ITAP - LEE'S SUMMIT 228 SW MAIN ST.

LEE'S SUMMIT, MO 64063

PERMIT DOCUMENTS 27 FEB 2023 COLLINS WEBB #: 22066

SHEET INDEX

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MO, 64063 P: 816.249.2270 I www

Summit,

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Street

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OWNER

INTERNATIONAL TAP HOUSE 18TH & OAK KANSAS CITY, MO 64108 P: 816.298.6541 www.internationaltaphouse.com



ARCHITECT

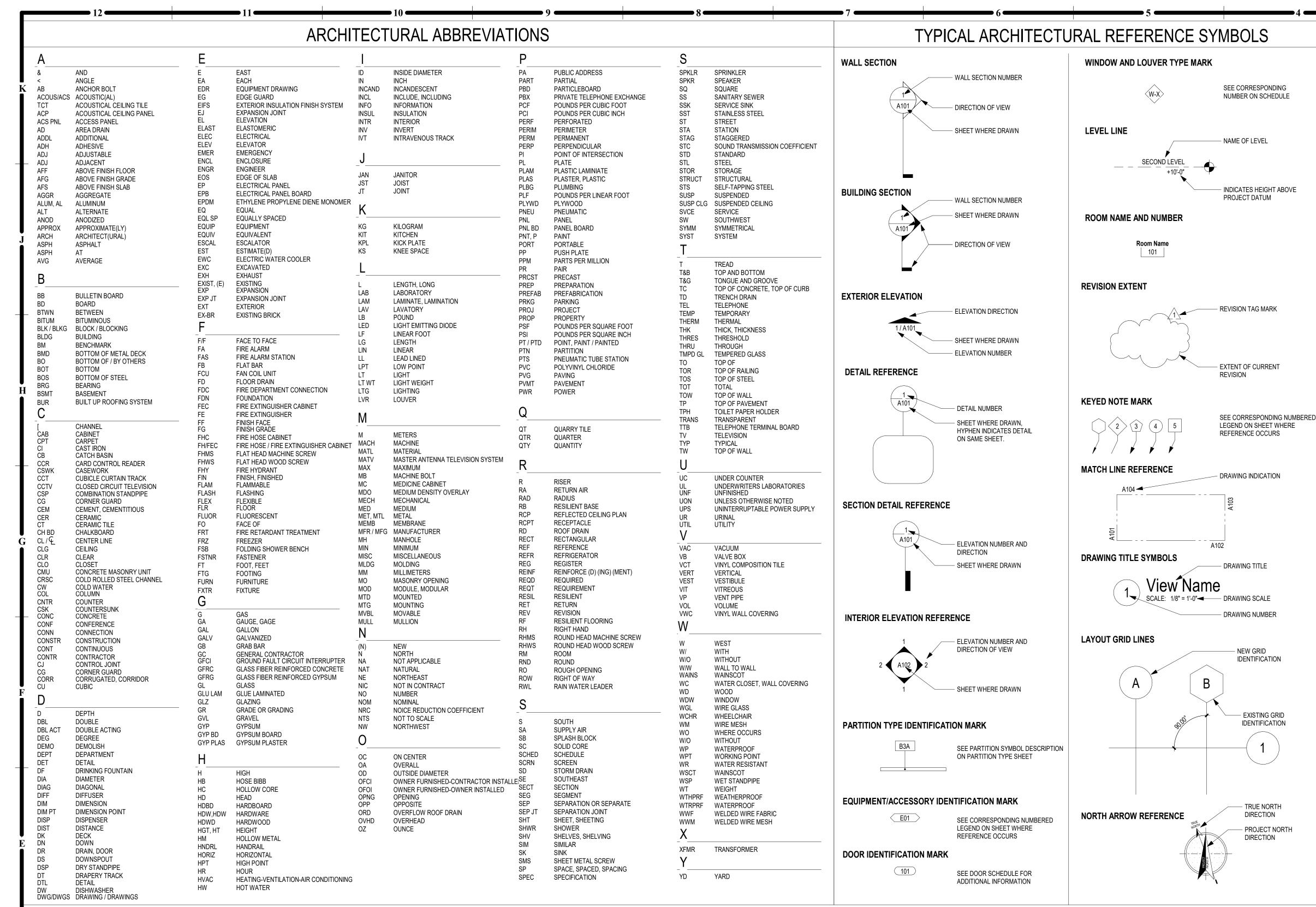
COLLINS WEBB ARCHITECTURE 307B SW MARKET ST. LEE'S SUMMIT, MISSOURI 64063 P: 816.249.2270 www.collinsandwebb.com

STRUCTURAL ENGINEER

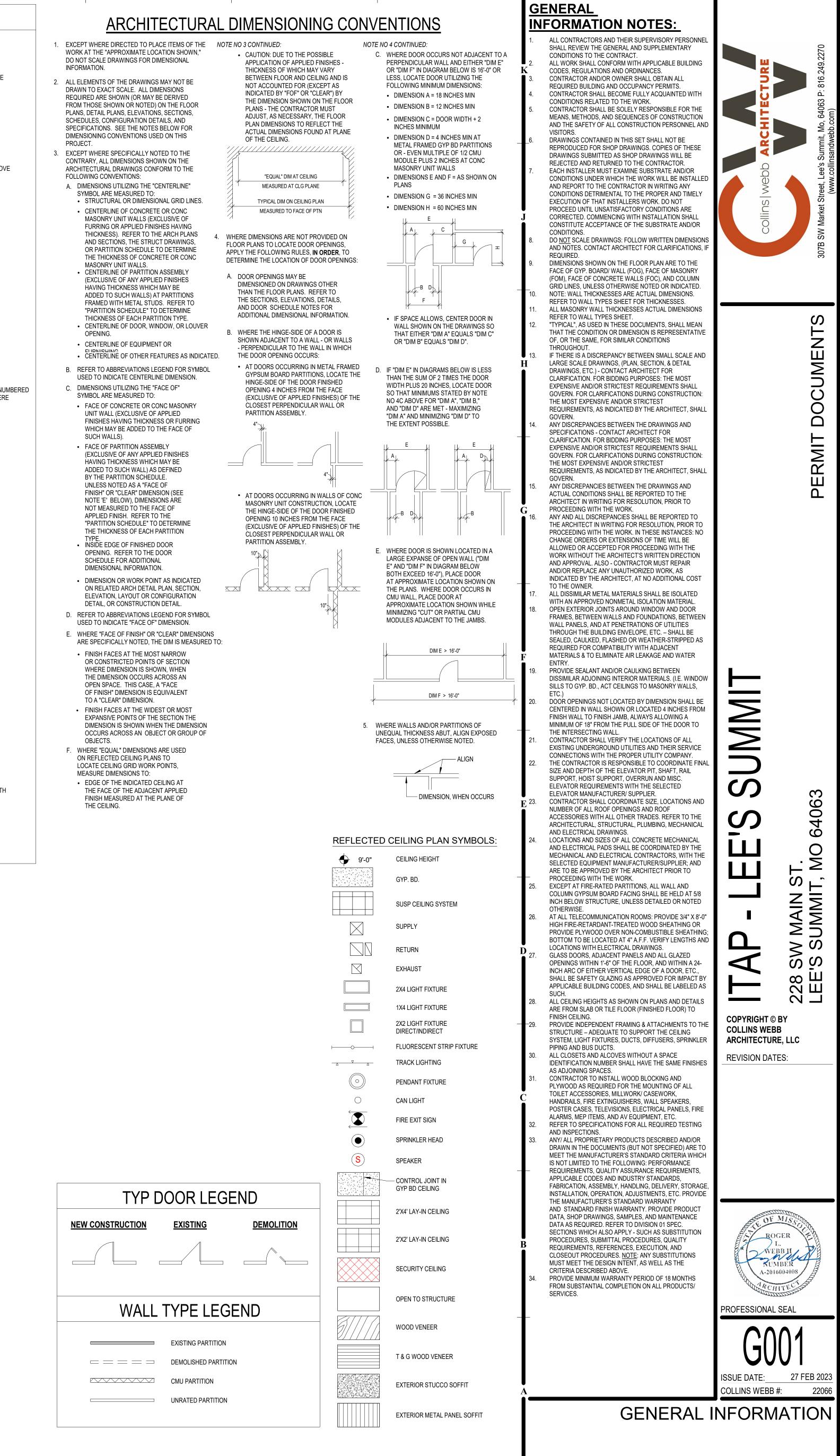
LEIGH & O'KANE 250 NE MULBERRY SUITE 201 LEE'S SUMMIT, MO 64086 P: 816.444.3144 www.leok.com

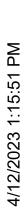
MEP ENGINEER

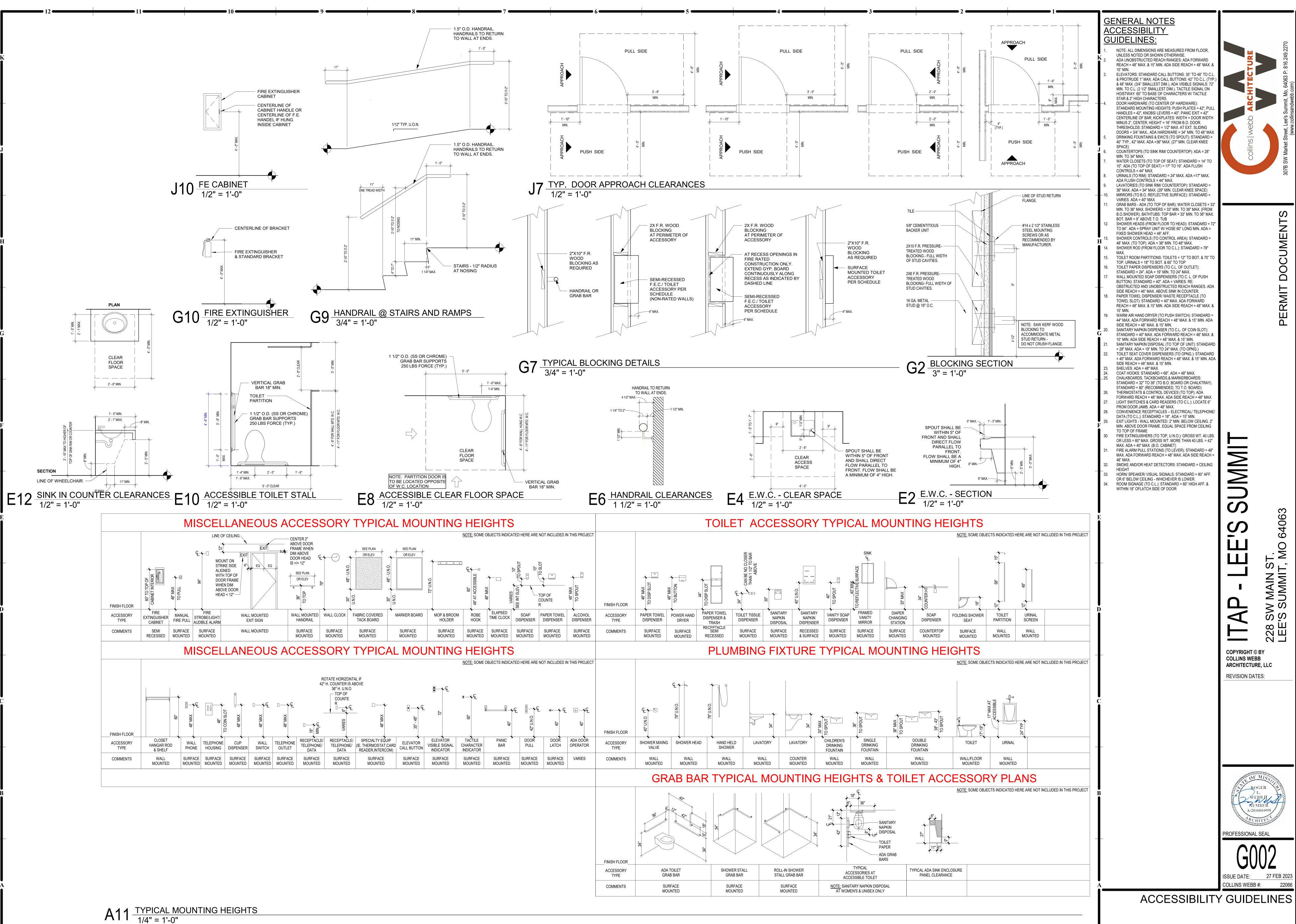
ENGINEER BUILDING SOLUTIONS P.O. BOX #11101 OVERLAND PARK, KS 66207 P: 913.735.5654 www.EBSolutionsKC.com



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NOTE: ALL DIMENSIONS ARE MEASURED FROM FLOOR, ADA UNOBSTRUCTED REACH RANGES: ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & ELEVATORS: STANDARD CALL BUTTONS: 35" TO 48" TO C & PROTRUDE 1" MAX. ADA CALL BUTTONS: 42" TO C.L. (TYF & 48" MAX. (3/4" SMALLEST DIM.). ADA VISIBLE SIGNALS: 72" MIN. TO C.L. (2 1/2" SMALLEST DIM.). TACTILE SIGNAL ON HOISTWAY: 60" TO BASE OF CHARACTERS W/ TACTILE DOOR HARDWARE (TO CENTER OF HARDWARE) STANDARD MOUNTING HEIGHTS: PUSH PLATES = 42", PULL HANDLES = 42", KNOBS/ LEVERS = 40", PANIC EXIT = 42" CENTERLINE OF BAR, KICKPLATES: WIDTH = DOOR WIDTH MINUS 2", CENTER, HEIGHT = 16" FROM B.O. DOOR. THRESHOLDS: STANDARD = 1/2" MAX. AT EXT. SLIDING DOORS = 3/4" MAX., ADA HARDWARE = 34" MIN. TO 48" MAX. DRINKING FOUNTAINS & EWC'S (TO SPOUT): STANDARD = 40" TYP., 42" MAX. ADA =36" MAX. (27" MIN. CLEAR KNEE COUNTERTOPS (TO SINK RIM/ COUNTERTOP): ADA = 28" WATER CLOSETS (TO TOP OF SEAT): STANDARD = 14" TO 15". ADA (TO TOP OF SEAT) = 17" TO 19". ADA FLUSH URINALS (TO RIM): STANDARD = 24" MAX. ADA =17" MAX. LAVATORIES (TO SINK RIM/ COUNTERTOP): STANDARD = 36" MAX. ADA = 34" MAX. (29" MIN. CLEAR KNEE SPACE) MIRRORS (TO B.O. REFLECTIVE SURFACE): STANDARD = GRAB BARS - ADA (TO TOP OF BAR): WATER CLOSETS = 3 MIN. TO 36" MAX. SHOWERS = 33" MIN. TO 36" MAX. (FROM S B.O.SHOWER). BATHTUBS: TOP BAR = 33" MIN. TO 36" MAX. DOCUMENT SHOWER HEADS (FROM FLOOR TO HEAD): STANDARD = 3 TO 84". ADA = SPRAY UNIT W/ HOSE 60" LONG MIN. ADA = SHOWER CONTROLS (TO CONTROL AREA): STANDARD = SHOWER ROD (FROM FLOOR TO C.L.): STANDARD = 78" TOILET ROOM PARTITIONS: TOILETS = 12" TO BOT. & 70" TO TOILET PAPER DISPENSERS (TO C.L. OF OUTLET): WALL MOUNTED SOAP DISPENSERS (TO C. L. OF PUSH PERMIT OBSTRUCTED AND UNOBSTRUCTED REACH RANGES. ADA SIDE REACH = 46" MAX. ABOVE SINK IN COUNTER. PAPER TOWEL DISPENSER/ WASTE RECEPTACLE (TO TOWEL SLOT): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & WARM AIR HAND DRYER (TO PUSH SWITCH): STANDARD 44" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SANITARY NAPKIN DISPENSER (TO C.L. OF COIN SLOT): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. 8 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN. SANITARY NAPKIN DISPOSAL (TO TOP OF UNIT): STANDARD = 28" MAX, ADA = 19" MIN, TO 24" MAX, (TO OPNG.) TOILET SEAT COVER DISPENSERS (TO OPNG.): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA COAT HOOKS: STANDARD = 68". ADA = 48" MAX. CHALKBOARDS, TACKBOARDS, & MARKERBOARDS: STANDARD = 32" TO 39" (TO B.O. BOARD OR CHALKTRAY) STANDARD = 80" (RECOMMENDED, TO T.O. BOARD) THERMOSTATS & CONTROL DEVICES (TO TOP): ADA FORWARD REACH = 48" MAX. ADA SIDE REACH = 48" MAX LIGHT SWITCHES & CARD READERS (TO C.L.): LOCATE 6' CONVENIENCE RECEPTACLES – ELECTRICAL/ TELEPHON ATA (TO C.L.): STANDARD = 18". ADA = 15" MIN. EXIT LIGHTS - WALL MOUNTED: 2" MIN. BELOW CEILING. 2 MIN. ABOVE DOOR FRAME. EQUAL SPACE FROM CEILIN FIRE EXTINGUISHERS (TO TOP, U.N.O.): GROSS WT. 40 LBS OR LESS = 60" MAX. GROSS WT. MORE THAN 40 LBS. = 42" FIRE ALARM PULL STATIONS (TO LEVER): STANDARD = 48' MAX. ADA FORWARD REACH = 48" MAX. ADA SIDE REACH SMOKE AND/OR HEAT DETECTORS: STANDARD = CEILIN HORN/ SPEAKER/ VISUAL SIGNALS: STANDARD = 80" AFI OR 6" BELOW CEILING - WHICHEVER IS LOWER. ROOM SIGNAGE (TO C.L.): STANDARD = 60" HIGH AFF. & S 64063 S 228 SW MAIN ST. LEE'S SUMMIT, MO **COPYRIGHT © BY COLLINS WEBB** ARCHITECTURE, LLC **REVISION DATES:**



ISSUE DATE:

COLLINS WEBB #:

27 FEB 2023

22066

WALL PRIORITY LEG	END	FIRE & SMOK	E RESISTIVE LEGEND	DEFINIT	TIONS		
NOTE: THIS LEGEND IS FOR GRAPHIC REPRESE					RTITIONS (FP)		-
FOUR HOUR FIRE WALL (4FW) FHREE HOUR FIRE WALL (3FW)			NTINUOUS VERTICALLY FROM FOUNDATION TO ROOF NTO SEPARATE BUILDINGS.	A FIRE RATED PAR	RTITION THAT IS USED FOR THE APPLICATION IUOUS FROM TOP OF FLOOR TO UNDERSIDE	-	1. F 2. V
TWO HOUR FIRE WALL (2FW) FOUR HOUR FIRE BARRIER (4FB) THREE HOUR FIRE BARRIER (3FB)		USE FIRE WALLS SERVE TO CREATE 9	SEPARATE BUILDINGS FOR THE FOLLOWING	EXCEPTION, A FIR	R ROOF/CEILING ASSEMBLY. WHERE ALLOW E PARTITION SHALL BE ALLOWED TO TERMIN FIRE RATED CEILING		T U
TWO HOUR FIRE BARRIER (2FB) (INCLUDES THE FOLLOWING)		REASONS.CONSTRUCTION TYPE VA	RIES FROM ONE BUILDING TO ANOTHER.	<u>USE</u>			S 3. E R
TWO HOUR SHAFT ENCLOSURE (2SE) ONE HOUR FIRE BARRIER (1FB) <i>(INCLUDES THE FOLLOWING)</i>		TO SEPARATE BUILDINGS	MUM ALLOWABLE AREA REQUIREMENTS. S WITH DIFFERENT LEVELS OF FIRE PROTECTION. IY LINE DEFINING DIFFERENT OWNERSHIP.	SEPARATE	ARE USED IN CERTAIN OCCUPANCIES TO DO E DWELLING UNITS E SLEEPING SPACES	o the following.	E C N
ONE HOUR SHAFT ENCLOSURE (1SE)		SPECIAL CONSIDERATIONS		SEPARATE SEPARATE	E CORRIDORS FROM ADJACENT SPACES E ELEVATOR LOBBIES		4. F U
SMOKE TIGHT PARTITION (X) (INCLUDES THE FOLLOWING) SMOKE TIGHT PARTITION TO SMOKE TIGHT CEILING (XC) SMOKE TIGHT PARTITION WITHIN PLENUM ABOVE CEILING			S SUFFICIENT STRUCTURAL STABILITY UNDER FIRE THE COLLAPSE OF CONSTRUCTION ON EITHER SIDE THE WALL.	SEPARATE SPECIAL CONSIDE	E TENANT SPACES IN COVERED MALL BUILDI	NGS	T N
SMOKE TIGHT PARTITION SEPARATION OF INTERSTITIALS			ED TO BE PROTECTED. BASED ON A PERCENTAGE OF WALL LENGTH. ALL THROUGH THE ROOF WITH A PARAPET IS		S ARE REQUIRED TO BE PROTECTED. RE FOR SWING DOORS SHALL INCLUDE A LAT	CH AND CLOSER.	5. V P
DETAIL ABUTMENT OF DISSIMILAR WALL		REQUIRED FOR SOME CO THE REQUIRED FIRE RAT	DNSTRUCTION CLASSIFICATIONS. ING OF A FIRE WALL IS BASED ON OCCUPANCY	BEARING	WALLS (BW)		В Т Т
		GROUPS AND CLASS OF HARDWARE FOR SWING	CONSTRUCTION. DOORS SHALL INCLUDE A LATCH AND CLOSER.		EXTERIOR WALL DESIGNED TO SUPPORT FLO		S IS F
HIGHER PRIORITY WALLS SHALL PASS THROUGH A LOWER PRIORITY WALL		FIRE BARRIERS	<u>(FB)</u>	FIRE RATED STRU	IS FIRE-RATED ONLY TO MAINTAIN THE INTE(ICTURAL ELEMENT. THE WALL DOES NOT SE IM ONE SIDE TO THE OTHER SIDE.		6. 1 T
INTERSECTION OF RATED WALLS			TED TO RESTRICT THE SPREAD OF FIRE. ED FROM TOP OF FLOOR TO UNDERSIDE OF THE) BEARING STRUCTURAL ELEMENT.		7. \
TAPE & JOINT COMPOUND (TYP)		FLOOR OR ROOF DECK ABOVE.		SPECIAL CONSIDE	RATIONS	TED	8. I A 9. I
TAPE & SEAL HIGHER PRIORITY		FIRE BARRIERS HAVE THE FOLLO • TO CREATE HORIZONTAL	. EXITS.	HVAC DUC PLUMBING	ND WINDOWS ARE NOT REQUIRED TO BE RA CT PENETRATIONS ARE NOT REQUIRED TO B G, ELECTRICAL, SPRINKLER SYSTEM, AND CA	E FIRE-DAMPERED. BLE PENETRATIONS	l
LOWER PRIORITY WALL (TYP) HIGHER PRIORITY WALL		TO SEPARATE EXIT PASS OCCUPANCY SEPARATIO TO SEPARATE INCIDENTA	NS.		JIRED TO BE FIRE-STOPPED WITH FIRE SEAL S CONSTRUCTED OF HOLLOW CMU OR STU		10.
A TAPE & JOINT COMPOUND (TYP) —	B		ITH DIFFERENT LEVELS OF FIRE PROTECTION. HAFT ENCLOSURES ARE FIRE BARRIERS. SEE	ACTIVE F	IRE PROTECTION SYS	TFMS:	(F 11.
		ADDITIONAL REQUIREME		AUTOMAT	IC SPRINKLER SYSTEM - PROVIDED THROUG	HOUT (903.2.1)	V V
			CTION CLASSIFICATIONS, CONSTRUCTION THAT SUPPORT OF A FIRE BARRIER IS REQUIRED TO BE	1. AD	E SYSTEM - PROVIDED IN STAIRS THROUGHO DITIONAL CONNECTIONS PROVIDED AS SHO OR OPING PROTECTED IN ACCORDANCE WIT)WN (905)	A F
TAPE & JOINT COMPOUND (TYP)		• OF THE SAME HOURLY FI • OPENINGS ARE REQUIRE	RE RATING AS THE FIRE BARRIER, OR BETTER. D TO BE PROTECTED.		AND CLOSELY SPACED SPRINKLERS.		l 12.
HIGHER PRIORITY WALL	& SEAL OF HIGHER PRIORITY WALL (TYP)	SHAFT ENCLOSU	DOORS SHALL INCLUDE A LATCH AND CLOSER.				5
LOWER PRIORITY WALL		DEFINITION	BARRIER FORMING THE BOUNDARY OF A VERTICAL				
		A SHAFT ENCLOSURE IS A FIRE E SHAFT.		CENEDA			
TAPE & JOINT COMPOUND (TYP)		<u>USE</u> PROTECT OPENINGS IN FIRE RAT	TED FLOOR/CEILING ASSEMBLIES.	GENERA	L NOTES OWING INFORMATION SERVES TO PROVIDE E	BUILDING OWNERS WITH	
HIGHER PRIORITY WALL				CONCISE I	DEFINITIONS OF WALL TYPES RELATED TO LI FION IS NOT MEANT TO BE A SUBSTITUTE FOR	IFE SAFETY ISSUES. THIS	
NOTES:		OPENINGS ARE REQUIRE	INCTION OF THE SHAFT. WHERE ALLOWED, D TO BE PROTECTED. QUIRE COMBINATION SMOKE AND FIRE DAMPERS		/ALL HAS MORE THAN ONE CLASSIFICATION, /IENTS FOR EACH CLASSIFICATION SHALL AP		
 REFER TO WALL TYPES ON SHEET G121-TI FOR WALL CO GYPSUM BOARD LAYERS, TYPE OF GYPSUM BOARD, AND 	OTHER SIMILAR INFO.	HARDWARE FOR SWING	ONDITIONS THAT ARE GRANDFATHERED. DOORS SHALL INCLUDE A LATCH, CLOSER, AND	3. FOR NEW	CONSTRUCTION, PERIMETER SMOKE-SEALS ED DOORS IN CERTAIN OCCUPANCIES.		
 THE HIGHER PRIORITY WALL SHALL PASS THROUGH THE TAPING AND SEALING OF HIGHER PRIORITY WALLS SHALL ALTERNATE LAYERS OF GYPSUM BOARD SHALL OVERLAF 	BE CONTINUOUS.	PERIMETER SMOKE SEAL	.5.				
COUNTY: JACKSON COLLINS WEBB ARCHITECTURE 307B SW MARKET STREET	MMIT, MO 64063				COMMON PATH OF TRAVEL 7 MIN. CORRIDOR WIDTH 4	0 FEET 5' FEET, OR 100' IF OCC 4", OR 36" IF OCC. < 50	
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. ADA STANDARDS FOR ACCESSIBLE DESIGN - 2011 ICC/ANSI A117.1: ACCESSIBLE AND USABLE BUILD BUILDING/PROJECT USE: CONSTRUCTION TYPE OCCUPANCY CLASSIFICATION ADS	0 ED. DINGS AND FACILITIES - 2	009 ED.	TABLE/SECTION/REFERENCE IBC SECTION 303 IBC TABLE 601 IBC SECTION 303		COMMON PATH OF TRAVEL 7	5' FEET, OR 100' IF OCC 4", OR 36" IF OCC. < 50 CUPANT LOA AN ASSEMBLY OCCUP DR SPACE POSTED IN A SESS DOORWAY FROM APPROVED LEGIBLE PE WNER OR AUTHORIZED ENTS CONS - 2 EXITS PER STO ERSON CONS - 2 EXITS PER STO ERSONS - 3 EXITS PER N 1000 PERSONS - 4 EX ERGENCY DO NOT USE) ST LOAD 58 OCC 2 OCC 38 OCC	AD ANCY SH A CONSF THE RC ERMANE D AGENT O AGENT O AGENT STORY XITS PEI E ELEVA
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NS IONS (FP) N THAT IS USED FOR THE APPLICATIONS LISTED BELOW. IT FROM TOP OF FLOOR TO UNDERSIDE OF A FIRE-RATED

PROTECTION SYSTEMS:

<u>DTES</u>

1. RE: LIFE SAFETY PLAN(S) FOR RATED WALL LOCATIONS. 2. WHERE "FIRE-RATED SEALANT" IS INDICATED ON WALL TYPES: PROVIDE FIRE-RATED SEALANT ABOVE TOP TRACK,

WALL TYPE NOTES:

- UNDER BOTTOM TRACK, AT ALL PENETRATIONS (BOTH SIDES), AND AS REQUIRED BY FIRE RATING UL NUMBER. 3. EXTEND FIRE-RATED WALL CONSTRUCTION BEHIND RECESSED OR BUILT-IN EQUIPMENT; SUCH AS FIRE EXTINGUISHER CABINETS (FEC), ELECTRICAL WATER COOLERS (EWC), ELECTRICAL PANELS, ETC., UNLESS
- NOTED OTHERWISE. 4. PROVIDE AND INSTALL ALL STIFFENERS, BRACING, BACK-UP PLATES AND SUPPORTING BRACKETS REQUIRED FOR THE INSTALLATION OF ALL CASEWORK AND OF ALL FLOOR MOUNTED OR SUSPENDED MECHANICAL, ELECTRICAL OR
- LABORATORY EQUIPMENT. 5. WHERE HVAC OR OTHER MECHANICAL, ELECTRICAL AND PLUMBING ITEMS PENETRATE PARTITIONS: STUDS SHALL BE BRACED AND FRAMED TO STRUCTURE AS REQUIRED TO PROVIDE ADEQUATE SUPPORT. ALL PENETRATIONS
- THROUGH ACOUSTICAL AND FIRE RATED WALLS SHALL BE SEALED TO PROVIDE FIRE, SMOKE, AND/OR ACOUSTICAL ISOLATION OF SPACES WITH APPROPRIATE ACOUSTICAL/ FIRESTOP MATERIAL.
- 6. THERE SHALL BE NO BACK-TO-BACK ELECTRICAL, TELEPHONE, OR OTHER OUTLETS, EXCEPT WHERE SPECIFICALLY SHOWN. 7. WALL BASE IS NOT SHOWN ON ALL WALL TYPES FOR
- CLARITY. REFER TO FINISH SCHEDULE. 8. PROVIDE GLASS-MAT, WATER RESISTANT BACKING BOARD AT ALL WET LOCATIONS. 9. EXCEPT AT FIRE-RATED PARTITIONS, ALL WALL AND
- COLUMN GYPSUM BOARD FACING SHALL BE HELD AT 5/8 INCH BELOW STRUCTURE, UNLESS NOTED OR SHOWN OTHERWISE. 10. PROVIDE AND INSTALL BLOCKING REQUIRED FOR ALL
- A.V. EQUIPMENT. G.C. TO COORDINATE WITH TI CONSULTANT FOR FINAL LOCATIONS AND SIZE REQUIREMENTS. 11. COMPRESSIBLE FILLER - ACCEPTABLE MATERIALS
- WOULD BE FIBERGLASS INSULATION OR FIRESTOPPING. VOIDS TO BE COMPLETELY FILLED AND A FIRESTOP SEALANT OVER ANY ENDS. THIS IS TYPICAL FOR ALL ACOUSTICAL WALL ASSEMBLIES WHERE "COMPRESSIBLE FILLER" IS CALLED FOR. THERE CAN BE NO VOIDS IN THE INSTALLATION. 12. PROVIDE A MIN. MSG-12 STUD FOR ALL VERTICAL LONG

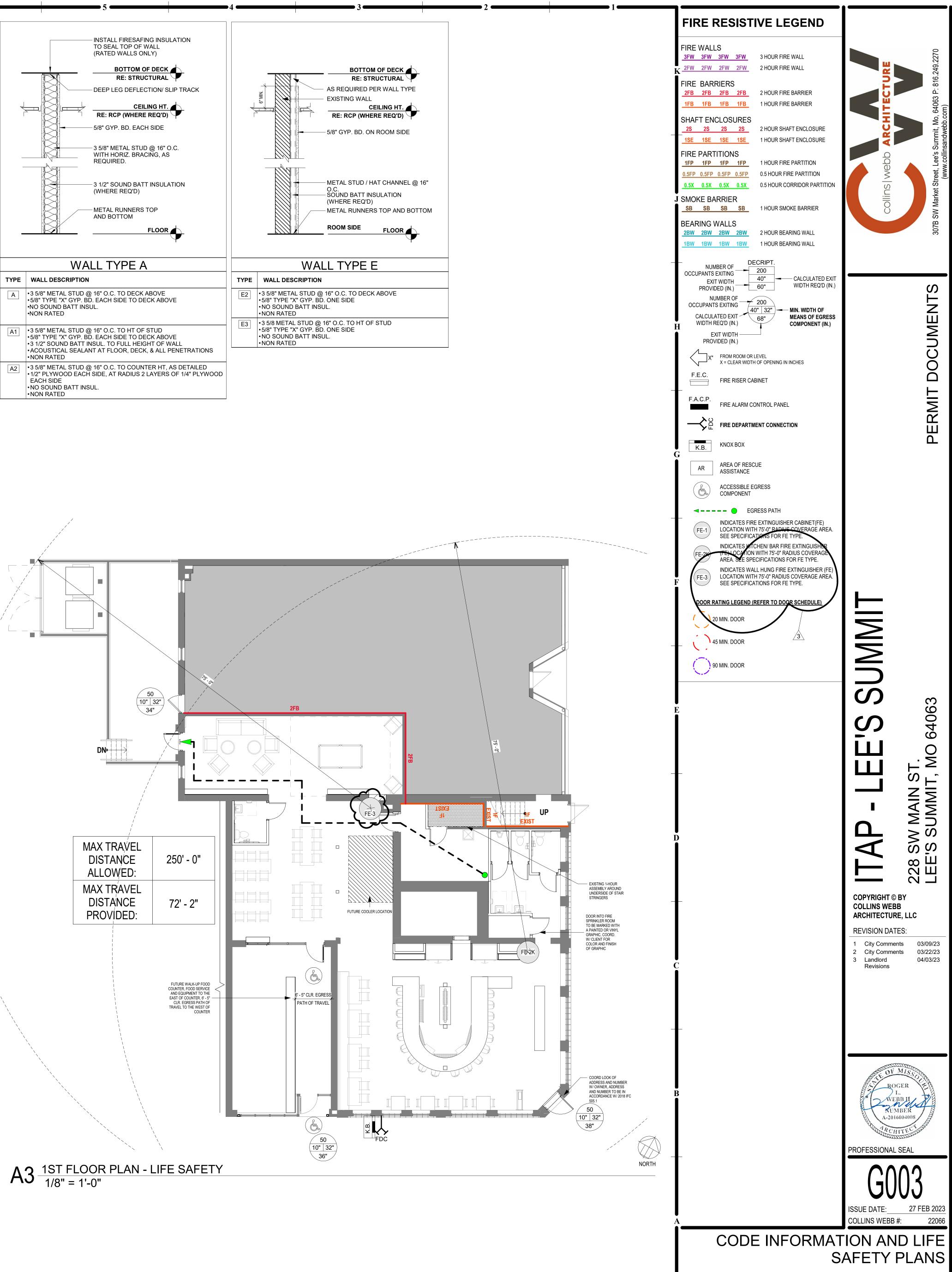
TABLE/SECTION/REFERENCE

IBC TABLE 1017.2 IBC SECTION 1020.4

SPAN WALL TYPES.

	INSTALL FIRESAFING INSULATION TO SEAL TOP OF WALL (RATED WALLS ONLY)
_	BOTTOM OF DECK
	DEEP LEG DEFLECTION/ SLIP TRACK
L L	CEILING HT. RE: RCP (WHERE REQ'D)
	5/8" GYP. BD. EACH SIDE
_	3 5/8" METAL STUD @ 16" O.C. WITH HORIZ. BRACING, AS REQUIRED.
	3 1/2" SOUND BATT INSULATION (WHERE REQ'D)
	METAL RUNNERS TOP AND BOTTOM
-	FLOOR
	WALL TYPE A
TYPE	WALL DESCRIPTION
A	•3 5/8" METAL STUD @ 16" O.C. TO DECK ABOVE •5/8" TYPE "X" GYP. BD. EACH SIDE TO DECK ABOVE •NO SOUND BATT INSUL. •NON RATED
A1	•3 5/8" METAL STUD @ 16" O.C. TO HT OF STUD •5/8" TYPE "X" GYP. BD. EACH SIDE TO DECK ABOVE •3 1/2" SOUND BATT INSUL. TO FULL HEIGHT OF WALL •ACOUSTICAL SEALANT AT FLOOR, DECK, & ALL PENETRATIO

COMMON PATH OF TRAVEL 7		DR 100' IF OCC. < 50 ' IF OCC. < 50	IBC SECTION 1020.4 IBC SECTION 1006.2.1 IBC SECTION 1020.2
POSTING OF OC	CUPA	NT LOAD	
OCCUPANT LOAD OF THE ROOM (NEAR THE MAIN EXIT OR EXIT AC	OR SPACE CESS DOC APPROVE	ABLY OCCUPANCY SHALL HAVE T POSTED IN A CONSPICUOUS PLA RWAY FROM THE ROOM OR SPAC D LEGIBLE PERMANENT DESIGN A AUTHORIZED AGENT.	ACE, CE.
EXIT REQUIREME	ENTS		TABLE/SECTION/REFERENCE
. REQUIRED CAPACITY			
. STAIRS - 0.3" / PERSON 2. OTHER COMPONENTS - 0.2" / PE	ERSON		IBC SECTION 1005.1
. MINIMUM NUMBER			
OCCUPANT LOAD OF 1-500 PERS OCCUPANT LOAD OF 501-1000 P OCCUPANT LOAD OF MORE THA	ERSONS -	3 EXITS PER STORY	IBC SECTION 1006.3.1
SIGNAGE			
I. PROVIDE SIGNAGE "IN FIRE EM ACCORDANCE WITH IBC (3002.3		DO NOT USE ELEVATOR, USE EX	IT STAIRS" IN
TOTAL OCCUPAN		AD	TABLE/SECTION/REFERENCE
BAR/DINING:		58 OCC 15 NET	IBC TABLE 1004.5
BACK BAR: PARTY ROOM:		2 OCC 200 GROSS 38 OCC 15 NET	
POOL ROOM:		38 OCC 15 NET	
STORAGE:		1 OCC 500 GROSS	
FUTURE FOOD COUNTER:		13 OCC 200 GROSS/ 15 NET	
TOTAL OCCUPANTS:		150 OCCUPANTS	IBC SECTION 1006.3.1
EXITS REQUIRED THIS LEVEL:		2 EXITS	
EXITS PROVIDED THIS LEVEL:		3 EXITS	
PLUMBING FIXT	URE I	REQUIREMENTS	
A2 OCC WATER CLOSETS - BAR		= 1/40 FOR BOTH MALE AND FEMALE	IBC TABLE 2902.1
A2 OCC LAVATORIES - BAR		= 1/40 FOR BOTH MALE AND FEMALE	2018 IPC TABLE 403.1
A2 OCC DRINKING FOUNTAIN - BAR		= 1/500	
A2 OCC SERVICE SINK - BAR		= 1	
PLUMBING FIXTURES REQUIRED:			
MEN WATER CLOSETS:	75/40		
WOMEN WATER CLOSETS:		= 2 REQUIRED = 2 REQUIRED	
LAVATORIES:		= 2 REQUIRED	
DRINKING FOUNTAINS:	100/10	= 1 REQUIRED	
SERVICE SINKS:		= 1 REQUIRED	
PLUMBING FIXTURES PROVIDED:			
MEN WATER CLOSETS:		= 1 PROVIDED	
WOMEN WATER CLOSETS:		= 1 PROVIDED	
UNISEX WATER CLOSET: URINALS:			
LAVATORIES:		= 1 PROVIDED = 3 PROVIDED	
DRINKING FOUNTAINS:		= RESTAURANT PROVIDED	
SERVICE SINKS:		= 1 PROVIDED	



SPECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS

GENERAL REQUIREMENTS APPLICABLE TO ALL MATERIALS FOR THE PROJECT:

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

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

- CONTRACTOR LICENSE THE CONTRACTOR AND ALL SUBCONTRACTORS INVOLVED IN THE PROJECT SHALL BE REQUIRED TO OBTAIN AND PAY FOR ALL NECESSARY LICENSES AS REQUIRED BY ANY LAW OR AGENCIES HAVING JURISDICTION (AHJ) OVER THE PROJECT
- BUILDING PERMITS HE 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.
- THE CONTRACTOR SHALL PAY THE NECESSARY FEES TO CONNECT TO EXISTING UTILITIES AT THE PROPERTY LINE OR IN ADJACENT STREETS AND RIGHT OF WAY AS SPECIFIED, NECESSARY, AND/OR INCLUDED IN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL PAY ALL UTILITY COSTS (BILLS) DURING CONSTRUCTION UNTIL OWNER TAKES POSSESSION OF THE FACILITY OR THE FACILITY IS CERTIFIED AS SUBSTANTIALLY COMPLETE.
- . PROTECTION OF FINISHED WORK IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT FINISHED SURFACES. PROTECTION FOR FINISHES SUCH AS DOORS. WALLS AND FLOORS SHOULD BE PROVIDED AS REQUIRED. ANY DAMAGES TO THESE AREAS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE.
- E. <u>General Conditions</u> ANY DISCREPANCY OR CONFLICT WITHIN OR BETWEEN DRAWINGS AND ANY DISCREPANCY OR CONFLICT BETWEEN ANY DRAWING AND ANY SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. NOTWITHSTANDING, DISCREPANCIES OR CONFLICTS NOT BROUGHT TO THE ARCHITECT'S AND/ OWNERS ATTENTION AND CLARIFIED DURING THE BIDDING OF THE PROJECT WILL BE DEEMED TO HAVE BEEN BID OR PROPOSED IN THE MORE COSTLY OR DIFFICULT MANNER, AND THE BETTER QUALITY OR GREATER QUANTITY OF THE WORK SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH ARCHITECT'S INTERPRETATION. 2. THE GENERAL CONTRACTOR SHALL KEEP A COMPLETE PROTOTYPE SET OF DOCUMENTS ON THE PROJECT SITE AT ALL
- TIMES FOR REFERENCE DURING CONSTRUCTION. 3. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING THE CONTRACTOR'S BEST SKILLS AND ATTENTION. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER CONSTRUCTION MEANS AND METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- . THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER ALL JOB SITE SAFETY PROCEDURES AND POLICIES. THE GENERAL CONTRACTOR SHALL HAVE A SAFETY COORDINATOR AND BE RESPONSIBLE TO HOLD REGULARLY SCHEDULED SAFETY TRAINING WITH ALL JOB SITE PERSONNEL, INCLUDING ALL SUB CONTRACTOR PERSONNEL 5. NEITHER THE ARCHITECT'S OR THE OWNERS INSPECTION NOR FAILURE TO INSPECT SHALL RELIEVE THE CONTRACTOR
- OF ANY OBLIGATION HEREUNDER. IF ANY WORK FAILS TO CONFORM TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROMPTLY REMEDY AND/OR REPLACE THE SAME AT THE CONTRACTOR'S EXPENSE. NO ACCEPTANCE OR PAYMENT BY THE OWNER OR ARCHITECT SHALL CONSTITUTE A WAIVER OF THE FOREGOING AND NOTHING HEREIN SHALL EXCLUDE OR LIMIT ANY WARRANTIES IMPLIED BY LAW. 6. THE GENERAL CONTRACTOR SHALL SO CONDUCT ITS OPERATIONS AS NOT TO UNREASONABLY INTERFERE WITH TRAFFIC ON PUBLIC THOROUGHFARES ADJACENT OR NEAR TO THE PROJECT SITE. 7. DO NOT SCALE DRAWINGS.

. <u>PROJECT REQUIREMENT</u>

- 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. C. EMAIL ACCESS THROUGH THE LAPTOP.
- A PRINTER/SCANNER/FAX MACHINE WITH PROPER CABLES TO ATTACH TO LAPTOP. E. CELL PHONE. 3. THE GENERAL CONTRACTOR SHALL HAVE A CONSTRUCTION SUPERINTENDENT ASSIGNED TO THIS PROJECT, AND THIS SUPERINTENDENT SHALL BE ON SITE EVERY DAY THERE IS ANY CONSTRUCTION ON THIS PROJECT. THE SUPERINTENDENT SHALL BE REACHABLE BY PHONE DURING NORMAL BUSINESS HOURS. ONCE ASSIGNED, THE
- SUPERINTENDENT SHALL NOT BE REMOVED OR REPLACED WITHOUT WRITTEN APPROVAL FROM OWNER & ARCHITECT, UNLESS SPECIFICALLY REQUESTED TO BE REPLACED BY OWNER. 4. THE SUPERINTENDENT WILL BE REQUIRED TO PROVIDE PHOTOGRAPHS (VIA EMAIL USING A DIGITAL CAMERA) TO THE OWNER & ARCHITECT EACH FRIDAY BY NOON CST, SHOWING THE PROGRESS OF CONSTRUCTION. THE GENERAL CONTRACTOR IS ENCOURAGED TO TAKE PHOTOS SEVERAL TIMES EACH WEEK TO HELP MAINTAIN PROOF OF CONSTRUCTION PROGRESS, RECORD UNCOVERED CONDITIONS, RECORD CONDITION AND AMOUNTS OF VENDOR GOODS UPON RECEIPT, AND RECORD CONSTRUCTION THAT VARIES FROM THE CD'S (AS PART OF THE AS-BUILTS). ALL PHOTOS WILL HAVE A 'DATE STAMP'.

. INSPECTIONS/OBSERVATIONS

- . IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OVERSEE CONSTRUCTION OF THE PROJECT, CONTINUALLY INSPECTING THE WORK, MATERIALS, AND WORKMANSHIP PROVIDED BY ALL OF HIS TRADESMEN, SUBCONTRACTORS, AND SUPPLIERS. EXCELLENCE IN QUALITY OF CONSTRUCTION CAN ONLY BE ACHIEVED IF THE CONTRACTOR ENFORCES HIGH STANDARDS OF ACCEPTABILITY. THE GENERAL CONTRACTOR CANNOT DELEGATE HIS RESPONSIBILITY TO THE
- SUBCONTRACTORS, BUT MUST CONTINUALLY MONITOR THE WORK OF EACH TRADE ON THE PROJECT. 2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE AND SCHEDULE ALL AGENCIES HAVING JURISDICTION (AHJ) INSPECTIONS NECESSARY TO OBTAIN THE CERTIFICATE OF OCCUPANCY (CERTIFICATE OF COMPLIANCE). PRIOR TO THE DATE OF THE AGENCY INSPECTION, THE GENERAL CONTRACTOR SHOULD INSPECT THE PROJECT TO INSURE THAT CONSTRUCTION COMPLIES WITH THE AGENCY REQUIREMENTS. SCHEDULING FINAL INSPECTIONS WITH AGENCY
- REPRESENTATIVES WHEN THE PROJECT IS NOT COMPLETE MUST BE AVOIDED. COPIES OF FINAL INSPECTIONS MUST BE PROVIDED TO OWNER & ARCHITECT AS THEY ARE AVAILABLE. PRIOR TO REQUESTING THE SUBSTANTIAL COMPLETION INSPECTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT HIS OWN PRE-SUBSTANTIAL COMPLETION INSPECTION OF THE CONSTRUCTION FOR QUALITY OF CONSTRUCTION AND COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. 4. THE FOLLOWING PEOPLE SHOULD BE IN ATTENDANCE FOR THE SUBSTANTIAL COMPLETION INSPECTION:
- A. GENERAL CONTRACTOR B. GENERAL CONTRACTOR SUPERINTENDENT C. MECHANICAL CONTRACTOR D. ELECTRICAL CONTRACTOR
- E. PLUMBING CONTRACTOR F. PAINTING CONTRACTOR H. FLOORING CONTRACTOR
- . ITEMS TO BE SUBMITTED AS A PREREQUISITE TO THE REQUEST FOR THE CERTIFICATE OF SUBSTANTIAL COMPLETION AND OWNER / ARCHITECT OBSERVATION OF ITEMS TO BE COMPLETED AND CORRECTED. A. GENERAL CONTRACTOR'S PUNCH LISTS B. HVAC TEST AND BALANCE REPORT
- C. SPRINKLER SYSTEM ACCEPTANCE INSPECTION REPORT D. COPY OF VIDEO OF COMPLETED SEWER SYSTEM
- . 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.

. <u>RECORD (CLOSE-OUT) DOCUMENTS</u> 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.

FINAL CLOSE-OUT OF THE PROJECT 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.

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

DIVISION 4 - MASONRY

04 0500 - MASONRY RESTORATION & TUCKPOINTING

- A. REFERENCES 1. AMERICAN CONCRETE INSTITUTE (ACI):
- A. ACI 530.1-02 SPECIFICATION FOR MASONRY STRUCTURES. 2. ASTM INTERNATIONAL (ASTM): A. ASTM C 144 - STANDARD SPECIFICATION FOR AGGREGATE FOR MASONRY MORTAR. B. ASTM C 150 - STANDARD SPECIFICATION FOR PORTLAND CEMENT.
- C. ASTM C 207 STANDARD SPECIFICATION FOR HYDRATED LIME FOR MASONRY PURPOSES D. ASTM C 260 - STANDARD SPECIFICATION FOR AIR-ENTRAINING ADMIXTURES FOR CONCRETE. E. ASTM C 270 - STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY. F. ASTM C 595 - STANDARD SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS. G. ASTM C 780 - STANDARD TEST METHOD FOR PRECONSTRUCTION AND CONSTRUCTION EVALUATION OF MORTARS
- FOR PLAIN AND REINFORCED MASONRY. H. ASTM C 979 - STANDARD SPECIFICATION FOR PIGMENTS FOR INTEGRALLY COLORED CONCRETE. I. ASTM C 1093 - STANDARD PRACTICE FOR ACCREDITATION OF TESTING AGENCIES FOR UNIT MASONRY.
- J. ASTM C 1157 STANDARD PERFORMANCE SPECIFICATION FOR HYDRAULIC CEMENT. K. ASTM C 1314 - STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF MASONRY PRISMS. L. ASTM C 1586 - STANDARD GUIDE FOR QUALITY ASSURANCE OF MORTARS.
- M. ASTM C 1714 STANDARD SPECIFICATION FOR PRE-BLENDED DRY MORTAR MIX FOR UNIT MASONRY. INSPECTION OF MATERIALS USED IN CONSTRUCTION.
- O. ASTM E 514 STANDARD TEST METHOD FOR WATER PENETRATION AND LEAKAGE THROUGH MASONRY. 3. INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL (IMIAC):
- 1. IMIAC INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL (IMIAC): RECOMMENDED PRACTICES AND GUIDE SPECIFICATIONS FOR COLD WEATHER MASONRY CONSTRUCTION. 2. IMIAC - INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL (IMIAC): RECOMMENDED PRACTICES AND GUIDE SPECIFICATIONS FOR HOT WEATHER MASONRY CONSTRUCTION. 4. THE BRICK INDUSTRY ASSOCIATION (BIA):

1. BIA TECHNICAL NOTE 20 – CLEANING BRICK. 1. PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT DATA. 2. QUALITY ASSURANCE/CONTROL SUBMITTALS:

- A. SUBMIT MANUFACTURER'S CERTIFICATES THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS. B. SUBMIT TEST RESULTS PREPARED BY A QUALIFIED INDEPENDENT TESTING LABORATORY.
- INCLUDING MORTARS, WITH MINIMUM 10 YEARS EXPERIENCE. 2. QUALITY ASSURANCE/CONTROL TESTING: TEST REPORTS PREPARED BY A QUALIFIED INDEPENDENT LABORATORY INDICATING COMPLIANCE WITH THE FOLLOWING PERFORMANCE REQUIREMENTS:
- AT THE PROJECT SITE TO DISCUSS CONTRACT REQUIREMENTS AND JOB CONDITIONS; REQUIRE THE ATTENDANCE OF MASONRY CONTRACTOR, AND INSTALLERS OF RELATED MATERIALS; NOTIFY ARCHITECT IN ADVANCE OF MEETING.REVIEW DETAILING AND SEQUENCE OF WORK TO BE PERFORMED.
- 4. STORAGE AND PROTECTION: CEMENTITIOUS MATERIALS SHALL BE MANUFACTURED AND STORED OFF THE GROUND, UNDER COVER AND SHALL BE KEPT DRY IN ACCORDANCE WITH ASTM C1714. D. PROJECT CONDITIONS

1. MAINTAIN ENVIRONMENTAL CONDITIONS AND PROTECT WORK DURING AND AFTER INSTALLATION TO COMPLY WITH REFERENCED STANDARDS AND MANUFACTURER'S PRINTED RECOMMENDATIONS. 2. DO NOT BUILD OR APPLY MORTAR PRODUCTS ON FROZEN SUBSTRATES.

1. REMOVE AND REPLACE MORTAR DAMAGED BY FROST OR BY FREEZING CONDITIONS. 3. VENT TEMPORARY HEATERS TO EXTERIOR TO PREVENT DAMAGE TO MASONRY WORK FROM CARBON DIOXIDE BUILD-

1. BASIS OF DESIGN: SPEC MIX®, INC. WEB: WWW.SPECMIX.COM" WWW.SPECMIX.COM 2. REQUESTS FOR SUBSTITUTIONS WILL BE CONSIDERED IN ACCORDANCE WITH PROVISIONS OF SUBSTITUTION PROCEDURES.

- 3. OBTAIN PRODUCTS FROM A SINGLE MANUFACTURER. 4. DESIGN AND PERFORMANCE REQUIREMENTS: PROVIDE MORTAR MIXES THAT HAVE BEEN SELECTED, MANUFACTURED, MIXED AND INSTALLED TO COMPLY WITH THE FOLLOWING: A. ASTM C 270. B. ASTM C 1714.
- 5. MORTAR A. TUCKPOINT MORTAR: SPEC MIX TUCKPOINT MORTAR . APPLICABLE STANDARDS: ASTM C 144, ASTM C 150, ASTM C 207, ASTM C 270 FOR TUCKPOINT MORTAR, ASTM C 595, ASTM C 780, ASTM C 1093, ASTM C 1157, ASTM C 1314, ASTM C 1586, ASTM C 1714, ACI 530.1, IMIAC

EXAMINE SURFACES TO RECEIVE MASONRY WORK AND CONDITIONS UNDER WHICH MASONRY WILL BE INSTALLED. DO NOT PROCEED WITH MASONRY WORK UNTIL SURFACES AND CONDITIONS COMPLY WITH REQUIREMENTS INDICATED IN REFERENCED MASONRY INSTALLATION STANDARD AND MANUFACTURER'S PRINTED INSTRUCTIONS.

- REMOVAL OF EXISTING MORTAR A. REMOVAL OF EXISTING MORTAR: CUT OUT EXISTING MORTAR JOINTS (BOTH BED AND HEAD JOINTS) AND REMOVE BY MEANS OF A TOOTHING CHISEL OR A SPECIAL POINTER'S GRINDER, TO A UNIFORM DEPTH OF TO 3/4-INCH (19 MM), OR UNTIL SOUND MORTAR IS REACHED. 1. TAKE CARE TO NOT DAMAGE EDGES OF EXISTING MASONRY UNITS TO REMAIN. B. REMOVE DUST AND DEBRIS FROM THE JOINTS BY BRUSHING, BLOWING WITH AIR OR RINSING WITH WATER. DO NOT RINSE WHEN TEMPERATURE IS BELOW FREEZING.
- 2. REPLACEMENT OF MASONRY UNITS A. REMOVE DAMAGED, SPALLED, LOOSE OR DETERIORATED MASONRY UNITS. CAREFULLY REMOVE ENTIRE UNITS FROM JOINT TO JOINT, WITHOUT DAMAGING SURROUNDING MASONRY, IN A MANNER THAT PERMITS REPLACEMENT WITH FULL SIZE UNITS B. SUPPORT AND PROTECT REMAINING MASONRY THAT SURROUNDS REMOVAL AREA. MAINTAIN FLASHING,
- REINFORCEMENT, LINTELS, AND ADJOINING CONSTRUCTION IN AN UNDAMAGED CONDITION. C. CLEAN MASONRY UNITS SURROUNDING REMOVAL AREAS BY REMOVING MORTAR, DUST, AND LOOSE PARTICLES IN PREPARATION FOR REPLACEMENT
- D. REPLACE REMOVED UNITS WITH SALVAGED OR NEW UNITS THAT MATCH EXISTING SIZE AND TEXTURE. DO NOT USE BROKEN UNITS UNLESS THEY CAN BE CUT TO USABLE SIZE. E. INSTALL REPLACEMENT UNITS INTO BONDING AND COURSING PATTERN OF EXISTING UNITS. IF CUTTING IS REQUIRED, USE A MOTOR-DRIVEN SAW DESIGNED TO CUT MASONRY WITH CLEAN, SHARP, UNCHIPPED EDGES.
- UNITS MUST BE TOOTHED IN OR COURSING SHALL MATCH SURROUNDING IN PLACE WORK. F. MAINTAIN JOINT WIDTH FOR REPLACEMENT UNITS TO MATCH EXISTING JOINTS. G. LAY REPLACEMENT UNITS WITH COMPLETELY FILLED BED, HEAD, AND COLLAR JOINTS. BUTTER ENDS WITH
- SUFFICIENT MORTAR TO FILL HEAD JOINTS AND SHOVE INTO PLACE. C. MIXING 1. AS RECOMMENDED BY MANUFACTURER.

2. RETEMPERING: RETEMPER MORTAR AS RECOMMENDED BY MANUFACTURER

- G. INSTALLATION OF TUCK POINTING MORTAF 1. INSTALL MORTAR IN ACCORDANCE WITH ACI/ASCE-530.1: 2. IMMEDIATELY PRIOR TO APPLICATION OF MORTAR, DAMPEN JOINTS TO BE TUCK POINTED. PRIOR TO APPLICATION
- OF POINTING MORTAR, ALLOW MASONRY UNITS TO ABSORB SURFACE WATER. 3. TIGHTLY PACK MORTAR INTO JOINTS IN THIN LAYERS, APPROXIMATELY 1/4-INCH (6 MM) THICK MAXIMUM.
- 4. ALLOW LAYER TO BECOME "THUMBPRINT HARD" BEFORE APPLYING NEXT LAYER. 5. PACK FINAL LAYER FLUSH WITH SURFACES OF MASONRY UNITS. WHEN MORTAR BECOMES "THUMBPRINT HARD", TOOL JOINTS
- 6. HAIRLINE CRACKING WITHIN THE MORTAR OR MORTAR SEPARATION AT EDGE OF A JOINT IS UNACCEPTABLE. COMPLETELY REMOVE SUCH MORTAR AND REPOINT.
- 7. TOOL JOINTS IN PATCH WORK WITH A JOINTING TOOL TO MATCH THE EXISTING SURROUNDING JOINTS. 8. CLEANING A. COMPLY WITH CLEANING PROCEDURES AND RECOMMENDATIONS OF THE MANUFACTURERS OF BOTH THE
- CLEANING SOLUTION AND THE UNIT MASONRY. B. REMOVE EFFLORESCENCE FROM MASONRY WALL EXPOSED IN THE FINISHED WORK IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION, NCMA TEK BULLETIN #8-3A AND/OR BIA TECHNICAL NOTE 20 – CLEANING
- C. REMOVE DIRT OR STAINS FROM MASONRY WALLS EXPOSED IN THE FINISHED WORK IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, NCMA TEK BULLETIN #8-2A AND/OR BIA TECHNICAL NOTE 20 – CLEANING D. COMPLY WITH APPLICABLE ENVIRONMENTAL LAWS AND RESTRICTIONS.
- AFTER MORTAR HAS FULLY HARDENED, THOROUGHLY CLEAN EXPOSED MASONRY SURFACES OF EXCESS MORTAR AND FOREIGN MATTER; USE WOOD SCRAPERS, STIFF-NYLON OR -FIBER BRUSHES, AND CLEAN WATER, SPRAY APPLIED AT LOW PRESSURE. 1. DO NOT USE METAL SCRAPERS OR BRUSHES 2. DO NOT USE ACIDIC OR ALKALINE CLEANERS.

