKED FOR OPERATION AND CALIBRATION, AND THAT THE SYSTEM IS

FURNISH NECESSARY MECHANICS TO OPERATE SYSTEM, MAKE NECESSARY ADJUSTMENTS AND ASSIST WITH FINAL INSPECTION.

INCLUDE THE COST OF THE SERVICES OF QUALIFIED INSTRUCTOR(S) TO INSTRUCT THE OWNER'S OPERATING PERSONNEL IN THE OPERATION, ADJUSTMENT, CARE AND MAINTENANCE OF ALL HVAC EQUIPMENT AND SYSTEMS. INSTRUCTION SHALL BE PERFORMED AT A TIME APPROVED BY THE OWNER AND AFTER ALL HVAC EQUIPMENT AND

SYSTEMS ARE INSTALLED, COMPLETE, ADJUSTED AND OPERATING TO SPECIFIED REQUIREMENTS. NOTIFY THE ARCHITECT-ENGINEER WHEN INSTRUCTIONS WILL BE GIVEN. QUALIFICATIONS OF INSTRUCTORS SHALL BE SUBJECT TO APPROVAL OF THE OWNER AND EQUIPMENT MANUFACTURER. ADDITIONAL REQUIREMENTS CONCERNING OPERATION AND MAINTENANCE OF MECHANICAL EQUIPMENT AND SYSTEMS MAY BE SPECIFIED IN OTHER SECTIONS. TWO COPIES OF ACKNOWLEDGMENT OF ALL REQUIRED INSTRUCTIONS TO OWNER'S OPERATING PERSONNEL, SIGNED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE, SHALL BE SUBMITTED TO THE ARCHITECT-ENGINEER PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT. AN ADDITIONAL COPY OF THIS ACKNOWLEDGMENT IS REQUIRED IN EACH COPY OF OPERATION AND MAINTENANCE MANUALS REQUIRED IN THE SECTION, OPERATION AND MAINTENANCE MANUALS.

#### OPERATION AND MAINTENANCE MANUALS

OPERATING AS INTENDED.

FURNISH THREE COPIES OF COMPLETE OPERATION AND MAINTENANCE MANUALS TO THE ARCHITECT-ENGINEER, FOR APPROVAL AND FOR THE OWNER, ON ALL EQUIPMENT AND SYSTEMS. THE MANUALS SHALL BE BOUND IN HARD-BACK, THREE RING LOOSE-LEAF BINDERS. MANUALS SHALL CONTAIN A TITLE SHEET WITH JOB NAME, AND THE NAMES, ADDRESSES AND PHONE NUMBERS OF THE CONTRACTOR, SUBCONTRACTOR, CONTROL SUBCONTRACTOR, RELATED CONTRACTORS AND MATERIAL AND EQUIPMENT SUPPLIERS.

A COPY OF ACKNOWLEDGMENT OF INSTRUCTION TO THE OWNER'S OPERATING PERSONNEL IN THE OPERATION OF ALL MECHANICAL EQUIPMENT AND SYSTEMS, SIGNED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE. TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING HOW TO STOP AND START TEST AND BALANCE REPORT: SUBMIT AT FINAL INSPECTION OPERATION AND MAINTENANCE EACH PIECE OF EQUIPMENT; HOW TO SET THE TEMPERATURE CONTROL SYSTEM FOR MANUALS: SUBMIT COPIES IN COMPLIANCE WITH SECTION, OPERATION AND MAINTENANCE NORMAL OPERATION AND NORMAL RESTARTING PROCEDURES, CAUTION AND WARNING NOTICES. APPROVED SHOP DRAWINGS, PRODUCT DATA AND PARTS AND MAINTENANCE BOOKLET FOR EACH ITEM OF MATERIAL AND EQUIPMENT FURNISHED UNDER DIVISION 15000. RECORD DRAWINGS OF ALL SYSTEMS INCLUDING ELECTRICAL AND CONTROL DIAGRAMS. TEST AND BALANCE REPORT. COPIES OF CERTIFICATES OF INSPECTION. GUARANTEES, INCLUDING EXTENDED GUARANTEES.

DELIVER THE MANUALS TO THE OWNER PRIOR TO SUBMITTING APPLICATION FOR FINAL

PROVIDE CONDENSATE DRAINS FOR ALL AIR CONDITIONING UNITS AND PIPE AS DENOTED ON DRAWINGS. CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH TRAP AT THE COIL CONNECTION AND SHALL HAVE A MINIMUM SEAL DEPTH EQUAL TO THE RESPECTIVE AIR HANDLING UNIT FAN STATIC PRESSURE, DEPTH SHALL BE A MINIMUM OF 2".

PROVIDE SUPPLY AND RETURN CONDENSER WATER PIPING AS SHOWN ON DRAWINGS AND SPECIFIED HEREIN. HYDRONIC PIPING FOR CHILLED WATER, CONDENSER WATER AND/OR HEATING WATER SHALL BE ASTM A-120, SCHEDULE 40, ERW, BLACK STEEL PIPE WITH PLAIN ENDS. INSTALL STEEL PIPE WITH WELDED JOINTS WHERE PIPE IS 2-1/2 INCH AND LARGER. PROVIDE DIELECTRIC UNIONS BETWEEN DISSIMILAR METALS. ALL PIPING SHALL BE IN SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAMES AND STRICT CONFORMANCE WITH ASTM, AND ASA, WHICHEVER IS MOST STRINGENT. UNIONS OR FLANGES MUST BE USED AT EQUIPMENT CONNECTIONS WHERE SERVICE OR REMOVAL

> ALL PIPING AND EQUIPMENT SHALL BE PRESSURE TESTED WITHOUT LEAKAGE AT A MINIMUM PRESSURE OF 125 PSI.

ALL HYDRONIC PIPING AND EQUIPMENT CONNECTED TO THE HVAC PIPING SYSTEM SHALL BE CLEANED AND FLUSHED. REMOVE, CLEAN, AND REPLACE STRAINER SCREENS. FILL TENANT'S SYSTEM WITH DOMESTIC WATER OR PER LANDLORD'S REQUIREMENTS AND VENT ALL PIPING AND EQUIPMENT PRIOR TO CONNECTION TO THE LANDLORD'S SYSTEM. DO NOT FILL SYSTEM WITH WATER FROM THE BASE BUILDING SYSTEM UNLESS SPECIFICALLY INSTRUCTED TO DO SO.

PRIOR TO CONNECTION TO THE BASE BUILDING SYSTEM, OBTAIN WRITTEN CONFIRMATION THAT ALL TESTING, FLUSHING, AND PROPER FILLING OF THE SYSTEM HAS BEEN COMPLETED IN ACCORDANCE TO THE BASE BUILDING REQUIREMENTS AND THAT THE SYSTEM IS READY TO BE CONNECTED TO THE BASE BUILDING SYSTEM.

GATE VALVES (2-INCH AND SMALLER): CLASS 150, BODY AND UNION BONNET OF ASTM B 62 CAST BRONZE WITH THREADED OR SOLDER ENDS, INTEGRAL SEAT, RENEWABLE SOLID BRONZE WEDGE DISC, RISING STEM, SCREWED BONNET AND RE-PACKABLE UNDER PRESSURE. BALL VALVES ARE ACCEPTED AS AN EQUAL SUBSTITUTION.

IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER SEATS AND SOLID WEDGE DISC, RISING STEM, FLANGED ENDS, AND RE-PACKABLE UNDER

TRADES OR WORK ALREADY IN PLACE, SUCH OTHER WORK AND WORK IN PLACE SHALL BE SWING CHECK VALVES (2-INCH AND SMALLER): CLASS 150, CAST BRONZE BODY AND CAP CONFORMING TO ASTM B 62 WITH HORIZONTAL SWING, Y-PATTERN, RENEWABLE BRONZE DISC, AND HAVING THREADED OR SOLDERED ENDS.

> CAP, HORIZONTAL SWING, RENEWABLE BRONZE DISC, FLANGED ENDS AND CAPABLE OF BEING REFITTED WHILE THE VALVE REMAINS IN THE LINE. COMBINATION BALANCING AND SHUT-OFF VALVES: BELL & GOSSETT CIRCUIT SETTER WITH LOCKING SET POINT. A CIRCUIT SETTER BALANCE WHEEL MUST BE INCLUDED WITH O & M

SWING CHECK VALVE (2-1/2 INCH AND LARGER): CLASS 125 CAST IRON BODY AND BOLTED

PRESSURE/TEMPERATURE TEST PLUGS (PETE'S PLUG) - 1/4 INCH NPT FITTINGS TO RECEIVE EITHER A TEMPERATURE OR PRESSURE PROBE, 1/8 INCH O.D. FITTING AND CAPS SHALL BE BRASS WITH VALVE CORE OF NORDEL, RATED AT 400 PSIG, 0°F TO 200°F.

STRAINERS - "Y" PATTERN STRAINERS, 125 PSIG, CAST IRON BODY WITH PERFORATED STAINLESS STEEL SCREEN THREADED FOR 2 INCHES AND SMALLER FLANGED FOR 2-1/2 INCHES AND LARGER. SCREEN OPENING SIZE AT 0.033 INCH FOR HEATING AND 1/8 INCH FOR CHILLED OR CONDENSER WATER. PROVIDE WITH BLOWDOWN VALVE WITH HOSE END

THERMOFLO INDICATOR - BELL & GOSSETT MODEL "TFI".

MANUAL. TACO OR GRISWALD ARE CONSIDERED AS EQUAL.

LL HYDRONIC PIPING FOR CHILLED WATER AND/OR HEATING WATER (NOT INCLUDING FURNISHED WITH THE MOTORS FROM THE FACTORY ARE SPECIFIED IN DIVISION 16. SUBMIT CONDENSER WATER UNLESS SPECIFICALLY NOTED OTHERWISE). VALVES. FITTINGS. AND ACCESSORIES SHALL BE INSULATED. FOR PIPE SIZES UP TO 2 INCHES, INSULATE WITH 1 INCH THICK (K=0.23 @ 75 F) FIBERGLASS INSULATION WITH ALL SERVICE JACKET AND VAPOR BARRIER. FOR PIPE SIZES 2-1/2 INCHES AND LARGER, INSULATE WITH 1-1/2 INCH THICK (K=0.23 @ 75 F) FIBERGLASS INSULATION WITH ALL SERVICE JACKET AND VAPOR

NON-COMPRESSIBLE

ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NO HIGHER THAN 50 TO CONFORM WITH THE REQUIREMENTS OF THE NFPA. PROVIDE ZESTON OR EQUAL INSULATION FITTINGS FOR ALL TEES, ELLS OR SPECIALTY

INSTALL WATER MAINS WITHOUT PITCH. USE ECCENTRIC REDUCING COUPLINGS AT CHANGES IN SIZE WITH THE TOP OF PIPES AT SAME ELEVATION.

BRANCHES TO UNITS BELOW MAINS TO BE TAKEN FROM BOTTOM OF MAINS AT A 45° ANGLE, PITCH DOWNWARDS TOWARDS UNITS. BRANCHES TO UNITS ABOVE MAINS TO BE TAKEN FROM TOP OF MAINS AT A 45° ANGLE PITCHED UPWARDS TOWARDS UNITS. PITCH NOT LESS THAN 1" TO 10 FEET.

SEE MECHANICAL DETAIL DRAWINGS FOR APPLICABLE DETAILS.

HVAC INSULATION

W PRESSURE DUCTWORK INSULATION OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING. INTERNAL INSULATION AND REGISTERS. SHALL BE R-6 MINIMUM LINER WITH A COATED AIR SIDE SURFACE TO PREVENT EROSION. APPLY ADHESIVES AND FASTENERS PER SMACNA AND THE MANUFACTURER. ALL TRANSVERSE EDGES TO BE COATED WITH ADHESIVE. ALL CONCEALED DUCTWORK SHALL HAVE EXTERNAL INSULATION, UNCONCEALED DUCTWORK SHALL BE INTERNALLY LINED. DUCTWORK INSTALLED IN UNCONDITIONED SPACES SHALL BE R-12 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM

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

ADHESIVE SHALL BE FOSTER'S 85-20. STUDWELD PINS SHALL BE SEALED WITH FOSTER'S 30-36 ADHESIVE. ALL JOINTS, SEAMS AND BREAKS IN THE VAPOR BARRIER SHALL BE SEALED WITH FOSTER'S 35-00, REINFORCED WITH 4 INCH WIDE GLASS FABRIC.

#### TERMINAL HEAT TRANSFER UNITS

INSTALL AIR CONDITIONING UNITS OF THE CAPACITIES INDICATED, COMPLETE WITH GAS-FIRED HEATING SYSTEM, WHERE INDICATED ON THE DRAWINGS. UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE ASME AND ANSI CODES AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES. UNIT SHALL BE RATED IN ACCORDANCE WITH THE LATEST ARI STANDARD 21. WHERE SPECIFIED OPERATING CONDITIONS ARE OTHER THAN ARI STANDARD CONDITIONS, CAPACITIES SHALL BE INTERPOLATED FROM ARI CONDITIONS.

UNITS SHALL BE TRANE, LENNOX, AAON OR APPROVED EQUAL

INSTALL DIRECT DRIVE CENTRIFUGAL INLINE EXHAUST FAN BY GREENHECK OR APPROVED EQUAL WITH GALVANIZED STEEL HOUSING, BACKWARD INCLINED ALUMINUM WHEEL. ACCESS PANELS, INTEGRAL DUCT CONNECTION FLANGES, BALL BEARING MOTORS, AND CORROSION RESISTANT FASTENERS. FAN SHALL COME INSTALLED WITH NEMA-1 TOGGLE SWITCH, MOUNTED AND WIRED. SOLID STATE SPEED CONTROLLER SHIPPED LOOSE AND

NATER SOURCE HEAT PUMPS

INSTALL WATER SOURCE HEAT PUMP OF CAPACITIES INDICATED MANUFACTURED BY FLORIDA HEAT PUMP. MCQUAY OR AN APPROVED EQUAL. FACTORY ASSEMBLED AND RATED ACCORDING TO ARI-ISO13526-1. GALVANIZED-STEEL CASING WITH ACCESS PANELS ENVIRONMENTAL CORPORATION OR APPROVED EQUAL. FOR MAINTENANCE AND FILTER REPLACEMENT, KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS, FLANGED DUCT CONNECTIONS AND CABINET INSULATION OF 1/2" THICK, MULTI DENSITY, COATED GLASS FIBER. THE UNIT SHALL BE DESIGNED TO OPERATE WITH ENTERING FLUID TEMPERATURES BETWEEN 50°F AND 100°F IN COOLING AND BETWEEN

50°F AND 80°F IN HEATING.

THE UNITS SHALL BE WARRANTED BY THE MANUFACTURER AGAINST DEFECTS IN INSTALL STEEL PIPE WITH THREADED JOINTS AND FITTINGS FOR 2 INCH AND SMALLER PIPE. MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR ON ALL PARTS AND FIVE (5) YEARS ON COMPRESSOR.

> REFRIGERATION CIRCUITS SHALL UTILIZE R-410A. THE UNIT SHALL CONTAIN SEALED REFRIGERANT CIRCUITS INCLUDING HERMETIC COMPRESSORS. THERMAL EXPANSION VALVE METERING DEVICES, REFRIGERANT DRIER, FINED TUBE AIR-TO-REFRIGERANT HEAT EXCHANGERS, REFRIGERANT REVERSING VALVES AND SERVICE PORTS. COMPRESSORS SHALL BE HIGH EFFICIENCY, DESIGNED FOR HEAT PUMP DUTY, INTERNALLY SPRING ISOLATED (EXCEPT FOR SCROLL TYPE COMPRESSORS) FOR MAXIMUM SOUND ATTENUATION AND MOUNTED ON RUBBER VIBRATION ISOLATORS. COMPRESSOR MOTORS SHALL BE EQUIPPED WITH OVERLOAD PROTECTION. THE FINNED TUBE COIL SHALL BE CONSTRUCTED OF LANCED ALUMINUM FINS NOT EXCEEDING 14 FINS PER INCH. COILS SHALL HAVE A BAKED POLYESTER ENAMEL COATING FOR PROTECTION AGAINST MOST AIRBORNE CHEMICALS. THE COAXIAL WATER-TO-REFRIGERANT HEAT EXCHANGERS SHALL BE CONSTRUCTED OF A CONVOLUTED COPPER INNER TUBE AND STEEL OUTER TUBE WITH A DESIGNED REFRIGERANT WORKING PRESSURE OF 450 PSIG AND A DESIGNED WATER SIDE WORKING PRESSURE OF NO LESS THAN 400 PSIG.

UNITS 6 TONS AND LARGER: THE FANS SHALL BE BELT DRIVEN FORWARD CURVE TYPE WITH DYNAMICALLY BALANCED WHEEL(S). THE FAN HOUSINGS SHALL BE REMOVABLE FROM THE UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF AIR DISTRIBUTION DEVICES SHALL BE PROVIDED TO DELIVER THE INDICATED VOLUME OF FAN MOTORS. MOTORS SHALL BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

UNITS SMALLER THAN 6 TONS: THE FAN SHALL BE DIRECT DRIVE CENTRIFUGAL FORWARD CURVED TYPE WITH A DYNAMICALLY BALANCED WHEEL. FAN HOUSE SHALL BE REMOVABLE FROM UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR GATE VALVES (2-1/2 INCH AND LARGER): CLASS 125 CAST IRON BODY, RENEWABLE BRONZE SERVICING OF FAN MOTOR. THE MOTOR SHALL BE THREE SPEED PSC TYPE AND BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

> CTS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA)

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

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

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

DIMENSIONS SUFFICIENT TO CLOSE OFF AIR TO BRANCH. PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 690 DAMPER ASSEMBLY.

LITTERS SHALL BE 18 GAGE GALVANIZED STEEL WITH HORIZONTAL AND VERTICAL

/OLUME DAMPERS SHALL BE 18 GAGE STEEL; SINGLE BLADE UP TO 8" X 8", OPPOSED BLADE ON ALL DUCTS OVER 8" X 8". PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 641 SELF-LOCKING REGULATOR. DAMPER RODS SHALL BE 1/2" SQUARE BARS WITH BLADES SECURELY RIVETED TO BAR.

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

IN ACCORDANCE WITH CHAPTER IV OF SMACNA.

LEXIBLE CONNECTIONS SHALL BE PROVIDED FOR EACH AIR HANDLING DEVICE TO INSULATION AT ALL HANGERS FOR PIPING 2 1/2 INCHES AND LARGER SHALL BE HARD AND PREVENT TRANSMISSION OF VIBRATIONS. MAKE FLEXIBLE CONNECTION A MINIMUM OF 4 INCHES WIDE OF VENTGLAS AS MADE BY VENTFABRICS, INC.

> ENERAL: SPLIT. DIVIDE OR TURN DUCTS AS NECESSARY TO AVOID OBSTRUCTIONS AND. IN SUCH CASES, PROVIDE AIR STREAM DEFLECTORS AND INCREASE SIZE OF DUCT TO AN EQUIVALENT AREA.

SPLITTERS: RIGIDLY ATTACH SPLITTERS TO PIVOT ROD AND OPERATING LINKAGE. SET

DAMPER ASSEMBLY ON RAISED INSULATED BASE ON INSULATED DUCTWORK, VOLUME

DAMPERS: SUPPLY AND MAKE-UP AIR DUCTWORK IN CONCEALED SPACES. SET REGULATOR ON RAISED BASE ON INSULATED DUCTWORK, MARK END OF DAMPER ROD TO SHOW DAMPER POSITION.

FLEXIBLE CONNECTIONS: SECURE FLEXIBLE CONNECTIONS TO DUCT AND UNIT WITH GALVANIZED STEEL STRAPS HOLDING THE MATERIAL IN FORMED GALVANIZED STEEL CHANNELS. TEST TO ENSURE PROPER INSTALLATION.

PLUGS: PROVIDE SQUARE HEAD TYPE TEST PLUGS AS REQUIRED FOR INSERTION OF TEST

APPARATUS. PROVIDE A RING AND A REMOVABLE INSULATION PLUG WHERE DUCTS ARE XTERNAL INSULATION SHALL BE R-6 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS PAINTING: PAINT INTERIOR OF DUCTWORK FLAT BLACK WHERE VISIBLE THROUGH GRILLES

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

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

DUCTWORK, LOW PRESSURE, FLEXIBLE

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

LOW PRESSURE FLEXIBLE DUCTWORK SHALL CONSIST OF CORROSION RESISTANT SPRING

STEEL HELIX BONDED TO A GLASS REINFORCED NEOPRENE SLEEVE INSULATED WITH A

COVERED WITH AN OUTER VAPOR BARRIER OF FIBER REINFORCED FOIL-SCRIM-KRAFT

MINIMUM OF 1 INCH THICK, 1 POUND DENSITY FIBERGLASS INSULATION WHICH IS IN TURN

LAMINATE. INSULATION SHALL HAVE A THERMAL CONDUCTIVITY (K) NO GREATER THAN 0.25

LEXIBLE DUCTS, INCLUDING INSULATION AND SEALANTS, SHALL CONFORM TO THE REQUIREMENTS OF NFPA 90A AND UL STANDARD 181 FOR CLASS 1 DUCTS. PERFORMANCE DATA SHALL BE BASED ON TEST PERFORMED IN ACCORDANCE WITH AIR DIFFUSION COUNCIL FLEXIBLE AIR DUCT TEST CODE FD72.

AT 75 DEGREES F. DUCT FOR LOW VELOCITY SYSTEM CONNECTORS SHALL HAVE A WORKING PRESSURE OF NOT LESS THAN 1-1/2 INCHES OF WATER GAGE AND A MAXIMUM OPERATING TEMPERATURE OF NOT LESS THAN 250 DEGREES F. WHERE FLEXIBLE DUCTS CONNECT TO LOW PRESSURE DUCTS TO FORM RUNOUTS TO INDIVIDUAL OUTLETS, PLENUMS OR LOW PRESSURE TERMINALS, PROVIDE FACTORY FABRICATED FITTINGS COMPLETE WITH MANUAL BALANCING DAMPERS HAVING LOCKING QUADRANTS. WHERE LOW PRESSURE DUCTS ARE INTERNALLY INSULATED THE CONNECTOR SHALL BE FURNISHED WITH AIR EXTENSION TO PROJECT THROUGH AND

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

PROTECT THE INSULATION. FOR CONNECTION TO EQUIPMENT, AUXILIARY SLEEVES SHALL

BE PROVIDED TO ALLOW AT LEAST 2 INCHES OF SURFACE FOR CLAMPING OF FLEXIBLE

DUCTWORK. SLEEVES SHALL BE SCREWED OR BOLTED TO EQUIPMENT LIP FRAME.

FLEXIBLE DUCTWORK AND COMPONENTS SHALL BE AS MANUFACTURED BY GENERAL

INSTALL DUCT CONNECTORS TO LOW PRESSURE DUCTS USING MANUFACTURER'S TEMPLATE FOR ALL HOLES AND SECURE THE CONNECTOR WITH SHEET METAL SCREWS HAVING FIRST APPLIED FOSTER'S 30-02 DUCT SEALANT TO THE ADJOINING SURFACES. DO NOT PRESSURIZE THE SYSTEM FOR 48 HOURS. STRETCH NEW DUCT WHEN REMOVING IT FROM CARTONS WHERE IT MAY HAVE BEEN SHIPPED IN A COMPRESSED STATE. USE THE MINIMUM LENGTH OF FLEXIBLE DUCT REQUIRED TO MAKE THE SPECIFIC CONNECTION UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. THE MAXIMUM DEVELOPED LENGTH OF FLEX DUCT IS 5'-0". AVOID SHARP BENDS. USE A MINIMUM INSIDE BEND RADIUS EQUAL TO (1) TIMES THE INSIDE DIAMETER OF THE DUCT. SUPPORT HORIZONTAL DUCT RUNS AS DETAILED IN THE CONSTRUCTION DOCUMENTS. ALLOW THE FLEXIBLE DUCT TO EXTEND STRAIGHT AWAY FROM CONNECTORS FOR A FEW INCHES PRIOR TO INITIATING ANY BEND. MAKE CONNECTIONS OF FLEXIBLE DUCT TO RIGID DUCT OR TERMINALS AS FOLLOWS:

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

2. SLIDE THE FLEXIBLE DUCT OVER THE CONNECTOR AND WRAP WITH MINIMUM OF TWO REVOLUTIONS OF REINFORCED FOIL DUCT TAPE STARTING ABOUT 2 INCHES BACK

FROM END OF FLEXIBLE DUCT AND SEALING OVERLAP WITH LAST WRAP. 3. PLACE A CLAMP OR STRAP OVER THE TAPED END AND SECURE FIRMLY. 4. REPAIR ALL DAMAGE TO VAPOR BARRIER WITH FOSTER'S 35-00 REINFORCED WITH 4 INCH WIDE GLASS FABRIC AND A SECOND COAT OF FOSTER'S 35-00.

SUPPLY AIR WITHOUT EXCEEDING THE NC RATING AS FOLLOWS: EMPLOYEE AND CUSTOMER AREAS: NC-30.

MANUFACTURER SHALL BE TITUS OR APPROVED EQUIVALENT. FOR MODEL NUMBERS AND TYPES SEE AIR DISTRIBUTION SCHEDULE ON DRAWING. DIFFUSERS, GRILLES, AND REGISTERS SHALL BE OF THE SURFACE, FLUSH, OR LAY-IN MOUNTING CORRESPONDING TO THE CEILING IN WHICH THEY ARE LOCATED. THE FINISH OF THE DIFFUSERS, GRILLE, OR REGISTER FACE PANEL SHALL BE BAKED ENAMEL, OFF WHITE COLOR. WHERE MOUNTING SCREWS ARE REQUIRED IN AIR DISTRIBUTION DEVICES, THEY SHALL BE FINISHED TO MATCH THE ADJACENT SURFACE OF THE DEVICES. SUPPLY AND RETURN GRILLES AND REGISTERS WHICH ARE SURFACE MOUNTED SHALL BE PROVIDED WITH SPONGE RUBBER GASKETED FRAMES TO PREVENT SMUDGING.

MANUFACTURER SHALL BE RUSKIN OR APPROVED EQUAL. FOR MODEL NUMBER AND TYPE SEE DRAWING. LOUVER FINISH SHALL BE SANDSTONE COLORED BAKED ENAMEL CONTAINING 50% KYNAR RESINS. LOUVER SHALL INCLUDE GASKETED BACKDRAFT DAMPERS WITH ADJUSTABLE WEIGHTS OR SPRINGS TO PREVENT OUTWARD AIR FLOW. ADJUST AS DIRECTED BY OWNER OR AUTHORITY HAVING JURISDICTION.

INSTALL WHERE SHOWN ON DRAWINGS. DIFFUSERS, REGISTERS AND FITTINGS SHALL BE SECURELY ATTACHED TO FINISH SURFACES, OR STRUCTURAL MEMBERS BEHIND FINISH SURFACES. LAY-IN DIFFUSERS MOUNTED IN ACOUSTICAL TILE CEILINGS SHALL BE RIGIDLY MOUNTED, ABOVE THE FACE PANEL, TO THE CEILING SUSPENSION SYSTEM. DRAINABLE LOUVERS SHALL BE INSTALLED AS RECOMMENDED BY MANUFACTURER.

THE WORK CONSISTS OF INSTALLING CONTROLS FOR THE HVAC SYSTEM.

ECTRICAL WORK AND MATERIALS ASSOCIATED WITH THE CONTROL SYSTEM SHALL BE INSTALLED AS WORK OF THIS SECTION BUT IN ACCORDANCE WITH DIVISION 16. POWER WIRING IS SPECIFIED UNDER DIVISION 16 AND SHOWN ON FLECTRICAL DRAWINGS. ELECTRICAL CONTROL WIRING CONDUIT AND FITTINGS ASSOCIATED WITH THE SPACE EMPERATURE AND HUMIDITY CONTROL INCLUDING INTERLOCKING WITH MOTOR INTROLLERS, CONTROL ACCESSORIES AND APPURTENANCES ARE TO BE PROVIDE UNDER THIS SECTION. CONTROL WIRING SHALL BE IN CONDUIT IF REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.

THERMOSTAT SHALL BE AS SPECIFIED IN THE DRAWINGS, THERMOSTATS FOR WATER SOURCE HEAT PUMPS SHALL HAVE AUTOMATIC HEATING/COOLING CHANGEOVER AND SHALL E PROVIDED WITH A LOCKABLE COVER.

