

MECHANICAL SYMBOLS LIST

	TXF-1	EQUIPMENT SYMBOL
		RISER SYMBOL
		CEILING DIFFUSER SUPPLY
		CEILING DIFFUSER RETURN/EXHAUST
		VOLUME DAMPER W/ ACCESS DOOR
		BACKDRAFT DAMPER
		MOTORIZED DAMPER W/ ACCESS DOOR
		FIRE SMOKE DAMPER W/ ACCESS DOOR
		THERMOSTAT
		SMOKE DETECTOR
	24X12	RECTANGULAR DUCT (WIDTH X DEPTH)
		AIR DUCT W/ 1.5" ACOUSTICAL LINING
	FC FC	FLEXIBLE CONNECTION
	Ø12	ROUND DUCT (DIAMETER)
		ROUND DUCT CROSS SECTION
		POINT OF NEW CONNECTION
		SUPPLY AIR RECTANGULAR DUCT GOING UP/DOWN
		RETURN AIR RECTANGULAR DUCT GOING UP/DOWN

MECHANICAL ABBREVIATIONS

AC	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AL	ACOUSTIC LINING
BD	GRAVITY DAMPER
CD	CONDENSATE DRAIN
CDS	CEILING DIFFUSER SUPPLY
CFM	CUBIC FEET OF AIR PER MINUTE
CU	CONDENSING UNIT
DN	DOWN
E	EXISTING
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
FC	FLEXIBLE CONNECTION
FD/AD	FIRE DAMPER W/ACCESS DOOR
FD	FIRE DAMPER W/FUSIBLE LINK
FSD	FIRE SMOKE DAMPER
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
N	NEW
RA	RETURN AIR
RAD	RETURN AIR DUCT
SA	SUPPLY AIR
SAD	SUPPLY AIR DUCT
SAE	SAME AS EXISTING
SEER	SEASONAL ENERGY EFFICIENCY RATIO
VD	VOLUME CONTROL DAMPER
VIF	VERIFY IN FIELD

APPLICABLE CODES

A.	2022 CALIFORNIA BUILDING CODE
B.	2022 CALIFORNIA MECHANICAL CODE
C.	2022 CALIFORNIA PLUMBING CODE
D.	2022 CALIFORNIA FIRE CODE
E.	2022 CALIFORNIA ELECTRICAL CODE
F.	2022 CALIFORNIA ENERGY CODE

CALIFORNIA BUILDING DEPARTMENT NOTES

- ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE CALIFORNIA BUILDING CODE 2022, AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.
- ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
  - VENTILATION FOR ALL AREA SHALL COMPLY WITH CALIFORNIA ENERGY CODE 2022, SECTION 120.1-REQUIREMENTS FOR VENTILATION AND INDOOR AIR QUALITY.
  - MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
  - A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE.
  - SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION 606 OF CALIFORNIA MECHANICAL CODE 2022 TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.
  - REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
  - THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
  - TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE CALIFORNIA MECHANICAL CODE 2022:
    - A. VENTILATION SYSTEM BALANCING-CALIFORNIA MECHANICAL CODE 2022 - 402
    - B. SMOKE CONTROL SYSTEMS - CALIFORNIA MECHANICAL CODE 2022 - 606
  - THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
    - A. STANDARDS OF HEATING - CALIFORNIA BUILDING CODE 2022 - 1203
    - B. DUCT CONSTRUCTION AND INSTALLATION - CALIFORNIA MECHANICAL CODE 2022 - 603
    - C. AIR INTAKES, EXHAUSTS AND RELIEF - CALIFORNIA MECHANICAL CODE 2022 - 502.
    - D. AIR FILTERS - CALIFORNIA MECHANICAL CODE 2022 - 401 (FILTERS SHALL BE A MINIMUM OF MERV 13 AS REQUIRED BY CENC 120.1(C))
    - E. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS - CALIFORNIA MECHANICAL CODE 2022 - 606
    - F. GAS FIRED EQUIPMENT - CALIFORNIA MECHANICAL CODE 2022 - 903.
  - PORTIONS OF SUPPLY AIR AND RETURN AIR DUCTS CONVEYING HEATED OR COOLED AIR LOCATED IN ONE OR MORE OF THE FOLLOWING SPACES SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-8:
    - A. OUTDOOR OR
    - B. IN A SPACE BETWEEN THE ROOF AND AN INSULATED CEILING, OR
    - C. IN A SPACE DIRECTLY UNDER A ROOF WITH FIXED VENTS OR OPENING TO THE OUTSIDE OR UNCONDITIONED SPACE; OR
    - D. IN AN UNCONDITIONED CRAWLSPACE; OR
    - E. IN OTHER UNCONDITIONED SPACES.
  - OPERATION AND CONTROL REQUIREMENTS FOR MINIMUM QUANTITIES OF OUTDOOR AIR, TIMES OF OCCUPANCY - THE MINIMUM RATE OF OUTDOOR AIR REQUIRED BY SECTION 120.1(C) SHALL BE SUPPLIED TO EACH SPACE AT ALL TIMES WHEN THE SPACE IS USUALLY OCCUPIED.
  - ALL MECHANICAL EQUIPMENT SHALL BE TESTED BY A CALIFORNIA CERTIFIED ACCEPTANCE TEST TECHNICIAN.

THERMOSTATIC CONTROL NOTES

- A. THERMOSTATIC CONTROLS FOR EACH ZONE, THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH SPACE-CONDITIONING ZONE OR ZONE/UNIT SHALL BE CONTROLLED BY AN INDIVIDUAL THERMOSTATIC CONTROL THAT RESPONDS TO TEMPERATURE WITHIN THE ZONE AND THAT MEETS THE APPLICABLE REQUIREMENTS OF SECTION 120.2(b). AN ENERGY MANAGEMENT CONTROL SYSTEM (EMCS) MAY BE INSTALLED TO COMPLY WITH THE REQUIREMENTS OF ONE OR MORE THERMOSTATIC CONTROLS IF IT COMPLIES WITH ALL APPLICABLE REQUIREMENTS FOR EACH THERMOSTATIC CONTROL.
- B. SHUT-OFF AND RESET CONTROLS FOR SPACE-CONDITIONING SYSTEMS, EACH SPACE-CONDITIONING SYSTEM SHALL BE INSTALLED WITH CONTROLS THAT COMPLY WITH THE FOLLOWING:
  1. THE CONTROL SHALL BE CAPABLE OF AUTOMATICALLY SHUTTING OFF THE SYSTEM DURING PERIODS OF NON-USE AND SHALL HAVE:
    - AN AUTOMATIC TIME SWITCH CONTROL DEVICE COMPLYING WITH SECTION 110.9(c), WITH AN ACCESSIBLE MANUAL OVERRIDE THAT ALLOWS OPERATION OF THE SYSTEM FOR UP TO 4 HOURS; OR
    - AN OCCUPANCY SENSOR; OR
    - 4-HOUR TIMER THAT CAN BE MANUALLY OPERATED.
  2. THE CONTROL SHALL AUTOMATICALLY RESTART AND TEMPORARILY OPERATE THE SYSTEM AS REQUIRED TO MAINTAIN:
    - A. A SETBACK HEATING THERMOSTAT SET POINT IF THE SYSTEM PROVIDES MECHANICAL HEATING; AND
    - B. A SETUP COOLING THERMOSTAT SET POINT IF THE SYSTEM PROVIDES MECHANICAL COOLING.
- C. DAMPERS FOR AIR SUPPLY AND EXHAUST EQUIPMENT, OUTDOOR AIR SUPPLY AND EXHAUST EQUIPMENT SHALL BE INSTALLED WITH DAMPERS THAT AUTOMATICALLY CLOSE UPON FAN SHUTDOWN.

MECHANICAL DRAWING LIST

M-0.1	MECHANICAL SYMBOL, ABBREVIATION, DRAWING LIST & NOTES
M-1.0	MECHANICAL FLOOR & PARTIAL ROOF PLAN
M-2.0	MECHANICAL DETAILS & SCHEDULE

GENERAL MECHANICAL NOTES

- THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE SYSTEM IN ACCORDANCE WITH THESE DRAWINGS, THE APPLICABLE BUILDING CODE AND ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND THE LATEST ADDITION OF THE FOLLOWING PUBLICATIONS: SMACNA, ASHRAE, NFPA 90A, 90B, 91 & ANSI B9.1 MECHANICAL REFRIGERATION. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED AND SUPPORTED AS PER SMACNA STANDARDS.
- THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
- THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES. TO INSURE AN ORDERLY PROGRESS OF THIS WORK.
- THE CONTRACTOR SHALL SUPPLY THE ARCHITECT WITH "AS-BUILT" DRAWINGS UPON COMPLETION OF THIS PROJECT.
- CONTRACTOR SHALL SUBMIT, FOR APPROVAL FIVE (5) COPIES OF MANUFACTURER'S DRAWINGS FOR EACH PIECE OF EQUIPMENT AND CONTROLS INCLUDED IN CONTRACT.
- ALL MATERIAL SHALL BE NEW AND OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY SKILLED WORKMEN.
- ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE EXTERNALLY INSULATED GALVANIZED SHEET STEEL. INSULATION SHALL BE A MINIMUM OF 2" THICK PROVIDING A R-6 VALUE OR HIGHER.
- ALL EXHAUST DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED SHEET METAL WITH SEALED SEAMS AND JOINTS.
- DUCT SIZES SHOWN ARE INSIDE DIMENSIONS (FREE AREA). THE CONTRACTOR MAY, AT HIS OPTION, USE ALTERNATE SHAPED DUCT OF EQUIVALENT SIZE (FREE AREA) WITH CONSTRUCTION OF SAME PER LATEST S.M.A.C.N.A. DUCT CONSTRUCTION STANDARDS. ALL FLEXIBLE DUCT SHALL BE LIMITED TO 8 FEET IN LENGTH AND USED ONLY FOR RUNOUTS TO DIFFUSERS. FLEX DUCT SHALL BE U.L. 181 LISTED.
- ALL AIR DEVICES (DIFFUSERS, REGISTERS AND GRILLES) SHALL BE ALL ALUMINUM CONSTRUCTION WITH EXPOSED SURFACE OFF WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY OWNER. PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS. DIFFUSERS, REGISTERS AND GRILLES LOCATED IN FIRE RATED WALLS AND/OR CEILINGS SHALL BE STEEL CONSTRUCTION.
- THERMOSTAT SHALL BE 7 DAY PROGRAMMABLE TYPE, WITH SYSTEM "COOL-AUTO-HEAT-OFF" AND FAN "ON-AUTO" SELECTOR SWITCHES. PROVIDE HONEYWELL OR EQUAL.
- ALL BRANCH TAKE-OFFS TO BE PROVIDED W/MANUAL VOLUME DAMPERS. ALL ELBOWS AND TEES MUST BE FURNISHED W/TURNING VANES. PROVIDE 45° BRANCH TAKE-OFF AS PER BRANCH DUCT TAKE-OFF DETAIL.
- PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE STARTING THEM. REPLACE THEM PRIOR TO FINAL ACCEPTANCE BY OWNER.
- PROVIDE SMOKE DETECTORS WITH ACCESS DOORS IN ALL RETURN AIR DUCTS FOR FANS AND AHU'S SERVING A COMMON PLENUM OF 2000 CFM OR ABOVE. ALL SMOKE DETECTORS SHALL BE BY ONE MANUFACTURER, COORDINATE VOLTAGE ETC. WITH ELECTRICAL CONTRACTOR AND FIRE ALARM SYSTEM BEFORE ORDERING. UPON DETECTION, SMOKE DETECTORS SHUT DOWN ASSOCIATED AIR MOVING EQUIPMENT AND ALL AIR MOVING EQUIPMENT SERVING THAT COMMON PLENUM.
- PROVIDE TYPE "B" FIRE DAMPERS IN ALL DUCTS OR OPENINGS PENETRATING FIRE RATED WALLS, MECHANICAL AND ELECTRICAL EQUIPMENT ROOMS, TENANT SEPARATION, PARTITIONS, FLOOR OR ROOF SLABS AND AT OIA INTAKES. PROVIDE RADIATION DAMPERS IN RATED CEILINGS FOR ALL CEILING OPENINGS, CEILING FANS, DIFFUSERS OR GRILLES RATED FOR USE IN THE CEILING ASSEMBLY.
- HVAC CONTRACTOR SHALL PROVIDE A TEST AND BALANCE REPORT, FOR ALL MECHANICAL EQUIPMENT, AIR DEVICES, DAMPERS, AHUS AND FANS. THE "T" & "B" SHALL BE IN ACCORDANCE WITH THE ARI BALANCE COUNCIL STANDARDS, AND SHALL INCLUDE AIR QUANTITIES FOR ALL SUPPLY GRILLS, RETURN GRILLS, AND EXHAUST GRILLS, AND THE LEAVING AND ENTERING AIR TEMPERATURE (°F) FROM SUPPLY GRILLS AND EVAPORATORS.
- THERMOSTAT LOCATION SHALL BE APPROVED BY OWNER AND ARCHITECT BEFORE INSTALLATION.
- ALL INSULATION WILL HAVE FIRESMOKE RATING LESS THAN 25/50.
- MECHANICAL PLANS IN GENERAL, ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCH. PLUMBING, ELECTRICAL AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS WILL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- NO COMBUSTIBLE MATERIALS ARE ALLOWED IN RETURN AIR PLENUMS OR ABOVE CEILINGS USED AS RETURN AIR PLENUM. IF SPACE WITH RETURN AIR PLENUM HAS ANY DECK TO DECK PARTITIONS, AIR TRANSFER DUCTS MUST BE INSTALLED.
- REFER TO PLUMBING PLANS FOR ALL CONDENSATE PIPING.
- CONTRACTOR SHALL INSTALL ALL OUTDOOR EQUIPMENT TO WITHSTAND SUSTAINED WIND LOADING FORCES AS REQUIRED BY LOCAL CODES.
- PROVIDE ALL NECESSARY CONTRACTORS, RELAYS, ETC., FOR A COMPLETE OPERATING A/C UNIT, THROUGHOUT.
- THE COURSE OF THE WORK, MINOR CHANGES AND ADJUSTMENTS TO THE PLANS AND SPECIFICATIONS MAY BE REQUESTED BY THE TENANT. THE CONTRACTOR SHALL MAKE SUCH ADJUSTMENTS WITHOUT ADDITIONAL COST TO THE TENANT, WHERE SUCH ADJUSTMENTS ARE NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE SYSTEMS, AND WITHIN THE INTENT OF THE CONTRACT DOCUMENTS.
- IT IS THE INTENT OF THE PLANS AND SPECIFICATIONS TO FORM A GUIDE FOR A COMPLETE INSTALLATION. EVERYTHING NECESSARY FOR THE COMPLETION AND SUCCESSFUL OPERATION OF THE WORK, WHETHER OR NOT HEREIN DEFINITELY SPECIFIED OR INDICATED ON THE DRAWINGS SHALL BE FURNISHED AND INSTALLED AS WELL AND AS FAITHFULLY AS IF SO SPECIFIED OR INDICATED WITHOUT ADDITIONAL COST TO THE TENANT. THE MECHANICAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LENGTHS PRIOR TO INSTALLATION.
- NOTWITHSTANDING ANY OTHER PROVISIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR BEARS ULTIMATE RESPONSIBILITY FOR COMPLIANCE OF THE INSTALLATION WITH THE REQUIREMENTS OF THE LANDLORD AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- IF ANY ERRORS, DISCREPANCIES OR OMISSIONS APPEAR IN THE DRAWINGS, SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF SUCH ERROR OR OMISSION. IN THE EVENT OF THE CONTRACTOR FAILING TO GIVE SUCH NOTICE BEFORE CONSTRUCTION AND/OR FABRICATION OF THE WORK, HE WILL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS, DISCREPANCIES OR OMISSIONS AND THE COST OF RECTIFYING SAME.

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SOLE PROPERTY OF THE ARCHITECT, AND SHALL NOT BE USED IN ANY WAY, WHATSOEVER, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT. IT SHALL BE RETURNED TO THE ARCHITECT UPON DEMAND.

