DRAWING INDEX COVER SHEET AND DRAWING INDEX PROJECT NOTES, SCHEDULES, AND MISCELLANEOUS DETAILS **STRUCTURAL** GENERAL NOTES & DESIGN CRITERIA FRAMING PLANS SECTIONS AND DETAILS **ARCHITECTURAL** ARCHITECTURAL FLOOR PLANS - FIRST FLOOR ARCHITECTURAL FLOOR PLANS - THIRD FLOOR REFLECTED CEILING PLAN - FIRST FLOOR REFLECTED CEILING PLAN - THIRD FLOOR INTERIOR ELEVATIONS INTERIOR ELEVATIONS INTERIOR DETAILS INTERIOR DETAILS INTERIOR DETAILS FOOD SERVICE **GENERAL NOTES** MECHANICAL NOTES K-0301 ELECTRICAL NOTES K-0401 PLUMBING NOTES K-1100 FOODSERVICE EQUIPMENT SCHEDULE FOODSERVICE EQUIPMENT PLAN & SCHEDULE K-1101 FOODSERVICE EQUIPMENT ELECTRICAL PLAN & SCHEDULE FOODSERVICE EQUIPMENT PLUMBING PLAN & SCHEDULE **MECHANICAL** DIVISION 20 SPECIFICATIONS LEGEND DEMO DUCTWORK - THIRD FLOOR DEMO PIPING - THIRD FLOOR DUCTWORK - FIRST FLOOR DUCTWORK - THIRD FLOOR DUCTWORK - ROOF PIPING - FIRST FLOOR PIPING - SECOND FLOOR PIPING - THIRD FLOOR PIPING - ROOF DETAILS DETAILS SCHEDULES CONTROLS DIAGRAM CONTROLS DIAGRAM SPECIFICATIONS M-18 SPECIFICATIONS ELECTRICAL LEGEND AND GENERAL NOTES **ELECTRICAL SPECIFICATIONS ELECTRICAL SPECIFICATIONS** FIRST FLOOR LIGHTING PLAN THIRD FLOOR LIGHTING PLAN FIRST FLOOR POWER PLAN THIRD FLOOR POWER PLAN **ROOF POWER PLAN** ELECTRICAL ENLARGED KITCHEN POWER DISTRIBUTION DIAGRAM - INCOMING SERVICE POWER DISTRIBUTION DIAGRAM - PODIUM POWER DISTRIBUTION DIAGRAM POWER DISTRIBUTION DIAGRAM - EMERGENCY POWER PODIUM POWER DISTRIBUTION DIAGRAM - EMERGENCY POWER ELECTRICAL GENERAL SCHEDULES MECHANICAL EQUIPMENT SCHEDULE LIGHTING CONTROL DIAGRAM ELECTRICAL LIGHTING FIXTURE SCHEDULE **ELECTRICAL DETAILS** FIRST FLOOR DEMOLITION LIGHTING PLAN THIRD FLOOR DEMOLITION LIGHTING PLAN FIRST FLOOR DEMOLITION POWER PLAN THIRD FLOOR DEMOLITION POWER PLAN **TELECOM** TELECOM - LEGEND TELECOM - SPECIFICATIONS TELECOM - DEMO FIRST FLOOR LEVEL TELECOM - DEMO THIRD FLOOR TELECOM - FIRST FLOOR LEVEL TELECOM - THIRD FLOOR **PLUMBING** LEGEND, SCHEDULES, AND GENERAL NOTES PLUMBING SPECIFICATIONS PLUMBING SPECIFICATIONS DEMO - SECOND FLOOR DEMO - THIRD FLOOR SECOND FLOOR PLUMBING PLAN THIRD FLOOR PLUMBING PLAN FIRE ALARM FIRE ALARM - SYMBOLS & ABBREVIATIONS FIRE ALARM - NOTES AND DESIGN CRITERIA FIRE ALARM SPECIFICATIONS FIRE ALARM - THIRD FLOOR FIRE ALARM DETAILS FIRE PROTECTION FIRE PROTECTION - NOTES AND DESIGN CRITERIA FIRE PROTECTION SPECIFICATIONS FIRE PROTECTION - FIRST FLOOR LEVEL FIRE PROTECTION - THIRD FLOOR FIRE PROTECTION DETAILS

Interior Renovations & Updates to



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MEP ENGINEER



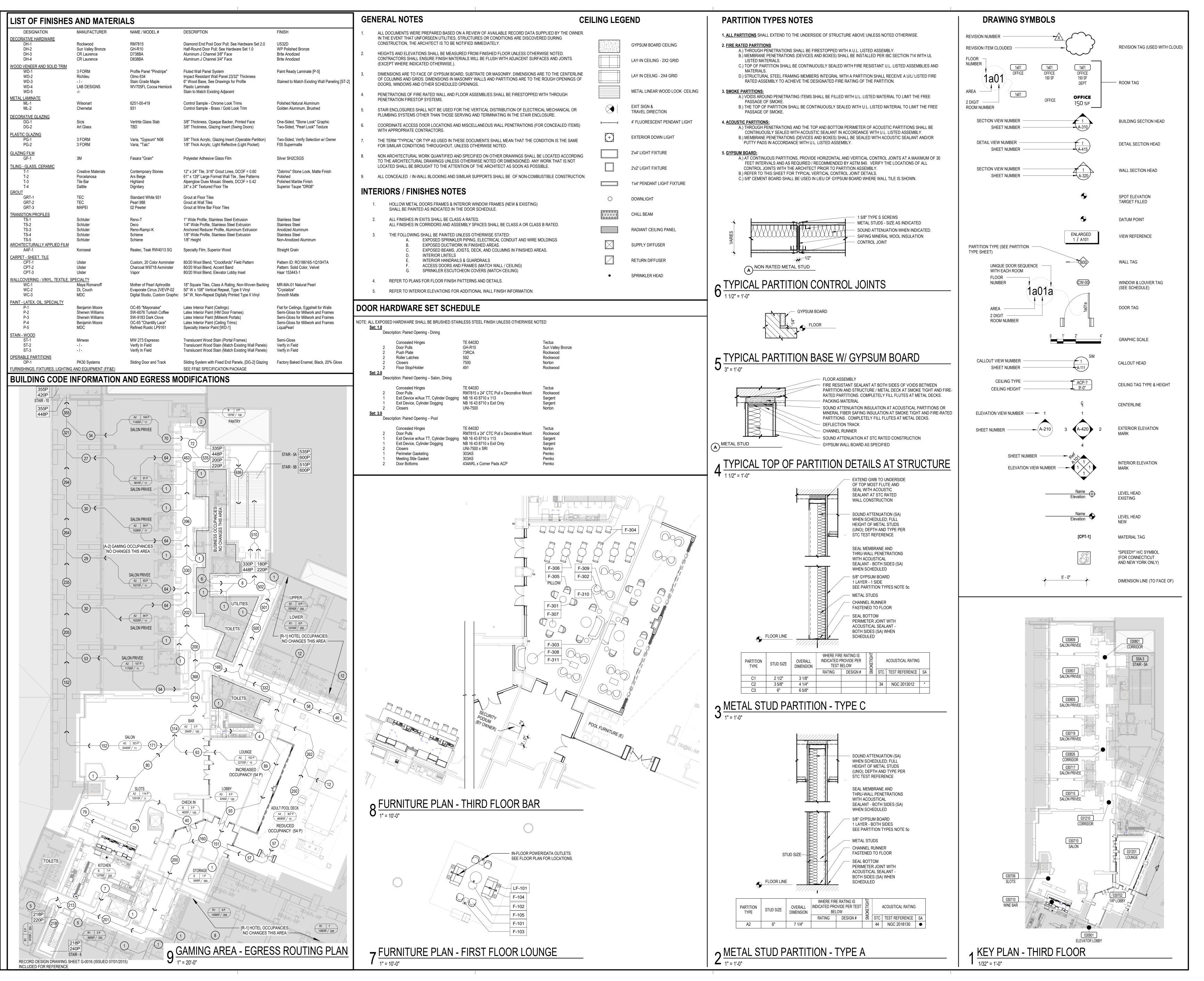
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ISSUE __07/06/2022

JOB __H18064.19

DRAWN JMK, LKB

SCALE As indicated

REVISIONS

PROJECT NOTES, SCHEDULES, AND MISCELLANEOUS DETAILS

G-1

GENERAL NOTES:

- CODES

- THE 2020 BUILDING CODE OF NEW YORK STATE BASED ON THE 2018 INTERNATIONAL BUILDING CODE.
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN" AISC 360-10 ("AISC").
- AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- AMERICAN IRON AND STEEL INSTITUTE "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL

II - MATERIALS

UNLESS OTHERWISE SHOWN OR NOTED ON DRAWINGS:

STRUCTURAL MEMBERS", AISI S100-12 ("AISI")

- STRUCTURAL STEEL: ALL ROLLED SHAPES: ALL CHANNELS, PLATES AND CONNECTION MATERIAL: ALL TUBULAR SECTIONS ALL PIPE SECTIONS:
- ASTM A572 OR A992, GRADE 50 ASTM A36, OR A572, GRADE 50 ASTM A500, GRADE C ASTM A53, GRADE B

LIGHTER G60 GALVANIZING, TYP

- ANCHOR BOLTS, U.O.N. ASTM F1554I WELDING ELECTRODES: E70XX LOW HYDROGEN.
- ASTM A325 OR F1852 (TWIST-OFF TYPE), **BOLTING MATERIALS:** OR A490, OR F2280 (TWIST-OFF TYPE),
- LIGHT GAGE FRAMING: ASTM A653 GRADE 50 FOR 16 GAGE AND HEAVIER GRADE 33 FOR 18 GAGE AND

III - GENERAL

- NOTES. TYPICAL DETAILS AND SCHEDULES APPLY TO ALL STRUCTURAL WORK UNLESS OTHERWISE NOTED. FOR CONDITIONS NOT SPECIFICALLY SHOWN, PROVIDE DETAILS OF A SIMILAR NATURE. VERIFY APPLICABILITY BY SUBMITTING SHOP DRAWINGS FOR REVIEW.
- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS, ARCHITECTURAL AND MECHANICAL DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN DRAWINGS IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER PRIOR TO PERFORMING WORK.
- DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONAL INFORMATION.
- SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR WATER/DAMPPROOFING AND FIREPROOFING DETAILS AND REQUIREMENTS.
- DO NOT CUT OR ALTER ANY EXISTING STRUCTURAL MEMBERS WITHOUT WRITTEN AUTHORIZATION OF THE ENGINEER.
- THESE DRAWINGS DO NOT DEFINE SCOPE OF CONTRACTS. SEE CONSTRUCTION MANAGER'S
- DOCUMENTS. ONSTRUCTION MANAGER SHALL COORDINATE THE WORK AND SEQUENCE OF VARIOUS TRADES.
- SHOP DRAWINGS SHALL BE SUBMITTED, FOR ITEMS NOTED HEREIN, TO THE ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO THE START OF WORK ON SUCH ITEMS. RESUBMITTED SHOP DRAWINGS SHALL HAVE ALL CHANGES CLOUDED AND IDENTIFIED. DRAWING RESUBMITTED WITHOUT CLOUDS WILL NOT BE REVIEWED.
- DEVIATIONS FROM CONTRACT DOCUMENTS ARE ONLY PERMITTED WHEN ACCEPTED BY ENGINEER IN WRITING. REQUESTS FOR DEVIATIONS MUST BE SUBMITTED IN WRITING ON CONTRACTOR'S LETTERHEAD. ACCEPTANCE OF SHOP DRAWINGS WHICH INCLUDE DEVIATIONS NOT DETECTED DURING REVIEW DOES NOT RELIEVE CONTRACTOR OF RESPONSIBILITY TO CONFORM STRICTLY TO THE CONTRACT DOCUMENTS.
- JOBSITE INCLUDING SAFETY OF PERSONS AND PROPERTY. THE ARCHITECT'S OR ENGINEER'S PRESENCE OR REVIEW OF WORK DOES NOT INCLUDE THE ADEQUACY OF THE CONTRACTOR'S MEANS OR METHODS OF CONSTRUCTION.

AT ALL TIMES THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONDITIONS OF THE

- SHORING, BRACING AND PROTECTION OF EXISTING AND ADJACENT STRUCTURES DURING CONSTRUCTION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. PROTECT AND MAINTAIN THE INTEGRITY OF ADJACENT STREETS, BUILDINGS AND STRUCTURES.
- ALL EXISTING DIMENSIONS AND LOCATIONS OF EXISTING STRUCTURES SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY FIELD MEASUREMENTS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER.
- DRAWINGS HAVE BEEN PREPARED BASED ON AVAILABLE KNOWLEDGE OF EXISTING CONDITIONS IF, DURING DEMOLITION, EXCAVATION OR CONSTRUCTION, ACTUAL CONDITIONS ARE DISCOVERED TO DIFFER FROM THOSE INDICATED ON DRAWINGS. ENGINEER SHALL BE NOTIFIED PRIOR TO PREPARATION OF SHOP DRAWINGS, CONTRACTOR SHALL VERIFY AND/OR DETERMIN SIZE, LOCATION, CONFIGURATION, ETC. OF EXISTING STRUCTURE EVERY PLACE WHERE NEW WORK IS TO ABUT, ATTACH, CLEAR, ETC. NOTIFY ENGINEER IN WRITING OF ANY AND ALL CONDITIONS WHICH DIFFER FROM THOSE SHOWN ON DRAWINGS.
- REUSE OF SALVAGED MATERIALS IS NOT PERMITTED UNLESS SPECIFICALLY APPROVED BY ENGINEER IN WRITING.

IV - STEEL NOTES

SPECIFIED REACTIONS.

- ALL STEEL WORK, INCLUDING STRUCTURAL STEEL SHOWN ON ARCHITECTURAL AND MECHANICAL DRAWINGS, SHALL COMPLY WITH THE "AISC SPECIFICATION".
- FOR FIREPROOFING REQUIREMENTS AND ASSEMBLIES SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
- SHOP DRAWINGS, PREPARED IN ACCORDANCE WITH AISC "DETAILING FOR STEEL CONSTRUCTION" UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER. LICENSED IN THE STATE OF CONNECTICUT, SHALL BE SUBMITTED FOR ALL STRUCTURAL STEEL
- BOLTED CONNECTIONS: BOLTS ARE TO BE A325 OR A490 SLIP CRITICAL. CLASS A. MINIMUM DIAMETER OF ALL BOLTS SHALL BE 3/4", MAX. DIA. 1-1/8". PROVIDE AT LEAST 2 BOLTS PER
- COPED OR CUT ENDS OF MEMBERS SHALL BE REINFORCED WHERE REQUIRED TO SUSTAIN THE
- UNLESS OTHERWISE SHOWN ON DRAWINGS, SIZE OF WELDS SHALL NOT BE SMALLER THAN 1/4".
- THE CONTRACTOR SHALL PROVIDE, AT NO ADDITIONAL COST, ALL ADDITIONAL STEEL, CONNECTIONS, GUYING, ETC. REQUIRED FOR ERECTION. CONTRACTOR SHALL BE SOLELY
- RESPONSIBLE FOR THE STABILITY AND SAFETY OF THE WORK DURING CONSTRUCTION. NO COST TO THE OWNER OR ENGINEER. UNLESS SPECIFICALLY NOTED, STEEL DETAILS SHOWN ON THE DRAWINGS ARE FOR CONCEPT ONLY AND DO NOT INDICATE REQUIRED NUMBER OF BOLTS, SIZE OF WELDS, ETC.
- MEMBERS MAY ONLY BE SPLICED WHERE SPECIFICALLY DETAILED ON ACCEPTED SHOP
- FIELD CUTTING OF STRUCTURAL STEEL IS NOT PERMITTED EXCEPT WHERE ACCEPTED BY THE ENGINEER IN REVIEW OF DRAWINGS SUBMITTED BY CONTRACTOR. CUTTING OR ENLARGEMENT
- BOLTS, NUTS AND WASHERS FOR STEEL PERMANENTLY EXPOSED TO WEATHER SHALL BE GALVANIZED, SEE SPECIFICATIONS.
- ALL HSS TUBES AND PIPES SHALL BE COMPLETELY SEALED WITH CAP PLATES.

OF BOLT HOLES WITH TORCHES IS STRICTLY PROHIBITED.

- WELDERS SHALL BE CERTIFIED BY THE BUILDING DEPARTMENT AND/OR AWS AS REQUIRED. SLAG SHALL BE REMOVED FROM ALL WELDS FOR INSPECTION.
- OBTAIN ALL FIELD MEASUREMENTS REQUIRED FOR PROPER FABRICATION AND INSTALLATION OF WORK PRIOR TO DETAILING. PRECISE MEASUREMENTS ARE THE SOLE RESPONSIBILITY OF THE
- STEEL DETAILER TO VISIT THE JOB SITE AS MANY TIMES AS NECESSARY TO FAMILIARIZE HIMSELF WITH THE EXISTING FIELD CONDITIONS AND OBTAIN ALL NECESSARY INFORMATION NEEDED TO COMPLETE THE JOB.
- STEEL TO BE ENCLOSED BUT NOT SPRAY FIREPROOFED SHALL BE CLEANED TO SSPC SP-3 AND SHOP PAINTED WITH ALKYD PRIMER.

- COLD FORM NOTES

ERECTION INFORMATION.

- ALL COLD-FORMED STEEL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST AISI STANDARDS, GUIDELINES AND SPECIFICATIONS.
- ALL STUDS SHALL BE MARKED WITH THE MANUFACTURER'S NAME, GAUGE SIZE OF MATERIAL ANI YIELD STRENGTH.
- ALL FRAMING MEMBERS TO BE MINIMUM 18 GAUGE THICKNESS AND HAVE A MINIMUM FLANGE WIDTH OF 1-5/8", UNLESS OTHERWISE NOTED.
- SUBMIT SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL **FNGINFFR** REGISTERED IN THE STATE OF NEW YORK FOR REVIEW AND ACCEPTANCE BY THE ENGINEER OF RECORD. DRAWINGS SHALL IDENTIFY AND LOCATE ALL COMPONENTS AND SHALL SPECIFY

MEMBER SIZES, BRACING, CONNECTIONS, AND ALL OTHER NECESSARY FABRICATION AND

- CONTRACTOR TO SUBMIT COPIES OF MANUFACTURER'S PRODUCT INFORMATION AND INSTALLATION INSTRUCTIONS FOR EACH ITEM OF LIGHT GAGE FRAMING AND ACCESSORIES.
- UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL FASTENERS CONNECTING LIGHT GAUGE MEMBERS AND ACCESSORIES SHALL BE A MINIMUM OF #10 SIZE. EXCEPT FASTENERS CONNECTING 14 GAUGE OR HEAVIER MATERIAL SHALL BE #12 SIZE.

CONNECTIONS SHALL BE SELF-DRILLING SCREWS OR WELDING.

- PENETRATION OF SCREWS THROUGH JOINED MATERIALS SHALL NOT BE LESS THAN 3 EXPOSED
- ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.3 AND AISI. WELDERS SHALL BE QUALIFIED IN LIGHT GAGE WELDING PER AWS.
- FOR CUTTING OF STEEL FRAMING MEMBERS, A SAW OR SHEARS SHALL BE USED. TORCH CUTTING IS NOT PERMITTED.
- SPLICING OF FRAMING COMPONENTS, OTHER THAN TRACK, IS NOT PERMITTED.

ALL FRAMING COMPONENTS SHALL BE PLUMBED, ALIGNED AND LEVELED.

- HOLES THAT ARE FIELD CUT INTO STEEL FRAMING MEMBERS SHALL BE WITHIN THE LIMITATIONS OF THE PRODUCT AND ITS DESIGN.
- ALL STRUCTURAL MEMBERS SHALL BE GALVANIZED MEETING ASTM A525, G60 REQUIREMENTS. ALL WELDS SHALL BE TOUCHED UP WITH ZINC-RICH PAINT.
- ALL NESTED STUD AND TRACK COMBINATIONS SHALL BE FASTENED ON EACH FLANGE @ 12" O.C MINIMUM, UNLESS NOTED OTHERWISE.
- WITH EACH TYPE OF METAL FRAMING REQUIRED, PROVIDE MANUFACTURER'S STANDARD STEEL TRACKS, BRIDGING, LINTELS, CLIP ANGLES, FASTENERS AND ACCESSORIES AS NEEDED TO COMPLETE METAL FRAMING SYSTEM.
- ALL STUD WALLS SHALL BE LATERALLY BRACED WITH COLD-FORMED CHANNELS SPACED AT 4'-0" ON CENTER, MAXIMUM. LATERAL BRACING ATTACHMENTS SHALL BE WITH SELF-DRILLING SCREWS
- ALL BRIDGING, BRACING, BLOCKING, STRAPPING, WEB REINFORCING, ETC... MUST BE IN PLACE PRIOR TO LOADING OF FLOORS.

VI - POST INSTALLED ANCHORS IN CONCRETE AND MASONRY

- POST INSTALLED ANCHORS SHALL BE USED ONLY WHERE SPECIFIED ON STRUCTURAL
- THE INSTALLATION OF POST INSTALLED ANCHORS AS REPAIR FOR MISSING OR MISPLACED CAST IN-PLACE ANCHORS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD
- EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE SHALL NOT BE CUT UNLESS APPROVED BY THE EOR.
- POST-INSTALLED ANCHORS SPECIFIED ON THE DRAWINGS FORM THE BASIS OF DESIGN. SUBSTITUTIONS WITH EQUAL OR BETTER ANCHORS SHALL BE SUBMITTED FOR APPROVAL BY
- SUBMITTAL OF ALL PROPOSED PRODUCTS, WITH TECHNICAL DATA AND CURRENT ICC-ESR REPORTS IS REQUIRED FOR REVIEW AND APPROVAL BY EOR. ADDITIONAL CALCULATIONS FOR SPECIFIC APPLICATIONS MAY BE REQUIRED BY THE EOR.
- ALL ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) IN CONJUNCTION WITH EDGE DISTANCE, SPACING AND EMBEDMENT DEPTH AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL ARRANGE FOR A MANUFACTURER'S FIELD REPRESENTATIVE TO PROVIDE INSTALLATION TRAINING FOR ALL PRODUCTS TO BE USED, PRIOR TO COMMENCEMENT OF WORK. ONLY TRAINED INSTALLERS SHALL PERFORM POST INSTALLED ANCHOR INSTALLATION. A RECORD OF TRAINING SHALL BE KEPT ON SITE AND BE MADE AVAILABLE TO THE EOR AND INSPECTOR AS REQUESTED OR REQUIRED BY SPECIAL INSPECTION.
- ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS TO SUPPORT SUSTAINED TENSION LOADS SHALL BE PERFORMED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI/CRSI (ACI 318). PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO
- ADHESIVE ANCHORS MUST BE INSTALLED IN CONCRETE AGED A MINIMUM OF 21 DAYS (ACI 318).

COMMENCEMENT OF INSTALLATION.

ACCORDANCE WITH ICC-ES AC70.

- POST-INSTALLED ANCHORS UTILIZED IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F SHALL BE QUALIFIED PER THE PROVISIONS FOR EARTHQUAKE LOADING IN THE APPLICABLE ACCEPTANCE CRITERIA.
- MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193 FOR CRACKED AND UNCRACKED CONCRETE.
- ADHESIVE ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED AND UNCRACKED CONCRETE.
- 'CAST-IN-PLACE INSERTS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC446 FOR CRACKED AND UNCRACKED CONCRETE.
- MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC01 OR AC106. ADHESIVE ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE
- WITH ICC-ES AC58. POWDER ACTUATED FASTENERS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN

VII - DEMOLITION

- THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS FOR THE DEMOLITION AND REMOVAL WORK.
- NOTIFY ALL LOCAL AGENCIES HAVING JURISDICTION.
- DEMOLITION PROCEDURES, SHORING REQUIREMENTS, SEQUENCES, TECHNIQUES, ETC. EITHER GIVEN IN OR IMPLIED BY THESE DRAWINGS ARE SUGGESTIONS ONLY. CONTRACTOR SHALL RETAIN, AT HIS OWN EXPENSE, A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO DETERMINE AND DESIGN ALL CONSTRUCTION REQUIREMENTS AND TECHNIQUES. CONTRACTOR TO SUBMIT DRAWINGS SIGNED AND SEALED BY HIS ENGINEER TO OWNER AND ENGINEER FOR CONCEPT REVIEW AND RECORD PURPOSES. CONTRACTOR SHAL BE SOLELY RESPONSIBLE FOR THE PROTECTION, STABILITY, INTEGRITY, ETC. OF EXISTING AND NEW STRUCTURES DURING EXECUTION OF THE WORK.
- BEFORE UNDERTAKING ANY DEMOLITION WORK, ASCERTAIN BY SURVEY THE EXISTING CONDITIONS OF THE PROPERTIES AND BUILDINGS ADJOINING OR IN CLOSE PROXIMITY TO THE
- CONTRACTOR SHALL PERFORM ALL WORK IN SUCH A MANNER AS TO PROTECT EXISTING AND ADJACENT STRUCTURES AND BE RESPONSIBLE TO PROPERLY REPAIR ANY DAMAGE WHICH
- CONTRACTOR SHALL REPAIR ALL DAMAGE TO STREETS, SIDEWALKS, UTILITY LINES OR ANY OTHER PUBLIC OR PRIVATE PROPERTIES RESULTING FROM THE EXECUTION OF THE WORK AT
- THE USE OF EXPLOSIVES IS NOT PERMITTED.

OCCURS AS A RESULT OF HIS WORK.

- CEASE OPERATIONS AND NOTIFY OWNER AND ENGINEER IMMEDIATELY IF SAFETY OR INTEGRITY OF STRUCTURE APPEARS TO BE ENDANGERED. PROPERLY BRACE AND SUPPORT STRUCTURE BEFORE RESUMING OPERATIONS.
- NOTIFY OWNER AND ENGINEER IMMEDIATELY IF ANY PORTION OF EXISTING STRUCTURE WHICH IS NOT TO BE DEMOLISHED IS DAMAGED. CONTRACTOR SHALL PAY FOR ALL REPAIR COSTS, INCLUDING DESIGN AND INSPECTION EXPENSES.
- NOTES, TYPICAL DETIALS AND SCHEDULES APPLY TO ALL WORK UNLESS OTHERWISE NOTED. FOR CONDITIONS NOT SPECIFICALLY SHOWN, PROVIDE DETAILS OF A SIMILAR NATURE.
- STRUCTURAL ALTERATION DRAWINGS SHALL BE USED IN CONJUNCTION WITH STRUCTURAL DRAWINGS, SPECIFICATIONS, ARCHITECTURAL AND MECHANICAL DRAWINGS. IF THERE IS A DISCREPANCY AMONG DRAWINGS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER PRIOR TO PERFORMING WORK.
- DO NOT CUT OR ALTER ANY STRUCTURAL MEMBERS WITHOUT WRITTEN AUTHORIZATION OF THE ENGINEER UNLESS INDICATED ON THE STRUCTURAL DRAWINGS.
- ALL EXISTING DIMENSIONS (DISTANCES, ELEVATIONS AND MEMBER SIZES) SHOWN ON THE DRAWINGS SHALL BE CHECKED BY MEASUREMENT IN THE FIELD.
- DO NOT ALLOW RESULTING DEBRIS TO ACCUMULATE. DISPOSE OF THIS MATERIAL IN A LEGAL
- CUTTING OF EXISTING SLABS SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. DRILL CORNERS AND SAW CUT STRAIGHT LINES.
- 16. DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONAL INFORMATION.

- CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN. CONSTRUCTION. ERECTION. REMOVAL, SAFETY AND ADEQUACY OF ALL FORMWORK, FALSEWORK, SHORING, RESHORING AND THE LIKE.
- A. CONTRACTOR SHALL PREPARE FORMWORK, SHORING AND RESHORING DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF NEW YORK. THESE DRAWINGS WILL NOT BE REVIEWED BY THE ENGINEER. THIS REQUIREMENT IS SOLELY TO ENSURE THAT THESE ITEMS HAVE BEEN DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

IX - INSPECTION AND TESTING

OWNER WILL ENGAGE AND PAY FOR AN INDEPENDENT TESTING AGENCY TO PERFORM THE FOLLOWING INSPECTION AND TESTING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE PRIOR NOTICE FOR COMPLETION OF SUCH.

- STEEL:
 - ALL FIELD WELDING SHALL BE VISUALLY INSPECTED. FIELD WELDS SHALL BE TESTED PER AWS D1.1 AS FOLLOWS: ALL PENETRATION WELDS SHALL BE ULTRASONICALLY TESTED, 50 PERCENT OF FILLET WELDS SHALL BE TESTED BY DYE PENETRANT OR
- MAGNETIC PARTICLE B. INSTALLATION OF HIGH STRENGTH BOLTS SHALL BE INSPECTED.
- COLD FORMED STRUCTURAL STEEL:
- INSTALLATION OF FRAMING MEMBERS INCLUDING BRACING, CONNECTIONS AND WELDING TO BE INSPECTED.
- B. ALL STUD WELDING SHALL BE INSPECTED AND TESTED PER AWS D1.1.
- POST INSTALLED ANCHORS:
 - INSPECT ALL MECHANICAL AND ADHESIVE ANCHORS PER THE APPLICABLE BUILDING CODE AND PER THE CURRENT ICC-ES REPORT.
 - CONTINUOUSLY INSPECT ALL ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS DURING INSTALLATION BY AN INSPECTOR SPECIALLY APPROVED FOR THAT PURPOSE BY THE BUILDING OFFICIAL (ACI 318).

X - SYMBOLS USED ON DRAWINGS

U.O.N.	DENOTES "UNLESS OTHERWISE NOTED".
(N)	DENOTES "NEW".
(E)	DENOTES "EXISTING".
	DENOTES (N) CONCRETE (CUT).
	DENOTES (E) CONCRETE OR CMU (CUT).
	DENOTES (E) STRUCTURE TO BE REMOVED.
49 44 49 4	DENOTES (N) CONCRETE TO BE PLACED.
	DENOTES (E) STEEL MEMBER TO REMAIN.
	DENOTES (N) STEEL MEMBER.
	DENOTES (N) OPENING.
\otimes	DENOTES TEMPORARY SHORING. SEE DEMOLITION NOTES.
* - * - * -	DENOTES (E) STEEL MEMBER TO BE REMOVED.
V	DENOTES SHEAR FORCE (KIPS).
F	DENOTES AXIAL FORCE (KIPS).
М	DENOTES MOMENT (KIP-FT).
	DENOTES SPAN DIRECTION JOIST SYSTEM.
	DENOTES SPAN DIRECTION OF METAL DECK.
T.O. STL.	DENOTES 'TOP OF STEEL'.
T.O.	DENOTES 'TOP OF'.
H.P., L.P.	DENOTES 'HIGH POINT' OR 'LOW POINT'.