MOKE DETECTOR SHALL BE FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR AS SHOWN IN THE DRAWINGS. WIRING AND REMOTE ALARM INDICATOR FOR DUCT MOUNTED SMOKE DETECTOR SHALL BE BY

ELECTRICAL CONTRACTOR. SMOKE DETECTOR SHALL BE POWERED AS SPECIFIED IN TESTING, ADJ<u>USTING AND BALANCING</u> TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT CONTRACTOR, WHO IS A CURRENTLY LICENSED ASSOCIATED AIR BALANCING COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) BALANCING

CONTRACTOR. NO OTHER BALANCE REPORTS WILL BE REVIEWED OR ACCEPTED. ALL

BALANCING WORK MUST BE COMPLETE AND DONE IN ACCORDANCE WITH THE MOST

RECENT STANDARDS OF THEIR SOCIETY AND AS A MINIMUM SHALL INCLUDE THE

INFORMATION AS SHOWN IN THE AIR BALANCE REVIEW CHECKLIST BELOW. PAYMENT OF ALL COSTS FOR TESTING AND BALANCING SHALL BE INCLUDED IN THE BID. TESTING, ADJUSTING AND BALANCING REPORT MUST BE COMPLETE AND TURNED OVER TO TENANT'S PROJECT MANAGER ONE (1) WEEK PRIOR TO MERCHANDISING DATE. VERIFY THAT ALL EQUIPMENT AND SYSTEMS ARE COMPLETE AND OPERATIONAL ONE WEEK PRIOR O FINAL BALANCING. IF ALL SYSTEMS ARE NOT OPERATIONAL AT THE TIME OF THE SCHEDULED BALANCING, ADDITIONAL TESTING AND BALANCING, INCLUDING ALL LABOR,

COST TO THE OWNER. PRESENT FOR AIR BALANCE TO VERIFY ACCESSIBILITY TO ALL DEVICES, VERIFY ALL OPERATING SEQUENCES AND INSTALL NEW FILTERS IN ALL UNITS JUST PRIOR TO THE AIR BALANCE. ALLOW TWO DAYS ON SITE FOR BALANCING. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION, EXCEPT AS NOTED OTHERWISE. INSTALL A NEW SET OF FILTERS ONE DAY PRIOR TO TURNOVER.

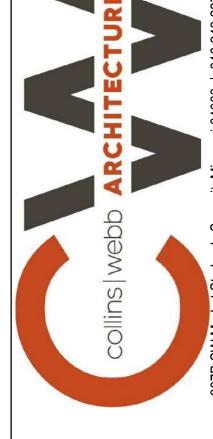
RAVEL EXPENSES, MEALS, HOTEL COSTS, ETC SHALL BE PERFORMED AT NO ADDITIONAL

BALANCE AIR AND WATER QUANTITIES TO WITHIN +/- 10% OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS OR PULLEYS NEEDED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED WITH NO ADDITIONAL COST TO THE OWNER. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS

RECORDED IN THE REPORT. SEVEN (7) COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED FOR APPROVAL.

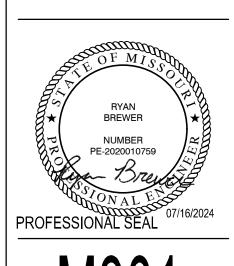
PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED ON THESE DRAWINGS. ALL SYSTEMS UNABLE TO BE COMPLETELY BALANCED AT THE TIME OF ORIGINAL BALANCE MUST BE BALANCED IN FUTURE AT NO ADDITIONAL EXPENSE TO THE OWNER. RECHECK ANY ITEMS THAT OWNER DEEMS NECESSARY AT NO ADDITIONAL COST TO OWNER.

THE BALANCE REPORT SHALL BE ON THE AABC NATIONAL STANDARD REPORT FORMS OR THE NEBB CERTIFIED REPORT FORMS AS PUBLISHED IN THEIR MOST CURRENT EDITIONS.

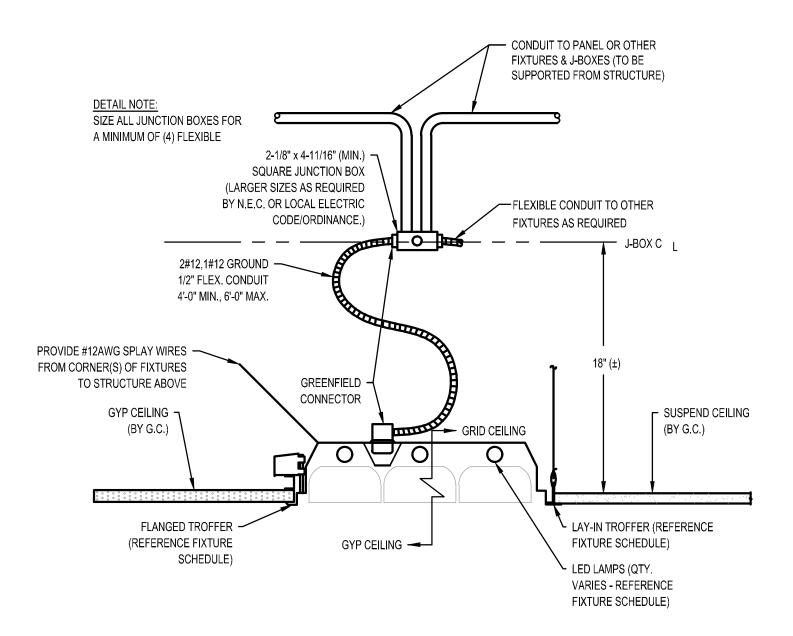


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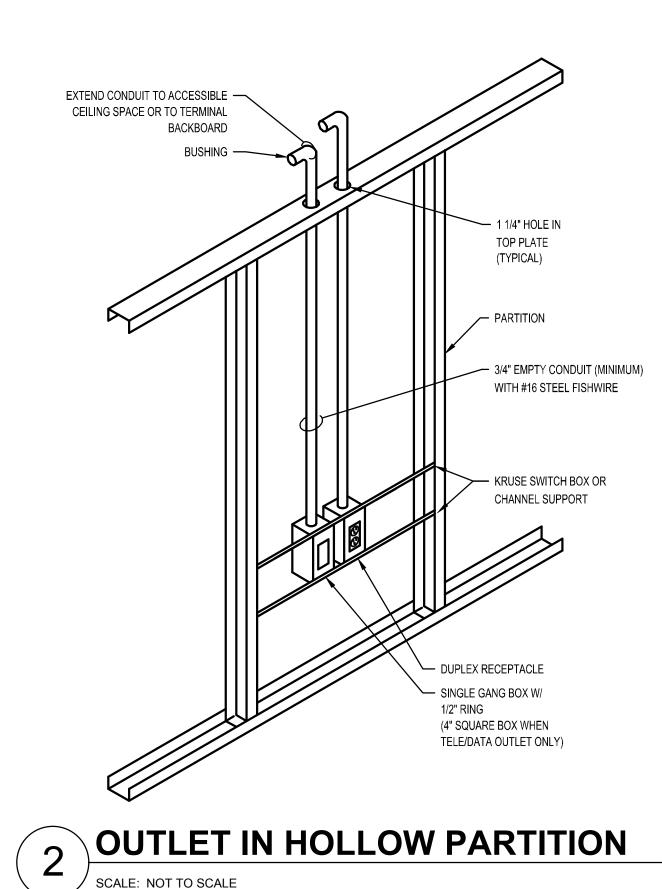
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COLLINS WEBB #: **MECHANICAL SPECIFICATIONS** 



### TYPICAL RECESSED FIXTURE DETAIL SCALE: NOT TO SCALE



SCALE: NOT TO SCALE

A.C.	CTRICAL ABBREVIATION
AC AHU	ALTERNATING CURRENT  AIR HANDLING UNIT
A. OR AMPS.	AMPERES
AFC	ABOVE FINISH COUNTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BTC	BRANCH TO CONNECTION POINT AND CONNECT EQUIPMENT
С	CONDUIT ("E.C." IS EMPTY CONDUIT)
CF	CEILING FAN
CM	COFFEE MAKER
CT D	COOKTOP  DEDICATED CIRCUIT
DCO	DUPLEX CONVIENCE OUTLET
DP	DISPOSAL
DW	DISHWASHER
DY	DRYER
EMT	ELETRICAL METALLIC TUBING
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)
EX	EXISTING
FCU	FAN COIL UNIT
GFI/GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFIP	GROUND FAULT INTERRUPTER PROTECTED
GRD	GROUND HOUSE (DESERVACIO)
H	HORIZONTAL MOUNT (RECEPTACLE)
HD HP	VENTILATION HOOD HORSEPOWER
HT	HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
HZ	HERTZ
IG	ISOLATED GROUND (DUPLEX RECEPTS NEMA 5-20RIG)
KCM	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT-AMPERES (1000 VOLT-AMPERES)
KW	KILOWATTS (1000 WATTS)
MLO	MAIN LUGS ONLY
MCB	MAIN CIRCUIT BREAKER
MW	MICROWAVE (COORD MTG HT W/ ARCHITECT)
NIC NEC	NOT IN CONTRACT  NATIONAL ELECTRICAL CODE
NF	NOT FUSED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PNL	PANEL
PH OR Ø	PHASE
P	POLE
PVC	POLYVINYL CHLORIDE
RF	REFRIGERATOR
RG	RANGE
SPD	SURGE PROTECTIVE DEVICE
TTD	TAMPERPROOF RECEPTACLE
TTB TV	TELEPHONE TERMINAL BOARD
UC	TELEVISION RECEPTACLE  UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)
UL	UNDERWRITERS LABORATORIES
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLTS
VA	VOLT-AMPERES
VD	VENDING MACHINE (24"AFF)
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WA	WASHER
WD	WARMING DRAWER
WO	WALL OVEN
WP	WEATHERPROOF
WP/WR	WEATHERPROOF/WEATHER RESISTANT

### GENERAL ELECTRICAL NOTES

- . COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, REQUIREMENTS OF THE AHJ AND ALL LOCAL & STATE CODES. 2. DO NOT SCALE FROM THESE DRAWINGS.
- B. REFER TO ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES.
- 4. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH PULL STRINGS AND BUSHINGS. 5. ALL JUNCTION BOXES SHALL HAVE A COVER. 6. COORDINATE EACH LIGHT FIXTURE INSTALLATION(S) W/ ACTUAL CEILING TO BE FURNISHED.
- 7. ALL BRANCH CIRCUITS WITHOUT A CONDUCTOR & CONDUIT INDICATED SHALL BE ROUTED TO A 20A-1P BREAKER W/ 2#12,1#12EG,3/4"C. 3. ALL BRANCH CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #12 AWG AND ALL CONDUIT SHALL NOT
- ). ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED OTHERWISE. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC210.4.
- 0. ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC. THE RACEWAY SHALL NOT BE USED AN EQUIPMENT
- 1. ALL FIXTURES SHALL BE SUPPORTED FROM EACH CORNER (INDEPENDENT OF THE SUSPENDED CEILING) WITH 12 GAUGE WIRE CONNECTED TO STRUCTURAL SYSTEM OF BUILDING. THE INSTALLATION SHALL MEET OR EXCEED THE SEISMIC REQUIREMENTS OF LOCAL AND NATIONAL CODES.
- 2. ELECTRICAL DEVICE MOUNTING HEIGHTS, UNO: **PANELBOARDS** 78" AFF TO TOP OF PANEL

BE SMALLER THAN 3/4"C. UNLESS SPECIFICALLY NOTED OTHERWISE.

- SWITCHES 48" AFF TO TOP OF JUNCTION BOX 18" AFF TO CENTER OF RECEPTACLE RECEPTACLES
- TELE/DATA OUTLETS 18" AFF TO CENTER OF RECEPTACLE APARTMENT LOADCENTERS PER ANSI A117.1 REQUIREMENTS (VERIFY WITH LOCAL INSPECTOR)
- 3. ELECTRICAL EQUIPMENT (PANELBOARDS, TRANSFORMERS, DISTRIBUTION EQUIPMENT, ETC.) IS SHOWN TO SCALE ON THE FLOOR PLANS. 4. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING EQUIPMENT THAT WILL FIT WITHIN THE
- SPACES SHOWN ON THE PLANS AND COMPLYING WITH ALL CODE REQUIRED CLEARANCES. 5. ELECTRICAL CONTRACTOR TO LABEL ALL DEVICES (RECEPTACLES, SWITCHES, PANELBOARDS, DISCONNECTS, ETC.) WITH CIRCUIT NUMBER AND PANELBOARD DESIGNATION. RECEPTACLES, SWITCHES,
- AND SIMILAR DEVICES TO HAVE PRE-PRINTED, SELF ADHESIVE LABEL. 6. PANELBOARDS, DISCONNECT SWITCHES, AND SIMILAR DEVICES TO HAVE ENGRAVED, SELF-ADHESIVE,
- LAMINATED ACRYLIC LABEL (BLACK W/ WHITE LETTERING). 7. PROVIDE TYPE-WRITTEN PANELBOARD SCHEDULES FOR ALL ELECTRICAL PANELBOARDS.

SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
<b>O</b> A	DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING		SWITCHBOARD OR DISTRIBUTION PANEL REFER TO PANEL SCHEDULES	
<b>ô</b> A	DIRECTIONAL DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING		DRY-TYPE TRANSFORMER REFER TO PLANS FOR KVA RATING	
ЮА	WALL MOUNTED LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL		120/208V, 3Ø, 4W PANELBOARD REFER TO PANEL SCHEDULES	
A	LINEAR LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING OR SUSPENDED		277/480V, 3Ø, 4W PANELBOARD REFER TO PANEL SCHEDULES	
А	2X4 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING	Q 0	JUNCTION BOX	WALL OR CEILING
A	2X2 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING	30/20/3	FUSED SAFETY SWITCH (E.G. 30/20/3 INDICATES A 30A, 3-POLE SWITCH WITH 20A FUSES)	
	HATCHING ON FIXTURE INDICATES FIXTURE TO HAVE EMERGENCY BACK-UP		30/NF/3L	NON-FUSED SAFETY SWITCH (E.G. 30/NF/3 INDICATES A 30A, 3-POLE SWITCH WITHOUT FUSES)	
<b>₩</b> 33	TWO HEAD EMERGENCY LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING	S <sup>M</sup>	MOTOR RATED SWITCH	
<b>₹</b> X1 <b>181</b>	EMERGENCY EXIT SIGN. PROVIDE ARROW(S) AS INDICATED. SHADING INDICATES FACE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING	Ø	MOTOR	
S	SINGLE POLE SWITCH 20A (120/277V)	WALL - 48" AFF	Ф	NEMA 5-20R SIMPLEX RECEPTACLE	WALL - 18" AFF
S <sub>3</sub>	THREE WAY SWITCH 20A (120/277V)	WALL - 48" AFF	₽	NEMA 5-20R DUPLEX RECEPTACLE	WALL - 18" AFF
S <sub>4</sub>	FOUR WAY SWITCH 20A (120/277V)	WALL - 48" AFF	₽	NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER	1
HZ	WALL BOX DIMMER SWITCH	WALL - 48" AFF	#	NEMA 5-20R QUAD-PLEX RECEPTACLE	WALL - 18" AFF
<b>⇔</b> x <b>₹</b> x	CEILING OR WALL MOUNTED OCCUPANCY SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL OR CEILING	<b>\Phi</b>	NEMA 5-20R SPLIT RECEPTACLE. TOP OUTLET WIRED HOT. BOTTOM OUTLET SWITCHED.	WALL - 18" AFF
<b>H</b> LC X	LOW-VOLTAGE CONTROL STATION (LETTER INDICATES CONTROL STATION TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL - 48" AFF	ΦΦ	SPECIAL PURPOSE RECEPTACLE REFER TO PLANS FOR NEMA CONFIGURATION	WALL - 18" AFF OR CEILING
PC X	PHOTOCELL SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	FIELD VERIFY	₩USB	NEMA 5-20R - DUPLEX RECEPTACLE WITH USB PORTS SIMILAR TO HUBBELL #USB20AC5W	WALL - 18" AFF
PP	POWERPACK (LETTER INDICATES POWERPACK TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	ACCESSIBLE CEILING	Ф	NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ON CEILING	CEILING - FLUS
COMM	UNICATION/LOW-VOLTAGE	DEVICES	FB1	HUBBELL CFB4 SERIES FLOOR BOX (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
SYMBOL	DESCRIPTION	MOUNTING	FB2	HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) WITH (1) DUPLEX RECEPTACLE AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
CR	CARD READER (VERIFY EXACT REQUIREMENTS)  DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET		FB3	HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE VERIFY EXACT CONNECTION WITH FURNITURE VENDOR	FLOOR - FLUSH
M	PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING  DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET	WALL - 18" AFF  FLOOR OR	PK1)	HUBBELL S1PT SERIES 4" POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUS
	PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	CEILING	PK2	HUBBELL S1PTFF SERIES 4" POKE-THRU (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE VERIFY EXACT CONNECTION WITH FURNITURE VENDOR	FLOOR - FLUSH
	TELEVISION OUTLET	WALL OR CEILING	PK3	HUBBELL S1R6 SERIES 6" POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION AND A/V CONNECTION CAPABILITY	FLOOR - FLUSH
<b>(4)</b>	SPEAKER OUTLET	FIELD VERIFY		CONDUIT IN OR UNDER FLOOR/GRADE	
'TTB'	TELEPHONE TERMINAL BOARD	WALL		CONDUCTOR HOME RUN - ( ) HOT, ( ) NUETRAL, ( ) EQUIPMENT GROUND, & ( ) ISOLATED GROUND	
K	SECURITY CAMERA OUTLET	FIELD VERIFY		EQUIPMENT CONNECTION	
•	PUSH BUTTON			CONDUIT IN CEILING OR WALL	

**ELECTRICAL SYMBOLS** 

LIGHTING FIXTURES/DEVICES

POWER EQUIPMENT/DEVICES

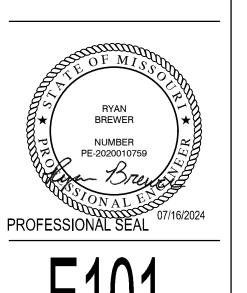
1 IF MOUNTED ABOVE A COUNTER, DEVICE TO BE WALL MOUNTED 6" ABOVE FINISHED COUNTER OR 44" TO TOP OF JUNCTION BOX (WHICHEVER IS LOWER). IF NOT MOUNTED ABOVE A COUNTER, DEVICE TO BE WALL MOUNTED AT 48" AFF TO TOP OF JUNCTION BOX AS REQUIRED TO MEET ADA REQUIREMENTS.

REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS/ELEVATIONS.

Boutique

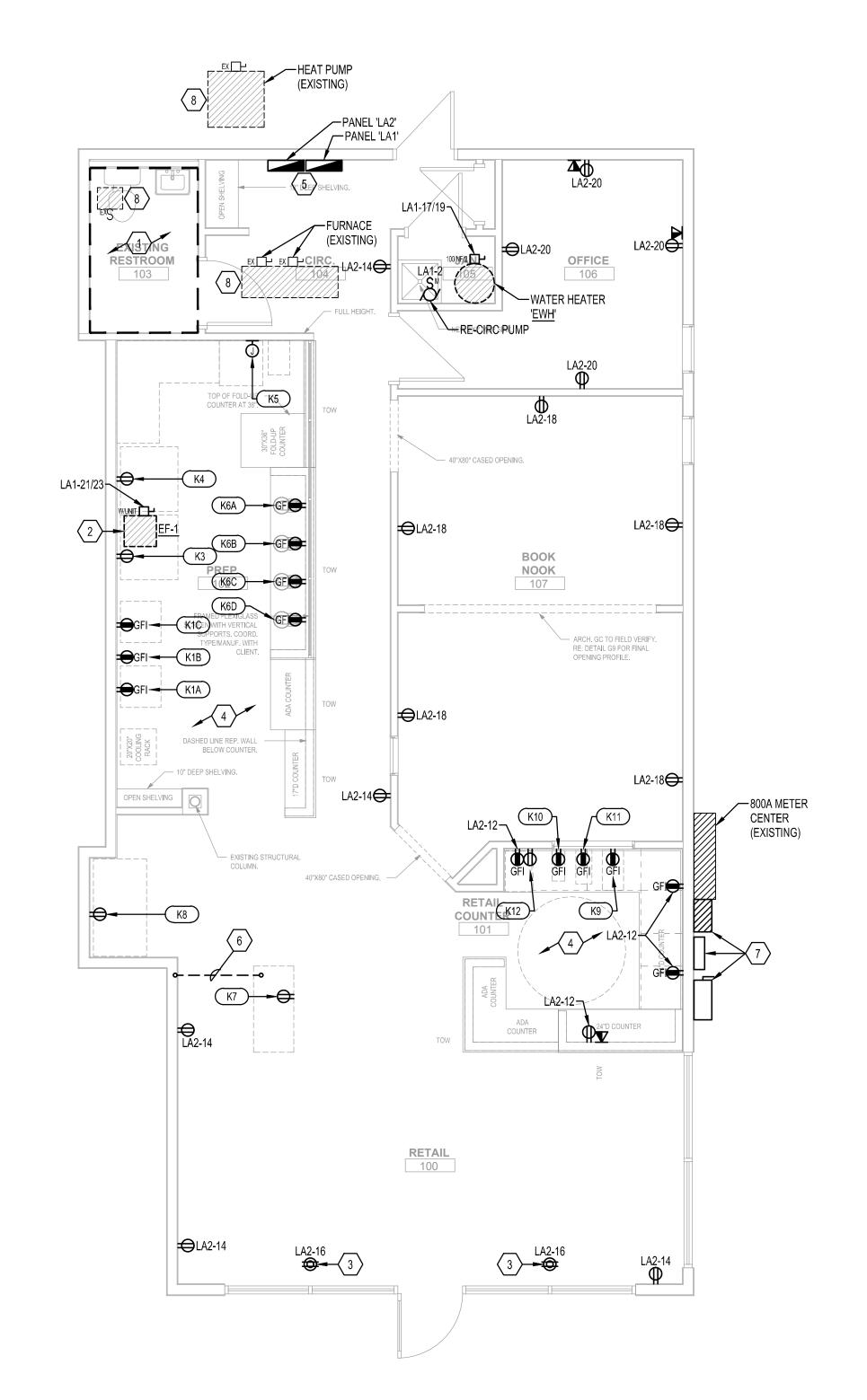
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ISSUE DATE: 16 JULY 2024 COLLINS WEBB #: 22097 ELECTRICAL NOTES, SYMBOLS & ABBREVIATIONS

	KI	TCHE	NEL	ECT	RICA	L ROU	GH-IN SCH	HEDUL	E	
ITEM	DECODIDATION	VOLT	БП		LOAD		OLDOLUT	MO	UNTING	DEMA DIVO
TAG	DESCRIPTION	VOLT	PH.	HP	KW	AMPS	CIRCUIT	CONN.	R/I HT	REMARKS
K1A	COUNTERTOP OVEN	120	1		1.6		LA1-25	DCO	NOTE#1	
K1B	COUNTERTOP OVEN	120	1		1.6		LA1-27	DCO	NOTE#1	
K1C	COUNTERTOP OVEN	120	1		1.6		LA1-29	DCO	NOTE#1	
КЗ	DOUBLE DOOR REACH-IN REFRIGERATOR	120	1		0.46		LA2-13	DCO	NOTE#1	
K4	REACH-IN FREEZER	120	1		0.42		LA2-15	DCO	NOTE#1	
K5	LOW-TEMP DISHWASHER	120	1			13.2	LA2-17	JBOX	NOTE#1	
K6A	4.5 QUART STAND MIXER	120	1		0.3		LA2-19	DCO	NOTE#1	
K6B	4.5 QUART STAND MIXER	120	1		0.3		LA2-21	DCO	NOTE#1	
K6C	4.5 QUART STAND MIXER	120	1		0.3		LA2-23	DCO	NOTE#1	
K6D	4.5 QUART STAND MIXER	120	1		0.3		LA2-25	DCO	NOTE#1	
K7	BAKERY DISPLAY CASE	120	1			3.9	LA2-27	DCO	NOTE#1	
K8	REACH-IN COOLER	120	1			5.4	LA2-2	DCO	NOTE#1	
K9	TEA/COFFEE BREWER COMBO	120	1			14	LA2-4	DCO	NOTE#1	
K10	COFFEE GRINDER	120	1			7	LA2-6	DCO	NOTE#1	
K11	HOT WATER DISPENSER	120	1			17.5	LA2-8	DCO	NOTE#1	
K12	ICE MA CHINE	120	1			6	LA2-10	DCO	NOTE#1	
		GENE	RAI	LKIT	CHE	N EQU	PMENT N	OTES		
#1	COORDINATE ALL EQUIPMENT CONNECTIONS W					<del>-</del>				
#2	REFER TO ELECTRICAL PANEL SCHEDULES FOR									
#3	PROVIDE AND INSTALL RECEPTACLES, DISCON							R. ALL ROUG	SH-INS AND FIN	AL CONNECTIONS SHALL BE IN
	ACCORDANCE WITH ALL APPLICABLE CODES &									
#4	PER NEC 210.8(B)(2), ALL SINGLE PHASE RECEP			50V TO 0	SROUND C	OR LESS. 50	AMPS OR LESS A	ND THREE PH	ASE RECEPTA	CLES RATED 150V TO GROUND OR LESS.
	100 AMPS OR LESS SHALL BE PROVIDED WITH (									* 1
	OR FACELESS GFI DEVICE ADJACENT TO THE PA						-,-			
	1			CON	NECT	ION LE	GEND			
DCC	) - DUPLEX RECEPTACLE, SR - SIMPLEX RECEPTA	CLE, SPR -						X, BTC - BRA	NCH TO CONNE	ECTION, DISC - DISCONNECT SWITCH



ELECTRICAL POWER PLAN

GENERAL NOTES (NOT ALL NOTES APPLY)

 REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
 COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS

2. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.

3. PROVIDE AND INSTALL 3/4" CONDUIT AND BUILD STRINGS ERON

3. PROVIDE AND INSTALL 3/4" CONDUIT AND PULL STRINGS FROM TELEPHONE/DATA OUTLETS TO ABOVE ACCESSIBLE CEILING. VERIFY EXACT REQUIREMENTS WITH TELEPHONE EQUIPMENT SUPPLIER AND/OR TENANT.

4. CIRCUIT NUMBERS SHOWN ARE FOR REFERENCE ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.
5. REMOVE EXCESS WIRING RESULTING FROM DEMOLITION. ELECTRICAL CONTRACTOR TO RECIRCUIT OUTLETS LEFT ON INCOMPLETE CIRCUITS.

INCOMPLETE CIRCUITS.
6. WHERE POSSIBLE, RE-USE SPARE CIRCUITS RESULTING FROM DEMOLITION PRIOR TO PULLING NEW CIRCUITS FROM PANELBOARD.
7. EXISTING CONDITIONS INDICATED IN THESE DOCUMENTS ARE BASED ON A CURSORY SITE REVIEW AND DO NOT REPRESENT

A COMPLETE "AS-BUILT" SET OF DOCUMENTS. IT IS THE CONTRACTORS RESPONSIBILITY TO FULLY INVESTIGATE ALL EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES TO THESE DOCUMENTS OR THE DESIGN INTENT.



1. NO SCOPE IN THIS AREA. EXISTING RESTROOM AREA TO REMAIN. CONNECT EXISTING CIRCUITING TO NEW PANELS AS REQUIRED.

2. ROUTE EXHAUST FAN CIRCUIT THROUGH TIME CLOCK.
CONTROL INTENT IS FOR EXHAUST FAN TO BE 'ON' DURING
BUSINESS HOURS. REFER TO DETAIL 2 (SHEET E301) FOR
ADDITIONAL INFORMATION.

PROVIDE RECEPTACLE(S) ABOVE SHOW WINDOW AS REQUIRED PER NEC 210.62.
 FIELD VERIFY ALL EQUIPMENT CONNECTIONS AND LOCATIONS

4. FIELD VERIFY ALL EQUIPMENT CONNECTIONS AND LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.
 5. FIELD VERIFY EXACT LOCATION OF PANELS 'LA1' & 'LA2' WITH OWNER PRIOR TO ROUGH-IN. ENSURE ALL WORKING

CLEARANCES ARE MAINTAINED PER NEC 110.26.

STUB (1) 1" CONDUIT FROM MILLWORK TO NEAREST WALL AND UP INTO ACCESSIBLE CEILING FOR POWER TO BAKERY DISPLAY CASES. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN. PATCH AND REPAIR FLOORING AS REQUIRED.

PROVIDE METER CENTER TAP BOX, 400A SELF-CONTAINED METER AND 400A FUSED DISCONNECT FOR ELECTRICAL FEED

INFORMATION.

B. INTERCEPT AND EXTEND CIRCUIT FOR EXISTING EQUIPMENT TO REMAIN TO NEW PANEL(S) AS REQUIRED. FIELD VERIFY EXISTING BREAKER SIZE AND PROVIDE A NEW BREAKER IN THE NEW PANEL(S) TO MATCH.