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**NY ENGINEERS**

NY ENGINEERS  
382 NE 191st Street Suite 49674  
MIAMI, FL 33179  
(786)-788-0295  
ny-engineers.com

REVISIONS:

NO.	DATE	DESCRIPTION	BY
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SHEET TITLE:

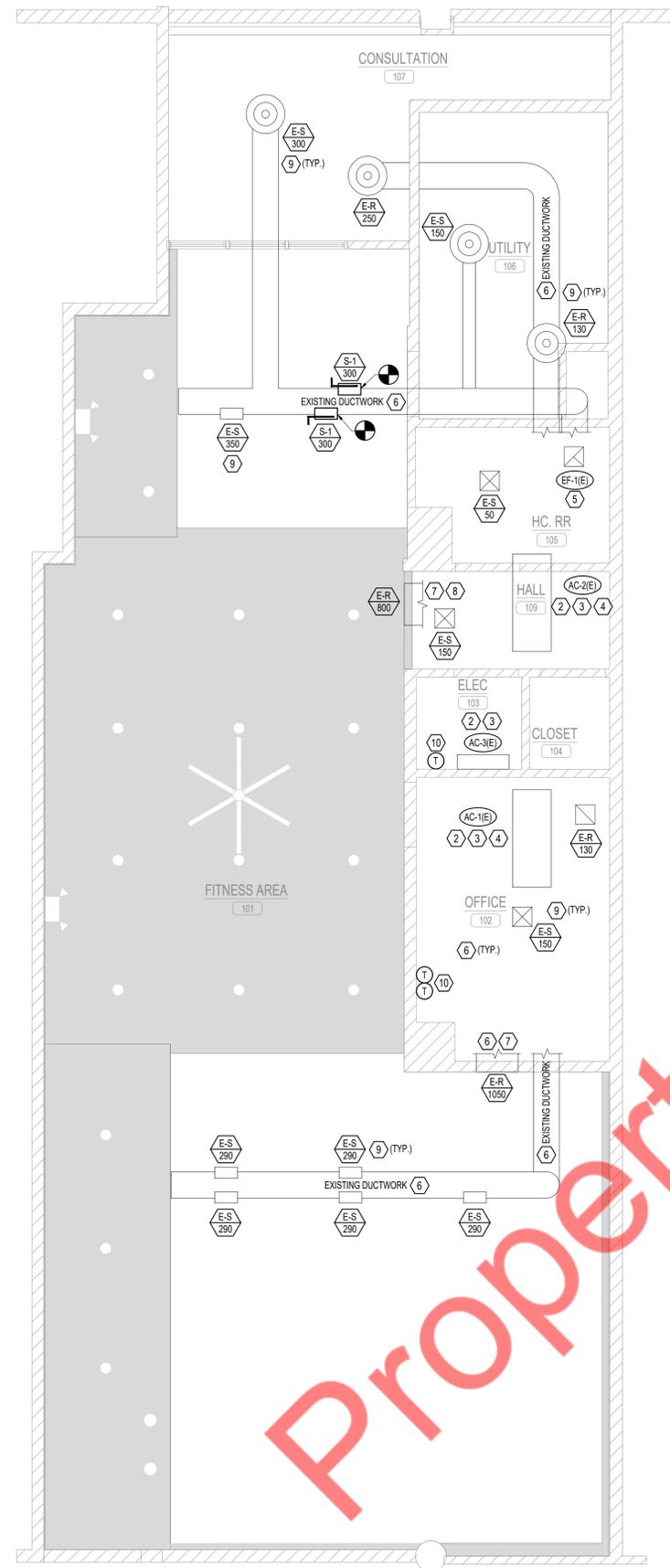
**MECHANICAL SYMBOL, ABBREVIATION, DRAWING LIST & NOTES**

DATE 11-15-2024

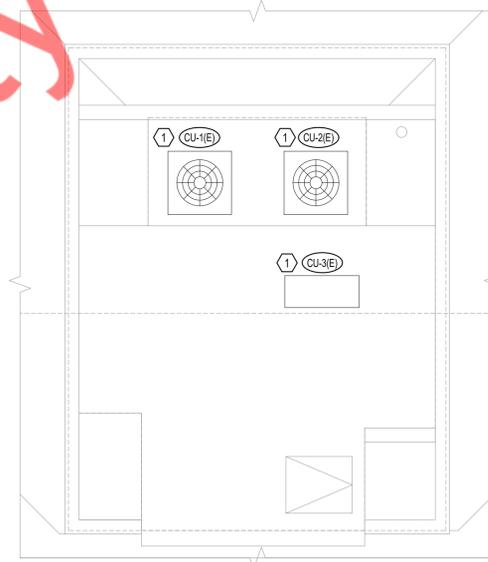
SHEET NO.

**M-0.1**

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.



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



2 MECHANICAL PARTIAL ROOF PLAN  
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

- A. EXISTING CONDITIONS ARE BASED ON RECORD DRAWINGS PROVIDED BY THE OWNER AND LIMITED FIELD VERIFICATION BY OTHERS. CONTRACTOR SHALL ADJUST TO ACTUAL FIELD CONDITIONS AT NO ADDITIONAL EXPENSE TO THE PROJECT.
- B. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ANY EXTRAS DUE TO THE CONTRACTOR'S FAILURE TO VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER FOR RESOLUTION.
- C. ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
- D. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS.
- E. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS AND TRADES.
- F. THESE DRAWINGS, AS PREPARED, ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.
- G. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE EQUIPMENT INDICATED WITHIN THE MECHANICAL DRAWINGS UNLESS OTHERWISE NOTED. ALL EQUIPMENT SHALL BE UL LISTED. VERIFY LOCATION AND DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND/OR INSTALLATION.
- H. EACH UNIT GENERATING CONDENSATE SHALL BE PROVIDED WITH A CONDENSATE DRAIN WITH EXTERNAL, 4" DEEP P-TRAP. EXTEND DRAIN TO A ROOF MOUNTED SPLASH PAD OR AN ACCEPTABLE LOCATION REQUIRED BY CODE.
- I. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
- J. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- K. THE CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
- L. THE CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, ROOF TOP UNITS, SMOKE DETECTORS AND CONTRACTOR PANEL.
- M. THE ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.
- N. ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- O. THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN ±10% OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
- P. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
- Q. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
- R. PROVIDE CORD-OPERATED DAMPERS IN INACCESSIBLE CEILINGS.
- S. PROVIDE RECTANGULAR DUCT IN CEILING AREA OF SAME CROSS SECTION AREA WITH EXPOSED INSULATION.
- T. PROVIDE INTERNAL INSULATION FOR EXPOSED DUCTWORK AND EXTERNAL INSULATION FOR DUCTWORK IN CEILING AREAS.
- U. R-8 INSULATION (INTERNAL FOR EXPOSED DUCTS AND EXTERNAL FOR CONCEALED DUCTS) FOR SUPPLY & RETURN AIR DUCTS. PROVIDE ACOUSTIC INSULATION ON MAIN SUPPLY AND RETURN DUCTS UP TO 10 FT. FROM HVAC UNIT.
- V. FLEXIBLE AIR DUCT LENGTH SHALL NOT BE EXCEED MORE THAN 5 FT.
- W. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS. PROVIDE NEW OPENING IF REQUIRED AND CLOSE USED OPENINGS.
- X. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS AND SITE BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- Y. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- Z. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.

MECHANICAL KEYED NOTES: (2)

1. EXISTING CONDENSING UNIT TO REMAIN & TO BE REUSED. CLEAN AND REFURBISH TO "LIKE-NEW" CONDITION. REPAIR/REPLACE ANY ACCESSORIES AS REQUIRED TO PROVIDE A FULLY FUNCTIONING UNIT. VERIFY IN FIELD PRIOR TO BID. VERIFY FINAL LOCATION & CONFIGURATION ON FILED. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO BID AND START OF WORK.
2. EXISTING AC UNIT TO REMAIN ALONG WITH ALL ACCESSORIES. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION ON SITE. CLEAN AND REFURBISH TO "LIKE-NEW" CONDITION. REPAIR/REPLACE ANY ACCESSORIES AS REQUIRED TO PROVIDE A FULLY FUNCTIONING UNIT. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO BID AND START OF WORK.
3. EXISTING CONDENSATE DRAIN TO REMAIN AS IT IS. IF PIPING IS DAMAGED OR BLOCKED, REPAIR OR REPLACE WITH SIMILAR MATERIAL OR APPROVED MATERIAL AS PER LOCAL CODES. TERMINATE TO NEAREST APPROVED PLACE OF DISPOSAL.
4. CONTRACTOR TO FIELD VERIFY AND REUSE OUTSIDE AIR PROVISION FOR EXISTING UNIT. SET OUTSIDE AIR AS INDICATED ON SCHEDULE. IF OUTSIDE AIR DUCT IS NOT FOUND, PROVIDE NEW OUTSIDE AIR DUCT AND COORDINATE WITH LANDLORD FOR OUTSIDE AIR DUCT TERMINATION POINT. CONTRACTOR TO FIELD VERIFY PRIOR TO BID. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO BID AND START OF WORK.
5. EXISTING TOILET EXHAUST FAN TO REMAIN ALONG WITH ALL ACCESSORIES AND DUCTWORK. CONTRACTOR TO REPAIR/REPLACE FAN ACCESSORIES/ DUCTWORK, IF FOUND DAMAGED. PROVIDE BACK DRAFT DAMPER IF EXISTING BACK DRAFT IS DAMAGED OR MISSING.
6. EXISTING DUCTWORK TO REMAIN AND REUSED. CONTRACTOR TO FIELD VERIFY EXACT ROUTING. CONTRACTOR TO CLEAN, PATCH AND SEAL DUCTWORK AIRTIGHT. INSPECT, PATCH, REPAIR, AND/OR REPLACE INSULATION AS REQUIRED. CONTRACTOR TO MODIFY AND INSTALLED NEW DUCTWORK AS IF REQUIRED. PROVIDE NEW GRILLE AS SHOWN ON PLAN.
7. EXISTING DUCTWORK GOING TO ATTIC SPACE. CONTRACTOR TO FIELD VERIFY EXACT DUCT ROUTING IN ATTIC SPACE.
8. APPROXIMATE LOCATION OF RETURN AIR GRILLE AND DUCT FOR AC-2(E). CONTRACTOR TO FIELD VERIFY EXACT LOCATION. IF NOT FOUND, PROVIDE NEW GRILLE AND DUCTWORK AND CONNECT TO AC-2(E).
9. CONTRACTOR TO REUSE EXISTING GRILLE/DIFFUSER AND BALANCE CFM AS SHOWN ON PLAN. CONTRACTOR TO FIELD VERIFY THAT EXISTING GRILLE/DIFFUSER ARE PROVIDED WITH VOLUME CONTROL DAMPER, IF NOT PROVIDE VOLUME CONTROL DAMPER.
10. CONTRACTOR TO RELOCATE AND REUSE EXISTING T-STAT AND REMOTE SENSOR. CONFIRM FINAL LOCATION/ REQUIREMENT OF ALL TEMPERATURE SENSORS/T-STATS WITH ARCHITECT/ OWNER.

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**NY ENGINEERS**  
NY ENGINEERS  
382 NE 191st Street Suite 49674  
MIAMI, FL 33179  
(786)-788-0295  
ny-engineers.com

REVISIONS:

NO.	DATE	DESCRIPTION	BY

SHEET TITLE:

**MECHANICAL  
FLOOR & PARTIAL  
ROOF PLAN**

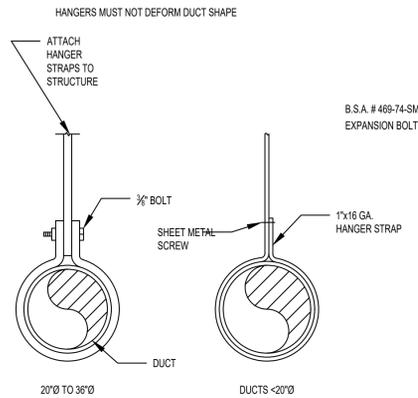
DATE 11-15-2024

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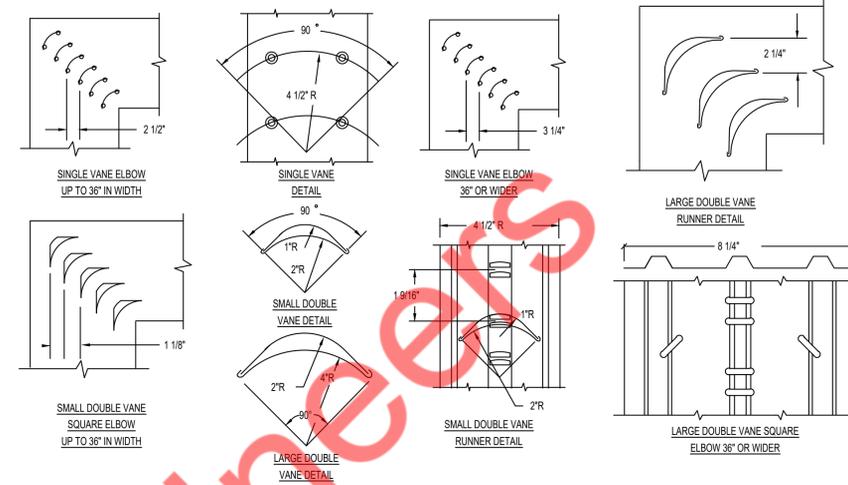
SHEET 2 OF 3

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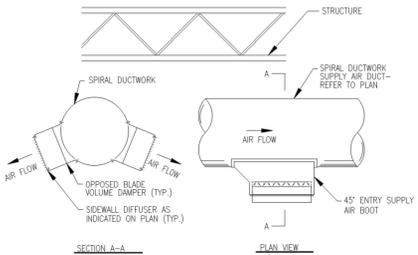


DUCT HANGER SCHEDULE		
DUCT CROSS SECTIONAL AREA	STRAP HANGER SIZE	MAX. SPACING
UNDER 2 SQ. FT.	1" X 1/16"	6'-0" O.C.
2 TO 4 SQ. FT.	1" X 1/8"	8'-0" O.C.
4 TO 8 SQ. FT.	1" X 1/8"	6'-0" O.C.
OVER 8 SQ. FT.	1" X 1/8"	4'-0" O.C.

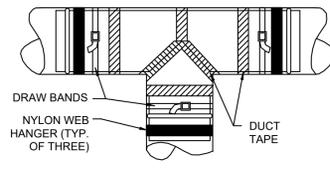
**1 TYPICAL DUCT HANGING DETAIL**  
SCALE: N.T.S.



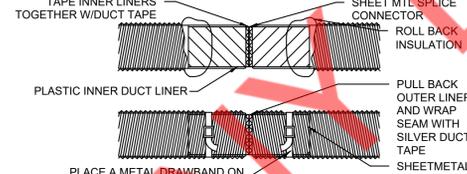
**2 LOW VELOCITY DUCTWORK ELBOW**  
SCALE: N.T.S.



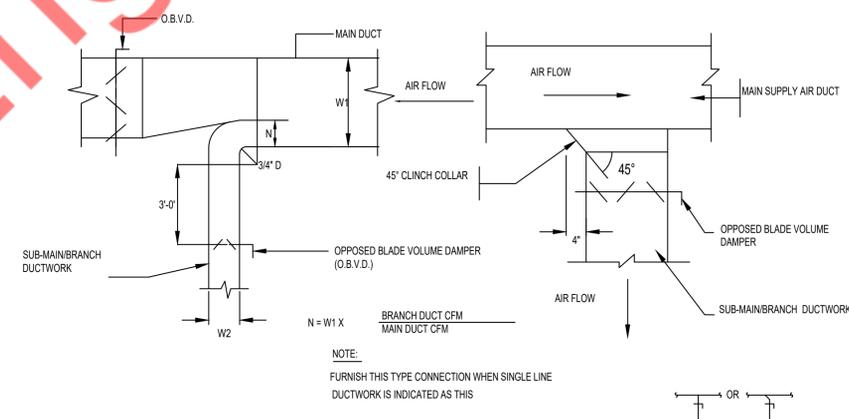
**3 DUCT MOUNTED GRILLE DETAIL**  
SCALE: N.T.S.



**4 SHEET METAL TEE INSULATION DETAIL**  
SCALE: N.T.S.



**5 FLEXIBLE DUCT SPLICING DETAIL**  
SCALE: N.T.S.



**6 SUPPLY DUCT MAIN BRANCH TAP-OFF DETAILS**  
SCALE: N.T.S.

OUTDOOR UNIT SCHEDULE														
UNIT TAG	LOCATION	INDOOR UNIT SERVED	CAP. TR	COOLING MBH	HEATING MBH	UNIT DIMENSIONS IN. (HXWXD)	WEIGHT (LBS)	ELECTRICAL DATA					MFG. - MODEL	
								(V/Hz/Ph)	MCA (A)	MOP (A)	EER	SEER		HSPF
CU-1(E)	SEE ON PLAN	AC-1(E)	4	49 & V.I.F.	42.5	S.A.E.	S.A.E.	208-230/60/1	28 & V.I.F.	50 & V.I.F.	S.A.E.	S.A.E.	S.A.E.	4TWB3048B100CA & V.I.F.
CU-2(E)	SEE ON PLAN	AC-2(E)	4	49 & V.I.F.	42.5	S.A.E.	S.A.E.	208-230/60/1	28 & V.I.F.	50 & V.I.F.	S.A.E.	S.A.E.	S.A.E.	4TWB3048B100CA & V.I.F.
CU-3(E)	SEE ON PLAN	AC-3(E)	1	12	16	S.A.E.	S.A.E.	208-230/60/1	9 & V.I.F.	15 & V.I.F.	S.A.E.	S.A.E.	S.A.E.	FUJITSU - AOU12RLF & V.I.F.

NOTES FOR EXISTING ACCU UNIT  
 1. EXISTING SYSTEM WITH ALL ACCESSORIES TO REMAIN SAME TO BE REUSED.  
 2. S.A.E. : SAME AS EXISTING & V.I.F. : VERIFY IN FIELD.  
 3. CONTRACTOR TO FIELD VERIFY IN AC AND CU IN WORKING AT THEIR 100% RATED CAPACITY. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.  
 4. IF REQUIRED, PROVIDE NEW THERMOSTAT COMPATIBLE WITH THE EXISTING AC UNIT AND COORDINATE THE FINAL LOCATION WITH THE ARCHITECT/OWNER.  
 5. CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONDITION, WIRE SIZES, BREAKERS, DISCONNECT ETC. PRIOR TO OPENING BID.

VENTILATION CALCULATION AS PER CALIFORNIA ENERGY CODE 2022 - TABLE 120.1-A & 120.1-B						
ROOM NAME	AREA (SQ.FT.)	AREA OUTDOOR AIR RATE CFM/SQ.FT	REQUIRED OA (CFM)	PROVIDED OA (CFM)	EXHAUST AIRFLOW RATE (CFM/SQ.FT OR CFM/UNIT)	TOTAL EXHAUST (CFM)
100 LOBBY	375	0.50	188	840	0	0
101 FITNESS AREA	1100	0.50	550		0	0
102 OFFICE	75	0.15	11		0	0
103 ELEC	25	0.15	4		0	0
104 CLOSET	20	0.15	3		0	0
105 HC RR	65	0.00	0		70	70
106 UTILITY	150	0.15	23		0	0
107 CONSULTATION	190	0.15	29		0	0
109 HALLWAY	100	0.15	15		0	0
<b>TOTAL</b>	<b>2100</b>	<b>-</b>	<b>822</b>		<b>840</b>	<b>-</b>

AIR TERMINAL SCHEDULE					BASIS OF DESIGN: TITUS	
TAG	TYPE	FACE SIZE (IN)	MODEL NO.	MAX NC dBA	S.A.E.	S.A.E.
E-5	SUPPLY	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.
E-R	RETURN	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.
S-1	SUPPLY	14X8	300FL	30		

NOTES FOR DIFFUSERS/GRILLES  
 1. ALL GRILLES : CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS PLANS TO ENSURE PROPER AIR DEVICE BORDER SELECTION.  
 2. COORDINATE COLOR/FINISH WITH ARCHITECT.  
 3. EXISTING AIR TERMINAL TO REMAIN AND REUSED. IF NOT REUSABLE, REPLACE WITH SIMILAR KIND.