SHEET INDEX NUMBER GENERAL NOTES & DESIGN CRITERIA FRAMING PLANS SECTIONS AND DETAILS

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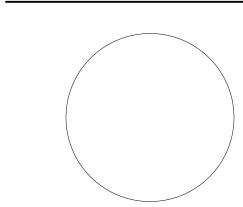
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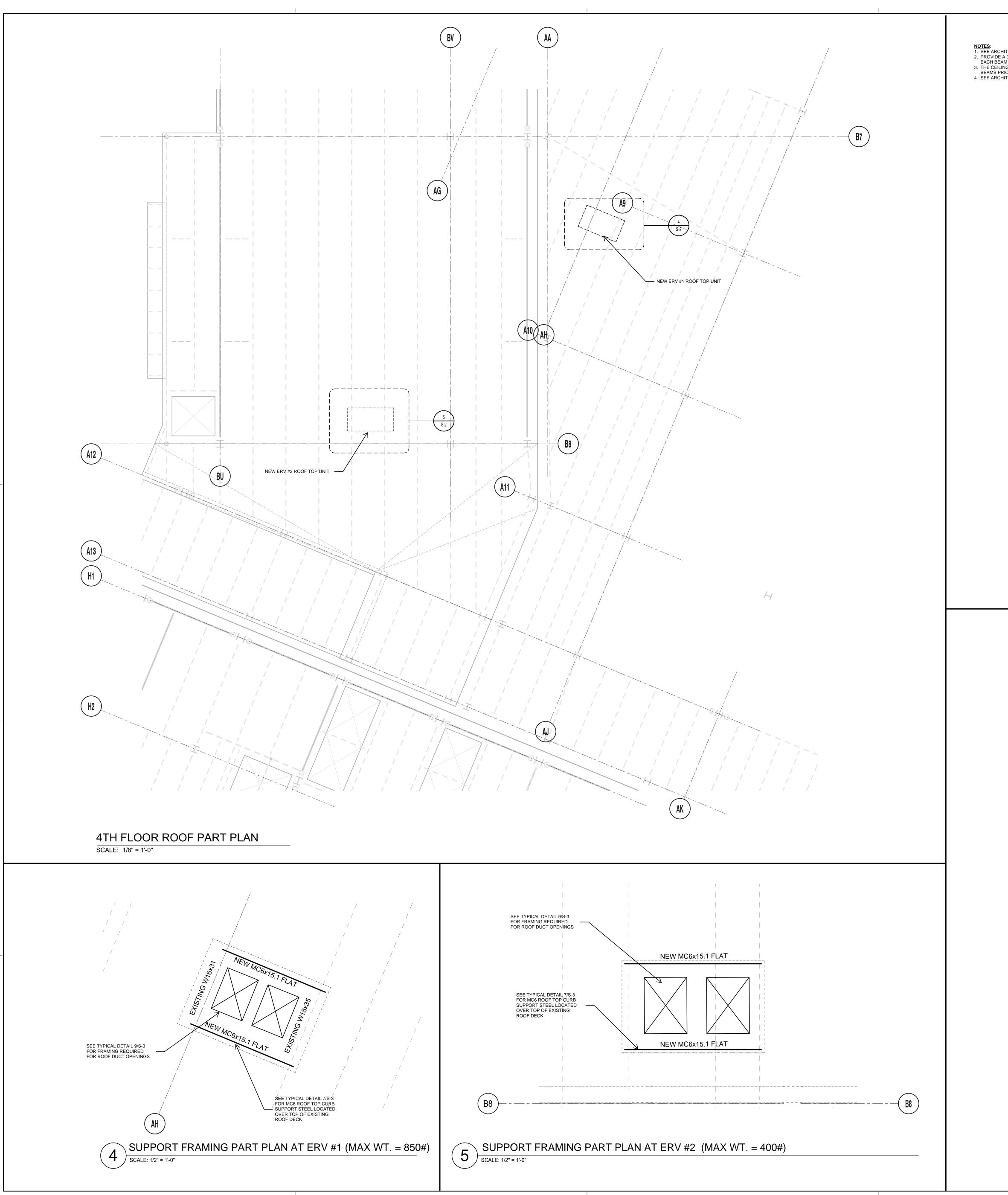
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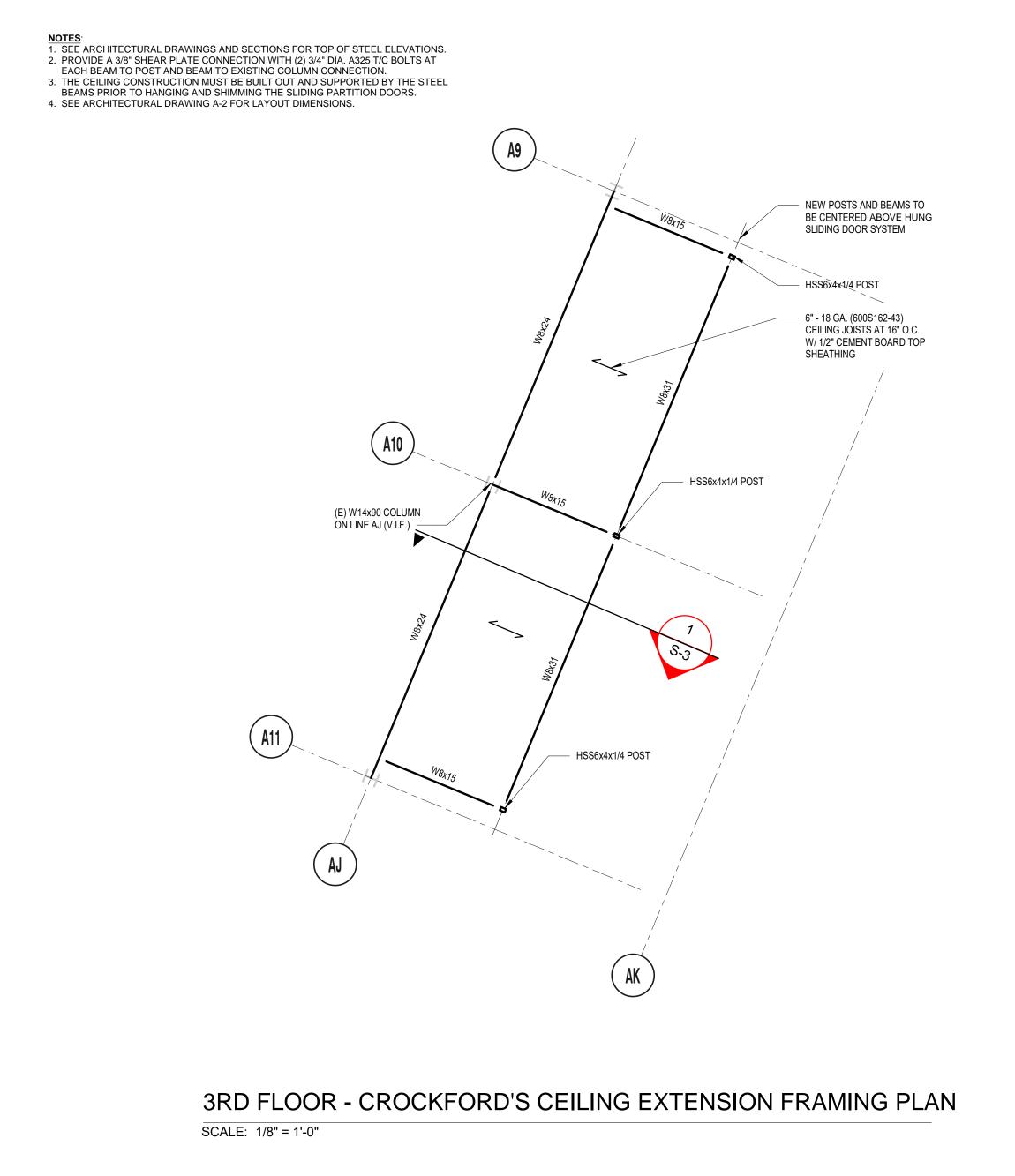
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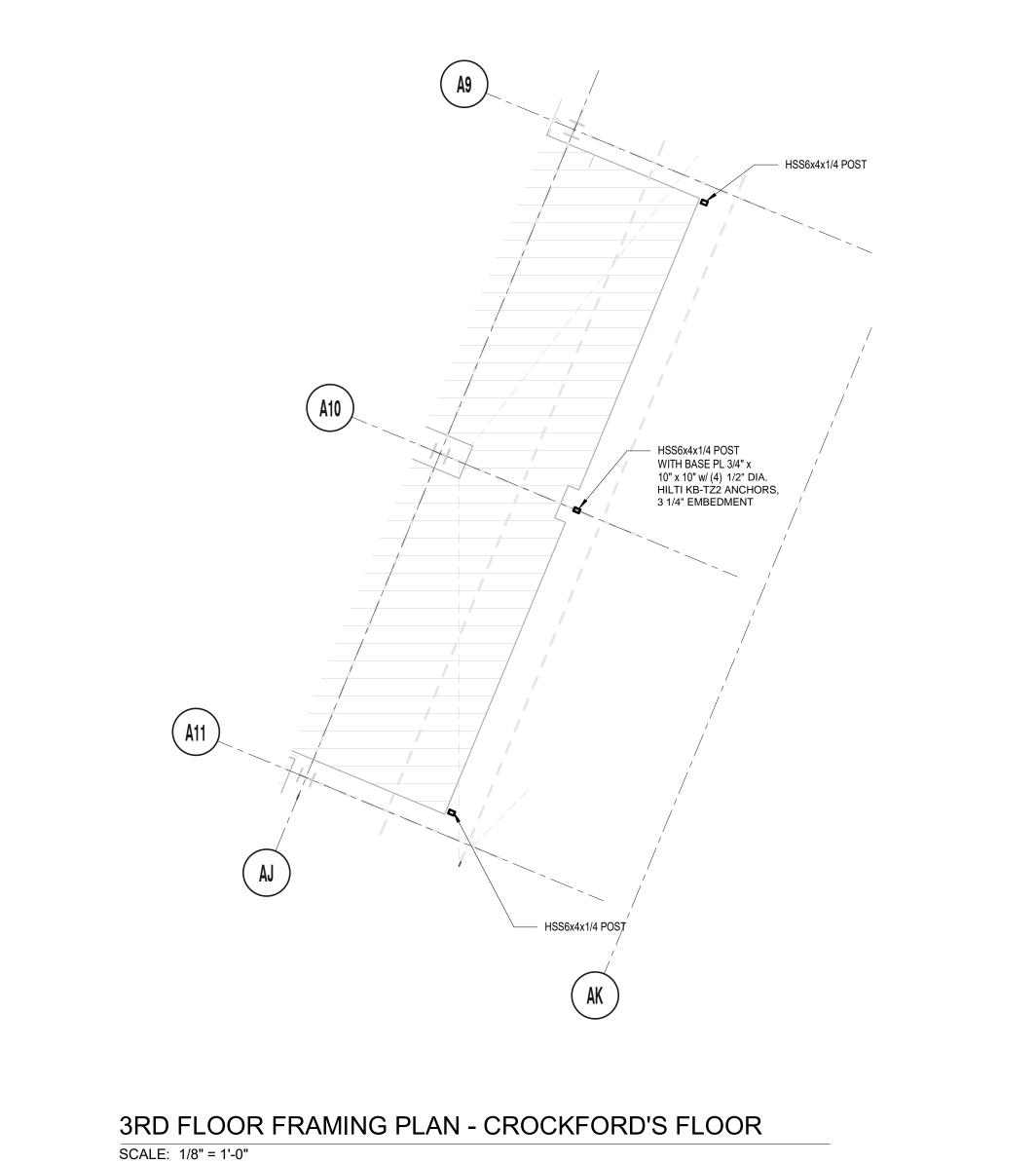
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GENERAL NOTES & DESIGN

CRITERIA







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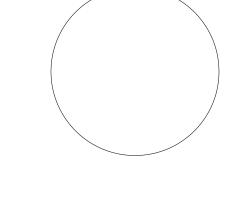
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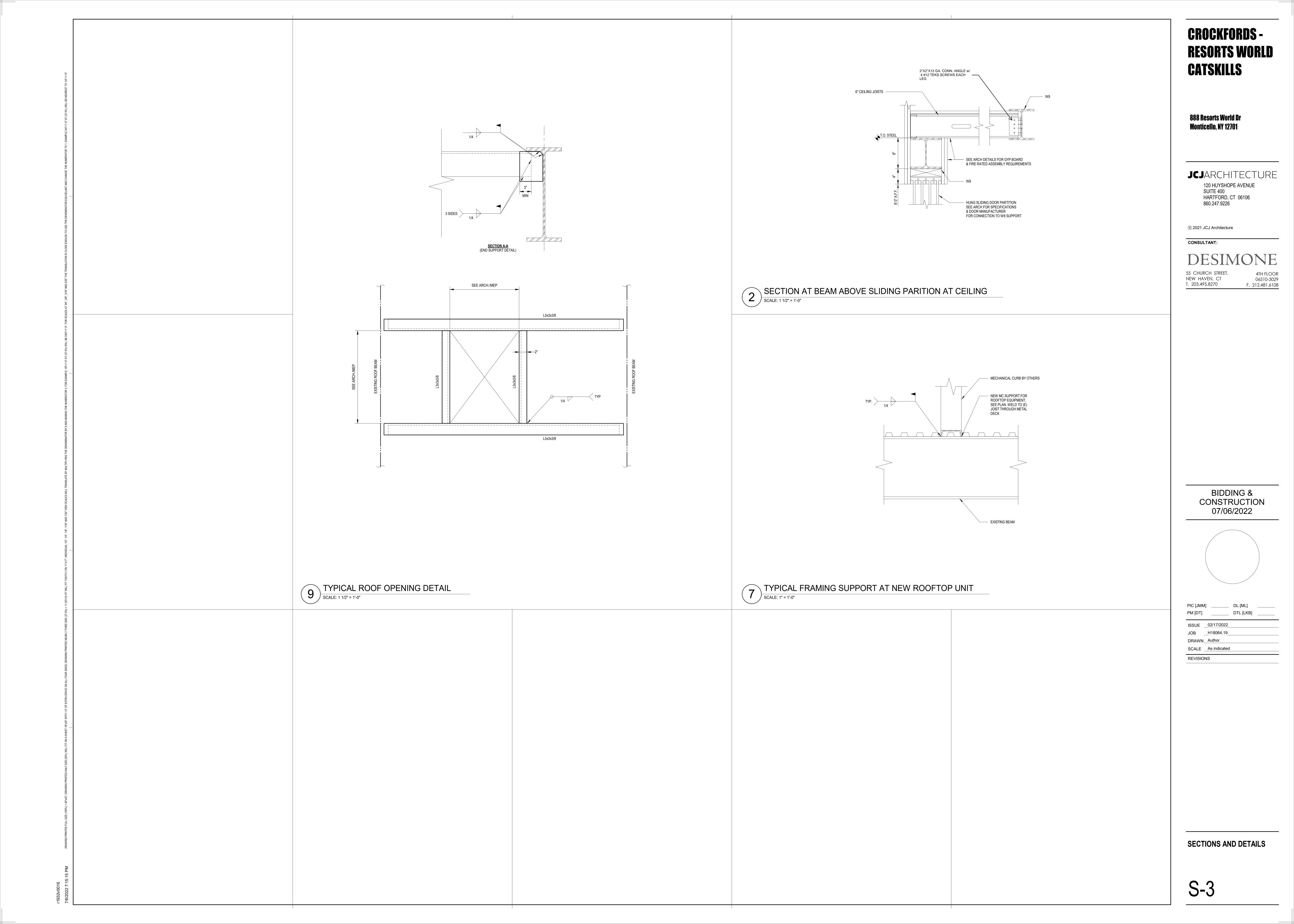
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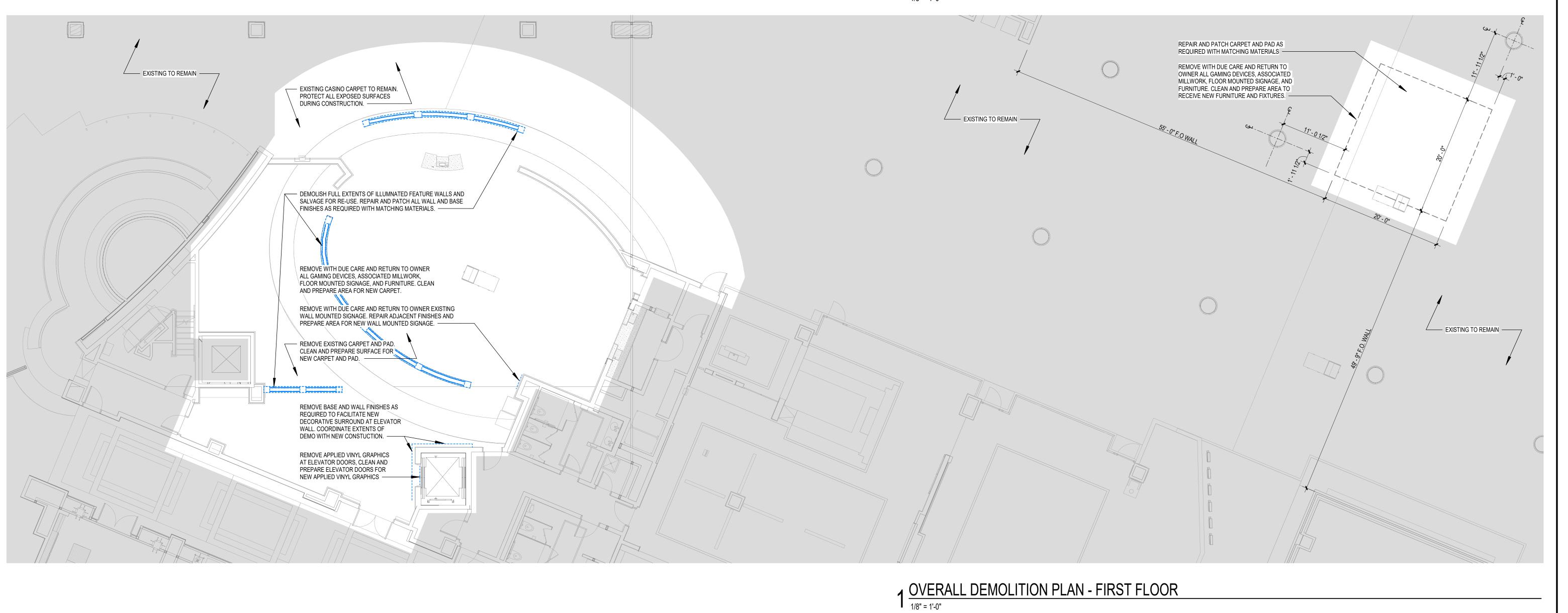
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FRAMING PLANS

S-2



CASINO CARPET (E) MILLWORK (E) RE-INSTALLED IN ORIGINAL LOCATION — — SALVAGED DECORATIVE PANEL; SEE ELEVATION. ELLIPSE QUADRANT POINT (QD) (4) PLACES, TYP. EXPANSION JOINT (E) "PLUG AND PLAY" FURNITURE GROUPING. PROVIDE IN FLOOR POWER AND DATA CONNECTIONS THROUGH ACCESS FLOORING. RECOMMENDED LOCATIONS SHOWN. 7 G-1 FURNITURE FIXTURES GAMING FLOOR MILLWORK (E) -ELLIPSE CENTER POINT BORDER CARPET [CPT-2] FIELD CARPET ELLIPSE FOCCI (FX) (4) PLACES, TYP ELLIPSE INFLECTION POINT (IP) BETWEEN RADII (4) PLACES, TYP. -INTERNALLY ILLUMINATED WALL MOUNTED SIGN (BY OWNER) SECURED TO WALL AT EXISTING SIGNAGE LOCATION. COORDINATE POWER AND BLOCKING REQUIREMENTS WITH SIGNAGE SUPPLIER. ELEVATOR FLOOR TILE [T-3]. CENTER PATTERN IN ELEVATOR. 2 OVERALL FLOOR PLAN - FIRST FLOOR



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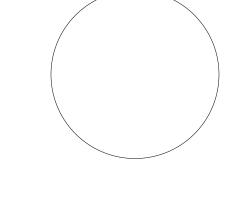
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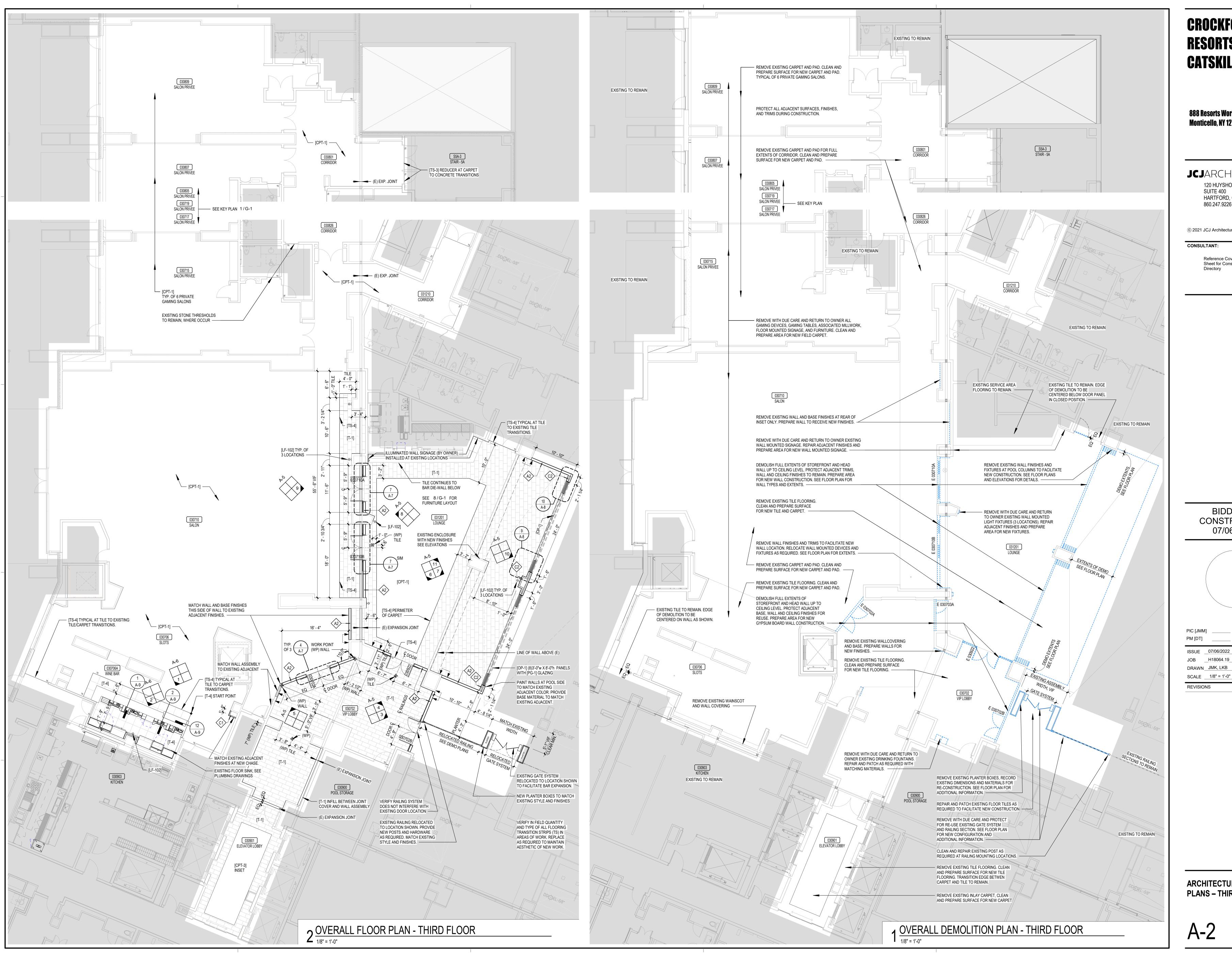
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SCALE 1/8" = 1'-0"

REVISIONS

ARCHITECTURAL FLOOR PLANS – FIRST FLOOR

A-1



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REVISIONS

ARCHITECTURAL FLOOR PLANS - THIRD FLOOR

A-2

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SCALE 1/8" = 1'-0"

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1 OVERALL CEILING DEMOLTION PLAN - FIRST FLOOR

1/8" = 1'-0"

3 OVERALL CEILING PLAN - FIRST FLOOR

GYPSUM BOARD CEILING INFILL TO MATCH EXISTING ADJACENT CONSTRUCTION.

LINEAR RECESSED WALL WASH FIXTURE [LF-108]; SEE ELECTRICAL DRAWINGS.

SURFACE MOUNTED ADJUSTABLE SHOE BOX LIGHT FIXTURE [DH-04] CENTERED OVER GAME TABLE. CONFIRM EXACT

ELECTRICAL DRAWINGS, TYPICAL OF (6).

GYPSUM BOARD CEILING INFILL TO MATCH EXISTING ADJACENT CONSTRUCTION. PROVIDE LEVEL 5 FINISH.

LOCATION WITH OWNER. SEE

WALL MOUNTED ILLUMINATED SIGNAGE AT SOFFIT. PROVIDE SOLID, IN-WALL BLOCKING, POWER AND DATA CONNECTIONS. COORDINATE REQUIREMENTS WITH SIGNAGE SUPPLIER. CENTER SIGN ON ILLUMINATED FEATURE WALL.

__ RELOCATED ACCESS PANEL

EXTEND GYPSUM SOFFIT @ 12'-4" A.F.F TO MATCH EXISTING

LINEAR RECESSED WALL WASH FIXTURE [LF-108]; SEE ELECTRICAL

WALL MOUNTED ILLUMINATED

DRAWINGS.

ADJACENT CEILING

//SIGNAGE

PROVIDE LEVEL 5 FINISH.

FIRST FLOOR REFLECTED CEILING PLAN

A-3

r1932v0016

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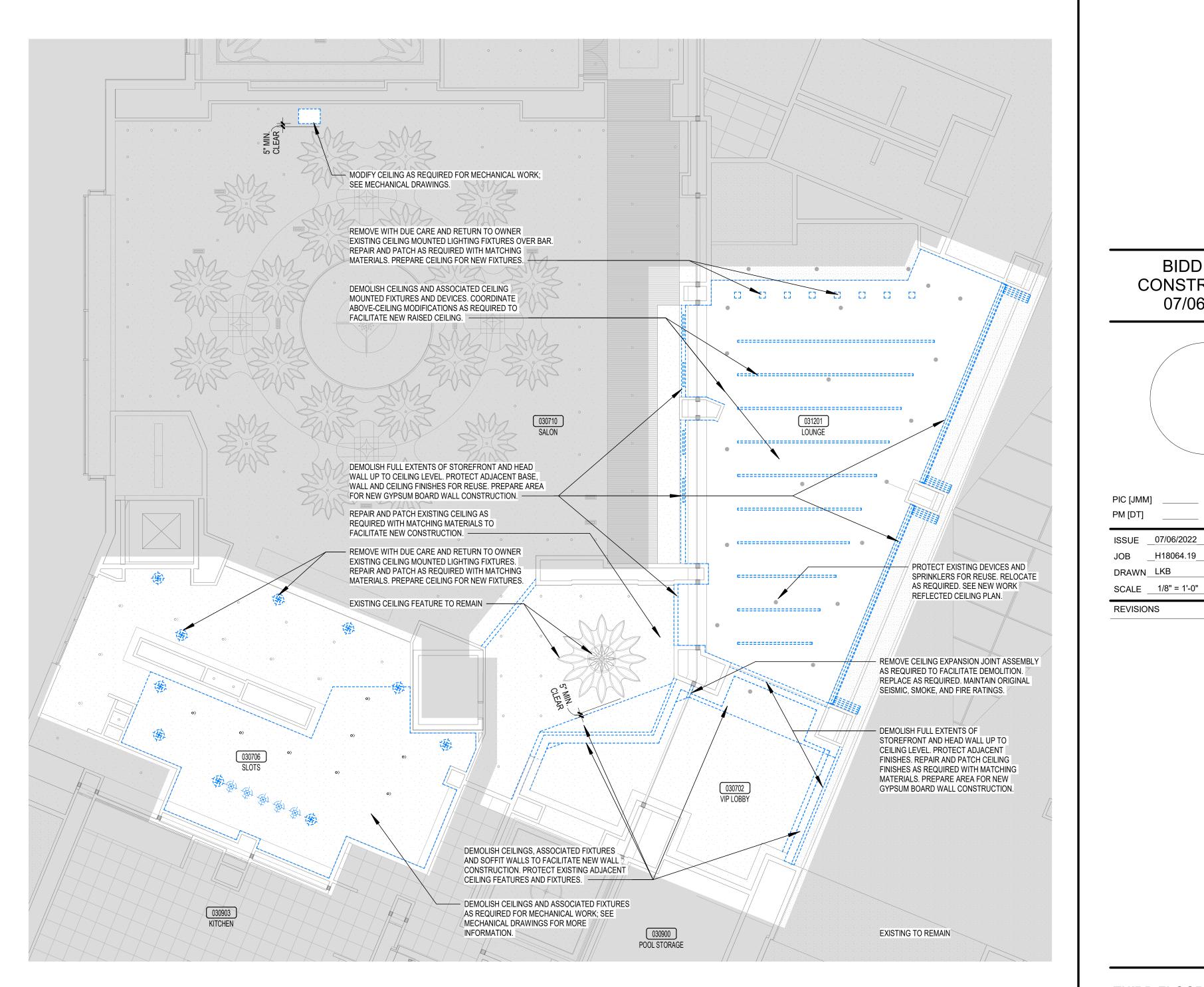
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2 OVERALL CEILING DEMOLITION PLAN - THIRD FLOOR

1/8" = 1'-0"

- RECESSED LIGHT FIXTURE

LOCATIONS AND QUANTITIES OF

NEW DIFFUSERS, DEVICES, AND SPRINKLERS TO BE DETERMINED.

COORDINATE LOCATIONS WITH ARCHITECTURAL CEILINGS.

— [OP-1] OPERABLE PARTITION

- PORTAL SURROUND AT DOOR,

— [P-1] ALL CEILING SURFACES AND

SOFFIT WALLS THIS ROOM

— GYPSUM BOARD CEILING (E)

TYP. OF 3 LOCATIONS.

— LOWERED GYPSUM BOARD SOFFIT TO MATCH EXISTING ADJACENT CONSTRUCTION

— EXPANSION JOINT (E)

[LF-107], TYP. VERIFY
QUANTITY WITH ELECTRICAL
AND LIGHTING ENGINEER

030903 KITCHEN

■ OVERALL CEILING PLAN - THIRD FLOOR

PATCH AND REPAIR GWB CEILING TO MATCH EXISTING

CEILING MOUNTED PENDANT FIXTURE [LF-103] B.O. FIXT. = 7'-0" AFF. PROVIDE POWER AND SOLID ATTACHMENT TO CEILING STRUCTURE.

RAISED CEILING WITH PERIMETER COVE LIGHTING [LF-104].

GYPSUM BOARD CEILING. PROVIDE LEVEL 5

METALLIC CEILING TRIM. SEE CEILING DETAIL FOR ADDITIONAL INFORMATION.

AND LAYOUT IN FIELD.

INFORMATION.

COORDINATE LOCATIONS OF ACCESS DOORS, REGISTERS, DEVICES, AND SPRINKLERS WITH EXISTING ABOVE-CEILING ELEMENTS.

CEILING MOUNTED LIGHTING FEATURES [LF-105] B.O. FIXT. = 8'-0" AFF. COORDINATE IN-CEILING SUPPORT LOCATIONS AND POWER REQUIREMENTS WITH MANUFACTURER. REVIEW FINAL QUANTITY

GWB CEILING; MATCH EXISTING

030900 POOL STORAGE

ADJACENT FINISHES

SALVAGED DOWNLIGHT. TYPICAL OF (6)

RECESSED DOWNLIGHT [DS-01].
MATCH EXISTING ADJACENT IN SPACE.

FLUSH MOUNTED LIGHT FIXTURE

[LF-106]

GWB SOFFIT

SEE ELECTRICAL DRAWINGS FOR

MORE INFORMATION. TYPICAL OF (4)

EXISTING DEVICES AND SPRINKLERS. REINSTALL AT NEW

ELEVATION AS REQUIRED TO FACILITATE NEW CEILING CONSTRUCTION. SEE MEP DRAWINGS FOR MORE

FLUSH MOUNTED LIGHT FIXTURE INSTALLED IN EXISTING LOCATION [LF-106]

ADJACENT FINISHES.