TO TENANT SPACE. REFER TO SHEET E401 FOR ADDITIONAL

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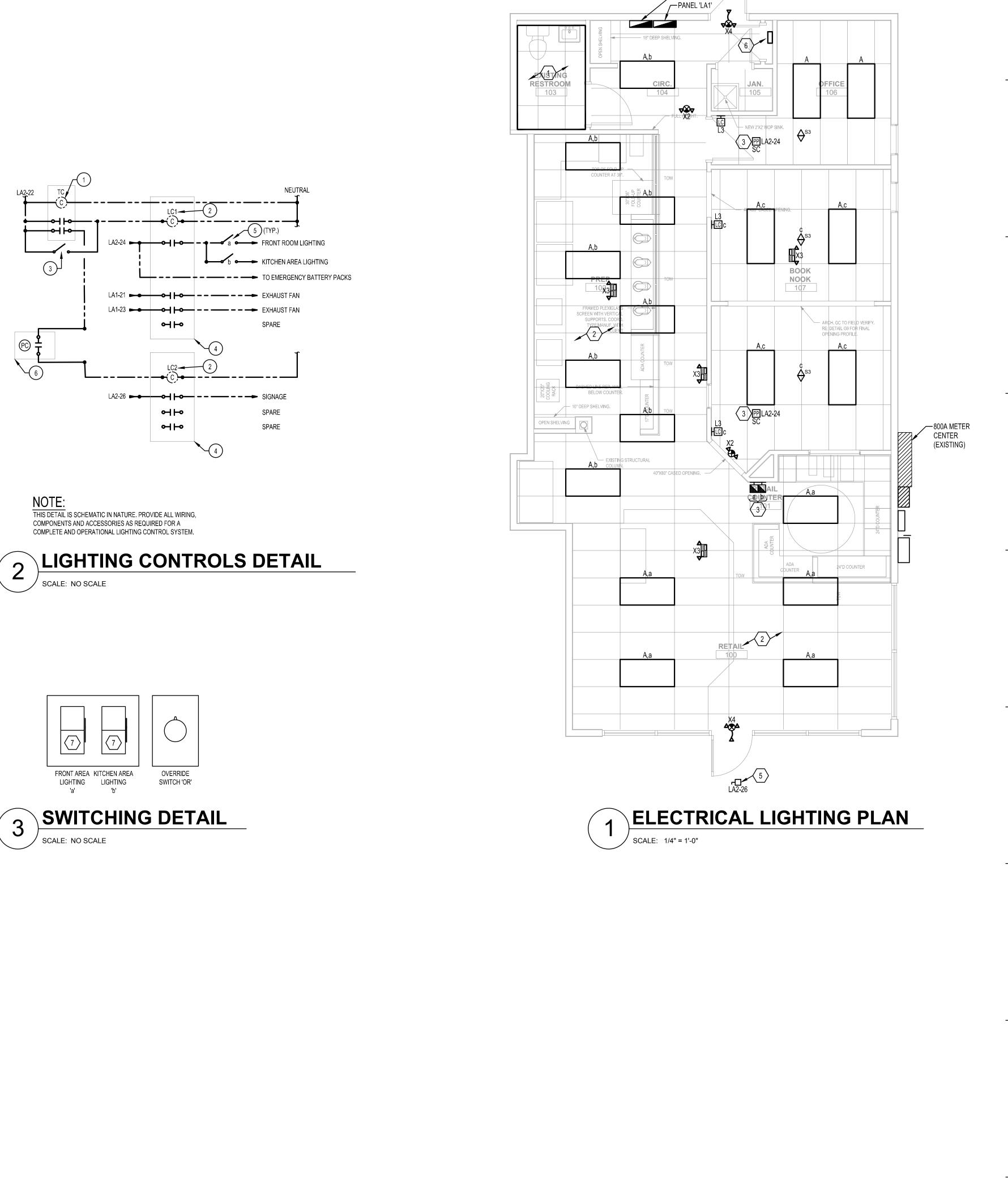
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07/16/2024

ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 22097

ELECTRICAL POWER PLAN



GENERAL NOTES
(NOT ALL NOTES APPLY)

REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
 COORDINATE ALL MOUNTING HEIGHTS FOR ALL PUBLIC SPACE DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS

DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS
PRIOR TO ROUGH-IN.

3. CIRCUIT ALL EXIT SIGNS TO NEAREST EMERGENCY LIGHTING
CIRCUIT (OR NEAREST LIGHTING CIRCUIT IF NO GENERATOR).

4. VERIFY ALL EXISTING BRANCH CIRCUITING. CONTRACTOR

4. VERIFY ALL EXISTING BRANCH CIRCUIT IF NO GENERATOR).

4. VERIFY ALL EXISTING BRANCH CIRCUITING. CONTRACTOR SHALL WIRE FIXTURES IN ACCORDANCE WITH SWITCHING INDICATED. CONNECTED LOAD ON 277V-20A CIRCUITS SHALL NOT EXCEED 4000W, 120V-20A CIRCUITS SHALL NOT EXCEED 1800W.

5. CIRCUIT NUMBERS ARE SHOWN FOR REFERENCE ONLY.

1800W.

5. CIRCUIT NUMBERS ARE SHOWN FOR REFERENCE ONLY.
CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.

6. EXISTING CONDITIONS INDICATED IN THESE DOCUMENTS ARE
BASED ON A CURSORY SITE REVIEW AND DO NOT REPRESENT
A COMPLETE "AS-BUILT" SET OF DOCUMENTS. IT IS THE
CONTRACTORS RESPONSIBILITY TO FULLY INVESTIGATE ALL
EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER
OF ANY DISCREPANCIES TO THESE DOCUMENTS OR THE
DESIGN INTENT.



**KEYED NOTES:** 

 $\bigcirc$ 

 NO SCOPE IN THIS AREA. EXISTING RESTROOM AREA TO REMAIN.
 CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO TURN 'ON/OFF' ON A TIME-OF-DAY SCHEDULE WITH MANUAL OVERRIDE VIA THE WALL BOX DIMMER. VERIFY SCHEDULING

WITH OWNER. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.

3. MANUAL OVERRIDE SWITCHES FOR FRONT ROOM/KITCHEN AREA. FIELD VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. REFER TO DETAIL 3 (THIS SHEET) FOR ADDITIONAL INFORMATION.

I. CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE MANUAL 'ON', AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE VIA THE LOW-VOLTAGE CONTROL STATION.

5. PROVDE NEMA 3R, LOCKABLE DISCONNECT SWITCH FOR EXTERIOR SIGNAGE. FIELD VERIFY EXACT LOCATION WITH OWNER/SIGN VENDOR PRIOR TO ROUGH-IN. CONTROL INTENT - IS FOR SIGNAGE TO BE 'ON'/'OFF' VIA TIME-OF-DAY SCHEDULE. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.

6. TIME CLOCK AND CONTACTORS. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.
7. PROVIDE WALL BOX DIMMER SWITCH SIMILAR TO LUTRON DIVA SERIES FOR MANUAL OVERRIDE OF LIGHTING. VERIFY COMPATABILITY OF DIMMER SWITCH WITH EACH FIXTURE TYPE PRIOR TO ORDERING.

SereniTea Boutique

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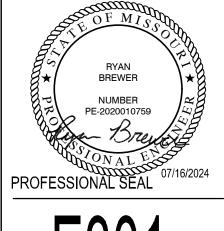
## LIGHTING CONTROL KEYED NOTES:

 PROVIDE TORK DIGITAL SERIES, MODEL DGLC200A-NC (2-CHANNEL) TIMECLOCK (OR EQUAL).
 PROVIDE SQUARE D MODEL 8903 ELECTRICALLY HELD LIGHTING CONTACTORS (LC1 & LC2) WITH POLE QUANTITY AS REQUIRED.

 PROVIDE PARAGON #SWP2H 2-HOUR SPRING WOUND OVERRIDE SWITCH (OR EQUAL).
 PROVIDE NEMA 1 ENCLOSURE TO HOUSE ALL CONTACT

PROVIDE NEMA 1 ENCLOSURE TO HOUSE ALL CONTACTORS INDICATED.
 REMOTE MANUAL SWITCH. REFER TO SWITCHING DETAIL (THIS SHEET) FOR ADDITIONAL INFORMATION.
 PROVIDE INTERMATIC #K4236C PHOTOCELL MOUNTED ON A WEATHERPROOF BOX. CONTROL INTENT OF EXTERIOR LIGHT

FIXTURES IS FOR LIGHTS TO BE ON A TIME-OF-DAY SCHEDULE WITH PHOTOCELL OVERRIDE. PER 2021 IECC, LIGHTS SHALL NOT ENERGIZE 'ON' WHEN ENOUGH DAYLIGHT IS PRESENT.



ISSUE DATE: 16 JULY 2024 COLLINS WEBB #: 22097

ELECTRICAL LIGHTING PLAN

	VOLT	CIRCUIT	VOLTAGI	E DROP \	WIRING		
BRANCH CIRCUIT	WIRE   CIRCUIT (FFFT)						
RATING (AMPS)	SIZE (AWG)	120V	208V	240V	277V	480V	
	#12	50	90	110	125	200	
20.4	#10	80	150	175	200	350	
20A	#8	140	230	280	320	550	
	#6	215	375	430	500	870	
	#10	50	100	110	130	225	
201	#8	80	160	180	210	360	
30A	#6	135	250	280	325	560	
	#4	220	400	450	525	910	

PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%

CONDUCTOR SIZES ARE BASED ON SOLID COPPER CONDUCTORS FOR

WIRES SMALLER THAN #6 AND STRANDED COPPER CONDUCTORS FOR WIRES #6 AND LARGER, IN A SINGLE METAL CONDUIT. LIMITS FOR CONDUCTOR LENGTH SHOWN ARE BASED ON A MAXIMUM OF 3% VOLTAGE DROP TO COMPLY WITH THE NEC FOR CIRCUITS LOADED UP TO 80% OF THE BRANCH BREAKER RATING. FIELD VERIFY EXACT BRANCH CIRCUIT LENGTHS AND PROVIDE CONDUCTORS

APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

UNLESS NOTED OTHERWISE, WIRE SIZES CALLED OUT IN PANEL SCHEDULES DO NOT ACCOUNT FOR VOLTAGE DROP. CONTRACTOR SHALL INCREASE WIRE SIZES AS REQUIRED UTILIZING VOLTAGE DROP TABLE PROVIDED.

AFTER DEMOLITION, VERIFY THE QUANTITY OF AVAILABLE CIRCUITS IN THE EXISTING PANELBOARDS. IF THE QUANTITY OF AVAILABLE CIRCUITS IS NOT ENOUGH TO COMPLETE THE NEW SCOPE OF WORK, NOTIFY ENGINEER. WHERE NECESSARY, PROVIDE NEW BREAKERS AS REQUIRED.

#### FEEDER SCHEDULE THHN/THWN COPPER CONDUCTORS W/ EG CONDUCTOR

	CONDUCTO									
	CONDUCTORS & GROUND									
	CODE	SETS	CONDUCTORS	RACEWAY	AMP					
	EX		EXISTING CONDUCTORS TO REMAIN							
	403	2	3#3/0,1#3G. (CU)	2"	400					

ALL CONDUCTORS AMPACITY BASED ON THE NEC TABLE 310-16 FOR CONDUCTORS W/ 75°C INSULATION.

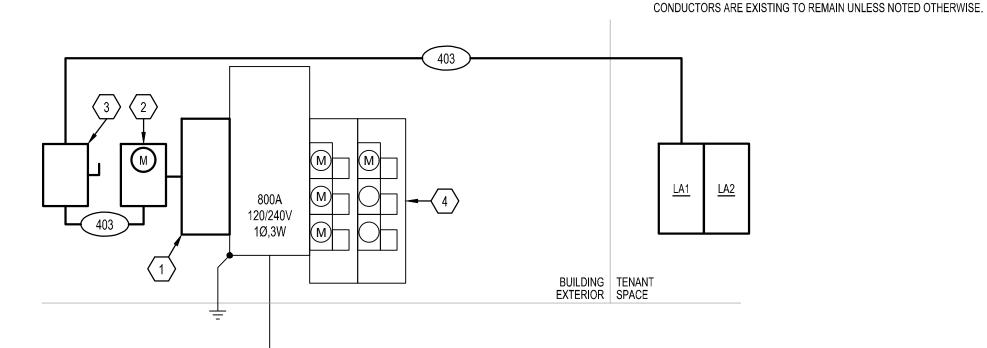
ALL RACEWAY SIZES (EMT/RMC/PVC 40) BASED ON THE NEC TABLE 4(CHAPTER 9), 40% FILL COLUMN.

ELECTRICAL CONTRACTOR TO VERIFY ALL EQUIPMENT CONDUCTOR TERMINATION TEMPERATURE RATINGS (IE, 60°C OR 75°C). ADJUST CONDUCTOR AMPACITY AND CONDUIT SIZES ACCORDINGLY. VERIFY MAXIMUM NO. OF SETS OF SERVICE ENTRANCE CONDUCTORS

ALLOWED W/ UTILITY CO.

EQUIPMENT GROUNDING CONDUCTORS BASED ON T250.122. GROUND TO BE ADJUSTED PER T250.66 FOR SEPARATELY DERIVED SYSTEMS. ALUMINUM FEEDERS NOT TO BE USED ON TRANSFORMER SECONDARY CONDUCTORS.

TO UTILITY COMPANY EX



**GENERAL NOTES** 

. THIS RISER DIAGRAM REPRESENTS (AS ACCURATELY AS POSSIBLE) THE

ELECTRICAL DISTRIBUTION SYSTEM. FIELD VERIFY ALL SIZES OF

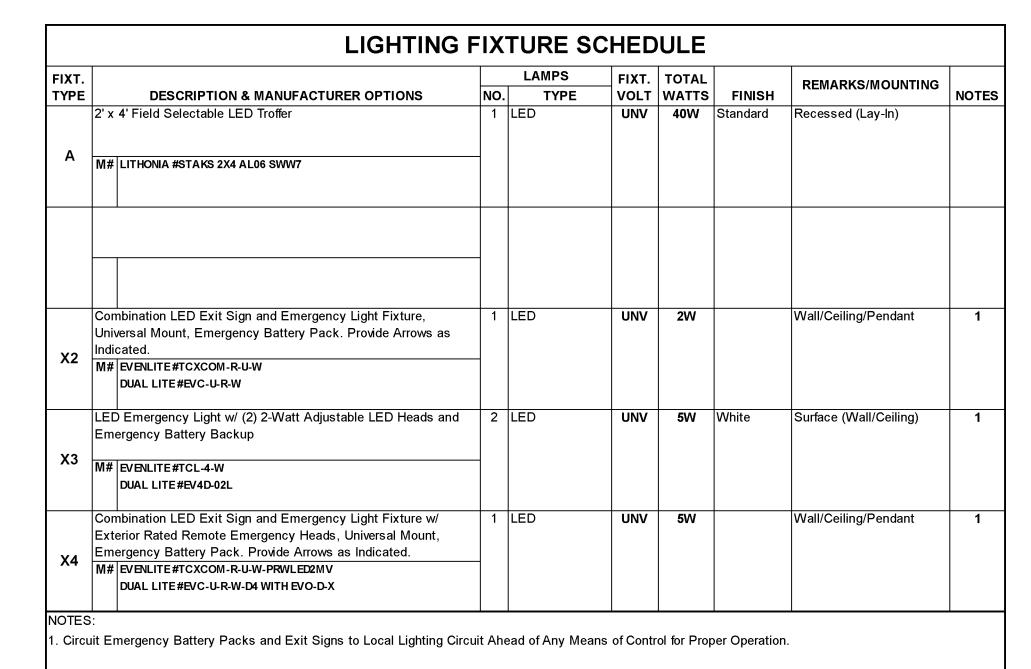
EQUIPMENT, CONDUCTORS, FUSES, ETC. ALL EQUIPMENT AND

#### **NEC 220.87 CALCULATION FOR 120/240V, 1Ø SERVICE**

PEAK DEMAND OVER LAST 12 MONTHS = 51KVA DEMAND LOAD OF NEW ADDITION = 71.43KVA

51 x 1.25 + 57.6 = 121.35KVA 135.18KVA @ 120/240V, 1Ø = 505.6 AMPS EXISTING SERVICE SIZE IS 800 AMPS AT 120/240V, 1Ø (PER SITE VISIT W/ EVERGY) THE EXISTING SERVICE SIZE IS ADEQUATE.





LIGHTING CONTROLS SCHEDULE									
FIXTURE TAG	MANUFACTURER	MODEL #	SETTINGS	DESCRIPTION	NOTES				
SC	ACUITY BRANDS: nLIGHT	nPP16 SERIES	REFER TO PLANS	ON/OFF ROOM SWITCH CONTROLLER	1,2,4				
			FOR CONTROL INTENT	LINE VOLTAGE - SINGLE RELAY					
L3	ACUITY BRANDS: nLIGHT	nPODM	-	ON/OFF LOW VOLTAGE SWITCH	1,6				
				WITH 1-CHANNEL CONTROL					
S3	ACUITY BRANDS: nLIGHT	nCM-9 SERIES	-	CEILING MOUNT OCCUPANCY SENSOR - SMALL MOTION	3				
				LOW VOLTAGE					
WIRE	-	-	-	CAT5, CAT5e, OR CAT 6. STANDARD OR SOLID.					
				TERMINATED AS RJ45 TIA/EIA-568B					

1. COORDINATE ALL MODEL NUMBERS WITH MANUFACTURER PRIOR TO ORDERING. PROVIDE DEVICES TO MEET CONTROL INTENT INDICATED ON THE DRAWINGS. 2. PROMDE 6'-0" OF EXCESS CONTROL WIRING, COILED AND TIED, BETWEEN CEILING MOUNTED OCCUPANCY SENSOR AND CORRESPONDING LOAD CONTROLLER. 3. MODIFY LOCATIONS OF CEILING MOUNTED OCCUPANCY SENSORS AS REQUIRED SO THAT NO OCCUPACNY SENSORS IS WITHIN 4'-0" OF AN HVAC SUPPLY DIFFUSER.

4. LOCATE DEVICE ABOVE CEILING OR AT STRUCTURE IN ACCESSIBLE LOCATION. LOCATIONS SHOWN ON DRAWINGS ARE SCHEMATIC. ADD ACCESS PANEL WITHIN CEILING

IF NECESSARY. COORDINATE ACCESS PANEL LOCATION AND SPECIFICATION DIRECTLY WITH ARCHITECT. LOCATION SHOWN ON PLAN FOR REFERENCE ONLY. CONTRACTOR MAY RELOCATE BRIDGE PORTS FOR A MORE ECONOMICAL LAYOUT IF DESIRED.

6. PROVIDE DEVICES WITH DEFAULT MANUFACTURE MARKINGS ON BUTTONS.

7. ROUTE RECEPTACLE CIRCUIT INDICATED ON PLAN AS "CONTROLLED RECEPTACLES" THROUGH PLUG LOAD CONTROLLER FOR AUTOMATIC ON/OFF CONTROL MA OCCUPACNY SENSOR. ONE CONTROLLED CIRCUIT PER PLUG CONTROLLER.

8. DEVICE TO BE INSTALLED IN SINGLE GANG BOX. COORDINATE TIME-OF-DAY SCHEDULES WITH OWNER FOR ZONES TO BE ON TIME-OF-DAY CONTROL. 9. PENDANT MOUNT DEVICE TO 1/2" KNOCKOUT ON JUNCTION BOX AS REQUIRED.

PANEL LA1 (SECT.1) AFC VALUE: VERIFY AIC RATING: VERIFY MOUNTING: SURFACE (NEMA 1) VOLTAGE/PHASE: 240/120V, 1PH, 3W GROUNDS: EG (PER T250.122) BUS AMPERAGE: 400A MAIN TYPE: MLO ISOLATED GROUND BUS: NO SERVICE ENTRANCE RATED: NO | FURNACE (EXISTING) | FURNACE \* 100% OF 1ST 10 KVA, 50% OF REMAINING 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS PANEL ABBREVIATIONS

EM- PROVIDE EMERGENCY LOCKING TAB GF - GROUND FAULT BREAKER FA - FIRE A LARM, PROVIDE RED LOCKING TAB ST - SHUNT TRIP BREAKER F - ARC FAULT BREAKER LCK - PROVIDE PADLOCKABLE BREAKER GF/AF - COMBO A RC/GROUND FAULT BREAKER OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE CX - EXISTING CIRCUIT AND WIRING TO REMAIN RP- CIRCUIT CONTROLLED VIA RELAY PANEL

PANEL NOTES

VOLTAGE/PHASE: 240/120V, 1PH, 3W BUS AMPERAGE: 400A						AFC VALUE: <b>VERIFY</b> AIC RATING: <b>VERIFY</b>							GROUNDS: <b>EG (PER T250.122)</b> ISOLATED GROUND BUS: <b>NO</b> SERVICE ENTRANCE RATED: <b>NO</b>													
	M	IN TYPE:	MLO									MOUNTING	SURFACE (NI	EWA 1)					SE	RVICEEI	VIRANCE	= RAIED:	NO			
												<i>F</i>	ALL LOADS N V	Ά.	1											
LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	Р	WIRE	CKT#	PHASE	CKT#	WIRE	Р	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELE\
								SPACE ONLY				1	Α	2	12	1	20	ITEM#K8 (COOLER)							648	
								SPACE ONLY				3	В	4	12	1	20	ITEM#K9 (TEA BREWER)							1680	
								SPACE ONLY				5	Α	6	12	1	20	ITEM #K10 (COFFEE GRND)							840	
								SPACE ONLY				7	В	8	12	1	20	ITEM#K11 (WATER DISP)							2100	
								SPACE ONLY				9	Α	10	12	1	20	ITEM #K12 (ICE MACHINE)							720	
								SPACE ONLY				11	В	12	12	1	20	FRONT CNTR RCPTS		720						
						460		ITEM #K3 (FRIDGE)	20	1	12	13	Α	14	12	1	20	FRONT RMHALL RCPTS		900						
						420		ITEM #K4 (FREEZER)	20	1	12	15	В	16	12	1	20	SHOW WINDOW RCPTS		360						
						1584		ITEM #K5 (DISHWA SHER)	20	1	12	17	Α	18	12	1	20	BOOK NOOK RCPTS		900						
						300		ITEM #K6A (MIXER)	20	1	12	19	В	20	12	1	20	OFFICE RCPTS		720						
						300		ITEM #K6B (MIXER)	20	1	12	21	Α	22	12	1	20	TIMECLOCK						200		
						300		ITEM #K6C (MIXER)	20	1	12	23	В	24	12	1	20	INTERIOR LIGHTING	760							
						300		ITEM #K6D (MIXER)	20	1	12	25	Α	26	12	1	20	SIGNAGE	1200							
						468		ITEM #K7 (BAKE CASE)	20	1	12	27	В	28				SPACE ONLY								
								SPARE	20	1		29	Α	30				SPACE ONLY								
0	0	0	0	0	0	4132	0	TOTALS										TOTALS	1960	3600	0	0	0	200	5988	0
				NE	C CODER	EFERENCE	3			7									PHA	SELOAD	SUMMAR	Y				
100% C	F 1ST 10 I	(VA. 50%	OF REMAI							┨						-	TOTAL	PHASE	LTG	RCPT	MOTOR		COOL	MISC	кітснем	ELE
		,		JM OF REM	AINING M	OTORS											8052	A	1200	1800	0	0	0	200	4852	0
				ON NEC TO													7828	B	760	1800	0	0	0	0	5268	0
																			,,,,	1000	_ <u> </u>	⊢ Ŭ	<u> </u>	l	3200	
PANEL ABBREVIATIONS					1						PANEL LOAD SUMMARY															
F - GRO	JND FAUL	T BREAKE	R			EM - PRO	/IDE EMER	RGENCY LOCKING TAB		1							15880	CONNECTED VA	1960	3600	0	0	0	200	10120	0
ST - SHUNT TRIP BREAKER FA - FIRE ALARM, PROVIDE RED LOCKING TAB													-	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	0.65	1.00				
AF - ARC FAULT BREAKER LCK - PROVIDE PADLOCKABLE BREAKER													12828	DEMAND VA	2450	3600	0	0	0	200	6578	0				
GF/AF - COMBO A RC/GROUND FAULT BREAKER OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE													0	SHOW WINDOW DEMAND												
G - PROVIDE ISOLATED GROUND TC - CIRCUIT CONTROLLED VIA TIME CLOCK													0	TRACK LTG DEMAND												
					PANEL	NOTES				1							0%	SPARE								
										1							12828	DEMAND VA + SPARE								

#### **GENERAL NOTES** (NOT ALL NOTES APPLY)

. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS. 2. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS

PRIOR TO ROUGH-IN. 3. FIELD VERIFY ALL ELECTRICAL WORK WITH OWNER PRIOR TO START OF PROJECT.



#### **KEYED NOTES:**

PROVIDE METER CENTER TAP BOX TO CONNECT TO EXISTING METER CENTER, EATON #1MTB800R. 2. PROVIDE 400A, SELF-CONTAINED UTILITY METER PER UTILITY

UTILITY COMPANY REQUIREMENTS AND LOCAL CODES. . PROVIDE 400A, NEMA 3R, FUSED SAFETY SWITCH FOR TENANT DISCONNECTING MEANS. . THREE OF THE EXISTING METERS WILL REMAIN TO SERVE EXISTING TENANTS AND THE HOUSE PANEL. CONSOLIDATE THESE METERS INTO (1) METER STACK AND REMOVE THE

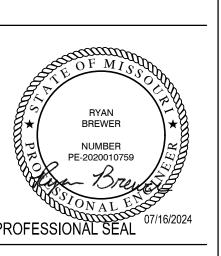
COMPANY STANDARDS. INSTALLATION SHALL MEET ALL

STACK CONTAINING (3) SPARE METER SPACES PER EVERGY'S REQUEST. PROVIDE CAP ON SIDE OF EXISTING METER STACK TO REMAIN AND RETURN THE REMOVED METER STACK TO THE BUILDING OWNER. CONTACT AMBER AT EVERGY TO COORDINATE WORK AS REQUIRED. (785) 215-5923.

Boutique SW 3RD ST Sereni

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**REVISION DATES:** 



ISSUE DATE: 16 JULY 2024 COLLINS WEBB #: 22097

**ELECTRICAL RISER** DIAGRAM & SCHEDULES

COLLINS WEBB #:

16000 - ELECTRICAL

DIVISION 16 OF THE SPECIFICATIONS COVERS ALL ELECTRICAL WORK FOR THE PROJECT. WORK SHALL INCLUDE LABOR, MATERIAL AND ACCESSORIES NECESSARY TO ACCOMPLISH THE WORK AS SPECIFIED AND SHOWN ON THE DRAWINGS, INCLUDING CONNECTION AND CHECKOUTS OF EQUIPMENT FURNISHED BY OTHERS (OTHER TRADES, THE OWNER AND OTHER CONTRACTORS), AND TO ALL EQUIPMENT ITEMS AND AS INDICATED ON DRAWINGS INSTALLATION STUDIES ARE REQUIRED TO COORDINATE THE ELECTRICAL WORK OR AS REQUIRED.

THE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS INCLUDING THE GENERAL - MECHANICAL/STRUCTURAL/ELECTRICAL WORK MUST BE SEQUENCED AND CONDITIONS, INCLUDING ALL SUPPLEMENTS ISSUED THERETO, INSTRUCTIONS TO POSITIONED WITH PRECISION IN ORDER TO FIT INTO THE AVAILABLE SPACE. BIDDERS, AND OTHERS PERTINENT DOCUMENTS ISSUED BY THE ARCHITECT ARE A PART OF THESE SPECIFICATIONS AND ELECTRICAL DRAWINGS. THIS TRADE SHALL CONSULT THEM FOR INSTRUCTIONS WHICH APPLY. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE ELECTRICAL LAYOUT AND WORK INCLUDED ELECTRICIAN SHALL FOLLOW DRAWINGS IN LAYOUT THE ELECTRICAL WORK AND PROVIDE APPROVED SHOP DRAWINGS TO ALL REQUIRED DISCIPLINES AND AND SPACES IN WHICH WORK WILL BE INSTALLED.

CODES, PERMITS, INSPECTION AND COMMISSIONING

INSTALLATION SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL WORK IN EFFECT, INCLUDING THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), THE NATIONAL ELECTRICAL SAFETY CODE, ALL LOCAL GOVERNING CODES AND ORDINANCES, WITH THE REGULATIONS OF THE SERVING ELECTRICAL BE RECTIFIED AT NO ADDITIONAL COST TO THE OWNER. UTILITY COMPANY. PROVIDE ALL REQUIRED PERMITS AND INCLUDE THE COST OF SAME IN THE COST OF THE PROJECT. OBTAIN AND PAY FOR (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ALL REQUIRED INSPECTIONS AND REVIEWS. PROVIDE FOR AND PAY ALL EXPENSES (WITHOUT ADDITIONAL EXPENSE PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED. TO THE OWNER) ASSOCIATED WITH LIGHTING AND LIGHTING CONTROLS COMMISSIONING. ALL COMMISSIONING DOCUMENTATION SHALL BE CERTIFIED AND GIVEN TO OWNER AND DESIGN PROFESSIONAL.

THE FOLLOWING INDUSTRY STANDARDS AS APPLICABLE TO ELECTRICAL WORK SHALL APPLY TO THE WORK OF THIS DIVISION EXCEPT THAT, WHERE THE REQUIREMENTS OF THESE SPECIFICATIONS ARE MORE THAN THE LISTED STANDARD, THESE SPECIFICATIONS SHALL TAKE PRECEDENCE:

UL - UNDERWRITERS' LABORATORIES NEMA - NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION NECA - NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE ASTM - AMERICAN SOCIETY OF TESTING MATERIALS

ALL MATERIALS SHALL BE NEW, UL LISTED AND LABELED WHERE LABELED MATERIALS ARE AVAILABLE, UNDAMAGED AND FREE OF DEFECTS AT TIME OF INSTALLATION. MATERIALS OR EQUIPMENT DAMAGED IN SHIPMENT OR OTHERWISE DAMAGED PRIOR TO OR DURING INSTALLATION SHALL NOT BE REPAIRED AT THE JOB SITE, BUT SHALL BE REPLACED WITH NEW MATERIALS. WHEN THE MANUFACTURER'S NAME APPEARS IN THESE SPECIFICATIONS AND DRAWINGS, IT SHALL BE CONSTRUED THAT THE MANUFACTURER HAS TO MEET THE FULL REQUIREMENTS OF THE SPECIFICATIONS AND DRAWINGS.

SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT TO THE ARCHITECT FOR ENGINEER'S REVIEW ELECTRONICALLY OR HARD COPIES. INCLUDE SUFFICIENT INFORMATION TO INDICATE COMPLETE COMPLIANCE WITH SPECIFICATIONS. PROVIDE SUBMITTALS AS EARLY AS REQUIRED TO SUPPORT THE PROJECT SCHEDULE. ALLOW ONE WEEK FOR ENGINEER REVIEW TIME. THE INSTALLED, OR AS REQUIRED BY THE ENGINEER, OWNER, OR ROOFING ENGINEER'S SUBMITTAL REVIEWS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, OR QUANTITIES; OR FOR OMITTING COMPONENTS OR FITTINGS; OR FOR NOT COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS AND/OR OTHER

ACCUMULATE DURING THE PROGRESS OF THE JOB, THE FOLLOWING DATA IN DUPLICATE, AND PREPARE IN A NEAT BROCHURE OR PACKET FOLDER TO BE TURNED OVER TO THE OWNER AT SUBSTANTIAL COMPLETION: RECORD DRAWINGS PER ABOVE.

ALL WARRANTIES, GUARANTEES, AND MANUFACTURER'S DIRECTION ON **EQUIPMENT & MATERIAL FURNISHED.** 

COMPLETE PLAIN ENGLISH STEP-BY-STEP OPERATING INSTRUCTIONS FOR THE ELECTRICAL SYSTEM. ONE COPY OF THESE INSTRUCTIONS SHALL BE FRAMED AND POSTED AS DIRECTED ON THE PREMISES.

CERTIFIED LIGHTING AND LIGHTING CONTROLS COMMISSIONING AS REQUIRED BY CURRENTLY ADOPTED ENERGY CODE REQUIREMENTS.

MANUFACTURERS' NAMES AND CATALOG NUMBERS

IN SOME INSTANCES, SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAME AND MODEL OR CATALOG NUMBERS. USE OF NAMES AND CATALOG NUMBERS DOES NOT INDICATE THAT THE EQUIPMENT SPECIFIED IN NECESSARILY AN "OFF THE SHELF" ITEM. VARIANCES MAY BE DUE TO REQUIREMENT OF DESIRED FINISH, MATERIAL OR OTHER MODIFICATION.

IN THE CASE OF PANELBOARDS, SAFETY SWITCHES AND OTHER EQUIPMENT REQUIRING WIRE AND CABLE TERMINATIONS, ASCERTAIN THAT LUG SIZES AND WIRING GUTTERS OR WIRING SPACE ALLOWED IS PROPER FOR THE WIRES AND CABLES CONTAINED THEREIN.

WHEN APPROVAL IS GIVEN FOR THE USE OF EQUIPMENT DIFFERING FROM THAT SHOWN ON DRAWINGS IN REGARD TO FOUNDATIONS, SPACE FOR PIPING, DUCTWORK, WIRING, INSULATION, ETC. CHANGES REQUIRED TO ACCOMPLISH SUCH DIFFERENCES SHALL BE ACCOMPLISHED AT NO COST TO THE OWNER.

ELECTRICAL EQUIPMENT SHALL BE PROTECTED FROM THE WEATHER, IN PARTICULAR, DRIPPING OR SPLASHING WATER, AT ALL TIMES DURING SHIPMENT. STORAGE AND CONSTRUCTION. MANUFACTURER'S RECOMMENDATIONS WITH REGARD TO STORAGE, PROTECTION, AND HANDLING SHALL BE FOLLOWED.

SHOULD ANY APPARATUS BE SUBJECTED TO POSSIBLE INJURY DUE TO WATER, IT SHALL BE THOROUGHLY DRIED AND PUT THROUGH A DIELECTRIC TEST, AT THE EXPENSE OF THE CONTRACTOR, TO ASCERTAIN THE SUITABILITY OF THE APPARATUS OR IT SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE

DAMAGED OR DEFECTIVE EQUIPMENT: INSPECT ALL ELECTRICAL EQUIPMENT AND PROVIDE ACCESS PANELS FOR ALL EQUIPMENT AND DEVICES REQUIRING SUCH MATERIALS PRIOR TO INSTALLATION. INSTALLATION OR PLACEMENT INTO SERVICE OF DAMAGED MATERIALS WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER IS PROHIBITED. REPLACE OR REPAIR TO NEW CONDITION, AS CERTIFIED BY THE MANUFACTURER, AND TEST DAMAGED EQUIPMENT IN COMPLIANCE WITH INDUSTRY STANDARDS AT NO ADDITIONAL COST TO THE OWNER. EQUIPMENT REQUIRED FOR THE TESTING SHALL BE PROVIDED BY THE CONTRACTOR.

THE SIZE OF ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS IS BASED ON DIMENSIONS OF A PARTICULAR MANUFACTURER, (GENERALLY THE FIRST NAMED). WHILE OTHER MANUFACTURERS MAY BE ACCEPTABLE, IT IS THE RESPONSIBILITY OF THE TRADE TO DETERMINE IF THE EQUIPMENT PROPOSED WILL FIT IN THE ALLOCATED SPACE.

INSTALL ALL EQUIPMENT IN A MANNER TO PERMIT ACCESS TO ALL SURFACES.

MAINTAIN PROPER CLEARANCE TO MEET ALL SAFETY AND OPERATING CODES, PARTICULARLY N.E.C. INCLUDE ALL REQUIREMENTS DICTATED BY OPERATION. CONTROL. ADJUSTMENT, MAINTENANCE AND POSSIBLE REPLACEMENT OF EQUIPMENT IN DETERMINING CLEARANCE.

SHOULD THERE BE APPARENT VIOLATIONS OF N.E.C. CLEARANCE, NOTIFY THE ARCHITECT-ENGINEER BEFORE PROCEEDING WITH CONNECTION OR PLACEMENT OF EQUIPMENT.

WITH THE WORK OF OTHER TRADES. PREPARE COORDINATION DRAWINGS AT

ACCURATE SCALE WHERE SEVERAL ELEMENTS OF ELECTRICAL OR COMBINED

SHOW THE ACTUAL PHYSICAL DIMENSIONS REQUIRED FOR PROPER INTEGRATION OF EQUIPMENT WITH BUILDING SYSTEMS

CONSULT THE DRAWINGS AND LAYOUTS OF OTHER TRADES TO VERIFY LOCATION VERIFY FINAL ELECTRICAL CHARACTERISTICS BEFORE ROUGHING POWER FEEDS CONNECTORS SHALL BE INSULATED THROAT TYPE. TO ANY EQUIPMENT, WHEN ELECTRICAL DATA ON APPROVED SHOP DRAWINGS DIFFERS FROM CONTEMPLATED DESIGN, MAKE NECESSARY ADJUSTMENTS TO THE WIRING, DISCONNECTS, AND BRANCH-CIRCUIT PROTECTION FOR THE EQUIPMENT ACTUALLY INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

DAMAGE FROM INTERFERENCE CAUSED BY INADEQUATE COORDINATION SHALL

ALL WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL

ANY MATERIAL ITEMS OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THESE SPECIFICATIONS OR VISA-VERSA, OR ANY ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

AND PATCHING NECESSARY FOR THE INSTALLATION OF THIS WORK. NO CUTTING IN CONSTRUCTIVE PARTS OF THE BUILDING LIKELY TO IMPAIR ITS STRENGTH SHALL BE DONE WITHOUT THE ARCHITECT-ENGINEER'S WRITTEN APPROVAL.

**EXCAVATION AND BACKFILL** 

EXCAVATION, TRENCHING AND BACKFILLING ARE SPECIFIED IN SECTION EXCAVATION TRENCHING AND BACKFILLING FOR UTILITIES. CONDUIT IS TO BE INSTALLED AS SPECIFIED FOR PIPELINES. CONDUIT INSTALLED BENEATH FLOOR SLAB SHALL BE A MINIMUM OF 6" BELOW SLAB. BACKFILL OVER CONDUIT SHALL BE COMPACTED AS FOR SLAB BEDDING MATERIAL. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF CONDUIT (PIPE) PENETRATION OF EXTERIOR FOOTINGS. COMPLETE INSTALLATION SHALL CONFORM TO N.E.C.

COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION OF FIRE-STOPPING SPECIFIED IN ARCHITECTURAL SPECIFICATIONS.

ROOFS: COORDINATE ALL ROOF PENETRATIONS WITH ENGINEER, OWNER, AND AS APPLICABLE, THE ROOFING CONTRACTOR PROVIDING A ROOF WARRANTY. KEEP ALL RACEWAY PENETRATIONS WITHIN MECHANICAL EQUIPMENT CURBS WHEREVER POSSIBLE. COORDINATE WITH DIVISION 15. FLASH AND COUNTERFLASH ALL OPENINGS THROUGH ROOF, AND/OR PROVIDE PRE-FABRICATED MOLDED SEALS COMPATIBLE WITH THE ROOF CONSTRUCTION CONTRACTOR. ALL ROOF PENETRATIONS SHALL BE LEAKTIGHT AT THE TERMINATING OF THE WORK AND SHALL NOT VOID ANY NEW OR EXISTING ROOF

WALLS AND FLOORS - SLEEVES FOR RACEWAYS AND CABLES: STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS AND DRIP RINGS.

CAST IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE", EQUIVALIENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL SATERSTOP, UNLESS OTHERWISE INDICATED.

FIRESTOPPING: FIRE RESISTANT THROUGH PENETRAION SEALANTS - TWO PART. FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN THROUGH-PENETRAION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE CODE; ICEA METHOD 1, WITH GREEN INSULATED GROUDING CONDUCTOR. TRAY PENETRAIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E 814, BY UNDERWRITER'S LABORATORIES, INC., OR OTHER NRTL ACCEPTABLE TO

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

SERVICE SHALL BE AS SHOWN ON DRAWINGS.

PROVIDE SECONDARY SERVICE INTO THE BUILDING WITH CONDUIT AND WIRING AS SHOWN ON THE PLANS, INCLUDING, BUT NOT LIMITED TO, UNDERGROUND RACEWAYS AND CABLES AND SECONDARY CONNECTIONS TO UTILITY TRANSFORMERS AS REQUIRED BY SERVING ELECTRICAL UTILITY COMPANY. COORDINATE ALL REQUIREMENTS WITH UTILITY COMPANY PRIOR TO BID.

PROVIDE ALL REQUIRED GROUNDING FOR A COMPLETE SERVICE ENTRANCE GROUNDING SYSTEM. PERMANENTLY AND EFFECTIVELY GROUND AND BOND THE EXTENSION RINGS OR PLASTER RINGS OR TILE RINGS TO PROVIDE EXPOSED ELECTRICAL INSTALLATION IN A THOROUGH AND EFFICIENT MANNER, AND IN CONFORMANCE (AT A MINIMUM) WITH N.E.C. OR THESE DOCUMENTS, WHERE THEY EXCEED CODE REQUIREMENTS. USE BARE OR INSULATED CONDUCTORS AS SPECIFIED HEREIN, AND OTHER MATERIALS INDICATED ON THE DRAWINGS.

PROVIDE ALL NECESSARY ENCLOSURES REQUIRED BY THE OWNER FOR THE UTILITY COMPANY METERING. REFER TO DRAWINGS FOR MINIMUM REQUIREMENTS. COORDINATE WITH UTILITY COMPANY PRIOR TO BID FOR ALL REQUIREMENTS

ALL EQUIPMENT OF A PARTICULAR KIND, SUCH AS WIRING DEVICES AND PANELBOARDS AND ALL LIGHTING FIXTURES OF THE SAME TYPE, SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.

PANELS. SIZE AS REQUIRED FOR PROPER ACCESS AND MAINTENANCE, MINIMUM ACCEPTABLE IS 12 IN BY 12 IN CLEAR OPENING WHERE HAND ACCESS ONLY IS REQUIRED.

PROVIDE LABELS FOR EACH MOTOR CONTROLLER, SAFETY SWITCH, RELAY, PANELBOARD, CONTACTOR, TIMER, CONTROL DEVICE, METER AND CIRCUIT BREAKER, LABELS SHALL BE LAMINATED, PHENOLIC STRIPS 1/16" THICK, AND ENGRAVED TO SHOW BLACK LETTERS ON A WHITE BACKGROUND NOT LESS THAN 1/4" HIGH. SIZE STRIPS TO PROPERLY FIT MANUFACTURER'S BRACKETS AND BE LEGIBLE, WHERE MANUFACTURER'S BRACKETS ARE NOT PROVIDED, MOUNT LABELS WITH PROPER SCREWS, OR AN APPROVED ADHESIVE,

CONDUIT, RIGID STEEL; GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.L. FITTINGS SHALL BE PIPE THREADED. MALLEABLE IRON. CONNECTORS SHALL BE INSULATED THROAT TYPE.

CONDUIT, PVC: POLYVINYLCHLORIDE SCHEDULE 40 PIPE SPECIFICALLY MANUFACTURED AND LABELED (UL STANDARD 651) FOR USE AS ELECTRICAL CONDUIT. FITTINGS SHALL BE EITHER SOCKET WELDED TYPE OR PIPE THREADED HUBBELL #52CM61). WITH INSULATED THROAT.

CONDUIT, FLEXIBLE METALLIC: GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH GALVANIZED OR SHERADIZED FITTINGS. LISTED PER UL-L, FITTINGS SHALL BE OF THE SQUEEZE TYPE WITH INSULATED THROATS.

CONDUIT, LIQUIDTIGHT FLEXIBLE METALLIC: GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH OVERALL JACKET OF LIQUID TIGHT PVC, UL LISTED. FITTINGS SHALL BE STEEL OR MALLEABLE IRON INSULATED THROAT, WATERTIGHT.

ELECTRIC METALLIC TUBING: GALVANIZED OR SHERADIZED AND MANUFACTURED AND SHALL BE SMOOTH FINISH NYLON TYPE OF SAME MANUFACTURER AS THE IN ACCORDANCE WITH ANSI STANDARD C80.3. FITTINGS 1/2 INCH THROUGH 2 INCH WIRING DEVICES. VERIFY DESIRED MATERIALS AND COLORS WITH ARCHITECT TRADE SIZE SHALL BE COMPRESSION TYPE, MANUFACTURED FROM MALLEABLE PRIOR TO INSTALLATION. IRON OR STEEL, AND RAIN AND/OR CONCRETE-TIGHT AS REQUIRED BY INSTALLATION. POT METAL OR DIE CAST TYPE FITTINGS ARE PROHIBITED.

GENERAL: SERVICE LATERALS AND PANELBOARD FEEDERS SHALL BE OF ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70: SOLID CONDUCTOR FOR NO. 10 AWG AND SMALLER; CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL FEEDER CONDUCTORS NO 8 AWG AND LARGER; STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION.

ALL BRANCH CIRCUITS SHALL BE ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70; SOLID CONDUCTOR FOR NO. 10AWG AND SMALLER: CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL BRANCH CIRCUIT CONDUCTORS NO 8 AWG AND LARGER; STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION. ALL CONDUCTORS, NO 10 AWG AND SMALLER, USED FOR POWER AND LIGHTNG CIRCUITS; SOLID COPPER, TYPE THWN-2 INSULATION (WET OR DAMP LOCATIONS. OR IN CONDUIT BELOW GRADE OR SLAB). TYPE THHN INSULATION (DRY LOCATIONS ONLY ABOVE GRADE), OR DUAL RATED TYPE THHN/THWN-2. ALL BRANCH CIRCUIT WIRING SHALL NOT BE SMALLER THAN THIS TRADE SHALL DO OR HAVE DONE BY COMPETENT TRADESMEN ALL CUTTING NO 12 AWG. IF NO CONDUCTOR SIZE IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE CONDUCTORS AND CONDUIT SIZED PER NFPA 70 AND BASED ON THE INDICATED BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE RATING AND NUMBER OF POLES. WHERE NO CIRCUIT SIZE (CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICE) IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE THREE NO 12 AWG CONDUCTORS IN 3/4" RACEWAY, AND A 20A SINGLE POLE CIRCUIT BREAKER.

> CONDUCTOR INSULATION TYPES; 90-DEGREE C-RATED, TYPE THHN/THWN-2 OR XHHW-2 COMPLYING WITH ICEA S-95-658/NEMA WC70.

COLORS FOR 208/120V CONDUCTORS PHASE A: BLACK PHASE B: RED PHASE C: BLUE NEUTRAL: WHITE

EQUIPMENT GROUND: GREEN ISOLATED GROUND: GREEN WITH YELLOW STRIPE

COLORS FOR 480/277V CONDUCTORS PHASE A: BROWN PHASE B: ORANGE PHASE C: YELLOW NEUTRAL: WHITE EQUIPMENT GROUND: GREEN

UNLESS NOTED OTHERWISE, SPECIAL PURPOSE CONDUCTORS AND CABLES, SUCH AS LOW VOLTAGE CONTROL AND SHIELDED INSTRUMENT WIRING, SHALL BE SHEET STEEL AND FINISH WITH BAKED ON GRAY ENAMEL OVER RUST INHIBITOR. THERMAL PROTECTION. AS RECOMMENDED BY THE SYSTEM EQUIPMENT MANUFACTURER.

CONTROL WIRING: STRANDED COPPER CONDUCTORS, 600V INSULATION, OF THE PROPER TYPE, SIZE AND NUMBER AS REQUIRED TO ACCOMPLISH SPECIFIED FUNCTION. MINIMUM SIZE; NO. 14 AWG UNLESS NOTED OTHERWISE.

MC TYPE CABLE CAN BE USED IF ACCEPTED BY LOCAL AUTHORITY AND GOVERNING CODES FOR WHIPS FROM JUNCTION BOX TO LIGHT FIXTURES ONLY. TYPE MC CABLE; 600V, UNJACKETED; ANSI E119 AND E814, UL STANDARDS 44 OR 83 (AS APPLICABLE), AND 1569, NFPA 70 ARTICLE 330; ALUMINUM OR GALVANIZED STEEL INTERLOCKED ARMOR: THHN- OR XHHW-INSULATED CONDUCTORS; COLOR

PROVIDE A DEDICATED EQUIPMENT-GROUNDING CONDUCTOR, OR BONDING JUMPER, AS APPLICABLE, IN ALL BRANCH CIRCUITS AND FEEDERS, SIZED IN ACCORDANCE WITH NFPA 70, UNLESS INDICATED AS LARGER ON THE DRAWINGS.

PROVIDE A DEDICATED NEUTRAL (WHERE REQUIRED) AND DEDICATED GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT.

VOLTAGE DROP IN BRANCH CIRCUITS SHALL NOT EXCEED 2%.

GFCI CIRCUITS: DO NOT USE MULTI-CONDUCTOR CIRCUITS, WITH A SHARED NEUTRAL FOR ANY GFCI CIRCUIT BREAKER OR RECEPTACLE CIRCUIT. BRANCH CIRCUITS FED FROM GFCI CIRCUIT BREAKERS, LIMIT THE ONE-WAY CONDUCTOR LENGTH TO 100 FEET BETWEEN THE PANELBOARD AND THE MOST REMOTE RECEPTACLE OR LOAD ON THE GFCI CIRCUIT.

OUTLET BOXES: GALVANIZED PRESSED STEEL WITH GALVANIZED STEEL SURFACE FLUSH WITH WALL OR CEILING FINISH. PROVIDE ALL CEILING OUTLET BOXES WITH "NO-BOLT" OR THROUGH AND LOCKNUTTED TYPE FIXTURE STUDS.

JUNCTION AND PULL BOXES: FABRICATE IN ACCORDANCE WITH NEMA AND N.E.C. STANDARDS AND REQUIREMENTS INSOFAR AS MATERIAL, GAUGES, DIMENSIONS, AND FABRICATION METHODS. BOXES SHALL BEAR THE UL LABEL. WHERE BOXES ARE NOT SIZED ON THE DRAWINGS, THEY SHALL BE SIZED IN ACCORDANCE WITH N.E.C. REQUIREMENTS. FINISH IN STANDARD GRAY ENAMEL, WITH SIDES AND BACK SPOT-WELDED IN POSITION AND THE REMOVABLE SCREW COVER MOUNTED WITH BRASS MACHINE SCREWS.

SWITCHES: DECORA STYLE, HEAVY DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE-POLE, DOUBLE-POLE, THREE-POLE, OR FOUR-WAY AS NOTED ON DRAWINGS OR AS REQUIRED FOR THE SWITCHING ARRANGEMENTS IN EACH SPACE. HUBBELL #HBL122\*\* OR EQUAL. COORDINATE SWITCH COLORS WITH COVERPLATES AS DESCRIBED ON POWER PLAN.

SWITCHES, SPECIAL PURPOSE: KEY OPERATED, HEAVY-DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE OR MULTI-POLE AS NOTED OR AS REQUIRED. HUBBELL #HBL122\*\* OR EQUAL.

RECEPTACLES: DECORA STYLE, THREE WIRE GROUNDING TYPE, 120 VOLT RATED, BE UL CLASS RK-1, CURRENT-LIMITING, TIME-DELAY, DUAL-ELEMENT, 200,000 SPECIFICATION GRADE 20 AMPERES DUPLEX UNLESS NOTED OTHERWISE ON DRAWINGS. HUBBELL #5362 OR EQUAL. COORDINATE RECEPTACLE COLOR WITH COVERPLATE AS DESCRIBED ON POWER PLAN. SINGLE RECEPTACLE, 20 AMPERE, SYMMETRICAL INTERRUPTING CAPACITY ON MOTOR CIRCUITS. 120 VOLT, SPECIFICATION GRADE. HUBBELL #5361 OR EQUAL.

DUST AND MOISTURE RESISTANT, MELAMINE BODY, NYLON FACE BACKED BY FABRIC REINFORCED NEOPRENE GASKET SLIT TO PROVIDE WIPING ACTION ON CAP BLADES. PASS & SEYMOUR #6307 OR APPROVED EQUAL. GROUND FAULT CIRCUIT INTERRUPTER, NYLON FACE CLASS A, NEMA 5-20R, SPECIFICATION GRADE. HUBBELL #GF-5362\* OR EQUAL.

CORROSION RESISTANT, SIMILAR AND APPROVED EQUAL TO STANDARD RECEPTACLE, EXCEPT FABRICATED FROM MELAMINE PLASTIC WITH NYLON FACE TRIP-FREE HANDLE MECHANISM. THE BREAKER SHALL BE ENCLOSED IN A AND EXPOSED METAL PARTS FINISHED TO RESIST CORROSION. (NEMA 5-15R =

ISOLATED GROUND, DUPLEX OR SIMPLEX THREE WIRE GROUNDING TYPE, SPECIFICATION GRADE, ORANGE FACE, GROUND CONTACT FULLY ISOLATED FROM STRAP AND EQUIPPED WITH SCREW TERMINAL. HUBBELL #IG-5362\* OR EQUAL.

RECEPTACLES, SPECIAL PURPOSE: SPECIAL PURPOSE OUTLETS SHALL BE AS SCHEDULED ON DRAWINGS.

PLATES: PROVIDE PLATES FOR ALL OUTLET BOXES. PLATES SHALL BE OF SUITABLE CONFIGURATION FOR THE NUMBER AND TYPE OF DEVICES SERVED, SHALL BE ONE PIECE, SHALL OVERLAP OUTLET BOX EDGE AND ROOM SURFACES,

STANDARD INTERIOR: REFER TO PLANS - COORDINATE ALL COLORS WITH ARCHITECT

INTERIOR DAMP LOCATIONS: STAINLESS STEEL.

EXTERIOR LOCATIONS: FOR UNATTENDED WET LOCATIONS, PROVIDE IN-USE NEMA 3R, UL LABELED PLATES MOLDED FROM A CLEAR HIGH IMPACT ULTRAVIOLET STABILIZED POLYCARBONATE MATERIAL FOR EASY VERIFICATION THAT CORDS ARE PLUGGED IN AND THAT THE GFCI IS FUNCTIONING. COVER PLATES SHALL BE BY THE SAME MANUFACTURER AS THE WIRING DEVICES; COMPLYING WITH NFPA 70 406.8 (A) OR (B) REQUIREMENTS FOR ATTENDED OR UNATTENDED USE AS APPLICABLE.

ACCEPTABLE MANUFACTURERS: HUBBELL, PASS & SEYMOUR, LEVITON AND

ACCORDANCE WITH NEMA STANDARDS

DIRECTORIES SHALL BE TYPEWRITTEN.

FURNISH AND INSTALL FLUSH CABINETS AND ENCLOSURES AS SHOWN ON THE PLANS AND AS HEREIN SPECIFIED. UNIT SHALL BE PROVIDED WITH DEAD FRONT SUB PANEL, RECESSED AS REQUIRED, TO HOUSE CONTROLS. DOOR SHALL BE PROVIDED WITH CONCEALED HINGES AND FLUSH KEY OPERATED LOCK. DOOR AND TRIM SHALL BE PRIME PAINTED FOR FIELD PAINTING TO MATCH WALL FINISHES. PROVIDE KNOCK-OUTS. LOUVERS AND IDENTIFICATION ENGRAVING AS REQUIRED TO MEET FIELD CONDITIONS. EXACT BACKBOX SIZE TO BE COORDINATED WITH EQUIPMENT SUPPLIER.

SAFETY SWITCHES: SAFETY SWITCHES SHALL CONSIST OF A BOX, FRONT COVER, REQUIRED CORRECTIONS BEFORE COMPLETION OF PROJECT. AND CIRCUIT PROTECTOR DEVICE ALL MANUFACTURED AND ASSEMBLED IN

THE BOX SHALL BE FABRICATED FROM CODE GAUGE GALVANIZED SHEET STEEL IN CEILING EXISTS, UNLESS SHOWN OTHERWISE ON DRAWINGS. ACCORDANCE WITH U.L. LISTING AND LABEL. THE CIRCUIT PROTECTOR DEVICE SHALL BE HEAVY DUTY, QUICK-MAKE, QUICK-BREAK FUSED OR UNFUSED SWITCH RATED FOR MOTOR CIRCUITS AND/OR SERVICE ENTRANCE DUTY, IF REQUIRED. UNITS SHALL BE FURNISHED FOR SURFACE OR FLUSH MOUNTING WITH EITHER GENERAL PURPOSE OR RAINTIGHT ENCLOSURES, AS REQUIRED. FUSED UNITS SHALL BE FURNISHED COMPLETE WITH PROPER FUSES.

SHALL CONSIST OF BOX, INTERIOR, FRONT, AND CIRCUIT PROTECTIVE DEVICES THE ASSEMBLY SHALL BE U.L. LABELED AND BE LISTED FOR SERVICE. THE ASSEMBLY SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH NEMA STANDARD PB-1. THE LATEST UL STANDARD (UL-50) AND SHALL HAVE A TURNED EDGE AROUND THE FRONT FOR RIGIDITY AND FOR CLAMPING ON FRONT. PROVIDE STANDARD KNOCKOUTS ON REMOVABLE BOX ENDS. FABRICATE FROM ALL RECESSED LIGHT FIXTURES SHALL BE PROVIDED WITH FACTORY INSTALLED EACH FRONT SHALL HAVE A DOOR MOUNTED ON SEMI-CONCEALED HINGES WITH A CYLINDER LOCK, INDEX CARD CIRCUIT DIRECTORY MOUNTED BEHIND CLEAR

PLASTIC AND HELD IN A METAL FRAME. AND CONCEALED TRIM CLAMPS FOR

MOUNTING TO THE BOX. ALL LOCKS SHALL BE MASTER KEYED AND ALL PANEL

ALL INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED. THE DESIGN OF THE INTERIOR SHALL PERMIT REPLACEMENT OF INDIVIDUAL BRANCH BREAKERS WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT MACHINE DRILLING OR TAPPING. BUS BARS FOR PANELS RATED 600 AMPERES OR MORE SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OR TIN FINISH ALUMINUM (57% CONDUCTIVITY) OF RECTANGULAR CROSS-SECTION. BUS BARS FOR PANELS RATED LESS THAN 600 AMPERES SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OF RECTANGULAR CROSS-SECTION. BUS BAR CONNECTIONS TO BRANCH CIRCUIT BREAKERS SHALL BE THE PHASE SEQUENCE TYPE AND ACCEPT SYLVANIA, OR OSRAM. BOLT-ON TYPE BREAKERS ONLY. PANELBOARD BUS STRUCTURE AND MAIN BREAKER OR MAIN LUGS SHALL BE RATED AS SCHEDULED ON DRAWING. SUCH RATINGS SHALL BE ESTABLISHED BASED ON HEAT RISE TESTS IN ACCORDANCE WITH UL STANDARDS. GROUP INCOMING CABLE LUGS AT ONE END FOR SEPARATION FROM LOAD SIDE CABLES, EQUIPMENT NEUTRAL BUSSING WITH A LUG FOR EACH BRANCH BREAKER POSITION. INTERIOR SHALL MOUNT TO BOX

BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, BOLT-ON THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKERS ONE, TWO OR THREE POLE WITH INTEGRAL CROSSBAR FOR MULTI-POLE UNITS, EQUIPPED WITH AN OVERCENTER, TRIP-FREE, TOGGLE-TYPE OPERATING ACTION AND POSITIVE HANDLE INDICATION OF BREAKER STATUS. CIRCUIT BREAKERS SHALL BE UL LISTED IN ACCORDANCE WITH UL STANDARDS.