INDOOR UNIT SCHEDULE															
UNIT TAG	LOCATION	TYPE	AREA SERVED	CAP. (TON)	COOLING MBH	HEATING MBH	TOTAL CFM	OUTDOOR CFM	MAX RATED ESP. (IN. WG)	ELECTRICAL DATA			DIMENSIONS (HXWXD) (IN.)	WEIGHT (LBS.)	MFG. - MODEL
										PH/VOLT/Hz	MCA (A)	MOP (A)			
AC-1(E)	SEE ON PLAN	MULTIPOSITION AIR HANDLING UNIT	SEE PLAN	4	49 & V.I.F.	42.5 & V.I.F.	1600	420	S.A.E.	1/208/60	3 & V.I.F.	15 & V.I.F.	S.A.E. & V.I.F.	S.A.E.	TRANE - TEM3AOC48S4 & V.I.F.
AC-2(E)	SEE ON PLAN	MULTIPOSITION AIR HANDLING UNIT	SEE PLAN	4	49 & V.I.F.	42.5 & V.I.F.	1600	420	S.A.E.	1/208/60	3 & V.I.F.	15 & V.I.F.	S.A.E. & V.I.F.	S.A.E.	TRANE - TEM3AOC48S4 & V.I.F.
AC-3(E)	SEE ON PLAN	WALL MOUNTED UNIT	SEE PLAN	1	12 & V.I.F.	16 & V.I.F.	440	-	S.A.E.	POWERED BY OUTDOOR UNIT			S.A.E. & V.I.F.	S.A.E.	FUJITSU - ASU12RLF & V.I.F.

NOTES FOR EXISTING AC UNIT  
 1. EXISTING SYSTEM WITH ALL ACCESSORIES TO REMAIN SAME TO BE REUSED.  
 2. S.A.E. : SAME AS EXISTING & V.I.F. : VERIFY IN FIELD.  
 3. CONTRACTOR TO FIELD VERIFY IN AC AND CU IN WORKING AT THEIR 100% RATED CAPACITY. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.  
 4. IF REQUIRED, PROVIDE NEW THERMOSTAT COMPATIBLE WITH THE EXISTING AC UNIT AND COORDINATE THE FINAL LOCATION WITH THE ARCHITECT/OWNER.  
 5. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPER ON EXISTING UNIT TO MATCH MENTIONED VALUE IN ABOVE TABLE.  
 6. REPLACE FILTER WITH NEW FILTER IF REQUIRED.  
 7. CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONDITION, WIRE SIZES, BREAKERS, DISCONNECT ETC. PRIOR TO OPENING BID.

EXHAUST FAN SCHEDULE								
TAG	MANUFACTURER	MODEL	FLOW RATE CFM	STATIC PRESSURE		ELECTRIC DATA		WEIGHT LBS.
				EXTERNAL IN W.G.	RPM	FLA (A)	V/PH/Hz	
EF-1(E)	S.A.E.	S.A.E.	70	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.

NOTES:  
 1. EXISTING SYSTEM WITH ALL ACCESSORIES TO REMAIN SAME TO BE REUSED.  
 2. S.A.E. : SAME AS EXISTING & V.I.F. : VERIFY IN FIELD.

AIR BALANCE					
UNIT	AREA SERVED	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR (CFM)
AC-1(E)	SEE PLAN	1600	420	1180	0
AC-2(E)	SEE PLAN	1600	420	1180	0
EF-1(E)	SEE PLAN	0	0	0	70
<b>TOTAL:</b>		<b>3200</b>	<b>840</b>	<b>2360</b>	<b>70</b>

**BUILDING PRESSURE: 770 POSITIVE**

NOTES:  
 1. CONTRACTOR TO ADJUST MOTORIZED DAMPER ON OUTSIDE AIR TAP TO PROVIDE OUTSIDE AIR AS MENTIONED IN ABOVE TABLE.

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SOLE PROPERTY OF THE ARCHITECT, AND SHALL NOT BE USED IN ANY WAY, WHATSOEVER, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT. IT SHALL BE RETURNED TO THE ARCHITECT UPON DEMAND.

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**NY ENGINEERS**

NY ENGINEERS  
 382 NE 191st Street Suite 49674  
 MIAMI, FL 33179  
 (786)-788-0295  
 ny-engineers.com

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NO.	DATE	DESCRIPTION	BY

SHEET TITLE:

**MECHANICAL DETAILS & SCHEDULE**

DATE 11-15-2024

SHEET NO.

**M-2.0**

SHEET 3 OF 3

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

## SWITCHES AND CONTROLS

	20A SPST TOGGLE SWITCH U.O.N. "9" DENOTES LIGHTING FIXTURE CONTROLLED.
	DIMMER SWITCH U.O.N. "9" DENOTES LIGHTING FIXTURE CONTROLLED.
	THREE WAY DIMMER SWITCH
	WALL OCCUPANCY SENSOR
	DIMMER SWITCH
	OVERRIDE SWITCH
	CEILING OCCUPANCY SENSOR
	DUCT SMOKE DETECTOR

## WIRING SYSTEMS

	EXISTING
	NEW

## ANNOTATION

	+24" INDICATES MOUNTING HEIGHT CENTER LINE TO FINISHED FLOOR.
	KEYED NOTE REFERENCE
	DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM

## POWER DISTRIBUTION

	DISTRIBUTION PANELBOARD, SURFACE OR FLUSH MOUNTED.
--	--

## ELECTRICAL DRAWING LIST

E-0.1	ELECTRICAL SYMBOL LIST, ABBREVIATIONS AND GENERAL NOTES
E-0.2	ELECTRICAL SPECIFICATIONS (1 OF 2)
E-0.3	ELECTRICAL SPECIFICATIONS (2 OF 2)
E-1.0	LIGHTING FLOOR PLAN
E-2.0	ELECTRICAL POWER PLAN
E-2.1	ELECTRICAL ROOF PLAN
E-3.0	ELECTRICAL DETAILS
E-4.0	ELECTRICAL RISER DIAGRAM PANEL AND SCHEDULES
E-5.0	TITLE-24

## APPLICABLE CODES

- A. 2022 CALIFORNIA BUILDING CODE
- B. 2022 CALIFORNIA MECHANICAL CODE
- C. 2022 CALIFORNIA PLUMBING CODE
- D. 2022 CALIFORNIA FIRE CODE
- E. 2022 CALIFORNIA ELECTRICAL CODE
- F. 2022 CALIFORNIA ENERGY CODE.

## POWER AND TELECOMMUNICATION

	JUNCTION BOX
	DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.
	DUPLEX DEDICATED RECEPTACLE, +18" AFF OR AS NOTED.
	CEILING MOUNTED DUPLEX RECEPTACLE
	FLOOR MOUNTED DUPLEX RECEPTACLE
	ELECTRICAL FLOOR BOX
	SPECIAL RECEPTACLE
	QUAD RECEPTACLE
	TELEPHONE/DATA OUTLET, 4" SQUARE OUTLET BOX WITH SINGLE GANG COLLAR AND BLANK PLATE. PROVIDE 3/4" E.C., U.O.N., UP TO HUNG CEILING AND TERMINATE WITH 90° ELBOW, BUSHING AND DRAG WIRE.
	TELEPHONE OUTLET, WALL-MOUNTED +48" AFF UNO TEL / DATA OUTLET TO BE PROVIDED WITH 1" CONDUIT U.O.N. TO H.C. AND TERMINATED WITH 90 DEGREE REE ELBOW AND BUSHING. TEL / DATA OUTLET PLATE SHALL BE PROVIDED WITH 1 1/4" DIAMETER GROMMETED OPENING.
	DATA OUTLET - (1) PORT UNO, +18" AFF, UNO TEL / DATA OUTLET TO BE PROVIDED WITH 1" CONDUIT U.O.N. TO H.C. AND TERMINATED WITH 90 DEGREE ELBOW AND BUSHING. TEL / DATA OUTLET PLATE SHALL BE PROVIDED WITH 1 1/4" DIAMETER GROMMETED OPENING.

## MOTORS AND CONTROLS

	AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.
	AC OUTDOOR UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.
	PLUMBING PUMP AND EXHAUST FAN
	NON FUSED DISCONNECT SWITCH AMPERAGE, AND NUMBER OF POLES AS NOTED.
	30A NON FUSED DISCONNECT SWITCH
	60A NON FUSED DISCONNECT SWITCH
	100A NON FUSED DISCONNECT SWITCH
	200A NON FUSED DISCONNECT SWITCH
	MANUAL MOTOR SWITCH

## ELECTRICAL ABBREVIATIONS

A	AMPERES
A/C, AC	AIR CONDITIONING UNIT
AF	AMPERE FRAME/AMP FUSE
AFF	ABOVE FINISHED FLOOR
AS	AMP SWITCH
AIC	AMPS INTERRUPTING CAPACITY
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
C/B,CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
COMM	COMMUNICATION
CT	CURRENT TRANSFORMER
CU	COPPER
°C	DEGREE CELSIUS
°F	DEGREE FAHRENHEIT
DIA	DIAMETER
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING
JB	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATTS
LP	LIGHTING PANEL
LTG	LIGHTING
MAX	MAXIMUM
MC	MOTOR CONTROLLER
MCB	MAIN CIRCUIT BREAKER
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
N	NEUTRAL
NE	NEW DEVICE TO REPLACE EXISTING
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OC	ON CENTER
P	POLES
PB	PULLBOX
PC	PERSONAL COMPUTER
Ø	PHASE
PNL	PANEL
W	WATT
W	WIRE
WH	WALL HEATER
E	EXISTING

EA	EACH
EC	EMPTY CONDUIT/ ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
ER	EXISTING TO BE RELOCATED
ETR	EXISTING TO REMAIN
EWf	ELECTRIFIED WORKSTATION FURNITURE
EWH	ELECTRIC WATER HEATER
FA	FIRE ALARM
FBO	FURNISHED BY OTHERS, INSTALLED & WIRED BY EC
FDR	FEEDER
FIBO	FURNISHED & INSTALLED BY OTHERS, WIRED BY EC
FIXT	FIXTURE
FL	FLOOR
FLUOR	FLUORESCENT
G	GROUND
GFI	GROUND FAULT INTERRUPTER
GP	GENERAL PURPOSE
HC	HUNG CEILING
HP	HORSEPOWER
HW	HOW WATER HEATER
HZ	HERTZ
IC	INTERRUPTING CAPACITY
PP	POWER PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
R	REMOVE
RE	RELOCATED EXISTING
REC	RECEPTACLE
RR	REMOVE & RELOCATE
SECT	SECTION
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SPEC	SPECIFICATION
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
SYS	SYSTEMS
TELE	TELEPHONE
TEMP	TEMPERATURE
TXF	TOILET EXHAUST FAN
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT/VOLTAGE
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHER PROOF
XFMR	TRANSFORMER
IG	ISOLATED GROUND

## GENERAL NOTES

(APPLY TO ALL "E" DRAWINGS)

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE CALIFORNIA ELECTRICAL CODE 2022, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
- CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
- FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
- SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
- VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT. EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE, CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
- CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
- CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
- MINIMUM SIZE OF CONDUIT SHALL BE 3/4", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
- CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
- PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CONCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
- SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
- FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
- ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAINIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
- ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
- ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
- ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
- ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
- OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
- COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
- COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOACTIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
- LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
- NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SOLE PROPERTY OF THE ARCHITECT, AND SHALL NOT BE USED IN ANY WAY, WHATSOEVER, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT. IT SHALL BE RETURNED TO THE ARCHITECT UPON DEMAND.

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**NY ENGINEERS**  
 NY ENGINEERS  
 382 NE 191st Street Suite 49674  
 MIAMI, FL 33179  
 (786)-788-0295  
 ny-engineers.com

## REVISIONS:

NO.	DATE	DESCRIPTION	BY
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## SHEET TITLE:

**ELECTRICAL  
SYMBOL LIST,  
ABBREVIATION  
AND GENERAL  
NOTES**

DATE 11-15-2024

SHEET NO.

**E-0.1**

SHEET 1 OF 8

## ELECTRICAL SPECIFICATION

### 1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTANANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWING MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

E. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSAL.

F. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABL MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

G. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

H. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

I. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.

J. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.

K. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT ND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

L. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

M. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING, THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

N. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

O. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

P. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.

### 2. 2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

#### A. DEFINITIONS:

- "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
- "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
- "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
- "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
- "WIRING": RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.
- "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES
- "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

8) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

B. TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

#### C. QUALITY ASSURANCE

1) QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.

#### 3) CURRENT CHARACTERISTICS:

a. DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

#### 4) HEIGHTS OF OUTLETS:

a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:

- RECEPTACLES AND TELEPHONES: 1 FT-6 IN.
- WALL SWITCHES: 4 FT-0 IN.
- WALL FIXTURES: 7 FT-0 IN.
- MOTOR CONTROLLERS: 5 FT-0 IN.
- CLOCKS: 7 FT 6 IN

b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

#### D. PRODUCT DELIVERY, STORAGE AND HANDLING

1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2) ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

#### E. MATERIALS

1) NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

#### 3) INSERTS AND SUPPORTS:

- a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.
- SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
  - MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
  - CLIP FORM NAILS FLUSH WITH INSERTS.
  - MAXIMUM LOADING 75 PERCENT OF RATING.

b. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.

c. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

d. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

F. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE, DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

G. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

H. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

#### 3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH THE CALIFORNIA ELECTRICAL CODE 2022 WITH LOCAL ADOPTIONS, AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER. INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER, THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR

#### REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFOR. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME, THE CONTRACTOR SHALL PAY ALL COSTS FOR AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

F. AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM OUTAGES.

#### 4. SHOP DRAWINGS

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

#### B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

- PROJECT NAME AND LOCATION
- NAME OF ARCHITECT AND ENGINEER
- ITEM IDENTIFICATION
- APPROVAL STAMP OF PRIME CONTRACTOR

#### C. SUBMISSIONS:

- SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.
- SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

#### D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

- SAFETY/DISCONNECT SWITCHES
  - FUSES
  - CIRCUIT BREAKERS
  - PANELBOARDS/LOADCENTER (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).
  - RACEWAYS
  - WIRE AND CABLE
  - WALL SWITCHES
  - INSERTION RECEPTACLES
  - MOMENTARY CONTACT SWITCHES
  - TIME SWITCHES
  - LIGHTING FIXTURES.
  - TRANSFORMER.
- E. ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK WHERE APPLICABLE. CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWING. PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

#### 5. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER A BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

#### 6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.

B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE- QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

#### 7. FUSES:

A. CIRCUITS 0 TO 600 AMPERES SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP/SP (250V) /LPS-RK (AMP/SP (600V) OR LPJ (AMP/SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

B. MOTOR CIRCUITS - ALL INDIVIDUAL MOTOR CIRCUITS WITH FULLLOAD AMPERE RATINGS (FLA) OF 480 AMPERES OR LESS SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP/SP (250V) /LPS-RK (AMP/SP (600V) OR LPJ (AMP/SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

D. PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.

E. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED. FRAMES, IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

- 120 VOLTS, 100-AMP FRAME: 10,000 AMPS, 1 POLE.
- 120/240 VOLTS, 225-AMP FRAME: 22,000 AMPS MINIMUM

#### 8. DISTRIBUTION PANELBOARDS, CIRCUIT BREAKER TYPE:

A. THREE PHASE, 4 OR 5 WIRE, COPPER BUS BARS, WITH 2, 3, OR 4 WIRE BRANCHES, AS NOTED. CAPACITY OF PANEL AND CIRCUITS, AS NOTED BELOW. PANELBOARD TO HAVE GROUND BUS SAME SIZE AS PHASE BUSES.

B. CABINETS: CODE GAUGE GALVANIZED SHEET STEEL PRIMED AND PAINTED WITH TRIM AND DOOR, TYPE AS NOTED, LAP AND RIVET CORNERS OR FORM AS APPROVED.

C. TRIM: ONE PIECE FULL FINISH PRIMED AND PAINTED SHEET STEEL. TRIM SHALL BE MOUNTED WITH A CONTINUOUS PIANO HINGE CONFIGURED IN SUCH A MANNER THAT IT SHALL BE POSSIBLE TO GAIN FULL ACCESS TO CIRCUIT BREAKERS AND WIRING GUTTERS WITHOUT REMOVING THE TRIM. PROVIDE A MULTI-PIN CYLINDER LOCK (YALE, CORBIN OR EQUAL), TO LATCH THE TRIM. KEYS SHALL BE MILLED.

D. HARDWARE: MULTI-PIN, CYLINDER LOCKS WITH MILLED KEYS. ALL PANELS SHALL BE KEYPED ALIKE. DOOR OVER 48" HIGH SHALL BE EQUIPPED WITH A CHROME PLATED VAULT HANDLE, BUILT-IN LOCK AND 3-POINT CATCH FASTENING DOOR AT TOP, BOTTOM AND CENTER.

E. HINGES: CONCEALED, CONTINUOUS PIANO HINGE AS DESCRIBED ABOVE.

F. DIRECTORY HOLDER: MEAL FRAME WITH NONBREAKABLE TRANSPARENT COVER AND DIRECTORY CARD. ENTRIES TO BE TYPED BY ELECTRICAL CONTRACTOR. PROVIDE AN ENGRAVED LAMINATED NAMEPLATE ADJACENT TO EACH BRANCH BREAKER. MOUNT WITH SELF TAPPING MACHINE SCREWS.

G. FURNISH MULTI-CABLE LUGS WHERE REQUIRED. DOUBLE LUGGING NOT PERMITTED. SECURE LUGS TO BUS BY STUD BOLTS.

H. PANELBOARD CONSTRUCTION FOR BOLTED TYPE BREAKERS. MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, RMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. INDIVIDUAL CIRCUIT BREAKERS SHALL HAVE MINIMUM 100A FRAME, TRIPS SIZED AS SHOW ON THE PLANS.

I. MINIMUM GUTTER SPACES: PANELS WITH 225 AMPERE MAINS, 5-3/4" MINIMUM, 400 AMPERES AND OVER, MINIMUM GUTTERS 8". FOR PANELS WITH THROUGH FEEDERS, INCREASE GUTTER WIDTH BY 2" MINIMUM AND PROVIDE A SHEET STEEL BARRIER BETWEEN THE PANEL GUTTER AND THE THROUGH FEEDER PORTION OF THE BACK BOX. BRANCH CIRCUIT BREAKERS SHALL BE MECHANICALLY INTERLOCKED WHEN SHOWN ON DRAWINGS.

J. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

#### 9. DISTRIBUTION PANELBOARDS, SWITCH AND FUSE:

A. THREE PHASE, 3 OR 4 WIRE WITH COPPER BUS BARS. ALL THROUGH BUS SHALL BE INSULATED.

B. NEMA CLASS 1 CONSTRUCTION TO ACCOMMODATE FUSIBLE, INDIVIDUALLY ENCLOSED SWITCHES, FRONT REMOVABLE, SWITCH AND DOOR INTERLOCKS. COVERS TO BE PAD-LOCKABLE.

C. PANELBOARD SHALL BE CONSTRUCTED OF CODE-GAUGE STEEL GRAY FINISH OVER RUST INHIBITOR, FOR SURFACE MOUNTING. BOX AND PANEL FRAME SHALL BE FLANGED AND REINFORCED FOR RIGID SUPPORT OF INTERIOR AND ACCURATE ALIGNMENT OF INTERIOR WITH FRONT. TRIMS TO BE FASTENED TO BACK BOX WITH SCREWS.

D. ALL BRANCH SWITCHES SHALL HAVE INDIVIDUAL ENGRAVED LAMICOID NAMEPLATES (BLACK WITH WHITE CORE).

E. DISTRIBUTION PANELBOARD CONSTRUCTION MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, REMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. APPLICATIONS.

#### F. DISCONNECTS

1) DISCONNECT SWITCHES SHALL CONFORM TO NEMA AND UL STANDARDS, AND SHALL BE HORSEPOWER RATED.

2) SWITCHING MECHANISM SHALL BE QUICK-MAKE, QUICK-BREAK, SINGLE THROW WITH EXTERNAL OPERATING HANDLE MECHANICALLY INTERLOCKED WITH ENCLOSURE COVER TO PROVIDE ACCESS TO INTERIOR WHEN DISCONNECT IS IN OFF POSITION ONLY. PROVIDE MEANS TO LOCK OPERATING HANDLE IN THE OPEN AND CLOSED POSITION. DESIGNATE ON THE ENCLOSURE THE OPEN AND CLOSED POSITION OF THE OPERATING HANDLE.

3) SWITCHES SHALL BE OF THE DOUBLE STATIONARY CONTACT TYPE.

4) SWITCHES SHALL BE EQUIPPED WITH REJECTION TYPE FUSE HOLDERS, FUSIBLE AS SHOWN ON THE DRAWINGS; PROVIDE COMPLETE WITH FUSES AS SCHEDULED.

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SOLE PROPERTY OF THE ARCHITECT, AND SHALL NOT BE USED IN ANY WAY, WHATSOEVER, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT. IT SHALL BE RETURNED TO THE ARCHITECT UPON DEMAND.

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**NY ENGINEERS**

NY ENGINEERS  
382 NE 191st Street Suite 49674  
MIAMI, FL 33179  
(786)-788-0295  
ny-engineers.com

#### REVISIONS:

NO.	DATE	DESCRIPTION	BY
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#### SHEET TITLE:

**ELECTRICAL SPECIFICATIONS (1 OF 2)**

DATE 11-15-2024

SHEET NO.

**E-0.2**

SHEET 2 OF 8

## ELECTRICAL SPECIFICATION (CONT.)

### D. INSTALLATION

- 1) DISTRIBUTION PANELBOARD SHALL BE MOUNTED TO STRUCTURAL STEEL CHANNEL (KINDORF) WHICH SHALL BE BOLTED TO THE WALL USING EXPANSION ANCHORS FOR LARGE PANELS.

### H. IDENTIFICATION

- 1) PROVIDE NAMEPLATE AT EACH SWITCH IDENTIFYING THE LOAD SERVED.
- 2) NAMEPLATES SHALL BE MOUNTED ON THE FRONT COVER SECURED WITH SELF-TAPPING SCREWS OR NUTS AND BOLTS. NAMEPLATES SHALL BE LAMINATED PHENOLIC, BLACK WITH A MINIMUM OF 1/4" HIGH WHITE LETTERING.

### I. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

### J. POWER PANELBOARDS SHALL BE SIMILAR TO GENERAL ELECTRIC TYPE "OMR", AS MANUFACTURED BY ATLAS SWITCH COMPANY, ELECTRIC SWITCHBOARD COMPANY OR APPROVED EQUAL.

### K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

### L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANEL TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

### M. MATERIALS

#### 1) RACEWAYS:

- a. RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.
- b. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS.
- c. FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.
- d. WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.
- e. SURFACE METAL RACEWAY: SIZE AS NOTED, BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

#### 2) FITTINGS AND ACCESSORIES:

- a. RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.
- b. ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.
- c. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.
- d. BUSHINGS: METALLIC INSULATED TYPE.

#### 3) BOXES:

- a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION.
- b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 265/480 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #82414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #82414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

### N. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY. EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS ON METAL. BEAM CLAMPS ON FRAMEWORK. WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPATES.

EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE.

### GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS. CRC-COLD GALVANIZED EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY. IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES, EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

### O. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN TABLE 300.19(A).

### P. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRIM WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIER BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

### Q. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE. INDEPENDENT OF CONDUIT, PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

### R. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.

### S. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

### 10. WIRE AND CABLE:

#### A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.

#### B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

#### C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

#### D. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEGS C FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

#### E. ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY HOLLOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS WHEN USED IN LIEU OF WIRING IN CONDUIT. STATE IN PROPOSAL THAT PRICE IS BASED UPON THE USE OF HOSPITAL GRADE BX.

#### F. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:	277/480 VOLT SYSTEM:
BLACK FOR A PHASE	BROWN FOR A PHASE
RED FOR B PHASE	ORANGE FOR C PHASE
BLUE FOR C PHASE	YELLOW FOR C PHASE

1) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.

#### G. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

#### H. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.

#### I. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEGS F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/480 VOLT SYSTEMS, EXCEPT 480 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

#### J. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

#### K. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

### 11. WIRING DEVICES:

#### A. WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.

#### B. LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC. SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).

#### C. STRAIGHT BLADE RECEPTACLES SHALL BE RESIDENTIAL GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.

#### 1) SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2-POLE, 3-WIRE GROUNDING, 15A, 125V, NEMA 5-20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).

#### 2) USB CHARGER/ DUPLEX TAMPER-RESISTANT RECEPTACLE: TAMPER RESISTANT.

#### D. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.

#### E. COLORS: COORDINATE COLORS WITH ARCHITECT.

#### F. MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.

### 12. LIGHTING FIXTURES:

#### A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

#### B. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.

#### C. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, E11 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH. TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.

#### D. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.

#### E. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE. DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.

#### F. CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.

#### G. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LENS. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

### 13. TELEPHONE CONDUIT SYSTEM:

#### A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

#### B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

#### C. OUTLETS SHALL BE:

##### 1) WALL: 4 IN. SQUARE WITH BUSHED COVER PLATE.

##### D. PROVIDE FISHWIRES, IN RACEWAYS OVER 10 FT LONG.

##### E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM OUTLET BOX TO BUSHED END THRU WALL 6" BELOW THE PLASTER CEILING.

##### F. FACE RACEWAYS IN ROOMS SHALL HUBBELL HBL500, HBL750 OR HBL2000 SERIES OR AS ACCEPTABLE.

### 14. GROUNDING AND BONDING:

#### A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH (CALIFORNIA ELECTRICAL CODE), AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM, WHERE FLEXIBLE CONDUIT IS USED FOR PART OF A CONDUIT RUN, EXCEPT LIGHTING BRANCH CIRCUITS, AN INSULATED GROUNDING CONDUCTOR SHALL BE PROVIDED IN THE CONDUIT AND CONNECTED TO GROUNDING BUSHINGS AT EACH END OF THE RUN.

#### B. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.

#### C. EXTEND EXISTING SYSTEM GROUND TO INCLUDE ALL THE ELECTRICAL EQUIPMENT IN THE SCOPE OF WORK.

#### D. WHERE FLEXIBLE METALLIC CONDUIT IS USED AN INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.

#### E. IN ADDITION, FURNISH A SEPARATE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR WHERE INDICATED ON DRAWINGS AND FOR THE FOLLOWING BRANCH CIRCUITS:

- 1) CIRCUITS SERVING ANY WALL BOX DIMMER.
- 2) CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES. TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE AT THE SOURCE, OR AS OTHER WISE NOTED ON DRAWINGS.
- 3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES
- 4) ANY CIRCUIT SERVED VIA AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.

### 15. PANELBOARDS:

#### A. PANELBOARDS SHALL BE OF THE DEAD FRONT TYPE MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEYED ALIKE.

#### B. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON THERMAL MAGNETIC MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS. MINIMUM CUTTER SPACES SHALL BE 6-3/4" SIDES, TOP AND BOTTOM. INCREASE FOR THROUGH FEEDERS. PROVIDE 25% COPPER GROUND BUS AND 100% COPPER NEUTRAL BUS AND INCREASE NEUTRAL BUS INDICATED.

#### C. LOCKING TABS SHALL BE PROVIDED ON ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, SECURITY SYSTEMS AND OTHER EMERGENCY OR CRITICAL EQUIPMENT AND AS NOTED ON THE CONTRACT DRAWINGS. A TOTAL OF 5 SPARE LOCKING TABS SHALL BE FURNISHED TO THE OWNER.

#### D. BUSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO LIMIT THE TEMPERATURE RISE, WHEN CARRYING FULL LOAD, TO 35 DEGREES C ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF 55 DEGREES C, AS DEFINED IN IEEE STANDARD RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.

#### E. ENCLOSURES SHALL BE SURFACE OR FLUSH AS INDICATED. TRIMS SHALL BE SECURED TO PANEL WITH MACHINE SCREWS. COVERS SHALL BE HINGED DOOR-IN-DOOR-OUT CONSTRUCTION WITH CYLINDER LOCKS AND GATES. LOCKS MUST BE COMPATIBLE WITH BUILDING STANDARD KEY SYSTEM AND WHEN NONE EXISTS, THEY SHALL BE SIMILAR TO A YALE NO. 911 KEY.

#### F. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARD SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

#### G. ALL STANDARD PANELBOARDS SHALL BE A MINIMUM OF 20" WIDE AND 5 3/4" DEEP.

#### H. FURNISH ALL PANELBOARDS WITH FEED-THRU LUGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

#### I. ALL NEW PANELBOARDS SHALL BE PROVIDED WITH AN ENGRAVED WHITE CORE LAMACOID NAMEPLATE, WITH 3/4 IN. WHITE LETTERING ON A BLACK BACKGROUND, WITH DESIGNATION LISTED (PANELBOARD NAME), FASTENED WITH EPOXY CEMENT OR OVAL HEAD CHROME PLATED MACHINE SCREWS.

#### J. THE CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN AND PROVIDED INSIDE EACH PANEL DOOR TO INDICATE EQUIPMENT AND/OR AREA SERVED. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER. THE TYPEWRITTEN LIST INDICATING CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.

#### K. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.

#### L. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG.

#### M. SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN, WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 10,000 AMPERES R.M.S. SYMMETRICAL FOR 208Y/120 VOLT SYSTEM AND 14,000 AMPERES R.M.S. SYMMETRICAL FOR 480Y/277 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.

#### N. FOR ALL EXISTING PANELBOARDS, CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS TO REPLACE EXISTING AS REQUIRED AS INDICATED ON DRAWINGS.

### 16. INTERCOM CONDUIT SYSTEM:

#### A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

#### B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF INTERCOM MANUFACTURER.

#### C. OUTLETS SHALL BE:

##### 1) WALL: 4 IN. SQUARE WITH SINGLE GANG COVER PLATE.

##### D. PROVIDE FISH WIRES, IN RACEWAYS OVER 10 FT LONG.

##### E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM EACH APARTMENT TO MAIN INTERCOM CONTROLLER AT ENTRANCE.

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SOLE PROPERTY OF THE ARCHITECT, AND SHALL NOT BE USED IN ANY WAY, WHATSOEVER, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT. IT SHALL BE RETURNED TO THE ARCHITECT UPON DEMAND.

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## NY ENGINEERS

### NY ENGINEERS

382 NE 191st Street Suite 49674  
MIAMI, FL 33179  
(786)-788-0295  
ny-engineers.com

### REVISIONS:

NO.	DATE	DESCRIPTION	BY
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SHEET TITLE:

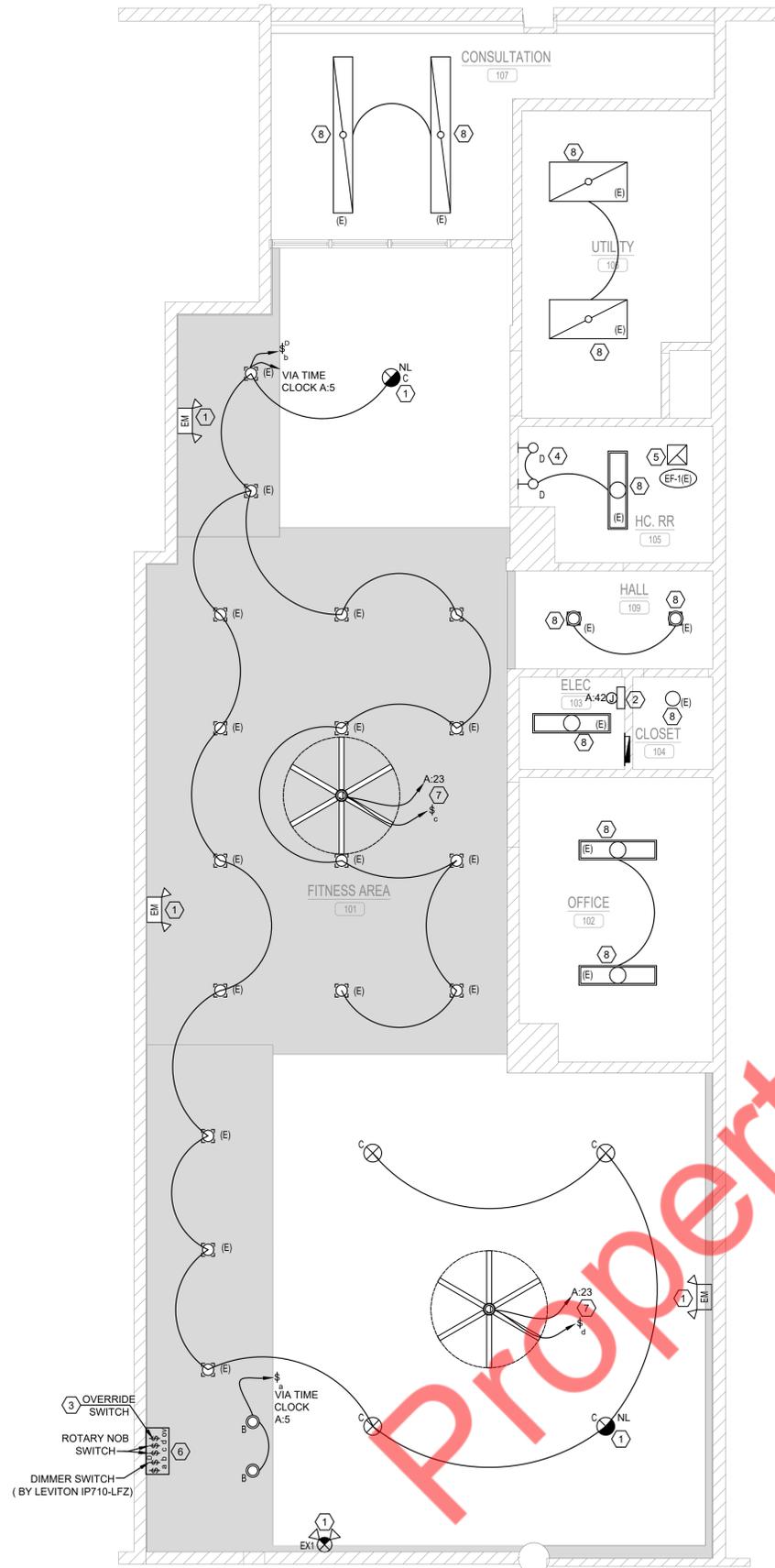
## ELECTRICAL SPECIFICATIONS (2 OF 2)

DATE 11-15-2024

SHEET NO.

# E-0.3

SHEET 3 OF 8



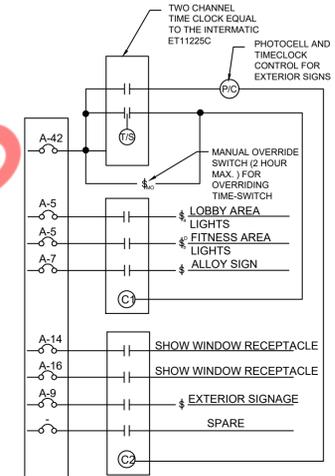
**1 LIGHTING FLOOR PLAN**  
1/4" = 1'-0"

LIGHTING FIXTURE SCHEDULE (ALL FIXTURES MAY NOT BE USED) GC IS RESPONSIBLE FOR PURCHASING ALL LIGHTS.					
TYPE	DESCRIPTION	LAMP	MANUFACTURER PART #	VOLTAGE	WATTAGE
B	PENDANT MOUNT LED DECORATIVE FIXTURE. CONTRACTOR SHALL VERIFY CORD LENGTH, COLOR, & FINISH PRIOR TO ORDERING. BOT. OF LOWER FIXT. = 7'-0" AFF BOT. OF HIGHER FIXT. = 7'-8" AFF	LED	ELED #PD256BKRTL6BM	120	6
C	PENDANT MOUNT LED DOWNLIGHT WITH POLYCARBONATE REFRACTOR. CONTRACTOR SHALL VERIFY CORD LENGTH, TRIM COLOR, & FINISH PRIOR TO ORDERING. BOT. OF FIXT. = MIN. 10'-0" AFF, MAX. 12'-0" AFF - COORDINATE TO NOT BE ABOVE THE BOTTOM OF THE DUCT WORK.	LED	ELED #HD120HB38	MVOLT	80
D	LED DECORATIVE WALL SCONCE. ARCHITECT SHALL VERIFY COLOR, & FINISH PRIOR TO ORDERING. ROUGH-IN HEIGHT = 6'-0" AFF	LED	ELED #533629	120	11
EM	EMERGENCY DUAL HEAD FIXTURE WITH BATTERY BACKUP BOT. OF FIXTURE = 10'-0"	LED	ELED #ELCEL-M2	120	5
EX1	LED EXIT SIGN / EMERGENCY LIGHT COMBO WITH HIGH OUTPUT BATTERY BACK-UP TO FEED EXIT DISCHARGE LIGHT	LED	ELED #EXCOM2RWRH	120	5

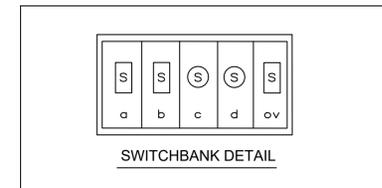
- NOTE:
- BATTERY PACKS FOR ALL EXIT AND EMERGENCY LIGHT FIXTURES SHALL BE CAPABLE OF PROVIDING EMERGENCY POWER TO THE FIXTURES FOR A MINIMUM OF 90 MINUTES.
  - LIGHTING SHALL BE PURCHASED THROUGH NATIONAL ACCOUNT W/ ELED (WWW.ELEDLIGHTS.COM)
  - GC IS RESPONSIBLE FOR PURCHASING ALL LIGHTS.