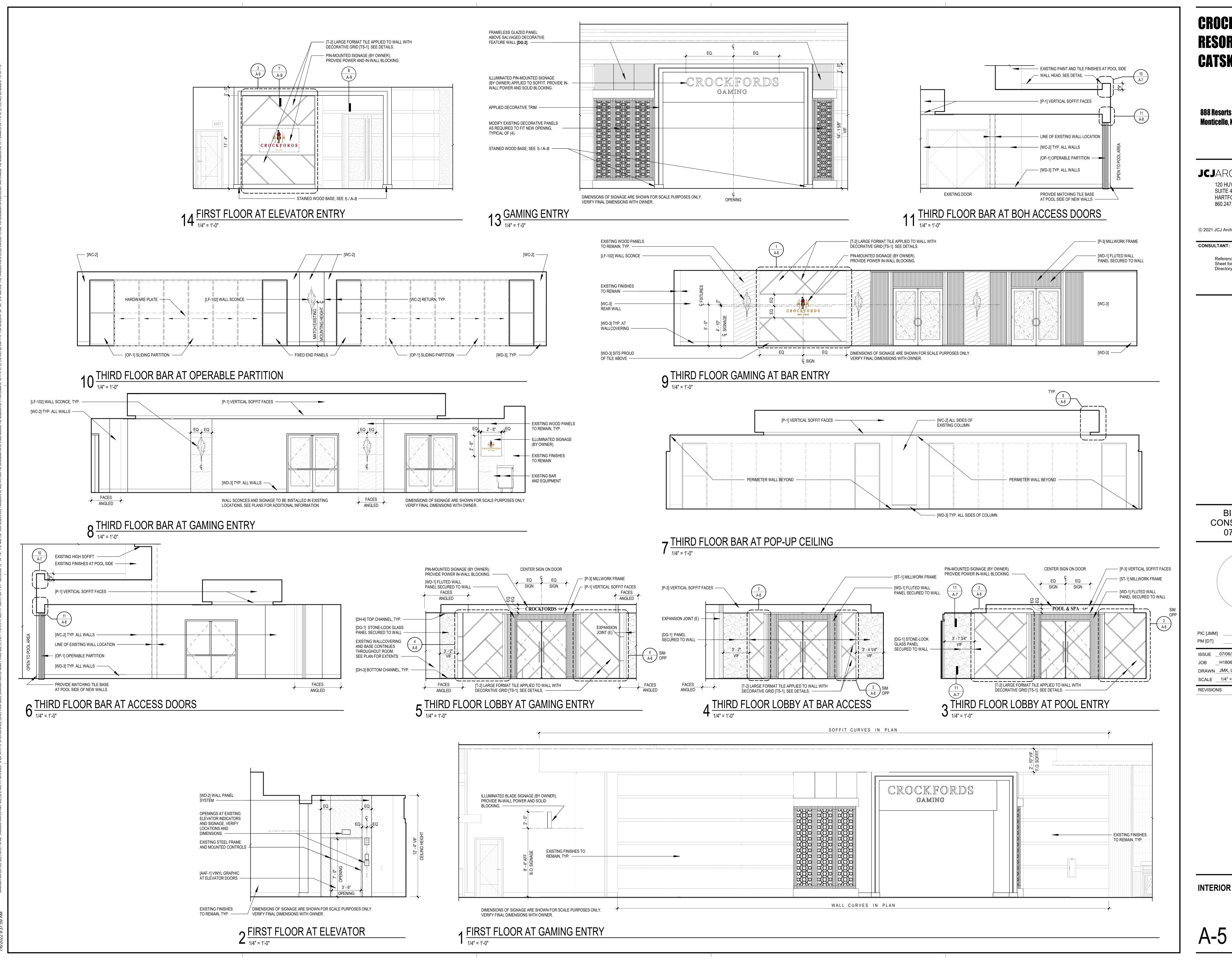
LINE OF BARTOP BELOW

THIRD FLOOR REFLECTED CEILING PLAN

A-4

1932VUU16

1/8" = 1'-0"



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SCALE ___1/4" = 1'-0" REVISIONS

INTERIOR ELEVATIONS

CONSULTANT: SCALE ___1/4" = 1'-0" [LF-106] LIGHT FIXTURE BAG HOOK AND USB PORT, TYPICAL. SEE ELECTRICAL DRAWINGS LIF-102] LIGHT FIXTURE $2^{\frac{\text{WINE BAR ELEVATION}}{1/4" = 1'-0"}}$ $1 \frac{\text{WINE BAR ELEVATION}}{\frac{1}{4}" = 1'-0"}$ A-6

CROCKFORDS -**RESORTS WORLD CATSKILLS**

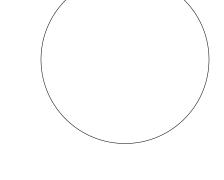
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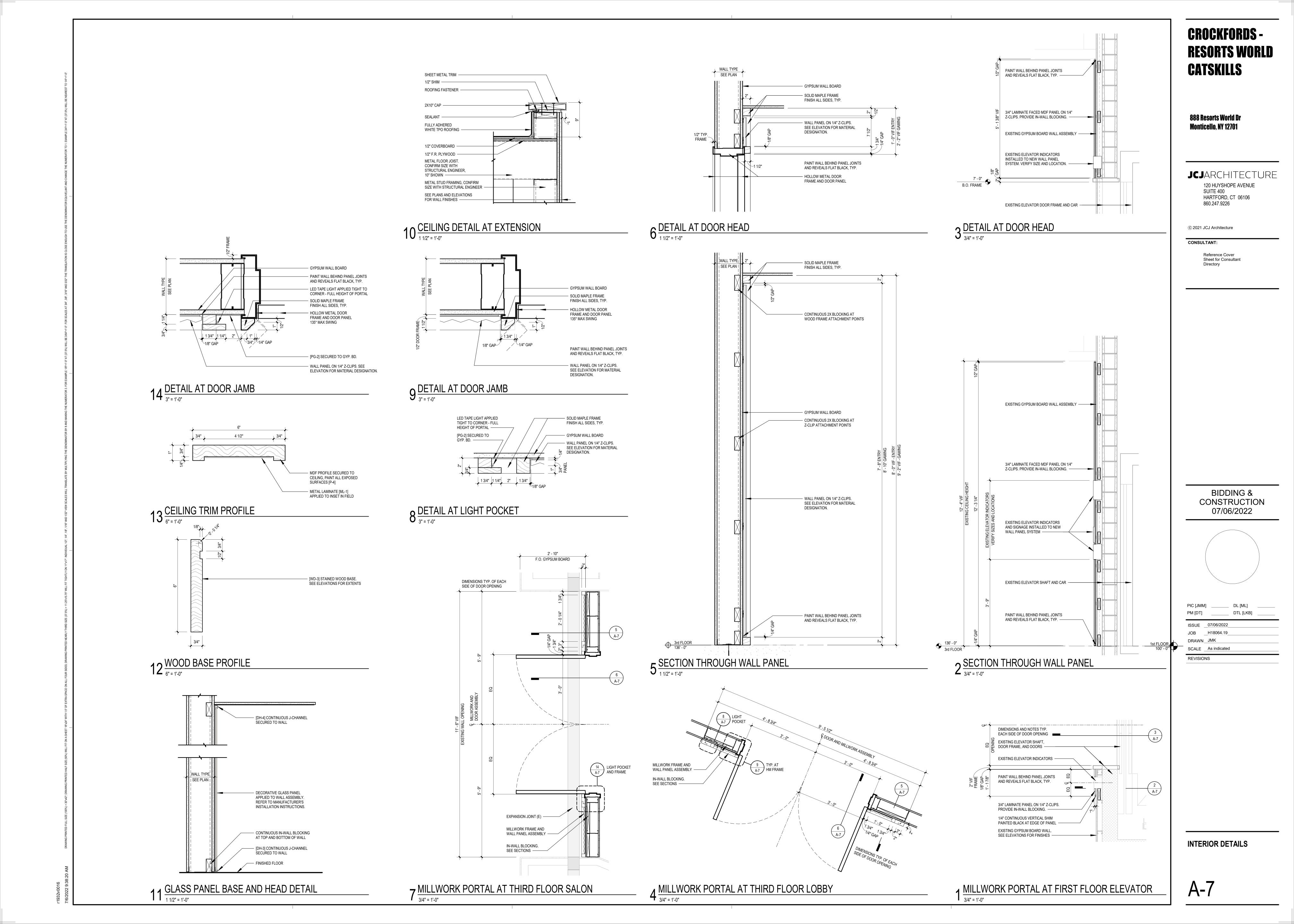


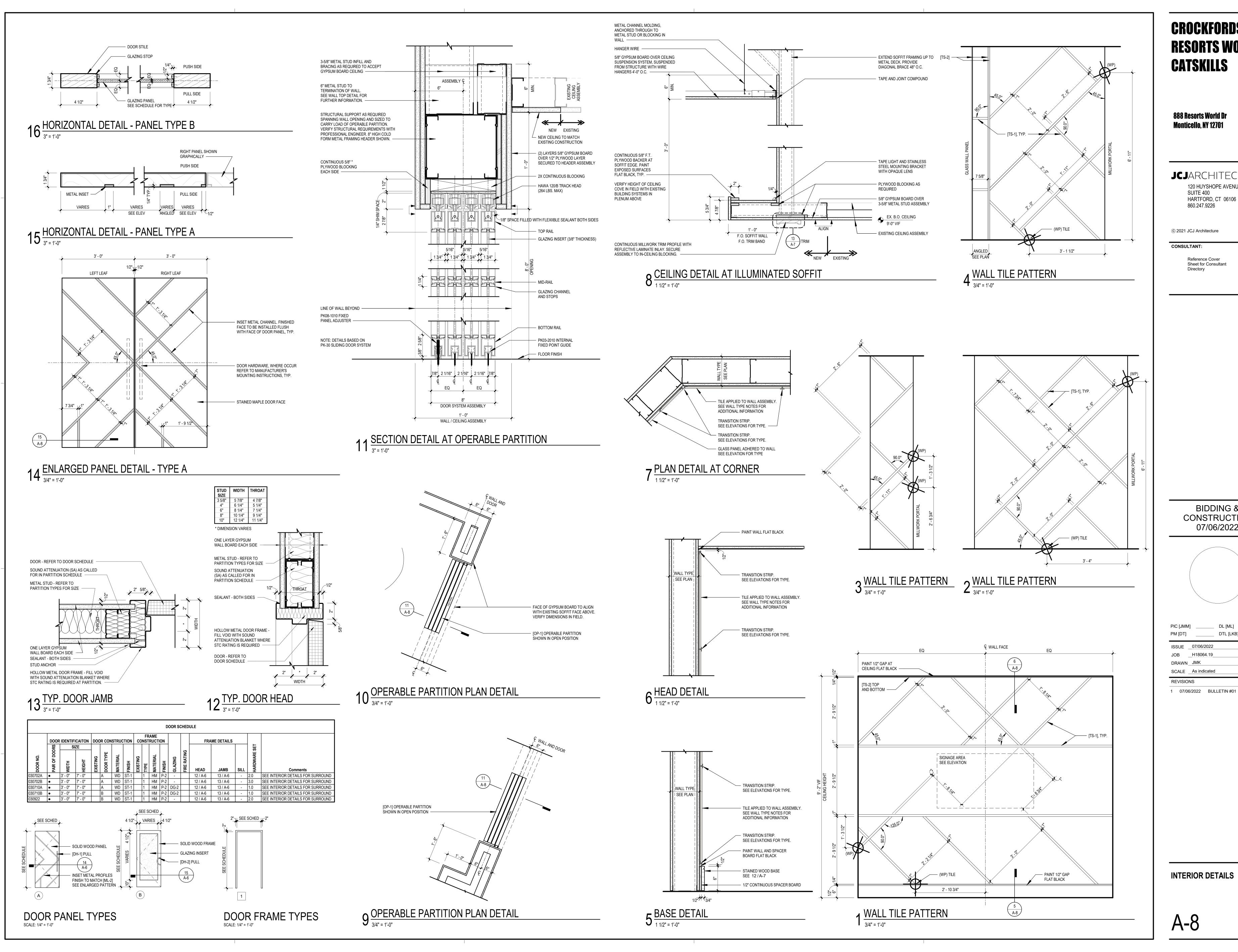
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REVISIONS

INTERIOR ELEVATIONS





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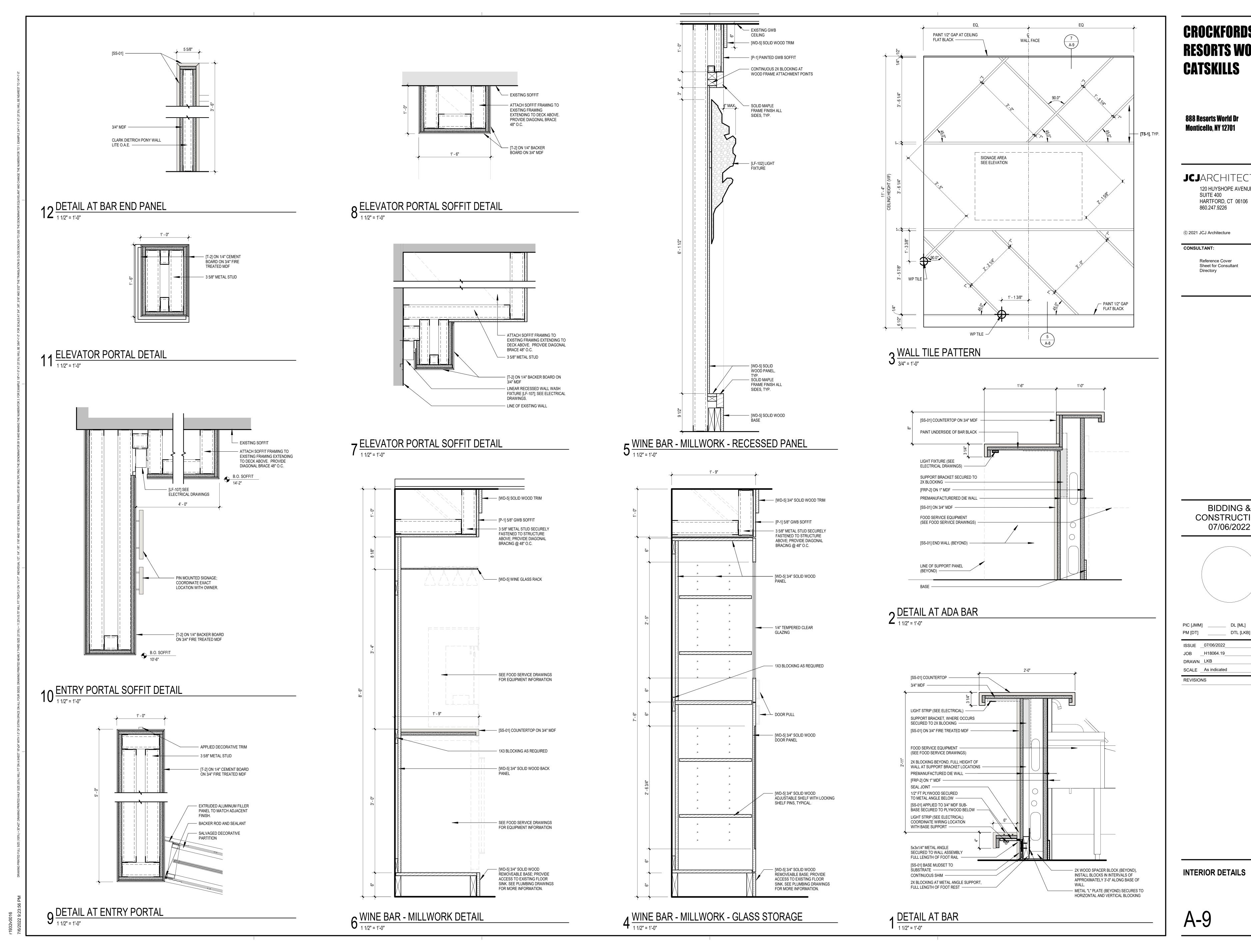
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SCALE As indicated

1 07/06/2022 BULLETIN #01

INTERIOR DETAILS



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GENERAL NOTES

- A. THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE FULL SET OF CONSTRUCTION DOCUMENTS AS APPLICABLE.
- B. THE DRAWINGS AND SPECIFICATIONS, AND ALL COPIES THEREOF, ARE LEGAL INSTRUMENTS OF SERVICE FOR THE USE BY THE OWNER AND AUTHORIZED REPRESENTATIVES ON THE DESIGNATED PROPERTY ONLY. OTHER USE, WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER, RJS ASSOCIATES, OR THE PROJECT ARCHITECT, IS PROHIBITED.
- C. SPECIFICATIONS, DETAILS AND SCHEDULES, WHICH MAY BE BOUND SEPARATELY AND REFERENCED BY PROJECT NAME, ARE PART OF THESE CONTRACT DOCUMENTS. DRAWINGS BY CONSULTING PROFESSIONALS, INCLUDING FOOD SERVICE CONSULTANTS, ARE SUPPLEMENTARY AND SUBORDINATE TO THE ARCHITECTURAL DRAWINGS AND ARE PART OF THESE CONTRACT DOCUMENTS AS MAY BE APPLICABLE.
- D. THE KITCHEN EQUIPMENT CONTRACTOR SHALL NOTIFY THE FOOD SERVICE CONSULTANT IMMEDIATELY OF ANY OMISSIONS OR DISCREPANCIES BETWEEN THE FOOD SERVICE DRAWINGS, ARCHITECTURAL DRAWINGS, CONSULTING PROFESSIONALS DRAWINGS, SPECIFICATIONS OR EXISTING CONDITIONS. SHOULD THERE BE AN OMISSION OR DISCREPANCY BETWEEN SAID DRAWINGS AND SPECIFICATIONS, IT SHALL BE BROUGHT TO THE FOOD SERVICE CONSULTANT'S ATTENTION IN WRITING FOR CLARIFICATION PRIOR TO BIDDING, EXECUTION OR INSTALLATION OF SAID WORK.
- E. ALL WORK SHALL CONFORM TO ALL RULES AND REGULATIONS OF FEDERAL, STATE AND LOCAL GOVERNMENT AGENCIES AND JURISDICTIONS HAVING AUTHORITY OF THE PROJECT, INCLUDING STATE AND FEDERAL ACCESSIBILITY REQUIREMENTS.
- F. THE KITCHEN EQUIPMENT CONTRACTOR SHALL NOTIFY THE FOOD SERVICE CONSULTANT IMMEDIATELY IF INFORMATION IS NOT SHOWN OR IS UNCLEAR.
- G. THE KITCHEN EQUIPMENT CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS PRIOR TO STARTING WORK AND REPORT ANY DISCREPANCIES IN WRITING TO THE FOOD SERVICE CONSULTANT. ANY WORK INSTALLED IN CONFLICT WITH HE FOOD SERVICE DRAWINGS SHALL BE CORRECTED AT THE KITCHEN EQUIPMENT CONTRACTOR'S EXPENSE.
- H. THE KITCHEN EQUIPMENT CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FOR ALL WORK.
- J. THE KITCHEN EQUIPMENT CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SCHEDULING AND COORDINATING THE WORK FOR ALL UTILITIES AND SERVICES RELATED TO THIS WORK.
- K. ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED TO BE CONSTRUCTION STANDARDS. QUESTIONS REGARDING THE SAME, OR THEIR EXACT MEANING, SHALL BE DIRECTED TO THE FOOD SERVICE CONSULTANT.
- M. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE. DO NOT SCALE DRAWINGS. THE KITCHEN EQUIPMENT CONTRACTOR SHALL, AT THE MINIMUM, BE RESPONSIBLE FOR THE ACCURATE PLACEMENT AND CONFIGURATION OF THE EQUIPMENT WITHIN ITS SCOPE ON THE SITE.
- N. ALL EXTERIOR WALL DIMENSIONS ARE TO FACE OF STUD, CONCRETE OR MASONRY, UNLESS OTHERWISE NOTED
- P. ALL INTERIOR WALL DIMENSIONS ARE TO FACE OF GYPSUM BOARD AT METAL STUD WALLS, OR TO FACE OF MASONRY OR CONCRETE, UNLESS OTHERWISE NOTED.
- Q. FINISH FLOOR ELEVATIONS ARE TO TOP OF CONCRETE SLAB, UNLESS OTHERWISE NOTED.
- R. FLOOR TO CEILING HEIGHT DIMENSIONS ARE TO FINISHED SURFACES, UNLESS OTHERWISE NOTED.
- S. ALL DOOR SIZES SHOWN ON SCHEDULE ARE OPENING SIZES. ALLOWANCE FOR THRESHOLDS, ETC. SHALL BE DEDUCTED. FRAMES SHALL BE REINFORCED WHERE REQUIRED, FOR CLOSERS, STOPS AND HARDWARE.
- T. THE KITCHEN EQUIPMENT CONTRACTOR SHALL VERIFY LOCATION OF ALL STIFFENERS, BRACES, BLOCKING, BACKING, HANGERS, BACK-UP PLATES AND SUPPORTING BRACKETS REQUIRED FOR THE INSTALLATION OF THE CASEWORK, FIXTURES AND ALL WALL-MOUNTED OR SUSPENDED KITCHEN EQUIPMENT, OR MISCELLANEOUS EQUIPMENT OR FURNISHINGS THAT ARE CONTAINED IN THIS WORK.
- U. THE KITCHEN EQUIPMENT CONTRACTOR SHALL VERIFY EXACT SIZES AND LOCATIONS OF ALL ITEMS WITHIN HIS SCOPE, INCLUDING, BUT NOT LIMITED TO; EQUIPMENT CURBS, BASE STRUCTURES, AS WELL AS POWER, WATER, DRAIN, GAS INSTALLATIONS AND LOCATIONS. ALL ITEMS SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURERS BEFORE PROCEEDING WITH THE WORK. CHANGES TO ACCOMMODATE THE FIELD CONDITIONS OR APPROVED SUBSTITUTIONS SHALL BE MADE WITHOUT ADDITIONAL CHARGE TO THE OWNER OR RJS ASSOCIATES.
- V. ALL PIPES, CONDUITS, WIRES AND DUCTS SHALL BE CONCEALED FROM VIEW UNLESS OTHERWISE NOTED.
 - A. HIDDEN CONDITIONS: THE KITCHEN EQUIPMENT CONTRACTOR IS TO CONTACT THE FOOD SERVICE CONSULTANT IMMEDIATELY UPON UNCOVERING ANY HIDDEN CONDITION. THE FOOD SERVICE CONSULTANT IS TO PROVIDE DIRECTION.
- W. CLEAN UP: DAILY REMOVAL OF CONSTRUCTION DEBRIS RELATED TO THIS WORK.

GENERAL PROJECT NOTES

PROJECT SPECIFICATIONS FORM A PART OF THESE GENERAL NOTES.

- A. THESE DRAWINGS TO BE USED IN CONJUNCTION WITH THE FULL SET OF CONSTRUCTION DOCUMENTS AS APPLICABLE.
- B. THE KITCHEN EQUIPMENT CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION OF CUSTOM FABRICATED KITCHEN EQUIPMENT. THE ARCHITECT AND RJS ASSOCIATES SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
- C. DO NOT SCALE THE DRAWINGS.
- D. NOTES AND DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER THESE GENERAL NOTES AND THE TYPICAL DETAILS.
- E. ALL SPECIFICATIONS AND CODES NOTED SHALL BE THE LATEST APPROVED EDITIONS AND REVISIONS OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THIS PROJECT.
- F. SEE THE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING: SIZE AND LOCATION OF WINDOW AND DOOR OPENINGS. SIZES AND LOCATIONS OF INTERIOR AND EXTERIOR NONBEARING PARTITIONS. SIZES AND LOCATIONS OF CONCRETE CURBS, CONVENIENCE FLOOR DRAINS, SLOPES, DEPRESSED AREAS, CHANGES IN LEVELS, CHAMFERS, GROOVES, INSERTS, ETC. SIZE AND LOCATION OF FLOOR AND ROOF OPENINGS. FLOOR AND ROOF FINISHES. STAIR FRAMING AND DETAILS. DIMENSIONS NOT SHOWN ON THE FOOD SERVICE DRAWINGS. CEILING ASSEMBLIES AND HEIGHTS EXTERIOR WALL ASSEMBLIES.
- G. SEE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR THE FOLLOWING: PIPES, SLEEVES, HANGERS, TRENCHES, WALL, FLOOR AND ROOF OPENINGS, DUCT PENETRATIONS, ETC. EXCEPT AS SHOWN OR NOTED. CONVENIENCE FLOOR SINKS.ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS. CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL, OR PLUMBING FIXTURES. SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES, ANCHOR BOLTS FOR MOUNTS.BEVERAGE CONDUIT RUNS AND PULL BOXES, UNLESS INCLUDED IN RJS FOOD SERVICE DRAWINGS.

GENERAL PROJECT NOTES CONT.

- H. SEE INTERIOR DESIGN DRAWINGS FOR THE FOLLOWING: CEILING PATTERNS,
 MATERIALS, FINISHES, DECORATIVE LIGHT FIXTURES, LOCATIONS AND ADDITIONAL
 CEILING INFORMATION. DIMENSIONS AND ALL INTERIOR WALL ELEVATIONS. DETAILS OF
 BOOTHS, BAR, COUNTER AND BUILT-INS.
- J. SEE RJS ASSOCIATES FOOD SERVICE SPECIAL CONDITIONS DRAWINGS FOR WALL BACKING INFORMATION, SLAB DEPRESSIONS, BEVERAGE CONDUIT ROUTING, BULK CO2 FILL BOX, ETC.
- K. SEE ELECTRICAL RJS ASSOCIATES FOOD SERVICE DRAWINGS FOR WALL MOUNTED EQUIPMENT OUTLETS, SWITCHES AND DETAILS.
- M. SEE PLUMBING RJS ASSOCIATES FOOD SERVICE DRAWINGS FOR INFORMATION ON FLOOR SINKS, FLOOR DRAINS AND NEW EQUIPMENT LAYOUT AT KITCHEN, SCULLERIES AND SERVICE STATIONS.
- N. THE CONTRACT RJS ASSOCIATES FOOD SERVICE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED DESIGN. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION.
- O. THE KITCHEN EQUIPMENT CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE FOOD SERVICE EQUIPMENT, WORKING AND ADJACENT SPACES DURING CONSTRUCTION.
- P. NOTIFY RJS ASSOCIATES FOOD SERVICE CONSULTANT WHEN DRAWINGS BY OTHERS SHOW OPENINGS, POCKETS, WALLS, ETC.
- Q. KITCHEN EQUIPMENT CONTRACTOR SHALL INVESTIGATE THE SITE DURING ALL PHASES OF CONSTRUCTION. IF ANY BURIED STRUCTURES, CESSPOOLS, CISTERNS, FOUNDATIONS, UTILITIES, ETC. ARE FOUND, RJS ASSOCIATES SHALL BE NOTIFIED IMMEDIATELY.
- R. KITCHEN EQUIPMENT CONTRACTOR SHOP DRAWINGS SUBMITTED TO RJS+ASSOCIATES SHALL CONSIST OF (5) HARD-COPY SETS, AND (1) ELECTRONIC CAD FILE.
- S. IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND/OR THE GENERAL CONTRACTOR TO INSURE THAT ALL OF THE CONSULTANTS AND SUB- CONTRACTORS RECEIVE COPIES OF ANY AND ALL ADDENDUMS OR CHANGES TO THE CONSTRUCTION DOCUMENTS OR FIELD CONDITIONS WHICH ARE MADE PRIOR TO AND DURING CONSTRUCTION.
- T. KITCHEN EQUIPMENT CONTRACTOR SHALL BE RESPONSIBLE FOR ALL GENERAL CLEAN-UP AND DISPOSAL OF ALL TRASH, CARTONS, CRATES, DEBRIS, ETC. AFTER FINAL INSTALLATION OF ALL FIXTURES AND EQUIPMENT, UNLESS OTHERWISE NOTED, INCLUDING FINAL NON-SANITARY CLEANING.
- U. ALL BASE CONSTRUCTION, MECHANICAL, PLUMBING, ELECTRICAL, WIRING AND CONDUIT REQUIREMENTS RELATED TO EQUIPMENT AS INDICATED ON RJS ASSOCIATES CONSTRUCTION DOCUMENTS ARE TO BE COMPLETED BY THE GENERAL CONTRACTOR AND/OR SUB-CONTRACTORS.

GENERAL PROJECT NOTES

(CONTINUED)

- V. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL HAVE INCLUDED IN HIS SCOPE, ALL WORK NECESSARY TO PROPERLY COORDINATE AND FACILITATE THE INSTALLATION OF ALL FOOD SERVICE EQUIPMENT BY THE KITCHEN EQUIPMENT CONTRACTOR, INCLUDING THE INSTALLATION OF ALL RELATED ITEMS REQUIRED. THIS WORK SHALL INCLUDE ALL NECESSARY CORE DRILLING AND SLEEVES THROUGH WALLS, CEILINGS, FLOORS, COLUMNS AND BEAMS FOR THE PASSAGE OF ALL UTILITIES AND REFRIGERATION LINES. THIS WORK SHALL ALSO INCLUDE ALL EMPTY CONDUITS, ALL EQUIPMENT PADS/CURBS, ALL PLUMBING AND ELECTRICAL REQUIREMENTS AS DESCRIBED ON RJS ASSOCIATES FOOD SERVICE CONSTRUCTION DOCUMENTS, ALL DUCT SHAFTS AND WALL BACKING.
- W. THE LAST DATED REVISION VOIDS ALL PREVIOUS FOOD SERVICE CONSTRUCTION DOCUMENTS CONTAINED IN THIS SET.
- X. GENERAL CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL SUPPLIERS AND/OR SUB-CONTRACTORS UPON COMPLETION OF ANY APPLICABLE ROUGH-IN OR OTHER WORK IN ORDER TO FACILITATE THE VERIFICATION OF ALL ROUGH-IN LOCATIONS AND/OR EQUIPMENT DIMENSIONS AS REQUIRED.

DESIGN DRAWINGS

- A. DESIGN DRAWINGS ARE DIAGRAMMATIC AND ARE ONLY INTENDED TO DEFINE THE BASIC FUNCTIONS REQUIRED. PROVIDE ALL WORK, MATERIAL, ETC. NECESSARY TO ACCOMPLISH THESE REQUIREMENTS. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND ARE PART OF THE WORK INCLUDED: HOWEVER, NO CHANGES THAT ALTER THE DESIGN INTENT OR FUNCTION OF THE WORK WILL BE PERMITTED. DO NOT SCALE THE DRAWINGS.
- B. IF A CONFLICT OCCURS BETWEEN THE DESIGN DRAWINGS AND SPECIFICATIONS, THE MOST STRINGENT SHALL APPLY.

SUBMITTALS

A. SHOP DRAWINGS:

PRIOR TO FABRICATION OR DELIVERY OF ANY MATERIAL AND/OR EQUIPMENT TO THE JOB-SITE, SUBMIT FIVE (5) HARD COPIES AND ONE (1) ELECTRONIC CAD FILE COMPLETELY ILLUSTRATING AND DESCRIBING ALL MATERIAL AND EQUIPMENT TO BE FABRICATED. ANY PIECE OF MATERIAL OR EOUIPMENT PLACED ON THE JOB WITHOUT PRIOR APPROVAL WILL BE SUBJECT TO REMOVAL.

B. RECORD DRAWINGS:

MAINTAIN ACCURATE CONTINUOUS RECORDS OF ANY AND ALL CHANGES FROM THE CONTRACT DOCUMENTS AND SHOP DRAWINGS. UPON COMPLETION OF THE PROJECT, DELIVER TO THE OWNER, ONE (1) SET OF LEGIBLE AND REPRODUCIBLE COPIES OF THESE RECORD DRAWINGS, PLUS ONE (1) COMPLETE ELECTRONIC CAD FILE, INCLUDING "AS-BUILT" FABRICATION SHOP DRAWINGS.

C. GUARANTEE:

UPON COMPLETION OF THE PROJECT, DELIVER TO THE OWNER ONE (1) YEAR GUARANTEE OF THE FOOD SERVICE EQUIPMENT, MATERIAL AND WORK PERFORMED.

D. MANUAL AND OPERATING INSTRUCTIONS:

- 1. UPON COMPLETION OF THE PROJECT, THE KITCHEN EQUIPMENT CONTRACTOR SHALL DELIVER TO THE OWNER THREE (3) HARD BOUND "OWNER'S MANUAL'S". INCLUDE IN THE MANUAL, INSTRUCTIONS SPECIFICALLY PREPARED FOR THE EQUIPMENT AND SYSTEMS PROVIDED, ALONG WITH ALL PAPERS, DESCRIPTIONS, PARTS LISTS, INSTRUCTIONS, WARRANTIES, ETC. WHICH WERE DELIVERED WITH THE MATERIALS AND EQUIPMENT UTILIZED IN THE PROJECT. IDENTIFY EACH ITEM BY DESIGNATION APPEARING ON THE DRAWINGS.
- 2. AT THE TIME DESIGNATED, PROVIDE A SUITABLE OPERATOR, MECHANIC OR ENGINEER TO REVIEW THE SYSTEM WITH OWNER'S REPRESENTATIVE TO THOROUGHLY FAMILIARIZE THE OWNER WITH THE OPERATIONS AND MAINTENANCE OF THE SYSTEM.