1. PROTECTION: PROTECT NEWLY POINTED JOINTS FROM WEATHER AND ELEMENTS AS RECOMMENDED BY MANUFACTURER AND INDUSTRY STANDARDS, UNTIL POINTED JOINTS ARE SUFFICIENTLY HARD ENOUGH TO PREVENT DAMAGE 2. PROTECT INSTALLED WORK FROM DAMAGE DUE TO SUBSEQUENT CONSTRUCTION ACTIVITY ON THE SITE.

DIVISION 5 - METALS

- 05 5213 PIPE AND TUBE RAILINGS A. SUBMITTAL PRODUCT DATA AND SHOP DRAWINGS WITH PLANS ELEVATIONS AND SEECTIONS INDICATING MEMBER SIZES AND LAYOUT, VERTICAL AND HORIZONTAL DIMENSIONS, EDGE CONDITIONS, AND CONNECTION DETAILS. INCLUDE DETAILS OF EQUIPMENT ASSEMBLIES. INDICATE DIMENSIONS, WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION. SAMPLES FOR INITIAL SELECTION: FOR EACH TYPE OF EXPOSED FINISH.
- 1. DELEGATED-DESIGN SUBMITTAL: FOR HANDRAIL AND GUARDRAIL SYSTEMS, INCLUDING ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

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

- 1. FIELD MEASUREMENTS: VERIFY ACTUAL LOCATIONS OF WALLS AND OTHER CONSTRUCTION CONTIGUOUS WITH METAL FABRICATIONS BY FIELD MEASUREMENTS BEFORE FABRICATION. D. <u>PERFORMANCE REQUIREMENTS</u>
- 1. A. DELEGATED DESIGN: ENGAGE A QUALIFIED PROFESSIONAL ENGINEER, TO DESIGN RAILINGS, INCLUDING ATTACHMENT TO BUILDING CONSTRUCTION. B. STRUCTURAL PERFORMANCE: RAILINGS, INCLUDING ATTACHMENT TO BUILDING CONSTRUCTION, SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND THE FOLLOWING LOADS AND STRESSES WITHIN LIMITS AND
- UNDER CONDITIONS INDICATED: 2. HANDRAILS AND TOP RAILS OF GUARDS: A. UNIFORM LOAD OF 50 LBF/ FT. (0.73 KN/M) APPLIED IN ANY DIRECTION. B. CONCENTRATED LOAD OF 200 LBF (0.89 KN) APPLIED IN ANY DIRECTION. C. UNIFORM AND CONCENTRATED LOADS NEED NOT BE ASSUMED TO ACT CONCURRENTLY.
- 1. FASTENERS FOR ANCHORING RAILINGS TO OTHER CONSTRUCTION: SELECT FASTENERS OF TYPE, GRADE, AND CLASS REQUIRED TO PRODUCE CONNECTIONS SUITABLE FOR ANCHORING RAILINGS TO OTHER TYPES OF CONSTRUCTION INDICATED AND CAPABLE OF WITHSTANDING DESIGN LOADS.
- MISCELLANEOUS MATERIALS 1. METAL SURFACES, GENERAL: PROVIDE MATERIALS WITH SMOOTH SURFACES, WITHOUT SEAM MARKS, ROLLER MARKS, ROLLED TRADE NAMES, STAINS, DISCOLORATIONS, OR BLEMISHES. 2. BRACKETS, FLANGES, AND ANCHORS: CAST OR FORMED METAL OF SAME TYPE OF MATERIAL AND FINISH AS
- SUPPORTED RAILS UNLESS OTHERWISE INDICATED. 3. PIPE: ASTM A 53/A 53M, TYPE F OR TYPE S, GRADE A, STANDARD WEIGHT (SCHEDULE 40), UNLESS ANOTHER GRADE AND WEIGHT ARE REQUIRED BY STRUCTURAL LOADS.

N. ASTM E 329 - SPECIFICATION FOR MINIMUM REQUIREMENTS FOR AGENCIES ENGAGED IN THE TESTING AND/OR

1. MANUFACTURER QUALIFICATIONS: FIRM SPECIALIZING IN MANUFACTURE OF MASONRY INSTALLATION MATERIALS,

3. C.PRE-INSTALLATION MEETING: AT LEAST ONE WEEKS PRIOR TO COMMENCING MASONRY WORK CONDUCT A MEETING

GENERAL: FABRICATE RAILINGS TO COMPLY WITH REQUIREMENTS INDICATED FOR DESIGN. DIMENSIONS, MEMBER SIZES AND SPACING, DETAILS, FINISH, AND ANCHORAGE, BUT NOT LESS THAN THAT REQUIRED TO SUPPORT STRUCTURAL LOADS. 2. CUT, DRILL, AND PUNCH ALUMINUM CLEANLY AND ACCURATELY. REMOVE BURRS AND EASE EDGES TO A RADIUS OF APPROXIMATELY 1/32 INCH (1 MM) UNLESS OTHERWISE INDICATED. REMOVE SHARP OR ROUGH AREAS ON EXPOSED SURFACES.

3. FABRICATE CONNECTIONS THAT ARE EXPOSED TO WEATHER IN A MANNER THAT EXCLUDES WATER. PROVIDE WEEP HOLES WHERE WATER MAY ACCUMULATE. 4. WELDED CONNECTIONS: USE FULLY WELDED JOINTS FOR PERMANENTLY CONNECTING RAILING COMPONENTS. COMPLY WITH REQUIREMENTS FOR WELDED CONNECTIONS IN "FABRICATION" ARTICLE WHETHER WELDING IS PERFORMED IN THE SHOP OR IN THE FIELD.

1.FOR NONGALVANIZED-STEEL RAILINGS, PROVIDE NONGALVANIZED FERROUS-METAL FITTINGS, BRACKETS, FASTENERS, AND SLEEVES; HOWEVER, GALVANIZE ANCHORS TO BE EMBEDDED IN EXTERIOR CONCRETE OR

- MASONRY 2. PREPARATION FOR SHOP PRIMING: PREPARE UNCOATED FERROUS-METAL SURFACES TO COMPLY WITH
- SSPC-SP 3, "POWER TOOL CLEANING." 3. PRIMER APPLICATION: APPLY SHOP PRIMER TO PREPARED SURFACES OF RAILINGS UNLESS OTHERWISE INDICATED. COMPLY WITH REQUIREMENTS IN SSPC-PA 1, "SHOP, FIELD, AND MAINTENANCE PAINTING OF STEEL," FOR SHOP PAINTING. PRIMER NEED NOT BE APPLIED TO SURFACES TO BE EMBEDDED IN CONCRETE OR MASONRY.
- SUPPLY COMPONENTS REQUIRED FOR ANCHORAGE FABRICATED FROM SAME MATERIAL AND FINISH AS
- FABRICATION UNLESS NOTED OTHERWISE. SHIM AND LEVEL FABRICATIONS AS NECESSARY. COAT CONCEALED SURFACES OF FABRICATIONS IN CONTACT WITH CONCRETE, GROUT, MASONRY, WOOD, OR DISSIMILAR METALS WITH BITUMINOUS PAINT 2. FIT EXPOSED CONNECTIONS TOGETHER TO FORM TIGHT, HAIRLINE JOINTS. 3. PERFORM CUTTING, DRILLING, AND FITTING REQUIRED FOR INSTALLING RAILINGS. SET RAILINGS ACCURATELY IN
- LOCATION, ALIGNMENT, AND ELEVATION; MEASURED FROM ESTABLISHED LINES AND LEVELS AND FREE OF RACK. 1 DO NOT WELD, CUT, OR ABRADE SURFACES OF RAILING COMPONENTS THAT ARE COATED OR FINISHED AFTER. FABRICATION AND THAT ARE INTENDED FOR FIELD CONNECTION BY MECHANICAL OR OTHER MEANS WITHOUT FURTHER CUTTING OR FITTING.
- 2. SET POSTS PLUMB WITHIN A TOLERANCE OF 1/16 INCH IN 3 FEET. 4. CONTROL OF CORROSION: PREVENT GALVANIC ACTION AND OTHER FORMS OF CORROSION BY INSULATING METALS AND OTHER MATERIALS FROM DIRECT CONTACT WITH INCOMPATIBLE MATERIALS. 5. ADJUST RAILINGS BEFORE ANCHORING TO ENSURE MATCHING ALIGNMENT AT ABUTTING JOINTS. 6. FASTENING TO IN-PLACE CONSTRUCTION: USE ANCHORAGE DEVICES AND FASTENERS WHERE NECESSARY FOR
- SECURING RAILINGS AND FOR PROPERLY TRANSFERRING LOADS TO IN-PLACE CONSTRUCTION. 7.PROTECT FINISHES OF RAILINGS FROM DAMAGE DURING CONSTRUCTION PERIOD WITH TEMPORARY PROTECTIVE COVERINGS APPROVED BY RAILING MANUFACTURER. REMOVE PROTECTIVE COVERINGS AT TIME OF SUBSTANTIAL COMPLETION.

05 6000- STRUCTURAL METAL STUDS AND TRACK

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

- A. <u>SUBMITTALS</u>: PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING: 1. SHOWING PLANS, SECTIONS, ELEVATIONS, LAYOUTS, PROFILES AND PRODUCT COMPONENT LOCATIONS, INCLUDING ANCHORAGE, BRACING, FASTENERS, ACCESSORIES AND FINISHES.
- 2. INDICATE COMPONENT DETAILS, FRAMED OPENINGS, BEARING, ANCHORAGE, LOADING, WELDS, TYPE AND LOCATION OF FASTENERS, AND ACCESSORIES. 3. INDICATE METHOD FOR SECURING STUDS AND OTHER COMPONENTS TO TRACKS AND FOR FRAMING
- CONNECTIONS. 4. SUBMIT CALCULATIONS FOR LOADINGS AND STRESSES UNDER PROFESSIONAL ENGINEER'S SEAL REGISTERED IN THE STATE OF THE PROJECT.
- 3. QUALITY STANDAR 1. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM FIVE YEARS DOCUMENTED EXPERIENCE. 2. INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THIS SECTION WITH MINIMUM 3 YEARS DOCUMENTED EXPERIENCE. 3. DESIGN STRUCTURAL ELEMENTS UNDER DIRECT SUPERVISION OF PROFESSIONAL ENGINEER EXPERIENCED IN
- DESIGN OF THIS WORK AND REGISTERED IN THE STATE OF THE PROJECT. 1. FOLLOW MANUFACTURER INSTALLATION GUIDLINES. INSTALLATION SHALL BE COMPLIANT WITH APPLICABLE BUILDING CODES.

DIVISION 6 - WOOD AND PLASTICS

06 1000- ROUGH CARPENTRY

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

. INSTALLATION: 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 FINISH AT CUTS
- 4. INSTALL TRIM WITH MINIMUM NUMBER OF JOINTS POSSIBLE USING FULL-LENGTH PIECES TO GREATEST EXTENT POSSIBLE. STAGGER JOINTS IN ADJACENT AND RELATED MEMBERS. 5. LUMBER FOR TRANSPARENT FINISH (STAINED OR CLEAR): USE PIECES MADE OF SOLID LUMBER
- 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 ARCHITECTURAL WOOD CASEWORK A. SUBMITTALS: 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.
- 2. 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. 3. <u>QUALITY STANDARD</u>: 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.
- D. <u>CABINETS</u>: 1. QUALITY STANDARD: CUSTOM GRADE, IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS), UNLESS NOTED OTHERWISE. 2. WOOD VENEER FACED CABINET: CONCEALED SURFACES: MANUFACTURER'S OPTION. 3. PLASTIC LAMINATE FACED CABINETS: CUSTOM GRADE.
- E. MATERIALS / ACCESSORIES / HARDWARE
- 1. 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: GAI VANIZED 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 POUSHED FINISH
- 12. FINISH WORK IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS).

INSTALLATION: INSTALL NO INTERIOR FINISH CARPENTRY OR MILLWORK L CAPABLE OF BEING HEATED. MAINTAIN TEMPERATURE BE BEFORE BEGINNING INSTALLATION AND FOR DURATION OF 2. VERIFY ADEQUACY OF BACKING AND SUPPORT FRAMING 3. VERIFY LOCATION AND SIZES OF UTILITY ROUGH-IN ASSOC 4. SET AND SECURE CUSTOM CABINETS IN PLACE, ASSURING

- 5.USE FIXTURE ATTACHMENTS IN CONCEALED LOCATIONS F 6.USE CONCEALED JOINT FASTENERS TO ALIGN AND SECURE 7.CAREFULLY SCRIBE CASEWORK ABUTTING OTHER COMPON USE ADDITIONAL OVERLAY TRIM FOR THIS PURPOSE.
- 8. SECURE CABINETS TO FLOOR USING APPROPRIATE ANGLE 9. CLEAN CASEWORK, COUNTERS, SHELVES, HARDWARE, FIT

DIVISION 7 - THERMAL AND MOISTURE PROTECTION SPECIFICATIONS - PRODUCT & INSTALLATION GEN

07 8400 - FIRESTOPPING A. <u>SUBMITTALS</u>: PRODUCT DATA: PROVIDE DATA ON PRODUCT LIMITATIONS.

- 3. MANUFACTURER 1. 3M FIRE PROTECTION PRODUCTS: WWW.3M.COM/FIRESTOP 2. HILTI, INC : WWW.US.HILTI.COM
- 1. FIRESTOPPING MATERIALS: ANY MATERIALS MEETING REQ 2. PRIMERS, SLEEVES, FORMS, INSULATION, PACKING, STUFFI MATERIALS AS REQUIRED FOR TESTED FIRESTOPPING ASSE 3. FIRE RATINGS: REFER TO DRAWINGS FOR REQUIRED SYST
- ASSEMBLY REQUIREMENTS . HEAD-OF-WALL JOINT SYSTEM FIRESTOPPING AT JOINTS BE RATED HORIZONTAL ASSEMBLIES: USE SYSTEM THAT HAS E FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RAT 2. FLOOR-TO-FLOOR, WALL-TO-WALL, AND WALL-TO-FLOOR JC
- RATED: USE SYSTEM THAT HAS BEEN TESTED ACCORDING RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF THE ASSEM 3. THROUGH PENETRATION FIRESTOPPING: USE SYSTEM THAT HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIR

I. INSTALLATIONS SHALL CONFORM TO UL REQUIREMENTS O

PART OF THE BUILT ASSEMBLY.

07 9200 - JOINT SEALANTS A. SUBMITTALS: PRODUCT DATA, AND SCHEDULE OF LOCATIONS

4. JOINT-SEALANT COLOR. 2. ENVIRONMENTAL LIMITATIONS: DO NOT PROCEED WITH INST. SUBSTRATE TEMPERATURE CONDITIONS ARE OUTSIDE LIMITS

ARE BELOW 40 deg F (4.4 deg C). COMPATIBILITY: PROVIDE JOINT SEALANTS, JOINT FILLERS, A COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRAT

E. <u>JOINT SEALANTS</u>: 1. COLORS OF EXPOSED JOINT SEALANTS: AS SELECTED BY

- 2. INTERIOR JOINTS IN CERAMIC TILE AND OTHER HARD SURF. PLUMBING FIXTURES: SINGLE COMPONENT, MILDEW-RESIST NS, CLASS 25; USES NT, G, A, AND O; FORMULATED WITH FU
- 3. INTERIOR JOINTS AROUND PERIMETERS OF DOORS AND FR NONSAG, MILDEW-RESISTANT, PAINTABLE, ACRYLIC EMULS 4. ACOUSTICAL SEALANT FOR EXPOSED INTERIOR JOINTS: NO

08 0671 - DOOR HARDWARE

a. Mechanical door hardware for the following:

a. Swinging doors.

PART 1 - GENERAL

1.2 SUMMARY

A. Section includes:

1 RELATED DOCUMENTS

Sections, apply to this Section.

DIVISION 8 - OPENINGS

	2
F. INSTALLATION:	B. Related Sections: a. Section 081113 "Hollow Metal Doors and Frames"
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.	 b. Section 081416 "Flush Wood Doors" 1.3 REFERENCES A. The following reference standards and model code documents shall be used in estimating and detailing door hardware, and shall
 VERIFY LOCATION AND SIZES OF UTILITY ROUGH-IN ASSOCIATED WITH WORK OF THIS SECTION. SET AND SECURE CUSTOM CABINETS IN PLACE, ASSURING THAT THEY ARE RIGID, PLUMB, AND LEVEL. USE FIXTURE ATTACHMENTS IN CONCEALED LOCATIONS FOR WALL MOUNTED COMPONENTS. 	considered as a standard of quality, function, and performance, as applicable: a.I.B.C International Building Code (current year adopted). b.NFPA-80 - Fire Doors & Windows (current year adopted).
 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. 	c. NFPA-101 - Life Safety Code (current year adopted). d. NFPA-105 - Smoke Control Door Assembly. (current year adopted) e. ANSI-117.1 - 1992 Edition Providing Accessibility and Usability for Physically Handicapped People. f. A.D.A.A. G - Americans with Disabilities Act Accessibility Guidelines.
9. CLEAN CASEWORK, COUNTERS, SHELVES, HARDWARE, FITTINGS, AND FIXTURES.	 1.4 ACTION SUBMITTALS A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of
ISION 7 - THERMAL AND MOISTURE PROTECTION ECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS	 individual components and profiles, and finishes. B. Other Action Submittals: a. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication, and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and
7 8400 - FIRESTOPPING A. SUBMITTALS: PRODUCT DATA: PROVIDE DATA ON PRODUCT CHARACTERISTICS, PERFORMANCE RATINGS, AND	related work to ensure proper size, thickness, hand, function, and finish of door hardware. a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to
LIMITATIONS. B. MANUFACTURERS:	facilitate the fabrication of other work that is critical in Project construction schedule. b. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule." Double space entries, and number and date each page. c. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
1. 3M FIRE PROTECTION PRODUCTS: WWW.3M.COM/FIRESTOP.COM 2. HILTI, INC : WWW.US.HILTI.COM C. <u>MATERIALS:</u>	 d. Content: Include the following information: 1)Identification number, location, hand, fire rating, size, and material of each door and frame. 2)Locations of each door hardware set cross-referenced to Drawings on floor plans and to door and frame schedule.
 FIRESTOPPING MATERIALS: ANY MATERIALS MEETING REQUIREMENTS. PRIMERS, SLEEVES, FORMS, INSULATION, PACKING, STUFFING, AND ACCESSORIES: PROVIDE TYPE OF MATERIALS AS REQUIRED FOR TESTED FIRESTOPPING ASSEMBLY. 	 3)Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product. 4)Fastenings and other pertinent information. 5)Explanation of abbreviations, symbols, and codes contained in schedule.
3. FIRE RATINGS: REFER TO DRAWINGS FOR REQUIRED SYSTEMS AND RATINGS. D. <u>ASSEMBLY REQUIREMENTS:</u> 1. HEAD-OF-WALL JOINT SYSTEM FIRESTOPPING AT JOINTS BETWEEN FIRE-RATED WALL ASSEMBLIES AND NON-	 6)Mounting locations for door hardware. 7)List of related door devices specified in other Sections for each door and frame. b. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract
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	Documents. 1.5 INFORMATIONAL SUBMITTALS
RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF THE ASSEMBLY IN WHICH THE JOINT OCCURS. 3.THROUGH PENETRATION FIRESTOPPING: USE SYSTEM THAT HAS BEEN TESTED ACCORDING TO ASTM E814 TO	 A. Qualification Data: For Architectural Hardware Consultant. B. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes. C. Warranty: Special warranty specified in this Section.
HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF PENETRATED ASSEMBLY. E. <u>INSTALLATION:</u> 1. INSTALLATIONS SHALL CONFORM TO UL REQUIREMENTS OF THE ASSEMBLY WHICH FIRESTOPPING IS TO BECOME	 1.6 CLOSEOUT SUBMITTALS A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying
PART OF THE BUILT ASSEMBLY.	schedule. 1.7 QUALITY ASSURANCE A. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware
A. <u>SUBMITTALS</u> : PRODUCT DATA, AND SCHEDULE OF LOCATIONS FOR EACH TYPE OF SEALANT SUBMITTED. B. JOINT-SEALANT SCHEDULE: INCLUDE THE FOLLOWING INFORMATION:	installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as follows: a. For door hardware, an Architectural Hardware Consultant (AHC).
1. JOINT-SEALANT APPLICATION, JOINT LOCATION, AND DESIGNATION. 2. JOINT-SEALANT MANUFACTURER AND PRODUCT NAME. 3. JOINT-SEALANT FORMULATION. 4. JOINT-SEALANT COLOR.	 B. Source Limitations: Obtain each type of door hardware from a single manufacturer. C. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.
C. <u>ENVIRONMENTAL LIMITATIONS</u> : DO NOT PROCEED WITH INSTALLATION OF JOINT SEALANTS WHEN AMBIENT AND SUBSTRATE TEMPERATURE CONDITIONS ARE OUTSIDE LIMITS PERMITTED BY JOINT SEALANT MANUFACTURER OR	 D. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105. a. Air Leakage Rate: Maximum air leakage of0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at the tested pressure differential of 0.3-
ARE BELOW 40 deg F (4.4 deg C). D. <u>COMPATIBILITY</u> : PROVIDE JOINT SEALANTS, JOINT FILLERS, AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER SERVICE AND APPLICATION CONDITIONS.	 inch wg (75 Pa) of water. E. Accessibility Requirements: For door hardware on doors in an accessible route, comply with [the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines. a. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of
E. <u>JOINT SEALANTS</u> : 1. COLORS OF EXPOSED JOINT SEALANTS: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.	not more than 5 lbf (22.2 N). b. Comply with the following maximum opening-force requirements: a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
 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. 	 b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction. c. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high. d. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.
 INTERIOR JOINTS AROUND PERIMETERS OF DOORS AND FRAMES: LATEX SEALANT, SINGLE COMPONENT, NONSAG, MILDEW-RESISTANT, PAINTABLE, ACRYLIC EMULSION SEALANT COMPLYING WITH ASTM C 834. ACOUSTICAL SEALANT FOR EXPOSED INTERIOR JOINTS: NONSAG, PAINTABLE, NONSTAINING, LATEX SEALANT COMPLYING WITH ASTM C 834. 	F.Keying Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." In addition to Owner, Contractor, and Architect, conference participants shall also include Installer's Architectural Hardware Consultant. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including but not limited to the following:
 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. 	including, but not limited to, the following: a.Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion. b. Preliminary key system schematic diagram. c. Requirements for key control system.
 EXTERIOR CONCRETE PANELS, NATURAL STONES, MASONRY, ALUMINUM CURTAINWALLS, METAL PANELS AND WINDOW PERIMETERS. BASIS OF DESIGN PRODUCTS: A. TREMCO INCORPORATED; SPECTREM 1. 	 d. Requirements for access control. e. Address for delivery of keys. G. Preinstallation Conference: Conduct conference at Project site. a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities
B. DOW CORNING CORPORATION; 790. C. PECORA CORPORATION; 890NST. 7. EXTERIOR JOINTS IN HORIZONTAL TRAFFIC SURFACES.	needed to make progress and avoid delays. b. Inspect and discuss preparatory work performed by other trades. c. Review sequence of operation for each type of electrified door hardware.
ISOLATION AND CONTRACTION JOINTS IN CAST-IN-PLACE CONCRETE SLABS. URETHANE JOINT SEALANT: MULTICOMPONENT, NONSAG, TRAFFIC GRADE, CLASS 25.	 d. Review required testing, inspecting, and certifying procedures. 1.8 DELIVERY, STORAGE, AND HANDLING A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
 E. JOINT SEALANT BACKING: 1. GENERAL: PROVIDE SEALANT BACKINGS OF MATERIAL THAT ARE NONSTAINING; ARE COMPATIBLE WITH JOINT SUBSTRATES, SEALANTS, PRIMERS, AND OTHER JOINT FILLERS; AND ARE APPROVED FOR APPLICATIONS INDICATED BY SEALANT MANUFACTURED BASED ON FILL DEVELOPMENT AND LADORATORY TESTING 	 B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. C. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.
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.	 D. Deliver keys and permanent cores to Owner by registered mail or overnight package service. 1.9 COORDINATION A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other
3. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MANUFACTURER FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT. PROVIDE SELF-ADHESIVE TAPE WHERE APPLICABLE.	work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements. 1.10 WARRANTY A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware
F. <u>MISCELLANEOUS MATERIALS</u> 1. PRIMER: MATERIAL RECOMMENDED BY JOINT-SEALANT MANUFACTURER WHERE REQUIRED FOR ADHESION OF SEALANT TO JOINT SUBSTRATES INDICATED, AS DETERMINED FROM PRECONSTRUCTION JOINT-SEALANT-	that fail in materials or workmanship within specified warranty period. a. Failures include, but are not limited to, the following: a. Structural failures including excessive deflection, cracking, or breakage.
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	 b. Faulty operation of doors and door hardware. c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use. b. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated. a. Manual Closers: 30 years from date of Substantial Completion.
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	b. Locks: Mechanical-10 years from date of Substantial Completion. Electronic-1 year from date of Substantial Completion.
BACK OF JOINT. 4. MASKING TAPE: NONSTAINING, NONABSORBENT MATERIAL COMPATIBLE WITH JOINT SEALANTS AND SURFACES ADJACENT TO JOINTS.	 1.11 MAINTENANCE SERVICE A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware. B. Maintenance Service: Beginning at Substantial Completion, provide six months' full maintenance by skilled employees of door
 G. INSTALLATION: COMPLY WITH ASTM C 1193; ASTM C 919 FOR ACOUSTICAL JOINTS; AND AS FOLLOWS: 1. REMOVE ALL LOOSE MATERIAL, CLEAN AND PRIME JOINTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, AND PROTECT ADJACENT SURFACES. 2. INSTALL BOND-BREAKER TAPE WHERE JOINT BACKINGS ARE NOT USED. 	hardware Installer. Include quarterly preventive maintenance, repair, or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.
 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. 	PART 2 - PRODUCTS 2.1 SCHEDULED DOOR HARDWARE
ISION 8 - OPENINGS 3 0671 - DOOR HARDWARE	 A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section. a. Door Hardware Sets: Provide quantity, item, size, finish, or color indicated, and products equivalent in function and comparable in quality to named products.
A. <u>SUBMITTALS</u> : 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.	 B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows: a. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the
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	purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article. b. References to BHMA Designations: Provide products complying with these designations and requirements for description, quality, and function.
COORDINATE REVIEW OF HARDWARE SCHEDULE. 2. KEYING SCHEDULE. SUBMIT SEPARATE DETAILED SCHEDULE INDICATING CLEARLY HOW THE OWNER'S FINAL INSTRUCTIONS ON KEYING OF LOCKS HAS BEEN FULFILLED. ALL KEYING SHALL BE COORDINATED WITH THE OWNER.	2.2 HINGESA. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
B. <u>PRODUCTS:</u> REFER TO HARDWARE SCHEDULE AND ARCHITECTURAL DRAWINGS. 1. STRIKES. PROVIDE MANUFACTURER'S STANDARD WROUGHT BOX STRIKE FOR EACH LATCH OR LOCK BOLT, WITH	 a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following: a. IVES Hardware; an Allegion company. b. Baldwin Hardware Corporation.
CURVED LIP EXTENDED TO PROTECT FRAME. FINISH TO MATCH HARDWARE SET. PROVIDE STANDARD (OPEN) STRIKE PLATES FOR INTERIOR DOORS WHERE WOOD DOOR FRAMES ARE USED. 2. IN GENERAL, HARDWARE FINISH SHALL BE US15 (SATIN NICKEL) UNLESS SPECIFIED DIFFERENTLY ON HARDWARE SCHEDULE.	c. Bommer Industries, Inc. 2.3 CYLINDRICAL LOCKS – GRADE 1 SCHLAGE ND A. Manufacturers and Products:
 SUPPLY CAL ROYAL HDFS3 FLEXIBLE DOOR STOPS IN THE APARTMENT DWELLING UNITS. USE 2 IVHP-23 HINGE STOPS WHERE FLEXIBLE STOPS CANNOT BE USED. SUPPLY OUT SWINGING EXTERIOR DOORS WITH NON REMOVABLE PINS. 	a. Scheduled Manufacturer and Product: a. Schlage ND series b. Acceptable Manufacturers and Products:
C. <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	 a. Sargent 11-Line b. Corbin-Russwin CL3100 series B. Requirements: a. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
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. 2. INSTALL EACH HARDWARE ITEM IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND	 b. Cylinders: Refer to "KEYING" article, herein. c. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
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	 d. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws. e. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag. f. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim. g. Provide electrified options as scheduled in the hardware sets.
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	h.Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides. a.Lever Design: 17/Sparta.
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.	2.4 EXIT DEVICES VON DUPRIN 99/33 A. Manufacturers and Products: a. Scheduled Manufacturer and Product: a. Von Duprin 99/33 series
5.METAL THRESHOLDS SHALL BE SET IN A SOLID BED OF NON STAINING THIOKOL BASE CAULKING. 6. ADJUST AND CHECK EACH OPERATING ITEM OF HARDWARE AND EACH DOOR, TO ENSURE PROPER OPERATION OR FUNCTION OF EVERY UNIT. REPLACE UNITS WHICH CANNOT BE ADJUSTED TO OPERATE FREELY AND SMOOTHLY AS INTENDED FOR THE APPLICATION MADE.	b. Acceptable Manufacturers and Products: a. Falcon 25/24 series; an Allegion Company b. Precision APEX 2000 Series
7.FINAL ADJUSTMENT: WHEREVER HARDWARE INSTALLATION IS MADE MORE THAN ONE MONTH PRIOR TO ACCEPTANCE OR OCCUPANCY OF A SPACE OR AREA, RETURN TO THE WORK DURING THE WEEK PRIOR TO ACCEPTANCE OR OCCUPANCY, AND MAKE FINAL CHECK AND ADJUSTMENT OF ALL HARDWARE ITEMS IN SUCH	 B. Requirements: a. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware. b. Cylinders: Refer to "KEYING" article, herein.
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.	 c. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware. d. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads. e. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified
RT 1 - GENERAL	requirements. f. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive

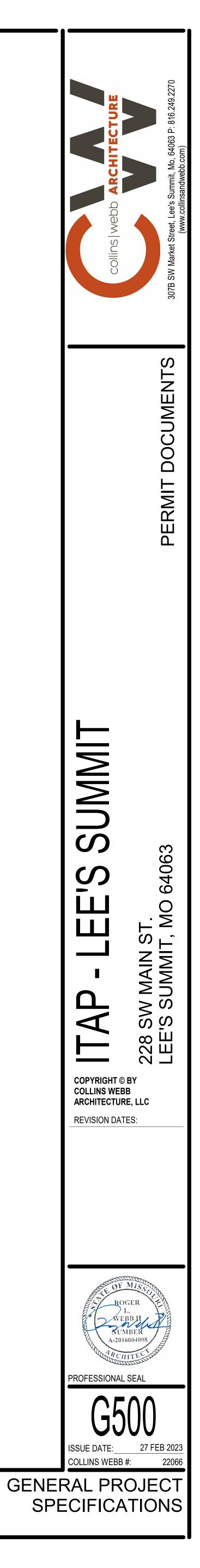
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification

g. Provide flush end caps for exit devices. h. Provide exit devices with manufacturer's approved strikes. . Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer,

allowable by governing building codes, and approved by Architect j. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.

k. Provide cylinder or hex-key dogging as specified at non fire-rated openings.

cleaners used in outdoor pool environments.



I. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed. m. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.

n. Provide electrified options as scheduled. o. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.5 KEYING A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A.

2.6 OPERATING TRIM

- A. Operating Trim: BHMA A156.6; brass, unless otherwise indicated.
- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following: a. IVES Hardware; an Allegion company. b. Rockwood Manufacturing Company.

2.7 SURFACE CLOSERS

c. Trimco.

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves, cast aluminum body, and forged-steel main arm.
- B. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
- C. Closer cylinders, arms, adapter plates, and metal covers shall have a powder coating finish which has been certified to exceed 100
- hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117. D. Closers with pressure relief values will not be acceptable.
- Supplier to provide any brackets or plates required for proper Installation of door closers. a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. LCN Closers; 4040XP Series; an Allegion company. b. Corbin Russwin Closers; DC8000 Series. c. Sargent Closers; 281 Series.

2.8 METAL PROTECTIVE TRIM UNITS

c. Trimco.

- A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch- (1.3-mm-) thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners. a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. IVES Hardware; an Allegion company. b. Rockwood Manufacturing Company.

2.9 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect. a. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- . Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated
- a. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.

b. Fire-Rated Applications:

- a.Wood or Machine Screws: For the following: 1)Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors and frames.
- 2)Strike plates to frames. 3)Closers to doors and frames.
- b. Steel Through Bolts: For the following unless door blocking is provided: 1)Surface hinges to doors.
- 2)Closers to doors and frames 3)Surface-mounted exit devices.

c. Spacers or Sex Bolts: For through bolting of hollow-metal doors.

d. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors." e. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.10 FINISHES A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule. B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6. B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors." 3.3 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations a. Standard Steel Doors and Frames: ANSI/SDI A250.8. b. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

3. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.

a. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.

b. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards. C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

D. Thresholds: Set thresholds for doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants." E. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor

stops where they will impede traffic. F.Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame. Apply soffit mounted seals prior to soffit mounted hardware.

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements. a. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having

B. Occupancy Adjustment: Approximately three after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

.5 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation. B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DEMONSTRATION

A. Contractor to instruct owner's personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.7 DOOR HARDWARE SCHEDULE

A. The hardware sets listed below represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware, and missing items should be brought to the attention of the architect with corrections made prior to the bidding process.

Hardware Group No. ' For use on Door #(s):

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1 EA	PANIC HARDWARE	99-NL-OP-110MD	626	VON
1 EA	CYLINDER	TO MATCH EXISTING SYSTEM	626	SCH
1 EA	90 DEG OFFSET PULL	8190EZHD 10" (MTG TYPE AS REQ'D	630AM-316	IVE
1 EA	OH STOP	100S	630	GLY
1 EA	SURFACE CLOSER	4040XP EDA	689	LCN
1 EA	KICKPLATE	8400 8" X 2" LDW B-CS	630	IVE
1 EA	RAINDRIP	142AA	AA	ZER
1 EA	GASKETING	429AA-S	AA	ZER
1 EA	DOOR SWEEP	39A	А	ZER
1 EA	THRESHOLD	65A-223	А	ZER

EXISTING DOOR AND FRAME TO BE REUSED. FIELD VERIFY HARDWARE IS COMPATIBLE WITH EXISTING OPENING PRIOR TO ORDERING.

Hardware Group No. 2 For use on Door #(s):

T104	()			
PROVID	E EACH SGL DOOR(S) WITH			
QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1 EA	CONT. HINGE	112XY	628	IVE
1 EA	PANIC HARDWARE	99-NL-OP-110MD	626	VON
1 EA	CYLINDER	TO MATCH EXISTING SYSTEM	626	SCH
1 EA	90 DEG OFFSET PULL	8190EZHD 10" (MTG TYPE AS REQ'D	630AM-316	IVE
1 EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1 EA	MOUNTING PLATE	4040XP-18 SRT	689	LCN
1 EA	CUSH SHOE SUPPORT	4040XP-30SRT	689	LCN
1 EA	BLADE STOP SPACER	4040XP-61 SRT	689	LCN
1 EA	RAIN DRIP	142AA	AA	ZER
1 EA	WEATHER STRIPPING	BY DOOR AND FRAME MANUFACTURER	A	ZER
1 EA	THRESHOLD	65A-223	A	ZER
dware Grou	up No. 3			
use on Doo	r #(s):			
T108A, T				
PROVID	E EACH SGL DOOR(S) WITH	THE FOLLOWING:		
QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	4040XP-61 SRT	652	IVE
1 EA	STOREROOM LOCK	ND80P6D SPA	626	VON
1 EA	OH STOP	90S	630	SCH
3 EA	SILENCER	SR64	GRY	IVE

	PROVIDE E	ACH SGL DOOR(S) WITH	THE FOLLOWING:
	QTY	DESCRIPTION	CATALOG NUMBER
	3 EA	HINGE	5BB1HW 4.5 X 4.5
	1 EA	CLASSROOM LOCK	ND70P6D SPA
	1 EA	SURFACE CLOSER	4040XP CUSH
	1 EA	KICKPLATE	8400 8" X 2" LDW B-CS
	1 EA	WALL STOP	WS406/407CVX
	3 EA	SILENCER	SR64
d١	ware Group	No. 5	
	se on Door #		
	T101		
	PROVIDE E	ACH SGL DOOR(S) WITH	THE FOLLOWING:
	QTY	DESCRIPTION	CATALOG NUMBER
	1 EA	CONT. HINGE	112XY
	1 EA	CLASSROOM LOCK	ND70P6D SPA
	1 EA	SURFACE CLOSER	4040XP RW/PA
	1 EA	MOUNTING PLATE	4040XP-18 SRT
	1 EA	BLADE STOP SPACE	4040XP-61 SRT
	1 EA	WALL STOP	WS406/407CVX
d,	ware Group		
	se on Door #		
u	T103	(5).	
		ACH SGL DOOR(S) WITH	
	QTY	DESCRIPTION	CATALOG NUMBER
	3 EA	HINGE	5BB1HW 4.5 X 4.5
	1 EA	PRIVACY LOCK	L9040 17A 09-544 L283-722
	1 EA	SURFACE CLOSER	4040XP SCUSH
	1 EA	KICKPLATE	8400 8" X 2" LDW B-CS
	1 EA	GASKETING	488SBK PSA
	ware Group		
us	se on Door #		
	T108B,1080		
		ACH SGL DOOR(S) WITH	
	QTY	DESCRIPTION	CATALOG NUMBER
	3 EA	HINGE	5BB1HW 4.5 X 4.5
	1 EA	PRIVACY LOCK	L9040 17A 09-544 L283-722

Hardware Group No. 4

For use on Door #(s):

08 1113 - HOLLOW METAL DOORS AND FRAMES A. SUBMITTALS: PRODUCT DATA AND SHOP DRAWINGS WITH DETAILS OF EACH OPENING, SHOWING ELEVATIONS,

SURFACE CLOSER

WALL STOP

GASKETING

1 EA

1 EA

GLAZING, FRAME PROFILES, AND ANY INDICATED FINISH REQUIREMENTS. B. HOLLOW METAL DOOR AND FRAME MANUFACTURERS:

4040XP EDA

WS406/407CVX

488SBK PSA

1. CECO DOOR, AN ASSA ABLOY GROUP COMPANY: WWW.ASSAABLOYDSS.COM. 2. DE LA FONTAINE INC: WWW.DELAFONTAINE.COM 3. REPUBLIC DOORS, AN ALLEGION BRAND: WWW.REPUBLICDOOR.COM 4. STEELCRAFT, AN ALLEGION BRAND: WWW.ALLEGION.COM C. SOUND-RATED HOLLOW METAL DOORS AND FRAMES:

OVERLY DOOR COMPANY: WWW.OVERLY.COM

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

E. <u>HOLLOW METAL DOOR:</u> 1. EXTERIOR DOORS: THERMALLY INSULATED. A. ASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100).

- B. LEVEL 1 STANDARD-DUTY. C. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4. D. MODEL 1 - FULL FLUSH. E. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM. F. DOOR CORE MATERIAL: MANUFACTURERS STANDARD CORE MATERIAL/CONSTRUCTION AND IN COMPLIANCE WITH REQUIREMENTS G. DOOR THICKNESS: 1-3/4 INCH. NOMINAL. H. TOP CLOSURES FOR OUTSWINGING DOORS: FLUSH WITH TOP OF FACES AND EDGES.
- I. WEATHERSTRIPPING: REFER TO SECTION 08 7100. J. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED. 2. INTERIOR DOORS, NON-FIRE RATED:
- A. BASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100). B. LEVEL 1 - STANDARD-DUTY. C. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4. D. MODEL 1 - FULL FLUSH.
- E. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM. F. DOOR THICKNESS: 1-3/4 INCH, NOMINAL. G. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.
- 3. FIRE-RATED DOORS: A. BASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100).
- B. LEVEL 1 STANDARD-DUTY. C. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4. D. MODEL 1 - FULL FLUSH.
- E. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM. F. FIRE RATING: AS INDICATED ON DOOR SCHEDULE, TESTED IN ACCORDANCE WITH UL 10C AND NFPA 252
- ("POSITIVE PRESSURE FIRE TESTS"). G. TEMPERATURE-RISE RATING (TRR) ACROSS DOOR THICKNESS: IN ACCORDANCE WITH LOCAL BUILDING CODE
- AND AUTHORITIES HAVING JURISDICTION. H. PROVIDE UNITS LISTED AND LABELED BY UL (DIR) OR ITS (DIR). ATTACH FIRE RATING LABEL TO EACH FIRE
- RATED UNIT. I. SMOKE AND DRAFT CONTROL DOORS (INDICATED WITH LETTER "S" ON DRAWINGS AND/OR DOOR SCHEDULE): SELF-CLOSING OR AUTOMATIC CLOSING DOORS IN ACCORDANCE WITH NFPA 80 AND NFPA 105, WITH FIRE-RESISTANCE-RATED WALL CONSTRUCTION RATED THE SAME OR GREATER THAN THE FIRE-RATED DOORS, AND THE FOLLOWING:

1.MAXIMUM AIR LEAKAGE: 3.0 CFM/SQ FT OF DOOR OPENING AT 0.10 INCH W.G. PRESSURE, WHEN TESTED IN ACCORDANCE WITH UL 1784 AT BOTH AMBIENT AND ELEVATED TEMPERATURES. 2. GASKETING: PROVIDE GASKETING OR EDGE SEALING AS NECESSARY TO ACHIEVE LEAKAGE LIMIT. 3. LABEL: INCLUDE THE "S" LABEL ON FIRE-RATING LABEL OF DOOR.

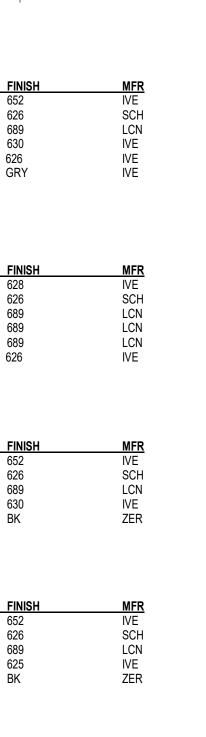
J. DOOR CORE MATERIAL: MANUFACTURERS STANDARD CORE MATERIAL/CONSTRUCTION IN COMPLIANCE WITH REQUIREMENTS

K. DOOR THICKNESS: 1-3/4 INCH, NOMINAL. L. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.

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

WITH TOP.

- 1.PRIMER: RUST-INHIBITING, COMPLYING WITH ANSI/SDI A250.10, DOOR MANUFACTURER'S STANDARD. H. ACCESSORIES: 1. GLAZING: AS INDICATED IN DRAWINGS OR AS SPECIFIED.
- 2. REMOVABLE STOPS: FORMED SHEET STEEL, SHAPE AS INDICATED ON DRAWINGS, MITERED OR BUTTED CORNERS; PREPARED FOR COUNTERSINK STYLE TAMPER PROOF SCREWS. 3. SILENCERS: RESILIENT RUBBER, FITTED INTO DRILLED HOLE; PROVIDE THREE ON STRIKE SIDE OF SINGLE DOOR, THREE ON CENTER MULLION OF PAIRS, AND TWO ON HEAD OF PAIRS WITHOUT CENTER MULLIONS.
- 4. TEMPORARY FRAME SPREADERS: PROVIDE FOR FACTORY- OR SHOP-ASSEMBLED FRAMES. 1.INSTALL DOORS AND FRAMES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RELATED
- REQUIREMENTS OF SPECIFIED DOOR AND FRAME STANDARDS OR CUSTOM GUIDELINES INDICATED. 2. INSTALL PREFINISHED FRAMES AFTER PAINTING AND WALL FINISHES ARE COMPLETE. 3. INSTALL FIRE RATED UNITS IN ACCORDANCE WITH NFPA 80. 4. COORDINATE FRAME ANCHOR PLACEMENT WITH WALL CONSTRUCTION.
- 08 1416 FLUSH WOOD DOORS A. <u>SUBMITTALS</u>: 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: LINCOLN PARK, MASONITE, LE CHATEAU COLLECTION. HOLLOW CORE DOORS OR APPROVED
- C. DOORS: 1-3/8" THICK PREHING. SIZES, SPECIES, AND DESIGNS AS INDICATED COMPLYING WITH WDMA I.S.1-A GRADE PREMIUM
- 2. VENEER MATCHING: BOOK AND RUNNING 3. PAIR MATCHING AND SET MATCHING 4. CONSTRUCTION:
- A.INTERIOR VENEER: FIVE OR SEVEN PLY, STRUCTURAL COMPOSITE LUMBER CORES. 5. SIZES AS INDICATED IN DRAWINGS



6. BORROWED LITES GLAZING FRAMES: CONSTRUCTION AND FACE DIMENSIONS TO MATCH DOOR FRAMES, AND AS 7. FRAMES IN MASONRY WALLS: SIZE TO SUIT MASONRY COURSING WITH HEAD MEMBER 4 INCH HIGH TO FILL

D. FABRICATION AND FINISHING: . 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. 3. 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.
- 1. COMPLY WITH WDMA'S "HOW TO STORE. HANDLE. FINISH, INSTALL, AND MAINTAIN WOOD DOORS" ALIGNED AND FITTED IN FRAMES WITH UNIFORM CLEARANCES. 2. SET IN TWO PIECE W.P. SPLIT JAMB FRAMES WITH 1X4 WOOD CASING.

08 3100 - ACCESS DOORS AND PANELS A. <u>SUBMITTALS</u>: PRODUCT DATA.

- 3. PRODUCTS: PRIME-PAINTED FLUSH, UNINSULATED ACCESS DOORS FOR WALLS AND CEILINGS WITH RIMLESS FRAME AND SCREWDRIVER OPERATED LOCK FLUSH WITH FINISHED SURFACE, FIRE-RATED, SELF-LATCHING, AUTOMATIC CLOSING AT FIRE-RATED WALLS OR CEILINGS.
- C. INSTALLATION: INSTALL FLUSH TO FINISHED DRYWALL SURFACE WITH FRAME TAPED AND SANDED LUSH WITH WALL OR CEILING SURFACE AND FINISH TO MATCH ADJACENT SURFACE.
- 08 4313 ALUMINUM FRAMED STOREFRONTS A. SUBMITTALS: PRODUCT DATA: PROVIDE COMPONENT DIMENSIONS, DESCRIBE COMPONENTS WITHIN ASSEMBLY ANCHORAGE AND FASTENERS, GLASS AND INFILL, DOOR HARDWARE, INTERNAL DRAINAGE DETAILS. 1. HARDWARE SCHEDULE: COMPLETE ITEMIZATION OF EACH ITEM OF HARDWARE TO BE PROVIDED FOR EACH DOOR. CROSS-REFERENCED TO DOOR IDENTIFICATION NUMBERS IN CONTRACT DOCUMENTS. 2. SHOP DRAWINGS: INDICATE SYSTEM DIMENSIONS, FRAMED OPENING REQUIREMENTS AND TOLERANCES,
- AFFECTED RELATED WORK, EXPANSION AND CONTRACTION JOINT LOCATION AND DETAILS, AND FIELD WELDING REQUIRED. B. WARRANTY: WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER. 1. CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION. 2 PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST FAILURE OF GLASS SEAL ON INSULATING GLASS
- UNITS, INCLUDING INTERPANE DUSTING OR MISTING. INCLUDE PROVISION FOR REPLACEMENT OF FAILED UNITS. 3. PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST EXCESSIVE DEGRADATION OF EXTERIOR FINISH. INCLUDE PROVISION FOR REPLACEMENT OF UNITS WITH EXCESSIVE FADING, CHALKING, OR FLAKING, C. BASIS OF DESIGN: KAWNEER ENCORE-MEDIUM STILE , ANODIZED. VERIFY FINISH WITH OWNER.
- 1. OTHER MANUFACTURERS: PROVIDE EITHER THE PRODUCT IDENTIFIED AS "BASIS OF DESIGN" OR AN EQUIVALENT PRODUCT
- 1. ALUMINUM-FRAMED STOREFRONT: FACTORY FABRICATED, FACTORY FINISHED ALUMINUM FRAMING MEMBERS WITH INFILL, AND RELATED FLASHINGS, ANCHORAGE AND ATTACHMENT DEVICES. 2. ALUMINUM FRAMING MEMBERS: TUBULAR ALUMINUM SECTIONS[<>], DRAINAGE HOLES AND INTERNAL WEEP DRAINAGE SYSTEM. 3. EXTRUDED ALUMINUM: ASTM B221 (ASTM B221M).
- 4. STRUCTURAL STEEL SECTIONS: ASTM A36/A36M: SHOP PRIMED. 5. FASTENERS: STAINLESS STEEL.
- 6. CONCEALED FLASHINGS: STAINLESS STEEL, 26 GAGE, 0.0187 INCH MINIMUM THICKNESS. 7. SEALANT FOR SETTING THRESHOLDS: NON-CURING BUTYL TYPE.
- 8. GLAZING GASKETS: TYPE TO SUIT APPLICATION TO ACHIEVE WEATHER, MOISTURE, AND AIR INFILTRATION REQUIREMENTS.
- 1. CLASS I COLOR ANODIZED FINISH: AAMA 611 AA-M12C22A44 ELECTROLYTICALLY DEPOSITED COLORED ANODIC COATING NOT LESS THAN 0.7 MILS THICK. COLOR AS SELECTED BY OWNER & ARCHITECT. . HARDWARE:
- 1. FOR EACH DOOR, INCLUDE WEATHERSTRIPPING, SILL SWEEP STRIP, AND THRESHOLD. 2. OTHER DOOR HARDWARE: STOREFRONT MANUFACTURER'S STANDARD TYPE TO SUIT APPLICATION. A. FINISH ON HAND-CONTACTED ITEMS: POLISHED CHROME. B. FOR EACH DOOR, INCLUDE BUTT HINGES, PIVOTS, PUSH HANDLE, PULL HANDLE, EXIT DEVICE, NARROW STILE HANDLE LATCH, AND CLOSER. COORDINATE ADA PUSH BUTTON LOCATION.
- G. <u>INSTALLATION:</u> 1. VERIFY DIMENSIONS, TOLERANCES, AND METHOD OF ATTACHMENT WITH OTHER WORK.
- 2. VERIFY THAT WALL OPENINGS AND ADJOINING AIR AND VAPOR SEAL MATERIALS ARE READY TO RECEIVE WORK OF THIS SECTION. 3. INSTALL WALL SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- 4. ATTACH TO STRUCTURE TO PERMIT SUFFICIENT ADJUSTMENT TO ACCOMMODATE CONSTRUCTION TOLERANCES AND OTHER IRREGULARITIES 5. ALIGN ASSEMBLY PLUMB AND LEVEL, FREE OF WARP OR TWIST. MAINTAIN ASSEMBLY DIMENSIONAL TOLERANCES, ALIGNING WITH ADJACENT WORK.
- 6. PROVIDE THERMAL ISOLATION WHERE COMPONENTS PENETRATE OR DISRUPT BUILDING INSULATION. 7. INSTALL SILL FLASHINGS. TURN UP ENDS AND EDGES; SEAL TO ADJACENT WORK TO FORM WATER TIGHT DAM. 8. WHERE FASTENERS PENETRATE SILL FLASHINGS, MAKE WATERTIGHT BY SEATING AND SEALING FASTENER
- HEADS TO SILL FLASHING. 9. PACK FIBROUS INSULATION IN SHIM SPACES AT PERIMETER OF ASSEMBLY TO MAINTAIN CONTINUITY OF THERMAL
- 10. SET THRESHOLDS IN BED OF SEALANT AND SECURE. 11. INSTALL HARDWARE USING TEMPLATES PROVIDED. ADJUST OPERATING HARDWARE AND SASH FOR SMOOTH OPERATION. 12. WASH DOWN SURFACES WITH A SOLUTION OF MILD DETERGENT IN WARM WATER, APPLIED WITH SOFT, CLEAN
- WIPING CLOTHS, AND TAKE CARE TO REMOVE DIRT FROM CORNERS AND TO WIPE SURFACES CLEAN. 13. PROTECT INSTALLED PRODUCTS FROM DAMAGE UNTIL DATE OF SUBSTANTIAL COMPLETION.

08 8000 - GLAZING A. SUBMITTALS: PRODUCT DATA ON INSULATING GLASS UNIT, GLAZING UNIT, AND [SPANDREL] GLAZING TYPES: PROVIDE STRUCTURAL, PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS, SIZE LIMITATIONS, SPECIAL HANDLING AND INSTALLATION REQUIREMENTS. 1. PRODUCT DATA ON GLAZING COMPOUNDS AND ACCESSORIES: PROVIDE CHEMICAL, FUNCTIONAL, AND ENVIRONMENTAL CHARACTERISTICS, LIMITATIONS, SPECIAL APPLICATION REQUIREMENTS, AND IDENTIFY AVAILABLE

- 2. SAMPLES: SUBMIT TWO SAMPLES [12] BY [12] INCH IN SIZE OF GLASS UNITS. B. WARRANTY: WARRANTY DOCUMENTATION: SUBMIT MANUFACTURER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER. 1. INSULATING GLASS UNITS: PROVIDE A FIVE (5) YEAR MANUFACTURER WARRANTY TO INCLUDE COVERAGE FOR SEAL FAILURE, INTERPANE DUSTING OR MISTING, INCLUDING PROVIDING PRODUCTS TO REPLACE FAILED UNITS
- . STOREFRONT GLAZING BASIS OF DESIGN: GUARDIAN -SUNGUARD _ SNX 62/27 _COATED GLASS, CLEAR. WITH .24 U-VALUE ARGON FILLED
- 1. SAFETY GLASS: CATEGORY II MATERIALS COMPLYING WITH TESTING REQUIREMENTS IN 16 CFR 1201 AND ANSI Z97.1.
- 2. GLAZING PUBLICATIONS: WHERE APPLICABLE, COMPLY WITH WITH THE PUBLISHED **RECOMMENDATIONS OF THE FOLLOWING:** A. GANA PUBLICATIONS: "GLAZING MANUAL" AND "LAMINATED GLASS DESIGN GUIDE".
- B. SIGMA PUBLICATIONS: SIGMA TM-3000, "VERTICAL GLAZING GUIDELINES".
- 1. FLOAT GLASS: ASTM C 1036, TYPE I, QUALITY q3 2. HEAT-TREATED FLOAT GLASS: ASTM C 1048, TYPE I, QUALITY q3, HEAT STRENGTHENED OR FULLY TEMPERED WHERE INDICATED AND WHERE REQUIRED BY CODE OR INSTALLATION CONDITIONS.
- 3. MIRROR GLASS: ASTM C 1036, TYPE I, CLASS 1, QUALITY q1, SILVER COATED PER FS DDM411C, 6.0mm THICK, WITH EDGES FLAT POLISHED. FABRICATED GLASS PRODUCTS
- 1. SEALED INSULATING-GLASS UNITS: PREASSEMBLED UNITS COMPLYING WITH ASTM E 774 FOR CLASS CBA UNITS WITH TWO SHEETS OF GLASS SEPARATED BY A 1/2-INCH DEHYDRATED SPACE FILLED WITH AIR. EXTERIOR GLASS COLOR TO MATCH EXISTING. INTERIOR GLASS SHALL BE CLEAR.
- 1. COMPLY WITH COMBINED RECOMMENDATIONS OF MANUFACTURERS OF GLASS, SEALANTS, GASKETS, AND OTHER GLAZING MATERIALS, UNLESS MORE STRINGENT REQUIREMENTS ARE
- CONTAINED IN GANA'S "GLAZING MANUAL". 2. SET GLASS LITES IN EACH SERIES WITH UNIFORM PATTERN, DRAW, BOW, AND SIMILAR CHARACTERISTICS. 3. AFTER GLASS INSTALLATION IS COMPLETE, REMOVE GLAZING MATERIALS AND LABELS FROM
- FINISHED SURFACES, AND THOROUGHLY CLEAN GLASS AND ADJACENT FRAMING AND SURFACES. REPEAT AS NECESSARY PRIOR TO FINAL WALK-THROUGH. SPECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS
- 08 8100 MIRRORS A. <u>SUBMITTALS:</u> FOR EACH TYPE OF PRODUCT INDICATED. THE CONTRACTOR SHALL PREPARE, AND SUBMIT TO THE ARCHITECT FOR APPROVAL, COMPLETE SHOP DRAWINGS: INCLUDE MIRROR ELEVATIONS, EDGE DETAILS, MIRROR
- HARDWARE, AND ATTACHMENTS TO OTHER WORK. WARRANTY: SAMPLE OF SPECIAL WARRANTY. B. QUALITY ASSURANCE: VINYL CASEMENT WINDOWS- BASIS OF DESIGN: MI 3500 VINYL SINGLE- HUNG WINDOWS. 1. GLAZING PUBLICATIONS: COMPLY WITH GANA'S "GLAZING MANUAL" AND "MIRRORS, HANDLE WITH EXTREME CARE: TIPS FOR THE PROFESSIONAL ON THE CARE AND HANDLING OF MIRRORS." 2.SAFETY GLAZING PRODUCTS: FOR MIRRORS, PROVIDE PRODUCTS COMPLYING WITH TESTING REQUIREMENTS IN 16 CFR 1201 FOR CATEGORY II MATERIALS.
- 3. PRECONSTRUCTION MIRROR MASTIC COMPATIBILITY TEST: SUBMIT MIRROR MASTIC PRODUCTS TO MIRROR MANUFACTURER FOR TESTING TO DETERMINE COMPATIBILITY OF MASTIC WITH MIRROR BACKING AND SUBSTRATES ON WHICH MIRRORS ARE INSTALLED.