- LIGHTING PLAN KEYED NOTES: (#)**
- WIRE ALL EMERGENCY, EXIT LIGHT AND NIGHT LAMP TO THE NEAREST CIRCUIT AHEAD OF ALL CONTROLS & SWITCHING FOR CONTINUOUS OPERATION.
  - E.C. SHALL CO-ORDINATE LOCATION OF TIME CLOCK & LIGHTING CONTRACTORS WITH ARCHITECT/OWNER. SEE SCHEDULE ON THIS DRAWING FOR ADDITIONAL INFORMATION.
  - MANUAL OVERRIDE SWITCH. E.C. TO COORDINATE THE LOCATION WITH ARCHITECT/OWNER. AS PER CALIFORNIA ENERGY CODE 2022.
  - NEW LIGHTING FIXTURE SHALL BE LOOP WITH NEARBY CIRCUIT & CONTROLS. E.C SHALL VERIFY THE OPERABLE CONDITION OF EXISTING CIRCUIT & CONTROLS. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
  - EXISTING EXHAUST FAN AND ITS ELECTRICAL CONNECTION SHALL REMAIN. E.C SHALL VERIFY THE OPERABLE CONDITION OF THE EXISTING EXHAUST FAN AND ITS ELECTRICAL CONNECTION IN THE FIELD. REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
  - PROVIDE LIGHTING CONTROL SWITCHBANK. SEE DETAIL 3 ON THIS FOR ADDITIONAL INFORMATION COORDINATE EXACT SWITCHBANK LOCATION WITH THE OWNER PRIOR TO ROUGH-IN.
  - JUNCTION BOX FOR CRAFTMAN MONDO (6 BLADE) FAN. E.C. TO COORDINATE W/ MANUFACTURER FOR EXACT ELECTRICAL REQUIREMENTS BEFORE PURCHASING. INSTALLING CIRCUIT BREAKER, WIRING & CONDUIT. COORDINATE WITH OWNER & MANUFACTURER FOR CONTROL OF CEILING FAN AND THE LOCATION OF THE CONTROLS. BASE BID ACCORDINGLY.
  - EXISTING LIGHTS, EXIT LIGHT AND EMERGENCY LIGHT & ITS EXISTING CONTROL IN THE RESPECTIVE AREA SHALL REMAIN AND CONNECTED TO THE EXISTING CIRCUIT. E.C. SHALL VERIFY OPERABLE CONDITION OF EXISTING LIGHTING CONTROLS/CIRCUIT IN THE FIELD. REPLACE WITH NEW IF FOUND INOPERABLE. INFORM ENGINEER IF FOUND ANY DISCREPANCY. PROVIDE NEW CONTROLS AS PER FRANCHISE STANDARDS FULFILLING LATEST ENERGY CODE REQUIREMENT IF NEEDED. ALSO COORDINATE WITH ARCHITECT/OWNER FOR THE SAME. BASE BID ACCORDINGLY.

- LIGHTING PLAN GENERAL NOTES:**
- CONTRACTOR IS ADVISED THAT ADJUSTMENTS TO EMERGENCY AND EXIT LIGHT FIXTURE LOCATIONS/QUANTITIES MAY BE REQUIRED BY AHJ UPON FINAL INSPECTION.
  - ALL EMERGENCY AND EXIT LIGHT FIXTURES SHALL BE CONNECTED AHEAD OF SWITCHED LIGHTING CIRCUIT.
  - ALL EXTERIOR LIGHTS/ SIGNS SHALL BE CONTROLLED VIA PHOTOCELL/TIME-CLOCK. E.C. SHALL PROVIDE ALL THE LIGHTING CONTROL COMPLYING WITH NORTH CAROLINA ENERGY CONSERVATION CODE 2018 AND LOCAL AHJ REQUIREMENTS.
  - REFER TO DWG. E-0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E-0.2 AND E-0.3 FOR ADDITIONAL SPECIFICATIONS.
  - FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
  - SWITCHES LOCATIONS SHOWN IN THE DRAWINGS ARE DIAGRAMMATIC. FOR ACTUAL LOCATION AND MOUNTING HEIGHTS OF SWITCHES REFER TO ARCHITECTURAL PLANS.
  - THE LIGHTING FIXTURE CATALOG NUMBERS IDENTIFY THE SERIES OF LIGHTING FIXTURE ONLY. PROVIDE ALL FIELD FABRICATION, MOUNTING HARDWARE, ACCESSORIES AND OPTIONS REQUIRED TO ADAPT TO THE CONDITIONS AND MEET THE INTENT OF THE FIXTURE DESCRIPTION.
  - LAY-IN TYPE FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE INDEPENDENT FROM THE CEILING SYSTEM AND BE CLIPPED TO THE GRID WITH EARTHQUAKE/HURRICANE CLIPS.
  - ALL BATTERY UNITS IN EXIT AND EMERGENCY EGRESS LIGHT FIXTURES SHALL BE CONNECTED FOR UNSWITCHED OPERATION. UON.
  - ALL SWITCHES SHALL BE LOCATED @ 44" A.F.F. TO THE CENTER OF THE DEVICE



**2 CONTROL RELAY PANEL SCHEDULE**  
NTS



INDICATES PANEL NAME ——— INDICATES CIRCUIT NO.  
B.a

**3 SWITCH BANK DETAILS**  
NTS

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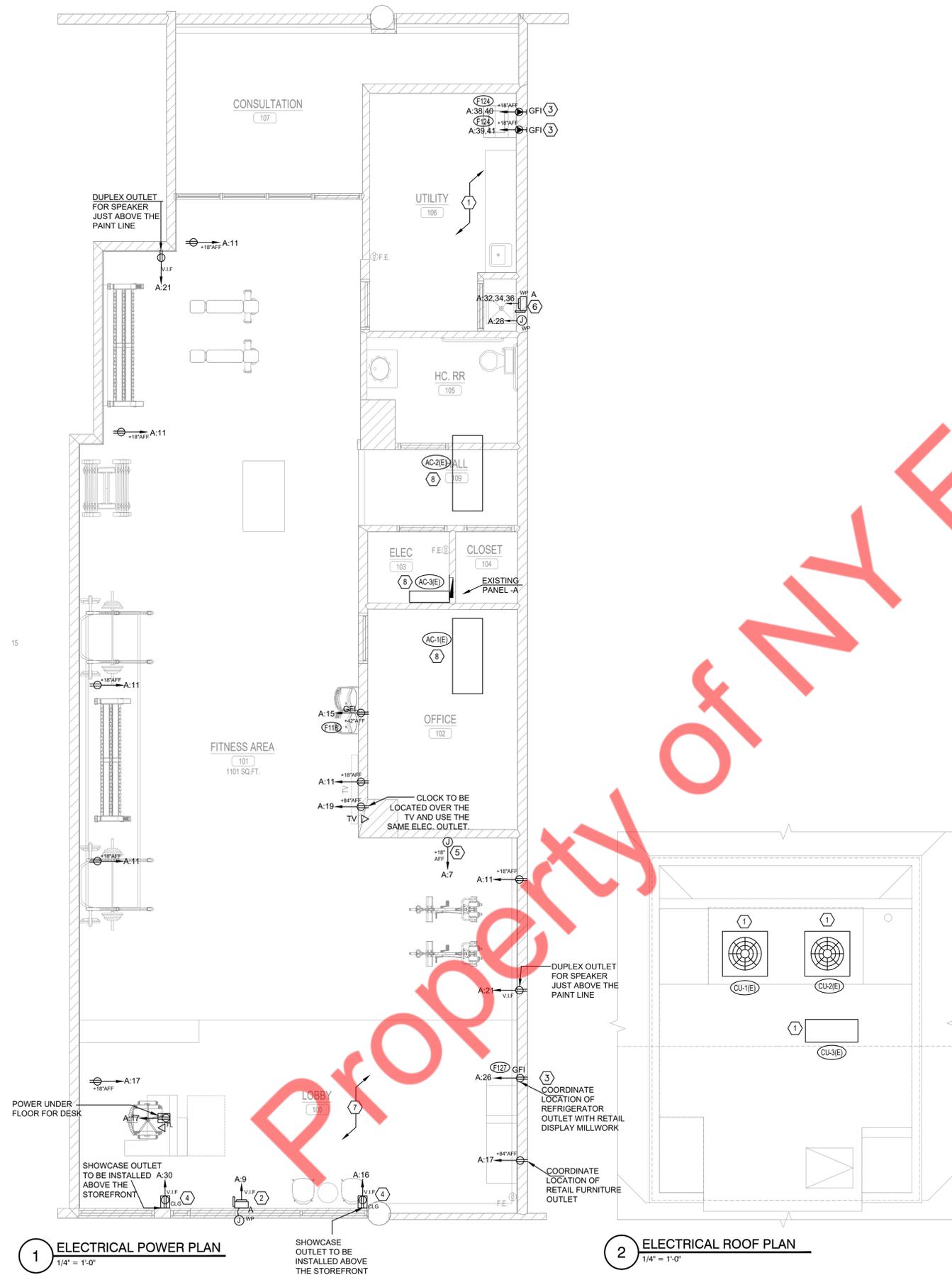
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NO.	DATE	DESCRIPTION	BY

SHEET TITLE:  
**LIGHTING FLOOR PLAN**

DATE 11-15-2024  
SHEET NO.

**E-1.0**



**1 ELECTRICAL POWER PLAN**  
1/4" = 1'-0"

**2 ELECTRICAL ROOF PLAN**  
1/4" = 1'-0"

- FLOOR POWER PLAN KEYED NOTES:** (#)
- EXISTING RECEPTACLES & ITS CONNECTION SHALL REMAINS. E.C SHALL FIELD VERIFY THE OPERABLE CONDITION OF EXISTING RECEPTACLES & IT'S ELECTRICAL CONNECTION IN THE FIELD. REPLACE IF FOUND IN OPERABLE. BASE BID ACCORDINGLY.
  - E.C SHALL REUSE THE EXISTING EXTERIOR SIGNAGE JUNCTION BOX AND ELECTRICAL CONNECTION FOR THE PROJECT EXTERIOR SIGN. E.C SHALL VERIFY THE OPERABLE CONDITION OF JUNCTION BOX AND ITS ELECTRICAL CONNECTION IN FIELD. MAKE POWER PROVISION ACCORDINGLY. BASE BID ACCORDINGLY.
  - E.C. SHALL VERIFY THE ELECTRICAL REQUIREMENT & CONNECTION TYPE WITH EQUIPMENT MANUFACTURER PRIOR TO BID. MAKE POWER PROVISION ACCORDINGLY. BASE BID ACCORDINGLY.
  - E.C. TO INSTALL SHOW WINDOW RECEPTACLES AS PER CEC 210.62.
  - POWER WIRING TO BE TERMINATED IN A JUNCTION BOX ABOVE THE CEILING ON THE BACK SIDE OF THE WALL FOR ALLOY LIGHTED SIGN. PROVIDE INDEPENDENT SWITCH VIA TIME CLOCK AND FINAL CONNECTION OF THE SIGN WIRING BY THE CONTRACTOR.
  - ELECTRICAL POWER PROVISION FOR HOT WATER RECIRCULATION PUMP. E.C. SHALL COORDINATE FOR EXACT POWER REQUIREMENT WITH MANUFACTURER PRIOR TO ROUGH-IN.
  - ALL RECEPTACLES IN THIS AREA SHALL BE TAMPER RESISTANCE AS PER CEC 406.12(5).
  - EXISTING MECHANICAL EQUIPMENTS SHALL REMAINS CONNECTED TO THE EXISTING ELECTRICAL PANELS. E.C SHALL COORDINATE WITH OWNER FOR EXISTING ELECTRICAL CONNECTIONS FEEDING TO MECHANICAL EQUIPMENTS. E.C SHALL VERIFY ALL CONNECTION AND OPERABLE CONDITION IN FIELD. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY PRIOR TO BID.

- FLOOR POWER PLAN GENERAL NOTES:**
- COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS ON ABOVE CEILING WITH MECHANICAL CONTRACTOR.
  - E.C. SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER FOR FINAL SELECTION PRIOR TO ROUGH-IN. E.C. COORDINATE LOCATION OF DISCONNECT SWITCH WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
  - REFER TO DWG. E-0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E-0.2 AND E-0.3 FOR ADDITIONAL SPECIFICATIONS.
  - FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
  - CONTRACTOR SHALL COORDINATE EXACT RECEPTACLE TYPE FOR EQUIPMENT WITH EQUIPMENT VENDOR/MANUFACTURER.
  - ALL WIRING TO BE #12AWG WITH #12AWG GND IN 3/4" CONDUIT UNLESS OTHERWISE NOTED OR REQUIRED.

- ROOF POWER PLAN KEYED NOTES:** (#)
- EXISTING MECHANICAL EQUIPMENTS SHALL REMAINS CONNECTED TO THE EXISTING ELECTRICAL PANELS. E.C SHALL COORDINATE WITH OWNER FOR EXISTING ELECTRICAL CONNECTIONS FEEDING TO MECHANICAL EQUIPMENTS. E.C SHALL VERIFY ALL CONNECTION AND OPERABLE CONDITION IN FIELD. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY PRIOR TO BID.

- ROOF POWER PLAN GENERAL NOTES:**
- EXACT LOCATION OF MECHANICAL, PLUMBING, KITCHEN, FURNITURE SYSTEMS, OWNER FURNISHED EQUIPMENT ETC. THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL, PLUMBING, AND/OR ARCHITECTURAL DRAWINGS. COORDINATE EXACT LOCATIONS WITH RESPECTIVE CONTRACTORS AND/OR VENDORS PRIOR TO ANY ROUGH-INS.
  - REVIEW AND COORDINATE WITH ALL TRADES CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR EQUIPMENT WITH ELECTRICAL CONNECTIONS. COORDINATE EXACT MOUNTING LOCATIONS WITH THE SPECIFIC TRADE AND ARCHITECT.

**EQUIPMENT SCHEDULE** (F#)

ITEM	DESCRIPTION	DETAILS
F118	HI-LOW DRINKING FOUNTAIN W/ BOTTLE REFILLER	TBD
F124	STACKABLE WASHER & VENTLESS DRYER (PROVIDED BY FRANCHISEE AND INSTALLED BY CONTRACTOR)	TBD
F127	BEVERAGE COOLER BY FRANCHISEE	TBD

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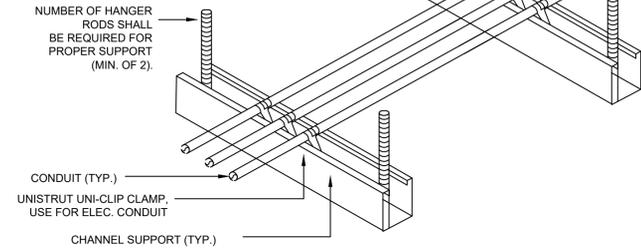
NO.	DATE	DESCRIPTION	BY

SHEET TITLE:  
**ELECTRICAL POWER AND ROOF PLAN**

DATE 11-15-2024  
SHEET NO.

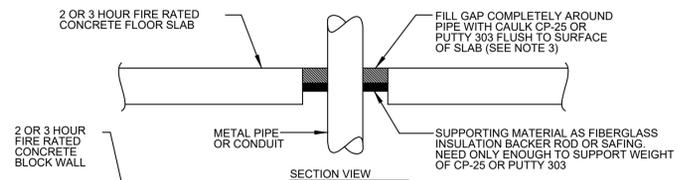
**E-2.0**

NOTE:  
THIS INFORMATION MAY NOT CONTAIN ALL  
DETAILS REQUIRED FOR CONSTRUCTION.  
APPROPRIATE MODIFICATION MAY BE  
REQUIRED TO ENSURE SUITABILITY OF THESE  
DRAWINGS FOR THE SPECIFIC APPLICATION. IT  
IS THE USER'S RESPONSIBILITY TO ENSURE  
INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN  
ACCORDANCE WITH BUILDING/PROJECT  
SPECIFICATIONS, APPLICABLE CODES AND  
STANDARDS.



- NOTES:
1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
  2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
  3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".
  4. UNISTRUT AND CONDUIT INSTALLATION MAY BE REVERSED.

1 CONDUIT SUPPORT DETAIL  
NTS



- NOTES:
1. FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMMING ON BOTH SIDES.
  2. RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FIRE STOP SYSTEMS 49, 33 AND 91.
  3. WET INSTALLED DEPTH OF CAULK CP-25 OR PUTTY 303 DEPENDS ON TYPE AND SIZE OF PIPE:  

WET DEPTH	PIPE SIZE	FIRE RATING
1/2" (13mm)	MAX. 8" (203mm)	2 HRS.
2" (25mm)	MAX. 6" (152mm)	3 HRS.
  4. UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
  5. OPTIONS TO MASKING TAPE TO PREVENT SAGGING:  
 A. INSTALL ADDITIONAL DAMMING MATERIAL OVER PRODUCT TO HOLD WITHIN OPENING.  
 B. REMOVE PRODUCT FROM CONTAINER AND ALLOW TO AIR CURE IN SMALL BATCHES FOR 12 HRS. THEN HAND FORM INTO OPENING.
  6. WHEN ANNULAR SPACE EXCEEDS 3/4" (19mm), A 28 AWG METAL COVER PLATE MUST BE MECHANICALLY SECURED ATOP THE 3M FIRE BARRIER APPLICATION, OR TIGHTLY PACK A NON-COMBUSTIBLE DAMMING MATERIAL ATOP INSTALLED CAULK OR PUTTY.