EACH PANELBOARD, AS A COMPLETE UNIT, SHALL HAVE A SHORT CIRCUIT RATING PANELBOARDS FURNISHED. EQUAL TO OR GREATER THAN THE INTEGRATED EQUIPMENT RATING SHOWN ON DRAWINGS. THE RATING SHALL BE ESTABLISHED BY TESTING WITH THE OVERCURRENT DEVICES MOUNTED IN THE PANELBOARD, THE SHORT CIRCUIT TESTS ON THE OVERCURRENT DEVICES ON THE STRUCTURE SHALL BE MADE SIMULTANEOUSLY BY CONNECTING THE FAULT TO EACH OVERCURRENT DEVICE WITH THE PANELBOARD CONNECTED TO ITS RATED SUPPLY VOLTAGE.

REFER TO PANELBOARD SCHEDULES FOR FULLY RATED OR SERIES-RATED REQUIREMENTS. SERIES-RATED SYSTEMS ARE NOT ALLOWED UNLESS SPECIFICALLY INDICATED ON PANELBOARD SCHEDULES. WHERE ALLOWED, SERIES-RATED SYSTEMS SHALL BE PROPERLY LABELLED BY NEC REQUIREMENTS.

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

MARKED WITH THEIR MAXIMUM SHORT CIRCUIT CURRENT RATING AT THE SUPPLY

METHOD OF TESTING SHALL BE PER UL STANDARDS. PANELBOARDS SHALL BE

OVERCURRENT PROTECTIVE DEVICES FUSES OF THE PROPER SIZE, RATING AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED IN EACH FUSIBLE DEVICE. FUSES OF 600 VOLTS AND BELOW SHALL AMPERE RMS SYMMETRICAL INTERRUPTING CAPACITY ON NON-MOTOR CIRCUITS AND UL CLASS RK-5. TIME-DELAY. DUAL-ELEMENT. 200.000 AMPERES RMS

APPROVED MANUFACTURERS: BUSSMANN, LITTLEFUSE OR FERRAZ-SHAWMUT (ALL FUSES SHALL BE OF SAME MANUFACTURER TO ENSURE SELECTIVE COORDINATION).

CIRCUIT BREAKERS: CIRCUIT BREAKERS OF THE PROPER SIZE, RATING, AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED WHERE CALLED FOR ON DRAWINGS. BREAKERS SHALL BE THERMAL MAGNETIC MOLDED-CASE WITH

QUICK-MAKE, QUICK-BREAK, OVER CENTER TOGGLE TYPE MECHANISM AND SUITABLE NEMA RATED ENCLOSURE. BREAKERS SHALL BE OF SAME MANUFACTURER AS THOSE IN THE PANELBOARDS.

ELECTRONIC TIME SWITCHES: ELECTRONIC, SOLID STATE PROGRAMMABLE UNITS WITH ALPHANUMERIC DISPLAY; COMPLYING WITH UL917. SPST, 30 AMPERE INDUCTIVE OR RESISTIVE, 240VAC, CONTACT RATING. 2 PROGRAMMABLE ON-OFF SET POINTS ON A 24-HOUR SCHEDULE, ALLOWING DIFFERENT SET POINTS FOR EACH DAY OF THE WEEK. ALLOW CONNECTION OF A PHOTOELECTRIC RELAY AS SUBSTITUE FOR ON-OFF FUNCTION OF A PROGRAM, ASTRONOMIC TIME ON ALL CHANNELS. BATTERY BACKUP FOR SCHEDULES AND TIME CLOCK.

SOLID STATE, WITH SPST DRY CONTACT RATED FOR 1800-VA TUNGSTEN OR 1000-VA INDUCTIVE, TO OPERATE CONNECTED RELAY, CONTACTOR COILS OR MICROPROCESSOR INPUT, COMPLYING WITH UL 773A.

TELEPHONE AND DATA SYSTEMS FURNISH AND INSTALL A SYSTEM OF PROPERLY SIZED AND PROPERLY LOCATED OUTLETS WITH ASSOCIATED CONNECTING CONDUIT RUNS, EXTENDING TO PULL BOXES AND TELEPHONE BACKBOARD. FURNISH AND INSTALL RACEWAYS, FOR INCOMING SERVICE WHERE INDICATED. OUTLET BOXES: UNLESS OTHERWISE INDICATED, ALL TELEPHONE OUTLETS AND JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO ACCOMMODATE

OUTLET COVER PLATES: TELEPHONE OUTLET COVER PLATES SHALL MATCH THOSE SPECIFIED FOR ADJACENT WIRING DEVICES, INCLUDING THOSE WITH

INTERNAL TERMINAL STRIPS BY TELEPHONE CO.

RACEWAYS: MATERIALS FOR TELEPHONE RACEWAY SYSTEM WORK SHALL BE IN ACCORDANCE WITH CORRESPONDING RACEWAYS SPECIFIED HEREIN AND IN OTHER SECTIONS.

VERIFY LOCATION OF WALL OUTLETS BEFORE ROUGHING IN TO ENSURE COORDINATION WITH OWNER'S FINAL INTENDED FURNITURE LAYOUT. PLAN INDICATIONS SHALL NOT BE SCALED UNLESS DIRECTED. OUTLETS SHALL BE RELOCATED WITHIN ROOMS BEFORE ROUGH-IN WHERE DIRECTED BY ARCHITECT-ENGINEER WITHOUT ADDITIONAL COST TO OWNER.

TELEPHONE SERVICE CONDUIT LAYOUT SHALL HAVE THE JOB SITE APPROVAL OF AN AUTHORIZED REPRESENTATIVE OF THE TELEPHONE CO. COORDINATE WORK SO THAT BOTH TELEPHONE CO. AND OWNER'S REPRESENTATIVES ARE PRESENT AT THE SAME TIME FOR APPROVAL OR CHANGES IN AMPLE TIME FOR ANY

FROM EACH TELEPHONE OUTLET, PROVIDE 3/4" EMT CONDUIT CONCEALED IN WALL TO 6" ABOVE ACCESSIBLE CEILING OR UP TO STRUCTURE WHERE NO

TELEPHONE TERMINAL BOARD: PRIOR TO INSTALLATION OF TELEPHONE TERMINAL BOARD, THE EXACT LOCATION SHALL BE VERIFIED WITH THE TELEPHONE CO. THE TELEPHONE TERMINAL BOARD SHALL BE PROVIDED WITH A DOUBLE DUPLEX RECEPTACLE LOCATED WHERE INDICATED ON THE DRAWINGS. THE TERMINAL BOARD SHALL BE CONSTRUCTED OF 4' X 8' X 3/4" PLYWOOD WITH TWO (2) COATS OF FLAME RETARDANT PAINT UNLESS NOTED OTHERWISE ON

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

ALL LAMPS USED ON THIS PROJECT SHALL BE NEW, DELIVERED TO THE JOB SITE IN THE ORIGINAL PACKING CASES AND SLEEVES AND SHALL BE OF THE SAME MANUFACTURER.

PROVIDE FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS SUITABLE FOR OPERATION OF LAMPS SPECIFIED; TOTAL HARMONIC DISTORTION LESS THAN 20%; FREQUENCY OF OPERATION OF 20 KHZ OR GREATER WITH NO VISIBLE FLICKER; LINE TRANSIENT WITHSTAND RATINGS AS DEFINED IN ANSI/IEEE, CATEGORY A. APPROVED MANUFACTUERERS: ADVANCE OR EQUAL BY MAGNETEK, MOTOROLA

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

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

ALL CONTACTORS AND RELAYS SHALL BE UL LISTED AND LABELED, GENERAL PURPOSE, ELECTRICALLY HELD TYPE, IN NEMA 1 ENCLOSURES. WHERE SPECIFICALLY NOTED ON DRAWINGS, UNITS SHALL BE ELECTRICALLY HELD OR MOMENTARY OPERATIONAL TYPE. UNITS SHALL BE FURNISHED WITH LINE OR LOW VOLTAGE CONTROL AS NOTED AND WITH THE CORRECT NUMBER OF POLES AND CURRENT CHARACTERISTICS. WHERE LOW VOLTAGE OPERATION IS INDICATED, PROVIDE PROPER STEPDOWN TRANSFORMERS AND RECTIFIERS. APPROVED MANUFACTURERS: ASCO, OR MANUFACTURER OF APPROVED

GENERAL PURPOSE, UL-LISTED/LABELED 150 DEGREES C TEMPERATURE RISE ABOVE 40 DEGREES C AMBIENT. INSULATING MATERIALS: EXCEED NEMA ST-020 STANDARDS, RATED FOR 220 DEGREES C, UL-COMPONENT RECOGNIZED INSULATION SYSTEM. PHASES, VOLTAGES, AND SIZES: AS INDICATED ON THE DRAWINGS. SOUND LEVEL: NOT EXCEEDING NEMA STANDARDS FOR THE SIZES INDICATED. FULL-CAPACITY PRIMARY TAPS: BELOW 25 KVA - MINIMUM OF TWO 5% (2-); 25 KVA TO 300 KVA - MINIMUM OF SIX 2.5% (2+, 4-); ABOVE 300 KVA - FOUR 2.5% (2+, 2-). TRANSFORMER CORE AND COIL ASSEMBLIES: MOUNTED ON INTEGRAL VIBRATION-ABSORBING PADS. MAKE FINAL CONDUIT CONNECTIONS TO TRANSFORMERS WITH FLEXIBLE CONDUIT, WITH AT LEAST 6" OF SLACK IN ALL DIRECTIONS. TRANSFORMER ENCLOSURES: FULLY ENCLOSED (EXCEPT FOR VENTILATION OPENINGS), NEMA 2, DRIP-PROOF, FABRICATED OF HEAVY GAUGE SHEET STEEL CONSTRUCTION. MANUFACTURERS: SQUARE D, GENERAL ELECTRIC, ACME, SIEMENS.

**ELECTRICAL SPECIFICATIONS** 

**ELECTRICAL SPECIFICATIONS** 

COLLINS WEBB #:

WIRING OF MECHANICAL EQUIPMEN

PROVIDE ALL RACEWAYS AND POWER WIRING FOR ALL DIVISION 15 EQUIPMENT WATER HEATERS, AND HVAC EQUIPMENT, AND ALL LINE-VOLTAGE CONTROL AND REFRIGERATED EQUIPMENT AND PROVIDE EXPANSION JOINTS PER N.E.C. INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15. CONNECT PER MANUFACTURER'S WIRING DIAGRAMS. COORDINATE WITH DIVISION 15 FOR DISCONNECTS FURNISHED WITH EQUIPMENT, AND PROVIDE ALL DISCONNECT LOAD HAS THE CORRECT PHASE ROTATION.

VERIFY THE ACTUAL "MAXIMUM OVERCURRENT PROTECTION" DEVICE RATINGS AND "MINIMUM CIRCUIT AMPACITY" CONDUCTOR SIZING FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. BASE ELECTRICAL INSTALLATIONS ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY SOMEWHAT FROM THE CONDUCTOR AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS; HOWEVER, IN NO CASE, REDUCE THE SIZE OF CONDUCTORS INDICATED ON THE DRAWINGS WITHOUT AUTHORIZATION FROM THE ENGINEER. PROVIDE PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT WITHOUT EXTRA SIZE CLAMPS, INSERTS, CHANNELS AND ALL OTHER MEMBERS TO SUPPORT A COST TO THE OWNER. NOTIFY THE ENGINEER OF ALL CHANGES REQUIRED IN THE LOAD EQUAL TO 200% OF THE COMBINED WEIGHT OF ALL SUPPORTED MATERIAL ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES SO THAT THE EFFECTS ON FEEDERS, BRANCH CIRCUITS, PANELBOARDS, FUSES AND CIRCUIT BREAKERS CAN BE CHECKED PRIOR TO PURCHASING AND INSTALLATION. BE RESPONSIBLE FOR COORDINATING WITH DIVISION 15 TO VERIFY THE ACTUAL AMPACITIES AND CORRECT SIZES OF ALL CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICES FOR ALL EQUIPMENT, AND CORRECT OVERLOAD HEATERS FOR ALL MOTORS, WHEN STARTERS ARE PROVIDED UNDER DIVISION 16.

PROVIDE ALL RACEWAYS, POWER WIRING, AND LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15, FOR ALL THERMOSTATS, TO, NIGHT-STATS, WATER HEATER INTERLOCKS, TIME SWITCHES AND OVERRIDE TIMERS. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAMS. LOW-VOLTAGE CONDUCTORS FOR THERMOSTATS AND TEMPERATURE CONTROL SYSTEMS MAY BE RUN EXPOSED ABOVE FINISHED ACCESSIBLE CEILINGS, IF APPROVED AND LISTED FOR THIS PURPOSE, BUT SHALL BE INSTALLED IN CONDUIT WITHIN WALLS AND WHERE EXPOSED IN THE WORK

#### <u>EXECUTION</u>

ERECT EQUIPMENT PARTS AT SUCH TIME AND IN SUCH MANNER AS TO MINIMIZE INTERFERENCES AND DELAYS IN THE EXECUTION OF THE WORK CARE SHALL BE USED IN THE ERECTION AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS TO AVOID MARRING SURFACES OF THE WORK. DAMAGES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

EQUIPMENT REQUIRING ELECTRICAL SERVICE SHALL NOT BE ENERGIZED OR PLACED IN SERVICE UNTIL ALL INTERESTED PARTIES HAVE BEEN DULY NOTIFIED AND ARE PRESENT OR HAVE WAIVED THEIR RIGHT TO BE PRESENT. WHERE EQUIPMENT TO BE PLACED IN SERVICE INVOLVES SERVICE OR CONNECTION FROM ANOTHER CONTRACTOR OR THE OWNER, NOTIFY THE OWNER IN WRITING WHEN THE EQUIPMENT WILL BE READY. THE OWNER SHALL BE NOTIFIED AS FAR IN ADVANCE AS POSSIBLE, OF THE DATE THE VARIOUS ITEMS OF EQUIPMENT WILL BE COMPLETE.

REQUIRED TO ALL MISCELLANEOUS EQUIPMENT FURNISHED BY OTHERS, OR UNDER OTHER DIVISIONS OF THE WORK. THIS SHALL INCLUDE POWER AND CONTROL WIRING. WIRING DEVICES AND COVER-PLATES FOR BUILT-IN EQUIPMENT ARE INCLUDED IN THE WORK OF THIS DIVISION. SAFETY DISCONNECTS AND OTHER MISCELLANEOUS PROTECTIVE DEVICES REQUIRED BY SIZE INCREASED AS REQUIRED. WHERE THE INCREASED CONDUCTOR SIZE FINAL CONNECTIONS FROM APPROVED SHOP DRAWINGS ONLY.

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

PROVIDE SLEEVES FOR ELECTRICAL WORK PASSING THROUGH WALLS, PARTITIONS, ROOFS, AND FLOORS. SLEEVES SHALL EXTEND THROUGH FLOORS, WALLS AND PARTITIONS AND SHALL BE CUT FLUSH WITH EACH SURFACE UNLESS OTHERWISE SPECIFIED. FIRE WALL AND/OR FLOOR INTEGRITY SHALL BE RESTORED AFTER PENETRATION. SLEEVES IN CONCRETE AND MASONRY WALLS, CONCRETE FLOORS AND ROOFS, SHALL BE FABRICATED FROM STANDARD GALVANIZED STEEL PIPE WITH ENDS FINISHED SMOOTH, BURR FREE, WITHOUT SHARP EDGES. SLEEVES IN WALLS, ROOFS, AND FLOORS OF OTHER CONSTRUCTION AND THROUGH SUSPENDED CEILINGS SHALL BE FABRICATED FROM 22 U.S. GAUGE GALVANIZED STEEL. FLOOR SLEEVES SHALL EXTEND THREE N.E.C. INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. SPACE BETWEEN FLOOR SLEEVES AND PASSING CONDUIT SHALL BE FILLED WITH DUCT SEAL PACKING AND CAULKED WITH WATERPROOF COMPOUND AS APPROVED. WHERE CONDUITS PASS THROUGH WATERPROOFED FLOORS OR WALLS, SLEEVES SHALL BE FABRICATED SUCH THAT WATERPROOFING CAN BE FLASHED ONTO AND AROUND THE SLEEVE.

ALL POWER AND LIGHTING CIRCUITS SHALL BE RUN IN METALLIC RACEWAYS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. THESE RACEWAYS SHALL BE EACH BOX SHALL BE OF PROPER SIZE TO ACCOMMODATE THE DEVICE AND RUN CONCEALED IN ALL FINISHED AREAS, AND WHERE RUN EXPOSED SHALL BE SQUARE TO THE BUILDING AND HELD TIGHT TO THE BUILDING CONSTRUCTION. LOW VOLTAGE, TELEPHONE, INTERCOM, MUSIC, ALARM AND SECURITY WIRING RUN ABOVE ACCESSIBLE CEILINGS SHALL BE RUN USING INSULATED, PLENUM RATED CABLE. PROVIDE LOW VOLTAGE CABLE IN CONDUIT IF REQUIRED BY LOCAL MOUNTING OF LIGHTING FIXTURES SHALL BE FOUR INCH OCTAGON, EQUIPPED AHJ. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION. METALLIC CONDUIT WITH 3/8 IN. "NO-BOLT" FIXTURE STUD. BOXES FOR FLOOR OUTLETS SHALL BE FOR THESE SYSTEMS SHALL BE PROVIDED ONLY WHERE RUN INSIDE WALLS. THE CONCRETE PROOF STEEL BOXES WITH ADJUSTABLE TOPS AND DEVICES AS DRAWINGS INDICATE THE REQUIRED SIZE OF ALL RACEWAYS (EXCEPT AS HEREINAFTER SPECIFIED), THE POINTS OF TERMINATION AND THE SUGGESTED ROUTING. HOWEVER, THE INSTALLER IS RESPONSIBLE FOR PROPER COORDINATION WITH BUILDING STRUCTURE AND THE WORK OF OTHER TRADES. FINISH FLOOR): WALL SWITCHES 48" AND CONVENIENCE OUTLETS 18" UNLESS FURNISH ALL REQUIRED BENDS, ELBOWS, FITTINGS, JUNCTION AND PULL BOXES, NOTED OTHERWISE ON DRAWINGS. WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS, THAT MAY BE REQUIRED FOR BOTH BRANCH AND FEEDER CIRCUITS ARE RUN CONCEALED, THEY MAY BE OUTLET BOX TYPE WHERE ONLY ONE CONDUIT ENTERS SAME. UNLESS RUN OUT OF SQUARE TO THE BUILDING PROVIDING THE SHORTEST POSSIBLE RUN OTHERWISE SPECIFIED OR INDICATED ON DRAWINGS, WHERE TWO OR MORE

CONDUIT SHALL BE CONSTRUED AS ELECTRICAL RACEWAYS AND SHALL CONFORM TO THE FOLLOWING: CONCEALED IN SUSPENDED CEILINGS AND INTERIOR PARTITIONS - EMT WITH SET SCREW TYPE FITTINGS. UNDERGROUND OR BELOW INTERIOR SLABS - GRS. (NOTE: PVC CONDUIT IS PERMITTED OUTSIDE FOR PARKING AREA LIGHTING, SIGNS, ETC. ELBOWS SHALL BE GRS). EXPOSED ON BUILDING EXTERIOR - GRS.

AND N.E.C. FILL.

CONDUIT BENDS SHALL BE MADE TO THE LARGEST POSSIBLE RADIUS FOR EASE IN ACCORDANCE WITH N.E.C. ARTICLE 250. PULLING CONDUCTORS AND TO PROVIDE A NEATLY INSTALLED APPEARANCE EQUIPMENT AND CONDITIONS PERMITTING, POWER CONDUIT BENDS SHALL CONFORM TO THE FOLLOWING: 1-1/2 IN. - 18 IN. RADIUS; 2 IN. - 24 IN. RADIUS; 2-1/2 GREEN GROUNDING CONDUCTOR SIZE IN ACCORDANCE WITH N.E.C. AND IN. - 24 IN. RADIUS; 3 IN. - 36 IN. RADIUS.

TO REMOVE ALL "BURRS" AND ALL FIELD CUT THREADS SHALL BE PAINTED WITH WHITE LEAD BEFORE COUPLINGS ARE APPLIED.

TELEPHONES, OWNER ITEMS AND OTHER SYSTEMS AS INDICATED ON DRAWINGS AND A GROUND ATTACHMENT IN THE NEAREST OUTLET BOX IN THE RIGID SHALL BE INSTALLED COMPLETE WITH NYLON PULL WIRES PROPERLY TAGGED AT METALLIC CONDUIT SYSTEM. THIS REQUIREMENT INCLUDES ALL FLEXIBLE BOTH ENDS FOR IDENTIFICATION.

WHERE BUILDING VENTILATION CONDITIONS ARE SUCH THAT AIR MAY FLOW

CONTINUOUSLY IN CONDUITS, CAUSING CONDENSATION AND THE COLLECTION OF 6 AWG CONDUCTOR TO EACH PROTECTOR CABINET, OTHER CABINET, OR DEVICE MOISTURE, THE CONDUITS SHALL BE SEALED AT EACH END WITH A PLIABLE X REQUIRING ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, PUMPS, DUCT SEALING COMPOUND. ALSO SEAL ALL CONDUITS ENTERING AND LEAVING

ALL CONNECTIONS TO MOTORS, SOLENOID VALVES, PRESSURE SWITCHES, LIMIT SWITCHES, AND SIMILAR APPARATUS SHALL BE FLEXIBLE CONDUIT WHERE SWITCHES AS REQUIRED. AFTER INSTALLING WIRING, VERIFY THAT EACH MOTOR PERMITTED. WHERE EQUIPMENT IS INSTALLED OUTDOORS OR EXPOSED TO MOISTURE, USE LIQUIDTIGHT FLEXIBLE CONDUIT WITH WATERTIGHT FITTINGS.

EQUIPMENT LEVELING, HANGERS AND SUPPORTS

SET EACH PIECE INSTALLED UNDER THIS DIVISION TRUE AND LEVEL. ADEQUATELY SUPPORT ALL RACEWAYS FROM THE STRUCTURE USING SCREW CLAMPS TO SECURE TO SAME. ARRANGE SUPPORTS TO PREVENT MOISTURE COLLECTION AND ALLOW ENTRANCE TO BOXES WITHOUT BENDS. INSTALL MULTIPLE CONDUITS USING CHANNEL TRAPEZE SUPPORTS TIGHT TO STRUCTURE ABOVE. USE APPROVED SPACERS TO INSULATE FROM CONTACT WITH BUILDING. PLUS THE WEIGHT OF A MAN.

WHERE SEVERAL RACEWAYS ARE SUPPORTED ON A COMMON TRAPEZE HANGER, SUPPORTS SHALL BE SPACED TO ACCOMMODATE THE SMALLEST SIZE RACEWAY INVOLVED. SPACE HANGERS AS FOLLOWS: RIGID CONDUIT: 1/2 AND 3/4 IN. SIZE; 6'-0" ON CENTERS; 1 AND 1-1/4 IN. SIZE; 9'-0" ON CENTERS

ELECTRIC METALLIC TUBING: 1/2 AND 3/4 IN. SIZE; 5'-0" ON CENTERS; 1 AND 1-1/4 IN SIZE; 6'-0" ON CENTERS.

TEMPERATURE CONTROL DEVICES, AND CONTROLS, INCLUDING, BUT NOT LIMITED SECURELY ATTACH HANGERS AND SUPPORTS TO CONSTRUCTION BY METHODS RECOMMENDED IN THE "NECA STANDARDS OF INSTALLATION" MANUAL COORDINATION WITH MECHANICAL TRADES: THE INTENT OF THE ABOVE CEILING SUPPORTS IS TO COMBINE AS MANY PIPES, CONDUITS, ETC., AS IS POSSIBLE WITHIN SAFE STRUCTURAL LIMITS. ON EACH HORIZONTAL SECTION OF A TRAPEZE HANGER. PRIOR TO SELECTING THE HORIZONTAL MEMBER, ALL TRADES, MECHANICAL AND ELECTRICAL, SHALL COORDINATE ACTUAL NUMBER OF PIPES, CONDUITS, ETC., SUCH THAT FINAL SELECTION RESULTS IN A NEATLY GROUPED, DISCIPLINED AND ACCESSIBLE INSTALLATION.

> EXCEPT FOR SUCH ITEMS AS ARE NORMALLY WIRED AT THEIR POINT OF MANUFACTURE AND SO DELIVERED - AND UNLESS SPECIFICALLY NOTED TO THE CONTRARY HEREIN - THE ELECTRICAL TRADE SHALL DO ALL ELECTRICAL WIRING OF EVERY CHARACTER. IT IS THE INTENT OF THESE SPECIFICATIONS AND DRAWINGS THAT ALL SYSTEMS AND EQUIPMENT SHALL BE PROVIDED WITH ALL NECESSARY UTILITY CONNECTIONS, COMPLETED TO ALLOW SAFE AND PROPER OPERATION OF SAID SYSTEMS. WHEN IT IS NECESSARY FOR TRADES PERFORMING WORK COVERED BY THIS DIVISION TO MAKE FINAL CONNECTIONS TO ITEMS OF EQUIPMENT BEING FURNISHED BY OTHERS, OR BY OTHER TRADES UNDER OTHER DIVISIONS, ALL SUCH WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DIVISION AND ALL MATERIALS

USED SHALL BE AS SPECIFIED HEREIN.

MINIMUM WIRE SIZE FOR BRANCH CIRCUITS SHALL BE #12 AWG, EXCEPT THAT HOMERUNS LONGER THAN 100 FT. LENGTH FROM THE PANEL TO THE CIRCUIT'S ELECTRICAL LOAD CENTER SHALL BE #10 AWG MINIMUM. WHERE RUNS EXCEED THE WORK OF THIS TRADE INCLUDES ROUGH-IN FOR AND FINAL CONNECTION AND 150', CONTRACTOR MUST ENSURE WIRE SIZE BEING UTILIZED DOES NOT CREATE A VOLTAGE DROP GREATER THAN 3%. REQUEST PROPER WIRE SIZE PRIOR TO INSTALLATION IF A 3% VOLTAGE DROP MAY OCCUR FOR ANY BRANCH CIRCUIT. WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE ENCLOSED IN ELECTRICAL WORK. AT COMPLETION OF THE WORK, REMOVE ALL RUBBISH, THE SAME RACEWAY, CONDUCTORS ARE TO BE DERATED PER N.E.C. AND WIRE N.E.C. ARE INCLUDED IN THE WORK OF THIS DIVISION. DO ALL ROUGHING-IN AND REQUIRES, INCREASE THE RACEWAY SIZE AS WELL. FOR CONTROL WIRING, USE #14 AWG MINIMUM. FOR FIXTURE WIRING, AS PERMITTED BY N.E.C., USE #18 AWG TESTING AND LOAD BALANCING MINIMUM. FOR SIGNAL AND COMMUNICATIONS SYSTEMS USE WIRE SIZE AS SPECIFICALLY REQUIRED BY THE SYSTEM SUPPLIER.

> MAKE CONNECTIONS TO TERMINALS USING PRESSURE TYPE CONNECTORS. SOLDERED JOINTS ARE PROHIBITED. ALL JOINTS IN CONDUCTORS SHALL BE MADE AT AN ACCESSIBLE LOCATION WITHIN A BOX BY TWISTING THE BARE CONDUCTOR ENDS TOGETHER AND APPLYING A WIRE CONNECTOR IN ALL SIZES UP TO THE MAXIMUM CAPACITY OF THE CONNECTOR. JOINTS SHALL BE TAPED WITH AN APPROVED ELECTRICAL TAPE. SPLICES FOR CONDUCTORS LARGER THAN #10 AWG SHALL BE MADE WITH AN APPROVED COMPRESSION (SQUEEZE) CONNECTOR INSULATED WITH NOT LESS THAN TWO LAYERS OF ELECTRICAL FILL TAPE TO 1.5 TIMES THE THICKNESS OF INSULATION, FOLLOWED BY TWO (MINIMUM) LAYERS OF HALF-LAPPED ELECTRICAL TAPE FOR MECHANICAL PROTECTION. LOCATE ALL SPLICES IN BOXES OR FITTINGS OF PROPER SIZE PER

IDENTIFY ALL WIRES AND CABLES WITH BRADY ADHESIVE WIRE MARKERS AT EACH BOX, PANEL, AND OUTLET. IDENTIFICATION SHALL, AS A MINIMUM, INDICATE 100% DEMAND, THE UNBALANCE SHALL NOT EXCEED 10%. DURING FINAL THE PANEL AND CIRCUIT SUPPLYING THE OUTLET. AT THE PANEL END, THE LOAD INSPECTION, FURNISH THE TEST INSTRUMENTS AND QUALIFIED PERSONNEL TO SERVED AND ITS LOCATION SHALL BE INDICATED. PROVIDE A MINIMUM OF 8 IN. SLACK WIRE AT EACH OUTLET FOR MAKING CONNECTION TO THE DEVICE OR TO PROVIDE FOR A FUTURE DEVICE IN THE BOX.