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

- D. <u>BASIS OF D</u>ESIGN: SILVERED FLAT GLASS MIRRORS . GLASS MIRRORS, GENERAL: ASTM C 1503; MANUFACTURED USING COPPER FREE, LOW LEAD MIRROR COATING PROCESS 2. CLEAR GLASS: MIRROR GLAZING QUALITY; ULTRACLEAR (LOW IRON) FLOAT GLASS WITH A MINIMUM 91 PERCENT VISIBLE LIGHT TRANSMISSION, NOMINAL THICKNESS: 1/4 INCH.
- 3. TEMPERED CLEAR GLASS: MIRROR GLAZING QUALITY, FOR BLEMISH REQUIREMENTS; AND COMPLY WITH ASTM C 1048 FOR KIND FT. CONDITION A. TEMPERED FLOAT GLASS BEFORE SILVER COATING IS APPLIED. NOMINAL THICKNESS: 1/4 INCH.
- E. <u>MIRROR HARDWARE:</u> TOP AND BOTTOM ALUMINUM J CHANNELS: ALUMINUM EXTRUSIONS WITH A RETURN DEEP ENOUGH TO PRODUCE A GLAZING CHANNEL TO ACCOMMODATE MIRRORS OF THICKNESS INDICATED AND IN LENGTHS REQUIRED TO COVER BOTTOM AND TOP EDGES OF EACH MIRROR IN A SINGLE PIECE. FINISH: CLEAR BRIGHT ANODIZED.
- 1. TOP AND BOTTOM MIRROR MOUNTING CLIPS: #277 MIRROR CLIPS AS MANUFACTURED BY KNAPE & VOGT OR APPROVED EQUAL 2. FASTENERS: FABRICATED OF SAME BASIC METAL AND ALLOY AS FASTENED METAL AND MATCHING IT IN FINISHED COLOR AND TEXTURE WHERE FASTENERS ARE EXPOSED.

REFLECTED IMAGES. 2. INSTALL WALL MOUNTED ANNEALED GLASS MIRRORS IN THE APARTMENT UNITS WITH MIRROR CLIPS. ATTACH BACKS OF MIRRORS. OPERATIONS. FROM CONDENSATION OR OTHER SOURCES FOR CONTINUOUS PERIODS OF TIME. WRITING BY MIRROR MANUFACTURER IVISION 9 - FINISHES 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 SURFACES. 2. WATER-RESISTANT GYPSUM BACKING BOARD: ASTM C 630, TYPE 'X' ON ALL TOILET ROOM AND SHOWER ROOM WALLS, BEHIND ALL PLUMBING FIXTURES, AND AS INDICATED. ACCESSORIES . TRIM: ASTM 1047, FORMED FROM GALVANIZED OR ALUMINUM COATED STEEL SHEET, ROLLED ZINC. OR PLASTIC a. OUTSIDE CORNERS: PROVIDE CORNER BEAD UNLESS NOTED OTHERWISE b. EXPOSED PANEL EDGES: PROVIDE LC-BEAD (J-BEAD) UNLESS NOTED OTHERWISE; USE TEAR-AWAY BEAD WHERE GYP. BD. MEETS WINDOW FRAMES OR CEILING GRID. C. CONTROL JOINTS: PROVIDE WHERE INDICATED OR APPROXIMATELY 30'-0" MAX. CONTACT ARCHITECT FOR LOCATIONS IF NOT INDICATED 2. SOUND-ATTENUATION BLANKETS: ASTM C 665, TYPE I (UNFACED) 3. ACOUSTICAL SEALANT: COMPLY WITH ASTM C 834, NONSAG, PAINTABLE, NONSTAINING LATEX.). <u>INSTALLATION:</u> FRAMING: COMPLY WITH ASTM C 754 AND ASTM C 840 AND WITH U.S. GYPSUM'S "GYPSUM CONSTRUCTION HANDBOOK" ISOLATE FRAMING FROM BUILDING STRUCTURE TO PREVENT TRANSFER OF LOADING IMPOSED BY STRUCTURAL MOVEMENT AND PROVIDE BRACING AS NECESSARY FOR PROPER SUPPORT WHETHER INDICATED OR NOT. 2. GYPSUM PANELS AND FINISH: COMPLY WITH ASTM C 840 AND GA-216. ISOLATE GYPSUM BOARD

SURFACES ARE DRY.

- A. LEVEL 1 (EMBED TAPE AT JOINTS): AT CONCEALED AREAS UNLESS A HIGHER LEVEL IS INDICATED OR REQUIRED FOR FIRE-RESISTANCE-RATED ASSEMBLY. B. LEVEL 2 (EMBED TAPE AND APPLY SEPARATE FIRST COAT OF JOINT COMPOUND TO TAPE. FASTENERS, AND TRIM FLANGES AND SAND SMOOTH AFTER EACH COAT): AT SUBSTRATES BEHIND TILE. C. LEVEL 4 (EMBED TAPE AND APPLY SEPARATE FIRST, FILL, AND FINISH COATS OF JOINT COMPOUND TO TAPE, FASTENERS, AND TRIM FLANGES AND SAND SMOOTH AFTER EACH COAT): AT ALL WALLS RECEIVING FLAT, EGGSHELL, OR SATIN SHEEN PAINT OR WALLCOVERING D. LEVEL 5 (EMBED TAPE, APPLY SEPARATE FIRST, FILL, AND FINISH COATS OF JOINT COMPOUND TO TAPE, FASTENERS, AND TRIM FLANGES, AND APPLY THIN SKIM COAT OF JOINT COMPOUND OVER ENTIRE SURFACE AND SAND SMOOTH AFTER EACH COAT): AT ALL WALLS RECEIVING SEMI-GLOSS OR GLOSS SHEEN PAINT, AND ALL GYPSUM BOARD
- CEILINGS) 09 2216 - NON-STRUCTURAL METAL FRAMING SPLICING, AND FOR BLOCKING AND REINFORCEMENT OF FRAMING CONNECTIONS.
- SHOWING COMPLIANCE WITH REQUIREMENTS. REQUIRING SPECIAL ATTENTION.
- B.<u>MANUFACTURER</u> I. CLARKDIETRICH BUILDING SYSTEMS: WWW.CLARKDIETRICH.COM. 2. CEMCO: WWW.CEMCOSTEEL.COM. 3. JAIMES INDUSTRIES: WWW.JAIMESIND.COM 4. STEEL CONSTRUCTION SYSTEMS: WWW.STEELCONSYSTEMS.COM
- : <u>FRAMING MATERIALS</u> I. FIRE RATED ASSEMBLIES: COMPLY WITH APPLICABLE CODE AND AS FOLLOWS: A. TOP OF FIRE RATED PARTITIONS: LISTED ASSEMBLY BY UL, NO. [ON DRAWINGS]; [1 AND 2] HOUR RATING.
- PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 FOR THE SPACING INDICATED, WITH MAXIMUM DEFLECTION OF WALL FRAMING OF L/240 AT 5 PSF.
- KNURLED FACES. B. CEILING CHANNELS: C SHAPED.
- C. FURRING: HAT-SHAPED SECTIONS, MINIMUM DEPTH OF 7/8 INCH. D. CONTRACTOR TO PROVIDE BRACING AS REQUIRED TO COMPLETE SYSTEM.
- REQUIREMENTS. G. CEILING HANGERS: TYPE AND SIZE AS SPECIFIED IN ASTM C754 FOR SPACING REQUIRED.
- ROTATION OF STUDS WHILE MAINTAINING STRUCTURAL PERFORMANCE OF PARTITION. I. FIT, REINFORCE, AND BRACE FRAMING MEMBERS TO SUIT DESIGN REQUIREMENTS. D. INSTALLATION: 1.COMPLY WITH REQUIREMENTS OF ASTM C754.
- 2. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. 3. VERIFY THAT ROUGH-IN UTILITIES ARE IN PROPER LOCATION.
- WITH MANUFACTURER'S INSTRUCTIONS. CONNECTIONS; DO NOT LEAVE STUDS UNATTACHED TO TRACK.
- 8. ALIGN STUD WEB OPENINGS HORIZONTALLY. 9. SECURE STUDS TO TRACKS USING CRIMPING METHOD. DO NOT WELD. 10. STUD SPLICING IS NOT PERMISSIBLE.
- 11. FABRICATE CORNERS USING A MINIMUM OF THREE STUDS. OPENINGS 13. BRACE STUD FRAMING SYSTEM RIGID.
- 14. COORDINATE ERECTION OF STUDS WITH REQUIREMENTS OF DOOR FRAMES; INSTALL SUPPORTS AND ATTACHMENTS
- WORK TO BE PLACED WITHIN OR BEHIND STUD FRAMING. FIXTURES, WALL CABINETS, TOILET ACCESSORIES, HARDWARE, AND OPENING FRAMES.
- 09 6500 RESILIENT FLOORING AND WALL BASE A. <u>SUBMITTALS</u>: PRODUCT DATA AND (1) SAMPLES OF EACH TILE AND BASE SPECIFIED FOR VERIFICATION PURPOSES.
- B.<u>BASIS OF DESIGN</u>: 1. METROFLOR, KONECTO PLANK, PROJECT 54012 OR APPROVED EQUAL. FLOOR TILE AND 20' OF EACH COLOR AND TYPE OF WALL BASE PACKAGED WITH PROTECTIVE COVERING AND LABELED FOR STORAGE.
- D. RESILIENT TILE PRODUCTS: PROVIDE FLOOR TILE IN TYPE AND SIZES INDICATED IN THE CONSTRUCTION DOCUMENTS COMPLYING WITH THE FOLLOWING:
- E. <u>RESILIENT WALL BASE:</u> ASTM TYPE TS (RUBBER, VULCANIZED THERMOSET) 1/8" THICK, FURNISHED IN AND OUTSIDE CORNERS.
- F. INSTALLATION ACCESSORIES 1. LEVELING AND PATCHING COMPOUNDS: LATEX-MODIFIED, PORTLAND CEMENT, OR BLENDED HYDRAULIC CEMENT-BASED FORMULATION PROVIDED OR APPROVED BY FLOORING MANUFACTURER TO SUIT RESILIENT PRODUCTS AND SUBSTRATE CONDITIONS. 2. ADHESIVES: WATER-RESISTANT TYPE RECOMMENDED BY MANUFACTURER TO SUIT RESILIENT
- MATERIALS BEFORE INITIAL SET. 3. MOLDINGS, TRANSITION AND EDGE STRIPS: SAME MATERIAL AS FLOORING. G. <u>INSTALLATION:</u> 1. PREPARE CONCRETE SUBSTRATES PER ASTM F 710. VERIFY THAT SUBSTRATES ARE DRY AND FREE OF CURING COMPOUNDS. SEALERS AND HARDENERS.
- 2. LAY OUT TILES SO WIDTHS AT OPPOSITE EDGES OF ROOM ARE EQUAL AND NOT LESS THAN HALF-WIDTH. 3. LAY TILES IN PATTERNS INDICATED WITH GRAIN DIRECTION ALTERNATING IN ADJACENT TILES, UNLESS NOTED OTHERWISE.
- 4. CLEAN, SEAL, AND WAX RESILIENT FLOORING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- H. WALL BASE AND ACCESSORY INSTALLATION: POSSIBLE. APPLY TO WALLS, COLUMNS, PILASTERS, CASEWORK, AND OTHER PERMANENT FIXTURES.
- 3. INSTALL TRANSITION STRIPS WHERE FLOORING MATERIALS MEET OR WHERE EDGE OF TILE IS EXPOSED AS INDICATED IN THE FINISH SCHEDULE.

. INSTALLATION: GENERAL: EXAMINE SUBSTRATES, OVER WHICH MIRRORS ARE TO BE MOUNTED, WITH INSTALLER

PRESENT, FOR COMPLIANCE WITH INSTALLATION TOLERANCES, SUBSTRATE PREPARATION, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK. A. VERIFY COMPATIBILITY WITH AND SUITABILITY OF SUBSTRATES, INCLUDING COMPATIBILITY OF MIRROR MASTIC WITH EXISTING FINISHES OR PRIMERS. B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AND

1.INSTALL MIRRORS TO COMPLY WITH MIRROR MANUFACTURER'S WRITTEN INSTRUCTIONS AND WITH REFERENCED GANA PUBLICATIONS. MOUNT MIRRORS ACCURATELY IN PLACE IN A MANNER THAT AVOIDS DISTORTING

MIRROR HARDWARE SECURELY TO MOUNTING SURFACES WITH MECHANICAL FASTENERS INSTALLED WITH 3. ANCHORS OR INSERTS AS APPLICABLE. INSTALL FASTENERS SO HEADS DO NOT IMPOSE POINT LOADS ON 4. PROTECT MIRRORS FROM BREAKAGE AND CONTAMINATING SUBSTANCES RESULTING FROM CONSTRUCTION 5. MAINTAIN ENVIRONMENTAL CONDITIONS THAT WILL PREVENT MIRRORS FROM BEING EXPOSED TO MOISTURE 6. WASH EXPOSED SURFACE OF MIRRORS NOT MORE THAN FOUR DAYS BEFORE DATE SCHEDULED FOR INSPECTIONS THAT ESTABLISH DATE OF SUBSTANTIAL COMPLETION. WASH MIRRORS AS RECOMMENDED IN

ASSEMBLIES FROM ABUTTING STRUCTURAL AND MASONRY WORK AND FINISH AS FOLLOWS:

A. <u>SUBMITTALS</u>: SHOP DRAWINGS: INDICATE PREFABRICATED WORK, COMPONENT DETAILS, STUD LAYOUT, FRAMED OPENINGS, ANCHORAGE TO STRUCTURE, ACOUSTIC DETAILS, TYPE AND LOCATION OF FASTENERS, ACCESSORIES. AND ITEMS OF OTHER RELATED WORK. DESCRIBE METHOD FOR SECURING STUDS TO TRACKS,

1. PRODUCT DATA: PROVIDE MANUFACTURER'S DATA ON PARTITION HEAD TO STRUCTURE CONNECTORS, 2. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES AND PERIMETER CONDITIONS

B. FIRE RATED SHAFT WALL REQUIREMENTS: LISTED ASSEMBLY BY UL, NO. [ON DRAWINGS]; [1] HOUR RATING. 2. NON-LOADBEARING FRAMING SYSTEM COMPONENTS: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND

A. TRACKS AND RUNNERS: SAME MATERIAL AND THICKNESS AS STUDS, BENT LEG RETAINER NOTCHED TO RECEIVE STUDS WITH PROVISION FOR CRIMP LOCKING TO STUD. STUDS: C SHAPED WITH FLAT OR FORMED WEBS WITH

F. WHERE INDICATED IN DRAWINGS, SHAFT WALL STUDS AND ACCESSORIES: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 AND SPECIFIED PERFORMANCE

H. PARTITION HEAD TO STRUCTURE CONNECTIONS: PROVIDE MECHANICAL ANCHORAGE DEVICES THAT ACCOMMODATE DEFLECTION USING SLOTTED HOLES, SCREWS AND ANTI-FRICTION BUSHINGS, PREVENTING

4.EXTEND PARTITION FRAMING TO STRUCTURE WHERE INDICATED AND TO CEILING IN OTHER LOCATIONS. 5. PARTITIONS TERMINATING AT CEILING: ATTACH CEILING RUNNER SECURELY TO CEILING TRACK IN ACCORDANCE 6.PARTITIONS TERMINATING AT STRUCTURE: ATTACH TOP RUNNER TO STRUCTURE, MAINTAIN CLEARANCE BETWEEN TOP OF STUDS AND STRUCTURE, AND CONNECT STUDS TO TRACK USING SPECIFIED MECHANICAL

DEVICES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; VERIFY FREE MOVEMENT OF TOP OF STUD 7.FIT RUNNERS UNDER AND ABOVE OPENINGS; SECURE INTERMEDIATE STUDS TO SAME SPACING AS WALL STUDS.

12. DOUBLE STUD AT WALL OPENINGS, DOOR AND WINDOW JAMBS, NOT MORE THAN 2 INCHES FROM EACH SIDE OF

15. COORDINATE INSTALLATION OF BUCKS, ANCHORS, AND BLOCKING WITH ELECTRICAL, MECHANICAL, AND OTHER 16. BLOCKING: USE WOOD BLOCKING SECURED TO STUDS. PROVIDE BLOCKING FOR SUPPORT OF PLUMBING

C. ATTIC STOCK: FURNISH ONE (1) BOX FOR EACH 50 BOXES OR FRACTION THEREOF OF EACH TYPE OF

COILS IN STYLES AND SIZES INDICATED IN THE CONSTRUCTION DOCUMENTS WITH JOB-FORMED INSIDE

PRODUCTS AND SUBSTRATE CONDITIONS. SPREAD ONLY ENOUGH ADHESIVE TO PERMIT INSTALLATION OF

. CONFIRM THAT SOLID BACKING IS PROVIDED BEHIND ALL WALL BASE. AREAS WHERE GYPSUM BOARD IS HELD MORE THAN 1/2" ABOVE SLAB SHALL BE FILLED IN PRIOR TO BASE INSTALLATION. 2. INSTALL WALL BASE WITH MANUFACTURER'S RECOMMENDED ADHESIVE IN MAXIMUM LENGTHS

09 9000 - PAINTING AND COATING

A. <u>SUBMITTALS:</u> PRODUCT DATA AND THREE (3) DRAW-DOWN SAMPLES OF EACH COLOR AND SHEEN

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

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

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

E. APPLICATION / INSTALLATION: 1 EQUIPMENT: APPLY COATINGS BY BRUSH ROLLER SPRAY OR OTHER APPLICATORS ACCORDING TO COATING MANUFACTURER'S WRITTEN INSTRUCTIONS. WHEN SPRAYED. EXTERIOR COATINGS SHALL BE BACK-ROLLED FOLLOWING SPRAY APPLICATION. USE ROLLERS FOR FINISH COAT ON INTERIOR WALLS AND CEILINGS. 2. 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.

3. 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.

1. ALL EXTERIOR GALVANIZED METAL FLASHINGS, CONNECTORS, ETC.

A. Exterior Work:

- 2. ALL EXPOSED STEEL FRAMES, ANGLES,
- 3. ALL EXPOSED MISC. FERROUS METAL ITEMS INCLUDING RAILS, PLATES, ANGLES, BOLTS, GRATES, CONDUITS, POSTS, PIPING, ETC.
- 4. ALL UNPRIMED EXTERIOR MILLWORK, TRIM, SMOOTH WOOD MATERIALS, ETC. SEMI-GLOSS PAINT.
- 5. PRIMED MILLWORK AND TRIM.
- 6. ROUGH SAWN TRIM, BEAMS, COLUMNS,
- 7. PRIMED METAL ENTRY DOORS, FRENCH DOORS AND METAL FRAMES, GARAGE DOORS.
- 8. ANY OTHER PAINTING REQUIRED BY
- THE DRAWINGS.
- B. INTERIOR WORK:

ETC

- 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. GYPSUM BOARD CEILINGS.
- 5. DOOR CASINGS, BASE, WOOD, MILL-WORK, ETC. (PRE-PRIMED.)
- 6. PRIMED HARDWOOD DOORS.
- 7. ALL MISCELLANEOUS FERROUS METAL, INCLUDING GRILLES, REGISTERS, ETC.
- 8. ANY OTHER PAINTING WORK REQUIRED BY THE DRAWINGS.

09 3000 - TILING

- A. <u>SUBMITTALS</u>: PRODUCT DATA FOR SETTING AND GROUTING MATERIALS AND THREE (3) SAMPLES OF EACH TILE SPECIFIED FOR VERIFICATION PURPOSES.
- B. ATTIC STOCK: FURNISH 2% OF EACH TYPE OF CERAMIC TILE PACKAGED WITH PROTECTIVE COVERING AND LABELED FOR STORAGE.
- C. BASIS OF DESIGN: SEE DRAWING SCHEDULES.
- D. <u>TILE:</u> COMPLY WITH STANDARD GRADE REQUIREMENTS IN ANSI A137.1 "SPECIFICATIONS FOR CERAMIC TILE" FOR PRODUCTS AND SIZES INDICATED IN THE CONSTRUCTION DOCUMENTS.
- E. INSTALLATION MATERIALS: 1. THIN-SET MORTAR:
- A. TYPICAL INTERIOR INSTALLATIONS: LATEX/POLYMER MODIFIED PORTLAND CEMENT COMPLYING WITH ANSI A108.5 AND ANSI 118.4. 2. GROUT:UNSANDED FOR JOINTS 1/16" WIDTH OR LESS, SANDED FOR JOINTS GREATER THAN 1/16" IN
- COLOR INDICATED IN SCHEDULE OR TO BE SELECTED BY ARCHITECT AND OWNER. A. TYPICAL INTERIOR INSTALLATIONS: STANDARD CEMENT GROUT WITH INTEGRAL STAIN INHIBITORS (TEC ACCUCOLOR XT, OR EQUAL) 3. SETTING BED ACCESSORIES: ANSI A 108.1A
- F. INSTALLATION METHODS: COMPLY WITH TILE INSTALLATION STANDARDS IN ANSI'S "SPECIFICATIONS OR THE INSTALLATIONS OF CERAMIC TILE" AND TCA'S "HANDBOOK FOR CERAMIC TILE INSTALLATION" THAT APPLY TO THE MATERIALS AND METHODS INDICATED BELOW:
- WHERE CUT TILE IS SPECIFIED AS THE TOP COURSE ON WALL WAINSCOTING OR WALL BASE WITH AN EXPOSED TOP EDGE, THE FACTORY EDGE SHALL BE USED AS THE EXPOSED EDGE.
- H. <u>CONFLICTS:</u> IF NOT ADDRESSED ON DRAWINGS, WHERE ELECTRICAL DEVICES OR TOILET ACCESSORIES STRADDLE THE TRANSITION FROM THE TOP EDGE OF WAINSCOT WALL TILE TO GYPSUM BOARD SUBSTRATE, CONTACT ARCHITECT FOR RESOLUTION.
- 1. JOINT SIZE: SET TILE WITH THE SMALLEST GROUT JOINT ACHIEVABLE AND AS RECOMMENDED BY THE MFR. BASED ON THE TILE PRODUCT AND SUBSTRATE CONDITIONS, UNLESS NOTED OTHERWISE 2. TILE PATTERN: LAY TILE IN PATTERNS AS INDICATED IN THE CONSTRUCTION DOCUMENTS.
- ALIGN JOINTS WHERE ADJOINING TILES ON FLOOR, BASE, WALLS, AND TRIM ARE THE SAME SIZE, UNLESS INDICATED OTHERWISE.
- 3. INSTALLATION: INSTALL GROUT PER MANUFACTURER'S INSTRUCTIONS, EXERCISING CARE TO AVOID REMOVAL OF GROUT COLOR BY USE OF EXCESS WATER DURING INSTALLATION. FADED OR CHALKY GROUT SHALL BE CAUSE FOR REJECTION.
- 4. SEALER: AFTER FULLY CURED, GROUT SHALL BE SEALED WITH TWO (2) COATS OF COMMERCIAL QUALITY PENETRATING SILICONE SEALER

ONE COAT COMMERCIAL METAL ETCH. ONE COAT EXTERIOR METAL PRIMER. TWO COATS EXTERIOR SEMI-GLOSS METAL PAINT. TWO COATS SEMI-GLOSS METAL PAINT. (PRIME COAT CHANNELS, POSTS, RAILINGS, BEAMS, ETC, SURFACES THAT ARE NOT PRIMED.) TWO COATS SEMI-GLOSS METAL PAINT. (PRIME COAT SURFACES THAT ARE NOT PRIMED.)

PRIME AND BACK LATEX PRIMER. TWO COATS OF EXTERIOR LATEX SATIN OR

TOUCH-UP PRIME. TWO COATS OF EXTERIOR 100% SATIN OR SEMI-GLOSS ACRYLIC LATEX PAINT. ONE COAT PRIMER. TWO COATS EXTERIOR HEAVY BODIED STAIN.

PATCH DENTS, TOUCH UP PRIMER. TWO COATS OF OIL BASE SEMI-GLOSS PAINT INSIDE AND OUTSIDE.

TWO COATS TO MATCH ADJACENT SURFACES.

ONE COAT OF PRIME LATEX PAINT AND ONE FINISH COAT OF LATEX EGGSHELL WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.) ONE WALL IN EACH APARTMENT UNIT LIVING SPACE AND EACH BEDROOM SHALL BE PAINTED ACCENT COLORS.

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

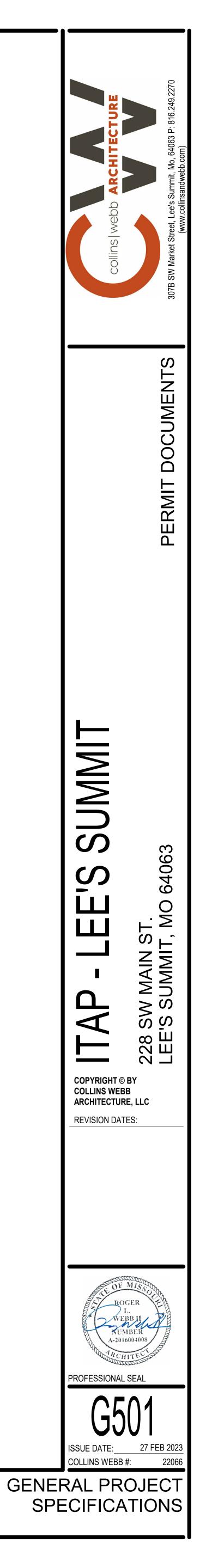
ONE COAT OF PRIME LATEX PAINT AND ONE FINISH COAT OF SCRUBABLE LATEX FLAT WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.)

TWO COATS OF LATEX FLAT PAINT. TWO COATS OF CLASS II VAPOR RETARDER PAINT AT CEILINGS ADJACENT TO ATTICS.

ONE PRIME COAT OF LATEX PAINT. ONE COAT LATEX PAINT AND ONE FINISH COAT OF LATEX SEMI-GLOSS PAINT. ONE COAT OF LATEX PAINT AND ONE FINISH COAT OF LATEX SEMI-GLOSS PAINT.

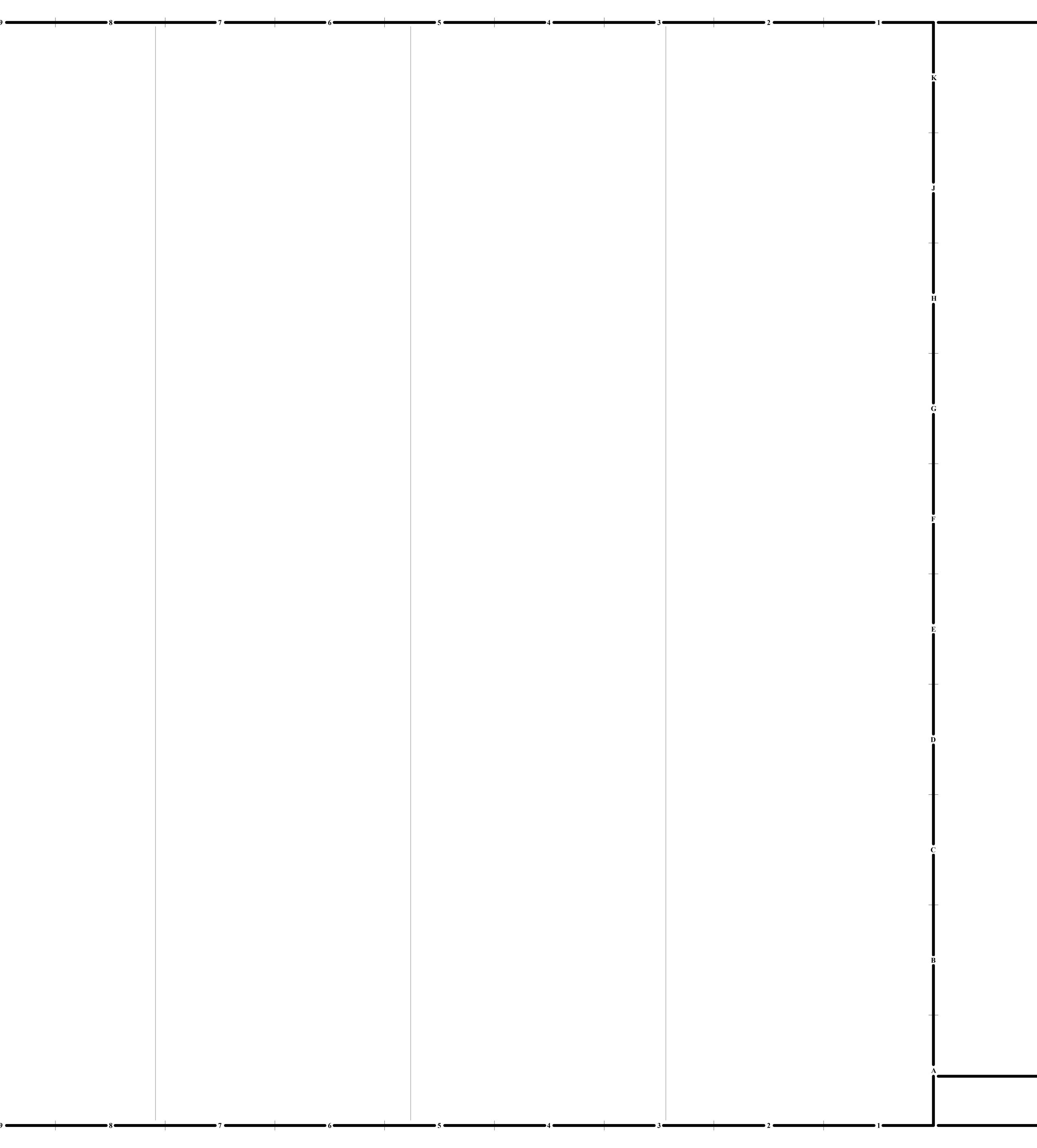
TWO COATS METAL PAINT TO MATCH ADJACENT SURFACES UNLESS FACTORY PREFINISHED WHITE

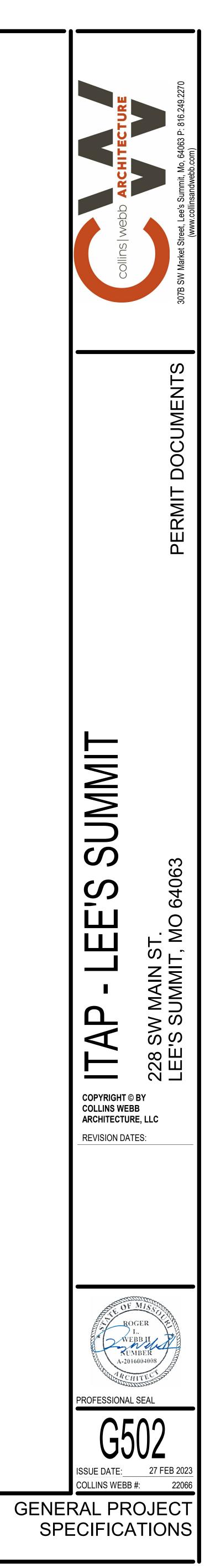
FINISH TO MATCH SIMILAR CONDITIONS.



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	+			I
DIVISION 10 - SPECIALTIES				
10 2800 TOILET AND BATH ACCESSORIES A. REFERENCE CONSTRUCTION DRAWINGS AND BATH ACCESSORIES.	& SCHEDULES FOR TYPE, QUANTITY, AND L	OCATIONS OF TOILET		
 B. <u>SUBMITTALS</u> 1. PRODUCT DATA: MANUFACTURER'S DAT 2. PREPARATION INSTRUCTIONS AND RECO 3. STORAGE AND HANDLING REQUIREMENT 4. INSTALLATION METHODS. 	DMMENDATIONS.	, INCLUDING:		
INSTALLATION IS TO OCCUR, AND MUST TO PROPER AND TIMELY COMPLETION O CONDITIONS HAVE BEEN CORRECTED IN 2. INSTALL ACCESSORIES ACCORDING TO FASTENERS APPROPRIATE TO SUBSTRA NSTALL UNITS LEVEL, PLUMB, AND FIRML ADHESIVE INSTALLATIONS ARE NOT PERMITTED. 3. MOUNTING HEIGHTS SHALL BE AS RECO	ACCESSORIES, AND OTHER CONDITIONS U NOTIFY CONTRACTOR IN WRITING OF CONI F WORK. DO NOT PROCEED WITH WORK U MANNER ACCEPTABLE TO INSTALLER. RESPECTIVE MANUFACTURERS' WRITTEN II TE INDICATED AND RECOMMENDED BY UNI Y ANCHORED IN LOCATIONS AND AT HEIGH MMENDED BY THE ACCESSORY MANUFACT Y HANDICAPPED TO COMPLY WITH THE AM DOWNWARD LOAD OF AT LEAST 250 LBF, W ERATION AND VERIFY THAT MECHANISMS F	NDER WHICH DITIONS DETRIMENTAL NTIL UNSATISFACTORY NSTRUCTIONS, USING T MANUFACTURER. I ITS INDICATED. TURER AND AT HEIGHTS ERICANS WITH HEN TESTED		
CHAPTER 1 EXTRUDED POLYMER A. WATERPROOF AND NONABSORE BY PENS, PENCILS, MARKERS, AI B. THICKNESS: 1 INCH (25 MM). C. EDGES: SHIPLAP. 3. PANEL COLOR: TRADITIONAL SERIES	SCHEDULES FOR TYPE, QUANTITY, AND L NS AS MANUFACTURED BY AND SUPPLIED I AD-BRACED TOILET COMPARTMENTS. Y POLYETHYLENE (HDPE), FABRICATED FRO RESINS, FORMING SINGLE THICKNESS PAN SENT, WITH SELF-LUBRICATING SURFACE, R ND OTHER WRITING INSTRUMENTS. :1. SHALE - ORANGE PEEL. : HEIGHT: 62 INCHES (1575 MM) HIGH AND M	BY SCRANTON OM SEQ EL. RESISTANT TO MARKS		
D. POSTS, RAILS AND HARDWARE:	OMMENDATIONS. TS AND RECOMMENDATIONS. AWINGS AND INSTALLATION DETAILS WITH I PRODUCT SPECIFIED, TWO COMPLETE SET RANGE OF AVAILABLE COLORS AND PATTE	LOCATION AND TYPE OF IS OF COLOR CHIPS ERNS.		
1. METAL POSTS: 82.75 INCHES (2102 MM) H FINISH, FASTENED TO FOOT WITH STAINI	IIGH, HEAVY DUTY EXTRUDED ALUMINUM, C LESS STEEL TAMPER RESISTANT SCREW.	LEAR ANUUIZEU		

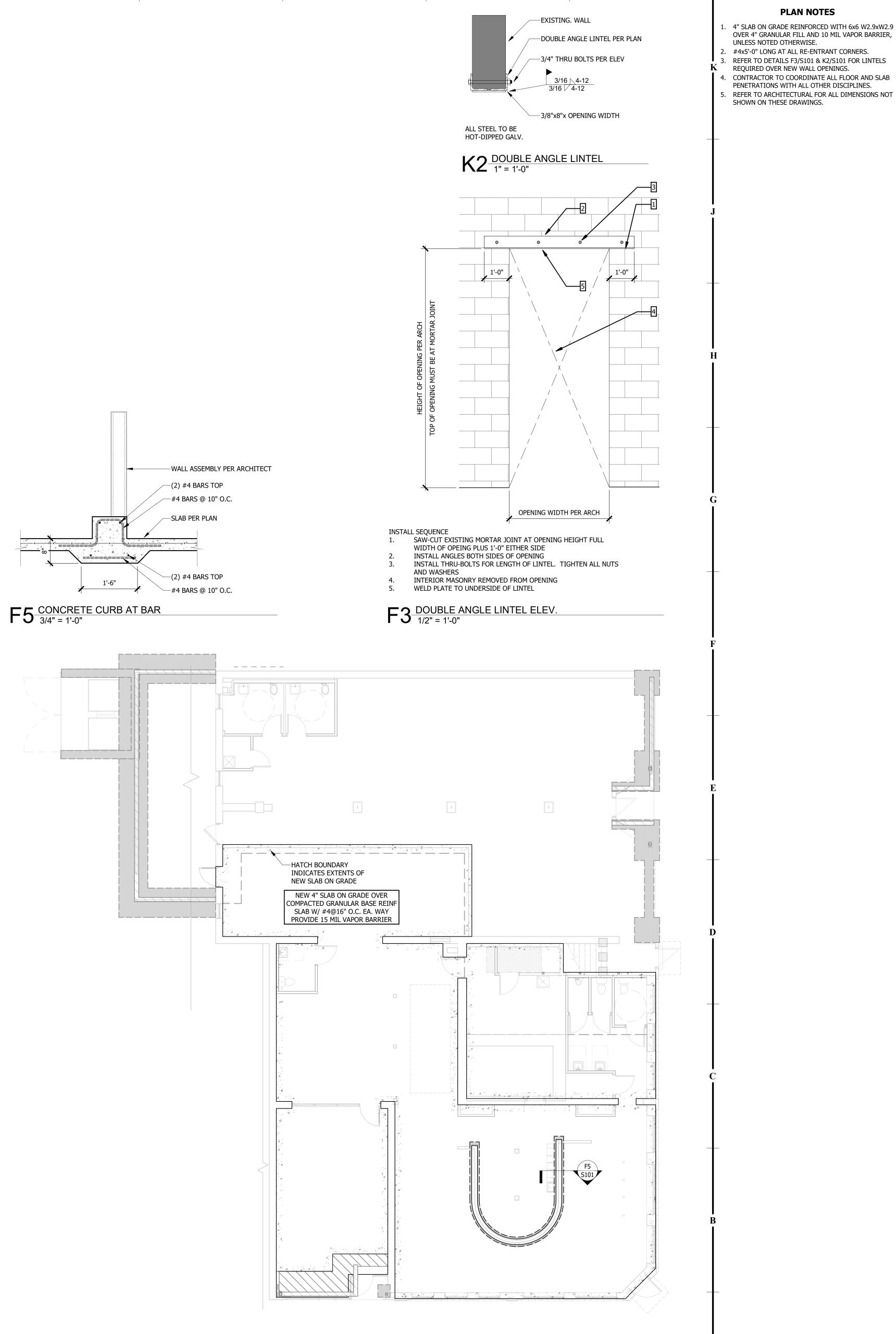
- 2. HIDDEN SHOE (FOOT): ONE-PIECE MOLDED POLYETHYLENE INVISIBLE SHOE INSERTED INTO METAL POST AND SECURED TO METAL POST WITH STAINLESS STEEL TAMPER RESISTANT SCREW. 3. HEADRAIL CAP AND CORNER CAP: ONE-PIECE MOLDED POLYETHYLENE SECURED TO METAL POST WITH
- STAINLESS STEEL TAMPER RESISTANT SCREW; ADJUSTABLE TO LEVEL HEADRAIL TO FINISHED FLOOR. 4. WALL BRACKETS: CONTINUOUS HEAVY DUTY EXTRUDED ALUMINUM, CLEAR ANODIZED FINISH, INSERTED
- INTO SLOTTED PANEL AND FASTENED TO PANELS WITH STAINLESS STEEL TAMPER RESISTANT SCREWS. 5. HEADRAIL: HEAVY DUTY EXTRUDED ALUMINUM, CLEAR ANODIZED FINISH, SECURED TO WALL WITH STAINLESS STEEL TAMPER SCREWS.
- 6. DOOR HARDWARE: A. HINGES: EDGE-MOUNTED HELIX STYLE STAINLESS STEEL CONTINUOUS HINGE. CLOSING DEGREE: 5 DEGREES. COMES TO A FULL CLOSE ON ITS OWN WEIGHT.
- B.OCCUPANCY INDICATOR LATCH AND HOUSING: MATERIAL: SATIN STAINLESS STEEL. OCCUPANCY INDICATORS: GREEN FOR OCCUPIED AND RED NOT OCCUPIED. SLIDE BOLT AND BUTTON. C.COAT HOOK AND DOOR BUMPER COMBINATION: MATERIAL: CHROME PLATED ZAMAK. HANDICAP DOOR: EQUIP WITH SECOND DOOR PULL AND DOOR STOP.
- D. DOOR PULLS: CHROME PLATED ZAMAK:
- E. <u>INSTALLATION:</u> 1. CLEAN SURFACES THOROUGHLY PRIOR TO INSTALLATION. 2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SHOP DRAWINGS.
- 3. INSTALL PARTITIONS RIGID, STRAIGHT, PLUMB, AND LEVEL. 4. LOCATE BOTTOM EDGE OF DOORS AND PANELS ____ INCHES ABOVE FINISHED FLOOR.
 5. CLEARANCE AT VERTICAL EDGES OF DOORS SHALL BE UNIFORM TOP TO BOTTOM AND SHALL NOT
- EXCEED 3/8 INCH (9.5 MM). 6. NO EVIDENCE OF CUTTING, DRILLING, AND/OR PATCHING SHALL BE VISIBLE ON THE FINISHED WORK. 7. FINISHED SURFACES SHALL BE CLEANED AFTER INSTALLATION AND BE LEFT FREE OF IMPERFECTIONS.
- 8. ADJUST DOORS AND LATCHES TO OPERATE CORRECTLY. 9. PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT. 10. TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.
- **DIVISION 11 EQUIPMENT**
- 11 3000 APPLIANCES A. REFERENCE CONSTRUCTION DRAWINGS FOR QUANTITY, AND LOCATION OF APPLIANCES TO BE FURNISHED BY OWNER.
- 10 4400 FIRE PROTECTION SPECIALTIES A. REFERENCE CONSTRUCTION DRAWINGS FOR TYPE, SIZE AND LOCATIONS OF FIRE EXTINGUISHERS AND CABINETS.

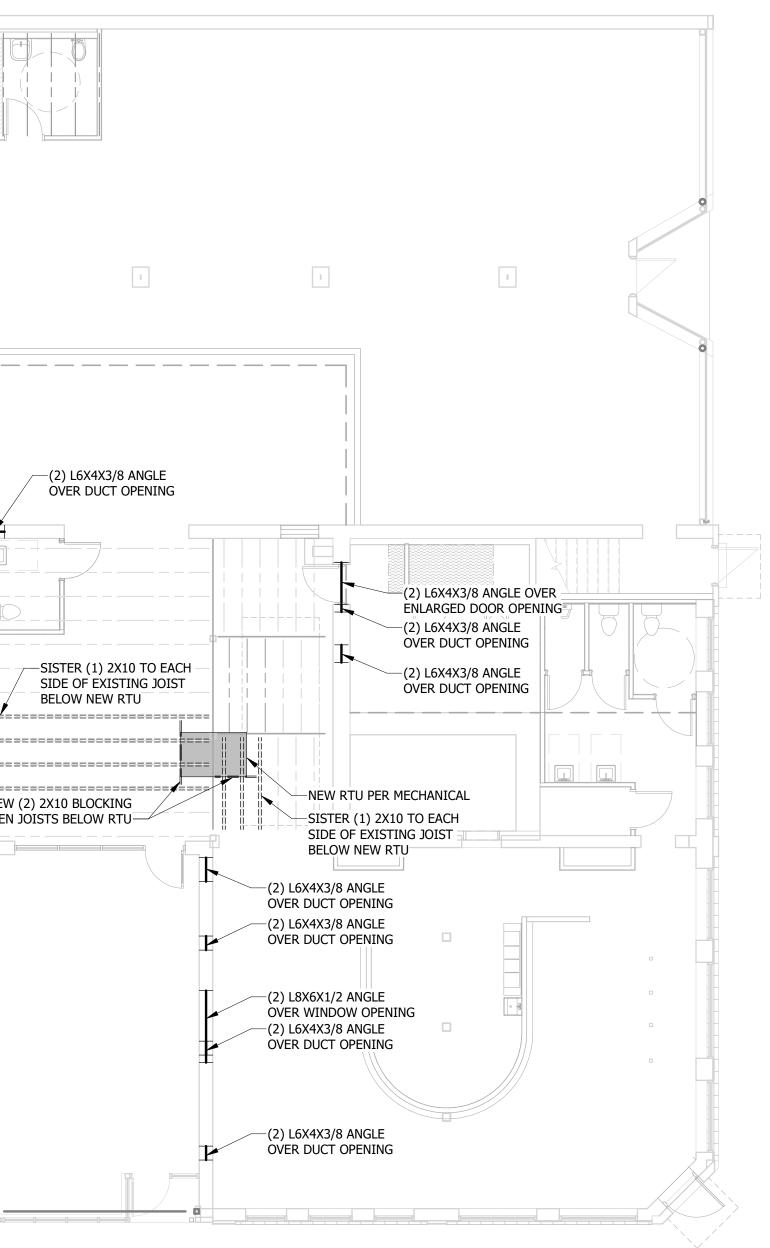




1. 2.	THE C	ORK SHALL CONFORM TO 2018 INTERNATIONAL BUILDING COI TY OF LEE'S SUMMIT, MISSOURI. I LOADS OVERALL BUILDING CLASSIFICATIONS	de as adopted and amended by	
		 RISK CATEGORY SNOW IMPORTANCE FACTOR, Is 	II 1.00	
	В.	 ICE IMPORTANCE FACTOR - WIND, Iw SEISMIC IMPORTANCE FACTOR, Ie SLAB ON GRADE FLOOR LOADS 	1.00 1.00	
	Б.	1. LIVE LOAD 2. CONCENTRATED LOAD ROOF DEAD AND LIVE LOADS	100 PSF 3000 LB ACTING ON AN AREA 4.5 IN. BY 4.5 IN.	
	C.	 DEAD AND LIVE LOADS 1. DEAD LOAD TOP CHORD 2. DEAD LOAD BOT. CHORD 3. LIVE LOAD TOP CHORD 	20 PSF 5 PSF 20 PSF	
	D.	4. LIVE LOAD BOT. CHORD ROOF SNOW LOADS	0 PSF (U.N.O)	
		 GROUND SNOW LOAD, Pg FLAT ROOF SNOW LOAD, Pf SNOW EXPOSURE FACTOR, Ce 	15 PSF 11.34 PSF 0.9	
		 THERMAL FACTOR, Ct SLOPE FACTOR, Cs 	1.2 0.6	
	E.	 DRIFTING WIND LOADS BASIC WIND SPEED (3 SECOND GUST) 	PER CODE	
	F.	 EXPOSURE CATEGORY INTERNAL PRESSURE COEFFICIENT, GCpi SEISMIC LOADS 	C +/- 0.18	
	1.	1. Ss 2. S ₁	0.189 0.105	
		 SITE CLASS S_{DS} S_{D1} 	C 0.164 0.105	
		 SEISMIC DESIGN CATEGORY SEISMIC FORCE RESISTING SYSTEM 	B WOOD WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR	
		 DESIGN BASE SHEAR DESIGN RESPONSE COEFFICIENT, Cs RESPONSE MODIFICATION COEFFICIENT, R ANALYSIS PROCEDURE USED 	CsW 0.025 6.5 EOUIVALENT LATERAL FORCE	
3.		ACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS PRIO	(ELF) PROCEDURE R TO FABRICATION.	
4. 5.	ENGIN	REPANCIES EXIST BETWEEN CONTRACT DRAWINGS, AND/OR EER OF RECORD. INTRACTOR SHALL REVIEW DRAWINGS FROM ALL OTHER DISC		
6.	ITEMS THE B	OR INFORMATION RELATED TO THE STRUCTURAL WORK AND IILDING IS NOT STRUCTURALLY STABLE UNTIL ALL CONNECTION (CONNECTION)	COORDINATE AS REQUIRED. DNS, FRAMING, SHEAR WALLS,	
	THEIR	NENT BRACING, AND EXTERIOR LOAD-BEARING WALLS ARE CO RESPECTIVE DESIGN STRENGTHS. CONTRACTOR IS SOLELY RE FURAL STABILITY DURING ERECTION AND CONSTRUCTION. TE	SPONSIBLE FOR MAINTAINING	
7.	NOT T PROVI	D BE REMOVED UNTIL STRUCTURAL WORK IS COMPLETE. DE ADEQUATE SHORING DURING CONSTRUCTION TO RESIST F ANCED LOADS DUE TO CONSTRUCTION. DO NOT BACKFILL UN	ORCES SUCH AS WIND AND	
8.	DAYS. CONCF	ETE		
	Α.	CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM AMERICAN CONCRETE INSTITUTE DOCUMENTS, ACI-301, 305 NOTED OTHERWISE IN THESE CONTRACT DOCUMENTS.		
	В.	ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL DEVELO STRENGTH AND HAVE MAXIMUM WATER/CEMENT RATIOS AS	FOLLOWS:	
		 FOOTINGS, GRADE BEAMS, WALLS, BEAMS, COLUMNS SLAB ON GRADE: REFER TO THE SPECIFICATION FOR AIR-ENTRAINED 	4000 PSI (w/c MAX 0.42) CONCRETE.	
	C. D.	SLABS-ON-GRADE SHALL DEVELOP A 90 DAY COMPRESSIVE S IT IS THE INTENT OF THESE CONCRETE SPECIFICATIONS TH CONCRETE MIXES WITH A MINIMUM AMOUNT OF WATER IN	AT THE CONTRACTOR SUPPLY	
		SHRINKAGE CRACKING IN FRESHLY PLACED CONCRETE. IT IS WORKABILITY FOR CONCRETE MIXES WILL REQUIRE THE AD	EXPECTED THAT PRODUCING	
	E. F.	CHEMICAL ADMIXTURES. CONCRETE MIX DESIGNS SHALL INCLUDE ALL APPLICABLE AI CONCRETE SLUMP SHALL BE A MAXIMUM OF 4" +/- 1" (ASTM		
		FIELD. CONTRACTOR MAY USE CHEMICAL ADMIXTURES TO A FOR WORKABILITY IF ADMIXTURE IS TO BE ADDED IN THE F	TTAIN A MAXIMUM SLUMP OF 8" IELD IS SHALL BE ADDED	
	G.	THROUGH THE USE OF AN EXTERNAL MEASURING DEVICE (I. CONCRETE EXPOSED TO WEATHER, PARKED VEHICLES, AND/ CONTAIN 6% (+/- 1%) ENTRAINED AIR BY VOLUME.		
	H. I.	CHAMFER ALL EXPOSED CORNERS OF CONCRETE WALLS, 3/4 ALL CONTROL JOINTS IN CONCRETE SLABS-ON-GRADE SHALL USING WET-CUTTING PROCESS AND 1/4 OF DEPTH WHEN US	BE CUT TO 1/3 OF DEPTH WHEN	
		PROCESS. CUT JOINTS AS SOON AS APPLICABLE PER PROCES BEEN PLACED WITHOUT DISLODGING AGGREGATE, OR USE A	S USED AFTER CONCRETE HAS A KEYED COLD JOINT.	
	J.	CUT SLABS-ON-GRADE INTO AREAS OF APPROXIMATELY 225 CLOSE TO SQUARE AREAS AS POSSIBLE. LENGTH TO WIDTH NOT EXCEED 1.5:1. COORDINATE LOCATIONS OF CONTROL 3	RATIOS OF JOINTED PANELS SHALL	
	К.	CONTROL JOINTS IN WALLS SHALL BE PLACED AT 20'-0" O.C. OTHERWISE. LOCATE JOINTS BESIDE PIERS INTEGRAL WITH	MAXIMUM UNLESS NOTED WALLS, NEAR CORNERS, AND IN	
		CONCEALED LOCATIONS WHERE POSSIBLE. CONSTRUCTION CONTROL JOINTS AT CONTRACTOR'S DISCRETION. COORDIN JOINTS WITH ARCHITECT.		
	L.	PRIOR TO PLACING CONCRETE IN ANY LOCATION, IT IS THE CONTRACTOR TO HAVE THOROUGHLY CHECKED AND COORD ELEVATIONS, OPENINGS, RECESS, AND BLOCKOUTS AS SHOV	INATED ALL DIMENSIONS,	
		IN THE EVENT ERRORS, CONFLICTS, OR OMISSIONS EXIST, I RESPONSIBILITY TO CONTACT THE ARCHITECT OR ENGINEE	T SHALL BE THE CONTRACTOR'S	
	М.	ACTION. EMBEDDED ITEMS ARE TO BE FURNISHED AND INSTALLED B PLACING CONCRETE.	Y THE CONTRACTOR PRIOR TO	
	N. O.	ANCHOR RODS AND ANCHOR BOLTS SHALL BE HELD IN PLAC HORIZONTAL JOINTS BEYOND THOSE SHOWN IN THE CONTR	ACT DOCUMENTS SHALL NOT BE	
9.	Mason A.	MASONRY UNIT COMPRESSIVE STRENGTH (f'm) = 1500 PSI. N	IORTAR - TYPE S.	
	В.	LINTELS SHALL BE STEEL BEAMS OR MASONRY BOND BEAMS OPENINGS LESS THAN 4'-0" WIDE SHALL BE A BOND BEAM W EXTENDING PAST OPENINGS A MIN. OF 2'-0".	AS SHOWN ON THE PLANS.	
	C. D.	GROUT ALL REINFORCED CELLS AND CELLS BELOW GRADE S PLACE A BOND BEAM WITH/ (2) #5 CONTINUOUS AT THE TO		
	E.	VERTICALLY. REINFORCE 8" CMU WALLS WITH #5 @ 32" O.C. VERT. AND 3 O.C. VERT. UNLESS NOTED OTHERWISE. IN ADDITION, REIN		
10	F. Rougi	OF WINDOWS AND DOORS WITH (2) #5 EXTENDING PAST O BRACE THE TOPS OF PARTITION WALLS TO THE UNDERSIDE	PENINGS A MIN. OF 2'-0".	
10.	ROUGI A.	CARPENTRY HEADERS, JOISTS, AND RAFTERS SHALL MEET OR EXCEED TH REQUIREMENTS. (EXAMPLE SPECIES: #2 SPRUCE-PINE-FIR)		
		1. F_B 2. F_V 3. F_C	875 PSI 135 PSI 1150 PSI	
	В.	4. E TIMBER FRAMING MEMBERS SHALL MEET OR EXCEED THE FO	1400 KSI	
		REQUIREMENTS. (EXAMPLE SPECIES: #2 SPRUCE-PINE-FIR) 1. F_B 2. F_V	875 PSI 135 PSI	
	c	3. F _C 4. E	1150 PSI 1400 KSI	
	C. D.	ALL LVL MEMBERS SHALL BE 2.0E MICROLLAM OR APPROVED ALL WOOD FRAMING MEMBERS INDICATED ARE NOMINAL SI SIZES, KILN-DRIED, WITH MAXIMUM IN-PLACE MOISTURE CO	ZES. PROVIDE ACTUAL DRESSED INTENT OF 19%.	
	E. F.	ALL BOLTS ARE A36 OR A307, GRADE 1, AND ALL NAILS ARE NOTED OTHERWISE. LAY ALL STRUCTURAL PANELS WITH FACE GRAIN PERPENDIC	COMMON WIRE NAILS UNLESS	BE
	г.	AND OFFSET END JOINTS 4'-0". PANELS TO BE APA RATED AN SHOWN IN SECTION 2 "DESIGN" AND SHOULD MATCH THE S	ND STAMPED FOR THE LOADING	
	G.	PLANS. ROOF DECKING SHALL BE 3/4" THICK APA RATED EXTERIOR WITH 10d NAILS AT 6" O.C. ON EDGES AND 12" O.C. IN FIELD		
	Н. -	FASTENER QUALITY, QUANTITY, SIZE, AND SPACING SHALL OSCHEDULE (TABLE 2304.9) UNLESS NOTED OTHERWISE.	COMPLY WITH IBC FASTENING	
11.	I. STRUC	ALL WOOD IN CONTACT WITH CONCRETE OR EXPOSED TO V TREATED. FURAL STEEL	EATHER SHALL BE PRESERVATIVE	
	A.	ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, A WITH AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDIN		
	В.	AND AISC CODE OF STANDARD PRACTICE. ALL STRUCTURAL STEEL FOR WIDE FLANGE SHALL BE A992 O OTHERWISE. ALL ANGLES, PLATES AND CHANNELS SHALL BE		
	C.	OTHERWISE. ALL RECTANGULAR AND ROUND HSS SHAPES SHALL BOLTS SHALL BE 3/4" Ø A-325 BOLTS WITH HEAVY HEX H	IALL BE ASTM A500, GRADE B. IEADS UNLESS NOTED OTHERWISE.	
	D.	ALL CONNECTIONS SHALL HAVE A MINIMUM OF (2) 3/4" Ø BO ONLY. ALL STRUCTURAL STEEL WELDS IN THE SHOP OR IN THE FIE		
	D. Е.	QUALIFIED WELDER AND SHALL CONFORM TO THE CURRENT SHOP WELDED AND FIELD BOLTED CONNECTIONS ARE PREF	REQUIREMENTS OF A.W.S.	
	F.	OTHERWISE. THE CONTRACTOR SHALL PROVIDE SHELF ANGLES, GLASS SU MISC. STEEL AS SHOWN ON THESE DRAWINGS AS REQUIRED		
		(STABILIZATION) AROUND AND THROUGHOUT THE BUILDING		

A9 2ND FLOOR PLAN 1/8" = 1'-0"

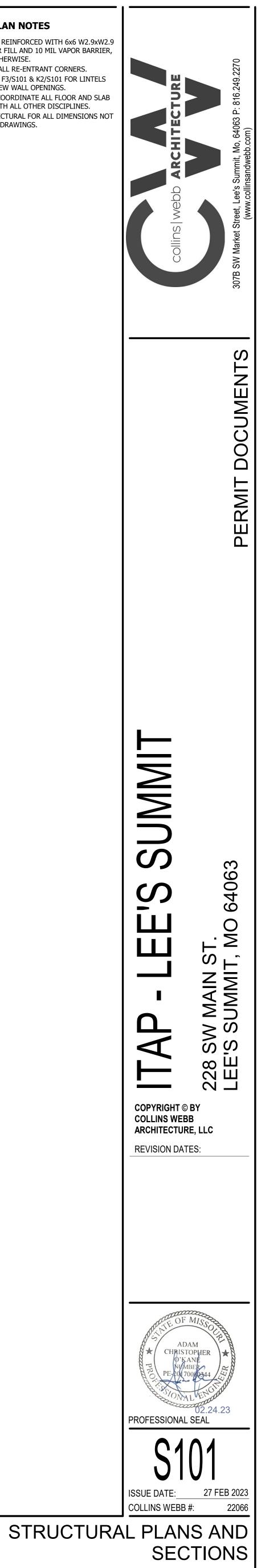




A5 LEVEL 1 FLOOR PLAN 1/8" = 1'-0"

OVER 4" GRANULAR FILL AND 10 MIL VAPOR BARRIER,

. REFER TO ARCHITECTURAL FOR ALL DIMENSIONS NOT



					DOOR SC	HEDULE	
						DOOR	
DOOR #	WIDTH	HEIGHT	ROOM NAME	TYPE	MATERIAL	FINISH	MATERIAL
T100	EXIST	EXIST	BAR/DINING	EXIST	EXIST	COORD. W/ OWNER	EXIST
T101	3' - 2"	7' - 0"	DELI	D3	ALUM/GLASS	MATCH EXISTING STOREFRONT	
T103	3' - 0"	7' - 0"	ADA UNISEX RR	D1	SCWD		WD
T104	PER EXISTING OPENING	PER EXISTING OPENING	POOL ROOM	D2	ALUM/GLASS	MATCH EXISTING STOREFRONT	
T105	3' - 0"	7' - 0"	MEP/ITAP STORAGE	D1	SCWD		НМ
T108A	3' - 0"	7' - 0"	UTILITY	D1	SCWD		HM
T108B	2' - 10"	7' - 0"	RESTROOM	D1	SCWD		HM
T108C	2' - 10"	7' - 0"	RESTROOM	D1	SCWD		HM
T108D	3' - 0"	7' - 0"	RESTROOM	D1	SCWD		HM
T109	3' - 0"	7' - 0"	RESTROOM	D1	SCWD		HM

DOOR SCHEDULE REMARKS:

2

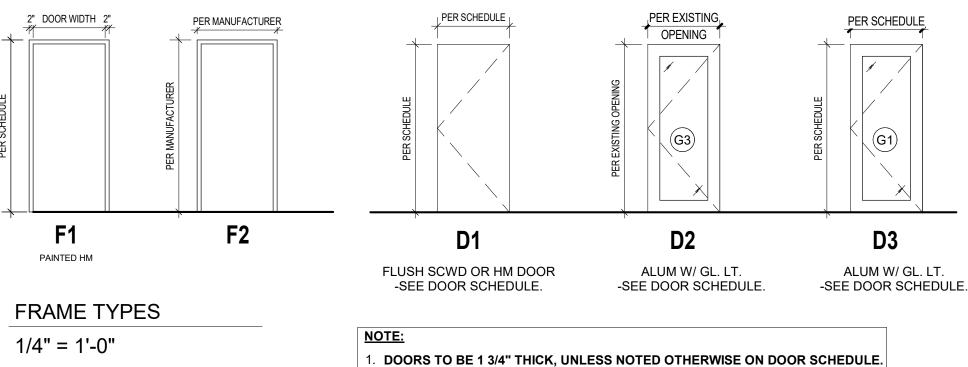
1. MATCH EXISTING MASTER KEYING SYSTEM. COORDINATE WITH BUILDING OWNER. 2. MAINTAIN EXISTING HARDWARE.