HEALTH DEPT. NOTES

- 1. ALL FOOD SERVICE EQUIPMENT, FABRICATED ITEMS, AND THEIR INSTALLATION SHALL MEET NATIONAL SANITATION FOUNDATION (N.S.F.) REQUIREMENTS.
- 2. ALL STATIONARY EQUIPMENT AND FIXTURES TO BE SEALED TO THE WALL OR ADJACENT EQUIPMENT. USE ALUMINUM COLOR AT STAINLESS STEEL AND CLEAR AT ALL OTHER.
- 3. ALL SINKS IN THE FOOD FACILITY MUST BE PROVIDED WITH HOT WATER (MIN. 110 DEG. F.)
 AND COLD RUNNING WATER UNDER PRESSURE AND WILL HAVE A PREMIXING FAUCET CAPABLE
 OF SUPPLYING WARM WATER FOR A MINIMUM OF 10 SECONDS
- 4. A HAND SINK IS PROVIDED IN EACH FOOD PREPARATION AREA WITH SINGLE SERVICE TOWEL AND SOAP DISPENSER.
- 5. 3-COMPARTMENT SINKS ARE PROVIDED WITH MIXING VALVE FAUCETS CAPABLE OF REACHING EACH COMPARTMENT.
- 6. A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT, MEASURED 30" OFF THE FLOOR TO BE PROVIDED IN ALL FOOD PREPARATION, PACKAGING, AND PROCESSING AREAS.
- 7. A MIN. OF 10 FOOT CANDLES (108 LUX) OF LIGHT, MEASURED 30" OFF THE FLOOR TO BE PROVIDED IN ALL FOOD & UTENSIL STORAGE ROOMS, TOILET, AND DRESSING ROOMS.
- 8. A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT, MEASURED 30" OFF THE FLOOR TO BE PROVIDED IN ALL AREAS DURING GENERAL CLEANUP ACTIVITIES.
- 9. ALL SHELVING OVER WET AREAS (SINKS, MOP SINKS, ETC.) WILL BE STAINLESS STEEL.
- 10. SHATTER SHIELDS OR SHATTERPROOF LIGHT BULBS TO BE PROVIDED FOR ALL LIGHTS ABOVE FOOD PREPARATION, WORK, AND STORAGE AREAS.
- 11. ALL PLUMBING, ELECTRICAL, AND GAS LINES SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE TO AS GREAT AN EXTENT AS POSSIBLE.
- 12. FLOOR SINKS UNDER EQUIPMENT MUST BE 50% EXPOSED AND EASILY ACCESSIBLE FOR CLEANING AND SERVICING.
- 13. ALL EXHAUST HOODS TO BE A MIN. 22 GA. STAINLESS STEEL, U.L. LISTED, AND CONSTRUCTED AND INSTALLED TO ALL U.L. AND N.F.P.A. SPECIFICATIONS. EXHAUST DUCTS TO BE A MIN. 16 GA. STEEL. (TYPE 1 HOOD DUCTS TO HAVE WELDED SEAMS)
- 14. ALL FLOOR TILE TO BE SMOOTH UNDER ALL EQUIPMENT, AND WALKWAYS TO HAVE A LIGHT TEXTURE ONLY.
- 15. ALL 3-COMPARTMENT SINKS TO HAVE A MIN. COMPARTMENT SIZE OF 18" X 18" X 12" DEEP, WITH A MIN. 18" DRAIN BOARD ON EACH END. PROVIDE WITH 8" HIGH INTEGRAL BACK SPLASH AT ALL WALLS. (SEE FOOD SERVICE SPECIFICATIONS FOR SIZES OF EACH ITEM.)
- .6. SUPPORT ROOMS ARE FOR STORAGE AND UTENSIL WASHING ONLY. NO VEGETABLE WASHING OR FOOD PREP. TO BE DONE

FOOD SERVICE NOTES

- 1. REQUIREMENTS SHOWN ARE FOR ONE ITEM, TO DERIVE TOTAL MULTIPLY BY QUANTITY
- 2. ELECTRICAL CONTRACTOR SHALL PROVIDE MAG. STARTERS. DISCONNECT SWITCHES, INTERLOCKS AND THERMO-OVERLOAD PROTECTION WHERE REQUIRED.
- 3. PLUMBING CONTRACTOR SHALL PROVIDE STOP VALVES AHEAD OF ALL OPERATING HANDLES AND FAUCETS.
- 4. SEE EQUIPMENT PLUMBING AND ELECTRICAL ROUGH-IN DRAWINGS FOR ADDITIONAL INFORMATION
- 5. ELECTRICAL POWER TO COOKING EQUIPMENT, WHERE REQUIRED, SHALL BE PROVIDED THRU A SHUNT-TRIP SYSTEM FOR FIRE FUEL SHUT-OFF. ELECTRICAL CONTRACTOR SHALL WIRE CONTROL CIRCUIT TO MICRO SWITCH PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ON HOOD FIRE PROTECTION SYSTEM.
- 6. GAS SUPPLY TO ALL COOKING EQUIPMENT, WHERE REQUIRED, SHALL BE PROVIDED WITH AN ELECTRIC VALVE FOR FIRE-FUEL SHUT-OFF. VALVE TO BE SUPPLIED BY THE "K.E.C." AND INSTALLED BY THE "P.C." K.E.C. SHALL CONNECT VALVE TO THE HOOD FIRE PROTECTION SYSTEM FOR AUTOMATIC SHUT-OFF.
- ALL WALK-IN BOX COILS REQUIRE CONNECTIONS TO SOLENOID VALVE, T-STAT, T-CLOCK AND MOTORS AND CONTROL WIRING TO THE REMOTE COMPRESSOR. ALL CONNECTIONS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- 8. ALL WALK-IN BOX FIXTURES TO BE PROVIDED BY THE "K.E.C." INSTALLATION AND WIRING TO BE PROVIDED BY THE "E.C." WITH ALL CONDUIT RUN ON EXTERIOR (TOP) OF BOX.
- 9. VACUUM BREAKERS WHEN USED, TO BE MINIMUM OF SIX INCHES ABOVE THE FLOOD LEVEL RIM WITH NO SHUT OFF DEVICES BEYOND THE DISCHARGE OF THE VACUUM BREAKER.
- 10. WALL BACKING PROVIDED BY GENERAL CONTRACTOR.
- 11. PLUMBING CONTRACTOR TO SUPPLY GREASE TRAP AS REQUIRED BY CODE.
- 12. ALL COOKING EQUIPMENT UNDER EXHAUST HOODS ARE EITHER ON CASTERS WITH FLEXIBLE UTILITY QUICK DISCONNECTS OR FIXED ON S/S LEGS.
- 13. ALL NEW EXHAUST HOODS WILL BE CONSTRUCTED TO MEET THE FOLLOWING STANDARDS: NSF, UL AND NFPA-96. ALL NEW HOODS TO BEAR UL CLASSIFIED LABEL WITHOUT DAMPERS IN EXHAUST VENT COLLARS. HOODS ARE DESIGNED TO MEET OR EXCEED 50 FPM CAPTURE VELOCITY AT THE COOKING SURFACE EDGE AND HAVE A 6" MIN. OVERHANG AT ALL EXPOSED COOKING AREAS.
- 14. BACK SPLASHES OF EQUIPMENT SHALL BE SEALED TO WALLS WITH CLEAR SILICONE CAULK IN A NEAT WORKMAN LIKE MANNER.

SHEET NOTES

THIS PLAN REPRESENTS A FOOD SERVICE LAYOUT OF CULINARY, BEVERAGE, SYSTEMS AND RELATED EQUIPMENT FOR THE CONVENIENCE OF OWNER / OPERATOR, ARCHITECTS, MECHANICAL, ELECTRICAL AND PLUMBING ENGINEERS, CONTRACTORS, KITCHEN EQUIPMENT FABRICATORS, KITCHEN EQUIPMENT CONTRACTORS AND OTHER RELATED TRADES. THE BASE PLAN HAS BEEN MADE AVAILABLE FROM INFORMATION PROVIDED BY OTHER, NOT LIMITED TO MEASUREMENTS, ELECTRONIC BACKGROUNDS, GRID LINES AND EXISTING OR PROPOSED BUILDING SYSTEMS, NOT LIMITED TO (PLUMBING, STRUCTURAL, CONCRET, DUCTWORK, ELECTRICAL AND MECHANICAL). GENERAL CONTRACTOS, SUBCONTRACTOS, KITCHEN EQUIPMENT DEALERS, CONTRACTORS, INSTALLERS, RELATED AND NON-RELATED CONTRACTORS, ARE RESPONSIBLE FOR SECURING AND OBTAINING THEIR OWN MEASUREMENTS AND SPECIFIC INFOMATION. INFORMATION INDICATED ON THESE LANS ARE GENERALLY FOR FOOD SERVICE EQUIPMENT AND ARE INTENDED AS REFERENCE ONLY. RJS + ASSOCIATES IS NOT RESPONSIBLE FOR THE ENGINEER OR INTEGRATION OF RELATION ENGINEERING ADN DISCIPLINES THROUGHOUT THE FULL SET OF CONSTRUCTION DOCUMENTS SPECIFIC TO THE FOOD SERVICE EQUIPMENT IN RELATION TO THE STRUCTURAL, ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL TRADES, UNLESS OTHERWISE SPECIFICALLY PROVIDED FOR IN THE PLANS AND SPECIFICATIONS. RJS+ ASSOCIATES ASSUMES NO RESPONSIBILITY FOR WORK DONE BY ANY AND ALL ARCHITECTS, ENGINEERS, CONSULTANTS OR CONTRACTORS, OR FOR ANY CHANGES MADE NECESSARY BY LOCAL, STATE, OR NATIONAL BUILDING CODES, ORDINANCES, STRUCTURAL CONDITIONS, OR BY THE SUBSTITUTION OR CHANGES IN EQUIPMENT SHOWN ON THIS PLAN(S). CONTRACTORS ARE TO MAKE ALLOWANCES FOR INTERNAL AND EXTERNAL FINAL CONNECTIONS ON THE FOOD SERVICE EQUIPMENT, WASTE PIPING, VALVES, BACK-FLOW PREVENTION, TRAPS, DRAIN GRATES, FLUID / GAS REGULATORS, FAUCETS, STEAM TRAPS, STARTING SWITCHES AND MOTORS, EXCEPT WHERE SPECIFICALLY NOTED IN THE FOOD SERVICE SPECIFICATIONS, SECTION 114000.

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ABBREVIATIONS

(E) EXSITING

(X) EXISTING TO BE REMOVED

(R) RELOCATE

NIC NOT IN CONTRACT

U.O.N. UNLESS OTHERWISE NOTED

FBO FURNISHED BY OTHERS

FF & E FIXTURES FURNISHINGS AND EQUIPMENT

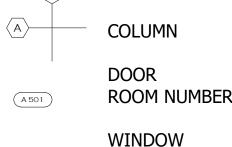
ABOVE FINISHED FLOOR

STAINLESS STEEL

KITCHEN EQUIPMENT CONTRACTOR

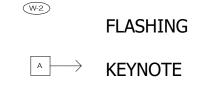
REFERENCE SYMBOLS

THE FOLLOWING SYMBOLS MAY BE USED IN THE DRAWINGS:



LOUVER

F
WALL TYPE

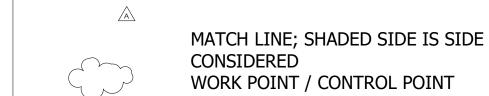


(7) KITCHEN / LAUNDRY EQUIPMENT

EXISTING WALLS TO REMAIN

NEW GYP BOARD STUD WALL
ADDENDUM / BULLETIN NO.

REVISION



ELEVATION

SECTION
SECTION IDENTIFICATION
SHEET NO.
SECTION CUT DIRECTION
DETAIL

SHEET NO.

INTERIOR ELEVATION

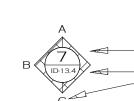
INTERIOR ELEVATION NO.

SHEET NO.

INTERIOR ELEVATION DIRECTION

EXTERIOR ELEVATION

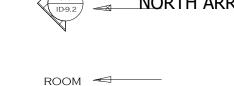
DETAIL IDENTIFICATION



ROOM IDENTIFICATION
ROOM NAME
ROOM NO.

SHEET NO.

ELEVATION NO.





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BIDDING & CONSTRUCTION 07/06/2022

CONSTRUCTION CONTROL OF THE PROPERTY OF THE PR

ISSUE __07/06/2022 JOB __H18064.19 DRAWN BC

REVISIONS

SCALE

GENERAL NOTES

K-0101

GENERAL MECHANICAL NOTES

(THESE NOTES SUPPLEMENT THE MASTER SPECIFICATIONS)

CONDITIONS

A. GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, SPECIAL CONDITIONS, AND OTHER RELATED PORTIONS OF DIVISION 1 APPLY TO THIS SECTION.

REGULATIONS, CODES, PERMITS AND INSPECTIONS

- A. COMPLY WITH ALL NATIONAL, STATE, COUNTY AND CITY CODES, ORDINANCES, ETC. HAVING JURISDICTION, INCLUDING RULES AND REQUIREMENTS OF UTILITY SERVING AGENCIES.
- B. INCORPORATE ALL CODES, ORDINANCES, ETC. INTO THE BASE BID AND INSTALLATION OF THE WORK. NO ADDITIONAL FUNDS WILL BE ALLOCATED FOR WORK REQUIRED TO CONFORM TO REGULATIONS AND REQUIREMENTS AND/OR TO OBTAIN APPROVAL OF WORK.
- C. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES. WHEN REQUIRED BY CODE, ALL WORK MUST BE INSPECTED AND APPROVED BY LOCAL AUTHORITIES. PRIOR TO FINAL APPROVAL FURNISH ARCHITECT WITH CERTIFICATES OF INSPECTION AND APPROVALS BY LOCAL AUTHORITIES.
- D. IN ADDITION, THE LATEST EDITION OF THE FOLLOWING PUBLISHED STANDARDS SHALL BE ADHERED TO:
 - 1. STANDARD BUILDING CODE
 - 2. STANDARD PLUMBING CODE
 - 3. STANDARD MECHANICAL CODE
 - 4. APPLICABLE NFPA STANDARDS
 - 5. ASHRAE GUIDES
 - 6. SMACNA DUCT CONSTRUCTION STANDARDS
- 7. NATIONAL ELECTRIC CODE
- 8. HEALTH CODES
- 9. NATIONAL FIRE CODE

DUCTWORK

A. PROVIDE A COMPLETE SYSTEM OF DUCTWORK, FABRICATED AND INSTALLED IN STRICT ACCORDANCE WITH THE ASHRAE GUIDES AND WITH SMACNA DUCT CONSTRUCTION STANDARDS. THE DUCT SYSTEM SHALL BE CONSTRUCTED AS SHOWN ON THE MECHANICAL DRAWINGS. CHANGES IN ARRANGEMENT OR IN DUCT SIZES SHALL BE MADE ONLY AFTER WRITTEN ACCEPTANCE IS OBTAINED FROM THE MECHANICAL CONSULTING ENGINEER.

DUCTWORK INSTALLATION

- A. CONSTRUCT DUCTWORK WITH MATERIAL, GAUGES, JOINTS, WELDS, BRACING AND SUPPORTS IN ACCORDANCE WITH APPLICABLE RECOMMENDATIONS OF ASHRAE AND SMACNA WITH ADDITIONAL BRACING AS REQUIRED.
- B. FOOD SERVICE EXHAUST DUCTWORK SHALL BE RIGIDLY CONSTRUCTED, LIQUID AND AIR-TIGHT. JOINTS SHALL BE TIGHTLY FITTED AND WELDED WITH NO VOIDS. ALL DUCTWORK, SEALING PRODUCTS SHALL CONFORM TO THE UMC AND UL-181 AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

TESTING AND BALANCING

- A. THE TESTS SHALL INCLUDE ALL FANS, VOLUME DAMPERS, AIR DEVICES, ETC. NORMALLY INCLUDED AS A PART OF THE AIR DISTRIBUTION AND TRANSMISSION SYSTEM.
- B. A COMPLETE BALANCING REPORT SHALL BE DONE BY AN INDEPENDENT BALANCING COMPANY AND SHALL BE SUBMITTED TO THE CONSULTING ENGINEER UPON COMPLETION.

PLUMBING AND PIPING SPECIFICATIONS

GENERAL PRODUCTS

- A. FURNISH AND INSTALL NEW EQUIPMENT AND MATERIALS. ITEMS OF EOUIPMENT USED FOR THE SAME PURPOSE SHALL BE BY THE SAME MANUFACTURER.
- B. SYSTEMS SHALL BE COMPLETE AND OPERABLE. ANY ACCESSORIES REQUIRED FOR OPERATION OF THE SYSTEMS SHALL BE INCLUDED AS AN ITEM OF EQUIPMENT. WHERE POSSIBLE, ALL VALVES SHALL BE CONCEALED WITHIN FIXTURE OR EQUIPMENT.

PIPING MATERIALS

- A. WATER PIPING BURIED BELOW GRADE SHALL BE TYPE "K" COPPER TUBING WITH WROUGHT COPPER FITTINGS WITH SILVER SOLDER.
- B. DOMESTIC AND CHILLED WATER PIPING ABOVE GRADE SHALL BE TYPE "L" HARD DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS AND NO-.LEAD 95/5 SOLDER.
- C. NATURAL GAS PIPING ABOVE GRADE THAT IS 2.5" AND SMALLER SHALL BE SCHEDULE 40 ASTM, A-53 BLACK STEEL SCREWED PIPE WITH BLACK BANDED 150C/O MALLEABLE IRON THREADED FITTINGS. PIPING 3" AND LARGER SHALL BE BUTT-WELDED WITH FACTORY MADE WROUGHT STEEL BUTT WELDING FITTINGS.
- D. CONDENSATE DRAIN PIPING SHALL BE TYPE "M" HARD COPPER WITH WROUGHT COPPER FITTINGS AND NO-LEAD 95/5 SOLDER.
- E. GAS VALVES SHALL BE BRONZE BODY, BRONZE TAPERED PLUG, NON-LUBRICATED TEFLON PACKING, THREADED ENDS. GAS VALVES ARE PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR. GAS VALVE SUPPORTING FIRE PROTECTION SHALL BE COMPATIBLE TO FIRE CONTROL LOGIC AS DESIGNED BY MECHANICAL ENGINEER.
- F. PIPE SUPPORTS SHALL BE AS REQUIRED BY LATEST EDITION OF THE UPC.

GENERAL MECHANICAL NOTES

(CONTINUED)

PIPING SPECIALTIES

INSTALLATION

- A. CONCEAL ALL PIPING IN WALLS, FURRED SPACES, PIPE SPACES, OR ABOVE SUSPENDED CEILINGS, AS SHOWN ON THE DRAWINGS. GROUP PIPING WHEREVER PRACTICAL, AND INSTALL UNIFORMLY IN STRAIGHT PARALLEL LINES, SQUARELY WITH BUILDING LINES, AS APPLICABLE.
- B. SUPPORT HORIZONTAL PIPING WITH PIPE HANGERS. DO NOT USE PERFORATED METAL STRAP. ARRANGE PIPING SO THAT THERMAL EXPANSION DOES NOT CAUSE STRESS. INSTALL AND SECURE PIPING SO THAT HOT AND COLD LINES AND LINES OF DISSIMILAR METALS ARE NOT IN CONTACT. ALLOW FOR THERMAL EXPANSION AS REOUIRED.
- C. VERIFY ALL EQUIPMENT DIMENSIONS AND REQUIREMENTS FOR ROUGH-IN WORK. COORDINATE BETWEEN KITCHEN EQUIPMENT CONTRACTOR AND PLUMBING CONTRACTOR.
- D. PERFORM ALL WORK IN ACCORDANCE WITH THE BEST TRADE PRACTICES. INSTALL ALL MATERIALS AND EQUIPMENT SQUARELY WITH THE BUILDING LINES. PROVIDE RIGID, PERMANENT BASES AND SUPPORTS FOR ALL WORK. CONSTRUCT AND BRACE EQUIPMENT PIPING, ETC. SO THAT THERE WILL BE NO VIBRATION AND/OR RATTLING WHEN THE SYSTEM IS IN OPERATION.

STRUCTURAL HANGARS

- A. HANGERS SUPPORTED BY METAL DECKING ONLY, OR METAL DECKING WITH INSULATED FILL, SHALL BE ATTACHED WITH STEEL BARS, 3/8" ROUND X 12" 11/2" X FLAT 12" PLACED PERPENDICULAR TO FLUTES. ONLY LIGHT DUCTWORK (12" X 16" MAX), PIPING (1 1/2" ROUND PIPING MAX), OR CEILINGS MAY BE HUNG FROM SUCH INSTALLATIONS. HANGERS MUST BE TWO (2) FLUTES APART WHERE THEY OCCUR ON THE SAME DECK SPAN.
- B. HANGARS SUPPORTED BY METAL DECK WITH STRUCTURAL CONCRETE FILL SHALL BE INSTALLED USING ICBO APPROVED ANCHORAGE SYSTEMS. SUCH HANGARS SHALL BE USED TO SUPPORT DUCTWORK (54" X 16" MAX), PIPING (4" ROUND MAX) OR CEILINGS. HANGERS MUST BE AT LEAST TWO (2) FLUTES APART WHERE THEY OCCUR ON THE SAME DECK SPAN. LARGER DUCTWORK OR PIPING SHALL BE SUPPORTED BY STRUCTURAL BEAMS OR COLUMNS.

CONCRETE

- A. FORMS FOR CONCRETE CURBS AND DEPRESSIONS SHALL BE LAID OUT AND CONSTRUCTED TO PROVIDE THE SPECIFIED CAMBER SHOWN ON DRAWINGS.
- B. DRY PACK OR GROUT UNDER BASE PLATES, SILL PLATES, ETC. SEE SPECIFICATIONS.
- C. MECHANICAL PIPES AND ELECTRICAL CONDUITS WHICH PASS THROUGH SLAB ON GRADE, CONCRETE ON STEEL DECK, FRAMED CONCRETE FLOORS AND WALLS DO NOT REQUIRE SLEEVES, UNLESS OTHERWISE INDICATED IN THE PROJECT SPECIFICATIONS, MECHANICAL OR ELECTRICAL DRAWINGS. IF SLEEVES ARE REQUIRED, INSTALL SLEEVES BEFORE PLACING CONCRETE. DO NOT CUT ANY REINFORCING WHICH MAY INTERFERE WITH SLEEVE PLACEMENT. CORING OPENINGS IN CONCRETE IS NOT PERMITTED. NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF CONDITIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS. NO PIPES OR ELECTRICAL CONDUIT SHALL PASS THROUGH BEAMS OR COLUMNS UNLESS SPECIFICALLY DETAILED.
- D. EXCEPT FOR SLAB ON GRADE AND CONCRETE ON STEEL DECK, EMBEDDED ELECTRICAL CONDUITS OR MECHANICAL PIPES (OTHER THAN THOSE PASSING THROUGH) OUTSIDE DIAMETER SHALL NOT EXCEED 30 PERCENT OF THE SLAB THICKNESS AND SHALL BE PLACED BETWEEN THE TOP AND BOTTOM REINFORCING, UNLESS SPECIFICALLY DETAILED OTHERWISE. CONCENTRATIONS OF ELECTRICAL CONDUITS OR MECHANICAL PIPES SHALL BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED. FOR SLAB ON GRADE, UNLESS OTHERWISE DETAILED, NO PIPES OR CONDUITS SHALL BE PLACED WITHIN THE INDICATED CONCRETE SLAB THICKNESS AND SHALL BE LOCATED BELOW THE SLAB.

DEMOLITION

- A. ALL DEMOLITION TO BE CARRIED OUT IN SUCH A MANNER AS NOT TO DAMAGE EXISTING ELEMENTS WHICH ARE TO REMAIN IN THE FINISHED BUILDING.
- B. ALL ELEMENTS OF THE STRUCTURE AND EQUIPMENT WHICH ARE TO REMAIN AND WHICH ARE DAMAGED DURING DEMOLITION WORK SHALL BE REPLACED AT NO ADDITIONAL COST. EXISTING ELEMENTS SHALL BE PROTECTED TO THE FULLEST EXTENT POSSIBLE TO REDUCE SUCH DAMAGE TO A MINIMUM.

VENTILATION REQUIREMENTS

GENERAL NOTES:

- A. ALL WORK INDICATED ON THE BUILDING CONDITIONS AND VENTILATION PLAN MUST BE COMPLETED BY OTHER THAN THE KITCHEN EOUIPMENT CONTRACTOR AND MUST COMPLY WITH ALL LOCAL CODES AND RESTRICTIONS.
- B. THE BUILDING CONDITIONS AND VENTILATION PLAN IS INTENDED TO SHOW SPECIAL BUILDING AND VENTILATION REQUIREMENTS FOR THE FOOD SERVICE EQUIPMENT ONLY. ANY ADDITIONAL BUILDING CONDITIONS OR VENTILATION REQUIREMENTS ARE THE RESPONSIBILITY OF THE ARCHITECT OR MECHANICAL ENGINEER AND MUST COMPLY WITH ANY APPLICABLE CODES AND REGULATIONS. REFER TO ARCHITECTURAL/ENGINEERING PLANS.
- C. REFER TO THE APPROVED SHOP DRAWINGS FOR THE SUPPLEMENTAL COORDINATION AND INSTALLATION REQUIREMENTS FOR THE FOOD SERVICE EQUIPMENT INDICATED ON THE PLANS.

VENTILATION REQUIREMENTS CONT.

- D. REQUIREMENTS INDICATED ON THE PLANS FOR THE EXISTING AND OWNER OR PURVEYOR PROVIDED EQUIPMENT ARE MINIMUM GUIDELINES ONLY AND MUST BE VERIFIED WITH THE EQUIPMENT FURNISH SERVICES AND MAKE ALL FINAL CONNECTIONS AS REQUIRED. CONTACT EQUIPMENT PROVIDER FOR THE LOCATION OF, OR SPECIFICATIONS FOR, THIS EQUIPMENT.
- E. PRIOR TO THE INSTALLATION OF THE FOOD SERVICE EQUIPMENT THE KITCHEN EQUIPMENT CONTRACTOR MUST CONFIRM THAT:
 - 1) THE WALLS, CEILINGS AND FLOORS IN THE KITCHEN, FOOD PREPARATION, WAREWASHING OR BAR AREAS ARE SMOOTH, EASILY CLEANABLE NONABSORBENT AND DURABLE. WALLS AND CEILINGS SHALL BE LIGHT IN COLOR.
 - 2) THE CEILINGS ARE INSTALLED AND FINISHED.
 - 3) THE WALLS ARE INSTALLED AND FINISHED.
 - 4) THE FLOORING HAS BEEN INSTALLED AND WASHED CLEAN.
- 5) A LOADING DOCK IS AVAILABLE AND TO COORDINATE WITH THE APPLICABLE TRADESMEN ANY DOOR OR WINDOW OPENINGS OR PASSAGES FOR THE DELIVERY OF THE FOOD SERVICE
- F. THE MOUNTED HEIGHT FOR THE BOTTOM EDGE OF THE HOODS TO BE 6'-8" ABOVE THE FINISHED FLOOR OR PER LOCAL CODE REQUIREMENTS.

MECHANICAL CONTRACTOR NOTES

MECHANICAL ENGINEER IS RESPONSIBLE FOR SPECIFYING THE FOLLOWING. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND THE INSTALLING OF THE FOLLOWING, AND FOR MAKING FINAL CONNECTIONS TO THE FOOD SERVICE EQUIPMENT UNLESS OTHERWISE NOTED.

- A. THE INSULATION FOR ALL COOKING EQUIPMENT EXHAUST HOODS AND DUCTS AS REQUIRED BY LOCAL CODES.
- B. THE HORIZONTAL DUCTWORK FOR ALL DISH/UTENSIL WASHERS. ALL DUCTS MUST HAVE WATER TIGHT JOINTS AND BE GRADED BACK TO THE MACHINE. (DO NOT USE ALUMINUM DUCTS.)
- C. BALANCED SUPPLY AND EXHAUST AIR IN KITCHEN AREAS TO CONTAIN COOKING ODORS AND PROVIDE A COMFORTABLE WORKING ENVIRONMENT. TEMPER MAKE-UP AIR SUPPLY IN ALL KITCHEN AREAS, ESPECIALLY SUPPLY AIR THROUGH EXHAUST HOODS. VERIFY AND COMPLY WITH ALL APPLICABLE CODES.
- D. THE DUCT COLLARS ON EXHAUST HOODS MAY BE OVERSIZED TO INCREASE EFFICIENCY. PROVIDE ALL TRANSITIONS TO DUCTS AS REOUIRED AND MAKE ALL FINAL CONNECTIONS ON ALL HOODS. VERIFY AND COMPLY WITH ALL APPLICABLE CODES.
- E. ALL EXHAUST HOOD ASSEMBLIES, DUCTING, COMPONENTS, ETC. SHALL BE UMC TYPE 1 ASSEMBLY, EXCEPT AT WAREWASHING AREAS OR AS OTHERWISE NOTED. VERIFY THAT VENTILATION REQUIREMENTS ARE IN COMPLIANCE WITH LOCAL CODES AND REGULATIONS.
- F. SUGGESTED MINIMUM VENTILATION REQUIREMENTS:
- KITCHEN AREAS: SERVICE AREAS:
- 45 TO 60 AIR CHANGES /HOUR 45 TO 60 AIR CHANGES/HOUR 45 TO 60 AIR CHANGES/HOUR
- C) PREP AREAS: D) WASHING AREA:
- 45 TO 60 AIR CHANGES/HOUR E) STORAGE ROOMS: 3 AIR CHANGES/HOUR 4 AIR CHANGES/HOUR F) OFFICES:
- G) CONDENSING UNITS: 1000 CFM/HP (AIR-COOLED) 200 CFM/HP (WATER-COOLED)
- G. PROVIDE DOUBLE-WALLED GAS/VENT FLUE TO THE ATMOSPHERE AS REQUIRED BY LOCAL CODES. ANY FLUE OF EXCESSIVE LENGTH, WITH BENDS OR OTHER RESTRICTIONS MUST BE PROVIDED WITH A BOOSTER EXHAUST FAN INTERWIRED TO OPERATE WITH THE EQUIPMENT BEING VENTED. BOOSTER FAN SHALL PROVIDE 0" S.P. AT CONNECTION TO EQUIPMENT.
- H. ALL REQUIRED MATERIALS TO MAKE THE FINAL CONNECTIONS TO ALL CONTRACTOR PROVIDED KITCHEN EQUIPMENT

VENTILATION REQUIREMENTS

GENERAL CONTRACTOR REQUIREMENTS

THE ARCHITECT IS RESPONSIBLE FOR SPECIFYING THE FOLLOWING: THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE FOLLOWING UNLESS OTHERWISE NOTED.

- A. THE IN-WALL REINFORCING OR WALL BACKING FOR ALL WALL MOUNTED, RECESSED OR SEMI-RECESSED EQUIPMENT OR CONTROL PANELS.
- B. A 4" DEEP DEPRESSION FOR ALL WALK-IN COOLER/FREEZERS, WITH A SMOOTH AND TRANSIT-LEVEL FINISH. THE EXCESS DEPRESSION IS TO BE FILLED WITH GROUT. THE FINISHED FLOOR MATERIALS AND COVED BASES ARE TO BE INSTALLED AFTER THE WALK-IN PANELS HAVE BEEN SET IN PLACE.
- C. A 6" HIGH SOLID CONCRETE PAD WITH TROWEL-SMOOTH AND LEVEL FINISH.
- D. AN EASILY VISIBLE PERMANENT BENCHMARK INDICATING FINISHED FLOOR LEVEL.
- E. ANY FIRE RELATED MATERIALS FOR EXHAUST VENT DUCTS, VENT STACKS, AND ANY HEAT PRODUCING FOOD SERVICE EQUIPMENT. VERIFY COMPLIANCE WITH LOCAL CODES AND REGULATIONS.
- F. THE COVED BASES AT ALL VERTICAL INTERSECTIONS OF ALL KITCHEN FLOORS.
- G. ALL CONDUITS FOR REFRIGERATION OR DRINK LINES SHALL HAVE A SMOOTH INTERIOR FINISH, A MINIMUM RADIUS OF 24" AT ALL BENDS AND A MINIMUM 16" X 18" X 12" DEEP ACCESSIBLE PULL BOX ON ALL CONDUIT RUNS IN EXCESS OF 95'-0", IN ALL FLOORS OR CONCEALED SPACES. THE TOTAL OF ALL BENDS BETWEEN PULL BOXES NOT TO EXCEED 180°. STUB CONDUIT ENDS OUT 2" FROM WALLS OR 2" ABOVE FINISHED FLOORS. VERIFY COMPLIANCE WITH ALL LOCAL CODES AND REGULATIONS.
- H. ALL HOLES OR SLEEVES THROUGH FLOORS, WALLS AND CEILINGS, AS REQUIRED FOR THE INSTALLATION OF REFRIGERATION, DRINK, ELECTRICAL OR PLUMBING LINES AS SHOWN ON THESE PLANS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING HOLES AND SLEEVES AFTER INSTALLATION OF THE LINES.
- J. ALL PADS OR CURBS FOR FOOD SERVICE EQUIPMENT AND/OR ROOF OR SERVICE AREA MOUNTED COMPRESSOR RACKS. VERIFY COMPLIANCE WITH LOCAL CODES AND REGULATIONS.
- K. ALL OPENINGS IN WALLS AS INDICATED ON THESE PLANS FOR ANY RECESSED OR SEMI-RECESSED CONTROL PANELS.

M. SLOPE ALL FLOORS TO FLOOR SINKS, FLOOR DRAINS OR FLOOR

- TROUGHS, VERIFY COMPLIANCE WITH LOCAL CODES, N. A MINIMUM OF 150 LBS. PER SQUARE FOOT FLOOR LOADING, OR
- HIGHER AS REQUIRED BY LOCAL CODES.