FUNCTION FOR WHICH IT IS SHOWN. BOXES FOR WALL DEVICES SHALL BE FURNISHED COMPLETE WITH PLASTER RING OR TILE RING ACCORDING TO WALL CONSTRUCTION WHERE REQUIRED. BOXES FOR INSTALLATION IN MASONRY WALLS SHALL BE SPECIAL SQUARE CORNER MASONRY TYPE. BOXES FOR HEREINAFTER NOTED OR SHOWN. ALL BOXES SHALL BE FURNISHED COMPLETE WITH PROPER COVER AND/OR DEVICE PLATE AND DEVICE. UNLESS OTHERWISE NOTED, PLACE OUTLET BOXES AT THE FOLLOWING HEIGHTS (BOX CENTER TO

TO SATISFY CODES AND THE STANDARDS OF GOOD PRACTICE. WHERE CONDUITS TELEPHONE, ALARM, AND SIGNAL SYSTEM OUTLET BOXES SHALL BE STANDARD IS UTILIZED. RACEWAY SIZES ARE BASED ON THE USE OF COPPER CONDUCTORS CONDUITS ENTER, BOX SHALL BE 4-11/16 IN. SQUARE MINIMUM WITH SUITABLE ADAPTER RING.

> LOCATE ALL OUTLETS AS INDICATED ON DRAWINGS, HOWEVER, AT INSTALLATION INSPECT ARCHITECTURAL DRAWINGS AND LOCATE LOCAL SWITCHES ON THE STRIKE SIDE OF THE DOOR.

> EQUIPMENT, RACEWAY SYSTEMS, WIRING SYSTEM NEUTRALS, RECEPTACLES AND POWER OUTLETS, MOTORS AND MOTORIZED EQUIPMENT, SHALL BE GROUNDED IN

GROUND RECEPTACLES AND POWER OUTLETS TO THE CONDUIT SYSTEM WITH A CONNECTED BETWEEN THE DEVICE GROUNDING SCREW AND THE OUTLET BOX. CONNECTION TO THE BOX MAY BE A "G" CLIP OR BY A 10/24 SCREW THREADED GRS CONDUIT SHALL BE CUT WITH POWER OR HACKSAW AND CLEANLY REAMED INTO A HOLE IN THE BACK OF THE BOX AND USED FOR NO OTHER PURPOSE. EQUIPMENT CONNECTED TO THE ELECTRICAL SYSTEM SHALL BE GROUNDED WITHIN INSULATED GREEN GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH N.E.C. AND INSTALLED WITHIN THE RACEWAY. CONDUCTOR SHALL BE EMPTY CONDUIT SYSTEMS INSTALLED FOR COMMUNICATION SYSTEMS. PUBLIC CONTINUOUS BETWEEN A GROUNDING SCREW IN THE EQUIPMENT JUNCTION BOX

GENERALLY FOR TELEPHONE AND SUPPLEMENTAL COMMUNICATION SYSTEMS NO

INSTALLATION SHALL BE CONSIDERED SUFFICIENT, FROM THE SERVICE GROUND (UNLESS INDICATED OTHERWISE).

GROUND-RODS - 1/2" DIA., 10' LONG, COPPERWELD GROUND CONDUCTOR - SIZE AS PER N.E.C. REQUIREMENTS, SOFT DRAWN OR SOFT ANNEALED, COPPER WIRE. JOINTS AND CONNECTIONS - MOLDED FUSION WELDING PROCESS USING PROPER MOLD AND THE NUMBER, SIZE AND TYPE CARTRIDGE FOR THE JOINT OR CONNECTION. WATERPIPE CONNECTION, SILICON BRONZE APPROVED MECHANICAL CONNECTOR DESIGNED FOR THE PIPE AND CABLE TO BE BONDED.

PANELBOARD INSTALLATION:

MOUNT PANELBOARDS WITH CENTERLINE AT 5 FT.-6IN. ABOVE FINISH FLOOR, EXCEPT THAT THE HIGHEST BREAKER HANDLE SHALL BE BELOW 6 FT.-5 IN. ABOVE FINISH FLOOR. ARRANGE BREAKERS SO THAT THE BREAKER RATING IS VISIBLE WITH THE PANEL FRONT IN PLACE.

PANEL DIRECTORIES, AS A MINIMUM, SHALL BE TYPEWRITTEN AND INDICATE BREAKER POSITION NUMBER AND EQUIPMENT SERVED. THE PANEL IDENTIFICATION SHALL BE LOCATED ON THE PANEL TRIM AND SHALL CONSIST OF A BLACK LAMINATED PHENOLIC LABEL, SCREW MOUNTED, WITH THE PANEL IDENTIFICATION MATCHING PANEL IDENTIFICATION ON DRAWINGS. LABEL ALL CONDUCTORS WITH ADHESIVE WRAP LABELS WITHIN 2 IN. OF THE CONDUCTOR TERMINATION PRIOR TO INSTALLATION OF TRIM.

LIGHTING FIXTURE INSTALLATION

PROVIDE A LIGHTING FIXTURE FOR EACH AND EVERY OUTLET IN ACCORDANCE WITH TYPE DESIGNATION AND FIXTURE SCHEDULE ON THE DRAWINGS, VERIFY THE ARCHITECTURAL FINISHES AND CEILING CONSTRUCTION AND - REGARDLESS OF THE CATALOG NUMBER PREFIXES AND SUFFIXES SHOWN - PROVIDE FIXTURES WITH THE PROPER TRIM, FRAMES, SUPPORTS, AND HANGER AND OTHER MISCELLANEOUS APPURTENANCES TO PROPERLY COORDINATE WITH SAID FINISHES. REINFORCE CEILING CONSTRUCTION AS REQUIRED TO PROPERLY SUPPORT THE WEIGHT OF FIXTURES INSTALLED THEREON.

IMMEDIATELY PRIOR TO FINAL INSPECTION: THOROUGHLY CLEAN ALL FIXTURES INSIDE AND OUT, INCLUDING PLASTICS AND GLASSWARE. ADJUST TRIM TO FIT ADJACENT SURFACES. REPLACE BROKEN OR DAMAGED PARTS. INSTALL NEW LAMPS. ELECTRICALLY AND MECHANICALLY TEST THE SYSTEM FOR PROPER OPERATION.

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

THOROUGHLY CLEAN ALL FIXTURES, SWITCHES, OTHER DEVICES, PANELBOARDS, AND EQUIPMENT PROVIDED OR CONNECTED IN THIS CONTRACT. ALL SURFACES SHALL BE PROPERLY POLISHED AND SHALL BE FREE OF PAINT AND ALL OTHER DIRT OR DEBRIS. TOUCHUP OR COMPLETELY REFINISH ALL EQUIPMENT FURNISHED WITH FACTORY FINISHES THAT IS DAMAGED DURING DELIVERY OR CONSTRUCTION. PROPERLY PROTECT THE FRONTS OF ALL PANELBOARDS, SWITCHBOARDS AND SIMILAR EQUIPMENT TO PREVENT MARRING AND OTHER

AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY THE WORK OF THE TRADESMEN DOING TOOLS, EQUIPMENT, AND SURPLUS MATERIALS. BROOM CLEAN ALL ASSIGNED SPACES PRIOR TO LEAVING THE PREMISES.

TEST ALL CIRCUITS TO ASSURE THEM TO BE FREE OF GROUNDS AND SHORTS. LIGHT AND TEST EACH LAMP. PROVE AND TEST THE AVAILABLE VOLTAGE ON THE LOAD SIDE OF EACH DISCONNECT, VERIFY PROPER OPERATION OF THE DISCONNECT. VERIFY THE PHASE SEQUENCE, VOLTAGE, AND ROTATION AT EACH MOTOR IN THE PRESENCE OF THE INSTALLER. RUN EACH MOTOR WITH ITS CONTROL AS NEARLY AS POSSIBLE UNDER OPERATING CONDITIONS FOR A SUFFICIENT LENGTH OVER TIME TO DEMONSTRATE CORRECT ALIGNMENT, WIRING CAPACITY, SPEED, AND OVERALL SATISFACTORY OPERATION, CHECK THAT THE PROPER OVERLOAD HEATERS HAVE BEEN INSTALLED BY READING THE MOTOR NAMEPLATE. ADJUST THE SIZE OF THE OVERLOAD HEATER AS REQUIRED TO MATCH THE MOTOR NAMEPLATE. OPERATE ALL MAIN AND FEEDER SWITCHES AND BREAKERS.

THE VARIOUS BRANCH CIRCUITS SERVED FROM THE LIGHTING PANELBOARDS VARY IN LOADING. CAREFULLY BALANCE THE ACTUAL OPERATING LOAD ON EACH PANELBOARD WHEN ALL LOAD IS TURNED ON AND THE SYSTEM IS OPERATING AT PERFORM COMPLETE TESTING. COSTS OF ALL TESTING, INCLUDING THE INCIDENT COSTS FOR RETESTING OCCASIONED BY DEFECTS AND FAILURES OF THE EQUIPMENT TO MEET THE SPECIFICATIONS, SHALL BE BORNE BY THE CONTRACTOR.

FURNISH AT THE COMPLETION OF THE PROJECT A FINAL INSPECTION

CERTIFICATE FROM THE LOCAL INSPECTING AUTHORITY.

#### GENERAL PLUMBING NOTES

- ALL WORK SHALL BE IN CONFORMANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
- PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS AND ALL PLUMBING SYSTEMS EQUIPMENT MANUALS INCLUDING WARRANTIES.
- 3. COORDINATE THE COMPLETE INSTALLATION OF SYSTEMS TO AVOID CONFLICT WITH OTHER TRADES.
- 4. COORDINATE ALL ABOVE SLAB AND UNDER SLAB SANITARY, AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS, AND COLUMN FOOTINGS. ALL SOIL AND WASTE PIPING SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER. ALL GREASE WASTE PIPING SHALL BE ROUTED AT 1/4" PER FOOT SLOPE
- 5. COORDINATE ALL FLOOR DRAINS, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUM AND FLUSH WITHOUT CRACKS, RISE IN THE SLAB, OR VOIDS AROUND GRATES OR TOPS. ALL CLEANOUTS SHALL BE INSTALLED ALONG MAINS AT 50'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT. ANY DRAIN GRATES THAT ARE DAMAGED AS A RESULT OF OTHER CONSTRUCTION PRIOR TO RELEASE OF THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATE AT NO EXPENSE OF THE OWNER.
- ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS.
- PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS IF REQUIRED BY CODE OR OWNER.
- PLUMBING VENTS THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES.
- 9. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
- 10. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.
- CONTRACTOR TO FULLY INVESTIGATE ALL EXISTING PIPING TO REMAIN TO INSURE EXISTING PIPING IS IN GOOD REPAIR. IF ANY EXISTING PIPING IS FOUND TO BE DAMAGED REPLACE WITH LIKE.

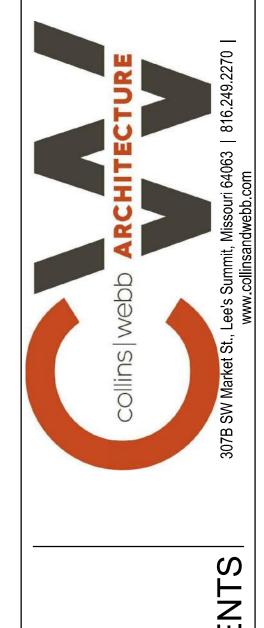
	PLUMBING A	DDKEVI	A HUNO
AD	AREA DRAIN, ACCESS DOOR	IE	INVERT ELEVATION
AFC	ABOVE FINISH CEILING	LP	LIQUIFIED PETROLEUM
AFG	ABOVE FINISH GRADE	MBH	1000 BTU PER HOUR
AHU	AIR HANDLING UNIT	N/A	NOT APPLICABLE
BFP	BACKFLOW PREVENTER	ORD	OVERFLOW ROOF DRAIN
BOP	BOTTOM OF PIPE	OST	STORM OVERFLOW
BOS	BOTTOM OF STRUCTURE	PD	PUMP DISCHARGE
CD	CONDENSATE	PIV	POST INDICATOR VALVE
CO	CLEANOUT	PRV	PRESSURE REDUCING VAL
CW	DOMESTIC COLD WATER	REV	REVISION
DD	DECK DRAIN	RPM	REVOLUTIONS PER MINUTE
DN	DOWN	RTU	ROOF TOP UNIT
ETR	EXISTING TO REMAIN	SAN	SANITARY
EWC	ELECTRIC WATER COOLER	SCW	SOFT DOMESTIC COLD WA
FCO	FLOOR CLEANOUT	SHW	SOFT DOMESTIC HOT WAT
FFA	FROM FLOOR ABOVE	SDHWR	SOFT RECIRC. HOT WATER
FP	FIRE PROTECTION	ST	STORM
FS	FLOOR SINK	TFA	TO FLOOR ABOVE
G	GAS (NATURAL)	TFB	TO FLOOR BELOW
GCO	GRADE CLEANOUT	TW	TEMPERED WATER
GPM	GALLONS PER MINUTE	UH	UNIT HEATER
НВ	HOSE BIBB	V	VENT PIPE
HW	DOMESTIC HOT WATER	VTR	VENT THROUGH ROOF
HWR	HOT WATER RETURN	WCO	WALL CLEANOUT
HWS	HOT WATER SUPPLY	WH	WALL HYDRANT

	PLUMBING	IBOLS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
<b>⊸</b> ₩_	GATE VALVE	● ■	FLOOR DRAIN / AREA DRAIN
<b>→</b> ∨⊢	CHECK VALVE		FLOOR SINK
-\$-	PRESSURE	(C) RD	ROOF DRAIN
<u>□</u>	SOLENOID VALVE	ORD	OVERFLOW ROOF DRAIN
<b>─</b> ₩	GLOBE VALVE (STRAIGHT PATTERN)		HOT WATER RECIRCULATION PUMP
<b>-</b> 66−	BUTTERFLY VALVE		PLUMBING VEVT THRU ROOF
<b>-₽</b> -	BALL VALVE	VTR VTR	
₩	GAS COCK		POINT OF CONNECTION (CONNECT NEW TO EXISTING)
<b>─</b> ₩	PLUG VALVE		PLUMBING EQUIPMENT DESIGNATION
© FCO	FLOOR CLEAN OUT		
——∥ wco	WALL CLEAN OUT	$\left(\begin{array}{c} x \\ x \end{array}\right)$	PLUMBING RISER OR DETAIL DESIGNATION
co	CLEAN OUT	s	SANITARY SEWER PIPING
-+	HOSE BIBB	ST	STORM SEWER PIPING
-#	FREEZE PROOF WALL HYDRANT	V	VENT PIPING
Ŋ	SHOWER HEAD		VENT PIPING (BELOW SLAB)
<del></del>	ELBOW DOWN		COLD WATER PIPING
<del></del>	ELBOW UP	— <del>-</del>	HOT WATER PIPING
+0+-	TEE UP	SCW	SOFTENED COLD WATER PIPING
10-	TEE DOWN	— — — — HWR	HOT WATER RECIRCULATING PIPING
<u> </u>	STRAINER	FW	FILTERED WATER PIPING
<del></del>	UNION	FWBF	FILTERED WATER PIPING BELOW GRADE
	REDUCER	GAS	GAS PIPING
	CAP	CD	CONDENSATE PIPING
<b>-</b> ≻-	FLEX PIPE		

PLUMBING FIXTURE MINIMUM									
CONNECTION SCHEDULE									
DESIGNATION	FIXTURE	C.W.	H.W.	DRAIN	VENT				
WC	WATER CLOSET	1"	-	4"	2"				
UR	URINAL	3/4"	-	2"	2"				
LAV.	LAVATORY	1/2"	1/2"	2"	2"				
EWC/DF	ELECTRIC WATER COOLER/DRINKING FOUNTAIN	1/2"	-	2"	2"				
MB/SS	MOP BASIN/SERVICE SINK	1/2"	1/2"	3"	2"				
SH/BT	SHOWER/BATHTUB	1/2"	1/2"	2"	2"				
SK	SINK	1/2"	1/2"	2"	2"				

#### GENERAL NOTES:

- 1. PITCH ALL DRAINAGE PIPING 3" AND LARGER AT 1/8" PER FOOT MINIMUM UNLESS OTHERWISE NOTED. PITCH ALL DRAINAGE PIPING 2-1/2" AND SMALLER AT 1/4" PER FOOT.
- ALL UNDERGROUND DRAINAGE PIPING SHALL BE A MINIMUM OF 2" IN SIZE.
- PROVIDE TRAP PRIMER UNITS FOR ALL FLOOR DRAINS.
- VERIFY/COORDINATE LOCATIONS OF ALL FIXTURES, DRAIN, ETC. WITH ARCHITECT PRIOR TO ROUGH-IN.



PERMIT DOCUN

SereniTea Boutique 500 SW 3RD ST. UNIT A FE'S SHAMIT MO 64063

ARCHITECTURE, LLC

**REVISION DATES:** 



ISSUE DATE: 16 JULY 2024 COLLINS WEBB #: 22097

PLUMBING NOTES, SYMBOLS & ABBREVIATIONS

ISSUE DATE: 16 JULY 2024 COLLINS WEBB #: 22097

PLUMBING DETAILS AND SCHEDULES

PLUMBING FIXTURE SCHEDULE DRAIN VENT COLD HOT ELECTRICAL TAG MANUFACTURER MODEL DESCRIPTION WATER WATER REQUIREMENTS FCO SIOUX CHIEF ---FLOOR CLEANOUT ABS BODY AND NICKEL-BRONZE COVER 834-4ANR HYDROMECHANICAL GREASE INTERCEPTOR RATED FOR 70 LBS SCHIER ---GREASE AT 20 GPM. MOLDED STONE INTEGRAL DRAIN MOP SERVICE BASIN WITH 830AA FAUCET, 832AA HOSE AND BRACKET, 889CC MOP HANGER FIAT 2" 3/4" 3/4" MSBIDTG2424 BRACKET AND QIC3XH QUICK DRAIN CONNECTOR. IN-LINE CARTRIDGE STYLE CIRCULATOR PUMP. CAPABLE OF 12 RP 115V 1 AMP TACO 0026e-F2 3/4" FEET OF HEAD AT 6 GPM PROVIDE WITH AQUASTAT. CORNER 3-COMPARTMENT SINK WITH DRAINBOARDS. PROVIDE 2" 1-1/2" 1/2" 1/2" SK1 ADVANCE TABCO 94-K6-18D WITH DTA-53 PRERINSE FAUCET AND K-1 FAUCET. WALL MOUNT HAND SINK WITH K-59 SPLASH MOUNTED GOOSENECK FAUCET WITH WRIST BLADE HANDLES. PROVIDE 2" 1-1/2" 1/2" 1/2" SK2 ADVANCE TABCO 7-PS-68 WITH ASSE 1070 COMPLIANT MIXING VALVE AND TRUEBRO LAV GUARD 2 TRAP WRAP ELECTRIC WATER HEATER 80 GALLON 62 GALLON RECOVERY AT BRADFORD 240V 1-PHASE E32-80R-3 3/4" 100 %%DF RISE. PROVIDE WITH AMTROL ST-12 THERMAL WHITE EXPANSION TANK AND HOLDRITE QUICKSTAND.

1. MODELS IN SCHEDULE ARE A BASIS OF DESIGN CONFIRM FINAL FIXTURE MODELS WITH OWNER PRIOR TO PURCHASING.

2. ALL LAVATORIES SHALL BE PROVIDED WITH ANTI-SCALD ASSE 1070 COMPLIANT VALVE. 3. PROVIDE LOOSE KEY STOPS AND FLEXIBLE RISERS.

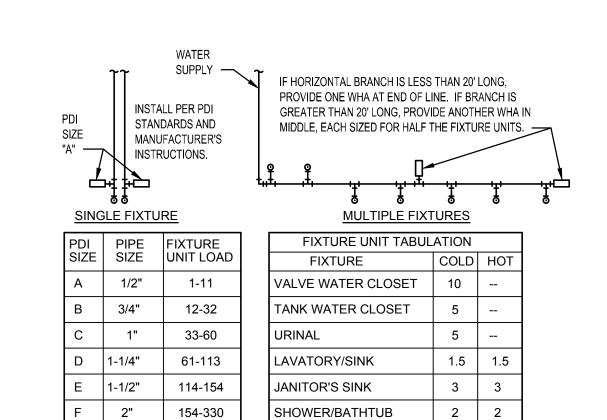
4. ON LAVATORY INSULATE EXPOSED TAILPIECE, P-TRAP, AND WATER RISERS WITH TRU-BRO INSULATION KIT.

5. PROVIDE FLUSH VALVE HANDLE ON WIDE SIDE OF ROOM.

PROVIDE HANDLE STOPS AND FLEXIBLE RISERS.

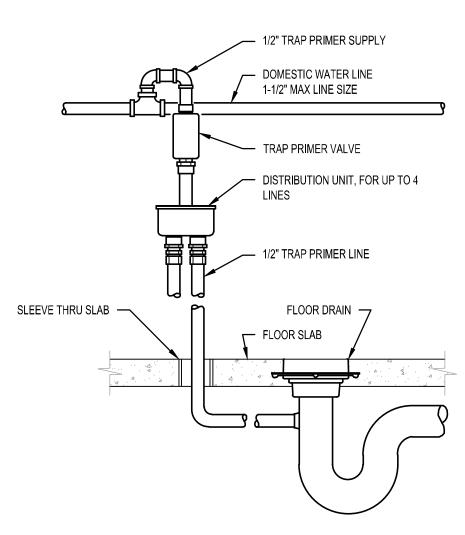
DIELECTRIC UNION (TYP) —CHECK VALVE (TYP) BALL VALVE (TYP) COMBINED TEMPERATURE AND PRESSURE RELIEF VALVE — COLD WATER SUPPLY HOT WATER SUPPLY TO FIXTURES — RECIRCULATION PUMP ROUTE T&P DRAIN LINE RECIRCULATION LINE TO FLOOR DRAIN —— - DRAIN VALVE, ROUTE TO FLOOR DRAIN





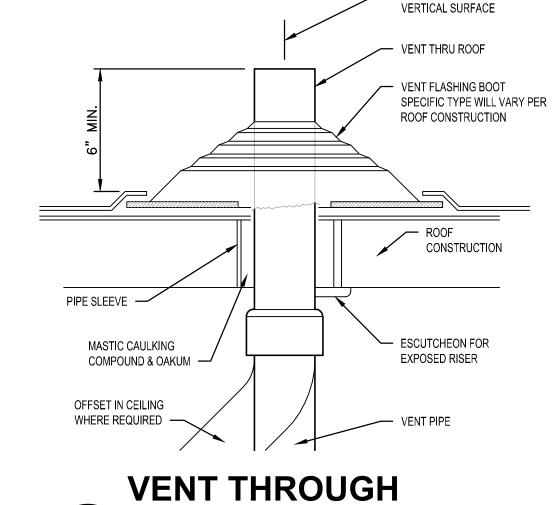
PROVIDE WATER HAMMER ARRESTERS ON ALL QUICK CLOSING VALVES, INSTALLED AS CLOSE TO THE FIXTURES AS POSSIBLE TO CONTROL THE EFFECTS OF WATER HAMMER INSTALLATION SHALL COMPLY A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS PER THE TABLES

## WATER HAMMER ARRESTERS NOT TO SCALE



TRAP SEAL PRIMER DETAIL

NOT TO SCALE



- 24" MIN. FROM ANY WALL OR

**VENT THROUGH** 5 ROOF DETAIL (VTR)

SHIELD (12" LONG) ----

1. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAMS.

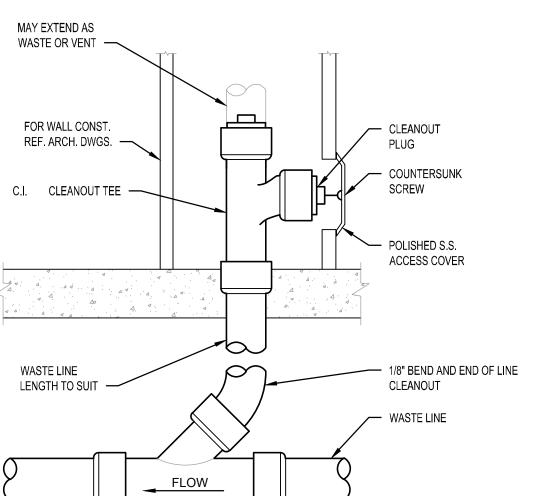
2. PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.

PROVIDE A SECTION OF HIGH COMPRESSION STRENGTH INSULATION AT EACH HANGER POINT.

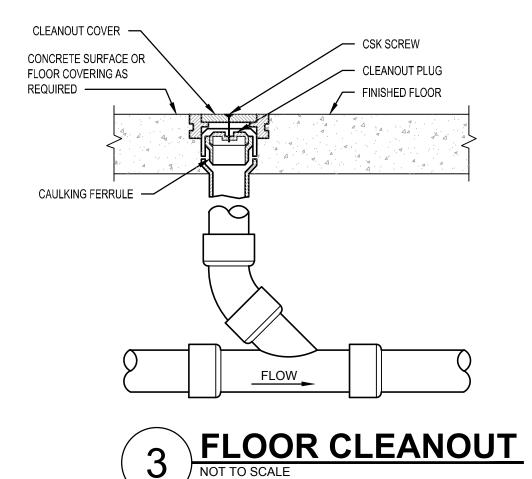
GALV. SHIELD EA. WAY.