3. PROTECT DOOR AND FRAME FROM DAMAGE THROUGHOUT CONSTRUCTION. ANY DAMAGE TO BE REPAIRED/REPLACED PER OWNER DISCRETION.

4. DOOR FRAME 2" OFF FINISHED FACE ON HINGE SIDE, U.N.O. 5. PROVIDE PANIC HARDWARE.

6. MANUALLY LOCKABLE FROM INSIDE OF ROOM. MASTER KEY LOCK ON OUTSIDE OF ROOM. 7. COORDINATE HARDWARE WITH MANUFACTURER.





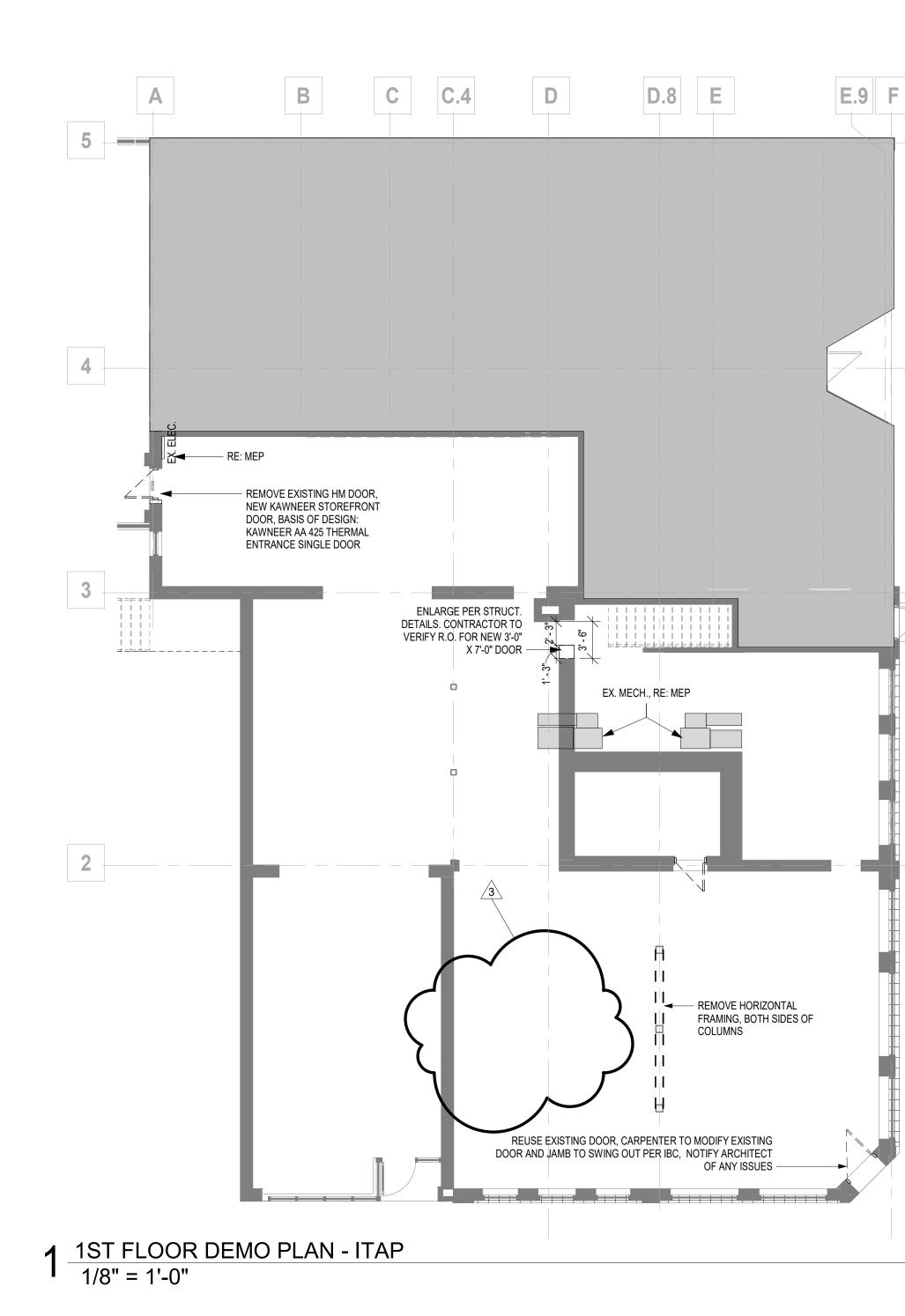
	ACCESSORY SCHEDULE								
TYPE MARK	MANUFACTURER	DESCRIPTION	MODEL	WxHxD	FINISH	REMARKS			
	•								
1	BOBRICK WASHROOM EQUIPMENT, INC.	SOAP DISPENSER - SURFACE MOUNTED	B-2012	4-3/16", 10-17/32", 4-7/32"	SATIN				
2	BOBRICK WASHROOM EQUIPMENT, INC.	SURFACE MOUNTED PAPER TOWEL DISPENSER	B-262	10-3/4", 14", 4"	SATIN				
3	BOBRICK WASHROOM EQUIPMENT, INC.	VERTICAL GRAB BAR, 1-1/2" DIA., SS, 18"	B-6806-18	1-1/2" DIA X 18"	SATIN, WITH PEENED GRIP				
4	BOBRICK WASHROOM EQUIPMENT, INC.	GRAB BAR, 1-1/4" DIA., SS, 42"	B-5806-42	1-1/2" DIA X 42"	SATIN				
5	BOBRICK WASHROOM EQUIPMENT, INC.	DOUBLE ROLL TOILET TISSUE DISPENSER	B-6999	12-3/8", 4-3/4", 6-3/16"	STAINLESS STEEL				
6	BOBRICK WASHROOM EQUIPMENT, INC.	GRAB BAR, 1-1/2" DIA., SS, 36"	B-5806-36	1-1/2" DIA X 36"	SATIN				
7		MIRROR		24"X48"	SATIN	1			

ACCESORY SCHEDULE GENERAL NOTES:

A. ACCESSORIES SCHEDULE BASIS OF DESIGN, COORDINATE FINAL SELECTION WITH OWNER

ACCESORY SCHEDULE REMARKS:

1. MIRROS TO BE CENTERED AT SINKS TYP.

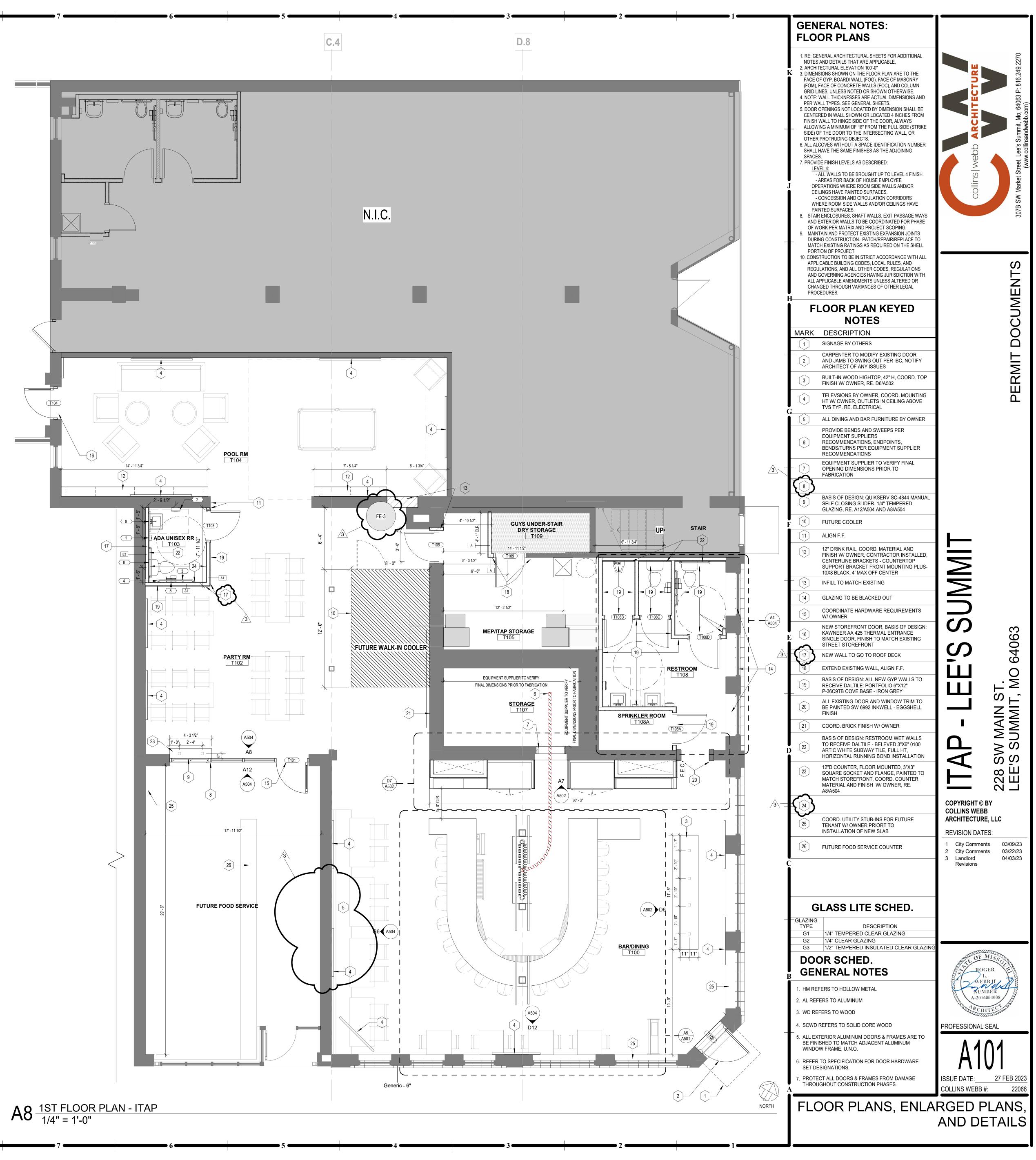


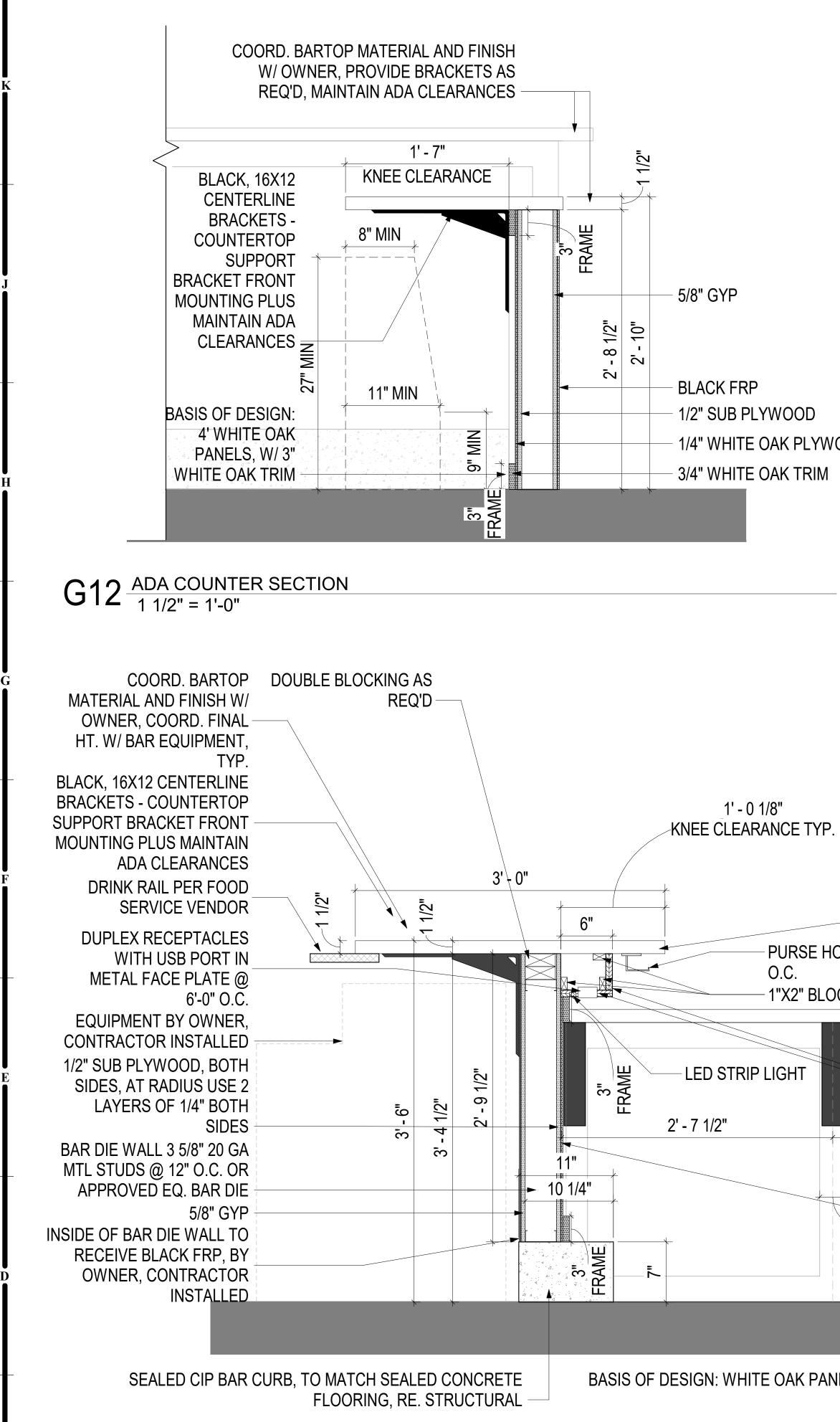
8	
FRAME	
FINISH	REMARKS
COORD. W/ OWNER	1, 2, 3, 5, 8
	1, 3, 6, 7
	1, 3, 4
	3, 4, 5, 7
PAINT	1, 3, 4, 8
PAINT	1, 3, 6, 8
PAINT	1, 3, 8
PAINT	1, 3, 8
PAINT	1, 3, 4, 8
PAINT	1, 3, 8

 \bigcirc

NORTH

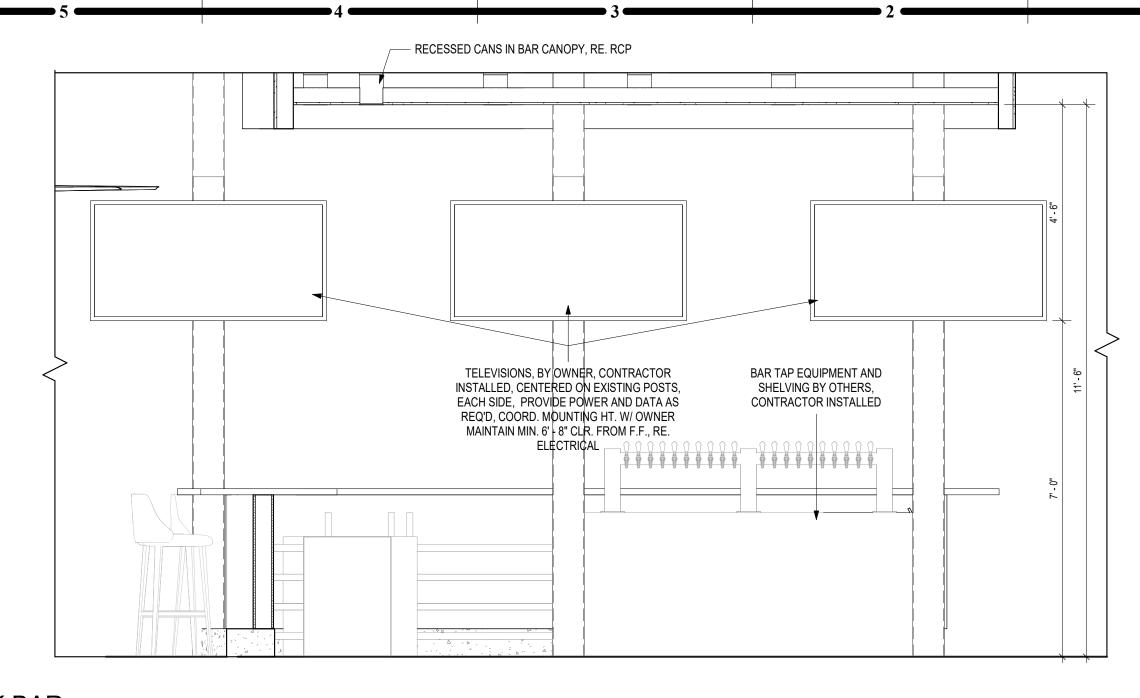
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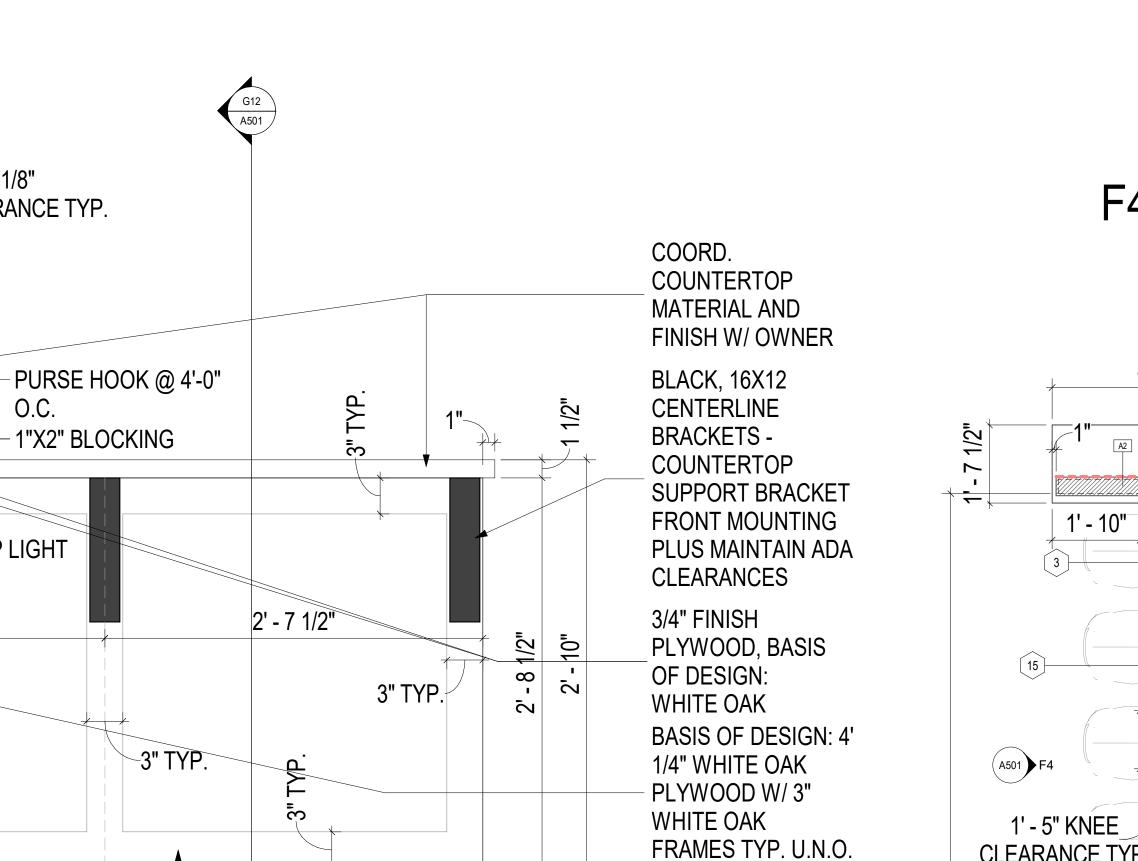


C12 BAR COUNTER AND CURB, ADA COUNTER $1 \frac{1}{2} = 1-0$

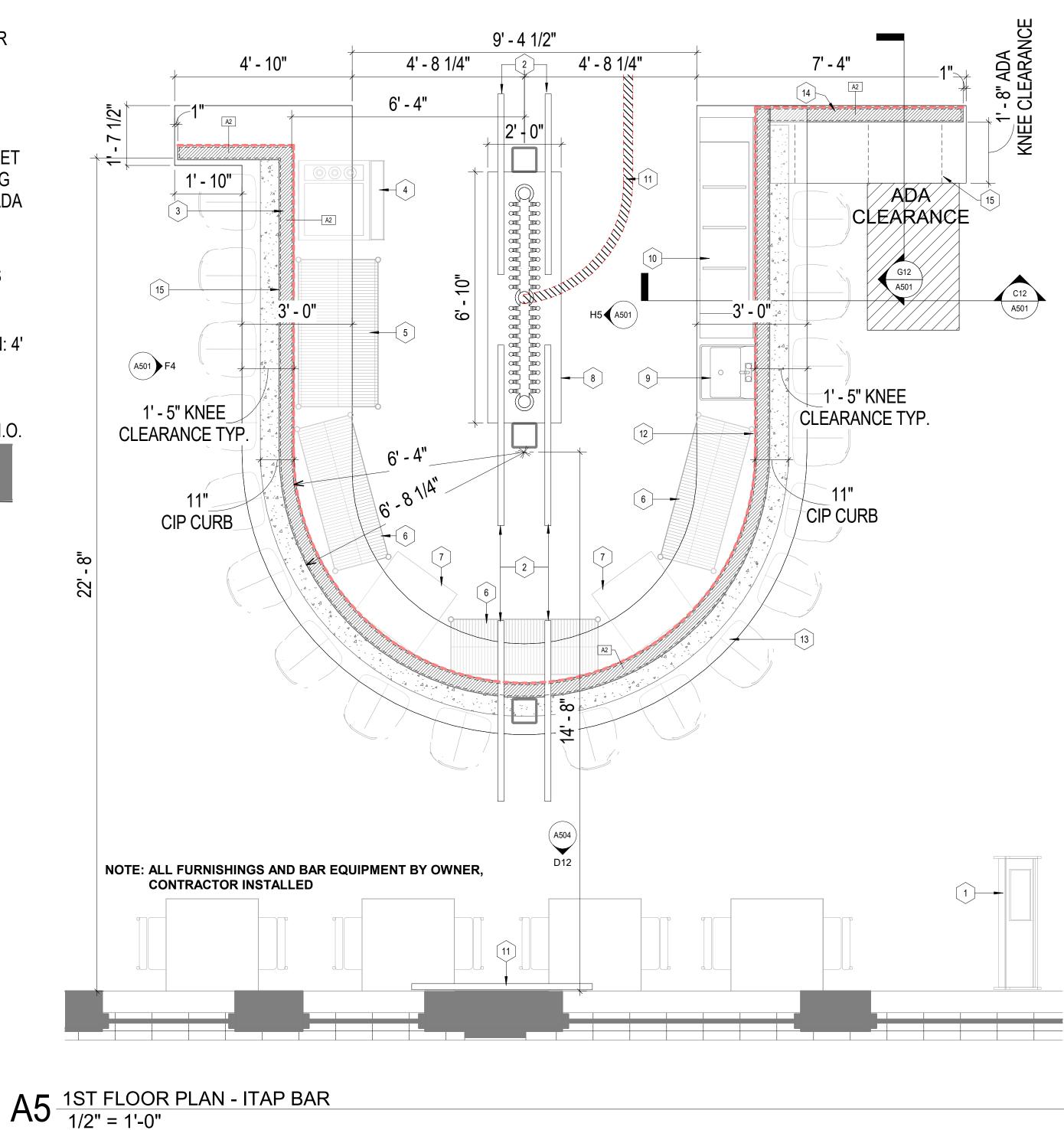
- 1/4" WHITE OAK PLYWOOD BOTH SIDES

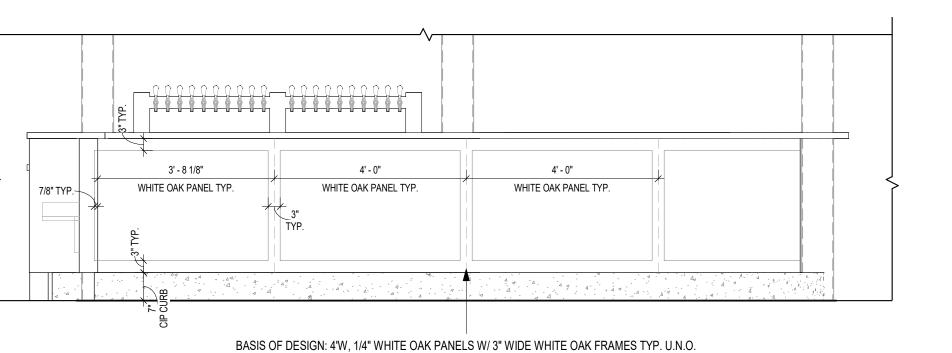


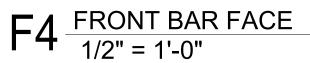




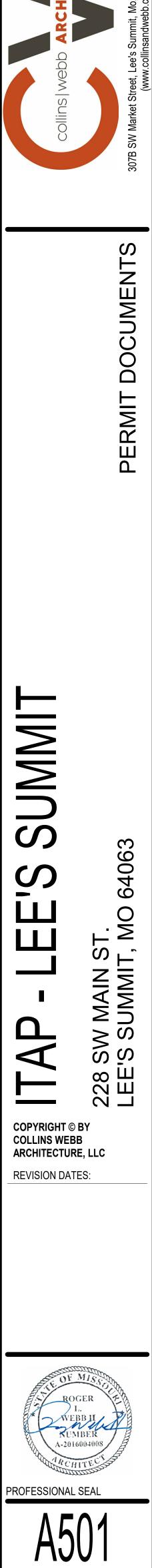
BASIS OF DESIGN: WHITE OAK PANELS W/ 3" WIDE WHITE OAK FRAMES TYP. U.N.O.



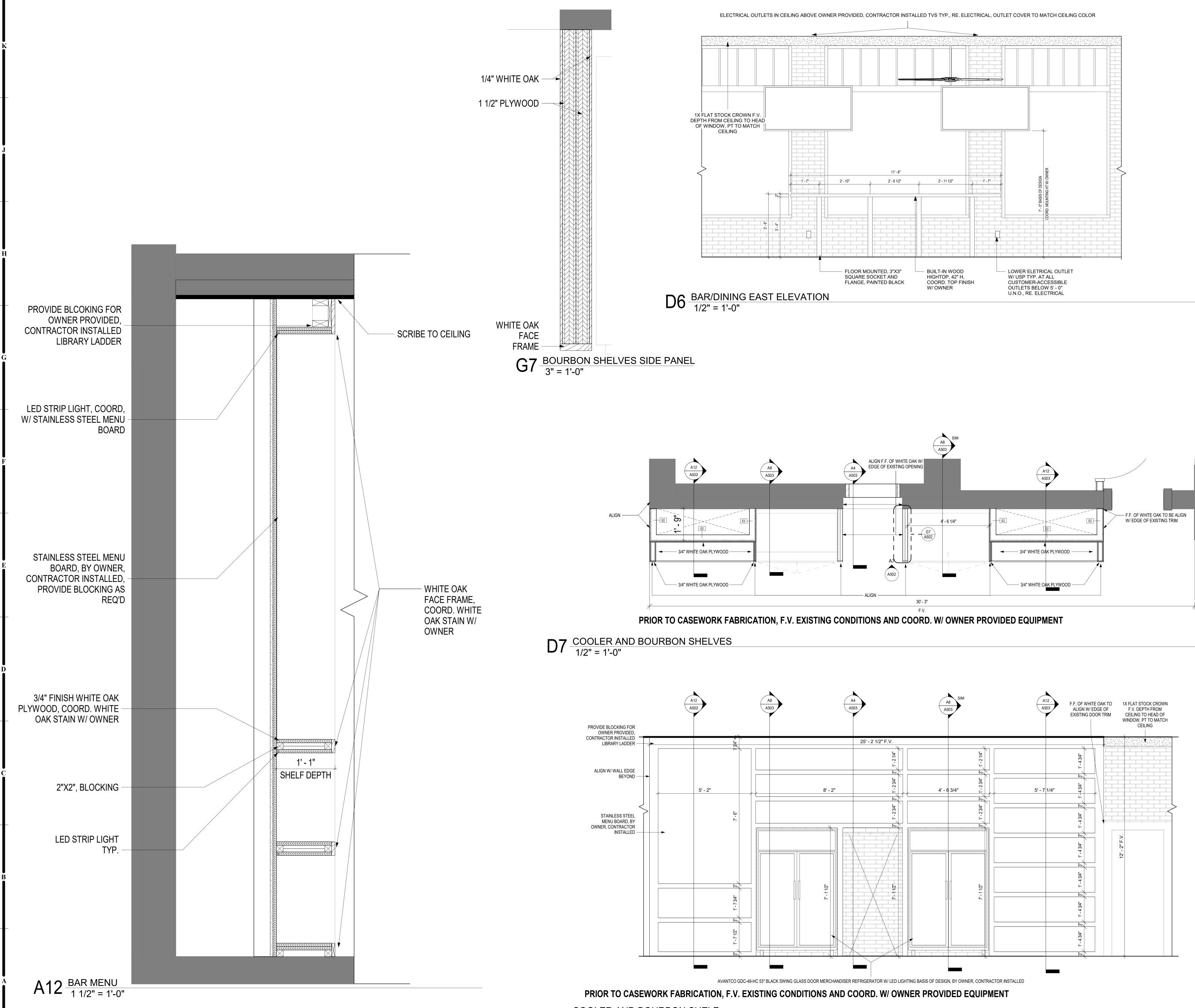




			Î
I		LARGED BAR FLOOR LAN KEYED NOTES	
	MARK	DESCRIPTION	.227
K		HOSTESS STAND	16.249
	2	TELEVISIONS ABOVE, PROVIDE POWER AND DATA AS REQ'D, MOUNTED ON EXISTING POSTS, COORD. MOUNTING HT W/ OWNER, MAINTING MIN. 6' - 8" CLR. FROM F.F., RE. H5/A502	Collins webb ARCHITECTURE
	3	4" METAL STUD BAR DIE WALL	mmit, J
	4	ICE MACHINE	
	5	WHISKEY SHELF	Collins webb
ļ	6	GLASSWARE SHELF	A DIS V
J-	7	POS STATION, PROVIDE POWER AND DATA AS REQ'D	COlli W Mari
	8	BEER TAPS EQUIPMENT AND SHELVING BY OTHERS, CONTRACTOR INSTALLED	307B S
	9	HAND SINK	
	10	DISHWASH SINK	
	11	PROVIDE BENDS AND SWEEPS PER EQUIPMENT SUPPLIERS RECOMMENDATIONS, ENDOPOINTS, BENDS/TURNS PER EQUIPMENT SUPPLIERS RECOMMENDATIONS	NTS
⊢ H	12	INSIDE OF BAR DIE WALL TO RECEIVE BLACK FRP, FROM TOP OF CIP CURB TO BOTTOM OF COUNTERTOP	OCUMEN
	13	COORD. BAR TOP MATERIAL AND FINISH W/ OWNER, CONTRACTOR INSTALLED	
	14	BAR FACE BASIS OF DESIGN: 4'W, 1/4" WHITE OAK PANELS W/ 3" WIDE WHITE OAK FRAMES TYP.	
I	15	PROVIDE SOLID BLOCKING IN WALL FOR BRACKET LAGS	RMIT TIMS
	15	CENTERLINE BRACKETS - COUNTERTOP SUPPORT BRACK FRONT MOUNTING PLUS - 16X12 BLACK - MAINTAIN ADA CLEARANCES	L L L L L L L L L L L L L L L L L L L



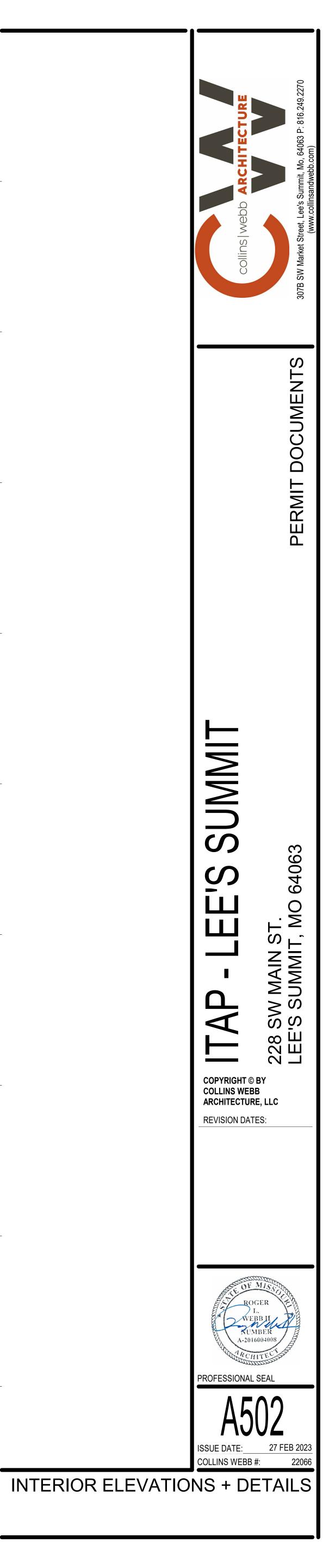


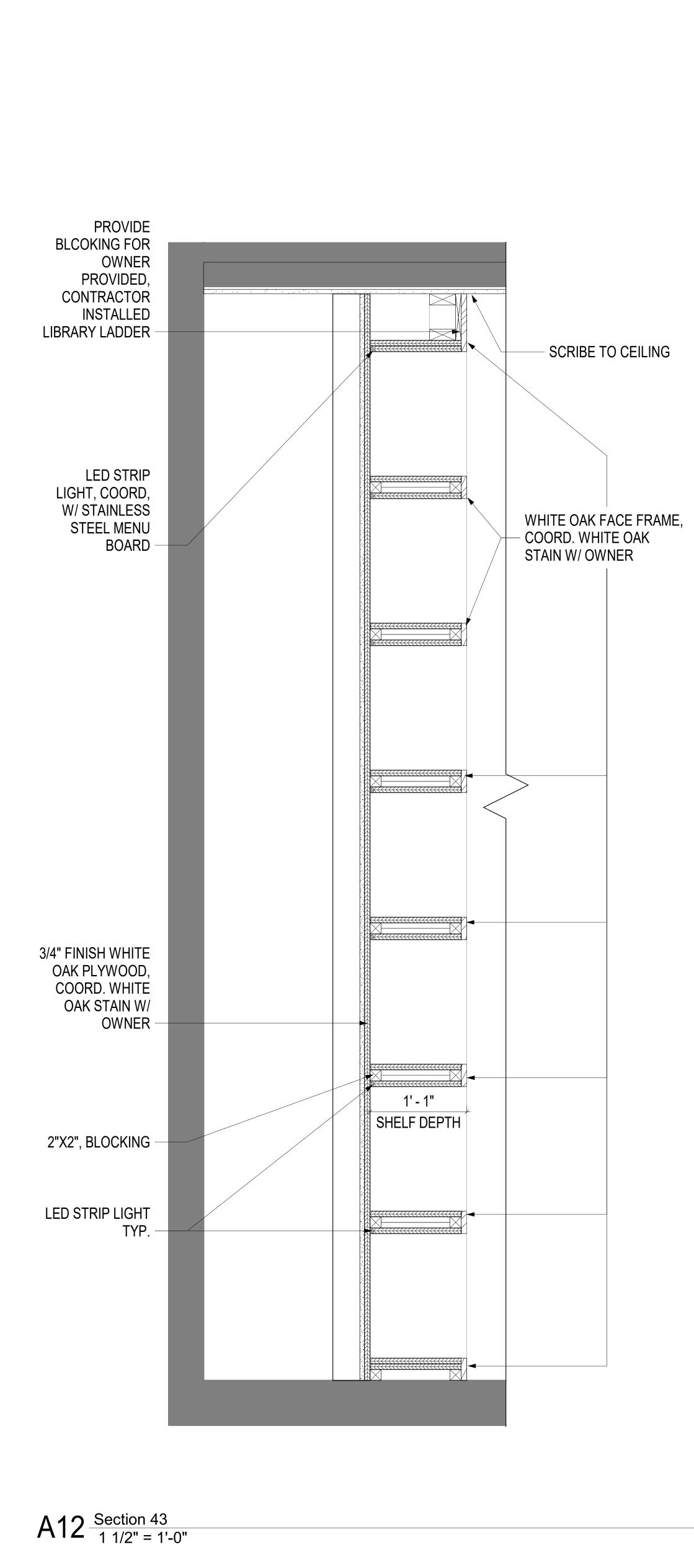


A7 COOLER AND BOURBON SHELF 1/2" = 1'-0"

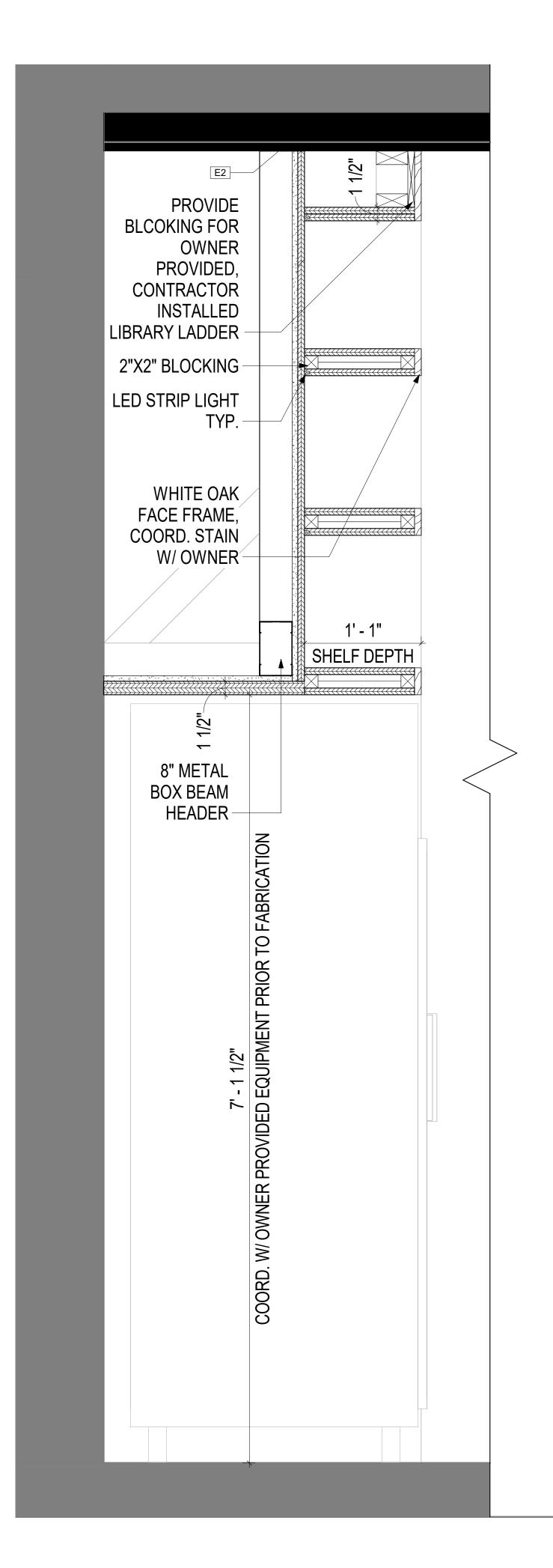


A5		A503	F.F. OF WHITE OAK TO ALIGN W/ EDGE OF EXISTING DOOR TRIN	F.V. DEPTH FROM
- 2 1/2" F.V.				
3" 1' - 2 1/4"	3" 1' - 2 1/4"		3" 1' - 4 3/4"	
	3/4" -+	5' - 7 1/4"	1'-4 3/4"	
3" 1'-23/4"	3" 1'-23/4"		1' - 4 3/4"	
				12' - 2" F.V.
			3" 1' - 4 3/4"	12'-
			1' - 4 3/4"	
			1' - 4 3/4" 3"	
			1' - 4 3/4" 3"	

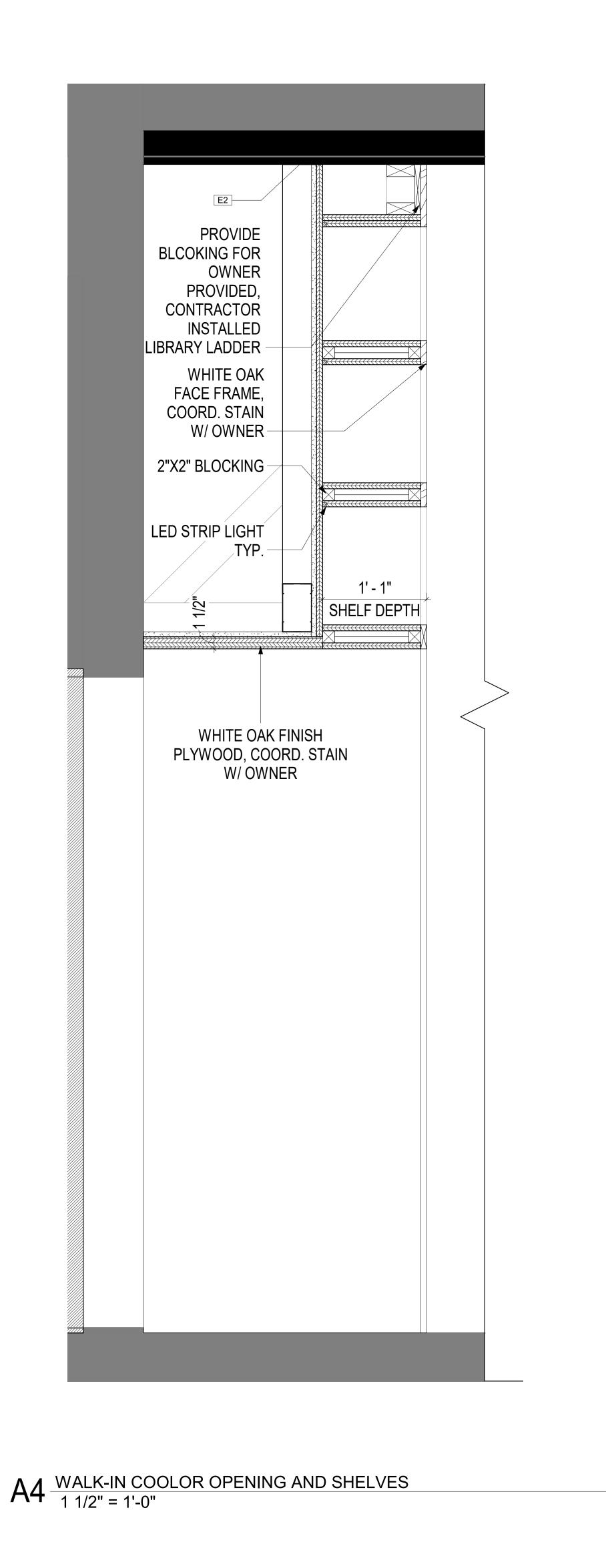


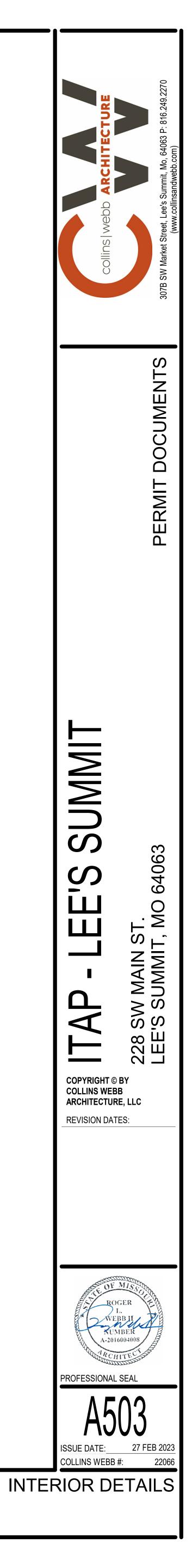


32 1:1 23



A8 REACH-IN COOLER W/ SHELVES ABOVE 1 1/2" = 1'-0"

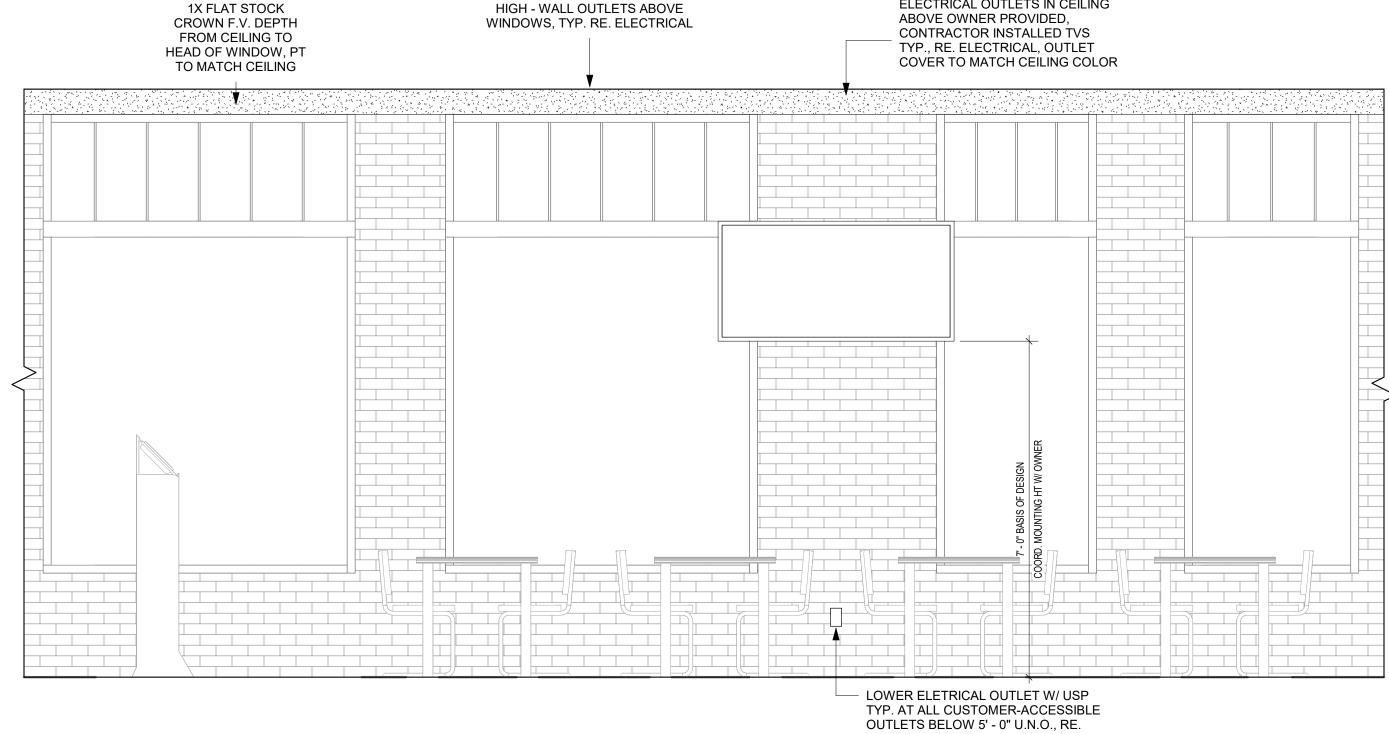


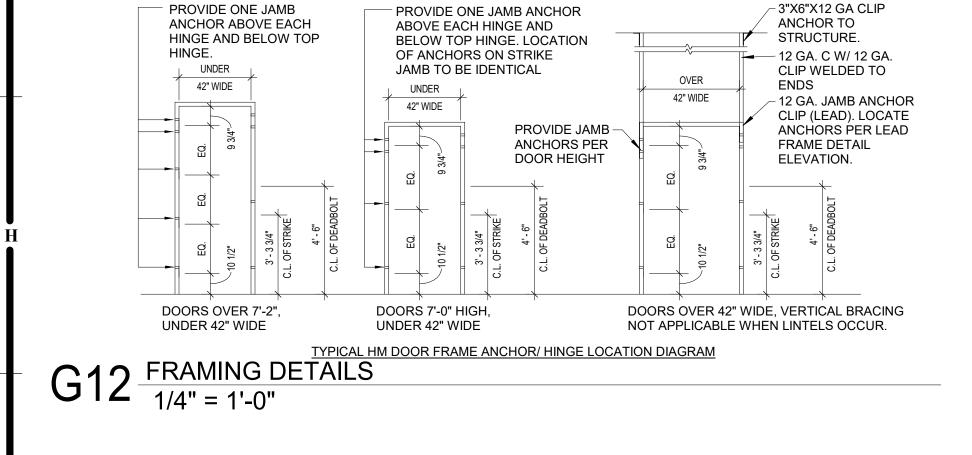


A12 GUYS/PARTY ROOM STOREFRONT 1/2" = 1'-0"

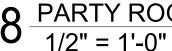
-				
STOREFRONT TO BE COORDINATED W/ SERVICE	G2	G2	G2)	G2
WINDOW, BASIS OF DESIGN: QUIKSERV SC-4844 FLUSH MOUNT MANUAL SELF-CLOSING WINDOW, DARK BRONZE FINISH,1/4" TEMPERED GLAZING		G2	F.V. PER EXISTING OPENING	
STOREFRONT MULLION FINISH TO MATCH EXISTING EXTERIOR STOREFRONT MULLIONS	G1 [2] 61 [2] 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	G1 EQ	G1) EQ	3' - 2"

D12 BAR/DINING SOUTH ELEVATION $\frac{1}{2} = 1'-0''$

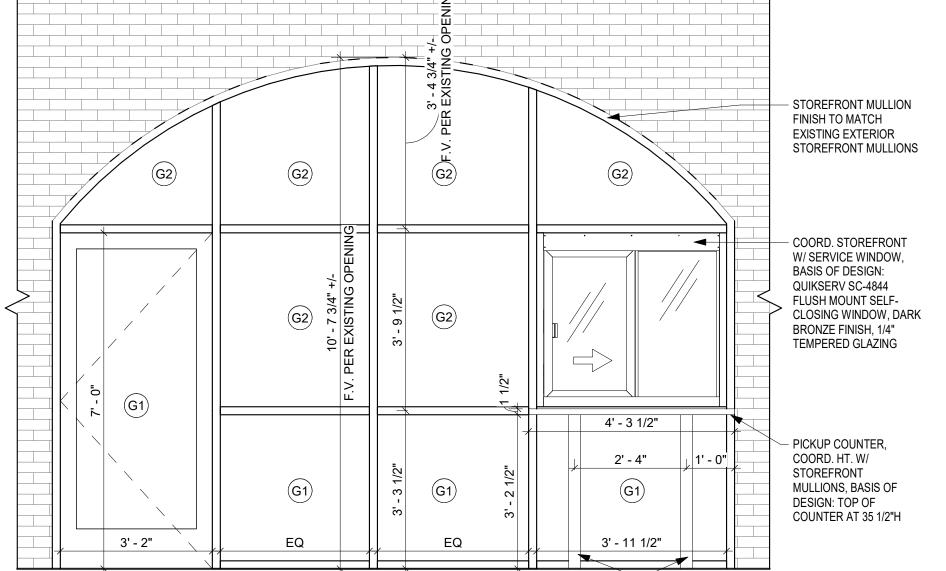




A8 PARTY ROOM/GUYS STOREFRONT 1/2" = 1'-0"



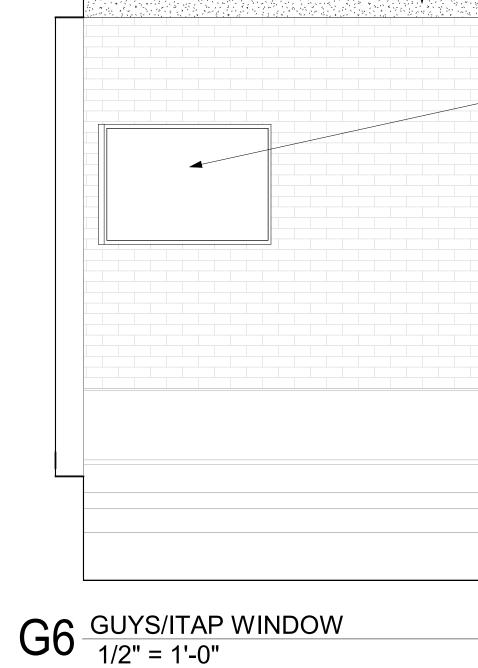
FLOOR MOUNTED, 3"X3" SQUARE SOCKET AND FLANGE, PAINTED TO MATCH STOREFRONT MULLIONS

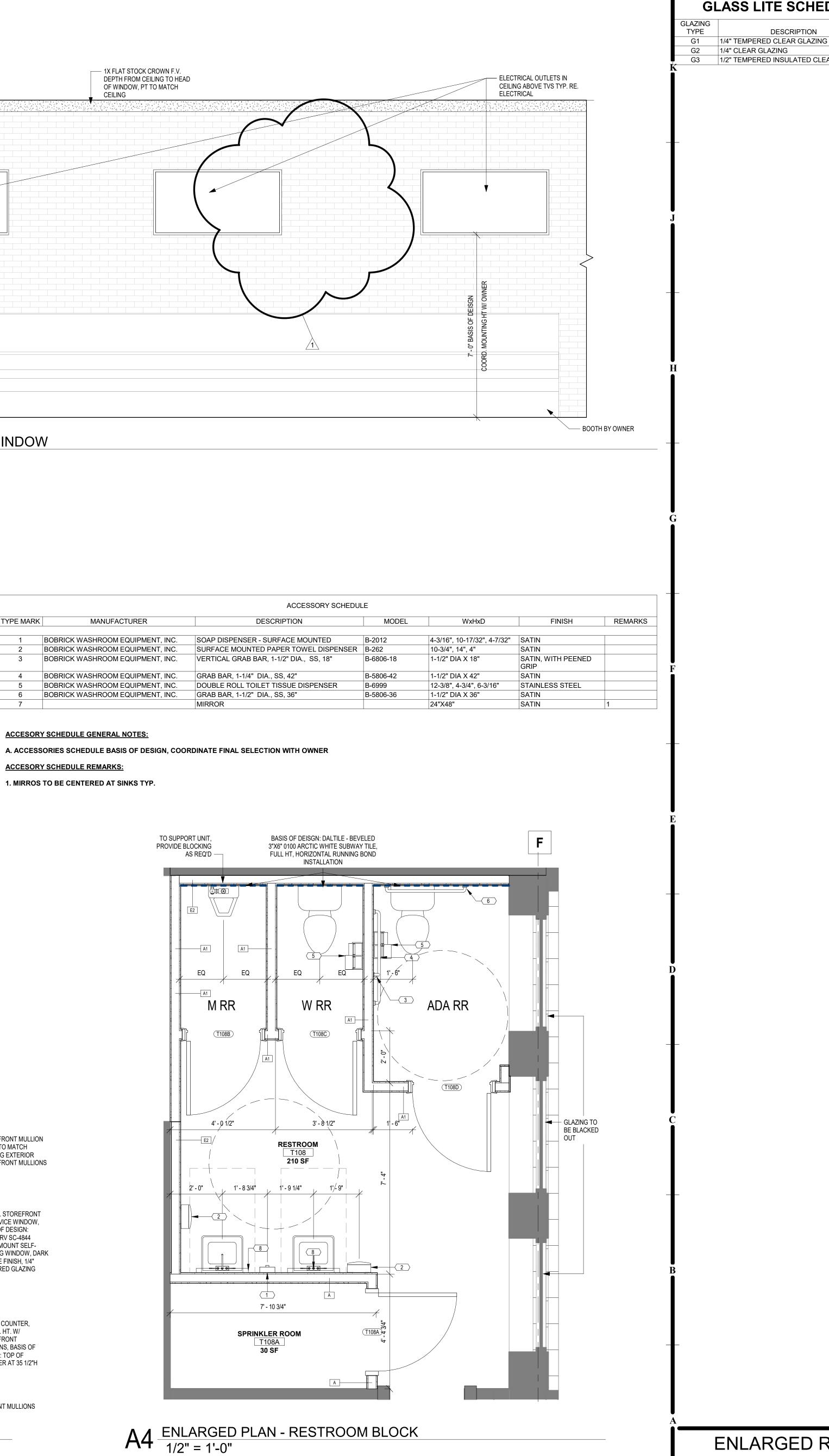


TYPE MARK	MANUFAC
1	BOBRICK WASHROOM E
2	BOBRICK WASHROOM E
3	BOBRICK WASHROOM E
4	BOBRICK WASHROOM E
5	BOBRICK WASHROOM E
6	BOBRICK WASHROOM E
7	

ELECTRICAL OUTLETS IN CEILING

ELECTRICAL

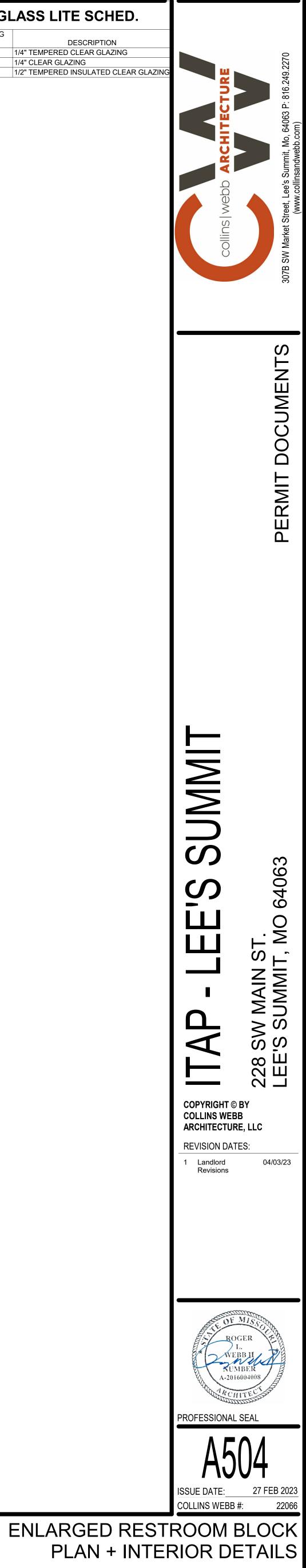




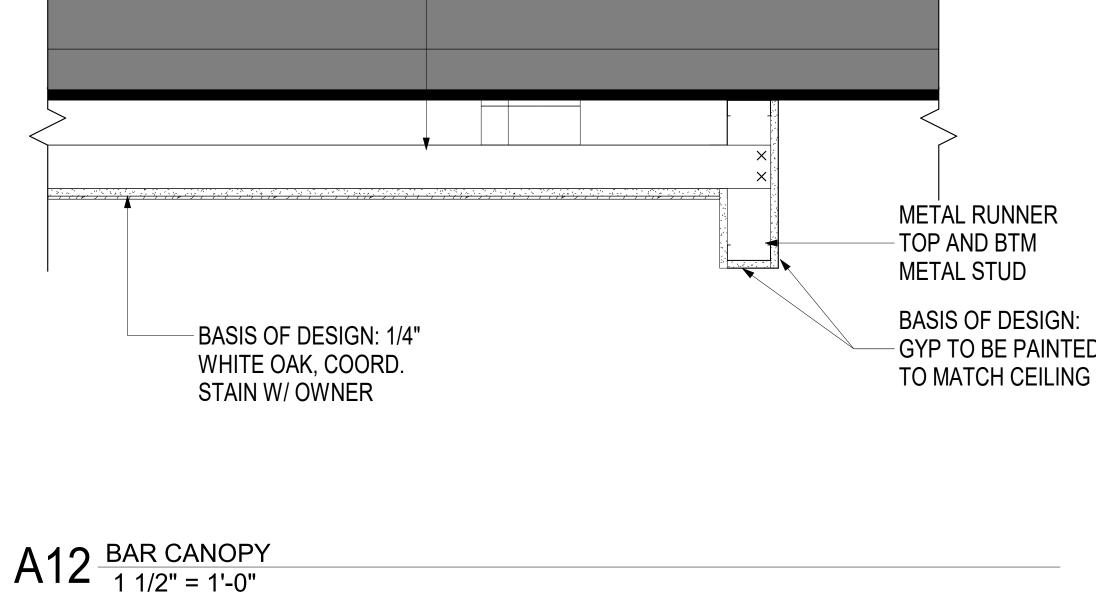


DESCRIPTION

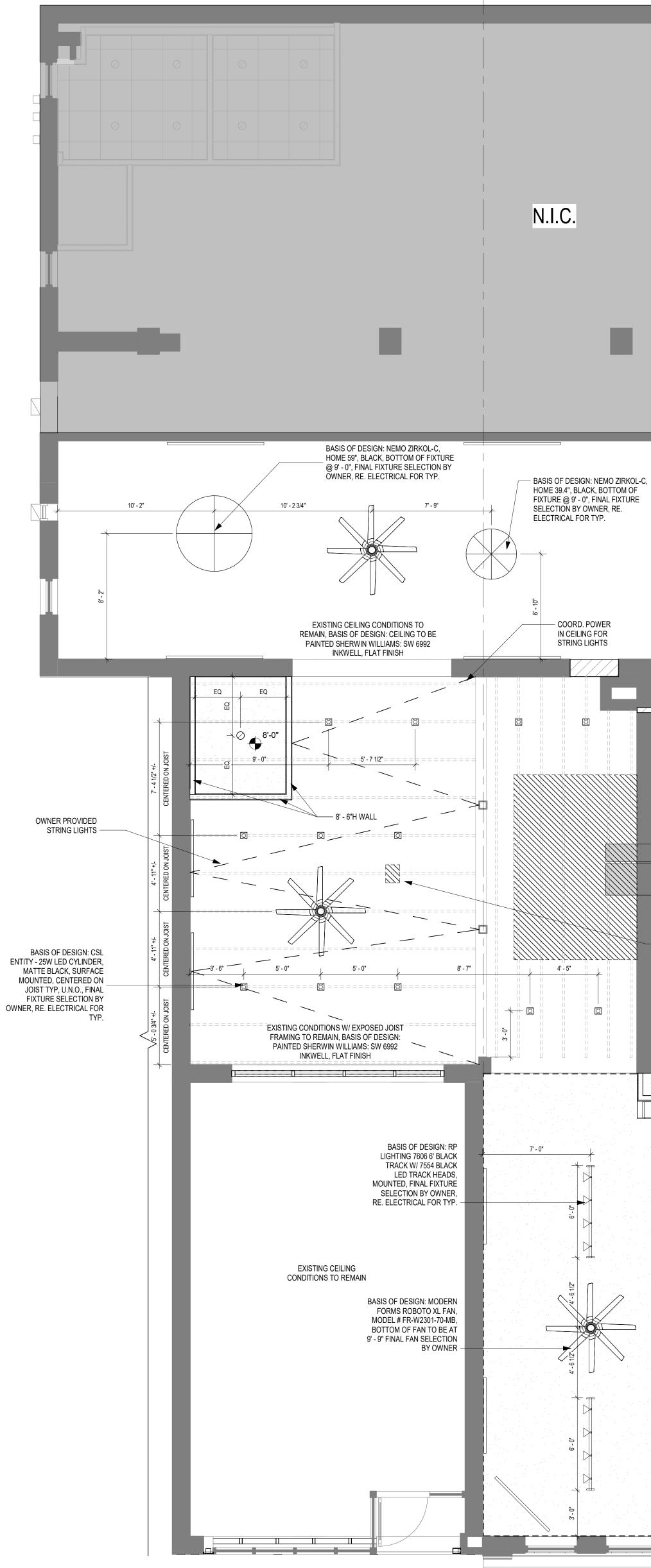
1/2" TEMPERED INSULATED CLEAR GLAZI



MTL. C-JOIST TO MATCH STUD LAYOUT AT 16" O.C.