P. RECOMMENDED FINISHED CEILING HEIGHTS IN KITCHEN AREAS

- AND FOR SPECIFIC FOOD SERVICE EQUIPMENT ARE AS FOLLOWS: 1) KITCHEN AREAS WITH HOODS: 9'-0"
- 9'-6" 2) COOLER/FREEZER AREAS:

4) ICE MACHINE AREAS:

- 3) GENERAL AREAS: 8'-0"
- ADEQUATE SPACE IS NEEDED ABOVE THE FINISHED CEILINGS FOR MECHANICAL AND ELECTRICAL WORK, ESPECIALLY FOR EXHAUST HOOD DUCTING. PLEASE NOTIFY RJS+ASSOCIATES IF HEIGHTS ARE LESS THAN RECOMMENDED MINIMUMS.

ADDITIONAL NOTES:

WALL BACKING DETAILS

A. GENERAL CONTRACTOR TO PROVIDE FLOOR DEPRESSION TO MATCH OLD FLOOR TROUGH OR 4" DEEP WHICHEVER IS GREATER AT THIS LOCATION. FILL EXCESS ABANDONED FLOOR TROUGH AND PROVIDE, PLUS INSTALL TROUGH PAN. VERIFY DIMENSIONS WITH THE EXISTING SITE CONDITIONS AND NEW EQUIPMENT. VERIFY CODE COMPLIANCE AND COORDINATE INSTALLATION WITH ASSOCIATED TRADES.

SEE HOOD ELEVATIONS

FOR FRAMING DETAILS

WALL BACKING DETAIL

EXHAUST HOOD

ABBREVIATION

- **EXISTING** (E) **EXISTING TO BE REMOVED**
- NOT IN CONTRACT

RELOCATE

(R)

FBO **FURNISHED BY OTHERS**

UNLESS OTHERWISE NOTED

- FIXTURES FURNISHINGS AND EQUIPMENT
- ABOVE FINISHED FLOOR
- DOWN FROM CEILING TO HEIGHT ABOVE ABOVE FINISHED FLOOR
- CONN CONNECTION
 - **GAS**
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BIDDING &

CONSTRUCTION

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JOB H18064.19

DRAWN Author

SCALE

REVISIONS

CONSULTANT:

TULSA, OK 74137

- TOWER WATER RETURN
- **TOWER WATER SUPPLY**
- PD PRESSURE DROP
- CUBIC FEET PER MINUTE

STEAM RETURN

- FEET PER MINUTE
- STEAM SUPPLY

MECHANICAL SYMBOLS

THE FOLLOWING SYMBOLS MAY BE USED IN DRAWINGS

MECHANICAL LEGEND SYMBOLS RETURN AIR DIFFUSER SUPPLY AIR DIFFUSER SUPPLY AIR LINEAR DIFFUSER FLOOR DEPRESSION MASONRY PAD NON-COMBUSTIBLE WALL MATERIAL (VERIFY REQUIREMENTS WITH LOCAL CODES) FINISHED WALL OPENING SUPPLY DUCT EXHAUST DUCT DIRECT CONNECT FLUE (VERIFY REQUIREMENTS WITH LOCAL CODES) AIR MOVEMENT / HEAT REMOVAL (VERIFY REQUIREMENTS WITH LOCAL CODES)

CONDUIT NOTES:

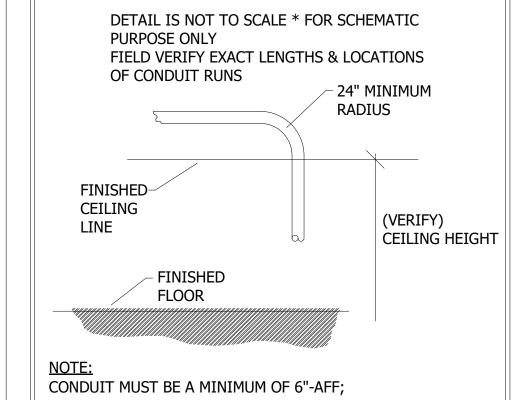
1. CONDUIT TO BE PROVIDED BY GENERAL **CONTRACTOR**

REFER TO INDICATED NOTE

2. CONDUIT RUNS ABOVE CEILING MUST HAVE A SMOOTH INTERIOR WITH MINIMUM INSIDE DIMENSION OF SIX INCHES, AND HAVE ONLY ONE (1) 24" MINIMUM RADIUS SWEEP BEND AT EACH

- 3. DURING CONSTRUCTION, CONDUIT TO BE FINISHED AT 24"-AFF. TO BE CONSTRUCTED WITH INTERNALLY SMOOTH, LEAK TIGHT JOINTS.
- 4. CONDUIT TO BE CAPPED AND SEALED AT BOTH ENDS DURING CONSTRUCTION. INSTALLER TO TRIM EXPOSED ENDS.
- 5. AFTER PRODUCT LINES ARE INSTALLED, THE OPEN ENDS OF THE CONDUIT ARE TO BE FILLED AND SEALED (WATERTIGHT) APPROXIMATELY 2 TO 4 INCHES AT EACH END.

CONDUIT SCHEMATIC - ABOVE CEILING



HEALTH CODES

IN ORDER TO MEET ALL STANDARD

K-0201

MECHANICAL NOTES

NOT-TO-SCALE

WALL BACKING DETAIL **OVERSHELVES** PRE-RINSE

WALL BACKING DETAIL

1. ALL DIMENSIONS ARE FROM QTO QFINISHED

2. ALL WALL BACKINGS TO BE PLYWOOD SECURELY ATTACHED TO WALL STUDS

GENERAL NOTES:

- A. ALL WORK INDICATED ON THE ELECTRICAL ROUGH-IN PLAN MUST BE COMPLETED BY OTHER THAN THE KITCHEN EQUIPMENT CONTRACTOR AND MUST COMPLY WITH ALL LOCAL CODES AND REGULATIONS.
- B. A CATALOG OF MANUFACTURERS EQUIPMENT SPECIFICATION SHEETS IS INCLUDED AS AN INTEGRAL PORTION OF THIS SUBMITTAL, WE SUGGEST THEREFORE THAT ALL TRADES REVIEW THE REQUIREMENTS AS INDICATED REGARDING EACH MANUFACTURER.
- C. CROSS REFERENCE ALL INFORMATION PER ROUGH-IN DRAWINGS WITH EQUIPMENT SCHEDULE DRAWINGS.
- D. THE ELECTRICAL ROUGH-IN PLAN IS PROVIDED FOR INFORMATION ONLY, IS BASED ON A 60 HERTZ, UNLESS OTHERWISE NOTED. ELECTRICAL SYSTEM AND IS INTENDED TO SHOW FOOD SERVICE FIXTURES AND EQUIPMENT OUTLET TYPES, LOCATIONS, LOADS AND CONNECTION POSITIONS ONLY FURNISH ANY ADDITIONAL OUTLETS AS REQUIRED BY LOCAL CODES OR REQUESTED BY OWNER. REFER TO ARCHITECTURAL OR ELECTRICAL ENGINEERING PLANS FOR ANY ADDITIONALELECTRICAL REQUIREMENTS.
- E. REFER TO APPROVED SHOP DRAWINGS FOR SUPPLEMENTAL ELECTRICAL CONNECTIONS AND INSTALLATION REQUIREMENTS FOR THE FOOD SERVICE EQUIPMENT INDICATED ON THIS PLAN.
- F. ELECTRICAL REQUIREMENTS FOR EXISTING AND OWNER OR PURVEYOR PROVIDED EQUIPMENT MUST BE VERIFIED WITH THE ACTUAL EQUIPMENT SUPPLIED. THESE PLANS ARE MINIMUM GUIDELINES ONLY AND MUST BE VERIFIED. CONTACT OWNER OR EQUIPMENT PROVIDER FOR LOCATION OR SPECIFICATIONS FOR THIS EQUIPMENT.
- G. EXPOSED ELECTRICAL SERVICES STUBBED UP OUT OF THE FLOOR MUST BE PROTECTED AND INSTALLED IN A MANNER WHICH WILL PREVENT DAMAGE FROM WATER OR IF HIT BY PORTABLE KITCHEN EQUIPMENT, HEAVILY LOADED CARTS OR FLOOR CLEANING EQUIPMENT.
- H. PRIOR TO THE INSTALLATION OF THE FOOD SERVICE EQUIPMENT, THE ELECTRICAL CONTRACTOR MUST CONFIRM THAT ELECTRICAL WIRING HAS BEEN PULLED THROUGH JUNCTION BOXES.

ELECTRICAL CONTRACTORS NOTES:

- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND FOR INSTALLING OF THE FOLLOWING, AND FOR MAKING ALL FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT AS SHOWN ON THIS PLAN UNLESS OTHERWISE
- A. ELECTRICAL CONTRACTORS SHALL FURNISH ALL LABOR AND MATERIALS TO MAKE ALL FINAL CONNECTIONS AND SHALL INCLUDE ALL ITEMS REQUIRED BY APPLICABLE LAWS.
- B. ELECTRICAL CONTRACTORS TO CROSS REFERENCE ROUGH-IN DRAWINGS, STAINLESS STEEL FABRICATION, WALK-IN DRAWINGS, EXHAUST HOOD DRAWINGS AND MILLWORK DETAIL DRAWINGS.
- C. ALL WIRING, WIRING CONDUITS, JUNCTION BOXES, ELECTRICAL OUTLETS, SWITCHES, COVER PLATES, PLUG MOLDING, ETC. AS SHOWN ON PLAN AND NOT PROVIDED BY OTHERS. RUN ALL OF THE ELECTRICAL SERVICE LINES IN WALLS OR CONCEALED WHEREVER POSSIBLE. ALL EXPOSED SERVICES, COMPONENTS AND CONNECTIONS TO BE VAPOR TIGHT.
- D. ALL DISCONNECTS OR OTHER DEVICES AS REQUIRED BY LOCAL CODES. DO NOT LOCATE DISCONNECTS OR OTHER DEVICES (OTHER THAN JUNCTION BOX CONNECTIONS OR CORD AND PLUG RECEPTACLES) BEHIND COOKING EQUIPMENT OR BELOW EXHAUST HOOD ASSEMBLIES.
- E. ALL SHUNT-TRIP CIRCUIT BREAKERS OR DISCONNECTS FOR FIRE SUPPRESSION SYSTEM SHUT-OFF OF ALL ELECTRICAL BELOW AND IN EXHAUST HOODS AND VENTILATORS, INTERWIRED WITH FIRE SUPPRESSION SYSTEM, AS REQUIRED BY N.F.P.A. STANDARDS AND ANY LOCAL CODES AND REGULATIONS.
- F. ALL RECEPTACLES, OUTLETS AND CORD AND PLUG ASSEMBLIES TO BE NEMA SIZED, UL APPROVED AND RATED FOR THE SERVICE INDICATED ON THESE
- G. WALK-IN COOLER/FREEZER LOCATIONS SHOWN IN THIS PLAN:
 - 1) ALL VAPOR PROOF LIGHT FIXTURES, AS REQUIRED BY KITCHEN EOUIPMENT CONTRACTOR.
 - 2) ALL DISCONNECTS AND SWITCHES AT BLOWER COILS BY ELECTRICAL CONTRACTOR.
 - 3) ALL VAPOR PROOF DUPLEX CONVENIENCE OUTLETS AS INDICATED BY ELECTRICAL CONTRACTOR.
 - 4) ALL INTERCONNECTIONS FOR ELECTRICAL COMPONENTS IN THE COOLER/FREEZER COMPARTMENTS BY ELECTRICAL CONTRACTOR. INCLUDING CONTROL WIRING BETWEEN WALK-IN FREEZER COIL AND REMOTE CONDENSER TO ACCOMMODATE DEFROST CYCLE TIMER.
- 5) ALL INTERCONNECTIONS FOR FREEZER EVAPORATORS AND COMPRESSORS, INCLUDING HEAT TAPE, VERIFY EXACT WIRE SIZES WITH MANUFACTURERS SPECIFICATIONS, BY ELECTRICAL CONTRACTOR.
- H. ALL WIRING CONDUITS INTO WALK-IN COOLER/FREEZER COMPARTMENTS FOR THE FOLLOWING BY ELECTRICAL CONTRACTOR:
 - 1) EACH EVAPORATOR COIL.
- 2) EACH VAPOR PROOF CEILING LIGHT.
- 3) EACH PERSONNEL ALARM SWITCH AND LIGHT.
- 4) EACH HIGH TEMPERATURE WARNING ALARM SYSTEM.
- ALL PENETRATIONS FOR THE REQUIRED SERVICES MUST BE MADE THROUGH THE CEILING INSULATION AND ARE REQUIRED TO BE VAPOR TIGHT. ALL CONDUITS TO RUN ABOVE THE WALK-IN COMPARTMENTS.
- ALL COMPRESSOR LOADS SHALL BE SIZED FOR APPROXIMATELY 3500 WATTS PER HORSEPOWER, OR PER NATIONAL ELECTRICAL CODE. VERIFY REQUIREMENTS WITH MANUFACTURERS NAME PLATE DATA.

ELECTRICAL REQUIREMENTS

- M. ALL WIRING TO AND INTERWIRING BETWEEN THE FOLLOWING:
- 1) EXHAUST HOOD/VENTILATOR COMPARTMENTS.
- 2) ELECTRICIAN TO SIZE AND SUPPLY STARTER MOTORS FOR EXHAUST HOOD FANS.
- 3) ELECTRICAL SERVICES TO CONTROL PANELS. EXACT REQUIREMENTS FOR THE NUMBER OF WIRES AND ELECTRICAL SERVICE MUST BE VERIFIED WITH THE APPROVED SHOP DRAWINGS AND COMPLY WITH LOCAL CODES AND REGULATIONS BY ELECTRICAL CONTRATOR.
- 4) CONTROL WIRING FROM CONTROL PANEL TO EACH HOOD SECTION FOR DAMPERS, SOLENOIDS AND LIGHTS BY ELECTRICAL CONTRATOR.
- 5) CONTROL WIRING FROM CONTROL PANEL TO EXHAUST AND SUPPLY FANS. THESE FANS SHALL BE ELECTRICALLY INTERLOCKED BY ELECTRICAL CONTRACTOR.
- 6) FIRE SYSTEMS CONTROL INTERWIRING BETWEEN FIRE SUPPRESSION SYSTEMS, CONTROL PANELS AND REMOTE SHUT-OFFS BY ELECTRICAL CONTRACTOR.
- 7) CONTROL WIRING FROM CONTROL PANEL TO EACH REMOTE DETERGENT PUMP AS APPLICABLE BY ELECTRICAL CONTRACTOR.
- N. ALL REQUIRED MATERIALS TO MAKE FINAL CONNECTIONS TO ALL FOOD SERVICE EQUIPMENT SHOWN ON THIS PLAN BY ELECTRICAL CONTRACTOR.
- P. AVOID LOCATING ELECTRICAL PANELS BEHIND FOOD SERVICE EQUIPMENT. REFER TO EQUIPMENT PLANS FOR THE LOCATIONS OF EQUIPMENT THAT DOES NOT APPEAR ON THIS ELECTRICAL ROUGH-IN PLAN
- Q. AN ISOLATED CIRCUIT WITH A CLEAN EARTH GROUND FOR ALL OWNER PROVIDED POINT-OF-SALE EQUIPMENT, CREDIT CARD SCANNERS AND VALIDATION MACHINES. VERIFY ELECTRICAL REQUIREMENTS WITH THE OWNER AND EQUIPMENT, BY ELECTRICAL CONTRACTOR.
- R. INTERCONNECT WASTE PULPER CONTROL PANEL WITH THE PULPER, EXTRACTOR AND REMOTE STOP-START STATIONS, AS PER MANUFACTURERS SPECIFICATIONS, BY ELECTRICAL CONTRACTOR.

GENERAL ELECTRICAL NOTES

- (THESE NOTES SUPPLEMENT THE MASTER SPECIFICATIONS AND ARE RELATED TO WORK SURROUNDING FOOD SERVICE.)
- A. <u>DEFINITION:</u> THE WORD "PROVIDE" MEANS: FURNISH, INSTALL FEED, CONNECT WITH ALL ACCESSORIES AND ANCILLARY EQUIPMENT FOR A COMPLETE OPERATING INSTALLATION BY THE APPROPRIATE TRADE, AS
- CODES: WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
- COMPLETE INSTALLATION: ELECTRICAL CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, ACCESSORIES, ETC. NECESSARY TO ACCOMPLISH A COMPLETE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS PERFORMED BY APPLICABLE
- **GROUNDING:** ELECTRICAL CONTRACTOR TO GROUND ALL EQUIPMENT AND SYSTEM NEUTRALS IN ACCORDANCE WITH THE CODE. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTOR IN ALL FEEDERS AND BRANCH CIRCUIT RACEWAYS. WHERE ISOLATED GROUNDS ARE INDICATED, PROVIDE INSULATED CONDUCTOR.
- <u>CIRCUITING:</u> ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CIRCUITING IN CONDUIT. EMT WITH STEEL INSULATED THROAT SET-SCREW FITTINGS MAY BE USED IN DRY INTERIOR LOCATIONS. PVC WITH WRAPPED RIGID ELBOWS AND RISERS SHALL BE USED IN CONCRETE AND BELOW GRADE. RGS OR IMC CIRCUITING SHALL BE CONCEALED. WHERE CONCEALMENT IS IMPRACTICAL, AND WITH THE SPECIFIC APPROVAL OF THE ENGINEER, SURFACE RACEWAY AND OUTLETS MAY BE INSTALLED, FINISHED TO MATCH ADJACENT SURFACES. METAL-CLAD CABLE (TYPE MC) MAY BE USED PER THE FOLLOWING:
 - 1) LIMITED SINGLE-CIRCUIT, DEAD-END FEEDS IN DRY LOCATIONS, WITHIN ACCESSIBLE ATTIC SPACES.
 - 2) FLEXIBLE "WHIPS" FROM JUNCTION BOXES TO RECESSED AND SUSPENDED LIGHTING FIXTURES.
- 3) CIRCUITING WITHIN CASEWORK AND OTHER "TIGHT" CONDITIONS.
- 4) WHERE APPROVED FOR INSTALLATION, TYPE MC CABLE SHALL BE SUPPORTED VERTICALLY 5' O.C., HORIZONTALLY 3' O.C., AND WITHIN 12" OF OUTLET JUNCTION BOXES.
- 5) PLASTIC BUSHINGS SHALL BE INSTALLED AT ALL TERMINATIONS.
- WIRING: ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRE IN COPPER, STRANDED IN SIZES #8 AWG AND LARGER. INSULATION SHALL BE TYPE THW, THWN OR THHN.
- G. EXISTING CONDITIONS: ELECTRICAL AND FOOD SERVICE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIARIZED WITH ALL EXISTING AND PROPOSED CONDITIONS WHICH MAY AFFECT THE COURSE OF HIS WORK PRIOR TO SUBMITTING A BID ON THIS PROJECT. NO EXTRAS WILL BE ALLOWED FOR FAILURE TO COMPLY WITH THIS REQUIREMENT.
- PERMITS: ELECTRICAL CONTRACTOR SHALL OBTAIN FOR ALL BUILDING AND WORKING PERMITS AND INSPECTION FEES FOR THIS PROJECT, AS APPLICABLE TO SPECIFIC TRADE.
- <u>UTILITY SERVICES:</u> ELECTRICAL CONTRACTOR SHALL PROVIDE POWER AND COMMUNICATIONS SYSTEM SERVICES IN ACCORDANCE WITH THE REQUIREMENTS OF THE SERVING UTILITIES. PROVIDE EXCAVATION, RACEWAY, STRUCTURE, GROUNDING, ETC. AS DIRECTED. POWER SERVICES AND DISTRIBUTION SYSTEM AIC RATING SHALL EXCEED MAXIMUM AVAILABLE FAULT CURRENT THROUGH UTILITY SERVICE TRANSFORMER. CONTACT SERVIING UTILITIES AND OBTAIN THEIR REQUIREMENTS PRIOR TO BID. (UTILITY SERVICE AND LINE EXTENSION CHARGES PAID BY OTHERS).

GENERAL ELECTRICAL NOTES

FIRE STOPPING: ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE STOPPING AT ALL PENETRATIONS OF FIRE-RATED ASSEMBLIES. FIRE STOP ASSEMBLIES SHALL BE UL LISTED AND APPROVED BY CODE ENFORCING AUTHORITIES BY APPROPRIATE TRADES.

(CONTINUED)

- M. <u>FUSES AND CIRCUIT BREAKERS</u>: FUSES AND CIRCUIT BREAKERS SHALL BE SIZED PER ACTUAL NAMEPLATE OF EQUIPMENT SERVED. CIRCUIT BREAKERS SHALL BE RATED FOR THEIR RESPECTIVE APPLICATION (MOTOR CIRCUIT PROTECTOR, GROUND FAULT CIRCUIT INTERRUPTER, ARC FAULT CIRCUIT INTERRUPTER, ETC.) FUSES SHALL BE DUAL-ELEMENT CURRENT-LIMITING, AND SHALL BE INTERCHANGEABLE BETWEEN FRAME SIZES WITH STANDARD FACTORY FUSE REDUCERS.
- N. <u>EQUIPMENT STANDARDS:</u> ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND OF THE HIGHEST QUALITY AVAILABLE ("SPECIFICATION GRADE"). LIGHTING FIXTURES SHALL HAVE ELECTRONIC BALLASTS AND ACRYLIC LENSES. FOOD SERVICE EOUIPMENT SHALL BE FACTORY-ASSEMBLED COMMERCIAL-GRADE, CONFIGURED PER SERVING UTILITY STANDARDS.
- P. <u>GUARANTEE</u>: THE ELECTRICAL CONTRACTOR SHALL GUARANTEE THE COMPLETE ELECTRICAL SYSTEM, AND ALL PORTIONS THEREOF, SHALL BE GUARANTEED TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. PROMPTLY REMEDY SUCH DEFECTS AND ANY SUBSEQUENT DAMAGE CAUSED BY THE DEFECTS OR REPAIR THEREOF AT NO EXPENSE TO THE OWNER. LIGHT BULBS ARE EXEMPT FROM THIS GUARANTEE, BUT SHALL BE NEW AND UNUSED AT THE TIME OF FINAL ACCEPTANCE.
- Q. <u>SUBMITTALS</u>: SUBMIT COPIES AS REQUIRED, OF FACTORY SHOP DRAWINGS FOR ALL LIGHTING FIXTURES, SWITCHGEAR, PANELS, MOTOR CONTROL, WIRING DEVICES, ETC. PROPOSED FOR THIS PROJECT. PROPOSED ALTERNATES SHALL BE EQUAL OR SUPERIOR TO SPECIFIED ITEMS IN ALL RESPECTS. DETERMINATION OF EQUALITY RESTS SOLELY WITH ELECTRICAL ENGINEER.
- R. <u>LOCATIONS</u>: INDICATED LOCATIONS OF ALL OUTLETS AND EQUIPMENT ARE SUBJECT TO CHANGE. SHIFT/RELOCATE/RECONFIGURE ANY OUTLET, EQUIPMENT OR CONNECTION POINT UP TO 10' AS DIRECTED BY ELECTRICAL ENGINEER, AT NO ADDED COST.
- <u>IDENTIFICATION:</u> ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL EQUIPMENT, SWITCHBOARD CIRCUITS AND ELECTRICALLY-CONNECTED EOUIPMENT WITH ENGRAVED NAMEPLATES. NAMEPLATES SHALL BE FASTENED WITH A MINIMUM OF TWO (2) SCREWS. PANEL DIRECTORIES SHALL BE TYPED.
- PANELBOARDS: PANELS SHALL HAVE FLUSH MONO-FLAT TRIM, PIANO HINGED DOORS AND COVER (DOOR IN DOOR) WITH LOCKABLE MASTER-KEYED FLUSH CATCHES AND BOLT-ON CIRCUIT BREAKERS. FLUSH MOUNTED PANELS SHALL HAVE EMPTY CONDUITS STUBBED TO ACCESSIBLE SPACE:
- (1) 1" CONDUIT FOR EACH (4) SPARE/SPACE CIRCUITS.
- U. TAMPER-PROOF: ALL EQUIPMENT AND CIRCUITING ACCESSIBLE BY THE PUBLIC SHALL BE DEMONSTRATED TO BE TAMPER-PROOF AND VANDAL RESISTANT. OPENABLE DEVICES AND EQUIPMENT SHALL BE PADLOCKABLE.
- V. SUPPORTS AND HANGERS: SUPPORT AND ALIGN ALL RACEWAYS, CABINETS, BOXES, BACK-BOXES, FIXTURES AND EQUIPMENT FROM STRUCTURE. SECURE ALL SUPPORTING METHODS BY MEANS OF TOGGLE BOLTS IN HOLLOW MASONRY, EXPANSION BOLTS IN SOLID MASONRY, CONCRETE PRESET INSERTS OR EXPANSION BOLTS IN CONCRETE, MACHINE SCREWS OR BOLTS ON METAL SURFACES, AND WOOD SCREWS ON WOOD CONSTRUCTION. ALL SUPPORTING SYSTEMS AND COMPONENTS SHALL BE RATED FOR FIVE (5) TIMES THE ACTUAL LOAD.
- W. ADDITIONAL SYSTEMS AND EQUIPMENT CONNECTIONS: IN ADDITION TO EQUIPMENT POWER FEEDERS AND CONNECTIONS INDICATED ON THE ELECTRICAL DRAWINGS, PROVIDE 120V CONTROL POWER CONNECTIONS TO SMOKE/FIRE DAMPERS, VAV BOXES, TEMPERATURE CONTROL PANELS, DOOR-HOLDING/LATCHING DEVICES, ETC., AS INDICATED IN THE MECHANICAL DRAWINGS AND SPECIFICATIONS.

ITEM CIRCUT	POWER SOURCE	NO. PE
FIRE/SMOKE DAMPER	EMERGENCY	5
VAV TERMINAL (NO FAN)	NORMAL	7
TEMP CONTROL PANEL	EMERGENCY	1
DOOR HOLDING/LATCHING	DEVICE	4

X. 24-HOUR OPERATION: IF APPLICABLE, CONDUCT WORK TO MINIMIZE DISRUPTION OF OWNER'S ONGOING 24-HOUR OPERATIONS. PROVIDE BARRICADES, NOISE ABATEMENT AND DUST CONTAINMENT MEASURES TO ENSURE THE SAFETY AND COMFORT OF PATRONS, STAFF AND WORKERS. INTERRUPTIONS OF EXISTING POWER, COMMUNICATIONS OR FIRE ALARM SYSTEMS SHALL BE MOMENTARY IN NATURE, EACH SUCH OUTAGE (OR OPERATION WHICH MAY POSE RISK OF AN ACCIDENTAL OUTAGE) SHALL BE SCHEDULED 48 HOURS IN ADVANCE.

FOOD SERVICE ELECTRICAL SYSTEM NOTES

- . THESE DRAWINGS INDICATE ELECTRICAL FEEDS ONLY TO FOOD SERVICE EQUIPMENT AND SYSTEMS. SEE KITCHEN DRAWINGS (SERIES) PREPARED BY THE FOOD SERVICE CONSULTANT FOR EXPLANATIONS OF LOADS, SYMBOLS MOUNTING HEIGHTS, ETC. AND FOR ADDITIONAL ELECTRICAL REQUIREMENTS NOT INDICATED ON THESE DRAWINGS, INCLUDING:
- EXTENSIONS TO EQUIPMENT FROM OUTLET BOXES, SPECIALTY OUTLETS, POWER AND CONTROL INTERCONNECTIONS FROM COMPRESSOR RACK TO FIELD EQUIPMENT AND MISCELLANEOUS POWER AND CONTROL INTERCONNECTIONS.
- 2. SEE OVERALL FOOD SERVICE DRAWINGS FOR DESCRIPTIONS OF **EOUIPMENT AND SYSTEMS.**
- 3. ALL CONDUIT STUB-UPS, AS INDICATED ON THE KITCHEN FLOOR, 3/4" MIN, UNLESS OTHERWISE NOTED AS LARGER.
- 5. ALL DEVICE COVER PLATES SHALL BE STAINLESS STEEL
- 6. PROVIDE "TAYMAC" #S1/2G SERIES WEATHERPROOF RECESSED
- 7. FINAL CONNECTION TO ALL KITCHEN EQUIPMENT SHALL BE MADE
- PROVIDE MOISTURE PROOF SEAL OFF FOR ALL CONDUITS ENTERING/LEAVING COOLER AND FREEZER BOXES. ASSEMBLE, INSTALL AND LAMP, LIGHTING FIXTURES AND WIRING DEVICES PROVIDED WITH COOLERS AND FREEZERS. PROVIDE COMPLETE
- PROVIDE POWER INTERCONNECTION BETWEEN FREEZER FAN COILS, DEFROST HEATERS AND COMPRESSOR RACKS. MINIMUM CIRCUITING = 5 #12, 1"C. CONFIRM REQUIREMENTS PRIOR TO ROUGH-IN.
- 10. ALL EQUIPMENT LOCATED BELOW EXHAUST HOODS WITHIN FOOD PREPARATION AREAS SHALL BE SERVED BY SHUNT-TRIP TYPE CIRCUIT BREAKERS INTERLOCKED WITH THE HOOD FIRE SUPPRESSION SYSTEM. UPON ACTIVATION OF THE FIRE SYSTEM, THE SHUNT-TRIP CIRCUIT BREAKERS SHALL TRIP TO THE 'OFF'
- INTERLOCKED AND THE CONTROL CIRCUITS SHALL BE ROUTED SYSTEM. PROVIDE ADDITIONAL RELAYS AS REQUIRED.
- 12. PROVIDE 120V SERVICE AND CONNECTIONS TO GAS SOLENOID VALVES. INTERCONNECT WITH HOOD CONTROL AND FIRE
- 13. SUPPLEMENTAL TASK LIGHTING: PROVIDE (15) 24" LONG LOCAL AND UNDERCOUNTER TASK LIGHTS, COMPLETE WITH LAMPS, INTEGRAL SWITCH, CORD SET AND/OR LOCAL OUTLET AS REQUIRED. "ALKCO" # SF300 SERIES. LOCATE AS DIRECTED FOR SUPPLEMENTAL TASK LIGHTING, OR AS REQUIRED TO PROVIDE 50
- 14. PROVIDE RACEWAY SYSTEMS FOR REFRIGERATION AND BEVERAGE SERVICE LINES AS DIRECTED IN FOOD SERVICE DRAWINGS (ALL LONG-RADIUS SWEEPS). PROVIDE PULL CANS AND GUTTERS AS REQUIRED. ASSEMBLE ALL RACEWAY SYSTEM JOINTS WITH SILICONE CAULK, TO PROVIDE A CONTINUOUS WATERTIGHT ASSEMBLY.

	(E)
(FS-	(X)
	(R)
	NIC

- RECEPTACLES, CORD SETS, MULTIPLE CONNECTIONS FROM SINGLE
- EQUIPMENT DRAWINGS, SHALL BE ROUTED BELOW FINISHED
- 4. ALL RECEPTACLES WITHIN 6FT OF SINKS OR WATER USE AREAS SHALL BE 'GFCI' TYPE.
- RECEPTACLE COVERS FOR ALL ABOVE COUNTER RECEPTACLES IN BAR AND SINK AREAS.
- WITH 'SEAL-TITE' FLEXIBLE CONDUIT.
- INTERNAL CIRCUITING AND CONNECTIONS.

- 11. KITCHEN HOOD EXHAUST FANS AND MAKE-UP AIR UNITS SHALL BE THROUGH DRY CONTACTS PROVIDED IN THE FIRE PROTECTION
- SUPPRESSION SYSTEMS.
- FOOT-CANDLE LIGHT LEVELS. RETURN EXCESS TO OWNER.