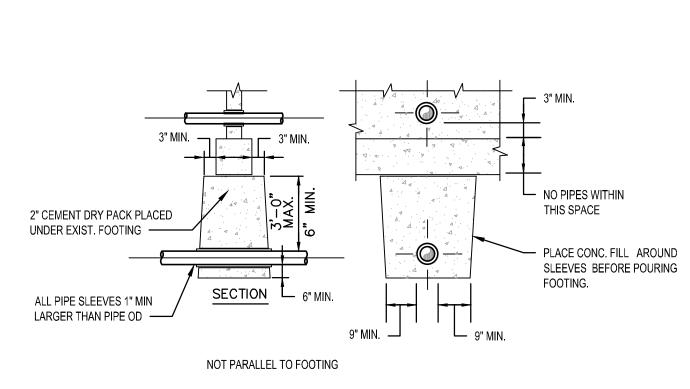
INSULATION MAY BE HALF ROUND OR FULL ROUND & EXTENDED 2" BEYOND

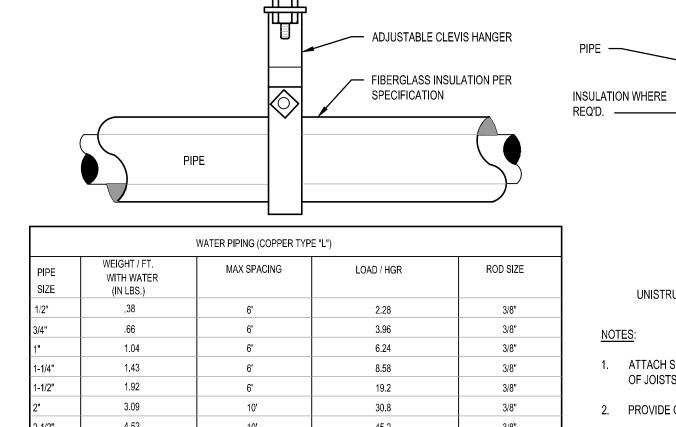
/ INSULATION WHERE



WALL CLEANOUT
NOT TO SCALE



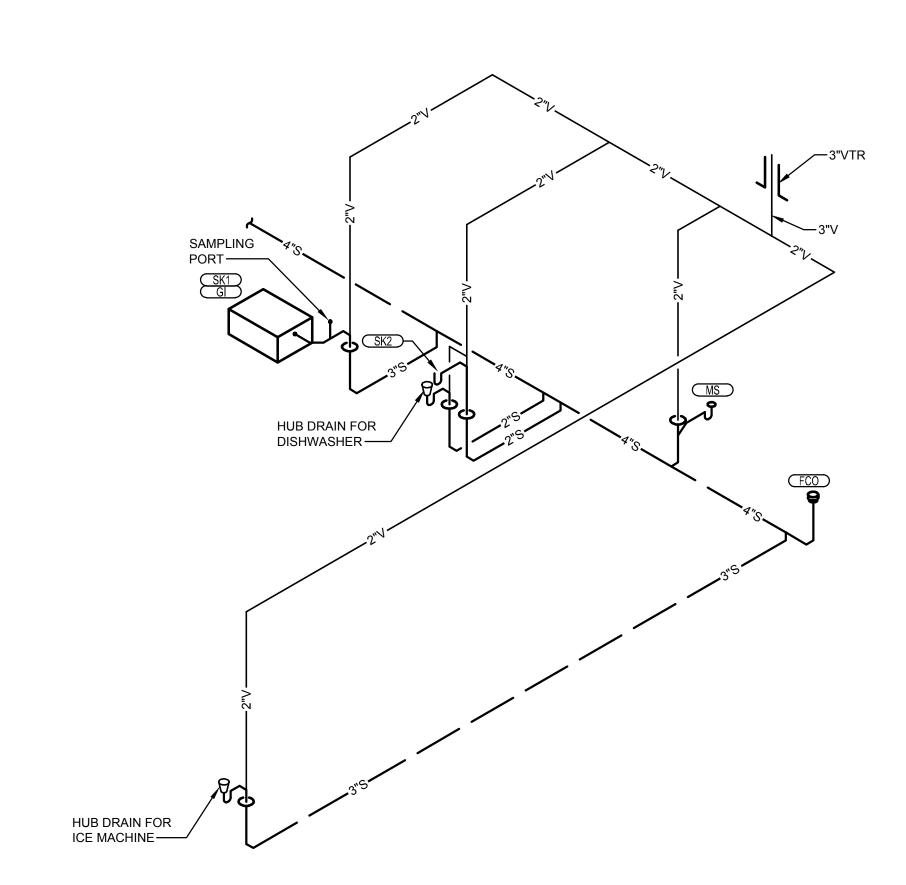




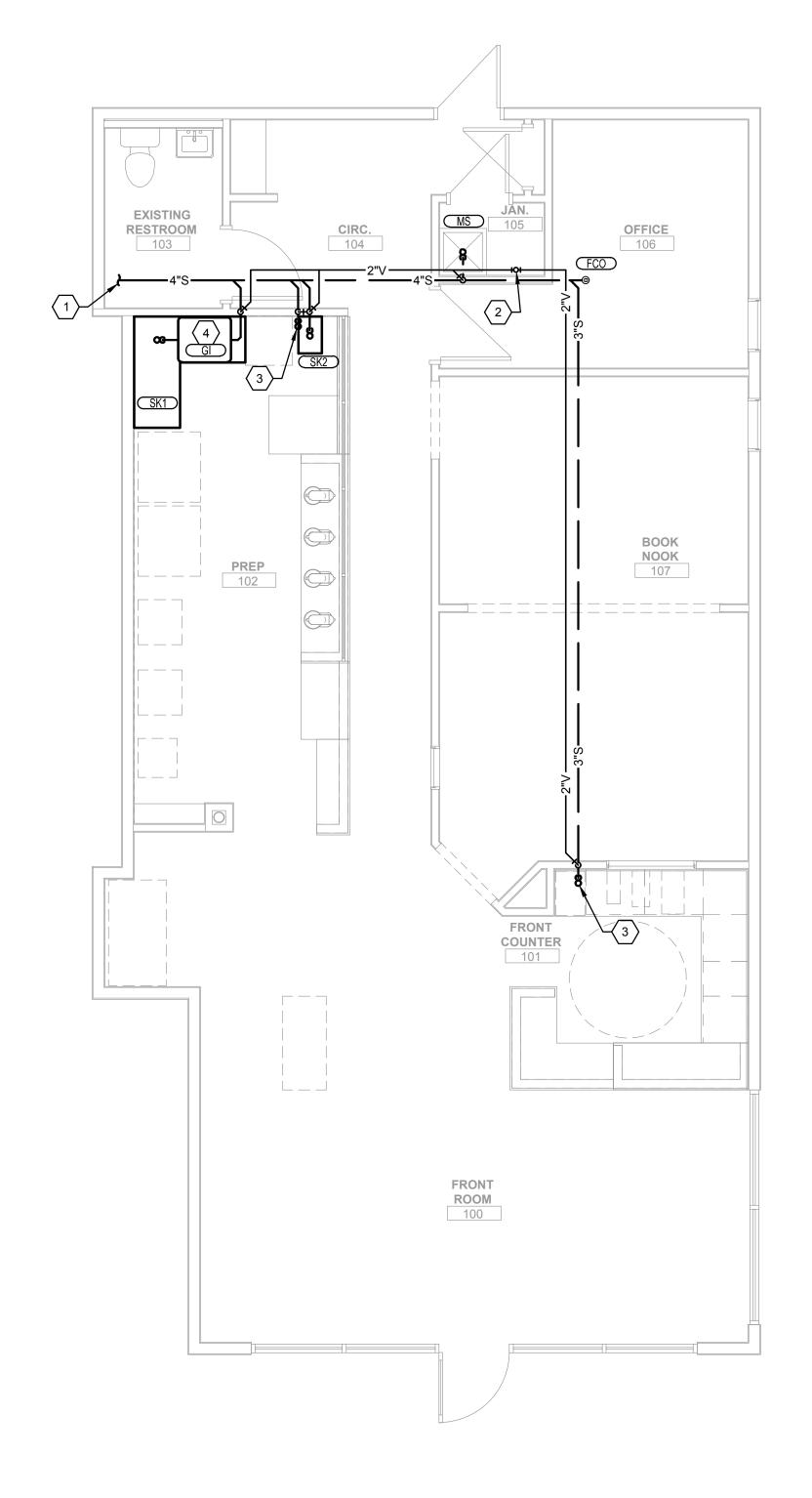


THREADED ROD PER

HANGER ROD ——



2 WASTE & VENT RISER



PLUMBING WASTE & VENT PLAN

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

#### **GENERAL NOTES** (NOT ALL NOTES APPLY)

REFERENCE SHEET P1.01 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS. 2. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN CONFORMANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES HAVING JURISDICTION AND INSPECTION. 3. COORDINATE THE COMPLETE INSTALLATION OF SYSTEMS TO AVOID CONFLICT WITH OTHER TRADES. PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE

INSPECTIONS AND ALL PLUMBING SYSTEMS EQUIPMENT MANUALS INCLUDING WARRANTIES.

5. COORDINATE ALL ABOVE SLAB AND UNDER SLAB SANITARY, AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS, AND COLUMN FOOTINGS. ALL SOIL AND WASTE PIPING SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER. COORDINATE FINAL INVERTS WITH EXISTING PIPING PRIOR TO ROUGH-IN OF UNDER SLAB INSTALLATION. 6. COORDINATE ALL FLOOR DRAINS, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUM AND FLUSH WITHOUT CRACKS, RISE IN THE SLAB, OR VOIDS AROUND GRATES OR TOPS. ALL CLEANOUTS SHALL BE INSTALLED ALONG MAINS AT 50'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT. ANY DRAIN GRATES THAT ARE DAMAGED AS A RESULT OF OTHER CONSTRUCTION PRIOR TO RELEASE OF THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATE AT NO EXPENSE OF THE OWNER.

7. PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS IF REQUIRED BY CODE OR OWNER. B. PLUMBING VENTS THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES. 9. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING

ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM

CEILING AREA OR ACCESS DOORS PROVIDED IN WALL. 10. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS. 11. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT SPECIFIED IN PLUMBING FIXTURES AND EQUIPMENT SCHEDULES ON THESE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS INDICATED ON PLUMBING SCHEDULES AND AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER

FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT

SHOWN ON THESE DRAWINGS.

KEYED NOTES:

CONNECT NEW 4"S INTO EXISTING SANITARY. FIELD VERIFY EXACT CONNECTION POINT, LINE SIZE, MATERIAL AND AVAILABLE INVERT. 2. 3"V UP TO 3"VTR. COORDINATE FINAL LOCATION WITH ALL ROOF TOP EQUIPMENT AND OPENINGS. MAINTAIN A

MINIMUM 10' FROM ALL FRESH AIR INTAKES AND 2' FROM ALL VERTICAL SURFACES. 3. INSTALL HUB DRAIN TIGHT TO WALL. TERMINATE DRAIN

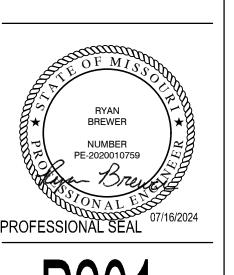
LINES OVER HUB DRAIN WITH AIR GAP PER CODE.

4. INSTALL SAMPLING PORT ON GREASE TRAP AS PER LOCAL

Boutique SereniT

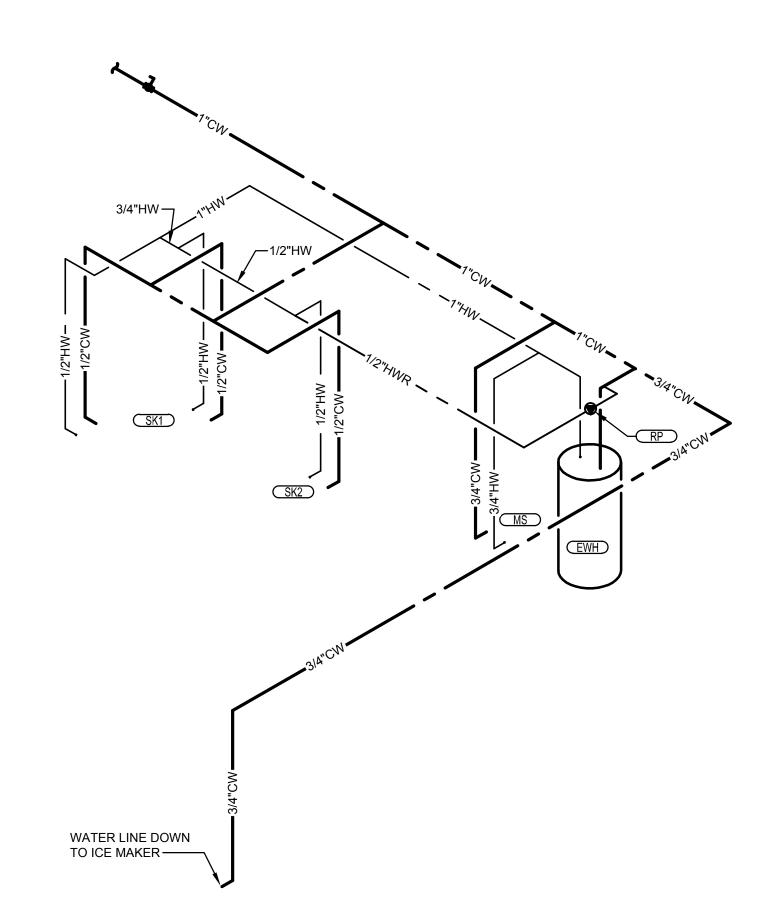
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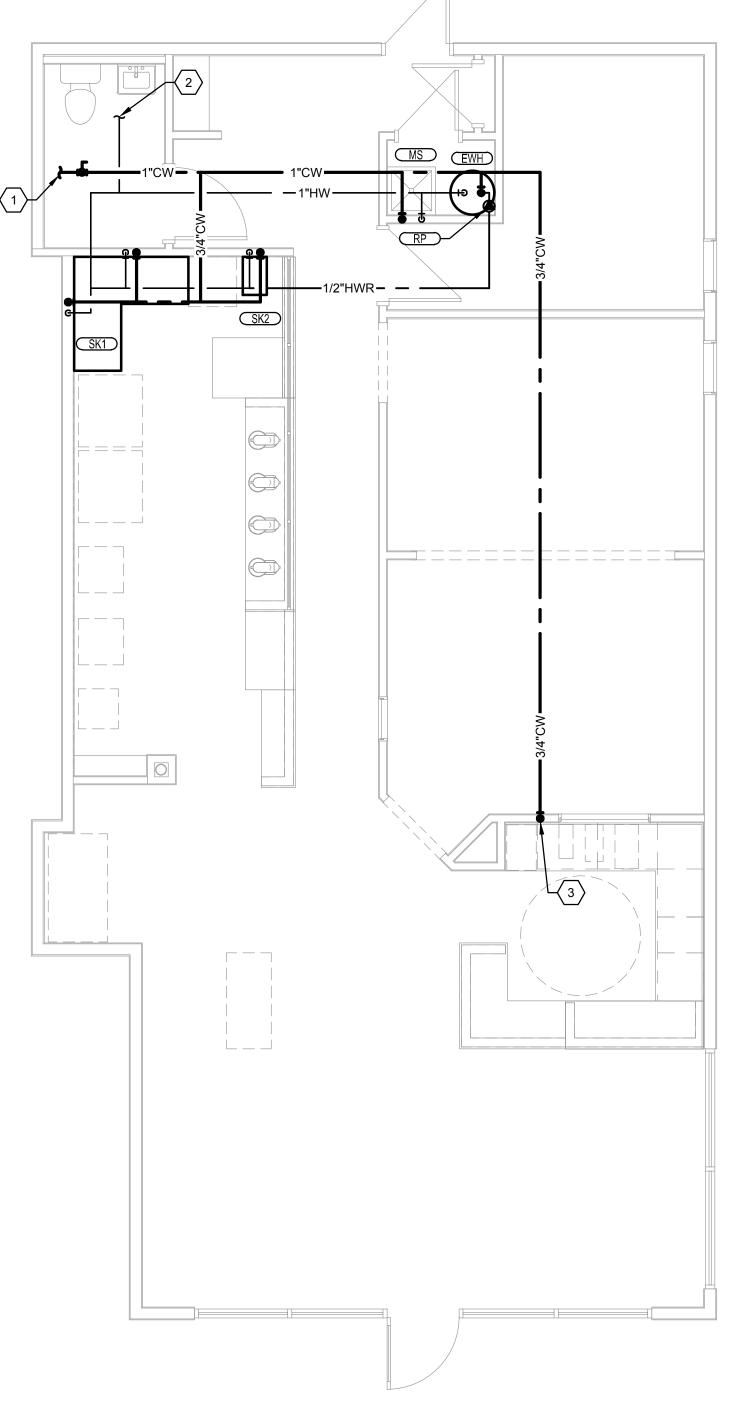


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PLUMBING WASTE AND VENT PLAN



2 WATER RISER



PLUMBING WATER PLAN

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

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4. PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS AND ALL PLUMBING SYSTEMS EQUIPMENT MANUALS INCLUDING WARRANTIES.

5. COORDINATE ALL ABOVE SLAB AND UNDER SLAB SANITARY, AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS, AND COLUMN FOOTINGS. ALL SOIL AND WASTE PIPING SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER. COORDINATE FINAL INVERTS WITH EXISTING PIPING PRIOR TO ROUGH-IN OF UNDER SLAB

INSTALLATION. 6. COORDINATE ALL FLOOR DRAINS, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUM AND FLUSH WITHOUT CRACKS, RISE IN THE SLAB, OR VOIDS AROUND GRATES OR TOPS. ALL CLEANOUTS SHALL BE INSTALLED ALONG MAINS AT 50'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT. ANY DRAIN GRATES THAT ARE DAMAGED AS A RESULT OF OTHER CONSTRUCTION PRIOR TO RELEASE OF THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATE AT NO EXPENSE OF THE OWNER.

7. PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS IF REQUIRED BY CODE OR

8. PLUMBING VENTS THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES. 9. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL. 10. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL

ESCUTCHEONS. 11. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT SPECIFIED IN PLUMBING FIXTURES AND EQUIPMENT SCHEDULES ON THESE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS INDICATED ON PLUMBING SCHEDULES AND AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.

#### KEYED NOTES:

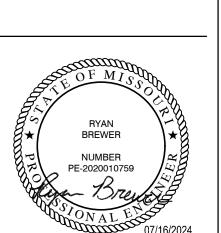
CONNECT NEW 1"CW INTO EXISTING LANDLORD PROVIDED COLD WATER LINE. FIELD VERIFY EXACT CONNECTION POINT, LINE SIZE, MATERIAL AND ROUTING. 2. CONNECT NEW 1/2"HW INTO EXISTING LAVATORY. FIELD VERIFY EXACT CONNECTION POINT, LINE

SIZE, MATERIAL AND ROUTING. 3. ROUTE 3/4"CW DOWN IN WALL. ROUTE WATER PIPING TO ALL FIXTURES AS REQUIRED. INSTALL ALL VALVING AND BACKFLOW PREVENTION AS PER MANUFACTURER'S RECOMMENDATIONS AND LOCAL CODE. COORDINATE WITH OWNER FOR

FINAL REQUIREMENTS AND LOCATIONS.

Boutique SereniTea 500 SW 3RD ST. UNIT / LEE'S SUMMIT, MO 6406

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PLUMBING WATER PLAN INSTALLED.

QUALITY ASSURANCE OBTAIN AND PAY FOR ALL PERMITS, INSPECTIONS AND CONNECTION FEES REQUIRED BY GOVERNING BODIES IN CONNECTION WITH THE WORK. DELIVER CERTIFICATES OF INSPECTION TO THE OWNER'S REPRESENTATIVE. ALL WORK

CITY, COUNTY AND STATE. SUBMITTALS SHOP DRAWINGS: SUBMIT MATERIALS. PRODUCTS. EQUIPMENT AND SYSTEMS AS INDEX OF CONTENTS SPECIFIED UNDER EACH PLUMBING SECTION IN THIS DIVISION IN ACCORDANCE WITH THE GENERAL CONDITIONS. SHOW PIPE SIZES, LOCATION, SLOPES OF

SHALL COMPLY WITH GOVERNING CODES, ORDINANCES, AND REGULATIONS OF

PRODUCT DATA: SUBMIT ON MATERIALS, FIXTURES, AND EQUIPMENT UNLESS

HORIZONTAL RUNS, FITTINGS, VALVES, METERS, GAGES AND CONNECTIONS.

OTHERWISE SPECIFIED OR ACKNOWLEDGED IN WRITING.

SAMPLES: SUBMIT WHEN SPECIFIED OR REQUESTED.

RECORD DOCUMENTS REFER TO GENERAL CONDITIONS FOR REQUIREMENTS CONCERNING RECORD DOCUMENTS. ADDITIONAL REQUIREMENTS MAY BE SPECIFIED IN DIVISION 1 UNLESS SEPIAS OF THE DRAWINGS ARE TO BE FURNISHED BY THE ARCHITECT-ENGINEER FOR PREPARATION OF RECORD DRAWINGS. FURNISH OWNER'S REPRESENTATIVE WITH TWO SETS OF ACCURATELY MARKED COPIES OF SUBMITTING APPLICATION FOR FINAL PAYMENT. THE DRAWINGS, INSTEAD OF ONE SET AS REQUIRED BY THE GENERAL CONDITIONS, INDICATING ALL CHANGES FROM ORIGINAL DRAWINGS AS

PRODUCT HANDLING PIPE, FIXTURES AND ACCESSORIES SHALL BE PROTECTED FROM DAMAGE IN SHIPMENT, HANDLING, STORAGE AND INSTALLATION: FROM MOISTURE, DIRT AND DEBRIS. PIPE, CLEANOUT AND FLOOR DRAIN OPENINGS SHALL BE TEMPORARILY

GUARANTEE AND SERVICE REFER TO GENERAL CONDITIONS FOR GUARANTEE. WHERE EXTENDED GUARANTEES ARE CALLED FOR, FURNISH THREE COPIES TO BE INSERTED INTO

OPERATION AND MAINTENANCE MANUALS.

PLUGGED WITH TEST PLUGS UNTIL FINAL CONNECTIONS ARE MADE.

GENERAL PLUMBING SYSTEMS SHALL BE PROVIDED COMPLETE. SHOULD A SYSTEM, OR ANY PART THEREOF FAIL TO MEET PERFORMANCE REQUIREMENTS, NECESSARY REPLACEMENTS, ALTERATIONS OR REPAIRS, AS REQUIRED BY THE OWNER'S REPRESENTATIVE, SHALL BE MADE TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS AND ALL BUILDING CONSTRUCTION AND FINISHES DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS OR REPAIRS SHALL BE

RESTORED TO PRIOR CONDITION, AT NO ADDITIONAL COST TO THE OWNER.

WHERE MULTIPLE ITEMS OF EQUIPMENT OR MATERIALS ARE REQUIRED THEY SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER.

INSERTS, PIPE SLEEVES, HANGERS, SUPPORTS, FIXTURES, TRIM DRAINS AND ANCHORAGE OF PLUMBING SHALL BE PROVIDED AS SPECIFIED HEREIN. WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE. MASONRY OR SIMILAR 16. WHERE ACCEPTABLE BY LOCAL AUTHORITY HAVING JURISDICTION PEX WORK, THE ITEMS SHALL BE FURNISHED AND LAYOUT MADE AT THE PROPER TIME FOR THE SETTING OR EMBEDMENT THEREOF SO AS TO CAUSE NO DELAY IN THE

MANUFACTURER'S NAMES AND CATALOG NUMBERS NAMES AND MODEL OR CATALOG NUMBERS. THIS DOES NOT NECESSARILY INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS AN "OFF THE SHELF" 2. CAST IRON, NO-HUB: NEOPRENE GASKET AND CORRUGATED 304 STAINLESS 1. FOR SCREWED AND SOLDER JOINT INSTALLATION. SAME AS SECTION A OR ITEM. REQUIREMENTS FOR SPECIFIC FINISHES, MATERIAL OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURERS' STANDARDS. MODIFICATIONS SHALL BE FULLY CONSIDERED.

CHARTS AND TAGS IN AREAS HAVING VALVES, PROVIDE SINGLE LINE DIAGRAMS FRAMED UNDER GLASS AND MOUNTED ON EQUIPMENT ROOM WALL. THE DIAGRAMS SHALL GIVE NAME. NUMBER DESIGNATION AND LOCATION OF VALVE.

VALVES SHALL BE IDENTIFIED WITH 1/16 INCH THICK WHITE LAMINATED PLASTIC NAMEPLATES WITH 3/16 INCH HIGH BLACK LAMINATED LETTERS. THE NAMEPLATE 7. FLANGED JOINTS: FURNISH WITH COMPANION FLANGE AND CLOTH IDENTIFICATION SHALL COINCIDE WITH ITEMS APPEARING ON DIAGRAMS. ATTACH

ACCESS DOORS PROVIDE ACCESS DOORS AS INDICATED AND SPECIFIED IN DRAWINGS

NAMEPLATES TO VALVES WITH NON-CORROSIVE CHAIN OR WIRE.

INSTALLATION AND WORKMANSHIP THE WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ANY MATERIAL, APPARATUS OR EQUIPMENT WHICH, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, IS IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER AT NO ADDITIONAL

COST TO THE OWNER. THE LOCATION OF PLUMBING PIPING SHALL BE COORDINATED TO ENSURE THAT IT THE BUILDING. PITCH LINE AT A CONSTANT SLOPE FOR PROPER DRAINAGE. CLEARS OPENINGS AND STRUCTURAL MEMBERS; THAT PIPING INDICATED AS IT DOES NOT INTERFERE WITH LIGHTS, DUCTWORK OR EQUIPMENT HAVING FIXED POSSIBLE, BETWEEN STRUCTURES AND THROUGH JOIST WEBBING, WITH DUE FITTINGS TO INSTALL THE SYSTEM IN THE AVAILABLE SPACE. CONCEAL OR

PIPING SHALL BE EXPOSED IN FINISHED AREAS ONLY WHERE INDICATED OR WITH THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

INSTALL TIGHT TO STRUCTURE (IF EXPOSED) UNLESS OTHERWISE NOTED.

WHERE DRAIN OR WATER CONNECTIONS NECESSARY TO THE OPERATION OF FIXTURES OR EQUIPMENT ARE NOT SPECIFICALLY SHOWN ON DIAGRAMS, EXTEND APPLY LUBRICANT TO SCREW JOINT MALE THREADS. NECESSARY BRANCHES TO THE CLOSEST INDICATED BRANCH OR MAIN, AT NO ADDITIONAL COST TO THE OWNER.

EACH FIXTURE, EQUIPMENT DRAIN OR FLOOR DRAIN SHALL BE SEPARATELY TRAPPED UNLESS OTHERWISE INDICATED OR SPECIFIED.

PLUMBING PIPING AND EQUIPMENT SHALL NOT BE FIELD PAINTED, OR PRIMED BEYOND THE DEGREE OF APPLICATION FROM THE FACTORY SOURCE, OR EXCEPT AS REQUIRED BY APPLICABLE CODES AND AUTHORITIES HAVING JURISDICATION.

WATERPROOFING DO NOT CUT OR PENETRATE WATERPROOFED SURFACES OR WATERPROOFING MEMBRANES WITHOUT FIRST MAKING ARRANGEMENTS FOR REPAIR BY A METHOD APPROVED BY THE OWNER'S REPRESENTATIVE.

ACCESS DOORS INSTALL AS REQUIRED FOR MAINTENANCE, ADJUSTMENT, REMOVAL AND REPAIR

OF VALVES, EQUIPMENT AND LIKE ITEMS. DOORS SHALL BE CONVENIENTLY LOCATED AND OF SUFFICIENT SIZE.

PIPING PROVISIONS FOR FIXTURES AND EQUIPMENT SPECIFIED IN OTHER SECTIONS OR FURNISHED BY THE OWNER ROUGH IN LOCATIONS SHALL BE DETERMINED FOR SERVICES. PROVIDE ALL NECESSARY PLUMBING SERVICES, ACCESSIBLE VALVES ON PLUMBING BRANCHES TO EQUIPMENT. AND MAKE ALL FINAL CONNECTIONS.

PLUMBING OPERATION AND MAINTENANCE MANUALS

FURNISH TWO COPIES OF COMPLETE OPERATION AND MAINTENANCE MANUALS TO THE OWNER'S REPRESENTATIVE, FOR APPROVAL AND FOR THE OWNER, ON PLUMBING EQUIPMENT AND SPECIALTIES. THE MANUAL SHALL BE BOUND IN HARD-BACK, THREE-RING LOOSE-LEAF BINDERS.

MANUAL CONTENTS TITLE SHEET WITH JOB NAME. AND THE NAMES. ADDRESSES AND PHONE NUMBERS OF THE CONTRACTOR, SUBCONTRACTOR, CONTROL SUBCONTRACTOR, RELATED CONTRACTOR AND MATERIAL AND EQUIPMENT SUPPLIERS.

TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING HOW TO OPERATE EACH PIECE OF EQUIPMENT, AND CAUTION AND DISTRIBUTION UNIT OR APPROVED EQUAL. WARNING NOTICES.

APPROVED SHOP DRAWINGS, PRODUCT DATA AND PARTS AND MAINTENANCE BOOKLET FOR EACH ITEM OF PLUMBING, EQUIPMENT SPECIFIED IN DIVISION 15.

COPIES OF CERTIFICATES OF INSPECTION, WHERE INSPECTION IS REQUIRED.

GUARANTEES, INCLUDING EXTENDED GUARANTEES. SUBMIT MEDICAL GAS CERTIFICATION REPORT TO OWNER AND LOCAL AHJ.

DELIVER THE MANUALS TO THE OWNER'S REPRESENTATIVE PRIOR TO

FURNISH AND INSTALL PLUMBING PIPING WHERE SHOWN ON DRAWINGS AND AS

PIPING MATERIALS

STEEL PIPE: ASTM A 53.

CAST IRON HUBLESS SANITARY PIPE AND FITTINGS: CISPI STD. 301. CAST IRON SOIL PIPE AND FITTINGS, SERVICE WEIGHT: ASTM A 74. CAST IRON SOIL PIPE AND FITTINGS, EXTRA HEAVY WEIGHT: ASTM A 74.

MALLEABLE IRON FITTINGS, 150 LB.: ASTM A 197. PIPE THREADS: ANSI B2.1

NIPPLES, PIPE (THREADED): FED SPEC. WW-N-351. 8. COPPER WATER TUBE: ASTM B 88. 9. WROUGHT COPPER AND BRONZE SOLDER-JOINT PRESSURE FITTINGS: ANSI 3 INCH AND SMALLER:

B16.29. WROUGHT COPPER AND WROUGHT COPPER ALLOY SOLDER-JOINT DRAINAGE FITTINGS: ANSI BL6,29,

 CAULKING LEAD: FED. SPEC. QQ-C-40 (2). 12 SHEET LEAD: FED. SPEC. QQ-L-201. 3. SHEET COPPER: ASTM B 152.

14. NO-HUB STAINLESS STEEL COUPLING AND GASKETS: CISPI STD. S-301. 15. WHERE ACCEPTABLE BY LOCAL AUTHORITY HAVING JURISDICTION SOLID WALL ABS PIPING MAY BE USED FOR WASTE PIPING. 15.A. PVC/ABS PIPING CANNOT BE USED IN RETURN AIR PLENUM

APPLICATION. PIPING CONFORMING TO ASTM F876 MAY BE USED FOR HOT AND COLD WATER PIPING.

JOINTS AND CONNECTIONS

SPECIFIED REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S 1. CAST IRON, HUB AND SPIGOT: PACKED WITH OAKUM AND FINISHED WITH LEAD NOT LESS THAN 1 INCH DEEP: WELL CAULKED.

> STEEL SHIELD IN CONJUNCTION WITH 4 STAINLESS STEEL CLAMPS FOR 4" AND SMALLER, 6 CLAMPS FOR 5" AND LARGER 3. BETWEEN LEAD AND BRASS: FERRULES OR SOLDERING NIPPLES WITH WIPED JOINTS 3/8" THICK AND 3/4" EACH SIDE OF JOINTS.

4. SCREWED JOINTS: AMERICAN NATIONAL STANDARD WITH PIPE FREE FROM CUTTING AND BURRS, THREE THREADS EXPOSED MAXIMUM. 5. SOLDERED JOINTS: 95-5 TIN-ANTIMONY SOLDER. SLIP JOINTS: USE FOR PLUMBING TRAP SEALS ON INLET SIDE ONLY. 6. BETWEEN COPPER AND FERROUS MATERIALS: INSULATING DIELECTRIC

INSERTED RUBBER GASKET. 8. FLANGED BOLTS: ASTM A 354, MINIMUM GRADE BD, ALLOY STEEL WITH HEX

NUTS IN COMPLIANCE WITH ANSI B18.22 AND STANDARD ROLLED STEEL WASHERS. 9. ASSEMBLY FOR HUBLESS PIPING: AS RECOMMENDED BY THE

MANUFACTURER. 10. CHANGES IN PIPE SIZE SHALL BE MADE WITH REDUCERS. INCREASERS OR REDUCING FITTINGS. BUSHINGS WILL NOT BE PERMITTED.