- GYP TO BE PAINTED

GENERAL NOTE: ALL EXPOSED CEILING CONDUIT TO BE PAINTED TO MATCH CEILING

A8 OVERALL RCP - UPPER LEVEL $\frac{1}{4} = 1'-0''$

GENERAL NOTES -REFLECTED **D.8 CEILING PLANS:** RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE. DIMENSIONS SHOWN ON THE REFLECTED CEILING PLANS ARE TO THE FACE OF GYP. BOARD (FOG), AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN OTHERWISE. OTHERWISE. (FINISHED FLOOR) TO FINISH CEILING. 6 INCHES ABOVE ADJACENT CEILING. CEILING HEIGHT INFORMATION. ROOM CEILING FINISHES. ROOM, UNLESS NOTED OTHERWISE. RECESSED LIGHTING, SPEAKERS, SMOKE DETECTORS, ETC. AND PENDANT LIGHT TILE OR GYP. BD. CEILING, UNLESS NOTED OTHERWISE. WALL MOUNTED LIGHT FIXTURES. 11. RE: ELECTRICAL SHEETS AND SPECIFICATIONS FOR DETAILED INFORMATION ON LIGHT FIXTURE SCHEDULE. FOR DETAILED INFORMATION ON DIFFUSERS. 13. COORDINATE ALL PENDANT MOUNTED LIGHT FIXTURES IN EQUIPMENT AREAS WITH EXPOSED STRUCTURE. 14. COORDINATE ALL CEILING MOUNTED EQUIPMENT WITH CASEWORK BELOW. 15. IF THERE IS A CONFLICT BETWEEN ANY ABOVE-CEILING MECHANICAL / ELECTRICAL / PLUMBING WORK & THE SCHEDULED OR SHOWN CEILING HEIGHT, CONTACT THE 16. REF. MECH DWGS FOR LOCATIONS OF SOUND ISOLATION BELOW AND OR AROUND MECH.EQUIPMENT. 7. PROVIDE OVERALL CEILING COORDINATION DRAWING SHOWING ALL DEVICES DURING SHOP SUBMITTAL PROCESS. CEILING PLAN LEGEND *SOME SYMBOLS MAY NOT BE USED IN THIS PROJECT. - BASIS OF DESIGN: SIGNIFY - BASIS OF DESIGN: SIGNIFY DAY-BRITE CFI 4' SDS DAY-BRITE CFI 4' SDS SELECTABLE STRIP. SELECTABLE STRIP, SUSPENDED FROM MOUNTED, UNDERSIDE OF STRUCTURE, BOTTOM OF STAIR, MAINTAIN MIN. 6' - 8" FIXTURE @ 9' - 0", RÉ. CLR. FROM F.F., RE. ELECTRICAL FOR TYP. ELECTRICAL FOR TYP. Q TVP EQ EQ 4' - 8" 6' - 0" \mathcal{O} - BASIS OF DESIGN: SIGNIFY DAY-BRITE CRI 4' SDS SELECTABLE STRIP, SUSPENDED FROM STRUCTURE, BOTTOM OF FIXTURE @ 9' - 0", COORD. OTS W/ MECH. EQUIPMENT, RE. ELECTRICAL FOR TYP. \bigcirc 3' - 7 3/4" \odot +0- LIGHT BAR WALL SCONCE, BASIS OF DESIGN: L 12'-2" KUZCO - 30"L INTERLUX 20 LINEAR SURFACE, MODEL PROJECTOR MOUNTED TO #WG-20LDL-SM, BLACK, EXISTING EXPOSED JOISTS, FINAL FIXTURE SELECTION POWER AND DATA AS REQ'D. BY OWNER, MOUNTED COORD. LOCATION W/ OWNER HORIZONTALLY, CENTER PROVIDED, CONTRACTOR ABOVE MIRROR AND INSTALLED PROJECTOR SINKS OTS A12 A502 A503 A503 - BASIS OF DESIGN: SIGNIFY DAY-BRITE CFI 4' SDS SELECTABLE STRIP, SUSPENDED FROM STRUCTURE, CENTERED IN ROOM, COORD. W/ TYPF SPRINKLER RISER SYSTEM, BOTTOM OF 11' - 8 1/2" 14' - 11 1/4" FIXTURE @ 9' - 0", RE. 1'-71 7' - 0" ELECTRICAL FOR TYP. TYPE. $\overline{\bigcirc}$ - COORD. FINAL TV LOCATIONS W/ OWNER -/ A12 A601 11'-6" \bigcirc - BASIS OF DESIGN: GYP TYPE. CEILING TO BE PAINTED SHERWIN WILLIAMS: SW 6992 INKWELL, FLAT FINISH 12'-2" 1X FLAT STOCK CROWN F.V. DEPTH FROM CEILING TO HEAD OF WINDOW, PT TO MATCH CEILING _____

ALL CEILINGS TO BE 9'-0" A.F.F., UNLESS NOTED ALL CEILING HEIGHTS AS SHOWN ON PLANS AND DETAILS ARE FROM SLAB OR TILE FLOOR

5. AT ALL GYP. BD. SOFFITS: EXTEND GYP. BD. UP . RE: DETAILS FOR ADDITIONAL CONDITIONS AND RE: FINISH LEGEND AND FINISH SCHEDULE FOR 8. CEILING TILES/GRID TO BE CENTERED IN THE

FIXTURES - SHALL BE CENTERED IN CEILING 10. RE: INTERIOR ELEVATIONS FOR LOCATION OF

12. RE: MECHANICAL SHEETS AND SPECIFICATIONS

ARCHITECT IMMEDIATELY FOR CLARIFICATION.

WOOD VISUAL

WC-5A OR WC-5B / PRICE BOTH MATERIALS FOR CLIENT APPROVAL

5/8" GYPSUM BOARD BULKHEAD, CEILING OR SOFFIT. SEE APPLICABLE DETAILS AND SECTIONS.

RECESSED CAN LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR TYPE.

BASIS OF DESIGN: CSL ENTITY -25W LED CYLINDER, MATTE BLACK, SURFACE MOUNTED, CENTERED ON JOIST TYP, U.N.O. FINAL FIXTURE SELECTION BY OWNER, RE. ELECTRICAL FOR

SUSPENDED OR MOUNTED SIGNIFY DAY-BRITE CFI LINEAR 4' SDS SELECTABLE STRIP LIGHT SEE ELECTRICAL DRAWINGS FOR TYPE.

LIGHT BAR WALL SCONCE, BASIS OF DESIGN: KUZCO - 30"L INTERLUX 20 LINEAR SURFACE, MODEL #WG-20LDL-SM, BLACK, FINAL FIXTURE SELECTION BY OWNER, MOUNTED HORIZONTALLY, CENTER ABOVE MIRROR AND SINKS

BASIS OF DESIGN: NEMO ZIRKOL C, HOME 59", BLACK, BOTTOM OF FIXTURE @ 9' - 0", FINAL FIXTURE SELECTION BY OWNER, RE. ELECTRICAL FOR TYP.

BASIS OF DESIGN: NEMO ZIRKOL C, HOME 39.4", BLACK, BOTTOM OF FIXTURE @ 9' - 0", FINAL FIXTURE SELECTION BY OWNER, RE. ELECTRICAL FOR TYP.

BASIS OF DESIGN: RP LIGHTING 7606 6' BLACK TRACK W/ 7554 BLACK LED TRACK HEADS, MOUNTED, FINAL FIXTURE SELECTION BY OWNER, RE. ELECTRICAL FOR TYP.

EMERGENCY WALL MOUNTED LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR TYPE.

EMERGENCY EXIT LIGHT FIXTURE (CEILING MOUNTED). SEE ELECTRICAL DRAWINGS FOR

EMERGENCY EXIT LIGHT FIXTURE (WALL MOUNTED). SEE ELECTRICAL DRAWINGS FOR

CEILING MOUNTED RETURN AIR GRILLE. SEE MECHANICAL DRAWINGS FOR TYPE.

CEILING MOUNTED SUPPLY DIFFUSER. SEE MECHANICAL DRAWINGS FOR TYPE. EXHAUST DUCT. SEE MECHANICAL DRAWINGS FOR

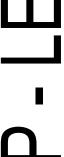
CEILING MOUNTED SPEAKER GRILLE. SEE ELECTRICAL DRAWINGS FOR TYPE.

SPRINKLER HEAD. SEE PLUMBING DRAWINGS FOR TYPE.



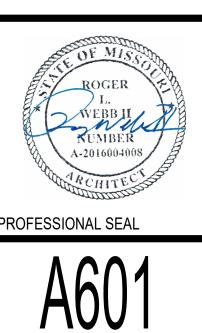
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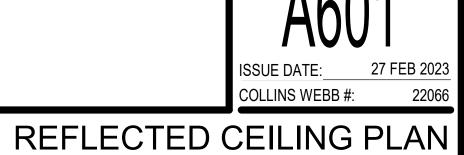




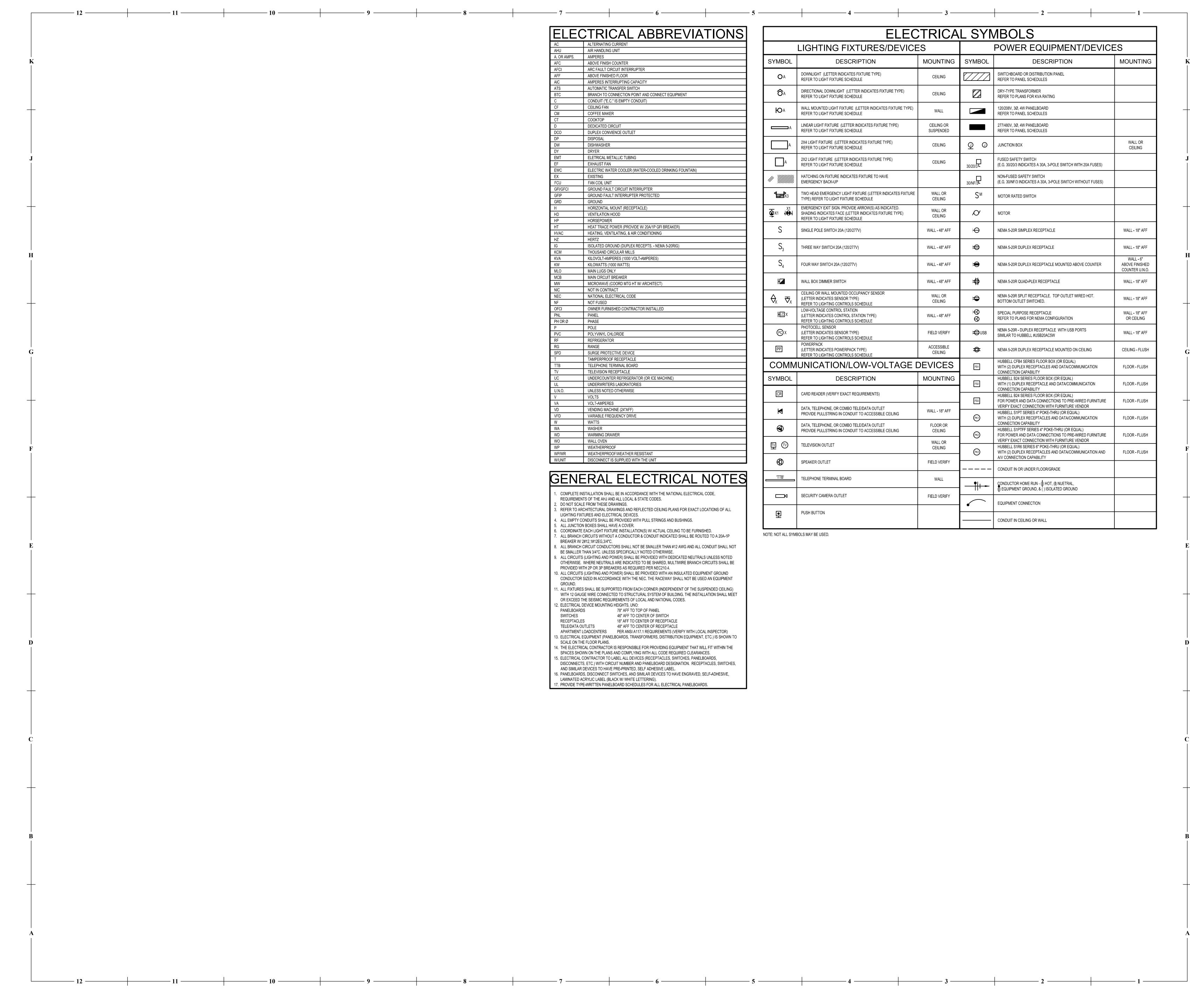


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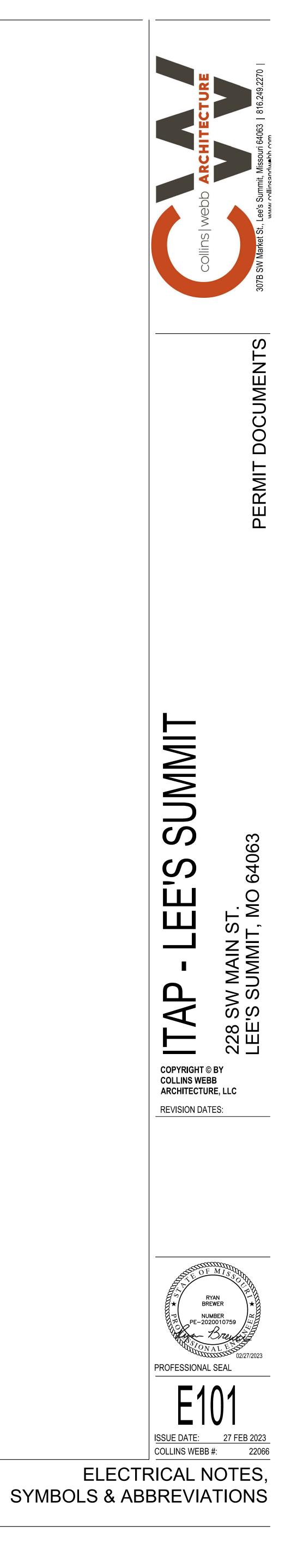


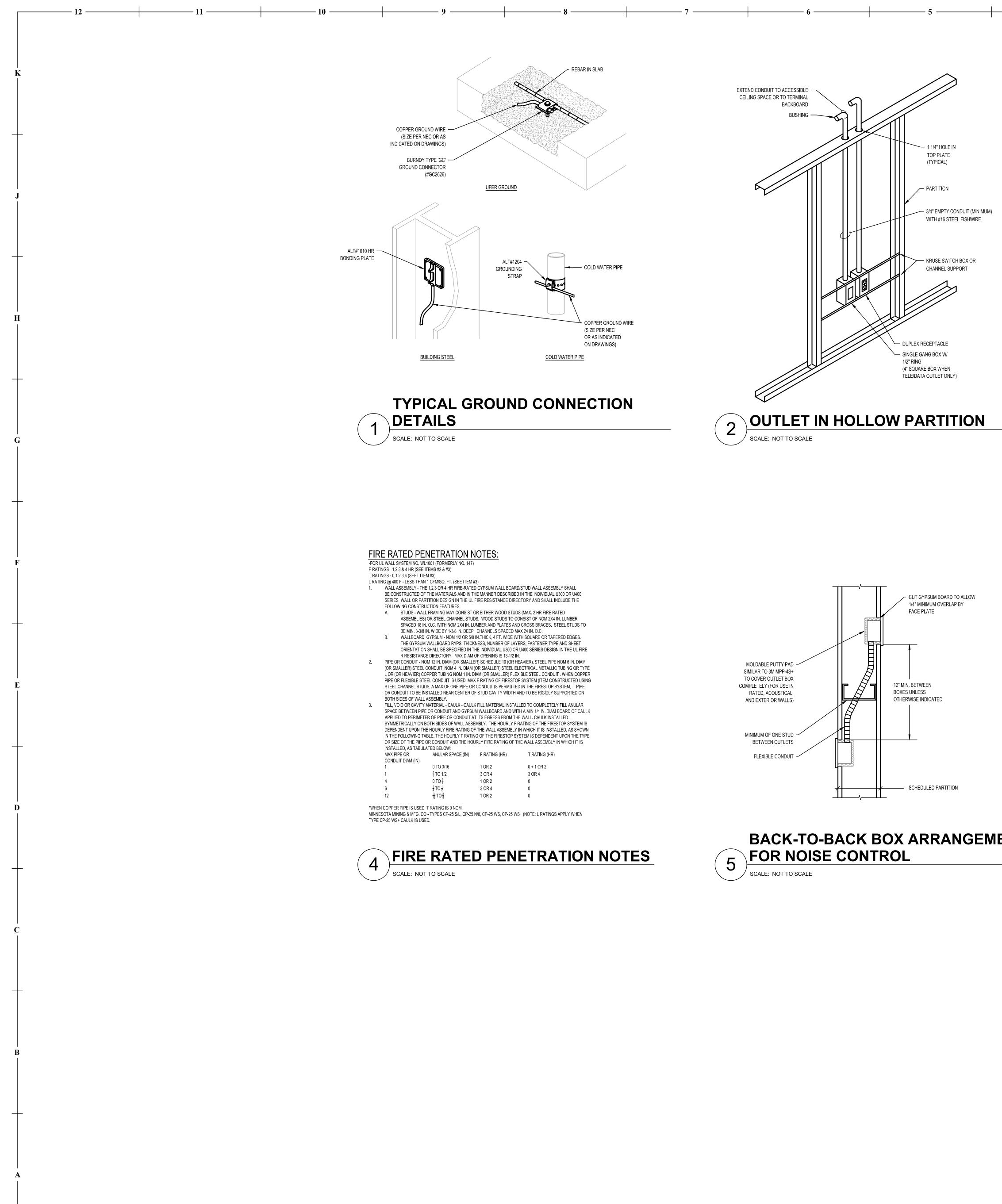
С НU	ALTERNATING CURRENT AIR HANDLING UNIT
OR AMPS.	AMPERES
C	ABOVE FINISH COUNTER
ïCl ïF	ARC FAULT CIRCUIT INTERRUPTER ABOVE FINISHED FLOOR
F C	ABOVE FINISHED FLOOR AMPERES INTERRUPTING CAPACITY
S S	AUTOMATIC TRANSFER SWITCH
С	BRANCH TO CONNECTION POINT AND CONNECT EQUIPMENT
	CONDUIT ("E.C." IS EMPTY CONDUIT) CEILING FAN
1	
- -	COOKTOP
	DEDICATED CIRCUIT
0	DUPLEX CONVIENCE OUTLET
· V	DISPOSAL DISHWASHER
, ,	DRYER
IT	ELETRICAL METALLIC TUBING
10	
/C	ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN) EXISTING
: :U	FAN COIL UNIT
i/GFCI	GROUND FAULT CIRCUIT INTERRUPTER
IP	GROUND FAULT INTERRUPTER PROTECTED
RD	
)	HORIZONTAL MOUNT (RECEPTACLE) VENTILATION HOOD
, ,	HORSEPOWER
	HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)
AC	HEATING, VENTILATING, & AIR CONDITIONING
	HERTZ ISOLATED GROUND (DUPLEX RECEPTS NEMA 5-20RIG)
M	THOUSAND CIRCULAR MILLS
A	KILOVOLT-AMPERES (1000 VOLT-AMPERES)
/	KILOWATTS (1000 WATTS)
0 `B	MAIN LUGS ONLY MAIN CIPCUIT REFAKER
VB	MAIN CIRCUIT BREAKER MICROWAVE (COORD MTG HT W/ ARCHITECT)
2 C	NOT IN CONTRACT
C	NATIONAL ELECTRICAL CODE
ici Il	OWNER FURNISHED CONTRACTOR INSTALLED PANEL
I OR Ø	PHASE
	POLE
С	
}	REFRIGERATOR RANGE
D	SURGE PROTECTIVE DEVICE
	TAMPERPROOF RECEPTACLE
В	TELEPHONE TERMINAL BOARD TELEVISION RECEPTACLE
;	UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)
,	UNDERWRITERS LABORATORIES
N.O.	UNLESS NOTED OTHERWISE
	VOLTS
	VOLT-AMPERES VENDING MACHINE (24"AFF)
D	VARIABLE FREQUENCY DRIVE
	WATTS
١	WASHER
)	WARMING DRAWER
)	WALL OVEN WEATHERPROOF
P/WR	WEATHER PROOF/WEATHER RESISTANT
JNIT	DISCONNECT IS SUPPLIED WITH THE UNIT
ENI	ERAL ELECTRICAL NOTES
COMPLETE	INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE,
	ENTS OF THE AHJ AND ALL LOCAL & STATE CODES.
	ALE FROM THESE DRAWINGS. ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL
LIGHTING F	IXTURES AND ELECTRICAL DEVICES.
	CONDUITS SHALL BE PROVIDED WITH PULL STRINGS AND BUSHINGS. ON BOXES SHALL HAVE A COVER.
COORDINAT	TE EACH LIGHT FIXTURE INSTALLATION(S) W/ ACTUAL CEILING TO BE FURNISHED.
	H CIRCUITS WITHOUT A CONDUCTOR & CONDUIT INDICATED SHALL BE ROUTED TO A 20A-1P
	// 2#12,1#12EG,3/4"C. H CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #12 AWG AND ALL CONDUIT SHALL NOT
BREAKER W	
BREAKER W ALL BRANC BE SMALLE	R THAN 3/4"C. UNLESS SPECIFICALLY NOTED OTHERWISE.
BREAKER W ALL BRANC BE SMALLEI ALL CIRCUI	R THAN 3/4"C. UNLESS SPECIFICALLY NOTED OTHERWISE. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED
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BREAKER W ALL BRANC BE SMALLE ALL CIRCUI OTHERWISE PROVIDED ALL CIRCUI	R THAN 3/4"C. UNLESS SPECIFICALLY NOTED OTHERWISE. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED E. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC210.4. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND
BREAKER W ALL BRANC BE SMALLE ALL CIRCUI OTHERWISE PROVIDED ALL CIRCUI	R THAN 3/4"C. UNLESS SPECIFICALLY NOTED OTHERWISE. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED E. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC210.4.
BREAKER W ALL BRANC BE SMALLEI ALL CIRCUI OTHERWISE PROVIDED M ALL CIRCUI CONDUCTO GROUND. ALL FIXTUR	R THAN 3/4"C. UNLESS SPECIFICALLY NOTED OTHERWISE. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED E. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC210.4. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND IR SIZED IN ACCORDANCE WITH THE NEC. THE RACEWAY SHALL NOT BE USED AN EQUIPMENT ES SHALL BE SUPPORTED FROM EACH CORNER (INDEPENDENT OF THE SUSPENDED CEILING)
BREAKER W ALL BRANC BE SMALLEI ALL CIRCUI OTHERWISE PROVIDED W ALL CIRCUI CONDUCTO GROUND. ALL FIXTUR WITH 12 GA	R THAN 3/4"C. UNLESS SPECIFICALLY NOTED OTHERWISE. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED E. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC210.4. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND R SIZED IN ACCORDANCE WITH THE NEC. THE RACEWAY SHALL NOT BE USED AN EQUIPMENT
BREAKER W ALL BRANC BE SMALLEI ALL CIRCUI OTHERWISE PROVIDED V ALL CIRCUI CONDUCTO GROUND. ALL FIXTUR WITH 12 GA OR EXCEED	R THAN 3/4"C. UNLESS SPECIFICALLY NOTED OTHERWISE. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED E. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC210.4. TS (LIGHTING AND POWER) SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND IR SIZED IN ACCORDANCE WITH THE NEC. THE RACEWAY SHALL NOT BE USED AN EQUIPMENT ES SHALL BE SUPPORTED FROM EACH CORNER (INDEPENDENT OF THE SUSPENDED CEILING) UGE WIRE CONNECTED TO STRUCTURAL SYSTEM OF BUILDING. THE INSTALLATION SHALL MEET D THE SEISMIC REQUIREMENTS OF LOCAL AND NATIONAL CODES. L DEVICE MOUNTING HEIGHTS, UNO:

- RECEPTACLES18" AFF TO CENTER OF RECEPTACLETELE/DATA OUTLETS48" AFF TO CENTER OF RECEPTACLE APARTMENT LOADCENTERS PER ANSI A117.1 REQUIREMENTS (VERIFY WITH LOCAL INSPECTOR)
- 13. ELECTRICAL EQUIPMENT (PANELBOARDS, TRANSFORMERS, DISTRIBUTION EQUIPMENT, ETC.) IS SHOWN TO SCALE ON THE FLOOR PLANS 14. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING EQUIPMENT THAT WILL FIT WITHIN THE
- SPACES SHOWN ON THE PLANS AND COMPLYING WITH ALL CODE REQUIRED CLEARANCES. 15. ELECTRICAL CONTRACTOR TO LABEL ALL DEVICES (RECEPTACLES, SWITCHES, PANELBOARDS,
- DISCONNECTS, ETC.) WITH CIRCUIT NUMBER AND PANELBOARD DESIGNATION. RECEPTACLES, SWITCHES, AND SIMILAR DEVICES TO HAVE PRE-PRINTED, SELF ADHESIVE LABEL. 16. PANELBOARDS, DISCONNECT SWITCHES, AND SIMILAR DEVICES TO HAVE ENGRAVED, SELF-ADHESIVE, LAMINATED ACRYLIC LABEL (BLACK W/ WHITE LETTERING). 17. PROVIDE TYPE-WRITTEN PANELBOARD SCHEDULES FOR ALL ELECTRICAL PANELBOARDS.

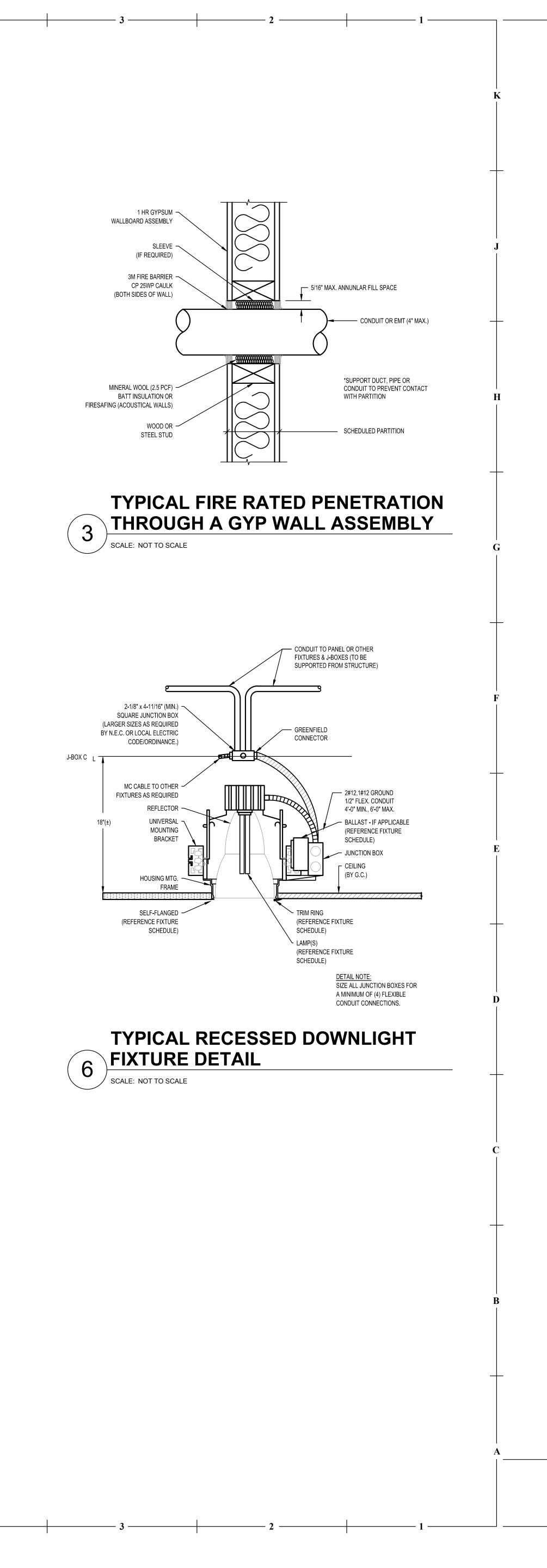
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	ELEC	TRICA	LSYN	/BOLS	
	LIGHTING FIXTURES/DEVICE	S		ES	
SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
OA	DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING		SWITCHBOARD OR DISTRIBUTION PANEL REFER TO PANEL SCHEDULES	
ô A	DIRECTIONAL DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING		DRY-TYPE TRANSFORMER REFER TO PLANS FOR KVA RATING	
Φ	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	
A	2X4 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING	<u> </u>	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)	
11 [°] 11111111,	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)	
1	TWO HEAD EMERGENCY LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING	S™	MOTOR RATED SWITCH	
∑ x1 1 €1	EMERGENCY EXIT SIGN. PROVIDE ARROW(S) AS INDICATED. SHADING INDICATES FACE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING	N	MOTOR	
S	SINGLE POLE SWITCH 20A (120/277V)	WALL - 48" AFF	Ю	NEMA 5-20R SIMPLEX RECEPTACLE	WALL - 18" AFF
S ₃	THREE WAY SWITCH 20A (120/277V)	WALL - 48" AFF	Ð	NEMA 5-20R DUPLEX RECEPTACLE	WALL - 18" AFF
S ₄	FOUR WAY SWITCH 20A (120/277V)	WALL - 48" AFF	÷Ə	NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER	WALL - 6" ABOVE FINISHED COUNTER U.N.O.
HZ	WALL BOX DIMMER SWITCH	WALL - 48" AFF	±∯+	NEMA 5-20R QUAD-PLEX RECEPTACLE	WALL - 18" AFF
$\Theta_x \overline{\nabla}_x$	CEILING OR WALL MOUNTED OCCUPANCY SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL OR CEILING	÷	NEMA 5-20R SPLIT RECEPTACLE. TOP OUTLET WIRED HOT. BOTTOM OUTLET SWITCHED.	WALL - 18" AFF
HLC X	LOW-VOLTAGE CONTROL STATION (LETTER INDICATES CONTROL STATION TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL - 48" AFF	8 8	SPECIAL PURPOSE RECEPTACLE REFER TO PLANS FOR NEMA CONFIGURATION	WALL - 18" AFF OR CEILING
PCX	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	•	NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ON CEILING	CEILING - FLUSH
COMM		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)		FB3	HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE	FLOOR - FLUSH
×	DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	WALL - 18" AFF	PK1	VERIFY EXACT CONNECTION WITH FURNITURE VENDOR HUBBELL S1PT SERIES 4" POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION	FLOOR - FLUSH
٢	DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	FLOOR OR CEILING	РК2	CONNECTION CAPABILITY HUBBELL S1PTFF SERIES 4" POKE-THRU (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE	FLOOR - FLUSH
₩	TELEVISION OUTLET	WALL OR CEILING	PK3	VERIFY EXACT CONNECTION WITH FURNITURE VENDOR HUBBELL S1R6 SERIES 6" POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION AND	FLOOR - FLUSH
	SPEAKER OUTLET	FIELD VERIFY		A/V CONNECTION CAPABILITY CONDUIT IN OR UNDER FLOOR/GRADE	
'TTB'	TELEPHONE TERMINAL BOARD	WALL			
Ā	SECURITY CAMERA OUTLET	FIELD VERIFY		EQUIPMENT GROUND, & () ISOLATED GROUND EQUIPMENT CONNECTION	
	PUSH BUTTON		_		ļ

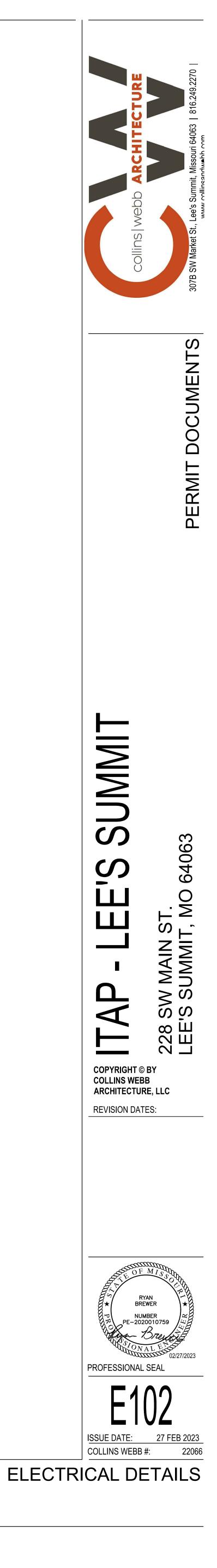
NOTE: NOT ALL SYMBOLS MAY BE USED.