RELOCATE **NOT IN CONTRACT** U.O.N. UNLESS OTHERWISE NOTED ABOVE FINISHED FLOOR DOWN FROM CEILING TO HEIGHT ABOVE FINISHED FLOOR FURNISHED BY OTHERS FIXTURES, FURNISHINGS & EQUIPMENT E.C. ELECTRICAL CONTRACTOR CONDUIT (WITH PULL CORD IF **OTHERWISE** EMPTY) **CONDUIT ONLY** CONN CONNECTION **GFCI** GROUND FAULT CIRCUIT INTERRUPTER JUNCTION BOX SINGLE RECEPTACLE DUPLEX RECEPTACLE **BREAKER PANEL**

PLUG IN

GROUND

VOLTS

HORSEPOWER

PHASE / WIRE

GENERAL CONTRACTOR

ABBREVIATIONS

EXISTING TO BE REMOVED

EXISTING

REFERENCE SYMBOLS THE FOLLOWING SYMBOLS MAY BE USED IN THE DRAWINGS:

KITCHEN EQUIPMENT CONTRACTOR

KILOWATT (Watt x 1000)

	ELECTRICAL LEGEND				
	SYMBOLS		ABBREVIATIONS		
J	JUNCTION BOX (J-BOX)	А	AMPERES		
	EQUIPMENT INTERCONNECTION BY E.C.	AFF	ABOVE FINISHED FLOOR		
•	ELECTRICAL ROUGH-IN	втс	BRANCH TO CONNECTION POINT & CONNECT EQUIPMEN		
\ominus	SINGLE ELECTRICAL OUTLET (SCO)	CONV.	CONVENIENCE OUTLET 120V 1PH 20.0A		
\ominus	DUPLEX ELECTRICAL OUTLET (DOC)	D.C.	DIRECT CONNECTION		
\oplus	FOURPLEX ELECTRICAL OUTLET (QCO)	DN	DOWN FROM ABOVE		
•	STUB UP FROM FF (TERMINATED CONDUIT)	E.C.	ELECTRICAL CONTRACTOR		
\triangleright	TELEPHONE OUTLET	НР	HORSE POWER		
D	DATA LINE CONNECTION	K.E.C.	KITCHEN EQUIPMENT CONTRACTOR		
F	FLOURESCENT LIGHT FIXTURE	KW	KILOWATTS		
\Diamond	INCANDESCENT LIGHT FIXTURE	PH	PHASE		
	Breaker Panelboard	U.C.	UNDER COUNTER		
\$	SWITCH AS NOTED	V	VOLTS		
•	FLOOR BOX (FL. BOX)	w	WATTS		

RESORTS WORLD CATSKILLS

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Reference Cover Sheet for Consultant

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REVISIONS

ELECTRICAL NOTES

K-0301

PLUMBING REQUIREMENTS **GENERAL NOTES:** ALL WORK INDICATED ON THE PLUMBING ROUGH-IN PLAN MUST BE COMPLETED BY OTHER THAN THE KITCHEN EQUIPMENT CONTRACTOR AND MUST COMPLY WITH ALL LOCAL CODES AND RESTRICTIONS. THE PLUMBING ROUGH-IN PLAN IS INTENDED TO SHOW PIPE SIZES, ROUGH-IN HEIGHTS AND LOCATIONS AND CONSUMPTION RATES FOR FOOD SERVICE EQUIPMENT ONLY. ANY ADDITIONAL PLUMBING REQUIREMENTS ARE THE RESPONSIBILITY OF THE PLUMBING ENGINEER AND MUST COMPLY WITH ANY APPLICABLE CODES AND REGULATIONS. REFER TO THE APPROVED SHOP DRAWINGS FOR THE SUPPLEMENTAL COORDINATION AND INSTALLATION REQUIREMENTS FOR THE FOOD SERVICE EQUIPMENT INDICATED ON THE

- ALL SERVICES FOR THE EXISTING AND OWNER OR PURVEYOR PROVIDED EQUIPMENT MUST BE VERIFIED WITH THE EQUIPMENT. ANY UTILITIES INDICATED ON THE PLANS ARE MINIMUM GUIDELINES ONLY AND MUST BE VERIFIED WITH THE EQUIPMENT. CONTACT EQUIPMENT PROVIDER FOR THE LOCATION OF, OR SPECIFICATIONS FOR, THIS EQUIPMENT.
- PRIOR TO THE INSTALLATION OF THE FOOD SERVICE EQUIPMENT, THE KITCHEN EQUIPMENT CONTRACTOR MUST CONFIRM THAT THE WATER, GAS AND/OR STEAM LINES WERE PREVIOUSLY PRESSURE TESTED, FLUSHED FREE OF FOREIGN MATTER, VALVED OFF AND TAGGED WITH THE APPROPRIATE LABELS.

PLUMBING CONTRACTOR NOTES:

PLUMBING CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE FOLLOWING, AND FOR MAKING ALL FINAL CONNECTIONS TO THE FOOD SERVICE EQUIPMENT UNLESS OTHERWISE NOTED.

- A. INSTALL AND COMPLETE HAND SINK ASSEMBLIES. VERIFY COMPLIANCE WITH LOCAL CODES AND REGULATIONS.
- INSTALL A FLOOR TYPE MOP BASIN COMPLETE WITH MIXING VALVE SERVICE FAUCET, VACUUM BREAKER AND WALL MOUNTED MOP HANGING RACK. FAUCET TO BE MOUNTED 36" ABOVE FINISHED FLOOR.
- INSTALL HOSE BIBB ASSEMBLY WITH A FAUCET WITH GARDEN HOSE THREAD, MIXING VALVE AND VACUUM BREAKER WHERE SHOWN ON THESE FOOD SERVICE PLUMBING ROUGH-IN DRAWINGS.
- PRESSURE REDUCING OR REGULATING VALVES, FAUCETS AND WATER INLETS, IN-LINE WATER FILTERS AND VACUUM BREAKERS, NOT OTHERWISE SUPPLIED TO FOOD SERVICE EQUIPMENT, AS REQUIRED BY LOCAL CODES AND MANUFACTURERS SPECIFICATIONS.
- WASTE LINES, DIRECT AND INDIRECT, SHALL BE A MINIMUM 1" DIA. REGARDLESS OF CONNECTION SIZE, TO BE PITCHED DOWNWARD AND TO HAVE ADEQUATE CLEAN-OUT PROVISIONS. INDIRECT WASTE LINES FROM WALK-IN COOLER/FREEZERS MUST BE PITCHED 4"/12" MINIMUM WITH AN IN-LINE "P" TRAP OVER FLOOR SINK. EACH EVAPORATOR IS TO HAVE A SEPARATE DRAIN LINE.
- AREA DRAINS AND FLOOR SINKS COMPLETE WITH TOP GRATES INDICATED AND REMOVABLE SEDIMENT BUCKET. FLOOR SINK TOP TO BE SET FLUSH WITH THE FINISHED FLOOR VERIFY COMPLIANCE WITH LOCAL CODES AND REGULATIONS.
- GREASE TRAPS AS REQUIRED. INSTALL GREASE TRAPS OUTSIDE OF BUILDING WHENEVER POSSIBLE. INSTALLATION WITHIN THE BUILDING MUST COMPLY WITH LOCAL CODES AND REGULATIONS. NOTIFY RJS ASSOCIATES WHEN INSTALLATION MUST BE WITHIN ANY OF THE KITCHEN AREAS.
- H. ALL REQUIRED MATERIALS TO MAKE FINAL CONNECTIONS TO ALL FOOD SERVICE EQUIPMENT INDICATED ON THESE PLANS.
- NOTES CONCERNING PLUMBING ROUGH-INS:
- 1) FURNISH AND INSTALL ALL WATER, WASTE, GAS AND STEAM LINES AND SIZE SERVICE TO PROVIDE FULL FLOW VOLUME FOR ALL EQUIPMENT SUPPLIED BY RESPECTIVE MAINS AND BRANCHES. PROVIDE STOP VALVES AND TAG ROUGH-INS WITH THE APPROPRIATE IDENTIFYING LABELS. SERVICE LINES STUBBED OUT OF WALLS, UP FROM FINISHED FLOORS OR A CONCRETE CURB A MINIMUM OF 2". VENT PIPES MUST BE CONCEALED IN WALLS OR COLUMN CHASE. USE A LOOP-VENT OR AIR GAP ASSEMBLY FOR ISLAND FIXTURES. ALL FLOOR PENETRATIONS MUST BE SEALED WATERTIGHT.
- 2) WASTE LINES SHOWN ARE DESIGNED TO COMPLY WITH THE BEST KNOWN AND GENERALLY ACCEPTED HEALTH AND SANITARY CONDITIONS AND CODES. PLUMB LINES TO ENSURE NO INTERFERENCE WITH THE INTENDED USE OR SERVICING OF FOOD SERVICE EQUIPMENT. RUN LINES BELOW THE EQUIPMENT AT THE HIGHEST POSSIBLE ELEVATION ABOVE FINISHED FLOOR. NO LINES ARE TO LAY ON THE FLOOR. VERIFY COMPLIANCE WITH LOCAL CODES AND REGULATIONS.
- SUPPLY 140°F HOT WATER TO EQUIPMENT. INSULATE WATER AND STEAM LINES TO CONFORM WITH THE ACCEPTED PRACTICE. IT IS RECOMMENDED THAT EXPOSED PIPES AND FITTINGS ABOVE A WORKING HEIGHT OF 34" BE CHROME PLATED OR COVERED WITH A STAINLESS STEEL SLEEVE.
- 4) SIZE FUEL GAS SERVICE LINES TO PROVIDE THE REQUIRED BTU RATING INDICATED FOR THE EQUIPMENT, AT A LOW PRESSURE OF APPROXIMATELY 7" TO 9" WATER COLUMN. INSTALL AUTOMATIC MECHANICAL SHUT-OFF VALVES, FURNISHED BY FIRE SUPPRESSION SYSTEM CONTRACTOR, IN GAS SUPPLY LINES TO EQUIPMENT UNDER EXHAUST HOOD ASSEMBLIES. VERIFY COMPLIANCE WITH LOCAL CODES AND REGULATIONS

PLUMBING REQUIREMENTS

K. NOTES CONCERNING PLUMBING CONNECTIONS:

- A) ALL WATER, GAS AND STEAM SERVICES FOR PORTABLE AND COUNTER TOP EQUIPMENT MUST BE CONNECTED TO THE EQUIPMENT WITH COMMERCIAL TYPE FLEXIBLE HOSE AND QUICK DISCONNECT FITTINGS. HOSES MUST BE COVERED WITH A FIRE RESISTANT PLASTIC OR POLY COATING. GAS ASSEMBLIES MUST BE A.G.A. APPROVED FOR COMMERCIAL KITCHEN EQUIPMENT.
- WATER TO STEAM PRODUCING EQUIPMENT MUST HAVE A WATER HARDNESS NO GREATER THAN 2.0 GRAINS AND A PH LEVEL BETWEEN 7.0 TO 7.5. WATER USED FOR COOLING WATER TO CONDENSING UNITS OR COMPRESSORS MUST BE TREATED TO INHIBIT THE FORMATION OF DEPOSITS IN THE CONDENSING TUBES.
- C) STEAM THAT COMES IN DIRECT CONTACT WITH FOOD, FOOD HOLDING EQUIPMENT OR WAREWASHING EQUIPMENT MUST BE POTABLE STEAM.
- D) INTERPIPE HOT WATER SUPPLY LINES BETWEEN BOOSTER HEATER AND WAREWASHING EQUIPMENT.
- INTERPIPE WATER LINES BETWEEN WATER WASH VENTILATOR ASSEMBLIES AND CONTROL PANELS. REFER TO MANUFACTURERS SPECIFICATIONS FOR EXACT REQUIREMENTS.
- MANIFOLD WASTE AND WASTE CONNECTIONS FOR INDIVIDUAL SECTIONS OF WATER WASH VENTILATORS TO A MAIN DRAIN CONNECTION. VERIFY CODE COMPLIANCE.
- G) INTERCONNECT WASTE PULPER, EXTRACTOR AND SCRAP TROUGH AS PER MANUFACTURERS SPECIFICATIONS.
- H) INSTALL IN-LINE WATER FILTERS AS FURNISHED BY KITCHEN **EQUIPMENT CONTRACTOR.**

PLUMBERS NOTES:

- A. PLUMBING CONTRACTORS TO OBTAIN ALL NECESSARY PERMITS AND INSTALLATION IS TO BE IN COMPLETE ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL CODES.
- B. PLUMBING CONTRACTORS SHALL FURNISH ALL LABOR AND MATERIALS TO MAKE ALL FINAL CONNECTIONS AND SHALL INCLUDE ALL ITEMS REQUIRED BY APPLICABLE LAWS.
- C. A CATALOG OF MANUFACTURERS EQUIPMENT SPECIFICATION SHEETS IS INCLUDED AS AN INTEGRAL PORTION OF THIS SUBMITTAL, WE SUGGEST THEREFORE THAT ALL TRADES REVIEW THE REQUIREMENTS AS INDICATED REGARDING EACH MANUFACTURER.
- D. CROSS REFERENCE ALL INFORMATION PER ROUGH-IN DRAWINGS WITH THE EQUIPMENT SCHEDULE DRAWINGS.
- E. PLUMBING CONTRACTORS TO CROSS REFERENCE ROUGH-IN DRAWINGS, STAINLESS STEEL FABRICATION, WALK-IN DRAWINGS, EXHAUST HOOD DRAWINGS AND MILLWORK DETAIL DRAWINGS.
- F. ALL VENT LOCATIONS AND RUNS TO BE LOCATED BY MECHANICAL ENGINEER.
- G. ALL FUNNEL FLOOR DRAINS, FLOOR SINKS AND/OR FLOOR DRAINS UTILIZED FOR THE DRAINAGE OF FOOD SERVICE EQUIPMENT SHALL BE SELF-PRIMING.
- H. PLUMBING CONTRACTOR TO PROVIDE ALL INDIRECT DRAINS FROM EQUIPMENT TO FLOOR SINK DRAINS.
- ALL PLUMBING TO BE INSTALLED AS TO PRECLUDE ANY POSSIBILITY OF BACK SIPHONAGE.
- K. ALL INDIRECT DRAINS ARE TO BE AIR-GAPPED 1 1/2 x DIAMETER OF PIPE, ABOVE FLOOR DRAINS (OR PER LOCAL CODE).
- M. PLUMBING CONTRACTOR TO PROVIDE REQUIRED PRESSURE REGULATING VALVES FOR HOT WATER LINE TO DISHWASHER RINSE CONNECTION AND ALL OTHER EQUIPMENT REQUIRING REGULATORS.
- N. PLUMBER IS NOT RESPONSIBLE FOR SUPPLYING FAUCETS UNLESS
- P. PLUMBER TO PROVIDE MIXING VALVE AT WATER HEATER SO THAT A MINIMUM OF 140° WATER IS DELIVERED TO BOOSTER HEATER, OR AS DESIGNED BY MECHANICAL ENGINEER.

ADDITIONAL NOTES:

PLUMBING SYMBOLS

THE FOLLOWING SYMBOLS MAY BE USED IN THE DRAWINGS:

	PLUMBIN	G LEC	GEND
	SYMBOLS		ABBREVIATIONS
	HOT WATER	AFF	ABOVE FINISHED FLOOR
0	COLD WATER	втс	BRANCH TO CONNECT
\bigcirc	DRAIN CONNECTION	CW	COLD WATER
\oslash	DIRECT DRAIN	DN	DOWN FROM ABOVE
0	WATER CONNECTION	DR	DRAIN
	FLOOR SINK HALF GRATE	FD	FLOOR DRAIN
	FLOOR DRAIN AS NOTED	FS	FLOOR SINK
•	FUNNEL DRAIN AS NOTED	FT	FLOOR TROUGH
	GAS LINE	GPH	GALLONS PER HOUR
\bigoplus	GAS CONNECTION	GPM	GALLONS PER MINUTE
*	CHILLED WATER	HD	HUB DRAIN
\bigcirc	FLEX CONNECT HOSE	HW	HOT WATER
	INDIRECT WASTE LINE	Р	PLUMBING
	PLUMBING INTERCONNECTION	PSI	POUNDS PER SQUARE INCH
\odot	STUB UP FROM FIN FLOOR	DW	DIRECT WASTE
		IW	INDIRECT WASTE
		CWS	CHILLED WATER SUPPLY
		CWR	CHILLED WATER RETURN

PROJECT ABBREVIATIONS

	(E)	EXISTING
	(X)	EXISTING TO BE REMOVED
DNS		
FLOOR	(R)	RELOCATE
IECT	NIC	NOT IN CONTRACT
VE	U.O.N.	UNLESS OTHERWISE NOTED
	FBO	FURNISHED BY OTHERS
JR	FF & E	FIXTURES FURNISHINGS AND EQUIPMENT
IUTE	(+)	ABOVE FINISHED FLOOR
ARE INCH	DN (+)	DOWN FROM CEILING TO HEIGHT ABOVE ABOVE FINISHED FLOOR
	CONN	CONNECTION
SUPPLY	CW	COLD WATER
	W	140 DEGREE HOT WATER
	MW	MIXED WATER

DW	DIRECT WASTE
IW	INDIRECT WASTE
CR	CONDENSATE RETURN

FLOOR DRAIN

GREASE TRAP

GPM	GALLONS PER MINUTE

G	GAS
MRTHH	1000 BTU/HR

TWR	TOWER WATER RETURN
TWS	TOWER WATER SUPPLY

PD	PRESSURE DROP
P.C.	PLUMBING CONTRACTOR

CFM	CUBIC FEET PER MINUTE

VALVE COMPARTMENT

FPM	FEET PER MINUTE
SR	STEAM RETURN

K.E.C KITCHEN EQUIPMENT CONTRACTOR

GENERAL CONTRACTOR

PLUMBING NOTES

K-0401

BIDDING & CONSTRUCTION 07/06/2022

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REVISIONS

FOODSERVICE EQUIPMENT SCHEDULE NO. QTY EQUIPMENT CATEGORY 1 2 P.O.S. STATION S S MANUFACTURER 2 2 P.O.S. CHECK PRINTER 3 2 P.O.S. STORAGE PERLICK TSF24POS 1/2 (3)1/2 (2)1 1/2 PERLICK PTE68-A 2 COCKTAIL STATION 1 LIQUOR DISPLAY STEPS 1 UNDER BAR TRASH PERLICK PERLICK TS12TRA PERLICK TS12HSN HAND SINK 1 WINE DISPLAY CABINET X MILLWORK CUSTOM ENOFRIGO AMERICAN MIAMI MIX 2 WINE COOLER 10 1 SPARE NUMBER 11 1 COUNTER TOP REFER TO ARCHITECTURAL MILLWORK DRAWINGS FOR FINISH & DETAIL SPECIFICATIONS X MILLWORK 2 WINE DISPENSING SYSTEM - WINE EMOTION OTTO-PRO PERLICK BBS36 2 BACK BAR EQUIPMENT 14 1 SPHERE ICE MACHINE 14A 1 Water Filter Assembly HOSHIZAKI IM-50BAA-Q X 3M Purification ICE125-S 15 1 BER TOP MILLWORK DRINK RAIL SPARE NUMBER ICE MACHINE X KOLD-DRAFT KDB950 - - X NOLE C... - - X 3M Purification ICE195-S Water Filter Assembly REFRIGERATOR, REACH-IN, GLASS DOOR - TRUE MANUFACTURING STR1R-1G-HC PC13-3512-4-PM DROP DOWN CORD REEL - COXREEL 23-30 1 SPARE NUMBER X - - X - - HOSHIZAKI 1 SPHERE ICE MACHINE 1 WATER FILTER, ICEMAKER IM-50BAA-Q X - - - X 3M PURIFICATION - - - - - - - -ICE145-S 32-50 1 SPARE NUMBER

HEALTH DEPT. NOTES

- 1. ALL FOOD SERVICE EQUIPMENT, FABRICATED ITEMS, AND THEIR INSTALLATION SHALL MEET NATIONAL SANITATION FOUNDATION (N.S.F.)
- REQUIREMENTS.

 2. ALL STATIONARY EQUIPMENT AND FIXTURES TO BE SEALED TO THE WALL OR ADJACENT EQUIPMENT. USE
- ALUMINUM COLOR AT STAINLESS STEEL AND CLEAR
 AT ALL OTHER.
 3. ALL SINKS IN THE FOOD FACILITY MUST BE PROVIDED
 WITH HOT WATER (MIN. 110 DEG. F.) AND COLD
 RUNNING WATER UNDER PRESSURE AND WILL HAVE A
- WATER FOR A MINIMUM OF 10 SECONDS

 4. A HAND SINK IS PROVIDED IN EACH FOOD
 PREPARATION AREA WITH SINGLE SERVICE TOWEL
 AND SOAP DISPENSER.

PREMIXING FAUCET CAPABLE OF SUPPLYING WARM

- 5. 3-COMPARTMENT SINKS ARE PROVIDED WITH MIXING VALVE FAUCETS CAPABLE OF REACHING EACH COMPARTMENT.
- 6. A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT,
 MEASURED 30" OFF THE FLOOR TO BE PROVIDED
 IN ALL FOOD PREPARATION, PACKAGING, AND
 PROCESSING AREAS.
- A MIN. OF 10 FOOT CANDLES (108 LUX) OF LIGHT, MEASURED 30" OFF THE FLOOR TO BE PROVIDED IN ALL FOOD & UTENSIL STORAGE ROOMS, TOILET, AND DRESSING ROOMS.
 A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT,
- MEASURED 30" OFF THE FLOOR TO BE PROVIDED
 IN ALL AREAS DURING GENERAL CLEANUP
 ACTIVITIES.

 9. ALL SHELVING OVER WET AREAS (SINKS, MOP
- SINKS, ETC.) WILL BE STAINLESS STEEL.

 10. SHATTER SHIELDS OR SHATTERPROOF LIGHT
 BULBS TO BE PROVIDED FOR ALL LIGHTS ABOVE
- FOOD PREPARATION, WORK, AND STORAGE
 AREAS.

 11. ALL PLUMBING, ELECTRICAL, AND GAS LINES
 SHALL BE CONCEALED WITHIN THE BUILDING
 STRUCTURE TO AS GREAT AN EXTENT AS
 POSSIBLE.
- 12. FLOOR SINKS UNDER EQUIPMENT MUST BE 50% EXPOSED AND EASILY ACCESSIBLE FOR CLEANING
- AND SERVICING.

 13. ALL EXHAUST HOODS TO BE A MIN. 22 GA.
 STAINLESS STEEL, U.L. LISTED, AND
 CONSTRUCTED AND INSTALLED TO ALL U.L. AND
 N.F.P.A. SPECIFICATIONS. EXHAUST DUCTS TO
 BE A MIN. 16 GA. STEEL. (TYPE 1 HOOD DUCTS TO
 HAVE WELDED SEAMS)
- 14. ALL FLOOR TILE TO BÉ SMOOTH UNDER ALL EQUIPMENT, AND WALKWAYS TO HAVE A LIGHT TEXTURE ONLY.
- 15. ALL 3-COMPARTMENT SINKS TO HAVE A MIN.

 COMPARTMENT SIZE OF 18" X 18" X 12" DEEP, WITH A

 MIN. 18" DRAIN BOARD ON EACH END. PROVIDE WITH

 8" HIGH INTEGRAL BACK SPLASH AT ALL WALLS. (SEE
 FOOD SERVICE SPECIFICATIONS FOR SIZES OF EACH

 ITEM.)
- 16. SUPPORT ROOMS ARE FOR STORAGE AND UTENSIL WASHING ONLY. NO VEGETABLE WASHING OR FOOD PREP. TO BE DONE

FOOD SERVICE NOTES

- REQUIREMENTS SHOWN ARE FOR ONE ITEM, TO DERIVE TOTAL MULTIPLY BY QUANTITY SHOWN.
 ELECTRICAL CONTRACTOR SHALL PROVIDE MAG. STARTERS. DISCONNECT SWITCHES, INTERLOCKS AND THERMO-OVERLOAD PROTECTION WHERE
- 3. PLUMBING CONTRACTOR SHALL PROVIDE STOP VALVES AHEAD OF ALL OPERATING HANDLES AND
- 4. SEE EQUIPMENT PLUMBING AND ELECTRICAL ROUGH-IN DRAWINGS FOR ADDITIONAL
- INFORMATION

 5. ELECTRICAL POWER TO COOKING EQUIPMENT,
 WHERE REQUIRED, SHALL BE PROVIDED THRU A
 SHUNT-TRIP SYSTEM FOR FIRE FUEL SHUT-OFF.
 ELECTRICAL CONTRACTOR SHALL WIRE CONTROL
 CIRCUIT TO MICRO SWITCH PROVIDED BY KITCHEN
 EQUIPMENT CONTRACTOR ON HOOD FIRE
- PROTECTION SYSTEM.
 GAS SUPPLY TO ALL COOKING EQUIPMENT, WHERE REQUIRED, SHALL BE PROVIDED WITH AN ELECTRIC VALVE FOR FIRE-FUEL SHUT-OFF. VALVE TO BE SUPPLIED BY THE "K.E.C." AND INSTALLED BY THE "P.C." K.E.C. SHALL CONNECT VALVE TO THE HOOD FIRE PROTECTION SYSTEM FOR AUTOMATIC SHUT-
- 7. ALL WALK-IN BOX COILS REQUIRE CONNECTIONS TO SOLENOID VALVE, T-STAT, T-CLOCK AND MOTORS AND CONTROL WIRING TO THE REMOTE COMPRESSOR. ALL CONNECTIONS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- 3. ALL WALK-IN BOX FIXTURES TO BE PROVIDED BY THE "K.E.C." INSTALLATION AND WIRING TO BE PROVIDED BY THE "E.C." WITH ALL CONDUIT RUN ON EXTERIOR (TOP) OF BOX.

 3. VACUUM BREAKERS WHEN USED, TO BE MINIMUM OF
- SHUT OFF DEVICES BEYOND THE DISCHARGE OF THE VACUUM BREAKER.

 10. WALL BACKING PROVIDED BY GENERAL CONTRACTOR.

 11. PLUMBING CONTRACTOR TO SUPPLY GREASE TRAP AS

SIX INCHES ABOVE THE FLOOD LEVEL RIM WITH NO

- 11. PLUMBING CONTRACTOR TO SUPPLY GREASE TRAP
 REQUIRED BY CODE.

 12. ALL COOKING EQUIPMENT UNDER EXHAUST
 HOODS ARE EITHER ON CASTERS WITH FLEXIBLE
- UTILITY QUICK DISCONNECTS OR FIXED ON S/S LEGS.

 13. ALL NEW EXHAUST HOODS WILL BE CONSTRUCTED TO MEET THE FOLLOWING STANDARDS: NSF, UL AND NFPA-96. ALL NEW HOODS TO BEAR UL CLASSIFIED LABEL WITHOUT DAMPERS IN EXHAUST VENT COLLARS. HOODS ARE DESIGNED TO MEET OR EXCEED 50 FPM CAPTURE VELOCITY AT THE COOKING SURFACE EDGE AND HAVE A 6" MIN. OVERHANG AT ALL EXPOSED COOKING AREAS.
- 14. BACK SPLASHES OF EQUIPMENT SHALL BE SEALED TO WALLS WITH CLEAR SILICONE CAULK IN A NEAT WORKMAN LIKE MANNER.

SHEET NOTES

THIS PLAN REPRESENTS A FOOD SERVICE LAYOUT OF CULINARY, BEVERAGE, SYSTEMS AND RELATED EQUIPMENT FOR THE CONVENIENCE OF OWNER / OPERATOR, ARCHITECTS, MECHANICAL, ELECTRICAL AND PLUMBING ENGINEERS, CONTRACTORS, KITCHEN EQUIPMENT FABRICATORS, KITCHEN EQUIPMENT CONTRACTORS AND OTHER RELATED TRADES. THE BASE PLAN HAS BEEN MADE AVAILABLE FROM INFORMATION PROVIDED BY OTHER, NOT LIMITED TO MEASUREMENTS, ELECTRONIC BACKGROUNDS, GRID LINES AND EXISTING OR PROPOSED BUILDING SYSTEMS, NOT LIMITED TO (PLUMBING, STRUCTURAL, CONCRET, DUCTWORK, ELECTRICAL AND MECHANICAL), GENERAL CONTRACTOS, SUBCONTRACTOS, KITCHEN EQUIPMENT DEALERS, CONTRACTORS, INSTALLERS, RELATED AND NON-RELATED MEASUREMENTS AND SPECIFIC INFOMATION. INFORMATION INDICATED ON THESE LANS ARE GENERALLY FOR FOOD SERVICE EQUIPMENT AND ARE INTENDED AS REFERENCE ONLY. RJS + ASSOCIATES IS NOT RESPONSIBLE FOR THE ENGINEER OR INTEGRATION OF RELATION ENGINEERING ADN DISCIPLINES THROUGHOUT THE FULL SET OF CONSTRUCTION DOCUMENTS SPECIFIC TO THE FOOD SERVICE EQUIPMENT IN RELATION TO THE STRUCTURAL,
ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL TRADES, UNLESS OTHERWISE SPECIFICALLY PROVIDED FOR IN THE PLANS AND SPECIFICATIONS. RJS+ ASSOCIATES ASSUMES NO RESPONSIBILITY FOR WORK DONE BY ANY AND ALL ARCHITECTS, ENGINEERS. CONSULTANTS OR CONTRACTORS, OR FOR ANY CHANGES MADE NECESSARY BY LOCAL, STATE, OR NATIONAL BUILDING CODES, ORDINANCES, STRUCTURAL CONDITIONS, OR BY THE SUBSTITUTION OR CHANGES IN EQUIPMENT SHOWN ON THIS PLAN(S). CONTRACTORS ARE TO MAKE ALLOWANCES FOR INTERNAL AND EXTERNAL FINAL CONNECTIONS ON THE FOOD SERVICE EQUIPMENT, WASTE PIPING, VALVES, BACK-FLOW PREVENTION, TRAPS, DRAIN GRATES, FLUID / GAS REGULATORS, FAUCETS, STEAM TRAPS, STARTING SWITCHES AND MOTORS, EXCEPT WHERE SPECIFICALLY NOTED IN THE FOOD SERVICE SPECIFICATIONS,

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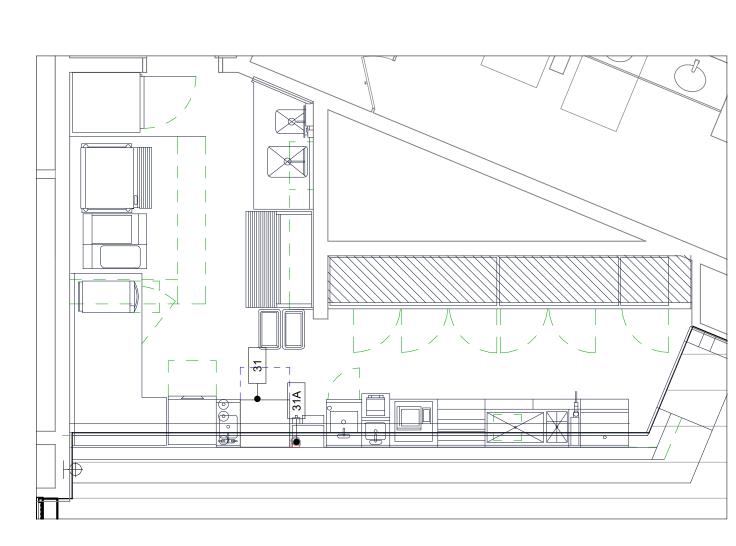
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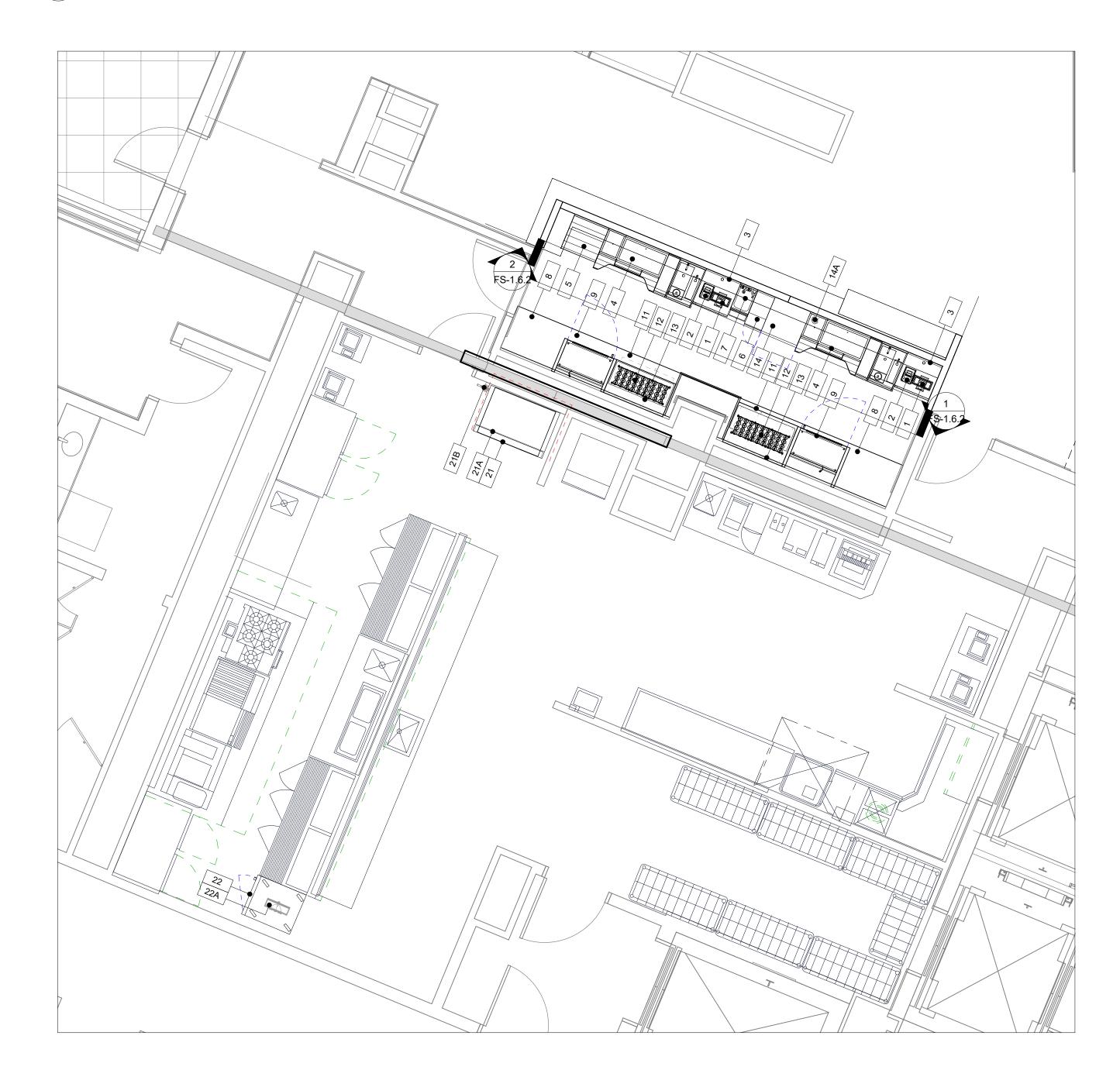
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FOODSERVICE EQUIPMENT SCHEDULE

K-1100



POOD SERVICE EQUIPMENT PLAN - AREA B



1 FOOD SERVICE EQUIPMENT PLAN - AREA A

FOODSERVICE EQUIPMENT PLAN & SCHEDULE

BY OWNER

MIAMI MIX

OTTO-PRO

IM-50BAA-Q

STR1R-1G-HC

IM-50BAA-Q

ICE145-S

PC13-3512-4-PM

DEDICATED CIRCUIT REQUIRED. PROVIDE CONDUIT FOR DATA

DEDICATED CIRCUIT REQUIRED. PROVIDE CONDUIT FOR DATA

REFER TO ARCHITECTURAL MILLWORK DRAWINGS FOR FINISH & DETAIL SPECIFICATIONS

REFER TO ARCHITECTURAL MILLWORK DRAWINGS FOR FINISH & DETAIL SPECIFICATIONS

DRAINS TO EXISTING FLOOR SNK, AS NOTED ON PLAN. VERIFY IN FIELD

CONNECTS TO ITEM 22A AS NOTED ON ELECTRICAL PLAN.