2 FIRE STOP DETAIL  
NTS

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SHEET TITLE:

**ELECTRICAL  
DETAILS**

DATE 11-15-2024

SHEET NO.

**E-3.0**

SHEET 6 OF 8

PANEL: A (EXISTING)										MOUNTING:		RECESSED		
120/208	VOLTS,	3	PHASE,	4	WIRE	LOCATION		ELECTRICAL ROOM						
MAIN CB	EXISTING	MLO:	NA	BUS:	EXISTING	FED FROM		EXISTING 400A DISCONNECT						
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20*	SPARE				0.80			EXISTING	0.80	L	LIGHTS-HALL&ELECTRICAL,OFFICE,HALL,CLOSET	20*	2
3	20*	LIGHTS-OFFICE,UTILITY,RR	L	0.80	EXISTING		1.42		EXISTING	0.62	H	AC-1(E) & AC-2(E)	2P-20*	4
5	20*	LIGHTS-FITNESS STUDIO & LOBBY	L	0.80	2#12, 1#12G, 3/4"C			1.42	EXISTING	0.62	H			6
7	20*	INTERIOR SIGNAGE	L	1.00	2#12, 1#12G, 3/4"C	1.00						SPARE	20*	8
9	20*	EXTERIOR SIGNAGE	L	1.20	EXISTING		1.20					SPARE	20*	10
11	20*	REC. - TRAINING FLOOR	R	0.90	2#12, 1#12G, 3/4"C			1.44	EXISTING	0.54	R	PLATFORM RECEPTACLES	20*	12
13	20*	SPARE				0.54			EXISTING	0.54	R	PLATFORM RECEPTACLES	20*	14
15	20*	DRINKING FOUNTAIN	R	0.85	2#12, 1#12G, 3/4"C		2.75		2#12, 1#12G, 3/4"C	1.90	R	WINDOW SHOWCASE RECEPTACLE	20*	16
17	20*	REC. - LOBBY	R	0.54	2#12, 1#12G, 3/4"C			0.72	EXISTING	0.18	R	ROOF RECEPTACLES	20*	18
19	20*	REC. - FITNESS STUDIO TV'S	R	0.50	2#12, 1#12G, 3/4"C	3.41			EXISTING	2.91	H	CU-2(E)	2P-60*	20
21	20*	REC. - FITNESS STUDIO SPEAKERS	R	0.50	2#12, 1#12G, 3/4"C		3.41		EXISTING	2.91	H		22	22
23	20*	CEILING FAN	M	0.80	2#12, 1#12G, 3/4"C			0.80				SPARE	20*	24
25	20*	SPARE				1.20			2#12, 1#12G, 3/4"C	1.20	E	REC. - REFRIGERATOR - GFCI	20*	26
27	2P-20*	AC-3(E) & CU-3(E)	H	0.94	2#12, 1#12G, 3/4"C		1.02		2#12, 1#12G, 3/4"C	0.08	M	RCP	20*	28
29	2P-20*		H	0.94				2.84	2#12, 1#12G, 3/4"C	1.90	R	WINDOW SHOWCASE RECEPTACLE	20*	30
31	30*	SPARE				1.67				1.67	O			32
33	SPARE						1.67		3#12, 1#12G, 3/4"C	1.67	O	WATER HEATER	3P-20	34
35	2P-60*	CU-1(E)	H	2.91	EXISTING			4.58		1.67	O			36
37			H	2.91		5.20			2#10, 1#10G, 3/4"C	2.29	E	DRYER	2P-30	38
39			E	2.08			4.37			2.29	E			40
41	2P-30*	WASHER	E	2.08	2#10, 1#10G, 3/4"C			2.58	2#12, 1#12G, 3/4"C	0.50	O	TIMECLOCK / TC	20*	42
<b>TOTAL CONNECTED LOAD (KVA)</b>						<b>13.82</b>	<b>15.84</b>	<b>14.38</b>						

**PANEL SCHEDULE KEYED WORK NOTES**

- ① REPLACE EXISTING BREAKER WITH 1#2P-30A BREAKER.
- ② REPLACE EXISTING BREAKERS WITH 1#3P-20A BREAKER.

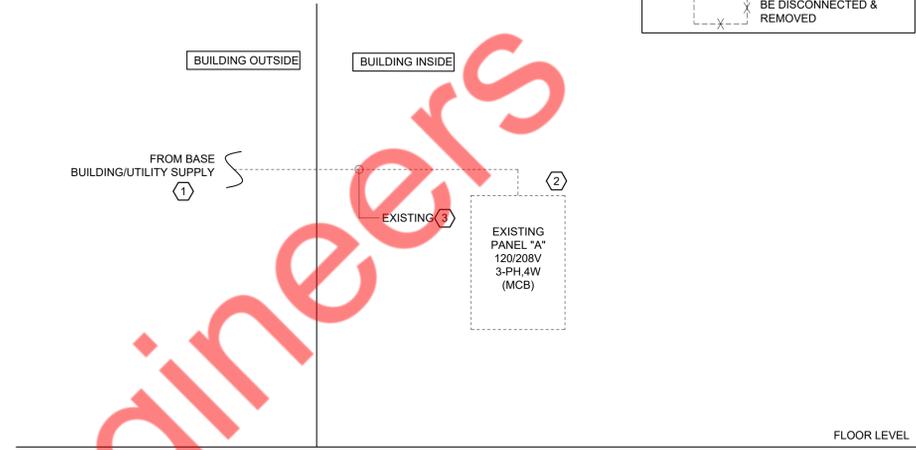
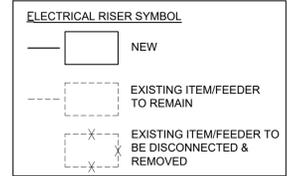
**PANEL SCHEDULE GENERAL NOTES:**

1. E.C. SHALL PROVIDE NEW CIRCUIT BREAKERS IN PLACE OF EXISTING CIRCUIT BREAKERS WHEREVER NECESSARY TO BE IN LINE WITH THE PANEL SCHEDULE. BASE BID ACCORDINGLY.
2. E.C. SHALL VERIFY THE OPERABLE CONDITION OF EACH CIRCUIT BREAKER IN THE FIELD. REPLACE IF FOUND INOPERABLE.
3. ALL CIRCUITING SHOWN IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD AND INFORM ENGINEER FOR ANY DISCREPANCIES.
4. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE IN FIELD.
5. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT CIRCUIT NUMBER & BREAKER SIZE OF EXISTING DEVICES IN FIELD.
6. E.C. SHALL VERIFY THE EXISTING EQUIPMENT LOAD & RATINGS IN FIELD AND ACCORDINGLY CONSIDER THE ELECTRICAL LOAD IN PANEL BOARD SCHEDULE.
7. E.C. TO UPDATE THE PANEL BOARD SCHEDULE AS PER EXISTING SITE CONDITION & NEW EQUIPMENT REQUIREMENTS.
8. ALL EXISTING HVAC EQUIPMENT AND ITS ELECTRICAL CONNECTION SHALL REMAIN. E.C. SHALL VERIFY THE CIRCUIT NUMBER & OPERABLE CONDITION OF EXISTING ELECTRICAL CONNECTION IN FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

**ELECTRICAL PANEL SCHEDULE ABBREVIATIONS:**

- (E) EXISTING
- (N) NEW
- MLO MAIN LUG ONLY
- L LIGHTING
- R RECEPTACLE
- H HVAC
- M MOTOR
- E EQUIPMENT
- O OTHER
- \* EXISTING BREAKER

**1 ELECTRICAL PANEL SCHEDULE**  
NTS



**RISER DIAGRAM KEYED NOTES: ①**

1. EXISTING 120/208V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE FROM THE UTILITY/BASE BUILDING SHALL REMAIN. E.C. SHALL VERIFY AND COORDINATE EXACT RATING AND LOCATION WITH UTILITY COMPANY/OWNER IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND. BASE BID ACCORDINGLY.
2. EXISTING 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A". E.C. SHALL VERIFY THE EXACT RATING, SIZE, OPERABLE CONDITION AND CONNECTION OF EXISTING ELECTRICAL PANEL "A" IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND PRIOR TO BID.
3. EXISTING ELECTRICAL FEEDER SHALL REMAIN. E.C. SHALL VERIFY THE RATING, CONDUIT SIZE AND OPERABLE CONDITION OF EXISTING ELECTRICAL FEEDER IN FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

**RISER DIAGRAM GENERAL NOTES:**

1. ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSE ONLY. E.C. TO VERIFY EXACT POWER DISTRIBUTION & OPERABLE CONDITION OF EXISTING DEVICES IN FIELD AND INFORM ENGINEER FOR ANY DISCREPANCY. VERIFY SCOPE OF WORK WITH OWNER/LANDLORD PRIOR TO BID.
2. E.C. SHALL VERIFY THE RATING, SIZE, LOCATION AND OPERABLE CONDITION OF ALL THE EXISTING PANELS AND ELECTRICAL CONNECTION IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND BEFORE COMMENCING ANY WORK.
3. E.C. SHALL VERIFY THE INCOMING SERVICE AMPERAGE, VOLTAGE, NUMBER OF PHASES, WIRE SIZE AND DISTRIBUTION IN FIELD.
4. E.C. TO COORDINATE FAULT CURRENT (ISC) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.
5. E.C. SHALL VERIFY THE EXACT POWER DISTRIBUTION & INCOMING CONNECTION TO ALL PANELS IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND.

**2 ELECTRICAL RISER DIAGRAM**  
NTS

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NO.	DATE	DESCRIPTION	BY

**SHEET TITLE:**

**ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULE**

DATE 11-15-2024

SHEET NO.

**E-4.0**

SHEET 7 OF 8

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PLUMBING SYMBOL LIST

Table listing plumbing symbols and their corresponding descriptions, such as SANITARY SEWER (ABOVE FLOOR), VENT PIPING, and CLEANOUT.

PLUMBING ABBREVIATIONS

Table listing plumbing abbreviations and their corresponding descriptions, such as CO for CLEANOUT and HW for HOT WATER.

PLUMBING DRAWING LIST

Table listing plumbing drawing titles and their corresponding descriptions, such as P-0.1 PLUMBING NOTES, SYMBOLS, ABBREVIATIONS & SPECIFICATIONS.

BUILDING DEPARTMENT PLUMBING NOTES

- List of building department plumbing notes detailing requirements for sanitary systems, underground piping, protection of piping, trenching, rodent proofing, materials, seals, traps, vertical and horizontal piping, water supply systems, sanitary drainage, vent piping, and inspection/testing.

APPLICABLE CODES

- List of applicable codes including 2022 CALIFORNIA BUILDING CODE, 2022 CALIFORNIA MECHANICAL CODE, 2022 CALIFORNIA PLUMBING CODE, 2022 CALIFORNIA FIRE CODE, 2022 CALIFORNIA ELECTRICAL CODE, and 2022 CALIFORNIA ENERGY CODE.

PLUMBING SPECIFICATIONS

- 1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS
1.01 SCOPE
A. PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.
C. OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
D. THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.
E. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.
F. IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
G. ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.
H. COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.
I. MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.
J. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.
K. THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
1.02 SUBMITTALS
A. SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION, UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.
1. PIPE AND FITTINGS
2. VALVES
3. HANGERS AND SUPPORTS
4. PLUMBING PIPING LAYOUT
5. TESTS
6. PLUMBING FIXTURES
7. WATER HEATERS & ACCESSORIES
8. MIXING VALVES
9. ALL SCHEDULED PLUMBING EQUIPMENT
B. SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.
C. THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.
D. REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.
E. SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.
F. SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVICING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY COMPANY.
G. FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.
H. RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.
1.03 SUBSTITUTIONS
A. ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURER'S EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT TO BE CONSIDERED, THE SUBSTITUTION MUST BE INDICATED PRIOR TO BIDDING WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF ANY PROPOSED SUBSTITUTIONS.
B. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY SUBSTITUTIONS, INCLUDING ALL RELATED COSTS.

1.05 DEFINITIONS

- A. FURNISH TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.
B. INSTALL TO ERRECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.
C. PROVIDE TO FURNISH AND INSTALL.
D. PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR, THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.
1.06 DRAWINGS
A. THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO ILLUSTRATE THE GENERAL ARRANGEMENT AND ROUTING OF PIPING AND GENERAL LOCATIONS OF EQUIPMENT. PRECISE LOCATIONS OF EQUIPMENT, RISERS AND STACKS, AND ROUTING AND ELEVATION OF ALL PIPING SYSTEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE.
B. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.
C. REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.
D. REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.
E. VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.
F. LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

1.07 PRODUCTS

- A. SANITARY AND VENT PIPING:
1. ABOVE GRADE PIPING SHALL BE HUB AND SPIGOT CAST IRON PIPE AS PER ASTM A74 WITH STAINLESS STEEL COUPLINGS AND ELASTOMERIC GASKETS WITH A MINIMUM 4 BANDS PER COUPLING.
2. SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE OVER 3" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 3" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.
3. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.
B. DOMESTIC WATER PIPING:
1. AS PER 2022 CALIFORNIA ENERGY CODE 110.3(C)4A, AIR RELEASE VALVE OR VERTICAL PUMP SHALL BE INSTALLED ON RECIRCULATION LOOP PIPING ON THE INLET SIDE OF RECIRCULATION PUMP.
2. AS PER 2022 CALIFORNIA ENERGY CODE 110.3(C)4B, CHECK VALVE OR SIMILAR DEVICE SHALL BE LOCATED BETWEEN THE RECIRCULATION PUMP AND THE WATER HEATING EQUIPMENT TO PREVENT WATER FROM FLOWING BACKWARDS THROUGH THE RECULATION PUMP.
3. AS PER 2022 CALIFORNIA ENERGY CODE 110.3(C)4D, ISOLATION VALVES SHALL BE INSTALLED ON BOTH SIDES OF THE PUMP.
4. AS PER 2022 CALIFORNIA ENERGY CODE 110.3(C)4E, COLD WATER AND RECIRCULATION LOOP PIPING SHALL NOT BE CONNECTED TO THE HOT WATER STORAGE TANK DRAIN PORT.
5. AS PER 2022 CALIFORNIA ENERGY CODE 110.3(C)4F, CHECK VALVE INSTALLED ON COLD WATER SUPPLY BETWEEN HOT WATER SYSTEM AND NEXT CLOSETS TEE ON COLD WATER SUPPLY.
6. AS PER 2022 CALIFORNIA ENERGY CODE 120.3, PIPE INSULATION REQUIREMENTS AS PER TABLE 120.3-A

Table titled 'MINIMUM PIPE INSULATION THICKNESS' with columns for Fluid Operating Temperature Range and Usage (°F), Insulation Conductivity (BTU·IN./H·FT²·°F), Mean Rating Temperature (°F), and Nominal Pipe or Tube Size (Inches).

C. HANGERS AND SUPPORTS:

- 1. HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION. PIPING SHALL NOT BE HUNG FROM OTHER PIPE.
2. SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
3. ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS.
4. PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND STANDARDS AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
5. SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.
D. VALVES:
1. PROVIDE GATE VALVES, BUTTERFLY OR BALL VALVES FOR SHUT-OFF DUTY ON MAIN AND BRANCH SUPPLY LINES. FOR ALL PIPE RUNS 2" AND SMALLER, PROVIDE BALL FOR ALL PIPE RUNS LARGER THAN 2" AND SMALLER THAN 4", PROVIDE GATE VALVES, PIPING 4" AND LARGER, PROVIDE BUTTERFLY VALVES FOR SHUT-OFF DUTY.
2. ALL FIXTURES WITH THE EXCEPTION OF FLUSHMETER-EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE EXPOSED PROVIDE CHROME-PLATED STOPS WITH CHROME-PLATED ESCUTCHEONS ON PIPING PENETRATIONS.
3. ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT-OFF VALVES ON SUPPLY LINES.
4. ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.
5. ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.
6. PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.
E. INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING RUN IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE ABOVE.
F. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. PROVIDE PIPE ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'-0" IN LENGTH.
G. IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.
H. REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.
I. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.
J. IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.
K. PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.
L. PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR.
M. ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.
N. ANY PENETRATIONS THROUGH FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND UL RATED FIRE BARRIER CAULK OR APPROVED EQUAL.
O. WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM, REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.
P. AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.
Q. INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS. WHERE PIPES ARE TO BE INSULATED, THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.

2. INSTALLATION

2.01 GENERAL

- A. ALL WORK WHICH REQUIRES DISRUPTION OF THE ROOFING SHALL BE DONE BY A CONTRACTOR CERTIFIED BY THE ROOFING MANUFACTURER AS REQUIRED TO MAINTAIN ANY EXISTING ROOF WARRANTIES.
B. EXTERIOR INSTALLATIONS TO BE WEATHER PROOF IN ALL RESPECT.
C. EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO PREVENT CORROSION, COLOR PER ARCHITECT.
D. COORDINATE THE PLUMBING WORK WITH ALL OTHER AFFECTED WORK AND THE CONSTRUCTION SCHEDULE.
E. REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN AND FERROUS END PIPE.
F. REMOVE SCALE AND FOREIGN MATERIAL, FROM INSIDE AND OUTSIDE, BEFORE ASSEMBLY.

G. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND UNIONS.