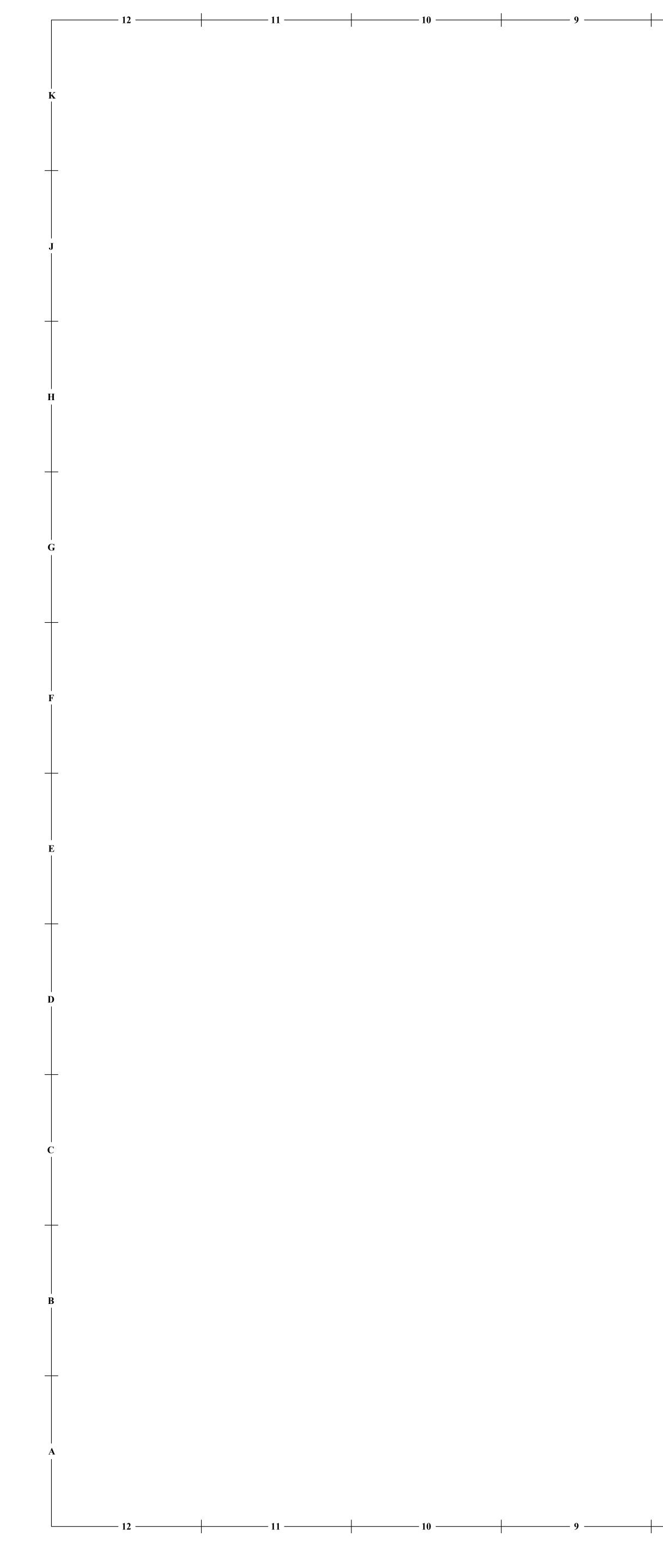


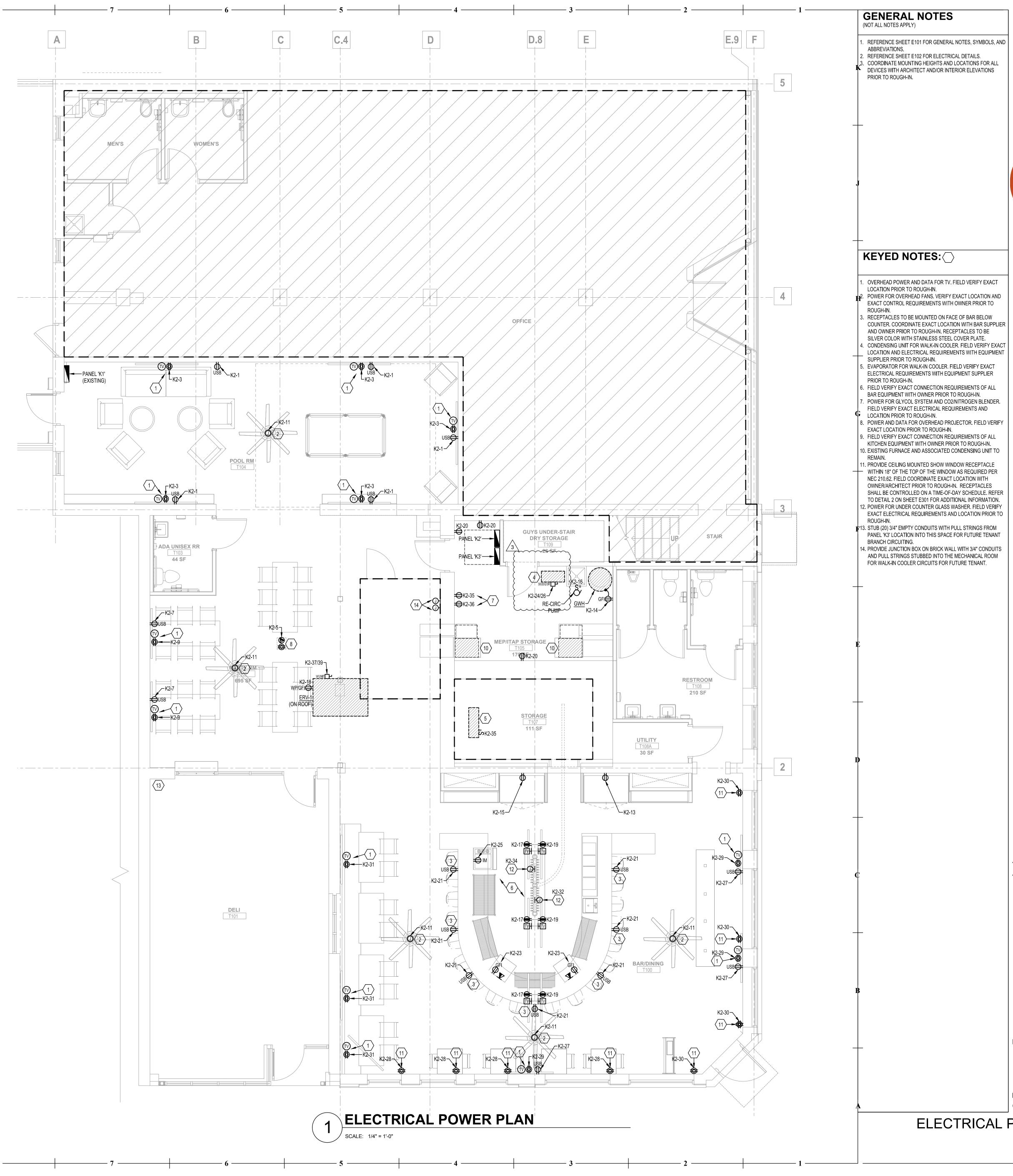


BACK-TO-BACK BOX ARRANGEMENT











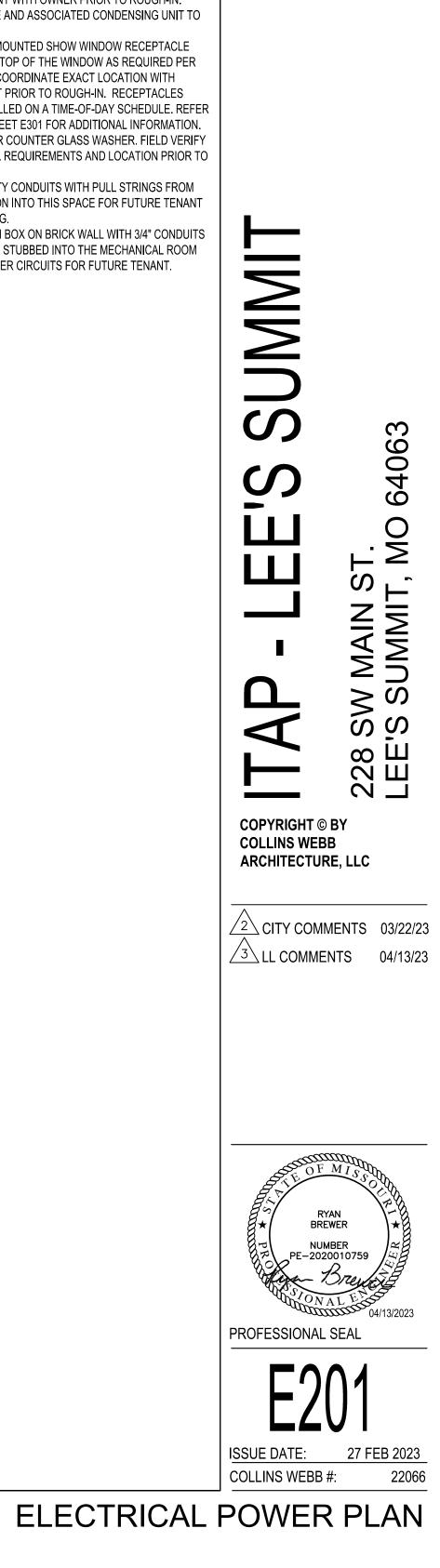
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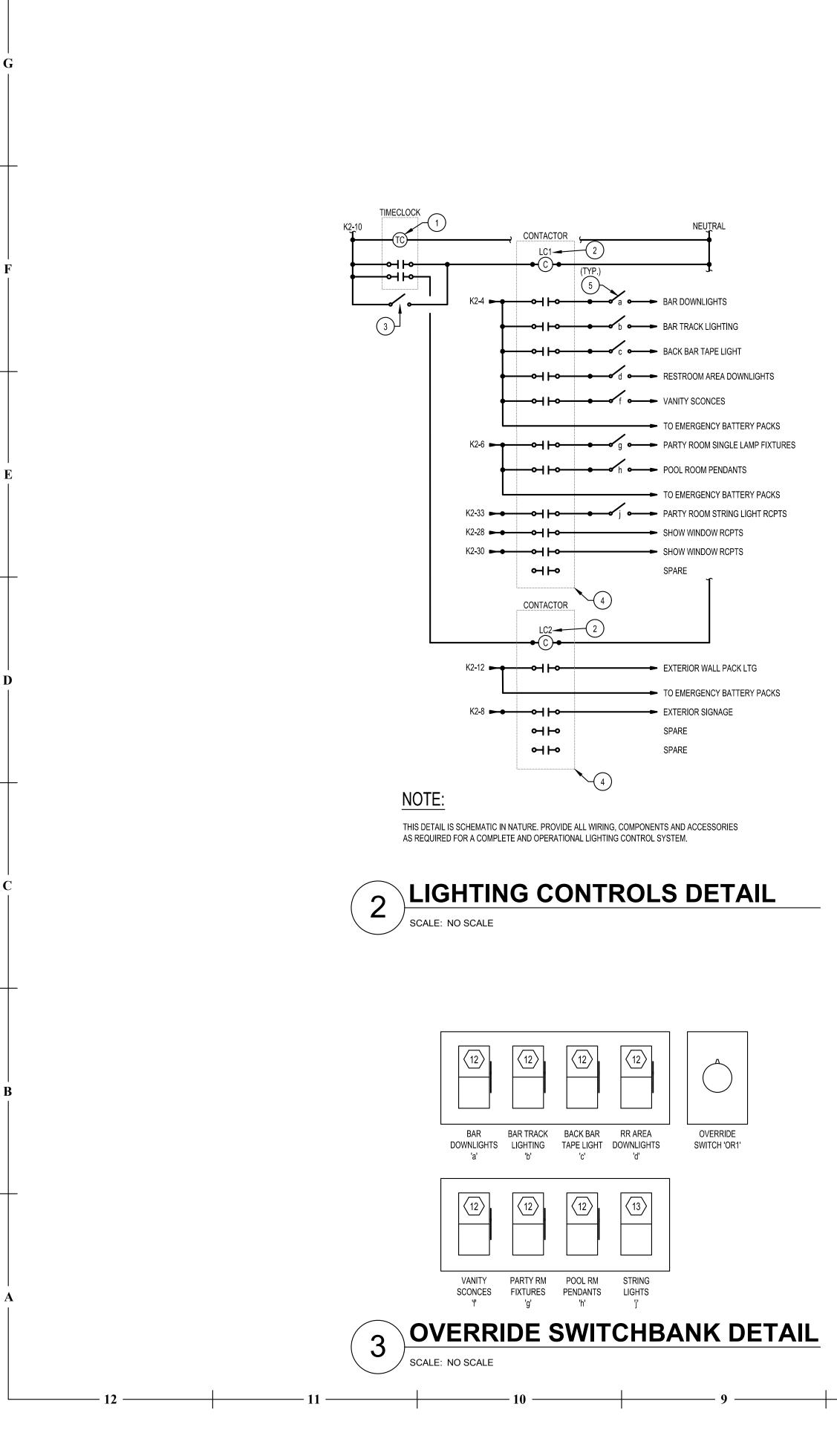
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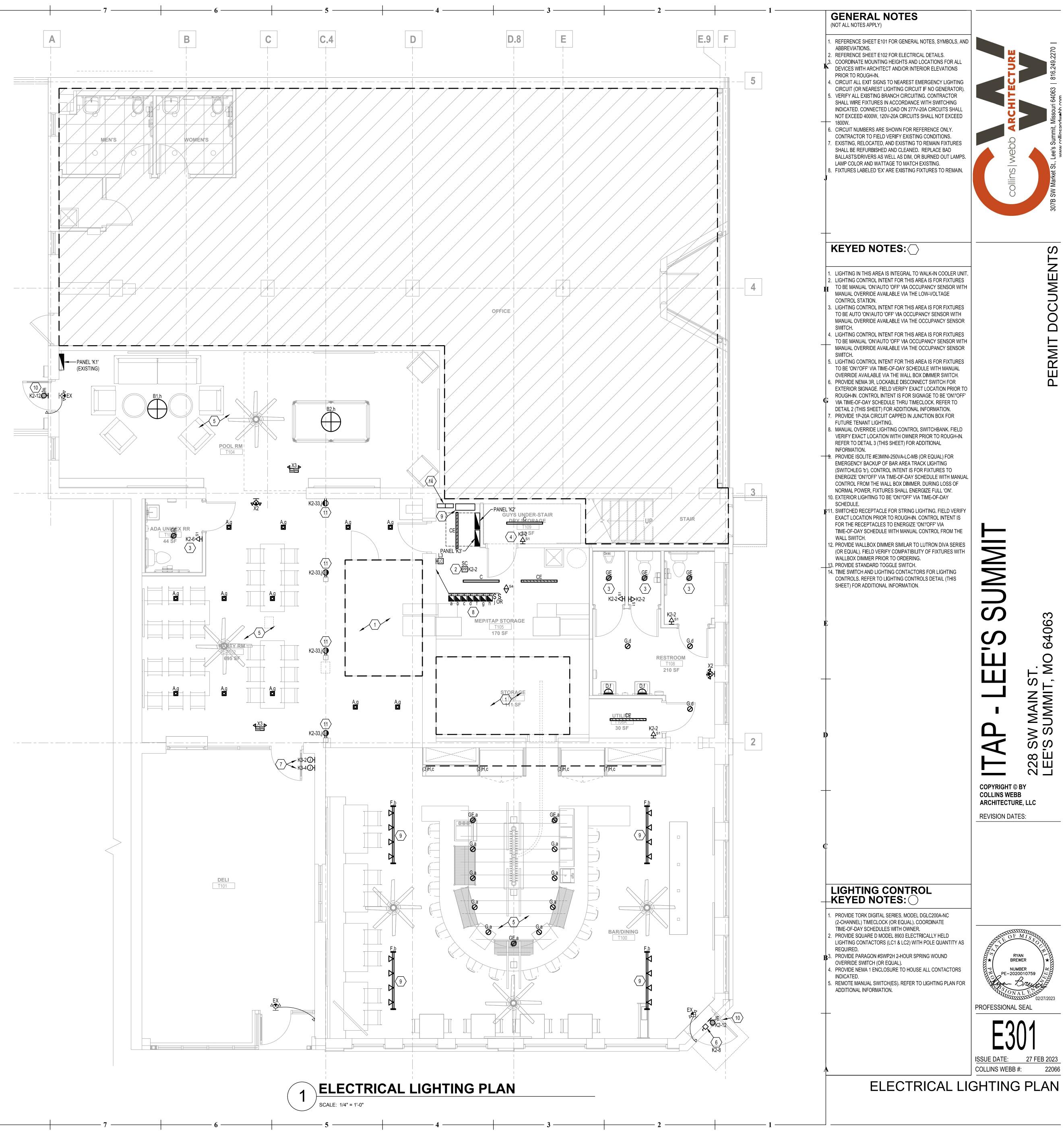
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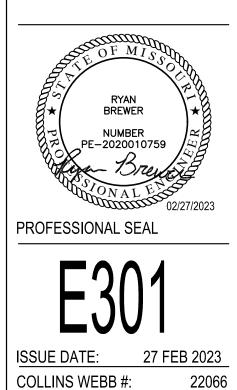
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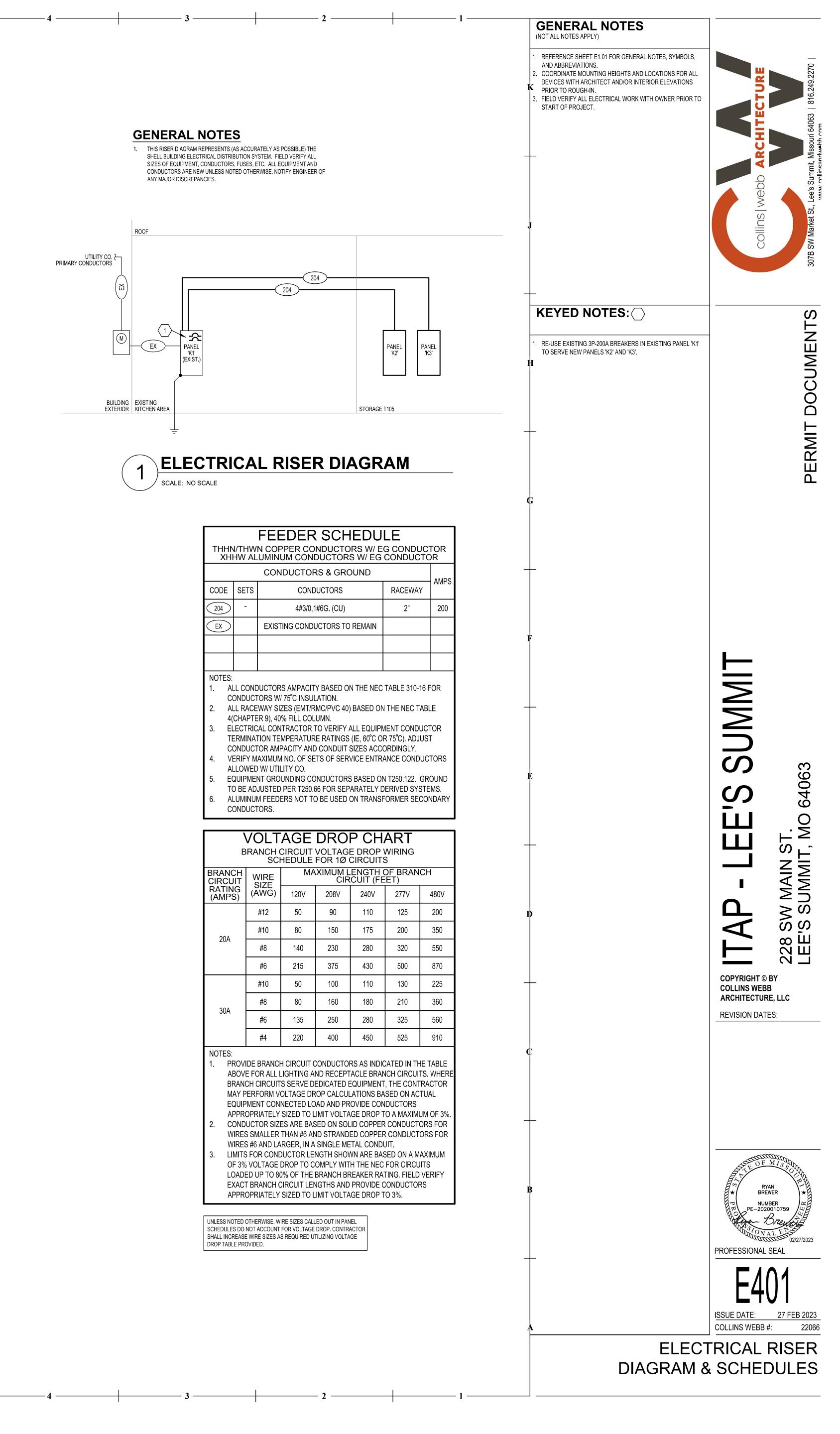
Surface Mounted LED Cylinder 1 M# CSL LTG #SS4021-25-2-S 59" LED Pendant 1 M# NEMO LTG #ZIRKOL-C 39.4" LED Pendant 1 M# NEMO LTG #ZIRKOL-C Linear LED Pendant 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM-EMLED 1 Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW 1	LAMPS NO. TYPE 1 LED 1 LED		68W 45W 29.9W	Coord. w/ Architect Coord. w/ Architect Coord. w/ Architect	REMARKS/MOUNTING Coord. w/ Architect Coord. w/ Architect Coord. w/ Architect Pendant (Verify Ht w/ Architect)	NOTES 1 1 1 1 1	Image: Constraint of the second state of th	23 C 24 1 20 EXISTING 26 A 26 1 20 EXISTING 27 B 28 SPACE ONLY SPACE ONLY 29 C 30 SPACE ONLY 31 A 32 SPACE ONLY 33 B 34 SPACE ONLY 37 A 38 SPACE ONLY 38 B 40 SPACE ONLY 39 B 40 RD 3 200 PANEL 'K3' 3 RD 38 A 44 UNUSABLE SPACE TOTAL	CROUNDS: COCIPCT 20.06.01 SCALAED GROUND BUS: MO SERVICE ENTRANCE RATED: YES ITG RCPT MOTOR HEAT COOL MISC KIT IIIG RCPT MOTOR HEAT COOL MISC KIT IIIIG A459 IIIIG IIIIG IIIIG IIIIG IIIIIG IIIIIG IIIIIG IIIIG IIIIG IIIIG IIIIG IIIIIG IIIIIG IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
Surface Mounted LED Cylinder 1 M# CSL LTG #SS4021-25-2-S 59" LED Pendant 1 M# NEMO LTG #ZIRKOL-C 39.4" LED Pendant 1 M# NEMO LTG #ZIRKOL-C Linear LED Pendant 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM-EMLED 1 Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW 1	1 LED 1 LED 1 LED 1 LED 1 LED	UNV 120V 120V	25W 68W 45W 29.9W	Coord. w/ Architect Coord. w/ Architect Coord. w/ Architect	Coord. w/ Architect Coord. w/ Architect Pendant (Verify Ht w/	1	Image: state	P WIRE CKT # PHASE CKT # WIRE P AMP DESCRIPTION 3 EX 3 B 4 EX 3 40 EXISTING 3 EX 7 A 8 EX 3 40 EXISTING 3 EX 9 B 10 EX 3 30 EXISTING 1 C 12 1 2 20 EXISTING 1 EX 15 B 16 2 20 EXISTING 1 EX 17 C 18 2 1 20 EXISTING 1 EX 19 A 20 1 20 EXISTING 1 EX 19 A 20 1 20 EXISTING 1 EX 18 22 1 20 EXISTING 23 C 24 1 20 EXISTING	3459
59" LED Pendant 1 M# NEMO LTG #ZIRKOL-C 39.4" LED Pendant 1 M# NEMO LTG #ZIRKOL-C Linear LED Strip w/ 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM -EMLED Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW	1 LED 1 LED 1 LED	120V	45W 29.9W	Coord. w/ Architect Coord. w/ Architect Standard	Coord. w/ Architect Pendant (Verify Ht w/	1	Image: Second system 3459 Image: Second system EXISTING 40 Image: Second system 3459 Image: Second system EXISTING 50 Image: Second system 3459 Image: Second system EXISTING 50 Image: Second system 3459 Image: Second system EXISTING 40 Image: Second system 3459 Image: Second system EXISTING 40 Image: Second system 3459 Image: Second system EXISTING 20 Image: Second system 3459 Image: Second system EXISTING 20 Image: Second system 3459 Image: Second system EXISTING 20 Image: Second system 3459 Image: Second system Second system 20 Image: Second system Image: Second system Second system Second system 20 Image: Second system Image: Second system Image: Second system Second system 20 Image: Second system Image: Second system Image: Second system Second system 200 Image	3 EX 3 B 4 EX 3 40 EXISTING 3 EX 7 A 8 3 30 EXISTING 3 EX 9 B 10 EX 3 30 EXISTING 1 C 12 1 20 EXISTING 11 1 EX 15 B 16 2 20 EXISTING 1 EX 19 A 20 1 20 EXISTING 1 EX 19 A 20 1 20 EXISTING 1 EX 19 A 20 1 20 EXISTING 1 EX 19 A 20 ISISTING 1 20 EXISTING 1 23 C 24 1 20 EXISTING 1 20 EXISTING 23 29 C 30 1 20 <td< th=""><th>3459 1 3459 1 3459 1 3459 500 3459 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</th></td<>	3459 1 3459 1 3459 1 3459 500 3459 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
59" LED Pendant 1 M# NEMO LTG #ZIRKOL-C 39.4" LED Pendant 1 M# NEMO LTG #ZIRKOL-C Linear LED Strip w/ 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM -EMLED Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW	1 LED 1 LED 1 LED	120V	45W 29.9W	Architect Coord. w/ Architect Standard	Coord. w/ Architect Pendant (Verify Ht w/	1	Image: Constraint of the second state of th	3 EX 9 B 10 EX 3 30 EXISTING 11 C 12 I 1 20 EXISTING 13 A 14 1 20 EXISTING 1 EX 15 B 16 2 20 EXISTING 1 EX 19 A 20 1 20 EXISTING 1 EX 19 A 20 1 20 EXISTING 1 EX 21 B 22 1 20 EXISTING 1 EX 21 B 22 1 20 EXISTING 1 23 C 24 1 20 EXISTING 1 20 C 30 I SPACEONLY 33 B 34 SPACEONLY SPACEONLY 33 B 40 RD 3 200 PANEL 'K3' (GUYS) <	3459 500 3459 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0 500 0
M# NEMOLTG #ZIRKOL-C 39.4" LED Pendant 1 M# NEMOLTG #ZIRKOL-C Linear LED Strip w/ 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM-EMLED 1 M# SIGNIFY #FSS-4-40L-UNV-DIM-EMLED 1 M# INTER LUX #WG-20LDI-SW 1	1 LED 1 LED 1 LED	120V	45W 29.9W	Architect Coord. w/ Architect Standard	Coord. w/ Architect Pendant (Verify Ht w/	1	Image: Non-Strain Strain Str	1 EX 17 C 18 2 20 EXISTNG 1 EX 19 A 20 1 20 EXISTNG 1 EX 21 B 22 1 20 EXISTNG 1 EX 21 B 22 1 20 EXISTNG 23 C 24 1 20 EXISTNG 23 C 24 1 20 EXISTNG 25 A 26 1 20 EXISTNG 27 B 28 SPACEONLY 31 A 32 SPACEONLY SPACEONLY 33 B 34 SPACEONLY 3 RD 35 C 36 SPACEONLY 3 RD 3 200 PANE: 'K3' (GUYS) (GUYS) (GUYS) 3 A 44 45 B 46 UNUSABLE SPACE <td>800 0 1500 1 500 500 1 500 500 1 500 500 1 500 500 1 500 500 1 1500 0 1 1 1 1 1 1 1 1 1 1200 0 1500 0 0 1200 720 500 0 0 0 1 1 1 1 1 1</td>	800 0 1500 1 500 500 1 500 500 1 500 500 1 500 500 1 500 500 1 1500 0 1 1 1 1 1 1 1 1 1 1200 0 1500 0 0 1200 720 500 0 0 0 1 1 1 1 1 1
39.4" LED Pendant 1 M# NEM O LTG #ZIRKOL-C Linear LED Strip w/ 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW	1 LED 1 LED	UNV	29.9W	Coord. w/ Architect Standard	Pendant (Verify Ht w/		Image: Strate Strat Strate Strate<	23 C 24 1 20 EXISTING 25 A 26 1 20 EXISTING 27 B 28 SPACEONLY SPACEONLY 29 C 30 SPACEONLY 31 A 32 SPACEONLY 33 B 34 SPACEONLY 37 A 38 A 3 RD 37 A 41 C 42 RD 3 43 A 44 UNUSABLE SPACE 3 45 B 46 47 C 48 Instantian State	800 0 1500 500 800 0 1500 0 0 1200 0 1500 0 0 0 1200 0 1500 0 0 0 0
39.4" LED Pendant 1 M# NEM O LTG #ZIRKOL-C Linear LED Strip w/ 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW	1 LED 1 LED	UNV	29.9W	Architect	Pendant (Verify Ht w/		Image: State of the s	29 C 30 SPACE ONLY 31 A 32 SPACE ONLY 33 B 34 SPACE ONLY 35 C 36 SPACE ONLY 37 A 38 A0 37 A 38 A0 38 B 40 RD 3 200 41 C 42 GUYS) QUNUSABLE SPACE 3 43 A 44 UNUSABLE SPACE	1200 0 1500 0 0 0 0 720 500 0 0 0
M# NEM O LTG #ZIRKOL-C Linear LED Strip w/ 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNIFY #FSS-4-40L-UNV-DIM-EMLED 1 Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW 1	1 LED 1 LED	UNV	29.9W	Architect	Pendant (Verify Ht w/		1428 1800 3486 0 0 5877 0 0 PANEL 'K2' 200 950 3060 2586 0 0 4277 0 0 (ITAP) 200 877 900 1725 0 0 4800 0 0 (ITAP) 200 3255 5760 11638 0 20754 25331 0 0 TOTALS	3 RD 37 A 38 RD 3 200 PANEL'K3' (GUYS) 3 41 C 42 RD 3 200 PANEL'K3' (GUYS) 3 43 A 44 LNUSABLE SPACE LNUSABLE SPACE	1200 0 1500 0 0 0 0 720 500 0 0 0
Linear LED Strip w/ 0-10V Dimming 1 M# SIGNFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNFY #FSS-4-40L-UNV-DIM-EMLED Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW	1 LED			Standard		1	200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 <td>3 43 A 44 45 B 46 47 C 48 UNUSABLE SPACE</td> <td></td>	3 43 A 44 45 B 46 47 C 48 UNUSABLE SPACE	
Linear LED Strip w/ 0-10V Dimming 1 M# SIGNFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNFY #FSS-4-40L-UNV-DIM-EMLED Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW	1 LED					1		TOTAL	S 2000 720 24254 0 0 2500
M# SIGNFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNFY #FSS-4-40L-UNV-DIM-EMLED 1 Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW 1	1 LED					1			S 2000 720 24254 0 0 3500 PHASE LOAD SUMMARY
M# SIGNFY #FSS-4-40L-UNV-DIM Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNFY #FSS-4-40L-UNV-DIM-EMLED 1 Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW 1		UNV					* 100% OF 1ST 10 KVA, 50% OF REMAINING ** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS *** ELEVATOR DEMAIND FACTOR BASED ON NEC T620.14.	TOTAL PHASE 41991 A 39538 B 32073 C	LTG RCPT MOTOR HEAT COOL MISC H 2228 1800 13824 0 6918 10336 2150 3060 12924 0 6918 8736 877 1620 9143 0 6918 8736
Linear LED Strip w/ Emergency Battery Pack and 0-10V Dimming 1 M# SIGNFY #FSS-4-40L-UNV-DIM-EMLED Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW		UNV	29.9W				PANEL ABBREVIATIONS GF - GROUND FAULT BREAKER BM - PROVIDE EMERGENCY LOCKING TAB ST - SHUNT TIMP BREAKER FA - FIRE A LARM, PROVIDE RED LOCKING TAB	32073 C 113602 CONNECTED VA DBMAND FACTORS	87/1 162/J 914.3 0 6918 9259 PANEL LOAD SUMMARY - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
M# SIGNIFY #FSS-4-40L-UNV-DIM-EMLED Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW		UNV	29.9W				AF - ARC FAULT BREAKER LCK - PROVIDE PADLOCKABLE BREAKER GF/AF - COMBO A RC/GROUND FAULT BREAKER RD - REFER TO RISER DIA GRAM FOR WIRE SIZE EX - EXISTING CIRCUIT AND WIRING TO REMAIN RP - CIRCUIT CONTROLLED VIA RELAY PANEL	114916 DEMAND VA 0 SHOW WINDOW DEMAND 0 TRACK LTG DEMAND	6569 6480 35892 0 20754 28831
M# SIGNIFY #FSS-4-40L-UNV-DIM-EMLED Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW				Standard	Pendant (Verify Ht w/	2	PANEL NOTES	0% SPARE 114916 DEMAND VA + SPARE 319.0 TOTAL DESIGN AMPS	_
Surface Wall Mount Linear LED Fixture w/ 0-10V Dimming 1 M# INTER LUX #WG-20LDI-SW 1	1 LED				Architect)				
M# INTER LUX #WG-20LDI-SW	1 LED							PANEL K2	
M# INTER LUX #WG-20LDI-SW		UNV	6W/FT	Coord. w/	Wall (Refer Arch	1	VOLTAGE/PHASE: 208Y/120V, 3PH, 4W BUS AMPERAGE: 200A	AFC VALUE: VERIFY AIC RATING: VERIFY	GROUNDS: EG (PER T250.122) ISOLATED GROUND BUS: NO
				Architect	Elevation)		MAIN TYPE: MLO	MOUNTING: SURFACE (NEMA 1)	SERVICE ENTRANCE RATED: NO
Track Lighting w/ LED Track Heads and Triac Dimming 1							900 POOL RM USB RCPTS 20 1500 POOL RM TV RCPTS 20	P WIRE CKT # PHASE CKT # WIRE P AMP DESCRIPTION 1 12 1 A 2 12 1 20 RRVBOH LTG 1 12 3 B 4 12 1 20 BAR/DIME/RRA AREA LTS 1 12 5 C 6 12 1 20 PARTY/POOL RM LTG	LTG RCPT MOTOR HEAT COOL MISC 228
	1 LED	120V	8W/	Coord. w/	Coord. w/ Architect		360 PARTY RM USB RCPTS 20 225 600 PARTY RM USB RCPTS 20		1200 200 15 200
		1200		Architect			GF 377 GLASS DOOR COOLER 1 20 GF 377 GLASS DOOR COOLER 2 20 900 W BACKBAR TV RCPTS 20	1 12 13 A 14 12 1 20 WATER HEATER ROPT 1 12 15 B 16 12 1 20 RE-CIRC PUMP 1 12 17 C 18 12 1 20 ROOF ROPT	180 600
M# RP LTG #7606 (TRACK)							900 E BACKBAR TV RCPTS 20 1260 UNDER BAR TUS RCPTS 20 1000 BAR POS STATIONS 20 GF 1500 ICE MACHINE 20	12 2 20 IWALK-IN COND UNIT	540 500 1500 1500
M# RP LTG #7554 (TRACK HEAD)			2014/	Ctondard	Desseed (Calling		SH TOU ICLE MACHINE 20 540 BAR AREA USB RCPTS 20 900 SEE BAR TV RCPTS 20 900 W BAR TV RCPTS 20	1 12 27 B 28 12 1 20 SHOW WINDOW RCPTS 1 12 29 C 30 12 1 20 SHOW WINDOW RCPTS	720 720 1600
4" LED Downlight w/ 0-10V Dimming 1	1 LED		2600	Standard	Recessed (Ceiling - Provide Flange)		TC 540 STRING LT RCPTS 20 1986 500 GLY COL SYSTEM 20	1 12 33 B 34 10 1 25 GLASS WASHER #2 1 12 35 C 36 12 1 20 CO2INTROGEN BLEND 2 10 37 A 38 SPACE ONLY	1600 500
M# LIGHTOLIER #4-R-RP4R-DL-25-CL-Z10-U							1986 SPACE ONLY SPACE ONLY SPACE ONLY	2 10 39 B 40 SPACE ONLY 41 C 42 SPACE ONLY 43 A 44 SPACE ONLY 45 B 46 SPACE ONLY	
							SPACE ONLY SPACE ONLY SPACE ONLY SPACE ONLY SPACE ONLY	45 B 46 SPACE ONLY 47 C 48 SPACE ONLY 49 A 50 SPACE ONLY 51 B 52 SPACE ONLY	
4" LED Downlight w/ 0-10V Dimming and Emergency Battery 1 Backup	1 LED		26W	Standard	Recessed (Ceiling - Provide Flange)	2	0 3600 4198 0 10454 0 0 TOTALS	53 C 54 SPACEONLY 55 A 56 SPACEONLY	.s 3255 2160 3600 0 0 4500
M# LIGHTOLIER #4-R-RP4R-DL-25-CL-Z10-U-EM6							NEC CODE REFERENCES * 100% OF 1ST 10 KVA, 50% OF REMAINING *1 25% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS	TOTAL PHASE 12591 A	PHASE LOAD SUMMARY LTG RCPT MOTOR HEAT COOL MISC I 1428 1800 3486 0 0 5877
								12591 A 10874 B 8302 C	1428 1800 3486 0 0 5877 950 3060 2586 0 0 4277 877 900 1725 0 0 4800 PANEL LOAD SUMMARY
Jumpers, Channel and Power Supplies as Required for a Complete	1 LED	120V	4.4W/FT	Standard	Coord. w/ Architect		GF - GROUND FAULT BREAKER BM - FROVIDE BMERGBNCY LOCKING TAB ST - SHUNT TRIP BREAKER FA - FIRE ALARM, PROVIDE RED LOCKING TAB AF - ARC FAULT BREAKER LCK - FROVIDE PADLOCKABLE BREAKER	31766 CONNECTED VA DEMAND FACTORS 32560 DEMAND VA	3255 5760 7798 0 0 14954 1.25 * ** 1.00 1.00 1.00 4069 5760 7798 0 0 14954
and Operational System. M# TIVOLI #TPLD-HO-I24							GF/AF - COMBO ARC/GROUND FAULT BREAKER OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE IG - PROVIDE ISOLATED GROUND TC- CIRCUIT CONTROLLED V/A TIME CLOCK PANEL NOTES	0 SHOW WINDOW DEMAND 0 TRACK LTG DEMAN 0 O% SPARE 22550 DEMAND VA + SPARE	-
								90.4 TOTAL DESIGN AMPS	
LED Exterior Wall Pack w/ Emergency Battery Pack 1	1 LED	UNV	15W	Standard	Wall (Refer Arch Elevation)	2			
M# LSI #XWS-LED-2L-FTW-UNV-DIM-80CRI-CWBB								PANEL K3	
							VOLTAGE/PHASE: 208Y/120V, 3PH, 4W BUS AMPERAGE: 200A Main Type: MLO	AFC VALUE: VERIFY AIC RATING: VERIFY MOUNTING: SURFACE (NEMA 1)	GROUNDS: EG (PER T250.122) ISOLATED GROUND BUS: NO SERVICE ENTRANCE RATED: NO
							LTG RCPT MOTOR HEAT COOL MISC KITCHEN ELEV DESCRIPTION AMP	ALL LOADS IN VA P WRE CKT # PHASE CKT # WIRE P AMP DESCRIPTION 1 12 1 A 2 12 1 20 GENERAL LIGHTING CKT	LTG RCPT MOTOR HEAT COOL MISC
							GF 500 ΠΕΜ#К2A 20 GF 500 ΠΕΜ#К2B 20 GF 967 ΠΕΜ#K3 μ	1 12 3 B 4 12 1 20 EXT. LIGHTING CKT 1 12 5 C 6 12 1 20 WALK-IN EVAPORATOR 2 12 7 A 8 12 2 20 WALK-IN EVAPORATOR	1200 500 1500 1500 1500 1500 1500 1500 1
							967 MIXER	9 B 10 SPACE ONLY 1 12 11 C 12 SPACE ONLY 2 12 13 A 14 SPACE ONLY	1500
LED Exit Sign, Single/Double Sided, Universal Mount, Emergency 1 Battery Pack. Provide Arrows as Indicated.	1 LED	UNV	2W		Wall/Ceiling/Pendant	2	GF 396 ITEM #K6A 15 GF 396 ITEM #K6B 15 GF 396 ITEM #K6C 15	1 12 17 C 18 SPACE ONLY 1 12 19 A 20 SPACE ONLY 1 12 21 B 22 SPACE ONLY	
M# DUAL LITE #EVE-U-R-W-E							GF 404 ITEM #K8 15 GF 1800 ITEM #K9 15 GF 1456 ITEM #K10 20	1 12 23 C 24 SPACE ONLY 1 12 25 A 26 SPACE ONLY 2 12 27 B 28 SPACE ONLY	
EVENLITE #TLX-EM-RU-W (OR EQUAL)							1456 PRIMIT RESS GF 1390 ITEM #K11A 15 GF 1390 ITEM #K11B 15	2 12 29 C 30 SPACE ONLY 1 12 31 A 32 SPACE ONLY 1 12 33 B 34 SPACE ONLY 1 12 33 B 34 SPACE ONLY 1 12 35 C 36 SPACE ONLY	
Universal Mount, Emergency Battery Pack. Provide Arrows as	1 LED	UNV	2W		Wall/Ceiling/Pendant	2	Image: Space Space 20 Image: Space Space 20 Image: Space Space 20 Image: Space Space 20	1 37 A 38 SPACE ONLY 1 39 B 40 SPACE ONLY 1 41 C 42 SPACE ONLY	
Indicated. M# DUAL LITE #EVC-U-R-W							0 720 0 0 0 16391 0 TOTALS NEC CODE REFERENCES	TOTAL	S 2000 0 3500 0 0 0 PHASE LOAD SUMMARY Integer Montree LEAT COOL MISC
							* 100% OF 1ST 10 KVA, 50% OF REMAINING ** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS *** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.	TOTAL PHA SE 8685 A 8449 B 5476 C	LTG RCPT MOTOR HEAT COOL MISC 800 0 1500 0 0 0 1200 0 1500 0 0 0 0 720 500 0 0 0
LED Emergency Light w/ (2) 2-Watt Adjustable LED Heads and 2 Emergency Battery Backup	2 LED	UNV	5W	White	Surface (Wall/Ceiling)	2	PANEL ABBREVIATIONS GF - GROUND FAULT BREAKER EM - FROVIDE EMERGENCY LOCKING TAB ST - SHUNT TRIP BREAKER FA - FIRE A LARM, FROV IDE RED LOCKING TAB	22611 CONNECTED VA DEMAND FACTORS	0 720 500 0 0 0 0 PANEL LOAD SUMMARY 2000 720 3500 0 0 0 0 1.25 - ** 1.00 1.00 1.00 1.00 2500 720 3500 0 0 0 0
M# DUAL LITE #EV4D-02L							AF - ARC FAULT BREAKER LCK - PROVIDE PADLOCKABLE BREAKER GF/AF - COMBO ARC/GROUND FAULT BREAKER QF - CROWIDE ISOLATED GROUND RAULT BREAKER QF - CRCUT CONTROLLED VIA RELAY PANEL	23111 DEMAND VA 0 SHOW WINDOW DEMAND 0 TRACK LTG DEMAND	2500 720 3500 0 0 0 0
							PANEL NOTES	0% SPARE 23111 DEMAND VA + SPARE 64.1 TOTAL DESIGN AMPS	-
Combination LED Exit Sign and Emergency Light Fixture w/ 1 Exterior Rated Remote Emergency Heads, Universal Mount,	1 LED	UNV	5W		Wall/Ceiling/Pendant	1,2	L		
Emergency Battery Pack. Provide Arrows as Indicated. M# DUAL LITE #EVC-U-R-W-D4 WITH EVO-D-X									

XTURE 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	
S1	SENSOR SWITCH	WSX SERIES	REFER TO PLANS	WALL MOUNT OCCUPANCY SENSOR	1
			FOR CONTROL INTENT	LINE VOLTAGE - SINGLE RELAY	
S4	ACUITY BRANDS: nLIGHT	nCM-10 SERIES	-	CEILING MOUNT OCCUPANCY SENSOR - LARGE MOTION	3
				LOW VOLTAGE	
WRE	-	-	-	CAT5, CAT5e, OR CAT 6. STANDARD OR SOLID.	
				TERMINATED AS RJ45 TIA/EIA-568B	

2. PROVIDE 6'-0" OF EXCESS CONTROL WIRING, COILED AND TIED, BETWEEN CEILING MOUNTED OCCUPANCY SENSOR AND CORRESPONDING LOAD CONTROLLER. 3. MODIFY LOCATIONS OF CEILING MOUNTED OCCUPANCY SENSORS AS REQUIRED SO THAT NO 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. 5. LOCATION SHOWN ON PLAN FOR REFERENCE ONLY. CONTRACTOR MAY RELOCATE BRIDGE PORTS FOR A MORE ECONOMICAL LAYOUT IF DESIRED. 6. PROVIDE DEVICES WITH DEFAULT MANUFACTURE MARKINGS ON BUTTONS.

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

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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

OR AS REQUIRED.

THE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS INCLUDING THE GENERAL CONDITIONS, INCLUDING ALL SUPPLEMENTS ISSUED THERETO, INSTRUCTIONS TO SHOULD THERE BE APPARENT VIOLATIONS OF N.E.C. CLEARANCE, NOTIFY THE BIDDERS, AND OTHERS PERTINENT DOCUMENTS ISSUED BY THE ARCHITECT ARE ARCHITECT-ENGINEER BEFORE PROCEEDING WITH CONNECTION OR PLACEMENT 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 INSTALLATION STUDIES ARE REQUIRED TO COORDINATE THE ELECTRICAL WORK CONSULT THE DRAWINGS AND LAYOUTS OF OTHER TRADES TO VERIFY LOCATION WITH THE WORK OF OTHER TRADES. PREPARE COORDINATION DRAWINGS AT AND SPACES IN WHICH WORK WILL BE INSTALLED.

CODES, PERMITS, INSPECTION AND COMMISSIONING

INSTALLATION SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL WORK IN EFFECT, INCLUDING THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), THE NATIONAL ELECTRICAL SAFETY CODE, ALL LOCAL GOVERNING CODES AND ORDINANCES, WITH THE REGULATIONS OF THE SERVING ELECTRICAL UTILITY COMPANY. PROVIDE ALL REQUIRED PERMITS AND INCLUDE THE COST OF PROVIDE APPROVED SHOP DRAWINGS TO ALL REQUIRED DISCIPLINES AND SAME IN THE COST OF THE PROJECT. OBTAIN AND PAY FOR (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ALL REQUIRED INSPECTIONS AND REVIEWS. PROVIDE FOR AND PAY ALL EXPENSES (WITHOUT ADDITIONAL EXPENSE DIFFERS FROM CONTEMPLATED DESIGN, MAKE NECESSARY ADJUSTMENTS TO TO THE OWNER) ASSOCIATED WITH LIGHTING AND LIGHTING CONTROLS COMMISSIONING. ALL COMMISSIONING DOCUMENTATION SHALL BE CERTIFIED AND GIVEN TO OWNER AND DESIGN PROFESSIONAL.

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

UL - UNDERWRITERS' LABORATORIES

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

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

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

WNER RECORDS

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

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

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

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

MANUFACTURERS' NAMES AND CATALOG NUMBERS

MANUFACTURER'S NAME AND MODEL OR CATALOG NUMBERS. USE OF NAMES TRAY PENETRAIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND PROPER TYPE, SIZE AND NUMBER AS REQUIRED TO ACCOMPLISH SPECIFIED AND CATALOG NUMBERS DOES NOT INDICATE THAT THE EQUIPMENT SPECIFIED IN ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS NECESSARILY AN "OFF THE SHELF" ITEM. VARIANCES MAY BE DUE TO REQUIREMENT OF DESIRED FINISH, MATERIAL OR OTHER MODIFICATION.

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

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

PROTECTION OF EQUIPMENT

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

SHALL BE THOROUGHLY DRIED AND PUT THROUGH A DIELECTRIC TEST, AT THE AS SPECIFIED HEREIN, AND OTHER MATERIALS INDICATED ON THE DRAWINGS. EXPENSE OF THE CONTRACTOR. TO ASCERTAIN THE SUITABILITY OF THE APPARATUS OR IT SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.

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

ALLOCATED SPACE.

INSTALL ALL EQUIPMENT IN A MANNER TO PERMIT ACCESS TO ALL SURFACES. MAINTAIN PROPER CLEARANCE TO MEET ALL SAFETY AND OPERATING CODES, CONTRACTORS), AND TO ALL EQUIPMENT ITEMS AND AS INDICATED ON DRAWINGS PARTICULARLY N.E.C. INCLUDE ALL REQUIREMENTS DICTATED BY OPERATION. CONTROL, ADJUSTMENT, MAINTENANCE AND POSSIBLE REPLACEMENT OF EQUIPMENT IN DETERMINING CLEARANCE.

OF EQUIPMENT

COORDINATION

AND PATCHING NECESSARY FOR THE INSTALLATION OF THIS WORK. NO CUTTING ICEA S-95-658/NEMA WC70; SOLID CONDUCTOR FOR NO. 10AWG AND SMALLER; IN CONSTRUCTIVE PARTS OF THE BUILDING LIKELY TO IMPAIR ITS STRENGTH SHALL BE DONE WITHOUT THE ARCHITECT-ENGINEER'S WRITTEN APPROVAL.

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 INSTALLED, OR AS REQUIRED BY THE ENGINEER, OWNER, OR ROOFING CONTRACTOR. ALL ROOF PENETRATIONS SHALL BE LEAKTIGHT AT THE TERMINATINO OF THE WORK AND SHALL NOT VOID ANY NEW OR EXISTING ROOF WARRANTIES.

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

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

FIRESTOPPING: FIRE RESISTANT THROUGH PENETRAION SEALANTS - TWO PART, AS RECOMMENDED BY THE SYSTEM EQUIPMENT MANUFACTURER. FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN IN SOME INSTANCES, SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE THROUGH-PENETRAION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE CONTROL WIRING; STRANDED COPPER CONDUCTORS, 600V INSULATION, OF THE SHALL CONSIST OF BOX, INTERIOR, FRONT, AND CIRCUIT PROTECTIVE DEVICES. 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.

ELECTRICAL SERVICE SERVICE SHALL BE AS SHOWN ON DRAWINGS.

GROUNDING SYSTEM. PERMANENTLY AND EFFECTIVELY GROUND AND BOND THE ELECTRICAL INSTALLATION IN A THOROUGH AND EFFICIENT MANNER, AND IN CONFORMANCE (AT A MINIMUM) WITH N.E.C. OR THESE DOCUMENTS, WHERE SHOULD ANY APPARATUS BE SUBJECTED TO POSSIBLE INJURY DUE TO WATER, IT THEY EXCEED CODE REQUIREMENTS. USE BARE OR INSULATED CONDUCTORS,

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

PRODUCTS

THE SIZE OF ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS IS BASED ON WHILE OTHER MANUFACTURERS MAY BE ACCEPTABLE, IT IS THE RESPONSIBILITY REQUIRED. OF THE TRADE TO DETERMINE IF THE EQUIPMENT PROPOSED WILL FIT IN THE

ACCURATE SCALE WHERE SEVERAL ELEMENTS OF ELECTRICAL OR COMBINED MECHANICAL/STRUCTURAL/ELECTRICAL WORK MUST BE SEQUENCED AND POSITIONED WITH PRECISION IN ORDER TO FIT INTO THE AVAILABLE SPACE.

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

TO ANY EQUIPMENT. WHEN ELECTRICAL DATA ON APPROVED SHOP DRAWINGS THE WIRING, DISCONNECTS, AND BRANCH-CIRCUIT PROTECTION FOR THE EQUIPMENT ACTUALLY INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

DAMAGE FROM INTERFERENCE CAUSED BY INADEQUATE COORDINATION SHALL BE RECTIFIED AT NO ADDITIONAL COST TO THE OWNER.

ALL WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.

MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

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.

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

PROVIDE ACCESS PANELS FOR ALL EQUIPMENT AND DEVICES REQUIRING SUCH PANELS. SIZE AS REQUIRED FOR PROPER ACCESS AND MAINTENANCE, MINIMUM DIMENSIONS OF A PARTICULAR MANUFACTURER, (GENERALLY THE FIRST NAMED). ACCEPTABLE IS 12 IN BY 12 IN CLEAR OPENING WHERE HAND ACCESS ONLY IS

> PROVIDE LABELS FOR EACH MOTOR CONTROLLER, SAFETY SWITCH, RELAY, PANELBOARD, CONTACTOR, TIMER, CONTROL DEVICE, METER AND CIRCUIT BREAKER. LABELS SHALL BE LAMINATED, PHENOLIC STRIPS 1/16" THICK, AND ENGRAVED TO SHOW BLACK LETTERS ON A WHITE BACKGROUND NOT LESS THAN DESCRIBED BELOW UNDER "PLATES". 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 DUST AND MOISTURE RESISTANT, MELAMINE BODY, GRAY NYLON FACE BACKED 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 VERIFY FINAL ELECTRICAL CHARACTERISTICS BEFORE ROUGHING POWER FEEDS 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 SPECIFICATION GRADE, ORANGE FACE, GROUND CONTACT FULLY ISOLATED FROM CIRCUIT BREAKERS: CIRCUIT BREAKERS OF THE PROPER SIZE, RATING, AND IN ACCORDANCE WITH ANSI STANDARD C80.3. FITTINGS 1/2 INCH THROUGH 2 INCH STRAP AND EQUIPPED WITH SCREW TERMINAL. HUBBELL #IG-5362* OR EQUAL. TRADE SIZE SHALL BE COMPRESSION TYPE, MANUFACTURED FROM MALLEABLE IRON OR STEEL, AND RAIN AND/OR CONCRETE-TIGHT AS REQUIRED BY INSTALLATION. POT METAL OR DIE CAST TYPE FITTINGS ARE PROHIBITED. CONNECTORS SHALL BE INSULATED THROAT TYPE.

NDUCTORS AND CABLES

GENERAL: SERVICE LATERALS AND PANELBOARD FEEDERS SHALL BE OF ANY MATERIAL ITEMS OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70; SOLID IN THESE SPECIFICATIONS OR VISA-VERSA, OR ANY ACCESSORIES NECESSARY TO CONDUCTOR FOR NO. 10 AWG AND SMALLER; CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL FEEDER CONDUCTORS NO 8 AWG PRIOR TO INSTALLATION. AND LARGER; STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION.

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

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

COLORS FOR 208/120V CONDUCTORS PHASE A: BLACK PHASE B: RED PHASE C: BLUE NEUTRAL: WHITE EQUIPMENT GROUND: GREEN ISOLATED GROUND: GREEN WITH YELLOW STRIPE COLORS FOR 480/277V CONDUCTORS

PHASE A: BROWN PHASE B: ORANGE PHASE C: YELLOW NEUTRAL: WHITE EQUIPMENT GROUND: GREEN

UNLESS NOTED OTHERWISE, SPECIAL PURPOSE CONDUCTORS AND CABLES, SUCH AS LOW VOLTAGE CONTROL AND SHIELDED INSTRUMENT WIRING, SHALL BE SHALL BE FURNISHED COMPLETE WITH PROPER FUSES.

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 SHEET STEEL AND FINISH WITH BAKED ON GRAY ENAMEL OVER RUST INHIBITOR. 83 (AS APPLICABLE), AND 1569, NFPA 70 ARTICLE 330; ALUMINUM OR GALVANIZED EACH FRONT SHALL HAVE A DOOR MOUNTED ON SEMI-CONCEALED HINGES WITH STEEL INTERLOCKED ARMOR; THHN- OR XHHW-INSULATED CONDUCTORS; COLOR A CYLINDER LOCK, INDEX CARD CIRCUIT DIRECTORY MOUNTED BEHIND CLEAR CODE; ICEA METHOD 1, WITH GREEN INSULATED GROUDING CONDUCTOR.

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

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

VOLTAGE DROP IN BRANCH CIRCUITS SHALL NOT EXCEED 2%.

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

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

STANDARDS AND REQUIREMENTS INSOFAR AS MATERIAL, GAUGES, DIMENSIONS, TOGGLE-TYPE OPERATING ACTION AND POSITIVE HANDLE INDICATION OF AND FABRICATION METHODS. BOXES SHALL BEAR THE UL LABEL. WHERE BOXES BREAKER STATUS. CIRCUIT BREAKERS SHALL BE UL LISTED IN ACCORDANCE ARE NOT SIZED ON THE DRAWINGS, THEY SHALL BE SIZED IN ACCORDANCE WITH WITH UL STANDARDS.

N.E.C. REQUIREMENTS. FINISH IN STANDARD GRAY ENAMEL, WITH SIDES AND WITH BRASS MACHINE SCREWS.

8 - 7 - 6 - 5 - 4 - 3 - 2 - 2

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

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

RECEPTACLES: THREE WIRE GROUNDING TYPE. 120 VOLT RATED. SPECIFICATION GRADE 20 AMPERES DUPLEX UNLESS NOTED OTHERWISE ON DRAWINGS. HUBBELL #5362 OR EQUAL. COORDINATE RECEPTACLE COLOR WITH COVERPLATE AS DESCRIBED BELOW UNDER "PLATES". SINGLE RECEPTACLE, 20 AMPERE, 120 VOLT, SPECIFICATION GRADE. HUBBELL #5361 OR EQUAL.

BY FABRIC REINFORCED NEOPRENE GASKET SLIT TO PROVIDE WIPING ACTION ON FUSES OF THE PROPER SIZE, RATING AND ELECTRICAL CHARACTERISTICS SHALL CAP BLADES. PASS & SEYMOUR #6307 OR APPROVED EQUAL. GROUND FAULT CIRCUIT INTERRUPTER, NYLON FACE CLASS A, NEMA 5-20R, SPECIFICATION GRADE. HUBBELL #GF-5362* OR EQUAL.

CORROSION RESISTANT, SIMILAR AND APPROVED EQUAL TO STANDARD RECEPTACLE, EXCEPT FABRICATED FROM YELLOW MELAMINE PLASTIC WITH YELLOW NYLON FACE AND EXPOSED METAL PARTS FINISHED TO RESIST CORROSION. (NEMA 5-15R = HUBBELL #52CM61).

ISOLATED GROUND, DUPLEX OR SIMPLEX THREE WIRE GROUNDING TYPE

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

PLATES: PROVIDE PLATES FOR ALL OUTLET BOXES. PLATES SHALL BE OF SUITABLE CONFIGURATION FOR THE NUMBER AND TYPE OF DEVICES SERVED, SHALL BE ONE PIECE, SHALL OVERLAP OUTLET BOX EDGE AND ROOM SURFACES, AND SHALL BE SMOOTH FINISH NYLON TYPE OF SAME MANUFACTURER AS THE WIRING DEVICES. VERIFY DESIRED MATERIALS AND COLORS WITH ARCHITECT

STANDARD INTERIOR: IVORY FINISHED ON LIGHT COLORED WALLS - COORDINATE ALL COLORS WITH ARCHITECT

INTERIOR DAMP LOCATIONS: STAINLESS STEEL

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

ACCEPTABLE MANUFACTURERS: HUBBELL, PASS & SEYMOUR, LEVITON AND COOPER.

BINETS AND ENCLOSURES

URNISH 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 SPECIAL FINISHES. AND TRIM SHALL BE PRIME PAINTED FOR FIELD PAINTING TO MATCH WALL FINISHES. PROVIDE KNOCK-OUTS, LOUVERS AND IDENTIFICATION ENGRAVING AS RACEWAYS: MATERIALS FOR TELEPHONE RACEWAY SYSTEM WORK SHALL BE IN REQUIRED TO MEET FIELD CONDITIONS. EXACT BACKBOX SIZE TO BE COORDINATED WITH EQUIPMENT SUPPLIER.

CIRCUIT DISCONNECTS SAFETY SWITCHES: SAFETY SWITCHES SHALL CONSIST OF A BOX, FRONT COVER, AND CIRCUIT PROTECTOR DEVICE ALL MANUFACTURED AND ASSEMBLED IN ACCORDANCE WITH NEMA STANDARDS

THE BOX SHALL BE FABRICATED FROM CODE GAUGE GALVANIZED SHEET STEEL IN ACCORDANCE WITH U.L. LISTING AND LABEL. THE CIRCUIT PROTECTOR DEVICE TELEPHONE SERVICE CONDUIT LAYOUT SHALL HAVE THE JOB SITE APPROVAL OF GENERAL PURPOSE OR RAINTIGHT ENCLOSURES, AS REQUIRED. FUSED UNITS

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 PROVIDE STANDARD KNOCKOUTS ON REMOVABLE BOX ENDS. FABRICATE FROM PLASTIC AND HELD IN A METAL FRAME, AND CONCEALED TRIM CLAMPS FOR MOUNTING TO THE BOX. ALL LOCKS SHALL BE MASTER KEYED AND ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

ALL INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED. THE DESIGN OF THE INTERIOR SHALL PERMIT REPLACEMENT OF INDIVIDUAL BRANCH BREAKERS WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT MACHINE DRILLING OR TAPPING. BUS BARS FOR PANELS RATED 600 AMPERES OR MORE SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OR TIN FINISH ALUMINUM (57% CONDUCTIVITY) OF RECTANGULAR CROSS-SECTION. BUS BARS FOR PANELS RATED LESS THAN 600 AMPERES SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OF RECTANGULAR CROSS-SECTION. BUS BAR CONNECTIONS TO BRANCH CIRCUIT BREAKERS SHALL BE THE PHASE SEQUENCE TYPE AND ACCEPT PROVIDE FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS SUITABLE FOR

BREAKER OR MAIN LUGS SHALL BE RATED AS SCHEDULED ON DRAWING. SUCH RATINGS SHALL BE ESTABLISHED BASED ON HEAT RISE TESTS IN ACCORDANCE WITH UL STANDARDS. GROUP INCOMING CABLE LUGS AT ONE END FOR SEPARATION FROM LOAD SIDE CABLES. EQUIPMENT NEUTRAL BUSSING WITH A LUG FOR EACH BRANCH BREAKER POSITION. INTERIOR SHALL MOUNT TO BOX WITHOUT TOOLS.

BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, BOLT-ON THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKERS ONE, TWO OR THREE POLE WITH INTEGRAL

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

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

> METHOD OF TESTING SHALL BE PER UL STANDARDS. PANELBOARDS SHALL BE MARKED WITH THEIR MAXIMUM SHORT CIRCUIT CURRENT RATING AT THE SUPPLY VOLTAGE

APPROVED MANUFACTURERS: SQUARE-D CO. OR EQUAL BY GE, SIEMENS AND/OR INDICATED. FULL-CAPACITY PRIMARY TAPS: BELOW 25 KVA - MINIMUM OF TWO 5% FATON

OVERCURRENT PROTECTIVE DEVICES

BE PROVIDED IN EACH FUSIBLE DEVICE. FUSES OF 600 VOLTS AND BELOW SHALL BE UL CLASS RK-1, CURRENT-LIMITING, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERE RMS SYMMETRICAL INTERRUPTING CAPACITY ON NON-MOTOR CIRCUITS SHEET STEEL CONSTRUCTION. MANUFACTURERS: SQUARE D, GENERAL AND UL CLASS RK-5. TIME-DELAY, DUAL-ELEMENT, 200.000 AMPERES RMS SYMMETRICAL INTERRUPTING CAPACITY ON MOTOR CIRCUITS.

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

ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED WHERE CALLED FOR ON DRAWINGS. BREAKERS SHALL BE THERMAL MAGNETIC MOLDED-CASE WITH QUICK-MAKE, QUICK-BREAK, OVER CENTER TOGGLE TYPE MECHANISM AND TRIP-FREE HANDLE MECHANISM. THE BREAKER SHALL BE ENCLOSED IN A SUITABLE NEMA RATED ENCLOSURE. BREAKERS SHALL BE OF SAME MANUFACTURER AS THOSE IN THE PANELBOARDS.

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

DOOR PHOTOELECTRIC SWITCHES

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

ELEPHONE AND DATA SYSTEMS

FURNISH AND INSTALL A SYSTEM OF PROPERLY SIZED AND PROPERLY LOCATED OUTLETS WITH ASSOCIATED CONNECTING CONDUIT RUNS, EXTENDING TO PULL BOXES AND TELEPHONE BACKBOARD. FURNISH AND INSTALL RACEWAYS, FOR INCOMING SERVICE WHERE INDICATED.

OUTLET BOXES: UNLESS OTHERWISE INDICATED, ALL TELEPHONE OUTLETS AND JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO ACCOMMODATE INTERNAL TERMINAL STRIPS BY TELEPHONE CO.

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

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.

SHALL BE HEAVY DUTY, QUICK-MAKE, QUICK-BREAK FUSED OR UNFUSED SWITCH AN AUTHORIZED REPRESENTATIVE OF THE TELEPHONE CO. COORDINATE WORK RATED FOR MOTOR CIRCUITS AND/OR SERVICE ENTRANCE DUTY. IF REQUIRED. SO THAT BOTH TELEPHONE CO. AND OWNER'S REPRESENTATIVES ARE PRESENT UNITS SHALL BE FURNISHED FOR SURFACE OR FLUSH MOUNTING WITH EITHER AT THE SAME TIME FOR APPROVAL OR CHANGES IN AMPLE TIME FOR ANY REQUIRED CORRECTIONS BEFORE COMPLETION OF PROJECT.

> FROM EACH TELEPHONE OUTLET, PROVIDE 3/4" EMT CONDUIT CONCEALED IN WALL TO 6" ABOVE ACCESSIBLE CEILING OR UP TO STRUCTURE WHERE NO CEILING EXISTS, UNLESS SHOWN OTHERWISE ON DRAWINGS.

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

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

ALL RECESSED LIGHT FIXTURES SHALL BE PROVIDED WITH FACTORY INSTALLED THERMAL PROTECTION.

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

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

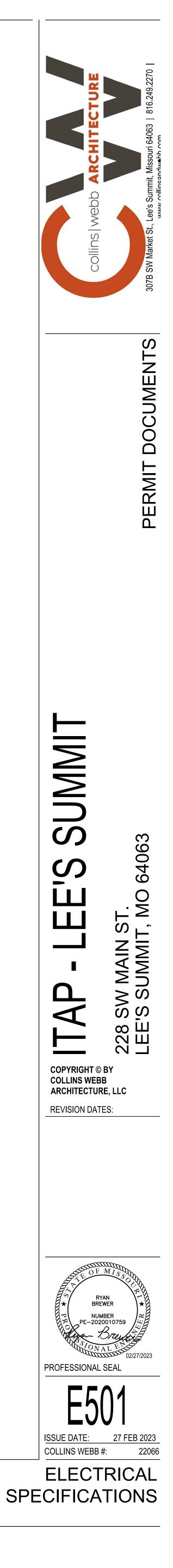
HID BALLASTS SHALL BE AUTO TRANSFORMER REACTOR, HIGH POWER FACTOR POTTED AND ENCASED TO MINIMIZE SOUND. APPROVED MANUFACTURERS: GE, SYLVANIA, OR OSRAM.

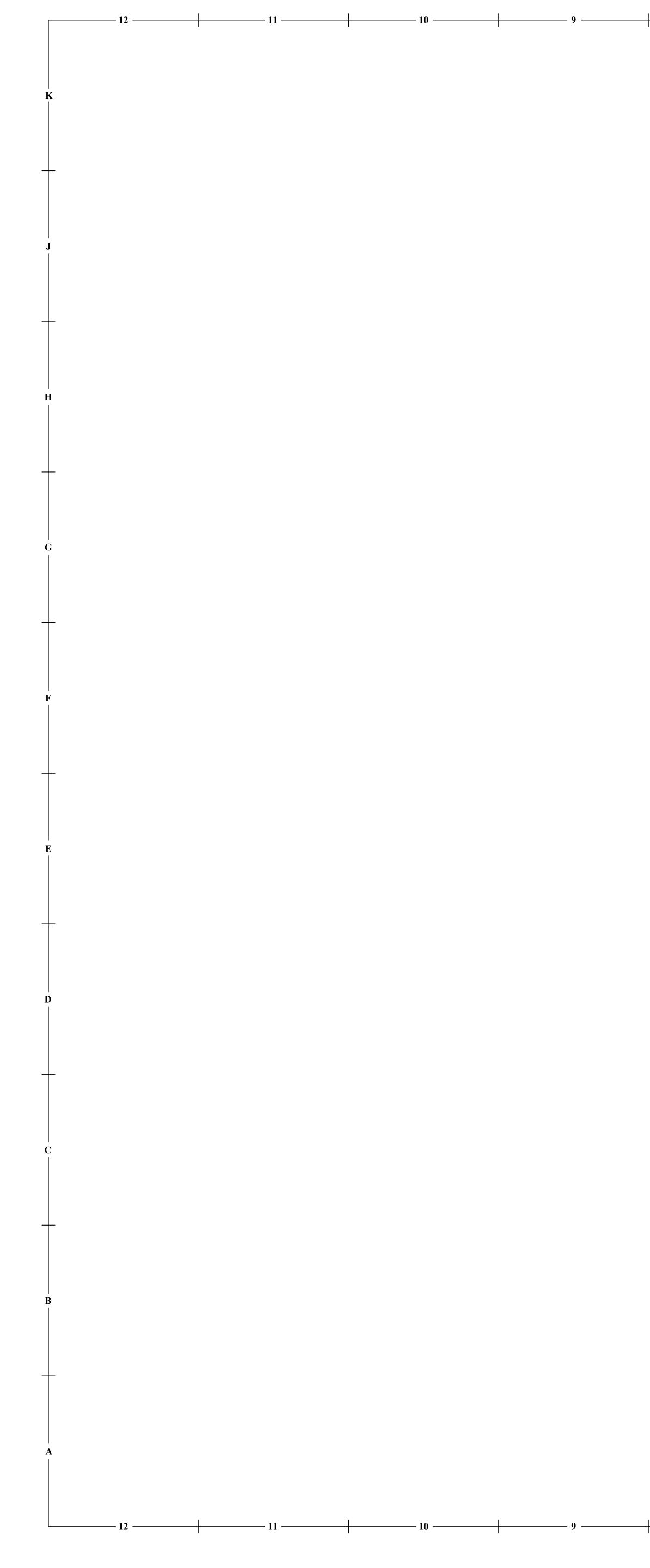
JUNCTION AND PULL BOXES: FABRICATE IN ACCORDANCE WITH NEMA AND N.E.C. CROSSBAR FOR MULTI-POLE UNITS, EQUIPPED WITH AN OVERCENTER, TRIP-FREE, LED LIGHT FIXTURES ARE TO BE PROVIDED WITH COMPATIBLE DRIVER AND MUST BE COORDINATED WITH CONTROL TYPE INDICATED. CONTRACTOR IS RESPONSIBLE TO ENSURE CONTROLS ARE CAPABLE OF PROPERLY CONTROLLING LIGHT FIXTURES AS INDICATED WITHIN THESE DRAWINGS.

CONTACTORS AND RELAYS

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

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 (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 ELECTRIC, ACME, SIEMENS.





WIRING OF MECHANICAL EQUIPMENT PROVIDE ALL RACEWAYS AND POWER WIRING FOR ALL DIVISION 15 EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, PUMPS, INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15. CONNECT PER MANUFACTURER'S WIRING DIAGRAMS. COORDINATE WITH DIVISION 15 FOR DISCONNECTS FURNISHED WITH EQUIPMENT. AND PROVIDE ALL DISCONNECT SWITCHES AS REQUIRED. AFTER INSTALLING WIRING, VERIFY THAT EACH MOTOR LOAD HAS THE CORRECT PHASE ROTATION.

VERIFY THE ACTUAL "MAXIMUM OVERCURRENT PROTECTION" DEVICE RATINGS AND "MINIMUM CIRCUIT AMPACITY" CONDUCTOR SIZING FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. BASE ELECTRICAL INSTALLATIONS ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY SOMEWHAT FROM THE CONDUCTOR AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS; HOWEVER, IN NO CASE, REDUCE THE SIZE OF CONDUCTORS INDICATED ON THE DRAWINGS WITHOUT AUTHORIZATION FROM THE ENGINEER. PROVIDE PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT WITHOUT EXTRA MOISTURE, USE LIQUIDTIGHT FLEXIBLE CONDUIT WITH WATERTIGHT FITTINGS. COST TO THE OWNER. NOTIFY THE ENGINEER OF ALL CHANGES REQUIRED IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES SO THAT THE EFFECTS ON FEEDERS, BRANCH CIRCUITS, PANELBOARDS, FUSES AND CIRCUIT BREAKERS CAN BE CHECKED PRIOR TO PURCHASING AND INSTALLATION. BE RESPONSIBLE FOR COORDINATING WITH DIVISION 15 TO VERIFY THE ACTUAL AMPACITIES AND CORRECT SIZES OF ALL CONDUCTORS AND OVERCURRENT

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

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

EXECUTION

METHOD OF PROCEDURI 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 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 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 N.E.C. ARE INCLUDED IN THE WORK OF THIS DIVISION. DO ALL ROUGHING-IN AND FINAL CONNECTIONS FROM APPROVED SHOP DRAWINGS ONLY.

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

PROVIDE SLEEVES FOR ELECTRICAL WORK PASSING THROUGH WALLS. OTHERWISE SPECIFIED. FIRE WALL AND/OR FLOOR INTEGRITY SHALL BE CONCRETE FLOORS AND ROOFS, SHALL BE FABRICATED FROM STANDARD GALVANIZED STEEL PIPE WITH ENDS FINISHED SMOOTH. BURR FREE. WITHOUT SHARP EDGES. SLEEVES IN WALLS, ROOFS, AND FLOORS OF OTHER CONSTRUCTION AND THROUGH SUSPENDED CEILINGS SHALL BE FABRICATED 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 RUN CONCEALED IN ALL FINISHED AREAS, AND WHERE RUN EXPOSED SHALL BE SQUARE TO THE BUILDING AND HELD TIGHT TO THE BUILDING CONSTRUCTION. AHJ. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION. METALLIC CONDUIT PROVIDE FOR A FUTURE DEVICE IN THE BOX. FOR THESE SYSTEMS SHALL BE PROVIDED ONLY WHERE RUN INSIDE WALLS. THE 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 AND N.E.C. FILL.

CONDUIT SHALL BE CONSTRUED AS ELECTRICAL RACEWAYS AND SHALL CONFORM TO THE FOLLOWING: CONCEALED IN SUSPENDED CEILINGS AND INTERIOR PARTITIONS - EMT WITH SET SCREW TYPE FITTINGS. UNDERGROUND FOR PARKING AREA LIGHTING, SIGNS, ETC. ELBOWS SHALL BE GRS). EXPOSED ON OUTLET BOX TYPE WHERE ONLY ONE CONDUIT ENTERS SAME. UNLESS BUILDING EXTERIOR - GRS.

CONDUIT BENDS SHALL BE MADE TO THE LARGEST POSSIBLE RADIUS FOR EASE IN ADAPTER RING. PULLING CONDUCTORS AND TO PROVIDE A NEATLY INSTALLED APPEARANCE. EQUIPMENT AND CONDITIONS PERMITTING, POWER CONDUIT BENDS SHALL IN. - 24 IN. RADIUS; 3 IN. - 36 IN. RADIUS.

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

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

WATER HEATERS, AND HVAC EQUIPMENT, AND ALL LINE-VOLTAGE CONTROL AND EMPTY CONDUIT SYSTEMS INSTALLED FOR COMMUNICATION SYSTEMS, PUBLIC TELEPHONES, OWNER ITEMS AND OTHER SYSTEMS AS INDICATED ON DRAWINGS GROUND RECEPTACLES AND POWER OUTLETS TO THE CONDUIT SYSTEM WITH A SHALL BE INSTALLED COMPLETE WITH NYLON PULL WIRES PROPERLY TAGGED AT GREEN GROUNDING CONDUCTOR SIZE IN ACCORDANCE WITH N.E.C. AND BOTH ENDS FOR IDENTIFICATION.

> WHERE BUILDING VENTILATION CONDITIONS ARE SUCH THAT AIR MAY FLOW CONTINUOUSLY IN CONDUITS, CAUSING CONDENSATION AND THE COLLECTION OF EQUIPMENT CONNECTED TO THE ELECTRICAL SYSTEM SHALL BE GROUNDED MOISTURE, THE CONDUITS SHALL BE SEALED AT EACH END WITH A PLIABLE X DUCT SEALING COMPOUND. ALSO SEAL ALL CONDUITS ENTERING AND LEAVING REFRIGERATED EQUIPMENT AND PROVIDE EXPANSION JOINTS PER N.E.C.

ALL CONNECTIONS TO MOTORS, SOLENOID VALVES, PRESSURE SWITCHES, LIMIT METALLIC CONDUIT SYSTEM. THIS REQUIREMENT INCLUDES ALL FLEXIBLE SWITCHES, AND SIMILAR APPARATUS SHALL BE FLEXIBLE CONDUIT WHERE PERMITTED. WHERE EQUIPMENT IS INSTALLED OUTDOORS OR EXPOSED TO

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 PROTECTIVE DEVICES FOR ALL EQUIPMENT, AND CORRECT OVERLOAD HEATERS MULTIPLE CONDUITS USING CHANNEL TRAPEZE SUPPORTS TIGHT TO STRUCTURE GROUND CONDUCTOR - SIZE AS PER N.E.C. REQUIREMENTS, SOFT DRAWN OR ABOVE. USE APPROVED SPACERS TO INSULATE FROM CONTACT WITH BUILDING. SOFT ANNEALED, COPPER WIRE. SIZE CLAMPS, INSERTS, CHANNELS AND ALL OTHER MEMBERS TO SUPPORT A LOAD EQUAL TO 200% OF THE COMBINED WEIGHT OF ALL SUPPORTED MATERIAL PLUS THE WEIGHT OF A MAN.

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

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

SECURELY ATTACH HANGERS AND SUPPORTS TO CONSTRUCTION BY METHODS RECOMMENDED IN THE "NECA STANDARDS OF INSTALLATION" MANUAL COORDINATION WITH MECHANICAL TRADES: THE INTENT OF THE ABOVE CEILING SUPPORTS IS TO COMBINE AS MANY PIPES, CONDUITS, ETC., AS IS POSSIBLE WITHIN SAFE STRUCTURAL LIMITS, ON EACH HORIZONTAL SECTION OF A TRAPEZE CONDUCTORS WITH ADHESIVE WRAP LABELS WITHIN 2 IN. OF THE CONDUCTOR HANGER. PRIOR TO SELECTING THE HORIZONTAL MEMBER, ALL TRADES, TO AVOID MARRING SURFACES OF THE WORK. DAMAGES SHALL BE REPAIRED AT MECHANICAL AND ELECTRICAL, SHALL COORDINATE ACTUAL NUMBER OF PIPES, CONDUITS, ETC., SUCH THAT FINAL SELECTION RESULTS IN A NEATLY GROUPED, DISCIPLINED AND ACCESSIBLE INSTALLATION.