NO. QTY EQUIPMENT CATEGORY

1 2 P.O.S. STATION 2 2 P.O.S. CHECK PRINTER

2 P.O.S. STORAGE
2 COCKTAIL STATION

WINE COOLER

SPARE NUMBER

COUNTER TOP

LIQUOR DISPLAY STEPS

WINE DISPLAY CABINET

WINE DISPENSING SYSTEMBACK BAR EQUIPMENT

SPHERE ICE MACHINE

Water Filter Assembly

BER TOP MILLWORK
DRINK RAIL

Water Filter Assembly

SPARE NUMBER

SPHERE ICE MACHINE

DROP DOWN CORD REEL

WATER FILTER, ICEMAKER

REFRIGERATOR, REACH-IN, GLASS DOOR

SPARE NUMBER

ICE MACHINE

ICE BIN

32-50 1 SPARE NUMBER

UNDER BAR TRASH HAND SINK BY OWNER

PERLICK PERLICK

PERLICK

MILLWORK

WINE EMOTION

3M Purification

KOLD-DRAFT

KOLD-DRAFT

HOSHIZAKI

3M PURIFICATION

3M Purification

TRUE MANUFACTURING

PERLICK

ENOFRIGO AMERICAN

HEALTH DEPT. NOTES

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 AT ALL OTHER.

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 WITH HOT WATER (MIN. 110 DEG. F.) AND COLD
- RUNNING WATER UNDER PRESSURE AND WILL HAVE A
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 4. A HAND SINK IS PROVIDED IN EACH FOOD
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 6. A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT,
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 IN ALL FOOD PREPARATION, PACKAGING, AND
- A MIN. OF 10 FOOT CANDLES (108 LUX) OF LIGHT,
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- 8. A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT, MEASURED 30" OFF THE FLOOR TO BE PROVIDED IN ALL AREAS DURING GENERAL CLEANUP ACTIVITIES.

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- ROUGH-IN DRAWINGS FOR ADDITIONAL
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 ELECTRICAL CONTRACTOR SHALL WIRE CONTROL
 CIRCUIT TO MICRO SWITCH PROVIDED BY KITCHEN
- PROTECTION SYSTEM.

 6. GAS SUPPLY TO ALL COOKING EQUIPMENT, WHERE REQUIRED, SHALL BE PROVIDED WITH AN ELECTRIC VALVE FOR FIRE-FUEL SHUT-OFF. VALVE TO BE SUPPLIED BY THE "K.E.C." AND INSTALLED BY THE "P.C." K.E.C. SHALL CONNECT VALVE TO THE HOOD FIRE PROTECTION SYSTEM FOR AUTOMATIC SHUT-

EQUIPMENT CONTRACTOR ON HOOD FIRE

- OFF.

 7. ALL WALK-IN BOX COILS REQUIRE CONNECTIONS TO SOLENOID VALVE, T-STAT, T-CLOCK AND MOTORS AND CONTROL WIRING TO THE REMOTE COMPRESSOR. ALL CONNECTIONS TO BE PROVIDED BY THE ELECTRICAL
- CONTRACTOR.

 8. ALL WALK-IN BOX FIXTURES TO BE PROVIDED BY THE "K.E.C." INSTALLATION AND WIRING TO BE PROVIDED BY THE "E.C." WITH ALL CONDUIT RUN ON EXTERIOR (TOP) OF BOX.
- 9. VACUUM BREAKERS WHEN USED, TO BE MINIMUM OF SIX INCHES ABOVE THE FLOOD LEVEL RIM WITH NO SHUT OFF DEVICES BEYOND THE DISCHARGE OF THE VACUUM BREAKER.
- WALL BACKING PROVIDED BY GENERAL CONTRACTOR.
 PLUMBING CONTRACTOR TO SUPPLY GREASE TRAP AS
- REQUIRED BY CODE.

 12. ALL COOKING EQUIPMENT UNDER EXHAUST
 HOODS ARE EITHER ON CASTERS WITH FLEXIBLE
 UTILITY QUICK DISCONNECTS OR FIXED ON S/S LEGS.
- 13. ALL NEW EXHAUST HOODS WILL BE CONSTRUCTED TO MEET THE FOLLOWING STANDARDS: NSF, UL AND NFPA-96. ALL NEW HOODS TO BEAR UL CLASSIFIED LABEL WITHOUT DAMPERS IN EXHAUST VENT COLLARS. HOODS ARE DESIGNED TO MEET OR EXCEED 50 FPM CAPTURE VELOCITY AT THE COOKING SURFACE EDGE AND HAVE A 6" MIN. OVERHANG AT
- ALL EXPOSED COOKING AREAS.

 14. BACK SPLASHES OF EQUIPMENT SHALL BE SEALED TO WALLS WITH CLEAR SILICONE CAULK IN A NEAT WORKMAN LIKE MANNER.

SHEET NOTES

THIS PLAN REPRESENTS A FOOD SERVICE LAYOUT OF CULINARY, BEVERAGE, SYSTEMS AND RELATED EQUIPMENT FOR THE CONVENIENCE OF OWNER / OPERATOR, ARCHITECTS, MECHANICAL, ELECTRICAL AND PLUMBING ENGINEERS, CONTRACTORS, KITCHEN EQUIPMENT FABRICATORS, KITCHEN EQUIPMENT CONTRACTORS, AND OTHER RELATED TRADES. THE BASE PLAN HAS BEEN MADE AVAILABLE FROM INFORMATION PROVIDED BY OTHER, NOT LIMITED TO MEASUREMENTS, ELECTRONIC BACKGROUNDS, GRID LINES AND EXISTING OR PROPOSED BUILDING SYSTEMS, NOT LIMITED TO (PLUMBING, STRUCTURAL, CONCRET, DUCTWORK, ELECTRICAL AND MECHANICAL). GENERAL CONTRACTOS, SUBCONTRACTOS, KITCHEN EQUIPMENT DEALERS, CONTRACTORS, INSTALLERS, RELATED AND NON-RELATED MEASUREMENTS AND SPECIFIC INFOMATION, INFORMATION INDICATED ON THESE LANS ARE GENERALLY FOR FOOD SERVICE EQUIPMENT AND ARE INTENDED AS REFERENCE ONLY. RJS + ASSOCIATES IS NOT RESPONSIBLE FOR THE ENGINEER OR INTEGRATION OF RELATION ENGINEERING ADN DISCIPLINES THROUGHOUT THE FULL SET OF CONSTRUCTION DOCUMENTS SPECIFIC TO THE FOOD SERVICE EQUIPMENT IN RELATION TO THE STRUCTURAL, ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL TRADES, UNLESS OTHERWISE SPECIFICALLY PROVIDED FOR IN THE PLANS AND SPECIFICATIONS. RJS+ ASSOCIATES ASSUMES NO RESPONSIBILITY FOR WORK DONE BY ANY AND ALL ARCHITECTS, ENGINEERS, CONSULTANTS OR CONTRACTORS, OR FOR ANY CHANGES MADE NECESSARY BY LOCAL, STATE, OR NATIONAL BUILDING CODES, ORDINANCES, STRUCTURAL CONDITIONS, OR BY THE SUBSTITUTION OR CHANGES IN EQUIPMENT SHOWN ON THIS PLAN(S). CONTRACTORS ARE TO MAKE ALLOWANCES FOR INTERNAL AND EXTERNAL FINAL CONNECTIONS ON THE FOOD SERVICE EQUIPMENT, WASTE PIPING, VALVES, BACK-FLOW PREVENTION, TRAPS, DRAIN GRATES, FLUID / GAS REGULATORS, FAUCETS, STEAM TRAPS, STARTING SWITCHES AND MOTORS, EXCEPT WHERE SPECIFICALLY NOTED IN THE FOOD SERVICE SPECIFICATIONS,

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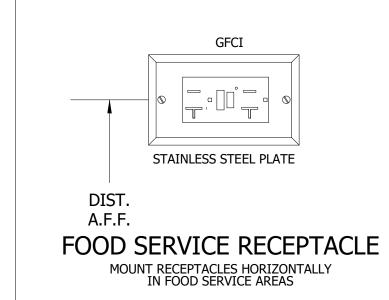
DRAWN Author

SCALE 1/4" = 1'-0"

REVISIONS

FOODSERVICE EQUIPMENT PLAN & SCHEDULE

K-1101



FOODSERVICE ELECTRICAL ROUGH-IN SCHEDULE

5-15P 54

5-15P 18

5-15P 18

1/6 | 5-15P | 18

115

115

115

120

208

115

| X |

60 3.5

60 1.8

60 5.0

60 3.8

1 60 11

1 | 60 | 15.0

115 | 1 | 60 | 5.0

5-15P | 18 | DEDICATED CIRCUIT REQUIRED. PROVIDE CONDUIT FOR DATA

5-15P | 18 | DEDICATED CIRCUIT REQUIRED. PROVIDE CONDUIT FOR DATA

1/4 | 5-15P | DN | CONNECTS TO ITEM 22A AS NOTED ON ELECTRICAL PLAN

5-15P | DN | CONNECTS TO ITEM 22 AS NOTED ON ELECTRICAL PLAN

NO. QTY DESCRIPTION

1 2 P.O.S. STATION

9 2 WINE COOLER

21 1 ICE MACHINE

13 2

2 2 P.O.S. CHECK PRINTER

14 | 1 | SPHERE ICE MACHINE

22A 1 DROP DOWN CORD REEL

31 | 1 | SPHERE ICE MACHINE

12 2 WINE DISPENSING SYSTEM

BACK BAR EQUIPMENT

REFRIGERATOR, REACH-IN, GLASS DOOR | X |

NOTE:

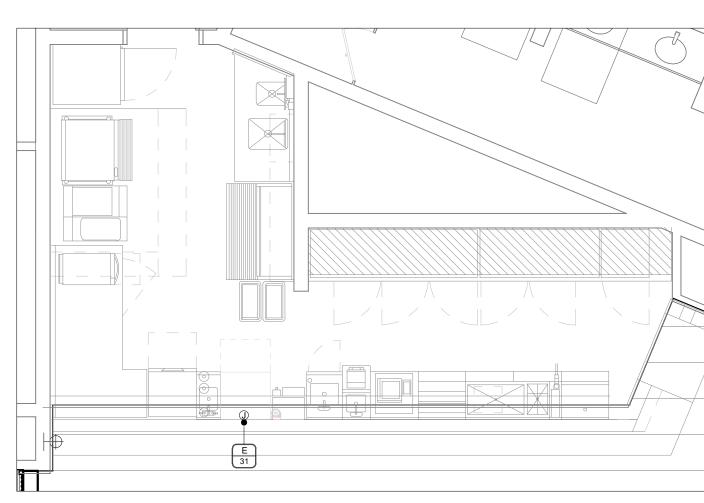
1. FOODSERVICE OUTLETS SHOWN AS A SUGGESTED MINIMUM. ELECTRICAL ENGINEER IS RESPONSIBLE FOR SPECIFYING CONVENIENCE OUTLET LOCATION & SIZING AS REQUIRED BY LOCAL CODES AND REGULATIONS.

	ELECTRI(CAL L	EGEND
	SYMBOLS		ABBREVIATIONS
J	JUNCTION BOX (J-BOX)	Α	AMPERES
	EQUIPMENT INTERCONNECTION BY E.C.	AFF	ABOVE FINISHED FLOOR
	ELECTRICAL ROUGH-IN	втс	BRANCH TO CONNECTION POINT & CONNECT EQUIPMENT
\ominus	SINGLE ELECTRICAL OUTLET (SCO)	CONV.	CONVENIENCE OUTLET 120V 1PH 20.0A
\ominus	DUPLEX ELECTRICAL OUTLET (DOC)	D.C.	DIRECT CONNECTION
\oplus	FOURPLEX ELECTRICAL OUTLET (QCO)	DN	DOWN FROM ABOVE
•	STUB UP FROM FF (TERMINATED CONDUIT)	E.C.	ELECTRICAL CONTRACTOR
\triangleright	TELEPHONE OUTLET	НР	HORSE POWER
D	DATA LINE CONNECTION	K.E.C.	KITCHEN EQUIPMENT CONTRACTOR
F	FLOURESCENT LIGHT FIXTURE	KW	KILOWATTS
\Diamond	INCANDESCENT LIGHT FIXTURE	PH	PHASE
	BREAKER PANELBOARD	U.C.	UNDER COUNTER
\$	SWITCH AS NOTED	V	VOLTS
1	FLOOR BOX (FL. BOX)	W	WATTS

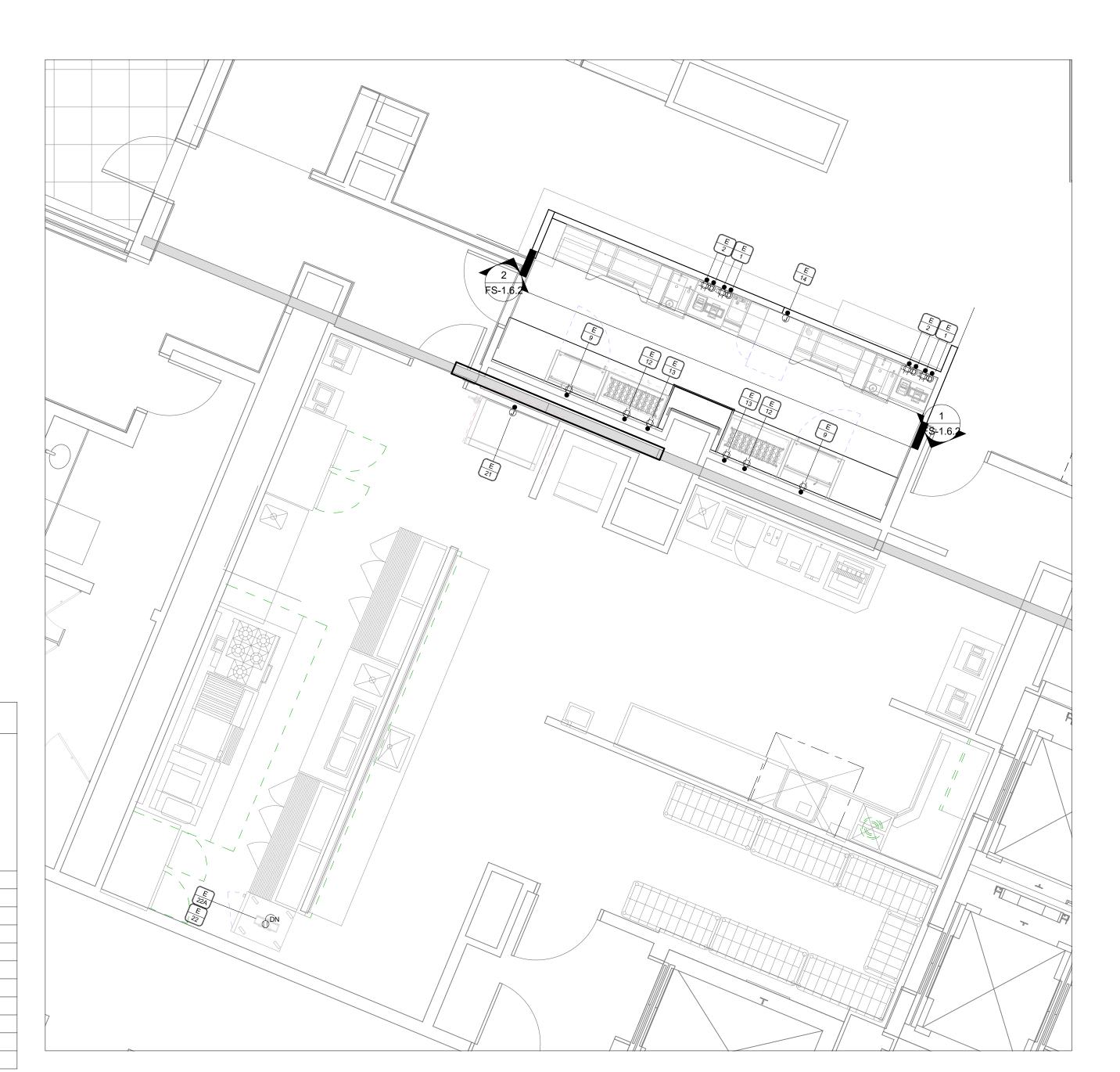
NOTE:

EQUIPMENT.

ROUGH-IN DIMENSIONS ARE BASED ON ELECTRONIC BACKGROUNDS PROVIDED BY ARCHITECT. RJS+ ASSOCIATES DOES NOT WARRANT THE ACCURACY OF THE BACKGROUNDS OR THE DIMENSIONS REFERENCED ON RJS+ ASSOCIATES DRAWINGS. THESE DIMENSIONS ARE PROVIDED AS A CONVENIENCE. IT IS THE RECCOMENDATION OF RJS+ ASSOCIATES THAT THE KITCHEN EQUIPMENT, ELECTRICAL, MECHANICAL, PLUMBING AND GENERAL CONTRACTORS AS APPLICABLE, CREATE THEIR REFERENCE DIMENSIONED ROUGH-IN DRAWINGS. IT IS FURTHER RECOMMENDED THAT FIELD VERIFICATION BE PERFORMED BY THE APPLICABLE CONTRACTORS PRIOR TO POURING OF ANY SLABS OR FABRICATION OF CUSTOM



ELECTRICAL ROUGH-IN PLAN - AREA B



1 ELECTRICAL ROUGH-IN PLAN - AREA A

HEALTH DEPT. NOTES

- ALL FOOD SERVICE EQUIPMENT, FABRICATED ITEMS, AND THEIR INSTALLATION SHALL MEET NATIONAL SANITATION FOUNDATION (N.S.F.)
- REQUIREMENTS.

 2. ALL STATIONARY EQUIPMENT AND FIXTURES TO BE SEALED TO THE WALL OR ADJACENT EQUIPMENT. USE ALUMINUM COLOR AT STAINLESS STEEL AND CLEAR
- ALUMINUM COLOR AT STAINLESS STEEL AND CLEAR
 AT ALL OTHER.
 ALL SINKS IN THE FOOD FACILITY MUST BE PROVIDED
 WITH HOT WATER (MIN. 110 DEG. F.) AND COLD
- RUNNING WATER UNDER PRESSURE AND WILL HAVE A PREMIXING FAUCET CAPABLE OF SUPPLYING WARM WATER FOR A MINIMUM OF 10 SECONDS

 4. A HAND SINK IS PROVIDED IN EACH FOOD
- PREPARATION AREA WITH SINGLE SERVICE TOWEL AND SOAP DISPENSER.

 5. 3-COMPARTMENT SINKS ARE PROVIDED WITH MIXING VALVE FAUCETS CAPABLE OF REACHING EACH
- VALVE FAUCETS CAPABLE OF REACHING EACH
 COMPARTMENT.

 6. A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT,
 MEASURED 30" OFF THE FLOOR TO BE PROVIDED
- IN ALL FOOD PREPARATION, PACKAGING, AND PROCESSING AREAS.
 7. A MIN. OF 10 FOOT CANDLES (108 LUX) OF LIGHT, MEASURED 30" OFF THE FLOOR TO BE PROVIDED
- IN ALL FOOD & UTENSIL STORAGE ROOMS,
 TOILET, AND DRESSING ROOMS.

 8. A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT,
 MEASURED 30" OFF THE FLOOR TO BE PROVIDED
 IN ALL AREAS DURING GENERAL CLEANUP
- ACTIVITIES.

 ALL SHELVING OVER WET AREAS (SINKS, MOP SINKS, ETC.) WILL BE STAINLESS STEEL.

 SHATTER SHIELDS OR SHATTERPROOF LIGHT BULBS TO BE PROVIDED FOR ALL LIGHTS ABOVE
- FOOD PREPARATION, WORK, AND STORAGE AREAS.

 11. ALL PLUMBING, ELECTRICAL, AND GAS LINES SHALL BE CONCEALED WITHIN THE BUILDING
- SHALL BE CONCEALED WITHIN THE BUILDING
 STRUCTURE TO AS GREAT AN EXTENT AS
 POSSIBLE.

 12. FLOOR SINKS UNDER EQUIPMENT MUST BE 50%
- AND SERVICING.

 13. ALL EXHAUST HOODS TO BE A MIN. 22 GA.
 STAINLESS STEEL, U.L. LISTED, AND
 CONSTRUCTED AND INSTALLED TO ALL U.L. AND
 N.F.P.A. SPECIFICATIONS. EXHAUST DUCTS TO
 BE A MIN. 16 GA. STEEL. (TYPE 1 HOOD DUCTS TO

EXPOSED AND EASILY ACCESSIBLE FOR CLEANING

- HAVE WELDED SEAMS)

 14. ALL FLOOR TILE TO BE SMOOTH UNDER ALL EQUIPMENT, AND WALKWAYS TO HAVE A LIGHT
- TEXTURE ONLY.

 15. ALL 3-COMPARTMENT SINKS TO HAVE A MIN.
 COMPARTMENT SIZE OF 18" X 18" X 12" DEEP, WITH A
 MIN. 18" DRAIN BOARD ON EACH END. PROVIDE WITH
 8" HIGH INTEGRAL BACK SPLASH AT ALL WALLS. (SEE
 FOOD SERVICE SPECIFICATIONS FOR SIZES OF EACH
- 16. SUPPORT ROOMS ARE FOR STORAGE AND UTENSIL WASHING ONLY. NO VEGETABLE WASHING OR FOOD PREP. TO BE DONE

FOOD SERVICE NOTES

- REQUIREMENTS SHOWN ARE FOR ONE ITEM, TO DERIVE TOTAL MULTIPLY BY QUANTITY SHOWN.
 ELECTRICAL CONTRACTOR SHALL PROVIDE MAG. STARTERS. DISCONNECT SWITCHES, INTERLOCKS AND THERMO-OVERLOAD PROTECTION WHERE
- 3. PLUMBING CONTRACTOR SHALL PROVIDE STOP VALVES AHEAD OF ALL OPERATING HANDLES AND
- FAUCETS.
 4. SEE EQUIPMENT PLUMBING AND ELECTRICAL
- ROUGH-IN DRAWINGS FOR ADDITIONAL
 INFORMATION

 5. ELECTRICAL POWER TO COOKING EQUIPMENT,
 WHERE REQUIRED, SHALL BE PROVIDED THRU A
 SHUNT-TRIP SYSTEM FOR FIRE FUEL SHUT-OFF.
 ELECTRICAL CONTRACTOR SHALL WIRE CONTROL
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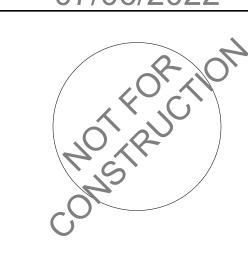
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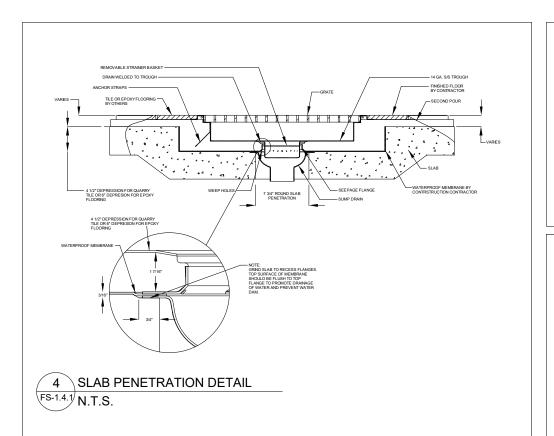
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DRAWN Author

SCALE ___1/4" = 1'-0"

FOODSERVICE EQUIPMENT ELECTRICAL PLAN & SCHEDULE

KE-1101

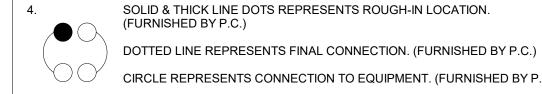


NOTE: 1. FOODSERVICE FLOOR DRAINS SHOWN AS A SUGGESTED MINIMUM. PLUMBING ENGINEER IS RESPONSIBLE FOR SPECIFIYING CONVENIENCE DRAIN LOCATION & SIZING AS REQUIRED BY LOCAL CODES AND REGULATIONS.

FLOOR SINKS DIMENSIONED ON SHEET FS-1.7.2

PLUMBING GENERAL NOTES

- PLUMBING ENGINEER IS RESPONSIBLE FOR SPECIFYING CONVENIENCE AND FLOOR DRAIN LOCATION AND SIZING AS REQUIRED BY LOCAL CODES AND REGULATIONS.
- SEE EQUIPMENT PLAN AND SCHEDULE FOR ADDITIONAL INFORMATION. P.C. TO PROVIDE ALL ROUGH-IN AND FINAL CONNECTIONS TO ALL EQUIPMENT SHOWN HEREIN.



CIRCLE REPRESENTS CONNECTION TO EQUIPMENT. (FURNISHED BY P.C.)

- PLUMBING CONTRACTOR (P.C.) TO KEEP ALL PLUMBING LINES CLEAR OF WALLBACKING AREAS.
- P.C. TO PROVIDE AND INSTALL REGULATORS AS REQUIRED. P.C. TO VERIFY PLUMBING REQUIREMENTS AND LOCATIONS FOR EQUIPMENT SUPPLIED BY OTHERS.

	SYMBOLS		ABBREVIATIONS
•	HOT WATER	AFF	ABOVE FINISHED FLOOR
0	COLD WATER	втс	BRANCH TO CONNECT
0	DRAIN CONNECTION	CW	COLD WATER
0	DIRECT DRAIN	DN	DOWN FROM ABOVE
0	WATER CONNECTION	DR	DRAIN
	FLOOR SINK - HALF GRATE	FD	FLOOR DRAIN
•	FLOOR DRAIN - AS NOTED	FS	FLOOR SINK
•	FUNNEL DRAIN - AS NOTED	FT	FLOOR TROUGH
•	GAS LINE	GPH	GALLONS PER HOUR
\oplus	GAS CONNECTION	GPM	GALLONS PER MINUTE
0	HOT WATER	HD	HUB DRAIN
\langle	FLEX HOSE CONNECT	HW	HOT WATER
	INDIRECT WASTE LINE	Р	PLUMBING
	PLUMBING INTERCONNECTION	PSI	POUNDS PER SQUARE INCH
•	STUB UP FROM FLOOR	DW	DIRECT WASTE

IW INDIRECT WASTE

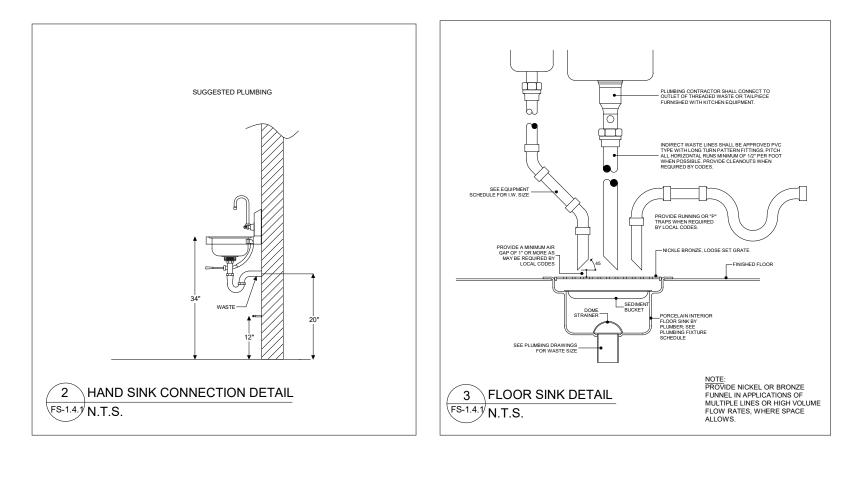
CWS | CHILLED WATER SUPPLY

CWR | CHILLED WATER RETURN

PLUMBING LEGEND

NOTE:

ROUGH-IN DIMENSIONS ARE BASED UPON ELECTRONIC BACKGROUNDS PROVIDED BY ARCHITECT. RJS + ASSOCIATES DOES NOT WARRANT THE ACCURACY OF THE BACKGROUNDS OR THE DIMENSIONS REFERENCED ON RJS ASSOCIATES DRAWINGS. THESE DIMENSIONS ARE PROVIDED AS A CONVENIENCE. IT IS THE RECOMMENDATION OF RJS ASSOCIATES THAT THE KITCHEN EQUIPMENT, ELECTRICAL MECHANICAL, PLUMBING AND GENERAL CONTRACTORS AS APPLICABLE. CREATE THEIR REFERENCE DIMENSIONED ROUGH-IN DRAWINGS. IT IS FURTHER RECOMMENDED THAT FIELD VERIFICATION BE PERFORMED BY THE APPLICABLE CONTRACTORS PRIOR TO POURING OF ANY SLABS OR FABRICATION OF CUSTOM EQUIPMENT.



FOODSERVICE PLUMBING ROUGH-IN SCHEDULE

INTERCONNECTED TO ITEM #14A

INTERCONNECTED TO ITEM #314

DRAIN TO EXISTING FLOOR DRAIN. VERIFY LOCATION IN FIELD.INTERCONNECTED TO ITEM #21B.