INSTALLATION BEFORE INSTALLING PIPE IN ANY PART OF THE SYSTEM, THE PIPE SHALL BE CLEANED INSIDE AND MADE FREE OF OIL, DIRT, AND FOREIGN MATTER. PROPERLY ALIGN AND INSTALL IN NEAT ARRANGEMENT, TRUE TO THE LINES OF

CONCEALED CAN BE PROPERLY CONCEALED IN WALLS OR PARTITIONS AND THAT EXCEPT AS NOTED OTHERWISE ON DRAWINGS, PIPING SHALL BE HELD AS HIGH AS ELEVATION. LOCATIONS. MAKE NECESSARY HORIZONTAL OR VERTICAL OFFSETS WITH PIPE REGARD TO CONFLICTS WITH OTHER SYSTEMS AND THEIR REQUIREMENTS FOR

> PIPING, INCLUDING NO-HUB PIPING, SHALL BE INSTALLED STRAIGHT AND TRUE TO VERTICAL AND HORIZONTAL LINES. DEFLECTION SHALL NOT EXCEED ONE DEGREE. WHEN NECESSARY TO ACHIEVE THIS ALIGNMENT PROVIDE ADDITIONAL HANGERS OR BRACING.

METAL TO BE SOLDERED SHALL BE CLEANED AND FLUXED AS SUITABLE FOR THE SOLDER USED.

NOTCHING OF COPPER TUBING OR PLASTIC PIPING FOR CONNECTIONS WILL NOT BE PERMITTED.

PLUMBING SPECIALITES

SCHEDULE 40 BLACK STEEL, GALVANIZED 26 GAGE STEEL, PROVIDE FOR ALL PIPES THROUGH WALLS AND FLOORS.

ESCUTCHEONS PROVIDE FOR ALL PIPING THROUGH WALLS, FLOORS AND CEILING WERE PIPING IS EXPOSED TO VIEW IN FINISHED AREA. ESCUTCHEONS SHALL BE CHROMIUM PLATED, TWO PIECE, HINGED WITH SET SCREW.

PROVIDE GROUND JOINT BRASS UNIONS OR FLANGES ON EACH PIPING CONNECTION TO EQUIPMENT.

PROVIDE DIELECTRIC UNIONS BETWEEN COPPER AND STEEL PIPING CONNECTION

VACUUM BREAKERS SHALL CONFORM TO THE REQUIREMENTS OF THE REFERENCED PLUMBING CODE AND SHALL BE PROVIDED FOR HOSE BIBBS, FLUSHOMETERS AND ANY FIXTURE OR 4" THROUGH 5" 12 FT. 5/8" EQUIPMENT WATER SUPPLY HAVING A THREADED OUTLET.

FLASHING VENT FLASHING SHALL COMPLY WITH ROOFING MANUFACTURER'S WRITTEN SPECIFICATIONS

CLEANOUTS ON NO-HUB PIPE SHALL BE STANDARD NO-HUB FITTINGS, CLEANOUTS ON CAST IRON HUB AND SPIGOT PIPING, SHALL BE CADMIUM PLATED. APPROVED MANUFACTURERS: ZURN, JOSAM OR JONESPEC.

PROVIDE WHERE INDICATED ON DRAWINGS. PRECISION PRODUCTS WITH

PIPE SLEEVES EXTEND SLEEVE 1/4 INCH BEYOND FINISHED SURFACE.

SET SLEEVE BEFORE POURING CONCRETE. 3. PROVIDE CLEARANCE BETWEEN SLEEVE AND PIPE OR BETWEEN SLEEVE AND INSULATION TO ALLOW FOR PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION.

INSULATION SHALL PASS CONTINUOUS THROUGH THE SLEEVE. CAULK BETWEEN SLEEVE AND PIPE OR SLEEVE AND INSULATION. PREFABRICATED, PRE-INSULATED, "PIPE SHIELDS" WILL BE ACCEPTABLE FOR PIPES PASSING THROUGH FLOORS, EXTERIOR WALLS, FIRE WALLS AND ARCHITECT-ENGINEER. FIRE RESISTIVE WALLS AND PARTITONS.

6. ESCUTCHEONS: FIT AROUND INSULATION WHERE PRESENT. PROVIDE DEEP ESCUTCHEON PLATES WHERE PIPE SLEEVES EXTEND ABOVE FLOORS. WATER HAMMER ARRESTERS: INSTALL WHERE SHOWN ON DRAWINGS CLEANOUTS: INSTALL WHERE SHOWN ON DRAWINGS AND AT BASE OF ALL RISERS. PROVIDE ADDITIONAL CLEANOUTS WHERE REQUIRED BY LOCAL

CONTRACTOR'S OPTION. 9. FRAMES AND COVERS SHALL BE FLUSH WITH ADJOINING ARCHITECTURAL FINISH.

CODES AND FOR CONVENIENCE OF TESTING AND ERECTION AT

PLUMBING VALVES

DESCRIPTION INSTALL IN ACCESSIBLE LOCATION.

VALVES SHALL NOT BE INSTALLED WITH THE STEMS BELOW THE HORIZONTAL POSITION.

VALVES, GATE, 125# UNION BONNET. RISING STEM SCREWED: ITT GRINNELL #3080 OR APPROVED EQUAL. SOLDER JOINT: ITT GRINNELL #3080 SJ OR APPROVED EQUAL.

VALVES, BALL (MAY BE USED IN LIEU OF GATE VALVES UP TO 2"): 2" AND SMALLER NIBCO #T580; TWO PIECE BRONZE BODY, WITH SCREEWED ENDS, CHROME PLATED BRONZE BALL WITH CONVENTIONAL PORT, 400 PSI, BLOW OUT PROOF STEM.

VALVES, GLOBE 150# TEFLON DISC. UNION BONNET 3 INCH OR SMALLER:

1. SCREWED: ITT GRINELL #3240 OR APPROVED EQUAL. SOLDER JOINT: ITT GRINELL #3240 SJ OR APPROVED EQUAL.

VALVES, CHECK 125# REMOVABLE REGRINDABLE DISC A. 3 INCH AND SMALLER, HORIZONTAL: SCREWED: ITT GRINELL #3300 OR APPROVED EQUAL.

3 INCH AND SMALLER, VERTICAL: APPROVED EQUAL, PROVIDE ADAPTERS FOR SOLDER JOINT CONNECTION, 2.05

SOLDER JOINT: ITT GRINELL #3300 SJ OR APPROVED EQUAL.

HOSE BIBBS A. SEE FIXTURE SCHEDULE ON DRAWINGS. B. PLUG COCKS, 125# BRONZE COCKS. TWO (2) INCH AND SMALLER SHALL BE CRANE NO. 250 OR APPROVED EQUAL.

INSTALLATION INSTALL VALVES WHERE SHOWN ON DRAWINGS.

PLUMBING HANGERS AND SUPPORTS

DESCRIPTION PROVIDE HANGERS FOR ALL PIPING NOT INDICATED BELOW GRADE. USE HANGERS CAPABLE OF ADJUSTMENT.

HANGERS AND SUPPORTS HANGERS FOR BLACK OR GALVANIZED STEEL PIPE SHALL BE GRINNELL, MODEL

NO. 65 OR APPROVED EQUAL HANGERS FOR CAST IRON PIPE SHALL BE GRINNELL, MODEL NO. 260 OR APPROVED EQUAL.

HANGERS FOR COPPER TUBING SHALL BE GRINNELL, MODEL NO. 97 C OR APPROVED EQUAL.

TRAPEZE HANGERS OF A TYPE APPROVED BY THE OWNER'S REPRESENTATIVE MAY BE USED WHERE PIPES ARE DESIGNED TO RUN PARALLEL AT THE SAME

PROVIDE ISOLATION HANGER WITH PROTECTIVE SHIELD, GRINNELL, MODEL NO. 300 103 OR APPROVED EQUAL, FOR ALL INSULATED PIPING. AT HANGER POINTS, PROVIDE 6 INCH LONG SECTION OF 1/2 INCH THICK CALCIUM SILICATE SECTIONAL PIPE INSULATION WITH FACTORY LONGITUDINAL LAP. SEAL BUTT JOINTS WITH INSULATING CEMENT,

STRAP HANGERS: NOT PERMITTED.

RISER CLAMPS: PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL. GRINNELL MODEL NO. 261

INSERTS: IN CONCRETE, GRINNELL MODEL NO. 285 OR APPROVED EQUAL, HAVING BETWEEN THE VALVE AND THE STUD TO ACHIEVE CONNECTION WILL NOT BE ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS READHEAD SD1 OR APPROVED EQUAL, POWDER PROPELLED PERMITTED IN NEW CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED PRIOR TO INSTALLATION. IN EXISTING CONSTRUCTION, START SLUGIN NO. 6800 SERIES OR APPROVED EQUAL.

SIDE BEAM CLAMPS: PROVIDE WHEN SUPPORTING FROM STRUCTURAL STEEL MEMBERS, GRINNELL, MODEL 225 OR APPROVED EQUAL.

OTHER SUPPORTS: OBTAIN OWNER'S REPRENTATIVE APPROVAL FOR OTHER METHODS OF SUPPORT.

SPACING OF HANGERS PROVIDE HANGER AT EACH CHANGE OF DIRECTION.

SPACE HANGERS AND SUPPORTS TO PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES WITH SPACING NO GREATER AND ROD NO SMALLER THAN SHOWN ON THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

FERROUS PIPING AND COPPER TUBING: DIAMETER OF PIPE MAXIMUM SPACING ROD SIZE 1/2" THROUGH 1-1/2" 6 FT. 3/8" 2" THROUGH 3" 10 FT, 1/2"

6" AND LARGER 16 FT 3/4" D CAST IRON PIPING: 2" AND 3" EACH JOINT 3/8"

10" THROUGH 15" EACH JOINT 3/4"

TESTING OF PLUMBING PIPING

CONCEALED OR COVERED.

HAVING JURISDICTION.

FLUSHED AS SPECIFIED.

OF ONE HOUR.

RISER CLAMPS

DESCRIPTION

DIAMETER OF PIPE MAXIMUM SPACING ROD SIZE 4" AND 5" EACH JOINT 1/2" 6" AND 8" EACH JOINT 3/4"

CONDUCT ALL TESTS AFTER PIPING IS INSTALLED AND BEFORE PIPING IS

SYSTEMS SHALL REMAIN UNDER TEST FOR SUFFICIENT LENGTH OF TIME TO

ALL LEAKS DISCLOSED BY THE TESTING PROCEDURES SHALL BE REPAIRED AND

TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING

WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY

STERILIZATION: PROVIDE A DATED LETTER TO THE ARCHITECT-ENGINEER'S

REPRESENTATIVE STATING THAT PIPING SYSTEM HAS BEEN STERILIZED AND

DOMESTIC HOT AND COLD WATER PIPING SHALL BE FILLED. THEN TESTED TO A

SANITARY PIPING, PREVIOUS TO CONNECTION OF FIXTURES, SHALL BE FILLED

THE SYSTEM BY SECTIONS THE MINIMUM HEIGHT OF THE WATER COLUMN SHALL

BE 10 FEET. EXAMINE ALL JOINTS FOR LEAKS.

PLUMBING, FIXTURES, TRIM AND DRAINS

AREAS SHALL BE BRASS, CHROMIUM PLATED.

STANDARD, KOHLER, ELJER OR APPROVED EQUAL.

ALL DRAINS SHALL BE OF THE SAME MANUFACTURER.

PROVIDE FLOOR DRAINS WITH 4 INCH DEEP SEAL TRAPS.

MANUFACTURER

PLUMBING DRAINS

PERMITTED.

FROM DAMAGE.

<u>GAS PIPING</u>

COMPANY

INSTALLATION

GAS COMPANY.

BOLT WATER CLOSET CARRIER TO FLOOR.

FURNISH CLAMPING RING.

DISCHARGE WILL BE ACCEPTABLE.

WITH WATER TO THE TOP OF THE SYSTEM AND PROVEN TIGHT. WHEN TESTING

NEW FIRE STANDPIPE SYSTEM SHALL BE TESTED TO A HYDROSTATIC PRESSURE

GAS PIPING SHALL BE TESTED WITH NITROGEN TO 50 PSIG. PRESSURE SHALL BE

MEASURED WITH A MANOMETER. MAINTAIN TEST PRESSURE FOR A MINIMUM OF

AFTER TESTS ARE COMPLETED ALL WATER SUPPLY SYSTEMS SHALL BE FILLED

WITH A SOLUTION CONTAINING 100 PPM OF AVAILABLE CHLORINE AND ALLOWED

TO STAND FOR A PERIOD TO TWO HOURS BEFORE BEING FLUSHED WITH CLEAN

PIPING TO SERVE FIXTURES AND EQUIPMENT AND EXPOSED TO VIEW IN FINISHED

FOR ANCHORING THE FIXTURES RIGIDLY IN PLACE. RISERS TO SHOWER HEADS

SHALL BE ANCHORED TO THE WALL CONSTRUCTION TO PREVENT MOVEMENT.

PROVIDE PLUMBING FIXTURES AS SCHEDULED ON DRAWINGS, AMERICAN

FURNISH WITH SEEPAGE FLANGE WHERE INSTALLED WITH PANS OR FLASHING

DRAWINGS. IN LIEU OF CAST-IN PRIMER CONNECTIONS ON THE DRAIN BODY, A

TEE BETWEEN THE DRAIN BODY AND THE TRAP, TO RECEIVE THE PRIMER

PROVIDE ALL DRAINS AS SCHEDULED ON DRAWINGS OR APPROVED EQUAL.

DRAIN SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS; ACCESSIBLE AND

LOCATED TO SUIT EQUIPMENT APPROVED FOR INSTALLATION. WHERE FLUSH

VALVES ARE SPECIFIED WITH FIXTURES, THE SUPPLY TO THE VALVE IN EACH

DIRECTLY ABOVE THE CENTER LINE OF FIXTURE STUD. BENDING OF NIPPLE

CHROME PLATED PIPING REQUIRING THE USE OF WRENCH SHALL BE PROTECTED

SHALL COMPLY WITH THE REQUIREMENTS OF NFPA NO. 54 AND THE LOCAL GAS

PIPE SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE FITTINGS

INSTALL GAS SHUT-OFF AND GAS MANIFOLDS AS INDICATED OR REQUIRED.

PIPING SHALL COMPLY WITH THE REQUIREMENTS OF NFPA NO. 54 AND THE LOCAL

MANUFACTURER SHALL BE AS SCHEDULED OR BY APPROVED EQUAL.

OF 200 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM OF TWO HOURS.

PROVE TIGHTNESS THEREOF AND FOR ADEQUATE OBSERVATION BY THE

PROVIDE ALL NECESSARY TEMPORARY PIPING CLOSURES.

PROVIDE ALL TESTING EQUIPMENT, MATERIALS AND SUPPLIES.

IN THE PIPING SYSTEMS FOR THE PURPOSE OF STOPPING LEAKS.

TESTING REPEATED UNTIL THE SYSTEM IS PROVEN TIGHT.

CHLORIDE (PVC) PLASTIC PIPE FITTINGS, SCHEDULE 40 OR ASTM D 2467 STANDARD SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PLASTIC PIPE INSTALL AT EACH LEVEL BELOW THE FLOOR. SUSPEND FROM TWO HANGER RODS

(TWO HANGERS)

FITTINGS, SCHEDULE 80. AND INSERTS WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED. PVC PLASTIC PIPING JOINTS SHALL BE SOLVENT-CEMENTED IN ACCORDANCE WITH ASTM D 2672 STANDARD SPECIFICATION FOR JOINTS FOR IPS PVC PIPE USING SOLVENT CEMENT.

MEDICAL VACUUM

1. TYPE L HARD DRAWN COPPER TUBING, ASTM B-819.

GAS PIPING SECTION OF THIS SPECIFICATION.

(PVC) PLASTIC PIPE SCHEDULES 40, 80 AND 120.

JOINTS TO BE AWS A5.8, BCUP SILVER BRAZE (15% SILVER SOLDER).

4. PIPING SHALL BE CLEANED AND INSTALLED PER INSTALLATION OF MEDICAL

WITH ASTM D 1785 STANDARD SPECIFICATION FOR POLYVINYL CHLORIDE

AND COMPLY WITH ASTM D 2466 STANDARD SPECIFICATION FOR POLYVINYL

5. PVC PLASTIC PIPE SHALL BE SCHEDULE 40 OR SCHEDULE 80, COMPLYING

6. PVC PLASTIC FITTINGS SHALL BE SCHEDULE 40 OR 80 TO MATCH THE PIPING

WROUGHT BRONZE SOLDERED FITTINGS.

1. TYPE L HARD DRAWN COPPER TUBING PER ASTM B-819. WROUGHT BRONZE SOLDERED FITTINGS.

JOINTS TO BE AWS A5.8, BCUP SILVER BRAZE (15% SILVER SOLDER). 4. PIPING SHALL BE CLEANED AND INSTALLED IN ACCORDANCE WITH INSTALLATION OF MEDICAL GAS PIPING SECTION OF THIS SPECIFICATION.

1. TYPE L HARD DRAWN COPPER TUBING PER ASTM B-819. WROUGHT BRONZE SOLDERED FITTINGS.

MATERIALS OTHER THAN THOSE SPECIFIED FOR JOINING WILL NOT BE PERMITTED 3. JOINTS TO BE AWS A5.8. BCUP SILVER BRAZE (15% SILVER SOLDER) 4. PIPING SHALL BE CLEANED AND INSTALLED IN ACCORDANCE WITH INSTALLATION OF MEDICAL GAS PIPING SECTION OF THIS SPECIFICATION.

DOMESTIC HOT AND COLD WATER

THE WORK INCLUDES FURNISHING AND INSTALLING HOT AND COLD WATER PIPING AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

HOT AND COLD WATER PIPING SHALL BE COPPER WATER TUBE HARD TEMPER, TYPE "L" WITH WROUGHT SOLDER FITTINGS ABOVE FLOOR AND SOFT TEMPER TYPE "K" WITH WROUGHT SOLDER FITTINGS BELOW GRADE.

PEX, HIGH-DENSITY CROSS-LINKED POLYETHYLENE TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F876 AND MEET THE HYDROSTATIC PRESSURE OF 150 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM STANDARD GRADE HYDROSTATIC PRESSURE RATINGS FROM PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-4/03.

> GATE VALVES SPECIFIED IN SECTION, PLUMBING VALVES.

NOTCHING OF PIPE FOR CONNECTION NOT PERMITTED.

WHERE POSSIBILITY OF BACKFLOW FROM THE DRAIN TO THE SUPPLY FITTING

EXISTS, INSTALL VACUUM BREAKERS. NOT MORE THAN ONE LAVATORY, SINK, OR SIMILAR FIXTURE SHALL BE SUPPLIED

BY A 1/2 INCH BRANCH. LINEAR DIMENSIONS NOT TO EXCEED 5 FEET. MAKE CONNECTION TO EQUIPMENT AND FIXTURES INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN.

HOT WATER BRANCH CONNECTIONS TO DISTRIBUTION MAINS SHALL BE TOP TAKE-OFF. SWING JOINT TYPE.

ALL PIPING INSTALLED BELOW GROUND SHALL RECEIVE TWO COATS OF KOPPERS SHALL PERFORM A CROSS CONNECTION TEST ON THE SYSTEM. THE TESTING NO. 50 OR APPROVED EQUAL.

PLUMBING INSULATION

FURNISH FLOOR DRAINS WITH PRIMER CONNECTIONS WHERE INDICATED ON THE INSULATION FOR EXPOSED HOT AND COLD WATER PIPING SHALL BE SECTIONAL

DESCRIPTION INSULATION SHALL NOT BE INSTALLED UNTIL TESTING PROCEDURES HAVE BEEN COMPLIED WITH AND ALL SURFACES HAVE BEEN CLEANED AND FREE OF DIRT, GREASE AND COMPLETELY DRIED.

PROVIDE ALL BRACKETS, PLATES, ANCHORS AND FASTENING DEVICES REQUIRED MATERIALS SHALL COMPLY WITH UL 723, FLAME SPREAD RATING, HOT SURFACE TEST PERFORMANCE, AND SMOKE DEVELOPED RATING.

> SAMPLES AND MANUFACTURER'S PRODUCT DATA: SUBMIT SAMPLES OF INSULATION AND ADHESIVE AND PRODUCT DATA LISTING RECOMMENDATIONS FOR USE AND COMPLIANCE WITH NFPA 90.

INSULATION FOR HOT AND COLD WATER PIPING, SHALL BE SECTIONAL GLASS FIBER AS MANUFACTURED BY OWENS CORNING FIBERGLASS TYPE ASJ/SSLII OR APPROVED EQUAL, WITH FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT

GLASS FIBER AS MANUFACTURED BY OWENS CORNING FIBERGLASS TYPE

INSULATION LAGGING ADHESIVE.

ASJ/SSLII OR APPROVED EQUAL, WITH FACTORY APPLIED, .016 EMBOSSED

ALUMINUM JACKET. ADHESIVE SHALL BE BENJAMIN FOSTER 30-36, OR APPROVED EQUAL, WHITE

VAPOR BARRIER MASTIC SHALL BE BENJAMIN FOSTER NO. 82-07, WHITE, OR APPROVED EQUAL.

HOT AND COLD WATER PIPING: SHALL BE INSULATED WITH 1/2 INCH THICK GLASS ROOM SHALL BE AT THE SAME HEIGHT FOR THE TYPE OF FIXTURE AND THE VALVE FIBER INSULATION HAVING A FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT SHALL BE SET IN PLACE SO THAT THE CENTER LINE OF THE VALVE DISCHARGE IS JACKET WITH A MINIMUM R-4.0 PER INCH. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL JACKET LEGS AND BUTT JOINT STRIPS WITH ADHESIVE.

> INSULATE FITTINGS FOR PIPING UP TO 3 INCHES IPS WITH MOLDED GLASS FIBER. INSULATE FITTINGS FOR PIPING LARGER THAN 3 INCHES WITH MOLDED FITTINGS OR SEGMENTED SECTIONS, WIRED IN PLACE TO THE SAME THICKNESS AS ADJACENT INSULATION. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 6 OUNCE CANVAS PIPING INCLUDING THE FITTING CHANGE FROM HORIZONTAL TO VERTICAL. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY, SEAL OFF ENDS OF INSULATION WITH VAPOR BARRIER MASTIC AT EACH FITTING AND AT 21 FOOT INTERVALS ON CONTINUOUS RUNS.

> INSTALL THE FACTORY APPLIED FIRE RETARDANT JACKET VAPOR BARRIER SO THAT IT WILL LAP SMOOTHLY AND SECURELY AT THE LONGITUDINAL LAP AND ADHERE IT WITH VAPOR BARRIER MASTIC. ADHERE 3 INCH WIDE BUTT STRIPS X SMOOTHLY OVER ALL END JOINTS WITH THE VAPOR BARRIER MASTIC TO ASSURE A CONTINUOUS VAPOR BARRIER - NO STAPLES ALLOWED. INSULATE DRAIN BODIES AND FITTINGS WITH METERED SEGMENTS OF PIPE INSULATION. OVERSIZED PIPE INSULATION OR MOLDED FITTINGS. COAT WITH TWO, 1/8 INCH COATS OF VAPOR BARRIER MASTIC REINFORCED WITH GLASS FABRIC EXTENDING 2 INCHES ONTO ADJACENT PIPES. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 8 OUNCE CANVAS. TERMINATE INSULATION NEATLY AT

CLEANOUTS ON STORM AND COLD DRAIN PIPING. DO NOT COVER CLEANOUTS.

DOMESTIC WATER HEATING

PROVIDE DOMESTIC WATER HEATING EQUIPMENT WHERE SHOWN ON DRAWINGS

DISCHARGE PIPE RELIEF VALVE DISCHARGE SHALL BE COPPER WATER TUBE, TYPE M.

AND SPECIFIED.

MEDICAL GAS PIPING INSTALLATION

INSTALLATION WATER HEATER SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS.

DISCHARGE PIPE SHALL HAVE TERMINATING END CUT AT 45 DEGREE ANGLE.

TERMINATE RELIEF VALVE DRAIN AS SHOWN ON THE DRAWINGS.

INSTALL NON-FLAMMABLE MEDICAL GAS SYSTEM, INHALATION ANAESTHETIC SYSTEM AND VACUUM PIPING SYSTEM IN ACCORDANCE WITH NFPA 99 AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

PRE-INSTALLATION CLEANING: PRIOR TO INSTALL, DISASSEMBLE POSITIVE PRESSURE GAS SYSTEM PIPING, FITTINGS, VALVES, AND COMPONENTS (UNLESS SUPPLIED CLEAN AND PREPARED FOR INTENDED SERVICE) AND THOROUGHLY WASH IN HOT SOLUTION OF SODIUM CARBONATE OR TRISODIUM PHOSPHATE MIXED ONE POUND TO THREE GALLONS OF WATER, RINSE WITH WATER, THOROUGHLY DRY AND CAP UNTIL INSTALLATION.

BRAZE JOINTS IN PIPE AND TUBING. DO NOT LEAVE EXCESS FLUX ON INSIDE OF PIPE AND FITTINGS. PURGE INTERIOR OF PIPE WITH NITROGEN CONTINUOUSLY DURING BRAZING OF PIPE CONNECTIONS.

BENDS SHALL BE FREE OF FLATTENING, BUCKLING OR THINNING OF TUBE WALL. MAKE CHANGES IN DIRECTION FOR REQUIRED TURNS OR OFFSETS WITH FITTINGS OR TUBING SHAPED BY UTILIZING A BENDING TOOL.

PIPING TO BE GRADED DOWN IN DIRECTION OF FLOW.

PROVIDE PIPE SLEEVES WHERE PIPES AND TUBING PASS THROUGH WALLS, FLOORS, ROOFS, AND PARTITIONS. FINISH FLUSH AT BOTH ENDS. EXTEND TWO INCHES (50MM) ABOVE FINISHED FLOORS PACK SPACE BETWEEN PIPE AND/OR TUBING/SLEEVE AND CAULK.

PIPING SHALL BE LISTED AND IDENTIFIED IN ACCORDANCE WITH MIL-STD 101 USING TAPE AND DECALS TO FSPPP-T-66. PROVIDE LABELING ON PIPE IN EACH ROOM, AT EACH LEVEL TRAVERSED BY PIPING AND AT INTERVALS NOT EXCEEDING TWENTY FEET.

SUPPORT GAS PIPING WITH HANGERS OR PIPE HOOKS ACCEPTABLE FOR SIZE OF PIPING. SUPPORT SPACING SHALL BE AS FOLLOWS: 1/2" PIPE OR TUBING: 72 INCHES, 3/4" OR 1" PIPE OR TUBING: 96 INCHES, HORIZONTAL PIPING 1-1/4" OR LARGER: 120 INCHES, VERTICAL PIPING 1-1/4" OF LARGER: AT EVERY FLOOR.

PIPING SYSTEMS CLEANING AND PRESSURE TESTING

PRIOR TO INSTALLATIONO OF SERVICE OUTLET VALVES AND AFTER INSTALLATION OF PIPE AND TUBING, BLOW SYSTEM CLEAR OF MOISTURE AND FOREIGN DEBRIS WITH NITROGEN GAS.

AFTER INSTALLATION OF SERVICE OUTLET VALVES, TEST SYSTEM TO PRESSURE OF 150 PSIG WITH NITROGEN OR DRY COMPRESSED AIR. CHECK ALL LINES AND FITTINGS WITH SOAPY WATER AND PROVIDE 24-HOUR STANDING PRESSURE TEST.

CROSS-CONNECTION TESTS

ANALYZER SUITABLE FOR GAS INSTALLED.

THE MEDICAL GAS EQUIPMENT SUPPLIER OR AN INDEPENDENT TESTING AGENCY AGENCY SHALL BE CERTIFED TO PERFORM MEDICAL GAS TESTING PROCEDURES AND SHALL CERTIFY THAT THE SYSTEM IS COMPLETE WITH ALL ZONE VALVES INSTALLED, ALARM SYSTEMS FUNCTIONAL, AND ENSURE THAT ALL TESTING REQUIRED BY THE 2018 NFPA 99 WERE PERFORMED. DOCUMENT TESTS AND SUBMIT CERTIFICATE TO OWNER AND LOCAL AHJ.

REDUCE PRESSURE TO ATMOSPHERIC PRESSURE IN ALL PIPING SYSTEMS OTHER THAN THE SYSTEM BEING TESTED.

SYSTEM SHALL BE TESTED WITH DRY COMPRESSED AIR OR DRY NITROGEN AT 50 PSIG (345 KPA).

CHECK EVERY STATION OUTLET OF EACH SYSTEM TO CONFIRM TEST GAS IS ONLY DISPENSED FROM OUTLET OF SYSTEM BEING TESTED. MEASURE PRESSURE WITH GAGE ATTACHED TO SPECIFIC ADAPTOR. UNIVERSAL ADAPTORS ARE NOT

AFTER TESTING, DISCONNECT TEST GAS AND CONNECT PROPER GAS TO EACH SYSTEM. PURGE ENTIRE SYSTEM TO REMOVE TEST GAS AND CHECK WITH

0 0

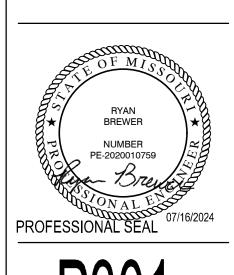
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PLUMBING SPECIFICATIONS