WIRING INSTALLATION

EXCEPT FOR SUCH ITEMS AS ARE NORMALLY WIRED AT THEIR POINT OF MANUFACTURE AND SO DELIVERED - AND UNLESS SPECIFICALLY NOTED TO THE FROM ANOTHER CONTRACTOR OR THE OWNER, NOTIFY THE OWNER IN WRITING CONTRARY HEREIN - THE ELECTRICAL TRADE SHALL DO ALL ELECTRICAL WIRING MISCELLANEOUS APPURTENANCES TO PROPERLY COORDINATE WITH SAID WHEN THE EQUIPMENT WILL BE READY. THE OWNER SHALL BE NOTIFIED AS FAR OF EVERY CHARACTER. IT IS THE INTENT OF THESE SPECIFICATIONS AND IN ADVANCE AS POSSIBLE, OF THE DATE THE VARIOUS ITEMS OF EQUIPMENT WILL DRAWINGS THAT ALL SYSTEMS AND EQUIPMENT SHALL BE PROVIDED WITH ALL SUPPORT THE WEIGHT OF FIXTURES INSTALLED THEREON. NECESSARY UTILITY CONNECTIONS, COMPLETED TO ALLOW SAFE AND PROPER OPERATION OF SAID SYSTEMS. WHEN IT IS NECESSARY FOR TRADES THE WORK OF THIS TRADE INCLUDES ROUGH-IN FOR AND FINAL CONNECTION AND PERFORMING WORK COVERED BY THIS DIVISION TO MAKE FINAL CONNECTIONS TO ITEMS OF EQUIPMENT BEING FURNISHED BY OTHERS, OR BY OTHER TRADES UNDER OTHER DIVISIONS, ALL SUCH WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DIVISION AND ALL MATERIALS USED SHALL BE AS SPECIFIED HEREIN.

MINIMUM WIRE SIZE FOR BRANCH CIRCUITS SHALL BE #12 AWG, EXCEPT THAT HOMERUNS LONGER THAN 100 FT. LENGTH FROM THE PANEL TO THE CIRCUIT'S ELECTRICAL LOAD CENTER SHALL BE #10 AWG MINIMUM. WHERE RUNS EXCEED 150', CONTRACTOR MUST ENSURE WIRE SIZE BEING UTILIZED DOES NOT CREATE A VOLTAGE DROP GREATER THAN 3%. REQUEST PROPER WIRE SIZE PRIOR TO THOROUGHLY CLEAN ALL FIXTURES, SWITCHES, OTHER DEVICES, PANELBOARDS, INSTALLATION IF A 3% VOLTAGE DROP MAY OCCUR FOR ANY BRANCH CIRCUIT. AND EQUIPMENT PROVIDED OR CONNECTED IN THIS CONTRACT. ALL SURFACES WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE ENCLOSED IN SHALL BE PROPERLY POLISHED AND SHALL BE FREE OF PAINT AND ALL OTHER THE SAME RACEWAY, CONDUCTORS ARE TO BE DERATED PER N.E.C. AND WIRE DIRT OR DEBRIS. TOUCHUP OR COMPLETELY REFINISH ALL EQUIPMENT PARTITIONS, ROOFS, AND FLOORS. SLEEVES SHALL EXTEND THROUGH FLOORS, SIZE INCREASED AS REQUIRED. WHERE THE INCREASED CONDUCTOR SIZE FURNISHED WITH FACTORY FINISHES THAT IS DAMAGED DURING DELIVERY OR WALLS AND PARTITIONS AND SHALL BE CUT FLUSH WITH EACH SURFACE UNLESS REQUIRES, INCREASE THE RACEWAY SIZE AS WELL. FOR CONTROL WIRING, USE CONSTRUCTION. PROPERLY PROTECT THE FRONTS OF ALL PANELBOARDS, #14 AWG MINIMUM. FOR FIXTURE WIRING, AS PERMITTED BY N.E.C., USE #18 AWG SWITCHBOARDS AND SIMILAR EQUIPMENT TO PREVENT MARRING AND OTHER RESTORED AFTER PENETRATION. SLEEVES IN CONCRETE AND MASONRY WALLS, MINIMUM. FOR SIGNAL AND COMMUNICATIONS SYSTEMS USE WIRE SIZE AS DEFACING. SPECIFICALLY REQUIRED BY THE SYSTEM SUPPLIER.

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

IDENTIFY ALL WIRES AND CABLES WITH BRADY ADHESIVE WIRE MARKERS AT EACH BOX, PANEL, AND OUTLET. IDENTIFICATION SHALL, AS A MINIMUM, INDICATE CAPACITY, SPEED, AND OVERALL SATISFACTORY OPERATION. CHECK THAT THE LOW VOLTAGE, TELEPHONE, INTERCOM, MUSIC, ALARM AND SECURITY WIRING THE PANEL AND CIRCUIT SUPPLYING THE OUTLET. AT THE PANEL END, THE LOAD PROPER OVERLOAD HEATERS HAVE BEEN INSTALLED BY READING THE MOTOR RUN ABOVE ACCESSIBLE CEILINGS SHALL BE RUN USING INSULATED, PLENUM SERVED AND ITS LOCATION SHALL BE INDICATED. PROVIDE A MINIMUM OF 8 IN. NAMEPLATE. ADJUST THE SIZE OF THE OVERLOAD HEATER AS REQUIRED TO RATED CABLE. PROVIDE LOW VOLTAGE CABLE IN CONDUIT IF REQUIRED BY LOCAL SLACK WIRE AT EACH OUTLET FOR MAKING CONNECTION TO THE DEVICE OR TO MATCH THE MOTOR NAMEPLATE. OPERATE ALL MAIN AND FEEDER SWITCHES AND

EACH BOX SHALL BE OF PROPER SIZE TO ACCOMMODATE THE DEVICE AND FUNCTION FOR WHICH IT IS SHOWN. BOXES FOR WALL DEVICES SHALL BE COORDINATION WITH BUILDING STRUCTURE AND THE WORK OF OTHER TRADES. FURNISHED COMPLETE WITH PLASTER RING OR TILE RING ACCORDING TO WALL FURNISH ALL REQUIRED BENDS, ELBOWS, FITTINGS, JUNCTION AND PULL BOXES, CONSTRUCTION WHERE REQUIRED. BOXES FOR INSTALLATION IN MASONRY WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS, THAT MAY BE REQUIRED WALLS SHALL BE SPECIAL SQUARE CORNER MASONRY TYPE. BOXES FOR TO SATISFY CODES AND THE STANDARDS OF GOOD PRACTICE. WHERE CONDUITS MOUNTING OF LIGHTING FIXTURES SHALL BE FOUR INCH OCTAGON, EQUIPPED FOR BOTH BRANCH AND FEEDER CIRCUITS ARE RUN CONCEALED, THEY MAY BE WITH 3/8 IN. "NO-BOLT" FIXTURE STUD. BOXES FOR FLOOR OUTLETS SHALL BE RUN OUT OF SQUARE TO THE BUILDING PROVIDING THE SHORTEST POSSIBLE RUN CONCRETE PROOF STEEL BOXES WITH ADJUSTABLE TOPS AND DEVICES AS IS UTILIZED. RACEWAY SIZES ARE BASED ON THE USE OF COPPER CONDUCTORS HEREINAFTER NOTED OR SHOWN. ALL BOXES SHALL BE FURNISHED COMPLETE WITH PROPER COVER AND/OR DEVICE PLATE AND DEVICE. UNLESS OTHERWISE NOTED, PLACE OUTLET BOXES AT THE FOLLOWING HEIGHTS (BOX CENTER TO FINISH FLOOR): WALL SWITCHES 48" AND CONVENIENCE OUTLETS 18" UNLESS NOTED OTHERWISE ON DRAWINGS.

OR BELOW INTERIOR SLABS - GRS. (NOTE: PVC CONDUIT IS PERMITTED OUTSIDE TELEPHONE, ALARM, AND SIGNAL SYSTEM OUTLET BOXES SHALL BE STANDARD OTHERWISE SPECIFIED OR INDICATED ON DRAWINGS, WHERE TWO OR MORE CONDUITS ENTER, BOX SHALL BE 4-11/16 IN. SQUARE MINIMUM WITH SUITABLE

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

SYSTEM GROUNDING

EQUIPMENT, RACEWAY SYSTEMS, WIRING SYSTEM NEUTRALS, RECEPTACLES AND POWER OUTLETS, MOTORS AND MOTORIZED EQUIPMENT, SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. ARTICLE 250.

CONNECTED BETWEEN THE DEVICE GROUNDING SCREW AND THE OUTLET BOX. CONNECTION TO THE BOX MAY BE A "G" CLIP OR BY A 10/24 SCREW THREADED INTO A HOLE IN THE BACK OF THE BOX AND USED FOR NO OTHER PURPOSE. WITHIN INSULATED GREEN GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH N.E.C. AND INSTALLED WITHIN THE RACEWAY. CONDUCTOR SHALL BE CONTINUOUS BETWEEN A GROUNDING SCREW IN THE EQUIPMENT JUNCTION BOX AND A GROUND ATTACHMENT IN THE NEAREST OUTLET BOX IN THE RIGID CONDUIT.

GENERALLY FOR TELEPHONE AND SUPPLEMENTAL COMMUNICATION SYSTEMS NO 6 AWG CONDUCTOR TO EACH PROTECTOR CABINET, OTHER CABINET, OR DEVICE INSTALLATION SHALL BE CONSIDERED SUFFICIENT, FROM THE SERVICE GROUND (UNLESS INDICATED OTHERWISE).

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

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 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 FINISHES. REINFORCE CEILING CONSTRUCTION AS REQUIRED TO PROPERLY

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.

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

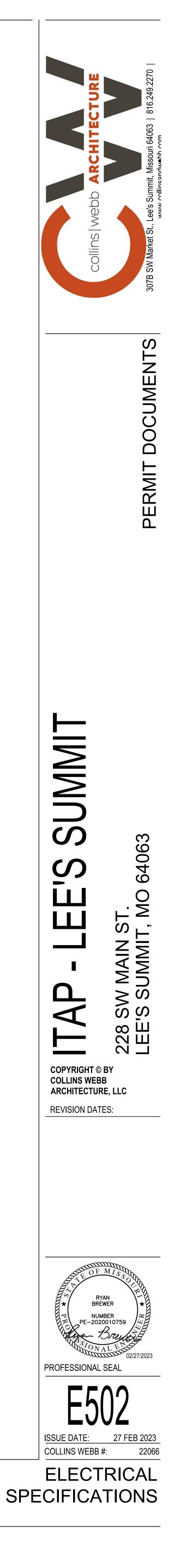
TESTING AND LOAD BALANCING

END OF SECTION 16000

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 BREAKERS.

THE VARIOUS BRANCH CIRCUITS SERVED FROM THE LIGHTING PANELBOARDS VARY IN LOADING. CAREFULLY BALANCE THE ACTUAL OPERATING LOAD ON EACH PANELBOARD WHEN ALL LOAD IS TURNED ON AND THE SYSTEM IS OPERATING AT 100% DEMAND, THE UNBALANCE SHALL NOT EXCEED 10%. DURING FINAL INSPECTION, FURNISH THE TEST INSTRUMENTS AND QUALIFIED PERSONNEL TO PERFORM COMPLETE TESTING. COSTS OF ALL TESTING, INCLUDING THE INCIDENT COSTS FOR RETESTING OCCASIONED BY DEFECTS AND FAILURES OF THE EQUIPMENT TO MEET THE SPECIFICATIONS, SHALL BE BORNE BY THE CONTRACTOR.

FURNISH AT THE COMPLETION OF THE PROJECT A FINAL INSPECTION CERTIFICATE FROM THE LOCAL INSPECTING AUTHORITY.



11	10
MECHANICAL	ARRRE\/IAT

	NICAL ABBREVIATI CONT.	(REFER TO SPECIFICATIONS SECTIONS 15815 AN	
		SINGLE	DOUBLE
ABBREVIATION	(ALPHABETICAL BY ABBREVIATION)		LINE
PF	PRE-FILTER	ROUND ELBOW DOWN	
PLNM	PLENUM	ROUND ELBOW UP	
RA	RETURN AIR	OFFSET TO CHANGE ELEVATION (AT	30° WHEN
RAF	RETURN AIR FAN	OFFSET TO CHANGE ELEVATION (AT POSSIBLE. ARROW SLOPES DN, U.N.	
RAG OR RG	RETURN AIR GRILLE	ROUND RADIUS ELBOW	
RAR OR RR	RETURN AIR REGISTER		
RAS	RETURN AIR SILENCER	90° STRAIGHT TEE	
RE:	IN REFERENCE TO		
RTU		90° CONICAL TEE	
SA			
SAF OR SF SAG OR SG	SUPPLY AIR FAN SUPPLY AIR GRILLE	45° LATERAL TAP	
SAG OR SG	SUPPLY AIR REGISTER		
SAS	SUPPLY AIR SILENCER	45° LATERAL CONICAL TEE	
SCHP	SECONDARY CHILLED WATER PUMP		
SD	SMOKE DAMPER OR DETECTOR	SIZE OR SHAPE TRANSITION	
SPCHP	SPECIAL PROCESS CHILLED WATER PUMP	ROUND FLEXIBLE DUCT	8B
ТА	THROW AWAY (FILTER TYPE)		
TDEF	TRUCK DOCK EXHAUST FAN	RECTANGULAR ELBOW DOWN	
TEF	TOILET EXHAUST FAN		
TRANS	TRANSITION OR TRANSFER	RECTANGULAR ELBOW UP	
ТҮР	TYPICAL	OFFSET TO CHANGE ELEVATION (AT	30° WHERE
UH	UNIT HEATER	→ → → → → → → → → → → → → → → → → → →	
UNO	UNLESS NOTED OTHERWISE		
VF	VENTILATION FAN	RECTANGULAR RADIUS ELBOW	
VFD	VARIABLE FREQUENCY DRIVE		
VV	VARIABLE VOLUME TERMINAL BOX	RECTANGULAR ELBOW WITH TURNI	
W/	WITH		¥\Ł
XFMR OR TFMR	TRANSFORMER	SPLIT BRANCH TAKE-OFF WITH SQU	
XT OR EX	EXPANSION TANK EVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJE	& SPLITTER DAMPER	
		SPLIT BRANCH TAKE-OFF WITH RAD & SPLITTER DAMPER	
		SPLIT BRANCH TAKE-OFF TEE WITH	STATIONARY
		BRANCH TAKE-OFF WITH 45° LEAD IN	
		INSULATED/LINED DUCTWORK (U.N.).)
		SQUARE FACED CEILING DIFFUSER	4-WAY
		ROUND FACED CEILING DIFFUSER	
		CEILING RETURN OR EXHAUST AIR O OR REGISTER	
		SIDEALL SUPPLY GRILLE OR REGIST	
		SUPPLY DUCT RISER	
		RETURN, EXHAUST OR OUTSIDE AIR	DUCT RISER
		MANUAL BALANCING DAMPER	
		AUTOMATIC (MOTOR-OPERATED) DA	
		FIRE DAMPER	
		COMBINATION FIRE AND SMOKE DAT SMOKE DETECTOR	
		SMOKE DAMPER (AUTOMATIC) WITH	

ABBREVIATION	LONG FORM
BV	ABOVE
C OR ACU	AIR-CONDITIONING UNIT
\HAP	AS HIGH AS POSSIBLE
AHU	AIR-HANDLING UNIT
AUTO	AUTOMATIC
BLW	BELOW
с	CHILLER
CD	CONDENSATE
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
СН	CABINET HEATER
СНР	CHILLED WATER PUMP
CLNG OR CLG	CEILING
CONC	CONCRETE
CP OR CWP	CONDENSER WATER PUMP
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CRAC OR CACU	COMPUTER ROOM AIR-CONDITIONING UNIT
CREF	CHILLER ROOM EXHAUST FAN
CRU	CONDENSATE (STEAM) RETURN UNIT
СТ	COOLING TOWER CELL
CTU	CONDENSATE (STEAM) TRANSFER UNIT
CU	CONDENSING UNIT
DV	CONSTANT VOLUME TERMINAL BOX
DEF	DISHWASER EXHAUST FAN
DMPR	DAMPER
DN	DOWN
EA	EACH
EBH	ELECTRIC BASEBOARD HEATER
EDH	ELECTRIC DUCT-MOUNTED HEATER
EF	
EG	
ER	
EUH	
EXH	EXHAUST
FD	FIRE DAMPER
FCU	FAN-COIL UNIT
FF	
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
НХ	HEAT EXCHANGER
KEF	KITCHEN (GREASE HOOD) EXHAUST FAN
KW	KILOWATTS
LD	LINEAR SUPPLY DIFFUSER
МОТ	MOTORIZED
MTD	MOUNTED
MUAF	MAKE-UP AIR FAN
MUAHU	MAKE-UP AIR-HANDLING UNIT
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OPG OR OPNG	OPENING

SYMBOL	IECHANICAL SYMB
-	GATE VALVE
	BALL VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	ANGLE VALVE
	CHECK VALVE
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)
	AUTOMATIC CONTROL VALVE (3-WAY)
<u> </u>	AUTOMATIC CONTROL VALVE (ANGLE)
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	GAUGE COCK
, , S	PRESSURE GAUGE WITH GAUGE COCK
Ū.	THERMOMETER
Y	THERMOMETER WELL
•	TEST PLUG
Ē	FLOW METER
	TEMPERATURE SENSOR
Ø	PRESSURE SENSOR
	DIFFERENTIAL PRESSURE SWITCH
	IMMERSION THERMOSTAT
 ♠	MANUAL AIR VENT
A	AUTOMATIC AIR VENT
FS	FLOW SWITCH
	ORIFICE
- []	PIPE SLEEVE THRU WALL OR FLOOR
	EXPANSION JOINT
~	FLEXIBLE PIPE JOINT
=	PIPE GUIDE
-X -	ANCHOR
	STRAINER (Y-TYPE)
-0	STRAINER (BASKET TYPE)
-#	UNION
—	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
Ō	THERMOSTAT
Θ	HUMIDISTAT
(FSC)	FAN SPEED CONTROLLER
- CS	CONDENSER WATER SUPPLY
— CR ——	CONDENSER WATER RETURN

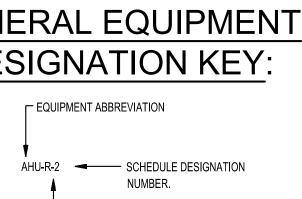
	OT
SYMBOL	
Ð	INDICATE

GEN	
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'	
STANDARD	
ANICAL SYMBOLS	
DESCRIPTION	
E	
VE	
Ý VALVE	
E	
VE	
VE	
CONTROL VALVE (STRAIGHT THROUGH)	
CONTROL VALVE (3-WAY)	
CONTROL VALVE (ANGLE)	
CONTROL VALVE (STRAIGHT THROUGH)	
/ALVE	
REDUCING VALVE	
RELIEF VALVE	
СК	
GAUGE WITH GAUGE COCK	
TER	
TER WELL	
R	
JRE SENSOR	
SENSOR	
IAL PRESSURE SWITCH	
THERMOSTAT	
RVENT	CES
AIR VENT	VALVES, FITTINGS, & DEVICES
СН	GS, &
E THRU WALL OR FLOOR	/ES, F
	VALV
IPE JOINT	
Y-TYPE)	
BASKET TYPE)	
IC REDUCER	
REDUCER	
OF FLOW	
OF SLOPE	
AT	
Т	
CONTROLLER	
R WATER SUPPLY	
R WATER RETURN	PIPING
TE DRAIN	

HER SYMBOLS DESCRIPTION

TES CONNECTION TO EXISTING DUCT OR PIPE



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 EQUIPMENT. 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. 0. LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE FINAL CEILING AND LIGHTING LOCATIONS. DUCTWORK CROSSING FIRE RATED WALL OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL. PROVIDE FIRE AND/OR FIRE/SMOKE DAMPERS IN DUCTWORK AT CEILINGS AND WALLS AS REQUIRED BY BUILDING CODE AUTHORITY HAVING JURISDICTION. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE. PROVIDE WALL AND/OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO ALL FIRE AND/OR FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 6"x6" AND SHALL BE INSTALLED WITH 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 6"x6" ACCESS DOOR. THERMOSTATS AND HUMIDISTATS SHALL BE LOCATED AND SET BY MECHANICAL CONTRACTOR AND WIRED IN CONDUIT BY ELECTRICAL CONTRACTOR. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR

TO INSTALLATION. MOUNTING HEIGHTS SHALL BE 48" AFF TO MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS. 15. COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH ANY WALL MOUNTED ITEMS INDICATED ON THE ARCHITECTURAL DRAWINGS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF ANY WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION. 6. ALL BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS, AND GRILLES SHALL HAVE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY. RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE

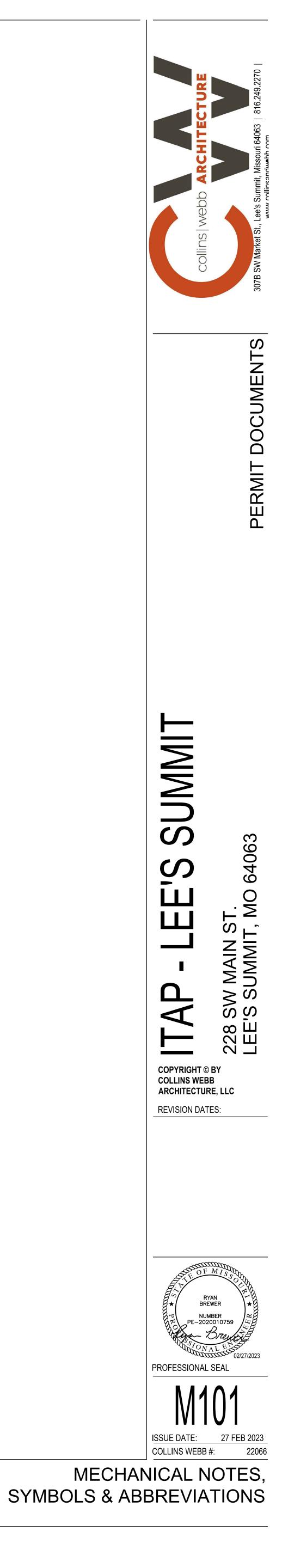
NOTED. RIGID DUCTWORK INSULATION: PROVIDE R-6 MINIMUM INSULATION WRAP ON ALL CONCEALED DUCTWORK. PROVIDE R-6 MINIMUM INTERNAL DUCT LINER ON ALL EXPOSED DUCTWORK. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE DIMENSIONS, SHEET METAL SIZES SHALL INCREASE ACCORDINGLY. PROVIDE R-12 MINIMUM INSULATION ON ALL DUCTWORK INSTALLED IN UNCONDITIONED SPACES. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

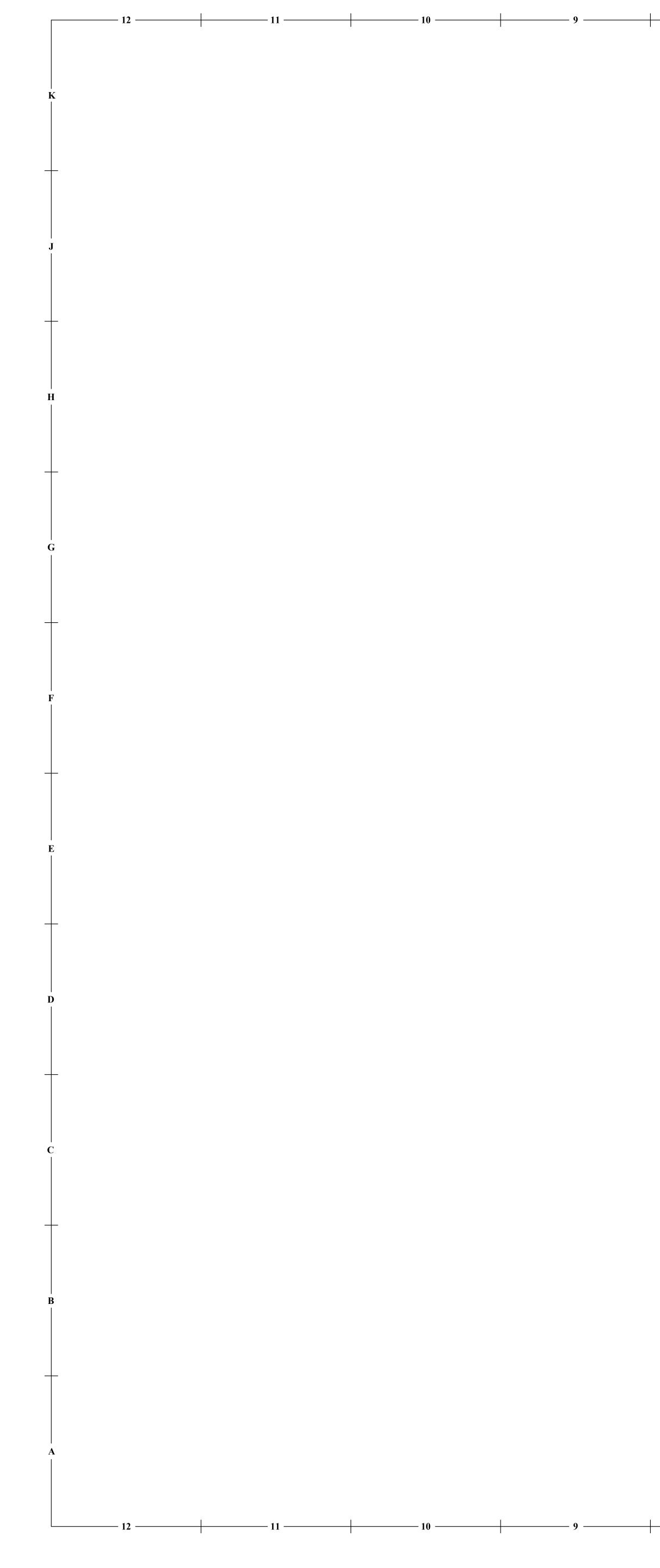
FLEXIBLE DUCT WORK SHALL BE THERMAFLEX TYPE MKE, FLEXMASTER TYPE 8M, OR APPROVED EQUAL, SHALL BE LISTED UNDER 181 AS CLASS 1 AIR DUCT AND SHALL BE PROVIDED WITH INTEGRAL R-6 MINIMUM FIBERGLASS INSULATION. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORT TO AVOID SHARP BENDS AND SAGGING. WALL MOUNTED DIFFUSERS AND GRILLES SHALL BE PROVIDED WITH SUITABLE MOUNTING FRAME TO MATCH WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.

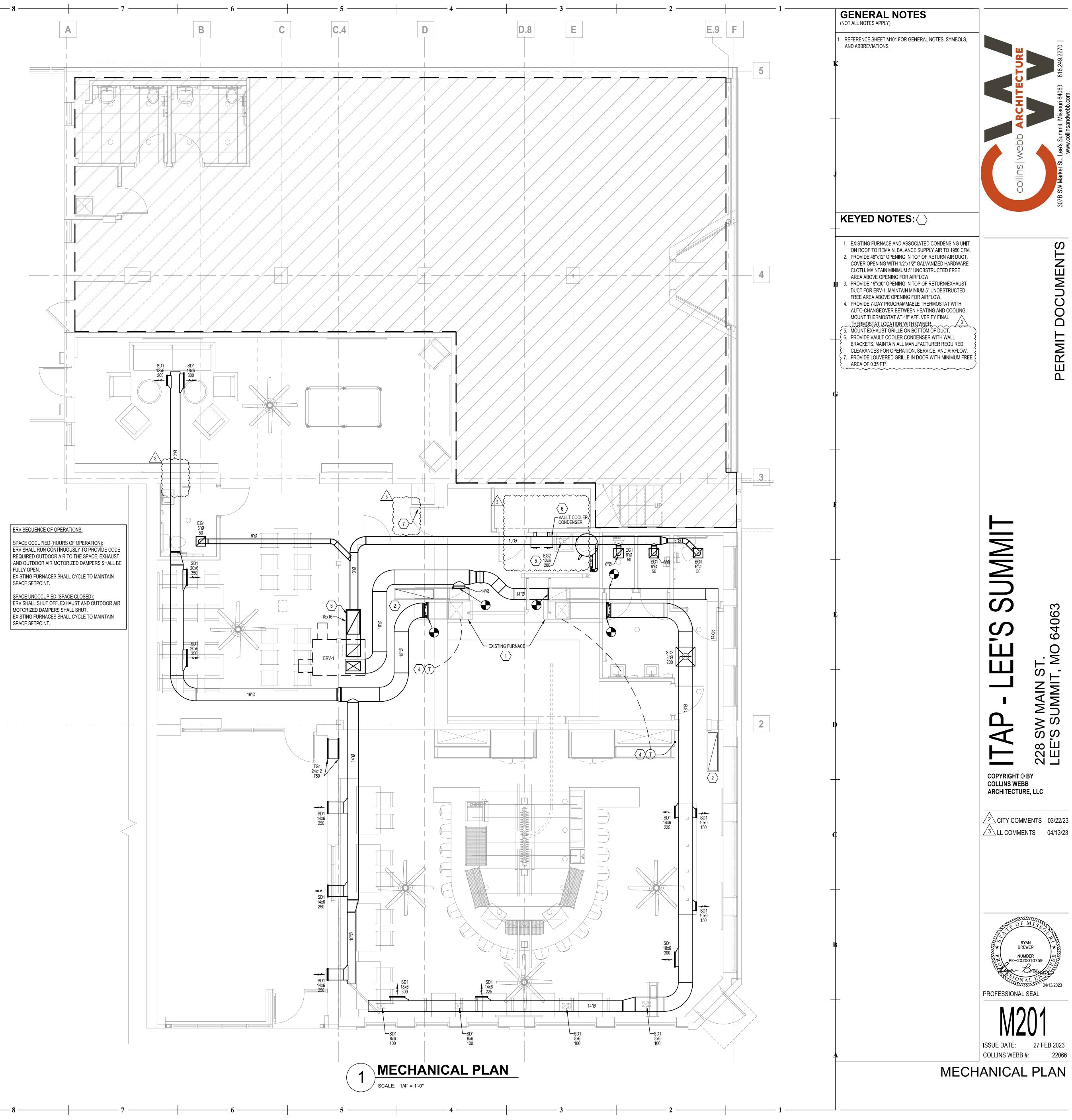
GENERAL MECHANICAL NOTES:

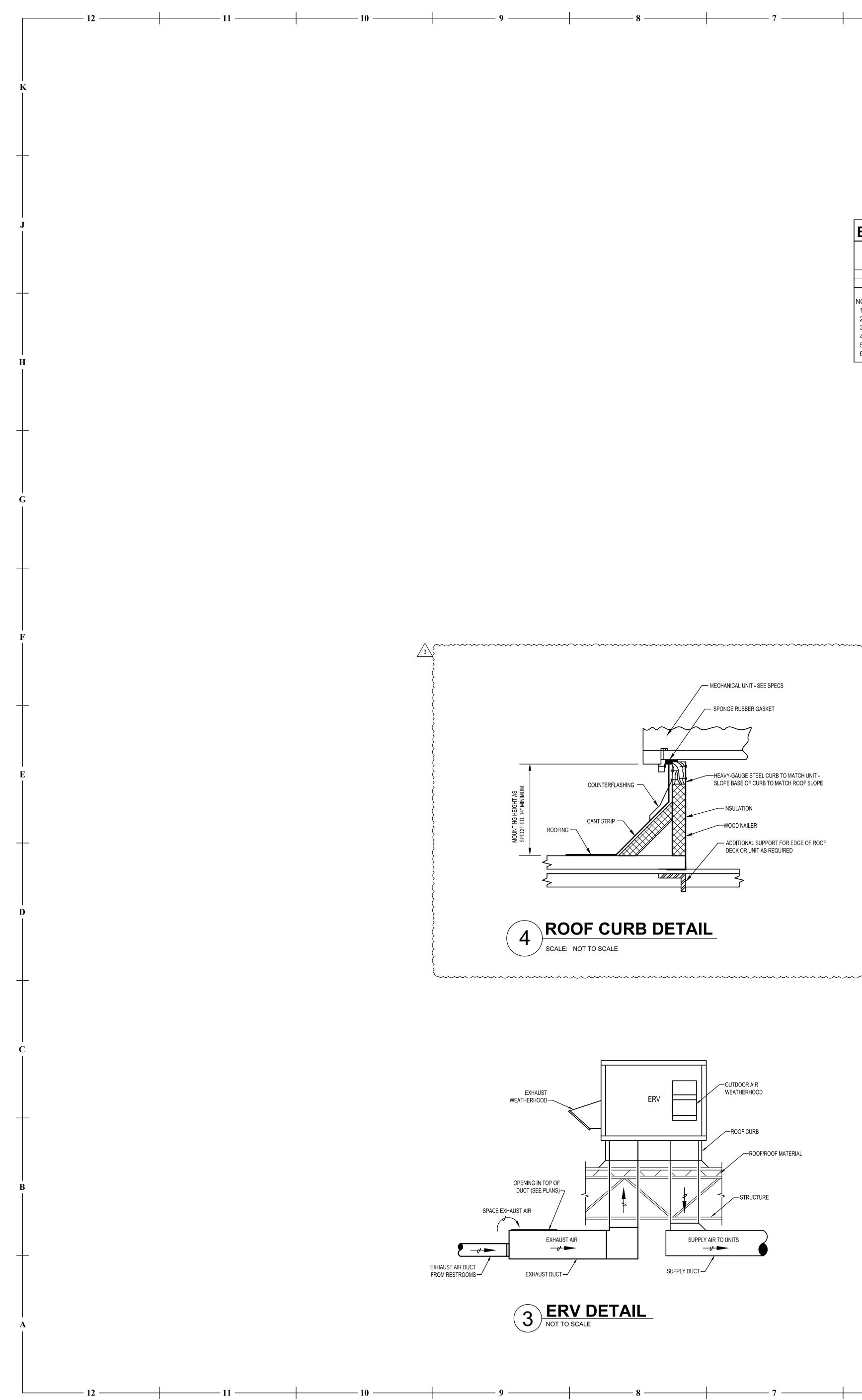
- 1. REFER TO ARCHITECTURAL PLANS FOR RATED WALLS AND PARTITIONS. VERIFY FIRE AND/OR SMOKE DAMPER LOCATIONS AT DUCTS OR OPENINGS PENETRATING THESE WALLS.
- 2. REFER TO ARCHITECTURAL PLANS FOR ROOM NAMES AND NUMBERS. 3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS,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

COORDINATING ALL TRADES. EXISTING UNKNOWN CONDITIONS MAY AFFECT EXACT DUCT OR PIPE ROUTING, OR EXISTING CONDITIONS MAY NEED TO BE MODIFIED TO ACCOMMODATE DUCTS AND PIPES.



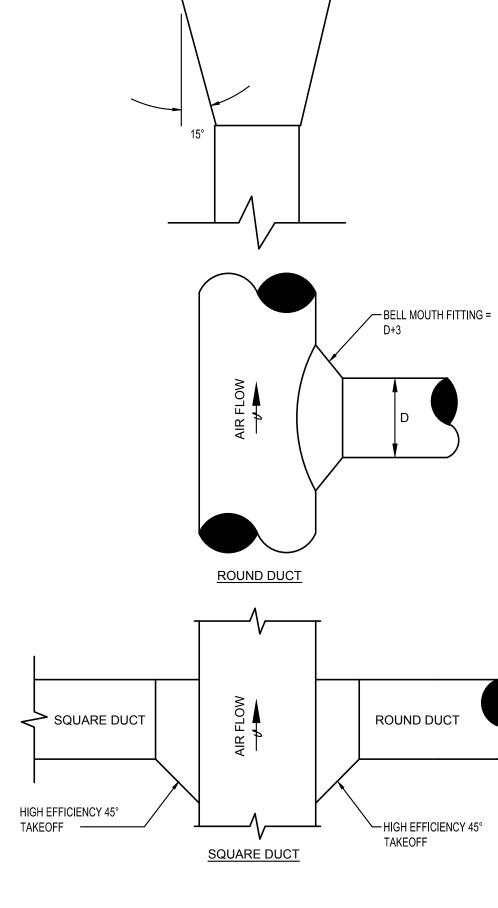






ENERGY RECOVERY VENITLATOR SCHEDULE																	
				OUTSIDE	EXHAUST	SUPP	LY FAN	EXHAU	ST FAN	SUMME	R PERFORMANCE	WINTE	R PERFORMANCE	UNIT ELE	CTRICA	L DATA	
MARK	MANUFACTURER	MODEL	WEIGHT	AIR	OA		ESP		ESP	LAT	LOAD REDUCTION	LAT	LOAD REDUCTION	1			l
			(LBS)	(CFM)	(CFM)	HP	(IN. W.C.)	HP	(IN. W.C.)	(DB/WB)	(MBH)	(DB/WB)	(MBH)	V/PH/HZ	MCA	MOCP	NOTES
ERV-1	GREENHECK	ERVe-20-15H	1000	1,800	1,600	1.0	0.5	0.75	0.5	81.1/67.2	59.1	51.6/42.3	82.9	208/1/60	19.1	25.0	1,2,3,4,5,6
																<u> </u>	
NOTES:																	

1 EQUIPMENT SIZED FOR OUTDOOR CONDITIONS OF - <u>SUMMER:</u> 95.5°F DB AND 75.3°F WB. <u>WINTER:</u> 9.3°F DB AND 7.0°F WB. 2 EQUIPMENT SIZED FOR INDOOR CONDITIONS OF - SUMMER: 75.0°F DB AND 62.4°F WB (50% RH). WINTER: 72.0°F DB AND 55.6°F WB (35% RH). 3 ENERGY RECOVERY DEVICE SHALL BE POLYMER WHEEL WITH SILICA GEL DESICCANT. 4 UNIT SHALL BE DOWN DISCHARGE WITH SUPPLY AND EXHAUST WEATHERHOODS. 5 PROVIDE WITH MOTORIZED DAMPERS FOR EXHAUST AND OUTDOOR AIR. 6 PROVIDE WITH 14" HIGH ROOF CURB AND FACTORY MOUNTED DISCONNECT SWITCH.



2 DUCT TAKEOFFS AND FITTINGS NOT TO SCALE

GRILLE, REGISTER, AND DIFFUSER SCHEDULE										
			FACE	MOUNTING	FACE SIZE					
MARK	MANUFACTURER	MODEL	TYPE	LOCATION	(IN)	NOTES				
SD1	TITUS	300FL	LOUVERED	WALL/DUCT	NECK + 1-3/4"	1,2,3,4,5,6				
SD2	TITUS	PAS	PERFORATED	CEILING	24"x24"	1,2,3,4,5				
EG1	TITUS	PAR	PERFORATED	CEILING	12"x12"	1,2,3,5				
EG2	TITUS	350FL	LOUVERED	DUCT	NECK + 1-3/4"	1,2,3,5				
TG1	TITUS	350FL	LOUVERED	WALL	NECK + 1-3/4"	1,2,3,5				

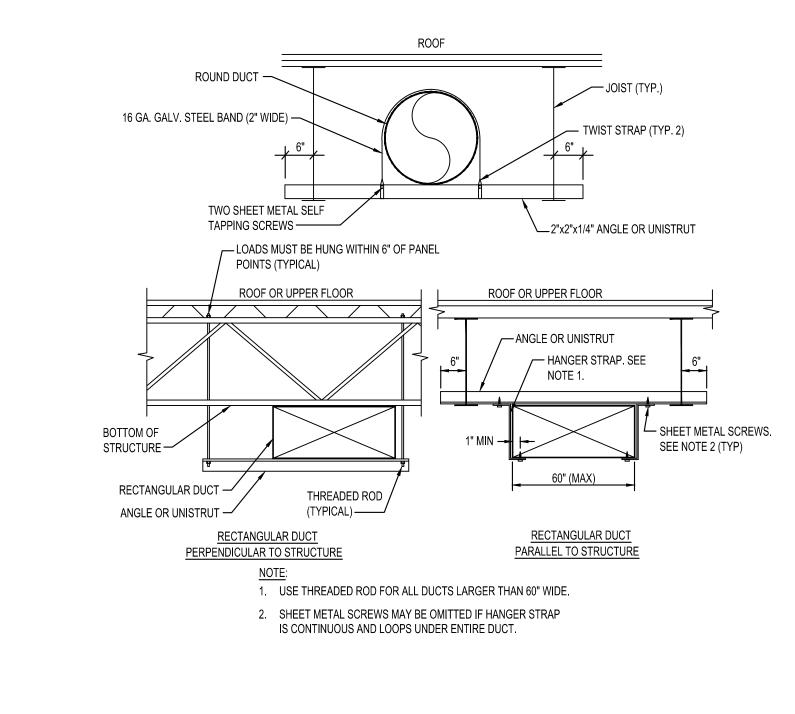
NOTES:

1 NECK SIZE SHOWN ON DRAWINGS.

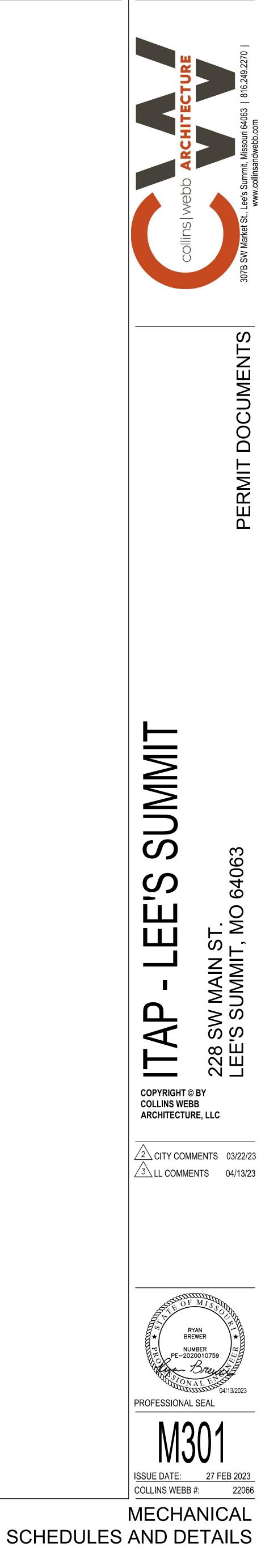
2 BAKED ENAMEL FINISH, COORDINATE WITH ARCHITECTURAL PLANS. 3 PROVIDE NECK FOR DUCT CONNECTION.

4 BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.

5 FRAME TYPE TO MATCH CONSTRUCTION OF MOUNTING LOCATION, COORDINATE WITH ARCHITECTURAL PLANS. 6 PROVIDE WITH OPPOSED BLADE DAMPER FOR BALANCING.



1 DUCT HANGERS AND SUPPORTS NOT TO SCALE



15000 - BASIC MECHANICAL REQUIREMENTS

DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS, APPLY TO THIS

AND THE OTHER SECTIONS OF DIVISION 15. READ THE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL DIVISIONS OF WORK AND COORDINATE AND THE WORK OF SUBCONTRACTORS WITH ALL DIVISIONS OF WORK. PROVIDE SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.

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

VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE 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, INCLUDE IN BID ALL NECESSARY SERVICE REQUIRED TO KEEP THE OPERATING PHASE OF TYPE OF GENERAL CONSTRUCTION, AND THE ARCHITECTURAL, STRUCTURAL, MECHANICAL THE PROJECT'S HVAC, PLUMBING AND SPRINKLER SERVICE IN OPERATION. IF APPLICABLE, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. ALSO UNDERSTAND THE PURPOSE FOR SCHEDULE IN WRITING WITH ARCHITECT ONE WEEK PRIOR TO ANY SHUT DOWN OF THE WHICH THESE DOCUMENTS HAVE BEEN PREPARED AND BECOME COGNIZANT OF ALL THE HVAC, PLUMBING OR FIRE PROTECTION SYSTEMS. DETAILS INVOLVED. COORDINATE WORK WITH THAT OF OTHERS.

DEFINITIONS:

APPURTENANCE AND SUPPORT INSTALL - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION VERIFY SCOPE OF AND THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER FIXTURES, PIPING, HVAC UNITS. REFRIGERANT RECAPTURE. EXHAUST FANS. ETC. AND LOCATION IN THE PROJEC PROVIDE - FURNISH AND INSTALL

GENERAL REQUIREMENTS

PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE MECHANICAL SYSTEM THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT TO BE BE PROVIDED. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH THE ARCHITECT-ENGINEER, AS REQUIRED.

THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH WORK UNDER THIS SPECIFICATION. NO CUTTING OF THE STRUCTURE SHALL BE PERMITTED DIAGRAMS, NAMEPLATES AND LABELS IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OR ARCHITECT. WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF CONTRACT.

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

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

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

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

AND LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL 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 HANGERS THE BID. THEY MUST BE QUALIFIED AS A SEPARATE LINE ITEM IN THE BID. AFTER CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE OWNER.

LICENSES, PERMITS, COMMISSIONING, INSPECTIONS & FEES

OBTAIN AND PAY FOR ALL LICENSES, PERMITS, COMMISSIONING, INSPECTIONS, AND FEES REQUIRED OR RELATED TO THIS WORK. PROVIDE TO THE OWNER-ARCHITECT A COMMISSIONING PLAN, PRELIMINARY

COMMISSIONING REPORT, FINAL COMMISSIONING REPORT, AND CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

TRADE NAMES, MANUFACTURERS AND SHOP DRAWINGS

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

GUARANTEE

GUARANTEE ALL MATERIALS AND WORK PROVIDED UNDER THIS CONTRACT AND MAKE GOOD, REPAIR OR REPLACE AT NO EXPENSE TO THE OWNER, ANY DEFECTIVE WORK, MATERIAL, OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF TWELVE (12) SCHEDULE A MEETING WITH THE OWNER'S REPRESENTATIVE AT THE SITE TO PROVIDE MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION. EXTENDED DETAILED INFORMATION ON THE OPERATING AND MAINTENANCE OF EQUIPMENT. WARRANTIES ARE AS SPECIFIED WITH INDIVIDUAL EQUIPMENT.

QUALITY ASSURANCE

INDUSTRY STANDARDS AND CODES: UNLESS MODIFIED BY THESE SPECIFICATIONS, THE DESIGN, MANUFACTURER, TESTING AND METHOD OF INSTALLING ALL MATERIALS,

APPARATUS AND EQUIPMENT SHALL CONFORM TO THE FOLLOWING: 1. ARI CODE FOR REFRIGERATION APPARATUS

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

4. SMACNA 5. ASHRAE

RECORD DRAWINGS

MAINTAIN ONE COPY OF DRAWINGS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS: LOCATION OF CONCEALED PIPING VALVES AND DUCTS, REVISIONS, ADDENDUMS, AND CHANGE ORDERS, AND SIGNIFICANT DEVIATIONS MADE

SPECIFICATIONS.

NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTOR'S COORDINATION WITH OTHER TRADES.

AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, MAKE ANY FINAL THEREON. A SET OF REPRODUCIBLE DRAWINGS ALONG WITH ONE SET OF BLULINES OF THE MOST RECENT SET OF DRAWINGS WITH TEMPERATURE CONTROL DRAWINGS INCLUDED SHALL BE DELIVERED TO THE ARCHITECT UPON COMPLETION OF THE WORK AND JOB CONDITIONS AS THEY EXIST. PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

DISCREPANCIES IN DOCUMENTS GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS, 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

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

> ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. VERIFY ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AND ROOF/WALL/FLOOR PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE, EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN

POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN

CUTTING AND PATCHING

BID PROPOSAL

THE ARCHITECT.

PERFORM ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF THE 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. CONDITION SUITABLE TO THE ARCHITECT.

PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, 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 ALL WORK SHALL CONFORM TO THE OWNER'S CRITERIA, THE STATE'S, COUNTY'S, CITY'S STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN 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 FIRE DAMPERS, VALVES, AND OTHER EQUIPMENT. HANGER TYPES AND INSTALLATION METHODS ARE ALSO SUBJECT TO LANDLORD CRITERIA.

HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER THE HANGER AND THE PIPE INSULATION.

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

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

PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS AT THE COMPLETION OF THE PROJECT. SUBMIT THREE HARD BOUND COPIES TO ARCHITECT.

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

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

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

CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THE REVIEW OF SUBMITTALS DOES NOT RELIEVE RESPONSIBILITY OF SHOP DRAWING ERRORS IN DETAILS, SIZES, QUANTITIES, WIRING DIAGRAM ARRANGEMENTS AND DIMENSIONS WHICH DEVIATE FROM THE SPECIFICATIONS, CONTRACT DRAWINGS AND/OR

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

> TEST AND BALANCE REPORT: SUBMIT AT FINAL INSPECTION OPERATION AND MAINTENANCE MANUALS REQUIRED IN THE SECTION, OPERATION AND MAINTENANCE MANUALS. MANUALS: SUBMIT COPIES IN COMPLIANCE WITH SECTION, OPERATION AND MAINTENANCE MANUALS.

5400 - HEATING VENTILATION AND & AIR CONDITIONING

ALL MATERIALS AND EQUIPMENT SHALL BE NEW, SYSTEMS SHALL FUNCTION CORRECTLY AS A WHOLE, AND IN ALL ITS PARTS, UP TO THE SPECIFIED CAPACITY. SYSTEMS OR DEVICES FAILING TO MEET PERFORMANCE REQUIREMENTS SHALL BE REPLACED, ALTERED OR REPAIRED AS REQUIRED TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS. WORK DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS, OR REPAIRS SHALL PERSONNEL IN THE OPERATION OF ALL MECHANICAL EQUIPMENT AND SYSTEMS, SIGNED BE RESTORED TO PRIOR CONDITIONS, AT NO ADDITIONAL COST TO THE OWNER. WHERE MULTIPLE ITEMS OF EQUIPMENT OR MATERIALS ARE REQUIRED. THEY SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER. BEFORE ORDERING EQUIPMENT, THE PHYSICAL DIMENSIONS SHALL BE CHECKED TO VERIFY FIT IN SPACES ALLOTTED ON THE DRAWINGS. INSERTS, PIPE SLEEVES, AND SUPPORTS OF AIR CONDITIONING EQUIPMENT SHALL BE PROVIDED AS SPECIFIED. WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE, MASONRY OR SIMILAR WORK, THE ITEMS SHALL BE FURNISHED AT THE PROPER TIME FOR SETTING OR EMBEDMENT SO AS TO CAUSE NO DELAY. DUCTWORK AND EQUIPMENT ASSEMBLIES SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. ADDITIONAL DUCTWORK AND APPURTENANCES REQUIRED FOR PROPER OPERATION OF EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

MANUFACTURER'S NAMES AND CATALOG NUMBE JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE OTHERS SHALL REUSED IN THIS PROJECT. ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAMES AND HVAC/HYDRONIC PIPING MODEL OR CATALOG NUMBERS. THIS DOES NOT INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS NECESSARILY AN "OFF THE SHELF" ITEM; REQUIREMENTS FOR SPECIFIC FINISHES, MATERIALS OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURER'S STANDARDS. ASCERTAIN THAT SUCH MODIFICATIONS ARE FULLY

CONSIDERED 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: WHETHER OR NOT DUE TO NEGLIGENCE SHALL BE REPAIRED OR REPLACED AND LEFT IN A THERMOSTAT, T-1). THE NAMEPLATE IDENTIFICATIONS SHALL COINCIDE WITH ITEMS APPEARING ON DIAGRAMS. PROVIDE A LABEL FOR THE MECHANICAL SYSTEM STATING: (NAME, ADDRESS AND PHONE NUMBER OF CONTRACTOR). LETTERS SHALL BE 1/4" HIGH AND LOCATED IN A CONSPICUOUS PLACE NEAR THE HVAC EQUIPMENT.

INSTALLATION AND WORKMANSHI WHICH SHALL EXTEND 2" ABOVE THE FLOOR. COORDINATE THROUGH THE ARCHITECT ANY THE WORK SHALL BE PERFORMED BY QUALIFIED MECHANICS. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BE INSTALLED IN NEAT, WORKMANLIKE MANNER, MATERIALS, DEVICES OR EQUIPMENT WHICH, IN THE OPINION OF THE ARCHITECT-ENGINEER, IS IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER 30-36 ADHESIVE. ALL JOINTS, SEAMS AND BREAKS IN THE VAPOR BARRIER SHALL BE AT NO ADDITIONAL COST TO THE OWNER. THE WORK SHALL BE COORDINATED WITH THE SEALED WITH FOSTER'S 35-00, REINFORCED WITH 4 INCH WIDE GLASS FABRIC. WORK OF OTHER TRADES. WHERE THE WORK IS DEPENDENT UPON WORK OF OTHER TRADES OR WORK ALREADY IN PLACE, SUCH OTHER WORK AND WORK IN PLACE SHALL BE TERMINAL HEAT TRANSFER UNITS EXAMINED AND SHALL BE IN PROPER CONDITION AND STATE OF COMPLETION BEFORE CONTINUING THE INSTALLATION. THE INSTALLATION OF WORK SHALL, IN GENERAL, BE AS HIGH AS POSSIBLE AND LOCATED IN ACCORDANCE WITH THE DRAWINGS. DUCTWORK INDICATED SHALL BE FOLLOWED AS ACCURATELY AS POSSIBLE. ANY NECESSARY DEVIATIONS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT-ENGINEER. PROVIDE DRAWINGS SHOWING PROPOSED CHANGES. APPROVAL IS REQUIRED BEFORE CHANGES SHALL TAKE EFFECT.

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

DO NOT CUT OR PENETRATE WATERPROOFED SURFACES, OR WATERPROOFING SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO 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 DIAMETER OF INSULATION. INSTALL 6" LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.

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

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

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 BE CONSTRUCTED OF A CONVOLUTED COPPER INNER TUBE AND STEEL OUTER TUBE WITH FROM CARTONS WHERE IT MAY HAVE BEEN SHIPPED IN A COMPRESSED STATE. USE THE BEEN CHECKED FOR OPERATION AND CALIBRATION, AND THAT THE SYSTEM IS OPERATING AS INTENDED.

FURNISH NECESSARY MECHANICS TO OPERATE SYSTEM. MAKE NECESSARY ADJUSTMENTS UNITS 6 TONS AND LARGER: THE FANS SHALL BE BELT DRIVEN FORWARD CURVE TYPE AND ASSIST WITH FINAL INSPECTION.

RUCTION OF OWNER'S OPERATING PERSONNEL INCLUDE THE COST OF THE SERVICES OF QUALIFIED INSTRUCTOR(S) TO INSTRUCT THE OWNER'S OPERATING PERSONNEL IN THE OPERATION, ADJUSTMENT, CARE AND MAINTENANCE OF ALL HVAC EQUIPMENT AND SYSTEMS. INSTRUCTION SHALL BE PERFORMED AT A TIME APPROVED BY THE OWNER AND AFTER ALL HVAC EQUIPMENT AND SYSTEMS ARE INSTALLED, COMPLETE, ADJUSTED AND OPERATING TO SPECIFIED REQUIREMENTS. NOTIFY THE ARCHITECT-ENGINEER WHEN INSTRUCTIONS WILL BE GIVEN. 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

OPERATION AND MAINTENANCE MANUALS

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

A COPY OF ACKNOWLEDGMENT OF INSTRUCTION TO THE OWNER'S OPERATING BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE. TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING HOW TO STOP AND STAR EACH PIECE OF EQUIPMENT; HOW TO SET THE TEMPERATURE CONTROL SYSTEM FOR NORMAL OPERATION AND NORMAL RESTARTING PROCEDURES. CAUTION AND WARNING NOTICES. APPROVED SHOP DRAWINGS, PRODUCT DATA AND PARTS AND MAINTENANCE BOOKLET FOR EACH ITEM OF MATERIAL AND EQUIPMENT FURNISHED UNDER DIVISION

15000. RECORD DRAWINGS OF ALL SYSTEMS INCLUDING ELECTRICAL AND CONTROL DIAGRAMS, TEST AND BALANCE REPORT. COPIES OF CERTIFICATES OF INSPECTION GUARANTEES, INCLUDING EXTENDED GUARANTEES.

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

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

HVAC INSULATION

W PRESSURE DUCTWORK INSULATION EXTERNAL INSULATION SHALL BE R-6 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS SPLITTERS: RIGIDLY ATTACH SPLITTERS TO PIVOT ROD AND OPERATING LINKAGE. SET OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING. INTERNAL INSULATION DAMPER ASSEMBLY ON RAISED INSULATED BASE ON INSULATED DUCTWORK. VOLUME SHALL BE R-6 MINIMUM LINER WITH A COATED AIR SIDE SURFACE TO PREVENT EROSION. APPLY ADHESIVES AND FASTENERS PER SMACNA AND THE MANUFACTURER. ALL TRANSVERSE EDGES TO BE COATED WITH ADHESIVE. ALL CONCEALED DUCTWORK SHALL HAVE EXTERNAL INSULATION, UNCONCEALED DUCTWORK SHALL BE INTERNALLY LINED. DUCTWORK INSTALLED IN UNCONDITIONED SPACES SHALL BE R-12 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING.

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

ADHESIVES, MASTIC, SEALANTS ADHESIVE SHALL BE FOSTER'S 85-20. STUDWELD PINS SHALL BE SEALED WITH FOSTER'S

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

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

EXHAUST FANS

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

SWITCH, MOUNTED AND WIRED. SOLID STATE SPEED CONTROLLER SHIPPED LOOSE AND PSC MOTOR. WATER SOURCE HEAT PUMPS

INSTALL WATER SOURCE HEAT PUMP OF CAPACITIES INDICATED MANUFACTURED BY FLORIDA HEAT PUMP, MCQUAY OR AN APPROVED EQUAL. FACTORY ASSEMBLED AND RATED ACCORDING TO ARI-ISO13526-1. GALVANIZED-STEEL CASING WITH ACCESS PANELS FOR MAINTENANCE AND FILTER REPLACEMENT, KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS, FLANGED DUCT CONNECTIONS AND CABINET INSULATION OF 1/2" THICK. MULTI DENSITY, COATED GLASS FIBER. THE UNIT SHALL BE DESIGNED TO OPERATE WITH ENTERING FLUID TEMPERATURES BETWEEN 50°F AND 100°F IN COOLING AND BETWEEN 50°F AND 80°F IN HEATING.

THE UNITS SHALL BE WARRANTED BY THE MANUFACTURER AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR ON ALL PARTS AND FIVE (5) YEARS ON COMPRESSOR.

REFRIGERATION CIRCUITS SHALL UTILIZE R-410A. THE UNIT SHALL CONTAIN SEALED REFRIGERANT CIRCUITS INCLUDING HERMETIC COMPRESSORS, THERMAL EXPANSION VALVE METERING DEVICES, REFRIGERANT DRIER, FINED TUBE AIR-TO-REFRIGERANT HEAT EXCHANGERS, REFRIGERANT REVERSING VALVES AND SERVICE PORTS. COMPRESSORS SHALL BE HIGH EFFICIENCY, DESIGNED FOR HEAT PUMP DUTY, INTERNALLY SPRING ISOLATED (EXCEPT FOR SCROLL TYPE COMPRESSORS) FOR MAXIMUM SOUND ATTENUATION AND MOUNTED ON RUBBER VIBRATION ISOLATORS. COMPRESSOR MOTORS SHALL BE EQUIPPED WITH OVERLOAD PROTECTION. THE FINNED TUBE COIL SHALL BE CONSTRUCTED OF LANCED ALUMINUM FINS NOT EXCEEDING 14 FINS PER INCH. COILS SHALL HAVE A BAKED POLYESTER ENAMEL COATING FOR PROTECTION AGAINST MOST AIRBORNE CHEMICALS. THE COAXIAL WATER-TO-REFRIGERANT HEAT EXCHANGERS SHALL

A DESIGNED REFRIGERANT WORKING PRESSURE OF 450 PSIG AND A DESIGNED WATER SIDE WORKING PRESSURE OF NO LESS THAN 400 PSIG.