- H. COORDINATION WITH THE WORK OF OTHER TRADES IS REQUIRED. PROVIDE OFFSETS IN PIPING SYSTEMS OR MINOR DEVIATIONS TO THE INDICATED PIPE ROUTING IN ORDER TO COORDINATE THE PLUMBING WORK WITH THE WORK OF ALL OTHER TRADES AND THE GENERAL BUILDING CONDITIONS.
I. NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.
J. PRIOR TO DISCONNECTING AND CONNECTING NEW WORK TO EXISTING SYSTEMS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE PROPERTY MANAGER AND OFFER A PROPOSED SCHEDULE OF WORK. ESB WILL AUTHORIZE CONNECTIONS AND COORDINATE NECESSARY SHUT DOWNS AND DRAIN DOWNS AS REQUIRED. SHUT DOWNS AND DRAIN DOWNS MAY BE PERFORMED BY THE PLUMBING CONTRACTOR ONLY AFTER RECEIVING ESB AUTHORIZATION, AND SHOULD BE PERFORMED UNDER SUPERVISION OF ESB PERSONNEL. THREE (3) DAYS ADVANCE NOTICE TO THE PROPERTY MANAGER IS REQUIRED.
K. THE PLUMBING CONTRACTOR IS ADVISED THAT DUE TO THE NATURE OF THE OPERATIONS AND TENANT REQUIREMENTS, CONNECTIONS TO EXISTING SYSTEMS MAY HAVE TO BE MADE AFTER REGULAR WORKING HOURS. THE PROPERTY MANAGER WILL ADVISE THE PLUMBING CONTRACTOR OF THE TIME CONSTRAINTS UPON RECEIPT AND APPROVAL OF THE PLUMBING CONTRACTOR'S REQUEST FOR SHUT DOWN AND CONNECTION TO EXISTING SYSTEMS.
L. WHEN CONNECTING TO EXISTING STACKS AND RISERS, PROVISION IS TO BE MADE FOR FUTURE CONNECTIONS BY PROVIDING CAPPED AND VALVED OUTLETS ON DOMESTIC WATER RISERS AND PLUGGED OUTLETS ON THE SANITARY AND VENT STACKS.
2.02 ABOVE GRADE
A. INSTALL PLUMBING PIPING IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PIPING COMPLIES WITH REQUIREMENTS AND SERVES INTENDED PURPOSES.
B. ROUTE PIPING IN AN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE, MAINTAIN GRADIENT, SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN. IN DOMESTIC WATER SYSTEMS, PROVIDE DRAIN VALVES AT MAIN SHUT-OFF VALVES AND ALL LOW POINTS IN PIPING.
C. USE EXISTING CONNECTIONS AT MAINS WHERE AVAILABLE FOR NEW BRANCH PIPING. LOCATE ALL RISERS AND PIPING BEFORE CONSTRUCTION COMMENCES AND TAKE CARE NOT TO DAMAGE SAME. ANY DAMAGE OCCURRING TO THE EXISTING PIPING WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
3. TESTING
A. AT THE COMPLETION OF THE PLUMBING WORK, COMPLETELY TEST THE ENTIRE INSTALLATION OF ALL SYSTEMS FOR PROPER OPERATION AND COMPLIANCE WITH APPLICABLE CODES AND LOCAL REQUIREMENTS. CORRECT ALL DEFICIENCIES FOUND.
B. TESTING OF THE INSTALLED SYSTEMS SHALL BE MADE BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER.
C. THE CONTRACTOR SHALL NOT COVER UP OR PERMANENTLY CONCEAL PIPING, DEVICES OR ANY PORTION OF NEWLY CONSTRUCTED PLUMBING SYSTEM(S) UNTIL SUCH SYSTEM, OR PORTION OF THE SYSTEM, HAS BEEN TESTED IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER AND INSPECTED BY THE LOCAL INSPECTOR AND APPROVED IN WRITING, EXCEPT PIPING PASSING THROUGH FLOORS, WALLS, PARTITIONS, OR BEAMS, FOR DISTANCES EQUAL TO THE THICKNESS OF SUCH FLOOR, WALL, PARTITION OR BEAM.
D. THIS CONTRACTOR SHALL NOTIFY THE VARIOUS DEPARTMENTS, BUREAUS AND INDIVIDUALS AT LEAST TWO WEEKS IN ADVANCE OF THE TIME THAT THE TESTS ARE TO BE CONDUCTED.
E. ALL DEFECTIVE PARTS SHALL BE REPLACED OR CORRECTED BY THIS CONTRACTOR AND AN EXTRA TEST OR TESTS SHALL BE MADE UNTIL THE OPERATION IS SATISFACTORY. ALL ARRANGEMENTS AND EXPENSES NECESSARY TO CONDUCT ALL TESTS REQUIRED BY THESE SPECIFICATIONS AND THE VARIOUS AGENCIES HAVING JURISDICTION OVER THE WORK INSTALLED UNDER THIS CONTRACT SHALL BE MADE BY THIS CONTRACTOR. NO EXTRA COMPENSATION WILL BE ALLOWED FOR THESE TESTS, THE COST THEREOF BEING INCLUDED IN THE LUMP SUM BID FOR THIS CONTRACT.
F. WHERE ANY EVIDENCE OF STOPPAGE IS FOUND IN PIPING OR EQUIPMENT, THIS CONTRACTOR SHALL DISCONNECT, CLEAN, REPAIR AND RECONNECT ALL OBSTRUCTED PIPING OR EQUIPMENT AND SHALL ALSO PAY FOR ALL NECESSARY CUTTING AND REPAIRS TO ADJOINING WORK.
G. ALL PIPING AND EQUIPMENT SHALL BE THOROUGHLY CLEANED INSIDE AND OUT, OF DIRT, CUTTINGS, OILS AND OTHER FOREIGN SUBSTANCES AND SHALL BE LEFT CLEAN.
H. ALL REQUIRED TESTS SHALL BE WITNESSED BY LOCAL AUTHORITIES AND THE OWNER'S REPRESENTATIVE.
J. ALL EQUIPMENT WILL BE FACTORY TESTED.
I. CONTRACTOR SHALL IDENTIFY TO THE OWNER'S REPRESENTATIVE ANY LEAKS OR DAMAGE THAT OCCURS AS A RESULT OF SYSTEM TESTING. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO LIMIT ANY POTENTIAL DAMAGE. CORRECTIVE ACTION REQUIRED AS A RESULT OF TESTING SHALL BE PERFORMED IMMEDIATELY AND AT THE CONTRACTOR'S EXPENSE.
K. REPORT IN WRITING TO AUTHORITIES HAVING JURISDICTION, THE ARCHITECT AND THE OWNER THE RESULTS OF ALL TESTING.
L. TESTING REQUIREMENTS
a. TEST ALL DOMESTIC WATER PIPING HYDROSTATICALLY TO 125 PSIG.
b. HYDROSTATIC TEST PRESSURES SHALL REMAIN CONSTANT WITH NO VARIATION FOR 120 MINUTES.
c. TESTS SHALL BE WITNESSED BY THE BUILDING ENGINEER.
d. THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE DUE TO TEST FAILURES AND LEAKAGE IN THE TEST AREA AND ADJACENT TENANT OR ESB SPACES.
M. REFILL ENTIRE POTABLE HOT AND COLD WATER SUPPLY SYSTEM WITH CHLORINE SOLUTION (HTH OLIN CHEMICAL CORP.) AT A STRENGTH TO MEET STANDARDS OF THE DEPARTMENT OF HEALTH, AND FOR A PERIOD OF RETENTION AS STIPULATED.
N. THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY PRIOR TO FINAL ACCEPTANCE.

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NY ENGINEERS logo and contact information: 382 NE 191st Street Suite 49674, MIAMI, FL 33179, (786)-788-0295, ny-engineers.com

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Table with columns: NO., DATE, DESCRIPTION, BY.

SHEET TITLE:

PLUMBING NOTES, SYMBOLS, ABBREVIATIONS, & SPECIFICATIONS

DATE 11-15-2024

SHEET NO.

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4. WARRANTY  
A. EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROMPTLY CORRECT AND REPAIR ANY AND ALL BREAKS, FAILURES OR WEAR DUE TO FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT. ALL SETTLEMENTS OF SURFACES THAT MAY OCCUR WITHIN THAT PERIOD SHALL ALSO BE PROMPTLY REPAIRED.

E. ELECTRIC WATER HEATER

1. TANK SHALL 40 GALLON CAPACITY AND SHALL HAVE 150 PSI WORKING PRESSURE AND BE EQUIPPED WITH EXTRUDED HIGH DENSITY ANODE.
2. ALL INTERNAL SURFACES OF THE HEATER EXPOSED TO WATER SHALL BE GLASS-LINED WITH AN ALKALINE BORO SILICATE COMPOSITION THAT HAS BEEN FUSED-TO-STEEL BY FIRING AT A TEMPERATURE RANGE OF 1400°F TO 1600°F.
3. ELECTRIC HEATING ELEMENTS SHALL BE LOW WATT DENSITY GOLDENROD 1" SCREW-IN TYPE.
4. EACH ELEMENT SHALL BE CONTROLLED BY AN INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH TEMPERATURE CUT-OFF SWITCH. ALL INTERNAL CIRCUITS SHALL BE FUSED. THE OUTER JACKET SHALL BE OF BAKED ENAMEL FINISH AND SHALL BE PROVIDED WITH FULL SIZE CONTROL COMPARTMENT FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH HINGED FRONT PANEL AND SHALL ENCLOSE THE TANK WITH FOAM INSULATION. ELECTRICAL JUNCTION BOX WITH HEAVY DUTY TERMINAL BLOCK SHALL BE PROVIDED. THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.

F. HOT WATER RE-CIRCULATING PUMP

1. IN-LINE PUMP: SINGLE STAGE VOLUTE TYPE PUMP SHALL BE MADE OF CAST IRON OR FORGED LEAD-FREE BRONZE IMPELLER.
2. THE PUMP SHALL HAVE A GROUND AND POLISHED STEEL SHAFT WITH A HARDENED INTEGRAL THRUST COLLAR. THE SHAFT SHALL BE SUPPORTED BY TWO HORIZONTAL SLEEVE BEARINGS DESIGNED TO CIRCULATE OIL. THE PUMPS ARE TO BE EQUIPPED WITH A MECHANICAL SEAL WITH CARBON SEAL FACE ROTATING AGAINST CERAMIC SEAT. THE MOTOR SHALL BE NON-OVERLOADING AT ANY POINT ON PUMP CURVE.
3. DIRECT CONNECT PUMP TO ELECTRIC MOTOR WITH FLEXIBLE COUPLING. THE MOTOR SHALL BE OF THE DRIP-PROOF, SLEEVE-BEARING, QUIET OPERATING, RUBBER-MOUNTED CONSTRUCTION. EQUIPMENT MOTOR WITH BUILT-IN THERMAL OVERLOAD PROTECTION.
4. INSTALL IN-LINE CIRCULATING PUMPS BETWEEN PIPE FLANGES IN PIPING SYSTEMS. INSTALL OVERHEAD PIPE SUPPORTS, BOTH SIDES OF IN-LINE PUMPS, INSTALLED IN HORIZONTAL PIPING RUNS.

G. INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING RUN IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE ABOVE.

H. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. PROVIDE PIPE ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'-0" IN LENGTH.

I. IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.

J. REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.

K. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

L. IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN. PRV CONFIRMING TO ASSE 1003 OR CSA B356 WITH STRAINER SHALL BE INSTALLED TO REDUCE THE PRESSURE.

M. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

N. PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.

O. PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR.

P. ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.

Q. ANY PENETRATIONS THROUGH FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND UL RATED FIRE BARRIER CAULK OR APPROVED EQUAL.

R. WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM. REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.

S. AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.

T. INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS. WHERE PIPES ARE TO BE INSULATED, THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.

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**NY ENGINEERS**

NY ENGINEERS  
382 NE 191st Street Suite 49674  
MIAMI, FL 33179  
(786)-788-0295  
ny-engineers.com

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SHEET TITLE:

**PLUMBING  
SPECIFICATIONS**

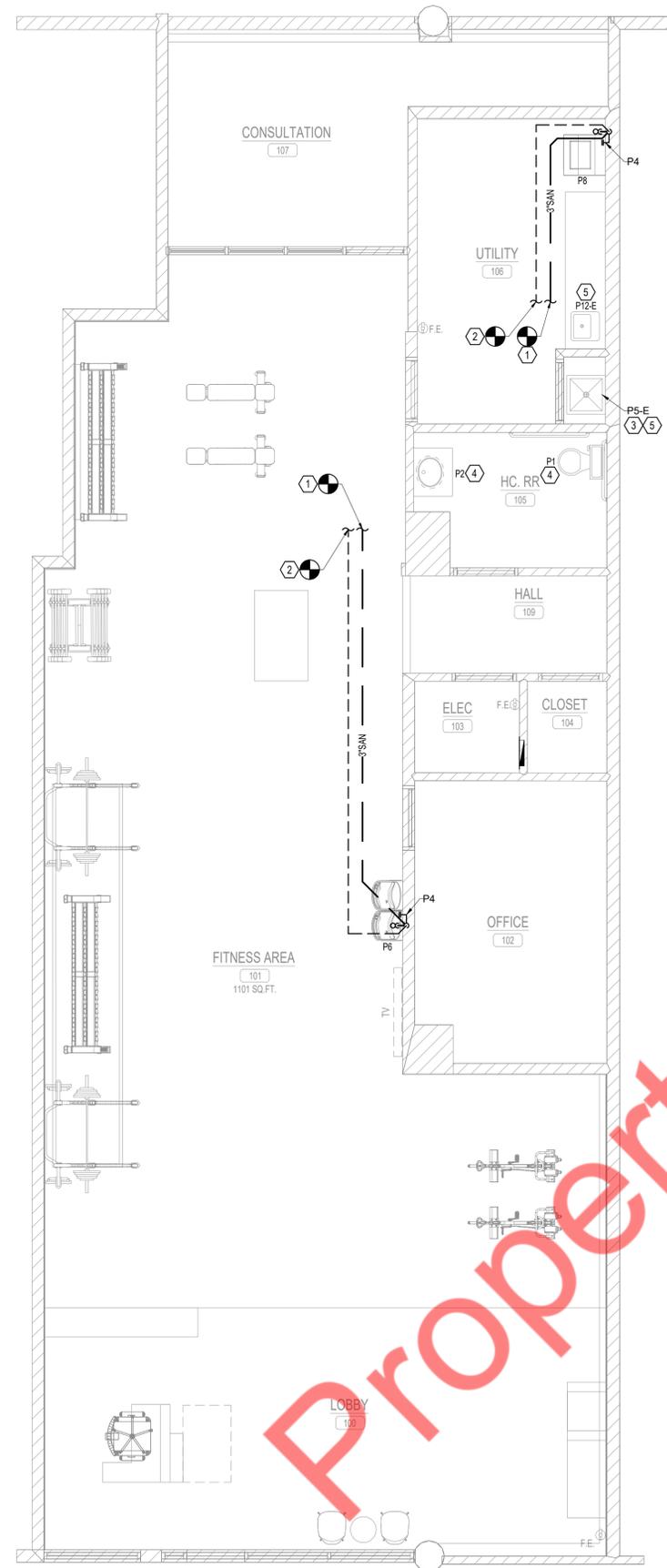
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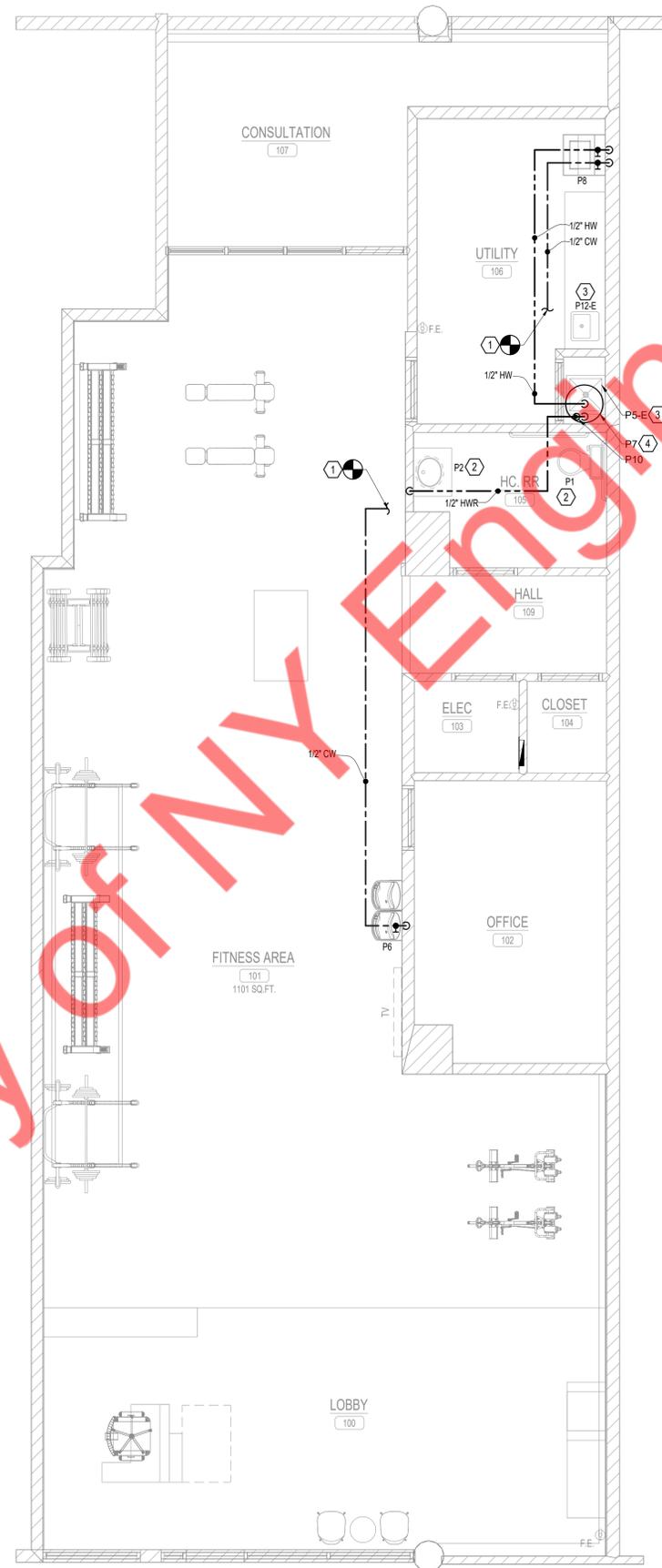
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1 SANITARY FLOOR PLAN  
1/4" = 1'-0"



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

- SANITARY GENERAL NOTES:**
1. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
  2. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
  3. THE VENT SHALL RISE 6 INCHES VERTICALLY ABOVE THE FLOOD RIM LEVEL OF THE FIXTURE BEING VENTED BEFORE OFFSETTING HORIZONTALLY OR VERTICALLY DOWNWARD BEFORE CONNECTING TO THE OUTSIDE VENT TERMINAL.

- SANITARY AND VENT KEY NOTES:** (#)
1. CONNECT NEW 3" SANITARY WASTE PIPING TO EXISTING 4" SANITARY PIPE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, ROUTING AND INVERT OF EXISTING PIPE ON SITE.
  2. CONNECT NEW 1-1/2" VENT LINE TO EXISTING VENT LINE IN SPACE. CONTRACTOR TO FIELD VERIFY THE EXACT SIZE AND LOCATION OF EXISTING VENT PIPE.
  3. DRAIN WATER HEATER CONDENSATE TO MOP SINK WITH APPROVED AIR GAP.
  4. EXISTING RESTROOM FIXTURES TO BE REPLACED IN KIND WITH NEW FIXTURES AT SAME LOCATION. RECONNECT THE EXISTING SANITARY AND VENT PIPING FROM NEW FIXTURE TO EXISTING FIXTURE SANITARY AND VENT PIPING. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING AND UPGRADE IF REQUIRED.
  5. EXISTING PLUMBING FIXTURE TO REMAIN WITH EXISTING SANITARY AND VENT PIPING. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING AND FIXTURE, REPLACE IF REQUIRED.

- WATER GENERAL NOTES:**
1. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2022 CALIFORNIA ENERGY CODE.
  2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
  3. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR & SHUT-OFF VALVES AS REQUIRED.
  4. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
  5. WATER HEATER DRAIN SPILLS TO THE MOP SINK.

- WATER KEY NOTES:** (#)
1. CONNECT NEW 1/2" CW PIPING TO THE EXISTING COLD WATER LINE IN SPACE. CONTRACTOR TO FIELD VERIFY THE SIZE, ROUTING AND LOCATION OF EXISTING CW LINE.
  2. EXISTING RESTROOM FIXTURES TO BE REPLACED IN KIND WITH NEW FIXTURES AT SAME LOCATION. RECONNECT THE EXISTING CW AND HW PIPING FROM NEW FIXTURE TO EXISTING FIXTURE CW AND HW PIPING. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING AND UPGRADE IF REQUIRED.
  3. EXISTING PLUMBING FIXTURE TO REMAIN WITH EXISTING CW AND HW PIPING. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING AND FIXTURE, REPLACE IF REQUIRED.
  4. EXISTING WATER HEATER TO BE REPLACED WITH NEW WATER HEATER. RECONNECT THE EXISTING CW AND HW PIPING FROM NEW WATER HEATER TO EXISTING WATER HEATER. PROVIDE NEW RECIRCULATION PUMP IF NOT EXISTING. CONTRACTOR TO FIELD VERIFY THE CAPACITY AND CONDITION OF EXISTING EXPANSION TANK, UPGRADE IF REQUIRED.

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NY ENGINEERS  
382 NE 191st Street Suite 49674  
MIAMI, FL 33179  
(786)-788-0295  
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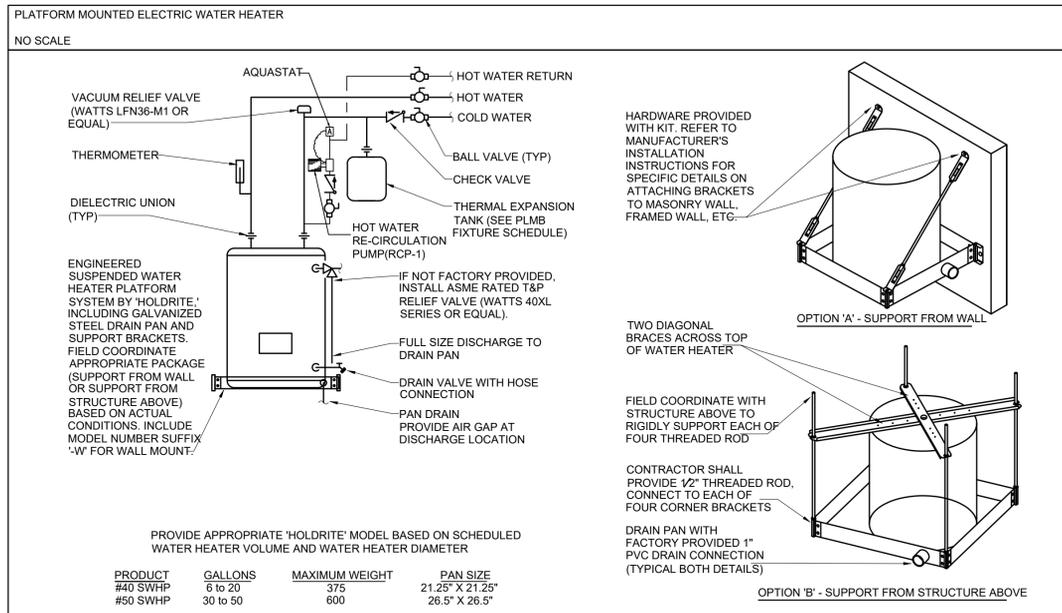
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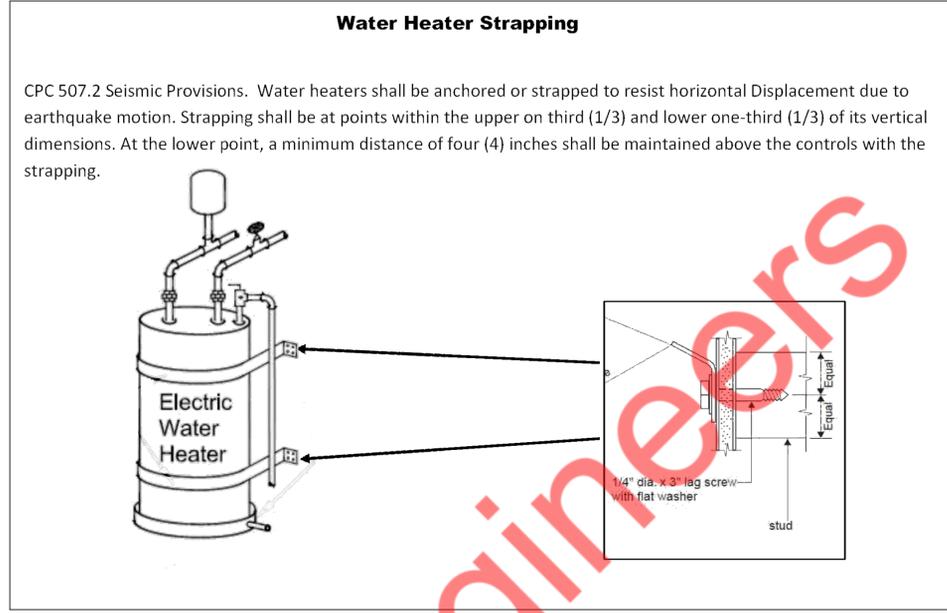
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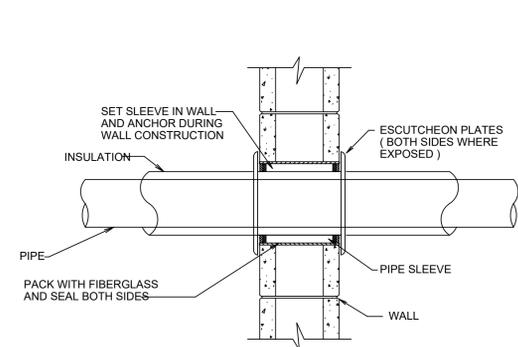
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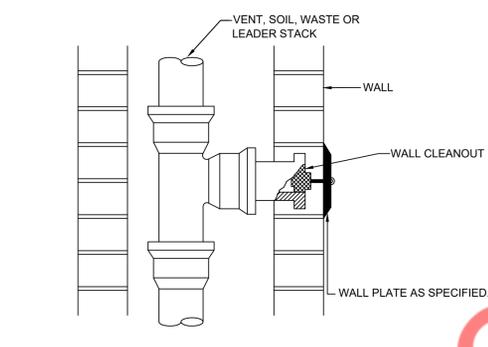
**1 WATER HEATER DETAIL**  
SCALE: N.T.S.



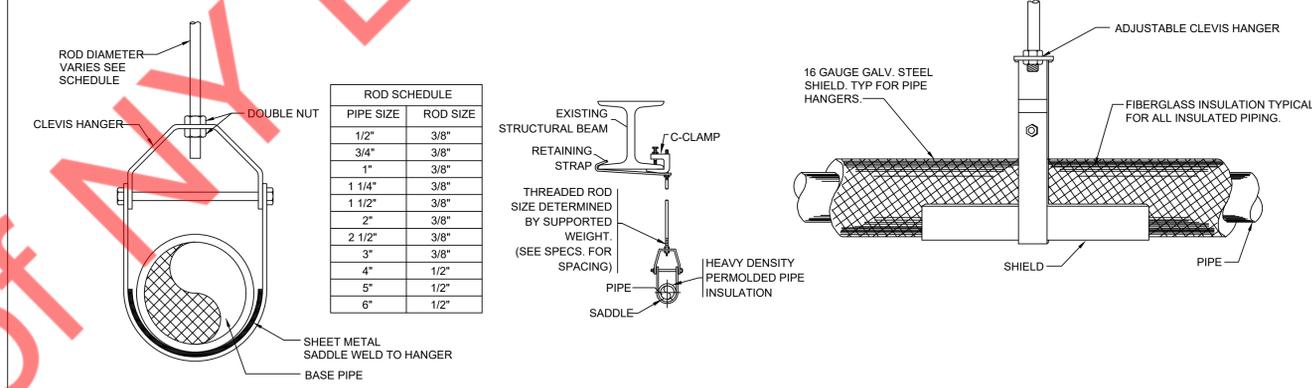
**2 WATER HEATER STRAPPING DETAIL**  
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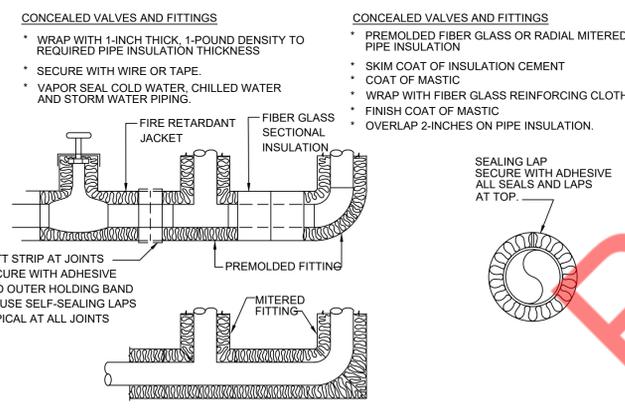
**3 PIPE SLEEVE THRU WALL SECTION**  
SCALE: N.T.S.



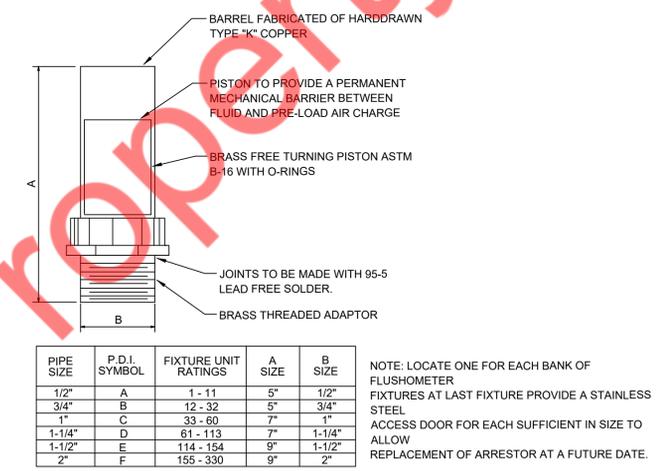
**4 WALL CLEANOUT DETAIL**  
SCALE: N.T.S.



**5 HANGER DETAIL**  
SCALE: N.T.S.



**6 INSULATION FOR EXPOSED AND CONCEALED LOCATIONS**  
SCALE: N.T.S.



**7 WATER HAMMER ARRESTOR DETAIL**  
SCALE: N.T.S.

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**PLUMBING  
DETAILS**

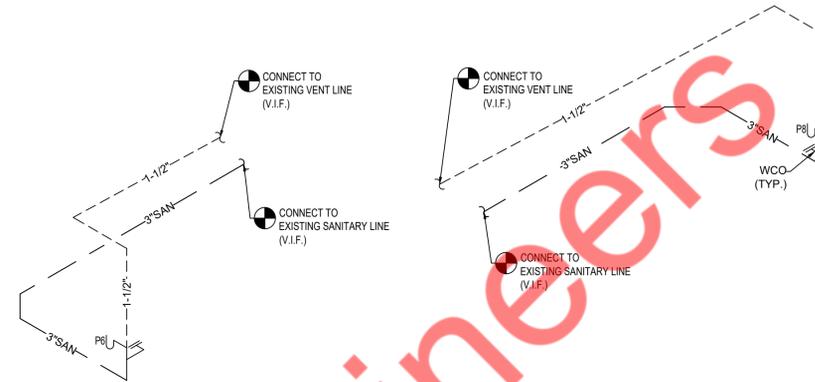
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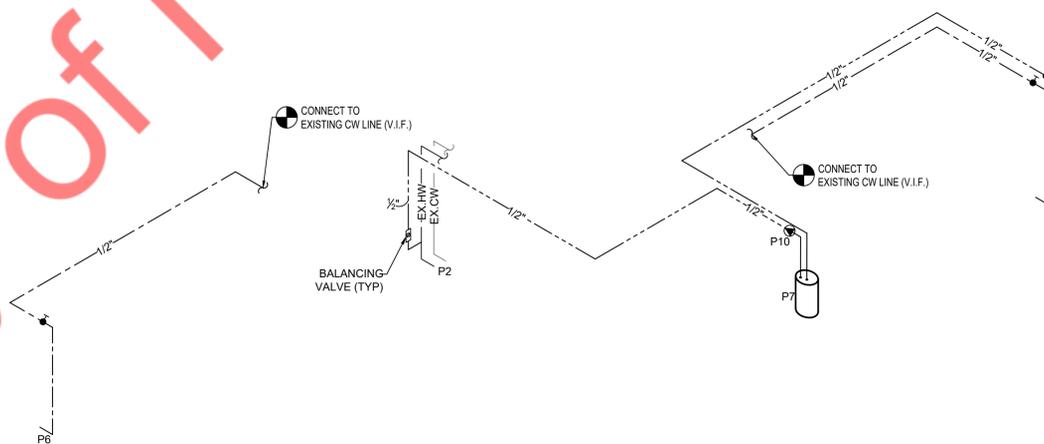
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PLUMBING FIXTURE SCHEDULE					
MARK	ITEM	HW 105*	CW	WASTE	DESCRIPTION
P1	WATER CLOSET	--	E	E	AMERICAN STANDARD CADET PRO ELONGATED 1.28 GPF TOILET WITH E-MAX FLUSH SYSTEM. BOLT-DOWN LID. FLUSH TRIP LEVER TO BE LOCATED ON THE OPEN SIDE OF THE TANK. OPEN FRONT SEAT
P2	LAVATORY	E	E	E	FIXTURE: KOHLER BRAZN MODEL K-21058. WHITE. 19" X 14" RECTANGULAR BOWL REAR OVERFLOW. FAUCET: AMERICAN STANDARD PARADIGM ELECTRONIC MODEL 7025.305.002. POLISHED CHROME-PLATED. BATTERY POWERED ELECTRONIC. WITH 0.5 GPM VANDAL-RESISTANT LAMINAR SPRAY. INTEGRAL THERMOSTATIC HOT WATER LIMITER THAT IS ASSE 1770 CERTIFIED. THERMOSTATIC TEMPERATURE LIMITER SET AT 110 DEGREES FAHRENHEIT.
P3-E	CLEANOUT	--	--	LINE SIZE	JAY R. SMITH, 4020 SERIES W/ROUND. POLISHED BRONZE TOP.
P4	CLEANOUT	--	--	LINE SIZE	JAY R. SMITH WALL CLEANOUT AND PLUG
P5-E	SERVICE SINK	E	E	E	EXISTING TO REMAIN
P6	HI-LO WATER COOLER	--	1/2"	2"	ELKAY ELZSTL8WSLK HI-LO WATER COOLER W/ BOTTLE FILLING EZWSRK EZH20 STATION - MOUNTED @ ADA HEIGHT AND THE FIXTURE IS ADA COMPLIANT. PROVIDE CANE APRON
P7	WATER HEATER	3/4"	E	--	40 SMITH DEL 40" 40 GALLON STORAGE. RECOVERY - 25 GPH   5,000 WATT SINGLE ELEMENT. 208V. 3 PHASE. W/ EXISTING EXPANSION TANK. CONTRACTOR IS TO PROVIDE & INSTALL A WALL MOUNTED PLATFORM. QUICK STAND™ #50-SWHP-W WALL MOUNTED EQUIPMENT PLATFORM OR EQUAL
P8	WASHING MACHINE OUTLET BOX	1/2"	1/2"	2"	TECTITE MODEL # FSB80XWMMH. 1/2 IN. BRASS WASHING MACHINE OUTLET BOX WITH WATER HAMMER ARRESTORS PUSH-TO-CONNECT WASHING MACHINE VALVES. CONNECTS TO COPPER, CPVC OR PEX LINES
P9-E	EXPANSION TANK	--	E	--	EXISTING TO REMAIN
P10	RECIRCULATION PUMP	--	--	--	GRUNDFOS UP 15-18 BUCS, CAPACITY - 2GPM, 10 FEET HEAD.
P11-E	TRAP RPIMER	E	--	--	EXISTING TO REMAIN



1 SANITARY AND VENT RISER DIAGRAM  
N.T.S.



2 WATER RISER DIAGRAM  
N.T.S.

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PLUMBING SCHEDULE AND RISER DIAGRAMS

DATE 11-15-2024

SHEET NO.

P-3.0

SHEET 5 OF 6