WITH DYNAMICALLY BALANCED WHEEL(S). THE FAN HOUSINGS SHALL BE REMOVABLE

FAN MOTORS. MOTORS SHALL BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION. UNITS SMALLER THAN 6 TONS: THE FAN SHALL BE DIRECT DRIVE CENTRIFUGAL FORWARD

CURVED TYPE WITH A DYNAMICALLY BALANCED WHEEL. FAN HOUSE SHALL BE REMOVABLE FROM UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF FAN MOTOR. THE MOTOR SHALL BE THREE SPEED PSC TYPE AND BE QUALIFICATIONS OF INSTRUCTORS SHALL BE SUBJECT TO APPROVAL OF THE OWNER AND PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

DUCTWORK, LOW PRESSURE, GALVANIZED STEEI

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

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

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

SPLITTERS SHALL BE 18 GAGE GALVANIZED STEEL WITH HORIZONTAL AND VERTICAL DIMENSIONS SUFFICIENT TO CLOSE OFF AIR TO BRANCH. PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 690 DAMPER ASSEMBLY.

OLUME DAMPER VOLUME DAMPERS SHALL BE 18 GAGE STEEL; SINGLE BLADE UP TO 8" X 8", OPPOSED BLADE ON ALL DUCTS OVER 8" X 8". PROVIDE VENTLOK NO. 607 END BEARINGS AND WITH BLADES SECURELY RIVETED TO BAR.

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

N ACCORDANCE WITH CHAPTER IV OF SMACNA.

LEXIBLE CONNECTIONS SHALL BE PROVIDED FOR EACH AIR HANDLING DEVICE TO PREVENT TRANSMISSION OF VIBRATIONS. MAKE FLEXIBLE CONNECTION A MINIMUM OF 4 INCHES WIDE OF VENTGLAS AS MADE BY VENTFABRICS, INC.

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

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

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

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

PLUGS: PROVIDE SQUARE HEAD TYPE TEST PLUGS AS REQUIRED FOR INSERTION OF TEST APPARATUS. PROVIDE A RING AND A REMOVABLE INSULATION PLUG WHERE DUCTS ARE INSULATED.

PAINTING: PAINT INTERIOR OF DUCTWORK FLAT BLACK WHERE VISIBLE THROUGH GRILLES AND REGISTERS.

SEALING: DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA "SEAL CLASS B". <u>TESTING, ADJUSTING AND BALANCING</u>

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

DUCTWORK, LOW PRESSURE, FLEXIBLE

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

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

LOW PRESSURE FLEXIBLE DUCTWORK

T CONNECTOR

DUCT FITTINGS OR DEVICES.

OW PRESSURE FLEXIBLE DUCTWORK SHALL CONSIST OF CORROSION RESISTANT SPRING STEEL HELIX BONDED TO A GLASS REINFORCED NEOPRENE SLEEVE INSULATED WITH A MINIMUM OF 1 INCH THICK. 1 POUND DENSITY FIBERGLASS INSULATION WHICH IS IN TURN COVERED WITH AN OUTER VAPOR BARRIER OF FIBER REINFORCED FOIL-SCRIM-KRAFT LAMINATE. INSULATION SHALL HAVE A THERMAL CONDUCTIVITY (K) NO GREATER THAN 0.25 OTHERWISE. INSTALL A NEW SET OF FILTERS ONE DAY PRIOR TO TURNOVER. 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**

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

PROVIDE GALVANIZED SPRING STEEL CLAMPS OR PANDUIT STRAPS AT CONNECTIONS TO

FLEXIBLE DUCTWORK AND COMPONENTS SHALL BE AS MANUFACTURED BY GENERAL

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

WHERE FLEXIBLE DUCTS CONNECT TO LOW PRESSURE DUCTS TO FORM RUNOUTS TO INDIVIDUAL OUTLETS, PLENUMS OR LOW PRESSURE TERMINALS, PROVIDE FACTORY FABRICATED FITTINGS COMPLETE WITH MANUAL BALANCING DAMPERS HAVING LOCKING QUADRANTS. WHERE LOW PRESSURE DUCTS ARE INTERNALLY INSULATED THE CONNECTOR SHALL BE FURNISHED WITH AIR EXTENSION TO PROJECT THROUGH AND PROTECT THE INSULATION. FOR CONNECTION TO EQUIPMENT, AUXILIARY SLEEVES SHALL

FROM THE UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF 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

1. APPLY FOSTER'S 30-02 SEALANT TO THE INSIDE OF THE FLEXIBLE DUCT TO DEPTH OF 3 INCHES 2. SLIDE THE FLEXIBLE DUCT OVER THE CONNECTOR AND WRAP WITH MINIMUM OF TWO REVOLUTIONS OF REINFORCED FOIL DUCT TAPE STARTING ABOUT 2 INCHES BACK FROM END OF FLEXIBLE DUCT AND SEALING OVERLAP WITH LAST WRAP. 3. PLACE A CLAMP OR STRAP OVER THE TAPED END AND SECURE FIRMLY.

4. REPAIR ALL DAMAGE TO VAPOR BARRIER WITH FOSTER'S 35-00 REINFORCED WITH 4

INCH WIDE GLASS FABRIC AND A SECOND COAT OF FOSTER'S 35-00. AIR DISTRIBUTION DEVICES

AIR DISTRIBUTION DEVICES SHALL BE PROVIDED TO DELIVER THE INDICATED VOLUME OF SUPPLY AIR WITHOUT EXCEEDING THE NC RATING AS FOLLOWS: EMPLOYEE AND CUSTOMER AREAS: NC-30.

IFFUSERS. GRILLES AND REGISTERS

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

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 VENTLOK NO. 641 SELF-LOCKING REGULATOR. DAMPER RODS SHALL BE 1/2" SQUARE BARS DAMPERS WITH ADJUSTABLE WEIGHTS OR SPRINGS TO PREVENT OUTWARD AIR FLOW. 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.

CONTROLS, ELECTRIC

THE WORK CONSISTS OF INSTALLING CONTROLS FOR THE HVAC SYSTEM.

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

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

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

TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT CONTRACTOR, WHO IS A CURRENTLY LICENSED ASSOCIATED AIR BALANCING COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) BALANCING CONTRACTOR. NO OTHER BALANCE REPORTS WILL BE REVIEWED OR ACCEPTED. ALL BALANCING WORK MUST BE COMPLETE AND DONE IN ACCORDANCE WITH THE MOST RECENT STANDARDS OF THEIR SOCIETY AND AS A MINIMUM SHALL INCLUDE THE INFORMATION AS SHOWN IN THE AIR BALANCE REVIEW CHECKLIST BELOW. PAYMENT OF ALL COSTS FOR TESTING AND BALANCING SHALL BE INCLUDED IN THE BID.

TESTING, ADJUSTING AND BALANCING REPORT MUST BE COMPLETE AND TURNED OVER TO TENANT'S PROJECT MANAGER ONE (1) WEEK PRIOR TO MERCHANDISING DATE. VERIFY THAT ALL EQUIPMENT AND SYSTEMS ARE COMPLETE AND OPERATIONAL ONE WEEK PRIOR TO FINAL BALANCING. IF ALL SYSTEMS ARE NOT OPERATIONAL AT THE TIME OF THE SCHEDULED BALANCING. ADDITIONAL TESTING AND BALANCING. INCLUDING ALL LABOR. TRAVEL EXPENSES, MEALS, HOTEL COSTS, ETC SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.

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

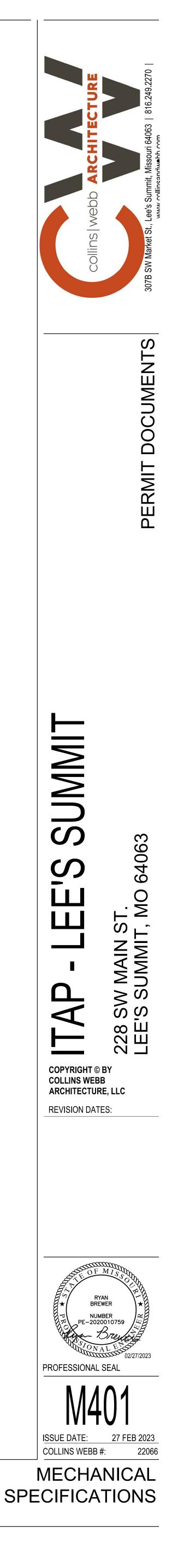
BALANCE AIR AND WATER QUANTITIES TO WITHIN +/- 10% OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS OR PULLEYS NEEDED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED WITH NO ADDITIONAL COST TO THE OWNER. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS,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

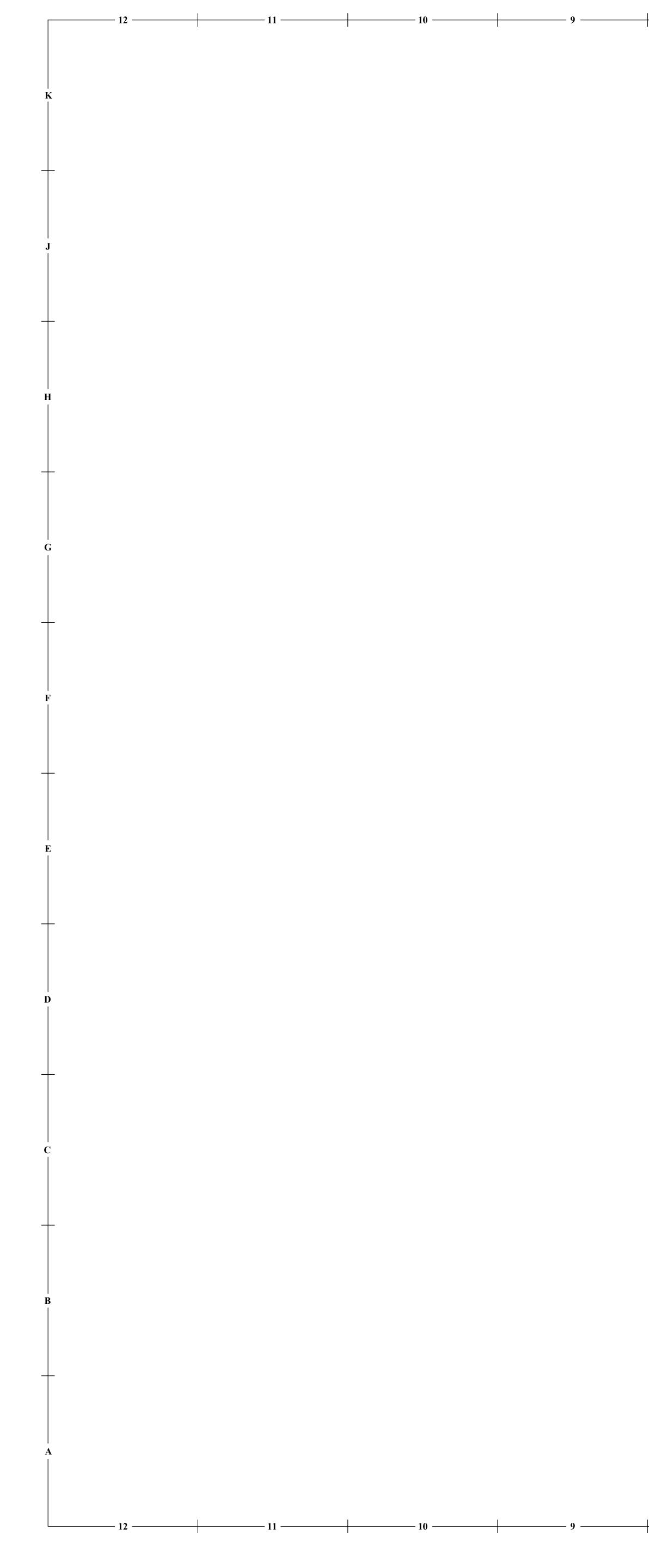
SEVEN (7) COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED FOR APPROVAL. PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED ON THESE DRAWINGS. ALL SYSTEMS UNABLE TO BE COMPLETELY

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.

ENVIRONMENTAL CORPORATION OR APPROVED EQUAL INSTALL DUCT CONNECTORS TO LOW PRESSURE DUCTS USING MANUFACTURER'S TEMPLATE FOR ALL HOLES AND SECURE THE CONNECTOR WITH SHEET METAL SCREWS HAVING FIRST APPLIED FOSTER'S 30-02 DUCT SEALANT TO THE ADJOINING SURFACES. DO NOT PRESSURIZE THE SYSTEM FOR 48 HOURS. STRETCH NEW DUCT WHEN REMOVING IT 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





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

DII	JMBING AE		
	-		-
AD	AREA DRAIN, ACCESS DOOR	IE	
AFC	ABOVE FINISH CEILING	LP	
AFG	ABOVE FINISH GRADE	MBH	1000 BTU PER HOUR
AHU	AIR HANDLING UNIT	N/A	NOT APPLICABLE
BFP	BACKFLOW PREVENTER	ORD	OVERFLOW ROOF DRAIN
BOP	BOTTOM OF PIPE	OST	STORM OVERFLOW
BOS	BOTTOM OF STRUCTURE	PD	PUMP DISCHARGE
CD	CONDENSATE	PIV	POST INDICATOR VALVE
CO	CLEANOUT	PRV	PRESSURE REDUCING VALVE
CW	DOMESTIC COLD WATER	REV	REVISION
DD	DECK DRAIN	RPM	REVOLUTIONS PER MINUTE
DN	DOWN	RTU	ROOF TOP UNIT
ETR	EXISTING TO REMAIN	SAN	SANITARY
EWC	ELECTRIC WATER COOLER	SCW	SOFT DOMESTIC COLD WATER
FCO	FLOOR CLEANOUT	SHW	SOFT DOMESTIC HOT WATER
FFA	FROM FLOOR ABOVE	SDHWR	SOFT RECIRC. HOT WATER
FP	FIRE PROTECTION	ST	STORM
FS	FLOOR SINK	TFA	TO FLOOR ABOVE
G	GAS (NATURAL)	TFB	TO FLOOR BELOW
GCO	GRADE CLEANOUT	TW	TEMPERED WATER
GPM	GALLONS PER MINUTE	UH	UNIT HEATER
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 SYMBOLS						
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION			
Å	GATE VALVE	● ■	FLOOR DRAIN / AREA DRAIN			
	CHECK VALVE		FLOOR SINK			
	PRESSURE	(O) RD	ROOF DRAIN			
-× N−	SOLENOID VALVE		OVERFLOW ROOF DRAIN			
- k -	GLOBE VALVE (STRAIGHT PATTERN)	-0	HOT WATER RECIRCULATION PUMP			
-6-	BUTTERFLY VALVE		PLUMBING VEVT THRU ROOF			
- 6 -	BALL VALVE					
- 6 -	GAS COCK		POINT OF CONNECTION (CONNECT NEW TO EXISTING)			
—¢—	PLUG VALVE					
■ FCO	FLOOR CLEAN OUT		PLUMBING EQUIPMENT DESIGNATION			
wco	WALL CLEAN OUT	$\left(\begin{array}{c} \mathbf{X} \\ \mathbf{X} \end{array}\right)$	PLUMBING RISER OR DETAIL DESIGNATION			
co	CLEAN OUT	$-\frac{\bigcirc}{\$}$	SANITARY SEWER PIPING			
-+	HOSE BIBB	<u> </u>	STORM SEWER PIPING			
-#	FREEZE PROOF WALL HYDRANT	<u> </u>	VENT PIPING			
-+)	ELBOW DOWN	CW	COLD WATER PIPING			
+0	ELBOW UP	<u>—</u>	HOT WATER PIPING			
-+0+	TEE UP		HOT WATER RECIRCULATING PIPING			
- 1:	TEE DOWN	HWR FW	FILTERED WATER PIPING			
- 	STRAINER	G	GAS PIPING			
+ <u> </u> +	UNION	G	CONDENSATE PIPING			
]	CAP	00				

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"

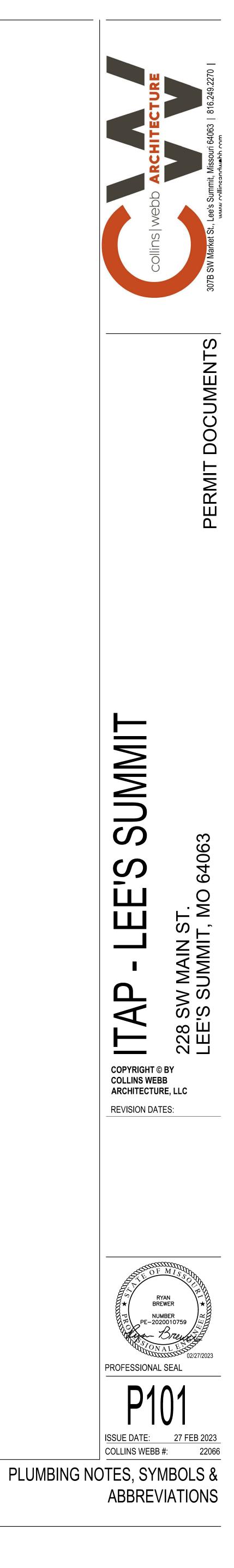
GENERAL NOTES:

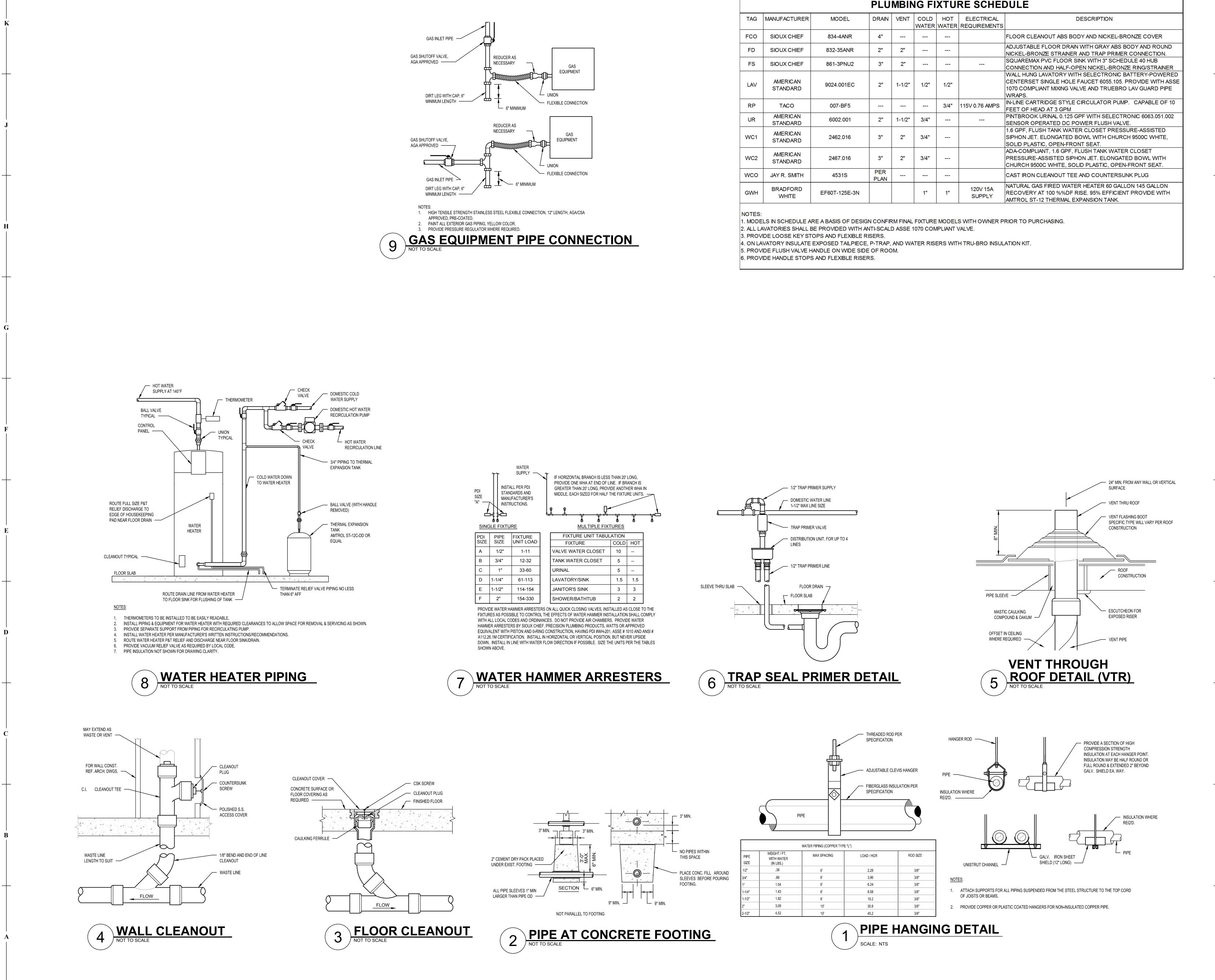
PITCH ALL DRAINAGE PIPING 3" AND LARGER AT 1/8" PER FOOT MINIMUM UNLESS OTHERWISE NOTED. PITCH ALL DRAINAGE PIPING 2-1/2" AND SMALLER AT 1/4" PER FOOT.

ALL UNDERGROUND DRAINAGE PIPING SHALL BE A MINIMUM OF 2" IN SIZE.

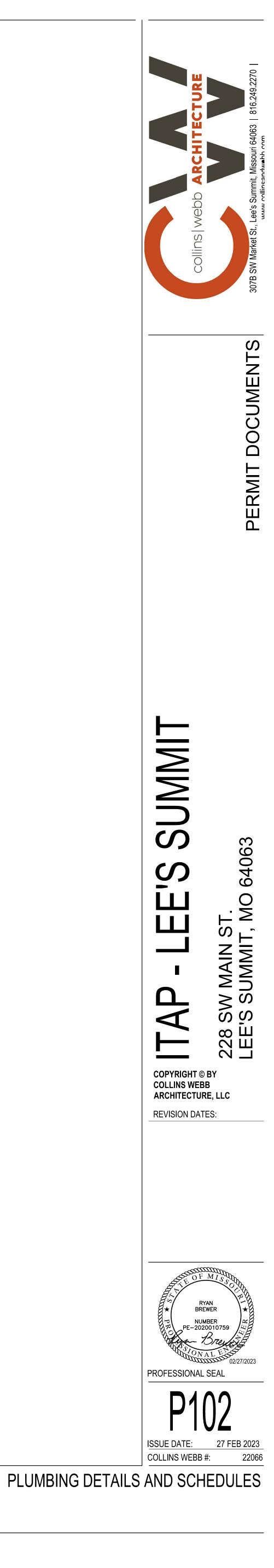
3. PROVIDE TRAP PRIMER UNITS FOR ALL FLOOR DRAINS.

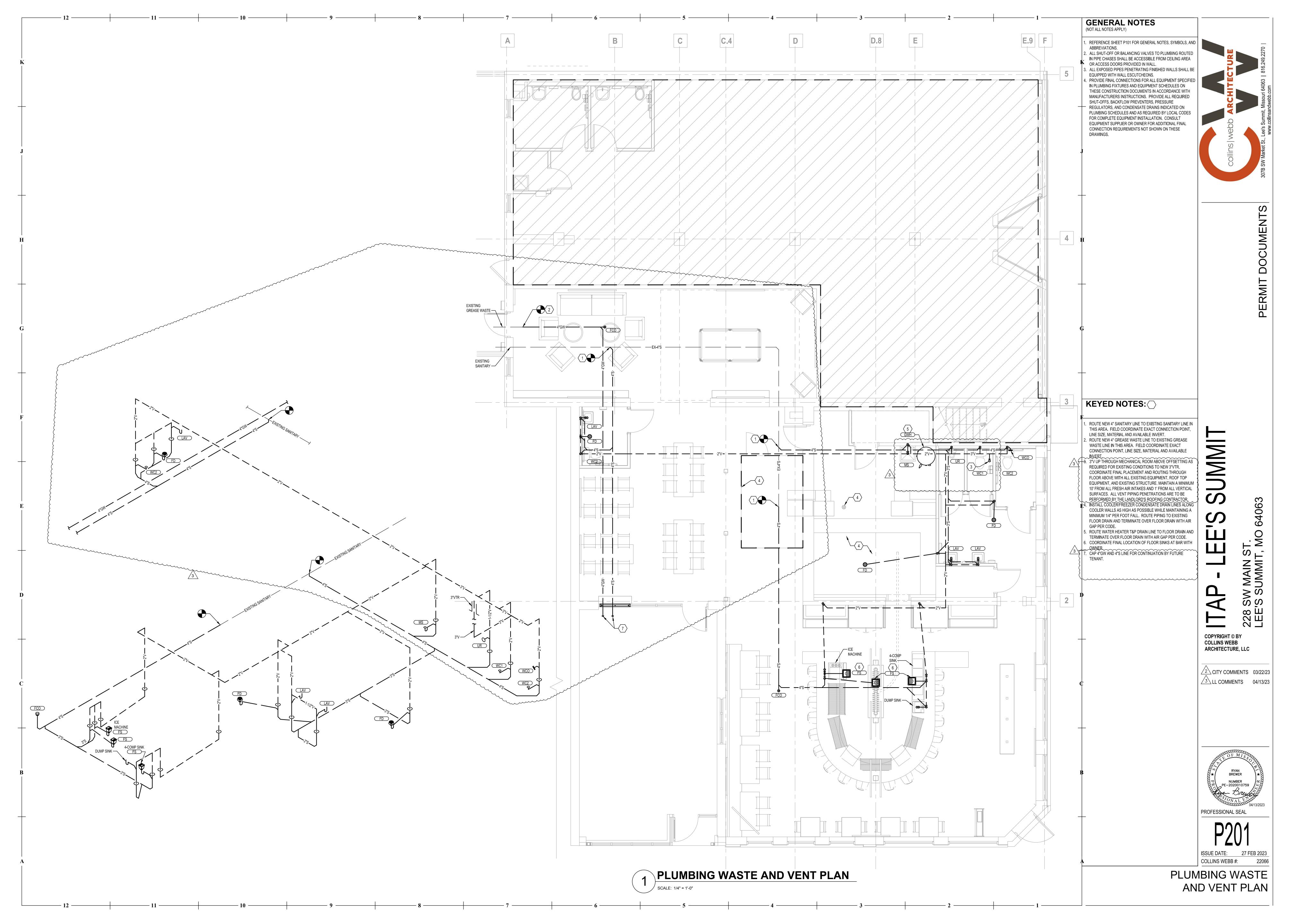
VERIFY/COORDINATE LOCATIONS OF ALL FIXTURES, DRAIN, ETC. WITH ARCHITECT PRIOR TO ROUGH-IN.

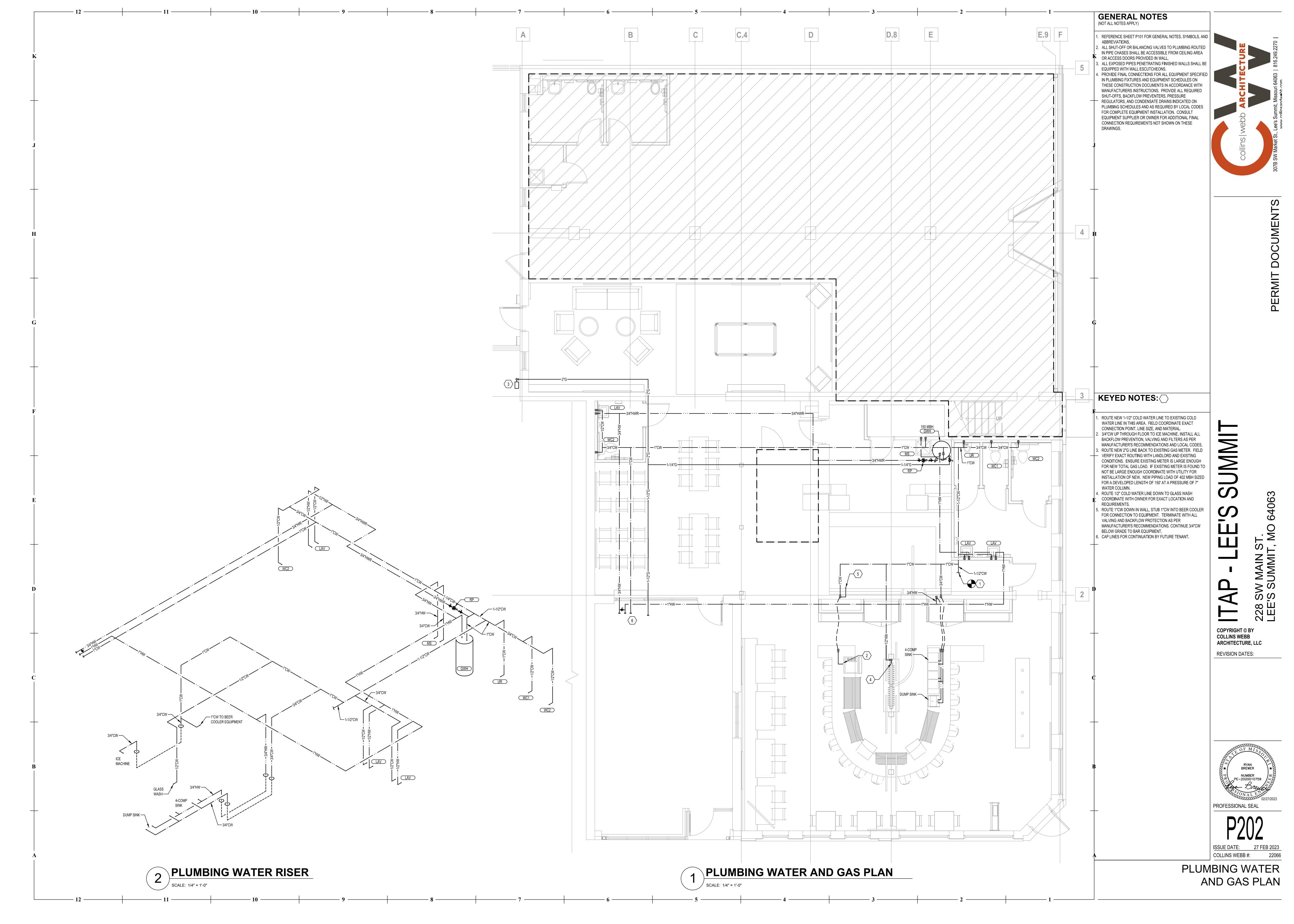




PLUMBING FIXTURE SCHEDULE								
TAG	MANUFACTURER	MODEL	DRAIN	VENT	COLD WATER	HOT WATER	ELECTRICAL REQUIREMENTS	DESCRIPTION
FCO	SIOUX CHIEF	834-4ANR	4"					FLOOR CLEANOUT ABS BODY AND NICKEL-BRONZE COVER
FD	SIOUX CHIEF	832-35ANR	2"	2"				ADJUSTABLE FLOOR DRAIN WITH GRAY ABS BODY AND ROUND NICKEL-BRONZE STRAINER AND TRAP PRIMER CONNECTION.
FS	SIOUX CHIEF	861-3PNU2	3"	2"				SQUAREMAX PVC FLOOR SINK WITH 3" SCHEDULE 40 HUB CONNECTION AND HALF-OPEN NICKEL-BRONZE RING/STRAINER
LAV	AMERICAN STANDARD	9024.001EC	2"	1-1/2"	1/2"	1/2"		WALL HUNG LAVATORY WITH SELECTRONIC BATTERY-POWERED CENTERSET SINGLE HOLE FAUCET 6055.105. PROVIDE WITH ASSE 1070 COMPLIANT MIXING VALVE AND TRUEBRO LAV GUARD PIPE WRAPS.
RP	TACO	007-BF5				3/4"	115V 0.76 AMPS	IN-LINE CARTRIDGE STYLE CIRCULATOR PUMP. CAPABLE OF 10 FEET OF HEAD AT 3 GPM
UR	AMERICAN STANDARD	6002.001	2"	1-1/2"	3/4"			PINTBROOK URINAL 0.125 GPF WITH SELECTRONIC 6063.051.002 SENSOR OPERATED DC POWER FLUSH VALVE.
WC1	AMERICAN STANDARD	2462.016	3"	2"	3/4"			1.6 GPF, FLUSH TANK WATER CLOSET PRESSURE-ASSISTED SIPHON JET. ELONGATED BOWL WITH CHURCH 9500C WHITE, SOLID PLASTIC, OPEN-FRONT SEAT.
WC2	AMERICAN STANDARD	2467.016	3"	2"	3/4"			ADA-COMPLIANT, 1.6 GPF, FLUSH TANK WATER CLOSET PRESSURE-ASSISTED SIPHON JET. ELONGATED BOWL WITH CHURCH 9500C WHITE, SOLID PLASTIC, OPEN-FRONT SEAT.
WCO	JAY R. SMITH	4531S	PER PLAN					CAST IRON CLEANOUT TEE AND COUNTERSUNK PLUG
GWH	BRADFORD WHITE	EF60T-125E-3N			1"	1"	120V 15A SUPPLY	NATURAL GAS FIRED WATER HEATER 60 GALLON 145 GALLON RECOVERY AT 100 %%DF RISE. 95% EFFICIENT PROVIDE WITH AMTROL ST-12 THERMAL EXPANSION TANK.







DESCRIPTION ALL PLUMBING AND ASSOCIATED WORK IN DIVISION 15 IS GOVERNED BY THIS AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. REFER TO OTHER DIVISIONS FOR CONTINUATION OF EXTERIOR AND ALLIED WORK. QUALITY ASSURANCE OBTAIN AND PAY FOR ALL PERMITS, INSPECTIONS AND CONNECTION FEES REQUIRED BY GOVERNING BODIES IN CONNECTION WITH THE WORK. DELIVER CITY, COUNTY AND STATE. SUBMITTALS

15400 - PLUMBING WORK

SPECIFIED UNDER EACH PLUMBING SECTION IN THIS DIVISION IN ACCORDANCE WITH THE GENERAL CONDITIONS. SHOW PIPE SIZES, LOCATION, SLOPES OF HORIZONTAL RUNS, FITTINGS, VALVES, METERS, GAGES AND CONNECTIONS. PRODUCT DATA: SUBMIT ON MATERIALS, FIXTURES, AND EQUIPMENT UNLESS

OTHERWISE SPECIFIED OR ACKNOWLEDGED IN WRITING. SAMPLES: SUBMIT WHEN SPECIFIED OR REQUESTED.

RECORD DOCUMENTS

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

PRODUCT HANDLING

DEBRIS. PIPE, CLEANOUT AND FLOOR DRAIN OPENINGS SHALL BE TEMPORARILY SPECIFIED. PLUGGED WITH TEST PLUGS UNTIL FINAL CONNECTIONS ARE MADE.

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

ANY PART THEREOF FAIL TO MEET PERFORMANCE REQUIREMENTS, NECESSARY REPLACEMENTS, ALTERATIONS OR REPAIRS, AS REQUIRED BY THE OWNER'S REPRESENTATIVE, SHALL BE MADE TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS AND ALL BUILDING CONSTRUCTION AND FINISHES DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS OR REPAIRS SHALL BE RESTORED TO PRIOR CONDITION, AT NO ADDITIONAL COST TO THE OWNER.

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

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

MANUFACTURER'S NAMES AND CATALOG NUMBERS SPECIFIED REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAMES AND MODEL OR CATALOG NUMBERS. THIS DOES NOT NECESSARILY INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS AN "OFF THE SHELF" ITEM. REQUIREMENTS FOR SPECIFIC FINISHES, MATERIAL OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURERS' STANDARDS. MODIFICATIONS SHALL BE FULLY CONSIDERED.

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

NAMEPLATES WITH 3/16 INCH HIGH BLACK LAMINATED LETTERS. THE NAMEPLATE NAMEPLATES TO VALVES WITH NON-CORROSIVE CHAIN OR WIRE.

ACCESS DOORS PROVIDE ACCESS DOORS AS INDICATED AND SPECIFIED IN DRAWINGS

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

THE LOCATION OF PLUMBING PIPING SHALL BE COORDINATED TO ENSURE THAT IT CLEARS OPENINGS AND STRUCTURAL MEMBERS; THAT PIPING INDICATED AS LOCATIONS. MAKE NECESSARY HORIZONTAL OR VERTICAL OFFSETS WITH PIPE SPACE. FITTINGS TO INSTALL THE SYSTEM IN THE AVAILABLE SPACE. CONCEAL OR INSTALL TIGHT TO STRUCTURE (IF EXPOSED) UNLESS OTHERWISE NOTED.

THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

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

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

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

WATERPROOFING DO NOT CUT OR PENETRATE WATERPROOFED SURFACES OR WATERPROOFING MEMBRANES WITHOUT FIRST MAKING ARRANGEMENTS FOR REPAIR BY A METHOD ESCUTCHEONS 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.

SECTION. PROVIDE LABOR AND MATERIALS NECESSARY TO PROVIDE THE WORK

CERTIFICATES OF INSPECTION TO THE OWNER'S REPRESENTATIVE. ALL WORK SHALL COMPLY WITH GOVERNING CODES, ORDINANCES, AND REGULATIONS OF

PIPE, FIXTURES AND ACCESSORIES SHALL BE PROTECTED FROM DAMAGE IN

PLUMBING SYSTEMS SHALL BE PROVIDED COMPLETE. SHOULD A SYSTEM, OR

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

PLUMBING OPERATION AND MAINTENANCE MANUALS

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

MANUAL CONTENTS SHOP DRAWINGS: SUBMIT MATERIALS, PRODUCTS, EQUIPMENT AND SYSTEMS AS TITLE SHEET WITH JOB NAME, AND THE NAMES, ADDRESSES AND PHONE NUMBERS OF THE CONTRACTOR, SUBCONTRACTOR, CONTROL SUBCONTRACTOR, RELATED CONTRACTOR AND MATERIAL AND EQUIPMENT SUPPLIERS.

> INDEX OF CONTENTS TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL

DESCRIBING HOW TO OPERATE EACH PIECE OF EQUIPMENT, AND CAUTION AND TRAP PRIMERS 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.

DELIVER THE MANUALS TO THE OWNER'S REPRESENTATIVE PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT. PLUMBING PIPING

DESCRIPTION

SHIPMENT, HANDLING, STORAGE AND INSTALLATION: FROM MOISTURE, DIRT AND FURNISH AND INSTALL PLUMBING PIPING WHERE SHOWN ON DRAWINGS AND AS

PIPING MATERIALS OPTIONS

- 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. STEEL PIPE: ASTM A 53. MALLEABLE IRON FITTINGS, 150 LB.: ASTM A 197.
- PIPE THREADS: ANSI B2.1.
- NIPPLES, PIPE (THREADED): FED SPEC. WW-N-351. COPPER WATER TUBE: ASTM B 88.
- 9. WROUGHT COPPER AND BRONZE SOLDER-JOINT PRESSURE FITTINGS: ANSI B16.29.
- WROUGHT COPPER AND WROUGHT COPPER ALLOY SOLDER-JOINT
- DRAINAGE FITTINGS: ANSI BL6.29. 11. CAULKING LEAD: FED. SPEC. QQ-C-40 (2).
- SHEET LEAD: FED. SPEC. QQ-L-201.
- 13. SHEET COPPER: ASTM B 152.
- 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

JOINTS AND CONNECTIONS

APPLICATION.

- OPTIONS 1. CAST IRON, HUB AND SPIGOT: PACKED WITH OAKUM AND FINISHED WITH LEAD NOT LESS THAN 1 INCH DEEP; WELL CAULKED. 2. CAST IRON. NO-HUB: NEOPRENE GASKET AND CORRUGATED 304 STAINLESS STEEL SHIELD IN CONJUNCTION WITH 4 STAINLESS STEEL CLAMPS FOR 4"
- AND SMALLER, 6 CLAMPS FOR 5" AND LARGER. 3. BETWEEN LEAD AND BRASS: FERRULES OR SOLDERING NIPPLES WITH
- WIPED JOINTS 3/8" THICK AND 3/4" EACH SIDE OF JOINTS. 4. SCREWED JOINTS: AMERICAN NATIONAL STANDARD WITH PIPE FREE FROM
- CUTTING AND BURRS. THREE THREADS EXPOSED MAXIMUM. 5. SOLDERED JOINTS: 95-5 TIN-ANTIMONY SOLDER. SLIP JOINTS: USE FOR
- PLUMBING TRAP SEALS ON INLET SIDE ONLY. 6. BETWEEN COPPER AND FERROUS MATERIALS: INSULATING DIELECTRIC UNION
- VALVES SHALL BE IDENTIFIED WITH 1/16 INCH THICK WHITE LAMINATED PLASTIC 7. FLANGED JOINTS: FURNISH WITH COMPANION FLANGE AND CLOTH INSERTED RUBBER GASKET.
- IDENTIFICATION SHALL COINCIDE WITH ITEMS APPEARING ON DIAGRAMS. ATTACH 8. FLANGED BOLTS: ASTM A 354, MINIMUM GRADE BD, ALLOY STEEL WITH HEX INSTALLATION 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.

OPINION OF THE OWNER'S REPRESENTATIVE, IS IMPROPERLY INSTALLED SHALL BEFORE INSTALLING PIPE IN ANY PART OF THE SYSTEM, THE PIPE SHALL BE CLEANED INSIDE AND MADE FREE OF OIL, DIRT, AND FOREIGN MATTER. PROPERLY ALIGN AND INSTALL IN NEAT ARRANGEMENT, TRUE TO THE LINES OF THE BUILDING. PITCH LINE AT A CONSTANT SLOPE FOR PROPER DRAINAGE.

EXCEPT AS NOTED OTHERWISE ON DRAWINGS, PIPING SHALL BE HELD AS HIGH AS APPROVED EQUAL. CONCEALED CAN BE PROPERLY CONCEALED IN WALLS OR PARTITIONS AND THAT POSSIBLE, BETWEEN STRUCTURES AND THROUGH JOIST WEBBING, WITH DUE IT DOES NOT INTERFERE WITH LIGHTS, DUCTWORK OR EQUIPMENT HAVING FIXED REGARD TO CONFLICTS WITH OTHER SYSTEMS AND THEIR REQUIREMENTS FOR

PIPING, INCLUDING NO-HUB PIPING, SHALL BE INSTALLED STRAIGHT AND TRUE TO TRAPEZE HANGERS OF A TYPE APPROVED BY THE OWNER'S REPRESENTATIVE VERTICAL AND HORIZONTAL LINES. DEFLECTION SHALL NOT EXCEED ONE PIPING SHALL BE EXPOSED IN FINISHED AREAS ONLY WHERE INDICATED OR WITH DEGREE. WHEN NECESSARY TO ACHIEVE THIS ALIGNMENT PROVIDE ADDITIONAL HANGERS OR BRACING.

APPLY LUBRICANT TO SCREW JOINT MALE THREADS.

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

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

PLUMBING SPECIALITES

SCHEDULE 40 BLACK STEEL, GALVANIZED 26 GAGE STEEL, PROVIDE FOR ALL

PIPES THROUGH WALLS AND FLOORS.

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

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

PROVIDE DIELECTRIC UNIONS BETWEEN COPPER AND STEEL PIPING CONNECTION VALVES AND SPECIALTIES WITH SPACING NO GREATER AND ROD NO SMALLER TO EQUIPMENT.

VACUUM BREAKERS

-10 - 9 - 8 - 7 - 6 - 5 - 2 - 2

AND SHALL BE PROVIDED FOR HOSE BIBBS, FLUSHOMETERS AND ANY FIXTURE OR DIAMETER OF PIPE MAXIMUM SPACING ROD SIZE EQUIPMENT WATER SUPPLY HAVING A THREADED OUTLET.

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

CLEANOUTS

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

PROVIDE WHERE INDICATED ON DRAWINGS. PRECISION PRODUCTS WITH DISTRIBUTION UNIT OR APPROVED EQUAL.

PIPE SLEEVES

- EXTEND SLEEVE 1/4 INCH BEYOND FINISHED SURFACE. SET SLEEVE BEFORE POURING CONCRETE.
- 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.
- 5. CAULK BETWEEN SLEEVE AND PIPE OR SLEEVE AND INSULATION. PREFABRICATED, PRE-INSULATED, "PIPE SHIELDS" WILL BE ACCEPTABLE FOR PIPES PASSING THROUGH FLOORS, EXTERIOR WALLS, FIRE WALLS AND FIRE RESISTIVE WALLS AND PARTIITONS.
- 6. ESCUTCHEONS: FIT AROUND INSULATION WHERE PRESENT. PROVIDE DEEP
- ESCUTCHEON PLATES WHERE PIPE SLEEVES EXTEND ABOVE FLOORS. WATER HAMMER ARRESTERS: INSTALL WHERE SHOWN ON DRAWINGS 8. CLEANOUTS: INSTALL WHERE SHOWN ON DRAWINGS AND AT BASE OF ALL
- RISERS. PROVIDE ADDITIONAL CLEANOUTS WHERE REQUIRED BY LOCAL CODES AND FOR CONVENIENCE OF TESTING AND ERECTION AT CONTRACTOR'S OPTION. 9. FRAMES AND COVERS SHALL BE FLUSH WITH ADJOINING ARCHITECTURAL FINISH.

PLUMBING VALVES

DESCRIPTION

STEM.

INSTALL IN ACCESSIBLE LOCATION. VALVES SHALL NOT BE INSTALLED WITH THE STEMS BELOW THE HORIZONTAL POSITION.

VALVES, GATE, 125# UNION BONNET. RISING STEM

3 INCH AND SMALLER: 1. SCREWED: ITT GRINNELL #3080 OR APPROVED EQUAL.

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

VALVES, GLOBE 150# TEFLON DISC. UNION BONNET

3 INCH OR SMALLER: SCREWED: ITT GRINELL #3240 OR APPROVED EQUAL.

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

VALVES, CHECK 125# REMOVABLE REGRINDABLE DISC A. 3 INCH AND SMALLER. HORIZONTAL:

1. SCREWED: ITT GRINELL #3300 OR APPROVED EQUAL. 2. SOLDER JOINT: ITT GRINELL #3300 SJ OR APPROVED EQUAL.

3 INCH AND SMALLER, VERTICAL:

1. FOR SCREWED AND SOLDER JOINT INSTALLATION. SAME AS SECTION A OR APPROVED EQUAL. PROVIDE ADAPTERS FOR SOLDER JOINT CONNECTION. 2.05 HOSE BIBBS A. SEE FIXTURE SCHEDULE ON DRAWINGS. B. PLUG COCKS, 125# BRONZE COCKS. TWO (2) INCH AND SMALLER SHALL BE CRANE NO. 250 OR APPROVED EQUAL.

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.

ELEVATION.

INSULATING CEMENT.

STRAP HANGERS: NOT PERMITTED.

GRINNELL MODEL NO. 261

METHODS OF SUPPORT.

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

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

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

RISER CLAMPS: PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL,

ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS READHEAD

INSTALLATION. IN EXISTING CONSTRUCTION, START SLUGIN NO. 6800 SERIES OR PERMITTED.

SD1 OR APPROVED EQUAL. POWDER PROPELLED PERMITTED IN NEW

MEMBERS, GRINNELL, MODEL 225 OR APPROVED EQUAL.

CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED PRIOR TO

SIDE BEAM CLAMPS: PROVIDE WHEN SUPPORTING FROM STRUCTURAL STEEL

OTHER SUPPORTS: OBTAIN OWNER'S REPRENTATIVE APPROVAL FOR OTHER

SPACING OF HANGERS
PROVIDE HANGER AT EACH CHANGE OF DIRECTION.

SPACE HANGERS AND SUPPORTS TO PREVENT SAGGING AND REDUCE STRAIN ON THAN SHOWN ON THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

SHALL CONFORM TO THE REQUIREMENTS OF THE REFERENCED PLUMBING CODE FERROUS PIPING AND COPPER TUBING: 1/2" THROUGH 1-1/2" 6 FT. 3/8" 2" THROUGH 3" 10 FT. 1/2" 4" THROUGH 5" 12 FT. 5/8" 6" AND LARGER 16 FT. 3/4" D. CAST IRON PIPING: DIAMETER OF PIPE MAXIMUM SPACING ROD SIZE 2" AND 3" EACH JOINT 3/8" 4" AND 5" EACH JOINT 1/2"

(TWO HANGERS)

INSTALL AT EACH LEVEL BELOW THE FLOOR. SUSPEND FROM TWO HANGER RODS AND INSERTS WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED. TESTING OF PLUMBING PIPING

CONDUCT ALL TESTS AFTER PIPING IS INSTALLED AND BEFORE PIPING IS CONCEALED OR COVERED.

6" AND 8" EACH JOINT 3/4"

RISER CLAMPS

DESCRIPTION

SUBMITTALS

PIPING TEST

30 MINUTES.

WATER.

PIPING

SUPPORTS

FIXTURES

INSTALLATION

10" THROUGH 15" EACH JOINT 3/4"

PROVIDE ALL NECESSARY TEMPORARY PIPING CLOSURES.

PROVIDE ALL TESTING EQUIPMENT, MATERIALS AND SUPPLIES.

SYSTEMS SHALL REMAIN UNDER TEST FOR SUFFICIENT LENGTH OF TIME TO PROVE TIGHTNESS THEREOF AND FOR ADEQUATE OBSERVATION BY THE ARCHITECT-ENGINEER.

MATERIALS OTHER THAN THOSE SPECIFIED FOR JOINING WILL NOT BE PERMITTED IN THE PIPING SYSTEMS FOR THE PURPOSE OF STOPPING LEAKS. ALL LEAKS DISCLOSED BY THE TESTING PROCEDURES SHALL BE REPAIRED AND

TESTING REPEATED UNTIL THE SYSTEM IS PROVEN TIGHT. TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

STERILIZATION: PROVIDE A DATED LETTER TO THE ARCHITECT-ENGINEER'S REPRESENTATIVE STATING THAT PIPING SYSTEM HAS BEEN STERILIZED AND FLUSHED AS SPECIFIED.

DOMESTIC HOT AND COLD WATER PIPING SHALL BE FILLED, THEN TESTED TO A HYDROSTATIC PRESSURE OF 150 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM OF ONE HOUR.

SANITARY PIPING, PREVIOUS TO CONNECTION OF FIXTURES, SHALL BE FILLED WITH WATER TO THE TOP OF THE SYSTEM AND PROVEN TIGHT. WHEN TESTING THE SYSTEM BY SECTIONS THE MINIMUM HEIGHT OF THE WATER COLUMN SHALL BE 10 FEET. EXAMINE ALL JOINTS FOR LEAKS.

OF 200 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM OF TWO HOURS. GAS PIPING SHALL BE TESTED WITH NITROGEN TO 50 PSIG. PRESSURE SHALL BE

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

STERILIZATION AFTER TESTS ARE COMPLETED ALL WATER SUPPLY SYSTEMS SHALL BE FILLED WITH A SOLUTION CONTAINING 100 PPM OF AVAILABLE CHLORINE AND ALLOWED TO STAND FOR A PERIOD TO TWO HOURS BEFORE BEING FLUSHED WITH CLEAN

PLUMBING, FIXTURES, TRIM AND DRAINS

MANUFACTURER MANUFACTURER SHALL BE AS SCHEDULED OR BY APPROVED EQUAL.

PIPING TO SERVE FIXTURES AND EQUIPMENT AND EXPOSED TO VIEW IN FINISHED AREAS SHALL BE BRASS, CHROMIUM PLATED.

PROVIDE ALL BRACKETS, PLATES, ANCHORS AND FASTENING DEVICES REQUIRED FOR ANCHORING THE FIXTURES RIGIDLY IN PLACE. RISERS TO SHOWER HEADS SHALL BE ANCHORED TO THE WALL CONSTRUCTION TO PREVENT MOVEMENT.

PROVIDE PLUMBING FIXTURES AS SCHEDULED ON DRAWINGS, AMERICAN STANDARD, KOHLER, ELJER OR APPROVED EQUAL.

PLUMBING DRAINS FURNISH WITH SEEPAGE FLANGE WHERE INSTALLED WITH PANS OR FLASHING, FURNISH CLAMPING RING.

ALL DRAINS SHALL BE OF THE SAME MANUFACTURER.

DRAWINGS. IN LIEU OF CAST-IN PRIMER CONNECTIONS ON THE DRAIN BODY, A TEE BETWEEN THE DRAIN BODY AND THE TRAP, TO RECEIVE THE PRIMER DISCHARGE WILL BE ACCEPTABLE.

PROVIDE FLOOR DRAINS WITH 4 INCH DEEP SEAL TRAPS.

PROVIDE ALL DRAINS AS SCHEDULED ON DRAWINGS OR APPROVED EQUAL.

DRAIN SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS; ACCESSIBLE AND AND SPECIFIED. LOCATED TO SUIT EQUIPMENT APPROVED FOR INSTALLATION. WHERE FLUSH VALVES ARE SPECIFIED WITH FIXTURES, THE SUPPLY TO THE VALVE IN EACH INSERTS: IN CONCRETE, GRINNELL MODEL NO. 285 OR APPROVED EQUAL, HAVING ROOM SHALL BE AT THE SAME HEIGHT FOR THE TYPE OF FIXTURE AND THE VALVE RELIEF VALVE DISCHARGE SHALL BE COPPER WATER TUBE, TYPE M. SHALL BE SET IN PLACE SO THAT THE CENTER LINE OF THE VALVE DISCHARGE IS DIRECTLY ABOVE THE CENTER LINE OF FIXTURE STUD. BENDING OF NIPPLE BETWEEN THE VALVE AND THE STUD TO ACHIEVE CONNECTION WILL NOT BE

> CHROME PLATED PIPING REQUIRING THE USE OF WRENCH SHALL BE PROTECTED FROM DAMAGE.

BOLT WATER CLOSET CARRIER TO FLOOR.

<u>GAS PIPING</u>

INSTALLATION

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

PIPE SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE FITTINGS

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

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

DOMESTIC HOT AND COLD WATER

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

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

GATE VALVES SPECIFIED IN SECTION, PLUMBING VALVES .

INSTALLATION

NOTCHING OF PIPE FOR CONNECTION NOT PERMITTED. WHERE POSSIBILITY OF BACKFLOW FROM THE DRAIN TO THE SUPPLY FITTING

EXISTS, INSTALL VACUUM BREAKERS.

NOT MORE THAN ONE LAVATORY, SINK, OR SIMILAR FIXTURE SHALL BE SUPPLIED BY A 1/2 INCH BRANCH. LINEAR DIMENSIONS NOT TO EXCEED 5 FEET.

MAKE CONNECTION TO EQUIPMENT AND FIXTURES INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN.

HOT WATER BRANCH CONNECTIONS TO DISTRIBUTION MAINS SHALL BE TOP

ALL PIPING INSTALLED BELOW GROUND SHALL RECEIVE TWO COATS OF KOPPERS NO. 50 OR APPROVED EQUAL.

PLUMBING INSULATION

TAKE-OFF, SWING JOINT TYPE.

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

MATERIALS SHALL COMPLY WITH UL 723, FLAME SPREAD RATING, HOT SURFACE TEST PERFORMANCE, AND SMOKE DEVELOPED RATING.

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

INSULATION

INSULATION FOR HOT AND COLD WATER PIPING, SHALL BE SECTIONAL GLASS FIBER AS MANUFACTURED BY OWENS CORNING FIBERGLASS TYPE ASJ/SSLII OR NEW FIRE STANDPIPE SYSTEM SHALL BE TESTED TO A HYDROSTATIC PRESSURE APPROVED EQUAL, WITH FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT JACKET.

> INSULATION FOR EXPOSED HOT AND COLD WATER PIPING SHALL BE SECTIONAL GLASS FIBER AS MANUFACTURED BY OWENS CORNING FIBERGLASS TYPE ASJ/SSLII OR APPROVED EQUAL, WITH FACTORY APPLIED, .016 EMBOSSED ALUMINUM JACKET.

ADHESIVE SHALL BE BENJAMIN FOSTER 30-36, OR APPROVED EQUAL, WHITE INSULATION LAGGING ADHESIVE.

VAPOR BARRIER MASTIC SHALL BE BENJAMIN FOSTER NO. 82-07, WHITE, OR APPROVED EQUAL.

INSTALLATION

HOT AND COLD WATER PIPING: SHALL BE INSULATED WITH 1/2 INCH THICK GLASS FIBER INSULATION HAVING A FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT JACKET WITH A MINIMUM R-4.0 PER INCH. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL JACKET LEGS AND BUTT JOINT STRIPS WITH ADHESIVE.

INSULATE FITTINGS FOR PIPING UP TO 3 INCHES IPS WITH MOLDED GLASS FIBER. INSULATE FITTINGS FOR PIPING LARGER THAN 3 INCHES WITH MOLDED FITTINGS OR SEGMENTED SECTIONS, WIRED IN PLACE TO THE SAME THICKNESS AS ADJACENT INSULATION. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 6 OUNCE CANVAS PIPING INCLUDING THE FITTING CHANGE FROM HORIZONTAL TO VERTICAL. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL OFF ENDS OF INSULATION WITH VAPOR BARRIER MASTIC AT EACH FITTING AND AT 21 FOOT INTERVALS ON CONTINUOUS RUNS.

INSTALL THE FACTORY APPLIED FIRE RETARDANT JACKET VAPOR BARRIER SO THAT IT WILL LAP SMOOTHLY AND SECURELY AT THE LONGITUDINAL LAP AND ADHERE IT WITH VAPOR BARRIER MASTIC. ADHERE 3 INCH WIDE BUTT STRIPS X SMOOTHLY OVER ALL END JOINTS WITH THE VAPOR BARRIER MASTIC TO ASSURE A CONTINUOUS VAPOR BARRIER - NO STAPLES ALLOWED. INSULATE DRAIN BODIES AND FITTINGS WITH METERED SEGMENTS OF PIPE INSULATION, FURNISH FLOOR DRAINS WITH PRIMER CONNECTIONS WHERE INDICATED ON THE OVERSIZED PIPE INSULATION OR MOLDED FITTINGS. COAT WITH TWO, 1/8 INCH COATS OF VAPOR BARRIER MASTIC REINFORCED WITH GLASS FABRIC EXTENDING 2 INCHES ONTO ADJACENT PIPES. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 8 OUNCE CANVAS. TERMINATE INSULATION NEATLY AT CLEANOUTS ON STORM AND COLD DRAIN PIPING. DO NOT COVER CLEANOUTS.

DOMESTIC WATER HEATING

DESCRIPTION PROVIDE DOMESTIC WATER HEATING EQUIPMENT WHERE SHOWN ON DRAWINGS

DISCHARGE PIPE

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.