NO. QTY EQUIPMENT CATEGORY

COCKTAIL STATION

SPHERE ICE MACHINE

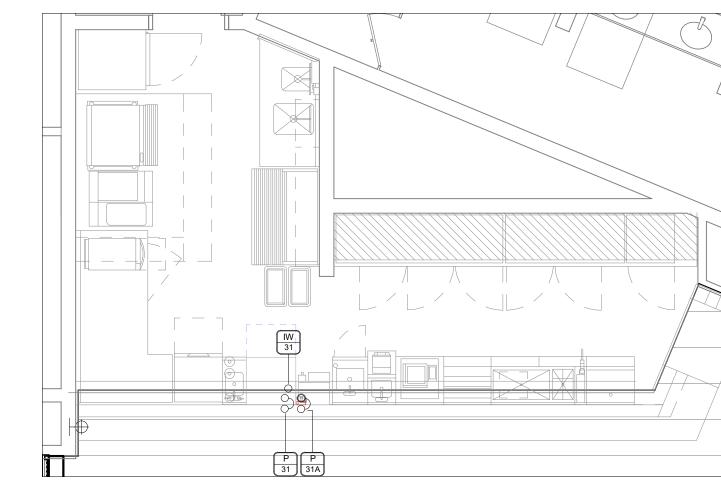
Water Filter Assembly

SPHERE ICE MACHINE

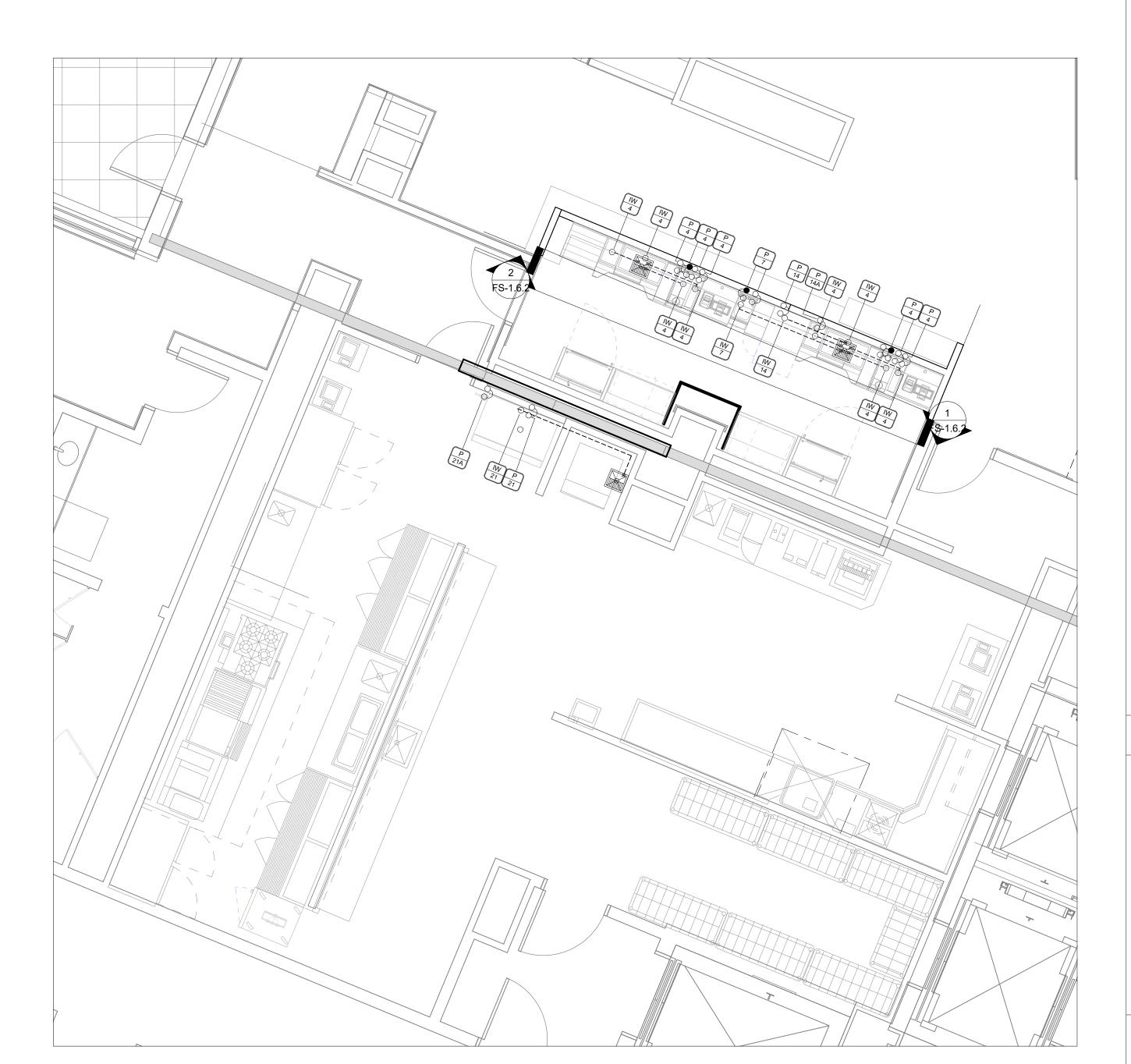
WATER FILTER, ICEMAKER

ICE MACHINE ICE BIN

Water Filter Assembly







PLUMBING ROUGH-IN PLAN - AREA A

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- ALL SINKS IN THE FOOD FACILITY MUST BE PROVIDED WITH HOT WATER (MIN. 110 DEG. F.) AND COLD RUNNING WATER UNDER PRESSURE AND WILL HAVE A PREMIXING FAUCET CAPABLE OF SUPPLYING WARM WATER FOR A MINIMUM OF 10 SECONDS
- A HAND SINK IS PROVIDED IN EACH FOOD PREPARATION AREA WITH SINGLE SERVICE TOWEL AND SOAP DISPENSER.
- 3-COMPARTMENT SINKS ARE PROVIDED WITH MIXING VALVE FAUCETS CAPABLE OF REACHING EACH COMPARTMENT.
- A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT, MEASURED 30" OFF THE FLOOR TO BE PROVIDED IN ALL FOOD PREPARATION, PACKAGING, AND PROCESSING AREAS. A MIN. OF 10 FOOT CANDLES (108 LUX) OF LIGHT,
- IN ALL FOOD & UTENSIL STORAGE ROOMS, TOILET, AND DRESSING ROOMS. A MIN. OF 20 FOOT CANDLES (215 LUX) OF LIGHT, MEASURED 30" OFF THE FLOOR TO BE PROVIDED IN ALL AREAS DURING GENERAL CLEANUP

MEASURED 30" OFF THE FLOOR TO BE PROVIDED

- ACTIVITIES. ALL SHELVING OVER WET AREAS (SINKS, MOP
- SINKS, ETC.) WILL BE STAINLESS STEEL. SHATTER SHIELDS OR SHATTERPROOF LIGHT BULBS TO BE PROVIDED FOR ALL LIGHTS ABOVE
- FOOD PREPARATION, WORK, AND STORAGE ALL PLUMBING, ELECTRICAL, AND GAS LINES
- SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE TO AS GREAT AN EXTENT AS POSSIBLE.
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- HAVE WELDED SEAMS) ALL FLOOR TILE TO BE SMOOTH UNDER ALL EQUIPMENT, AND WALKWAYS TO HAVE A LIGHT

BE A MIN. 16 GA. STEEL. (TYPE 1 HOOD DUCTS TO

- TEXTURE ONLY. ALL 3-COMPARTMENT SINKS TO HAVE A MIN. COMPARTMENT SIZE OF 18" X 18" X 12" DEEP, WITH A MIN. 18" DRAIN BOARD ON EACH END. PROVIDE WITH 8" HIGH INTEGRAL BACK SPLASH AT ALL WALLS. (SEE FOOD SERVICE SPECIFICATIONS FOR SIZES OF EACH
- SUPPORT ROOMS ARE FOR STORAGE AND UTENSIL WASHING ONLY. NO VEGETABLE WASHING OR FOOD PREP. TO BE DONE

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- REQUIREMENTS SHOWN ARE FOR ONE ITEM, TO DERIVE TOTAL MULTIPLY BY QUANTITY SHOWN. ELECTRICAL CONTRACTOR SHALL PROVIDE MAG. STARTERS. DISCONNECT SWITCHES, INTERLOCKS
- PLUMBING CONTRACTOR SHALL PROVIDE STOP VALVES AHEAD OF ALL OPERATING HANDLES AND

AND THERMO-OVERLOAD PROTECTION WHERE

- SEE EQUIPMENT PLUMBING AND ELECTRICAL
- ROUGH-IN DRAWINGS FOR ADDITIONAL INFORMATION ELECTRICAL POWER TO COOKING EQUIPMENT, WHERE REQUIRED, SHALL BE PROVIDED THRU A SHUNT-TRIP SYSTEM FOR FIRE FUEL SHUT-OFF. ELECTRICAL CONTRACTOR SHALL WIRE CONTROL CIRCUIT TO MICRO SWITCH PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ON HOOD FIRE
- PROTECTION SYSTEM. GAS SUPPLY TO ALL COOKING EQUIPMENT, WHERE REQUIRED, SHALL BE PROVIDED WITH AN ELECTRIC VALVE FOR FIRE-FUEL SHUT-OFF. VALVE TO BE SUPPLIED BY THE "K.E.C." AND INSTALLED BY THE "P.C." K.E.C. SHALL CONNECT VALVE TO THE HOOD
- ALL WALK-IN BOX COILS REQUIRE CONNECTIONS TO SOLENOID VALVE, T-STAT, T-CLOCK AND MOTORS AND CONTROL WIRING TO THE REMOTE COMPRESSOR. ALL CONNECTIONS TO BE PROVIDED BY THE ELECTRICAL

FIRE PROTECTION SYSTEM FOR AUTOMATIC SHUT-

- CONTRACTOR. ALL WALK-IN BOX FIXTURES TO BE PROVIDED BY THE "K.E.C." INSTALLATION AND WIRING TO BE PROVIDED
- BY THE "E.C." WITH ALL CONDUIT RUN ON EXTERIOR (TOP) OF BOX. VACUUM BREAKERS WHEN USED, TO BE MINIMUM OF SIX INCHES ABOVE THE FLOOD LEVEL RIM WITH NO SHUT OFF DEVICES BEYOND THE DISCHARGE OF THE
- VACUUM BREAKER. WALL BACKING PROVIDED BY GENERAL CONTRACTOR. PLUMBING CONTRACTOR TO SUPPLY GREASE TRAP AS
- REQUIRED BY CODE. ALL COOKING EQUIPMENT UNDER EXHAUST HOODS ARE EITHER ON CASTERS WITH FLEXIBLE
- UTILITY QUICK DISCONNECTS OR FIXED ON S/S LEGS. 13. ALL NEW EXHAUST HOODS WILL BE CONSTRUCTED TO MEET THE FOLLOWING STANDARDS: NSF, UL AND NFPA-96. ALL NEW HOODS TO BEAR UL CLASSIFIED LABEL WITHOUT DAMPERS IN EXHAUST VENT COLLARS. HOODS ARE DESIGNED TO MEET OR EXCEED 50 FPM CAPTURE VELOCITY AT THE COOKING
- SURFACE EDGE AND HAVE A 6" MIN. OVERHANG AT ALL EXPOSED COOKING AREAS. 14. BACK SPLASHES OF EQUIPMENT SHALL BE SEALED TO WALLS WITH CLEAR SILICONE CAULK IN A NEAT WORKMAN LIKE MANNER.

SHEET NOTES

THIS PLAN REPRESENTS A FOOD SERVICE LAYOUT OF CULINARY, BEVERAGE, SYSTEMS AND RELATED EQUIPMENT FOR THE CONVENIENCE OF OWNER / OPERATOR, ARCHITECTS, MECHANICAL, ELECTRICAL AND PLUMBING ENGINEERS, CONTRACTORS, KITCHEN EQUIPMENT FABRICATORS, KITCHEN EQUIPMENT CONTRACTORS AND OTHER RELATED TRADES. THE BASE PLAN HAS BEEN MADE AVAILABLE FROM INFORMATION PROVIDED BY OTHER, NOT LIMITED TO MEASUREMENTS, ELECTRONIC BACKGROUNDS, GRID LINES AND EXISTING OR PROPOSED ELECTRICAL AND MECHANICAL). GENERAL CONTRACTOS, SUBCONTRACTOS, KITCHEN EQUIPMENT DEALERS, CONTRACTORS, INSTALLERS, RELATED AND NON-RELATED CONTRACTORS, ARE RESPONSIBLE FOR SECURING AND OBTAINING THEIR OWN MEASUREMENTS AND SPECIFIC INFOMATION. INFORMATION INDICATED ON THESE LANS ARE GENERALLY FOR FOOD SERVICE EQUIPMENT AND ARE INTENDED AS REFERENCE ONLY, RJS + ASSOCIATES IS NOT RESPONSIBLE FOR THE ENGINEER OR INTEGRATION OF RELATION ENGINEERING ADN DISCIPLINES THROUGHOUT THE FULL SET OF CONSTRUCTION DOCUMENTS SPECIFIC TO THE FOOD SERVICE EQUIPMENT IN RELATION TO THE STRUCTURAL, ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL TRADES, UNLESS OTHERWISE SPECIFICALLY PROVIDED FOR IN THE PLANS AND SPECIFICATIONS. RIS+ ASSOCIATES
ASSUMES NO RESPONSIBILITY FOR WORK DONE BY ANY AND ALL ARCHITECTS, ENGINEERS, CONSULTANTS OR CONTRACTORS, OR FOR ANY CHANGES MADE NECESSARY BY LOCAL, STATE, OR NATIONAL BUILDING CODES, ORDINANCES, STRUCTURAL CONDITIONS, OR BY THE SUBSTITUTION OR CHANGES IN EQUIPMENT SHOWN ON THIS PLAN(S). CONTRACTORS ARE TO MAKE ALLOWANCES FOR INTERNAL AND EXTERNAL FINAL CONNECTIONS ON THE FOOD SERVICE EQUIPMENT, WASTE PIPING, VALVES, BACK-FLOW PREVENTION, TRAPS, DRAIN GRATES, FLUID / GAS REGULATORS, FAUCETS, STEAM TRAPS, STARTING SWITCHES AND MOTORS, EXCEPT WHERE SPECIFICALLY NOTED IN THE FOOD SERVICE SPECIFICATIONS,

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Reference Cover Sheet for Consultant Directory

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REVISIONS

DRAWN Author

SCALE ___1/4" = 1'-0"

FOODSERVICE EQUIPMENT PLUMBING PLAN & **SCHEDULE**

KP-1101

DIVISION 20: MECHANICAL AND ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS
- A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT. INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- B. WHERE PARAGRAPHS OF THIS SECTION CONFLICT WITH SIMILAR PARAGRAPHS OF DIVISION 01, THE MORE
- STRINGENT SPECIFICATION REQUIREMENTS SHALL PREVAIL. C. THIS SECTION SHALL APPLY TO THE FOLLOWING DIVISIONS:
- 1. DIVISION 21 FIRE SUPPRESSION
- 2. DIVISION 22 PLUMBING
- 3. DIVISION 23 HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)
- 4. DIVISION 26 ELECTRICAL
- 5. DIVISION 27 COMMUNICATIONS
- 6. DIVISION 28 ELECTRONIC SAFETY AND SECURITY 1.2 SUMMARY
- A. PERFORM WORK AND PROVIDE MATERIAL AND EQUIPMENT AS SHOWN ON THE DRAWINGS, AS SPECIFIED AND IN ACCORDANCE WITH THIS SECTION. COMPLETELY COORDINATE WORK OF THIS DIVISION WITH WORK OF OTHERS AND PROVIDE A COMPLETE AND FULLY FUNCTIONAL INSTALLATION.
- B. DRAWINGS AND SPECIFICATIONS FORM COMPLIMENTARY REQUIREMENTS. PROVIDE WORK SPECIFIED AND NOT SHOWN, WORK SHOWN AND NOT SPECIFIED AS THOUGH EXPLICITLY REQUIRED BY BOTH. ALTHOUGH WORK IS NOT SPECIFICALLY SHOWN OR SPECIFIED, PROVIDE SUPPLEMENTARY OR MISCELLANEOUS ITEMS. APPURTENANCES, DEVICES AND MATERIALS OBVIOUSLY NECESSARY FOR A SOUND, SECURE AND COMPLETE
- C. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION. PERFORM WORK IN ACCORDANCE WITH ALL LEGAL REQUIREMENTS AND WITH SPECIFICATIONS, DRAWINGS, ADDENDA AND CHANGE ORDERS, ALL OF WHICH ARE PART OF CONTRACT DOCUMENTS.
- D. EXAMINE DRAWINGS AND OTHER SECTIONS OF SPECIFICATIONS FOR REQUIREMENTS THAT AFFECT WORK OF
- E. OBTAIN CONSTRUCTION STANDARDS, IF ANY, FROM BUILDING OWNER, AND ENSURE ALL WORK COMPLIES.
- 1.3 DEFINITIONS
- A. AS USED IN ALL SECTIONS, "PROVIDE" MEANS "FURNISH AND INSTALL." "FURNISH" MEANS "TO PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT," AND "INSTALL" MEANS "TO UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT. 'POS' MEANS PROVIDED UNDER OTHER SPECIFICATION SECTION. "ARCHITECT" MEANS THE "PRIME DESIGN CONSULTANT." IF R.G. VANDERWEIL ENGINEERS, LLP IS NOT THE PRIME DESIGN CONSULTANT, THE ARCHITECT MAY AUTHORIZE R.G. VANDERWEIL ENGINEERS, LLP TO ACT ON THE ARCHITECT'S BEHALF IN MATTERS CONCERNING THE ALL SECTIONS OF SPECIFICATIONS.
- 1.4 CONTRACT DOCUMENTS
- A. REFER TO ARCHITECTURAL, FIRE PROTECTION, PLUMBING, HVAC, ELECTRICAL, STRUCTURAL, TELE/DATA AND ALL OTHER DRAWINGS AND OTHER SECTIONS THAT INDICATE TYPES OF CONSTRUCTION IN WHICH WORK SHALL
- BE INSTALLED AND WORK OF OTHER TRADES WITH WHICH WORK OF THIS SECTION MUST BE COORDINATED B. EXCEPT WHERE MODIFIED BY A SPECIFIC NOTATION TO THE CONTRARY. IT SHALL BE UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF AN ITEM, IN THE DRAWINGS OR SPECIFICATIONS OR BOTH, CARRIES WITH

IT THE INSTRUCTION TO FURNISH AND INSTALL THE ITEM, REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION

C. ITEMS REFERRED TO IN SINGULAR NUMBER IN CONTRACT DOCUMENTS SHALL BE PROVIDED IN QUANTITIES NECESSARY TO COMPLETE WORK.

IS EXPLICITLY STATED AS PART OF THE INDICATION OR DESCRIPTION.

- . DRAWINGS ARE DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE ABSOLUTELY PRECISE; THEY ARE NOT INTENDED TO SPECIFY OR TO SHOW EVERY OFFSET, FITTING, AND COMPONENT. THE PURPOSE OF THE DRAWINGS IS TO INDICATE A SYSTEMS CONCEPT. THE MAIN COMPONENTS OF THE SYSTEMS, AND THE APPROXIMATE GEOMETRICAL RELATIONSHIPS. BASED ON THE SYSTEMS CONCEPT, THE MAIN COMPONENTS, AND THE APPROXIMATE GEOMETRICAL RELATIONSHIPS, PROVIDE ALL OTHER COMPONENTS AND MATERIALS NECESSARY TO MAKE THE SYSTEMS FULLY COMPLETE, COORDINATED WITH OTHER SYSTEMS AND THE STRUCTURE AND SPACE AVAILABLE. AND OPERATIONAL
- . INFORMATION AND COMPONENTS SHOWN ON SINGLE LINE /SCHEMATIC DIAGRAMS BUT NOT SHOWN ON PLANS. AND VICE VERSA, SHALL APPLY OR BE PROVIDED AS IF EXPRESSLY REQUIRED ON BOTH.
- F. DATA THAT MAY BE FURNISHED ELECTRONICALLY (ON COMPACT DISK (CD). ELECTRONIC MAIL. OR OTHERWISE). IS DIAGRAMMATIC. ELECTRONICALLY FURNISHED INFORMATION IS SUBJECT TO THE SAME LIMITATION OF PRECISION DESCRIBED ABOVE. IF FURNISHED, ELECTRONIC DATA IS FOR CONVENIENCE AND GENERALIZED REFERENCE, AND SHALL NOT SUBSTITUTE FOR SEALED OR STAMPED CONSTRUCTION DOCUMENTS.
- 1.5 ELECTRONIC CAD FILES
- A. ELECTRONIC CAD FILES FOR FIRE PROTECTION, PLUMBING, HVAC, ELECTRICAL, TELE/DATA AND SECURITY DRAWINGS WILL BE FURNISHED BY ENGINEER AT CONTRACTOR'S REQUEST. ENGINEER WILL FORWARD THE 'RELEASE OF LIABILITY' FORM TO CONTRACTOR FOR COMPLETION/SIGNATURE. CONTRACTOR TO RETURN FORM TO ENGINEER PRIOR TO ENGINEER'S ISSUANCE OF ELECTRONIC CAD FILES. 1.6 DISCREPANCIES IN DOCUMENTS
- A. WHERE DRAWINGS OR SPECIFICATIONS CONFLICT OR ARE UNCLEAR, SUBMIT CLARIFICATION REQUEST IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, ARCHITECT'S INTERPRETATION OF CONTRACT

WITH APPLICABLE CODES AND STANDARDS, SUBMIT CLARIFICATION REQUEST IN WRITING BEFORE

- DOCUMENTS SHALL BE FINAL, AND NO ADDITIONAL COMPENSATION SHALL BE PERMITTED DUE TO DISCREPANCIES OR UN-CLARITIES THUS RESOLVED. B. WHERE DRAWINGS OR SPECIFICATIONS DO NOT COINCIDE WITH MANUFACTURERS' RECOMMENDATIONS OR
- INSTALLATION. OTHERWISE, MAKE CHANGES IN INSTALLED WORK REQUIRED FOR COMPLIANCE WITH MANUFACTURER INSTRUCTIONS OR CODES AND STANDARDS WITHIN CONTRACT PRICE. C. IF THE REQUIRED MATERIAL, INSTALLATION, OR WORK CAN BE INTERPRETED DIFFERENTLY FROM DRAWING TO
- DRAWING, OR BETWEEN DRAWINGS AND SPECS, PROVIDE MATERIAL, INSTALLATION OR WORK THAT IS OF THE HIGHER STANDARD. D. IT IS THE REQUIREMENT OF THESE CONTRACT DOCUMENTS TO REQUIRE PROVISION OF SYSTEMS AND
- COMPONENTS THAT ARE FULLY COMPLETE AND OPERATIONAL AND FULLY SUITABLE FOR THE INTENDED USE. THERE MAY BE SITUATIONS IN THE DOCUMENTS WHERE INSUFFICIENT INFORMATION EXISTS TO PRECISELY DESCRIBE A CERTAIN COMPONENT OR SUBSYSTEM, OR THE ROUTING OF A COMPONENT OR ITS COORDINATION WITH OTHER BUILDING ELEMENTS. IN THESE CASES, WHERE NOTIFICATION REQUIRED BY PARAGRAPH (A) ABOVE HAS NOT BEEN SUBMITTED, PROVIDE THE SPECIFIC COMPONENT OR SUBSYSTEM WITH ALL PARTS NECESSARY FOR THE INTENDED USE, FULLY COMPLETE AND OPERATIONAL, AND INSTALLED IN WORKMANLIKE MANNER EITHER CONCEALED OR EXPOSED IN ACCORDANCE WITH THE DESIGN INTENT.
- . IN CASES COVERED BY PARAGRAPH (D) ABOVE, WHERE THE CONTRACTOR BELIEVES ENGINEERING GUIDANCE IS NEEDED THE CONTRACTOR SHALL, SUBMIT A SKETCH IDENTIFYING PROPOSED SOLUTION. ARCHITECT SHALL REVIEW, NOTE IF NECESSARY, AND APPROVE THE SKETCH.
- WHERE DISCREPANCIES EXIST BETWEEN THE MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL AND TELE/DATA DRAWINGS IN REGARDS TO WHAT TRADE OWNS EQUIPMENT SUCH AS DISCONNECTS, STARTERS, ETC., THE DISCREPANCY SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION IN ACCORDANCE WITH PARAGRAPH (A) ABOVE. IF THE SCOPE IS NOT RESOLVED PRIOR TO THE AWARD OF CONTRACT, THE ELECTRICAL CONTRACTOR SHALL PROVIDE SUCH ITEMS.
- 1.7 MODIFICATIONS IN LAYOUT
- A. DRAWINGS ARE DIAGRAMMATIC. THEY INDICATE GENERAL ARRANGEMENTS OF MECHANICAL SYSTEMS AND OTHER WORK. THEY DO NOT SHOW ALL OFFSETS REQUIRED FOR COORDINATION NOR DO THEY SHOW THE EXACT ROUTINGS AND LOCATIONS NEEDED TO COORDINATE WITH STRUCTURE AND OTHER TRADES AND TO MEET CEILING HEIGHTS AND OTHER ARCHITECTURAL REQUIREMENTS.
- B. TO OBTAIN THE INTENDED AESTHETICS IN SPACES USED BY BUILDING OCCUPANTS, PRIOR TO INSTALLATION OF VISIBLE MATERIAL AND EQUIPMENT (INCLUDING ACCESS PANELS). REVIEW ARCHITECTURAL DRAWINGS FOR DESIRED LOCATIONS. WHERE NOT DEFINITIVELY INDICATED THE CONTRACTOR SHALL REQUEST INFORMATION
- C. CHECK CONTRACT DRAWINGS, AS WELL AS SHOP DRAWINGS, TO VERIFY AND COORDINATE SPACES IN WHICH WORK OF THIS SECTION WILL BE INSTALLED.
- D. MAINTAIN MAXIMUM HEADROOM AT ALL LOCATIONS. ALL PIPING, DUCT, CONDUIT, AND ASSOCIATED COMPONENTS TO BE AS TIGHT TO UNDERSIDE OF STRUCTURE AS POSSIBLE.
- E. MAKE REASONABLE MODIFICATIONS IN LAYOUT AND COMPONENTS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND TO COORDINATE ACCORDING TO PARAGRAPHS ABOVE. SYSTEMS SHALL BE RUN IN A RECTILINEAR FASHION.
- . WHERE CONFLICTS OR POTENTIAL CONFLICTS EXIST AND ENGINEERING GUIDANCE IS DESIRED THE CONTRACTOR SHALL SUBMIT SKETCH OF PROPOSED RESOLUTION TO ARCHITECT FOR REVIEW AND APPROVAL AS DESCRIBED/OUTLINED BELOW IN 'REQUEST FOR INFORMATION' (RFI) SECTION.
- 1.8 REQUEST FOR INFORMATION (RFI'S)
- A. WHERE AN RFI IS A REQUEST TO RESOLVE A CONFLICT OR AN UN-CLARITY, OR A REQUEST FOR ADDITIONAL DETAIL, CONTRACTOR'S RFI SHALL INCLUDED SKETCH OR EQUIVALENT DESCRIPTION OF CONTRACTOR'S PROPOSED SOLUTION, IN ACCORDANCE WITH PARAGRAPHS "DISCREPANCIES IN DOCUMENTS; AND "MODIFICATIONS IN LAYOUT" ABOVE.
- B. TO EXPEDITE THE PROCESSING OF RFIS, THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC CORRESPONDENCE WITH THE FOLLOWING INFORMATION CONTAINED WITHIN, AT THE MINIMUM, AS WELL AS THE CONTRACTOR'S PROPOSED SOLUTION, WITH SKETCHES AS REQUIRED:
- 1. PROJECT NAME
- 2. DATE OF RFI SUBMISSION / DATE OF REQUIRED RFI RESPONSE (3-DAY MINIMUM) 3. RFI NUMBER
- 4. NAME OF CONTRACTING COMPANY SUBMITTING RFI AND NAME OF PERSON SUBMITTING RFI
- 5. SPECIFICATION SECTION CITED
- 6. DRAWING NUMBER REFERENCED

- 7. CONTRACTOR EMAIL ADDRESS AND FAX NUMBER (FOR RESPONSE)
- 8. CONTRACTOR FIELD QUESTION (PROVIDE A NARRATIVE WITH SUPPLEMENTAL SKETCH) 9. CONTRACTOR PROPOSED SOLUTION (PROVIDE A NARRATIVE WITH SUPPLEMENTAL SKETCH)

10. RESPONDENT NARRATIVE BOX (FOR ENGINEER'S RESPONSE) 1.9 EXISTING CONDITIONS AND PREPARATORY WORK

THE FIELD.

- A. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN
- B. CARE SHALL BE TAKEN DURING THE INSTALLATION OF THE NEW WORK, AS NOT TO DAMAGE OR INTERRUPT THE EXISTING BUILDING SYSTEMS AND SERVICES INSTALLED.
- C. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS
- OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD. D. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. POTENTIAL PROBLEMS AREA SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.
- E. ANY/ALL DEMOLITION SHALL BE COORDINATED WITH OWNER, ARCHITECT, G.C.. AND ENGINEER.
- BEFORE STARTING WORK IN A PARTICULAR AREA OF THE PROJECT, VISIT THE LOCATION AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED INCLUDING PREPARATORY WORK DONE UNDER OTHER SECTIONS OR OTHER CONTRACTS OR BY THE OWNER. REVIEW GEOMETRICAL CONSTRAINTS, SUCH AS CEILING HEIGHTS. TO ENSURE CONSTRUCTABILITY AND ACCESS FOR MAINTENANCE. REPORT CONDITIONS THAT MIGHT ADVERSELY AFFECT WORK IN WRITING TO THE ARCHITECT. DO NOT PROCEED WITH WORK UNTIL DEFECTS HAVE BEEN CORRECTED AND CONDITIONS ARE SATISFACTORY. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS AND PREPARATORY WORK.
- 1.10 CODES, STANDARDS, AUTHORITIES AND PERMITS
- A. PERFORM WORK IN ACCORDANCE WITH RULES, REGULATIONS, STANDARDS, CODES, ORDINANCES, AND LAWS OF LOCAL, STATE, AND FEDERAL GOVERNMENTS, AND OTHER AUTHORITIES THAT HAVE LEGAL JURISDICTION
- B. PRIOR TO COMMENCEMENT OF WORK, NOTIFY STATE AND APPLICABLE AUTHORITIES AND SUBMIT ALL OF THE APPLICABLE NOTIFICATIONS FOR CONSTRUCTION, OPERATION AND/OR DEMOLITION. C. MATERIALS AND EQUIPMENT SHALL BE MANUFACTURED, INSTALLED AND TESTED AS SPECIFIED IN LATEST
- EDITIONS OF APPLICABLE PUBLICATIONS, STANDARDS, RULINGS AND DETERMINATIONS OF: 1. LOCAL AND STATE BUILDING, PLUMBING, MECHANICAL, ELECTRICAL, FIRE AND HEALTH DEPARTMENT
- CODES.
- 2. AMERICAN GAS ASSOCIATION (AGA). 3. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
- 4. AMERICAN INSURANCE ASSOCIATION (AIA) (FORMERLY NATIONAL BOARD OF FIRE UNDERWRITERS).
- 5. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- 6. UNDERWRITERS LABORATORIES (UL)
- 7. FACTORY MUTUAL ASSOCIATION (FM)
- 8. OWNER'S INSURANCE UNDERWRITER. 9. SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
- D. MATERIAL AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS' LABORATORIES (UL), AND APPROVED BY ASME, ANSI, ASTM, AND AGA FOR INTENDED SERVICE.
- E. WHEN REQUIREMENTS CITED IN THIS SPECIFICATION CONFLICT WITH EACH OTHER OR WITH CONTRACT
- DOCUMENTS, MOST STRINGENT SHALL GOVERN WORK.
- F. SECURE AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. SECURE TRADE PERMITS PRIOR TO BEGINNING WORK.
- G. PERFORM ALL WORK IN ACCORDANCE WITH BASE BUILDING RULES, REGULATIONS, SPECIFICATIONS AND STANDARDS.
- A. WARRANT THE WORK OF THIS SECTION IN WRITING FOR ONE YEAR FOLLOWING THE DATE OF SUBSTANTIAL COMPLETION. IF THE EQUIPMENT IS USED FOR VENTILATION, TEMPORARY HEAT, OR OTHER USE PRIOR TO
- INITIAL BENEFICIAL OCCUPANCY BY THE OWNER, THE BID PRICE SHALL INCLUDE AN EXTENDED PERIOD OF WARRANTY COVERING THE ONE-YEAR OF BENEFICIAL OCCUPANCY BY THE OWNER. THE WARRANTY SHALL REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPTLY AND TO ARCHITECT'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER WARRANTY WITHIN CONTRACT PRICE.
- 1.12 COORDINATION DRAWINGS
- A. A SINGLE SET OF COORDINATION DRAWINGS SHALL BE MUTUALLY PREPARED BY ALL MECHANICAL AND ELECTRICAL TRADES. THE INITIATION OF THESE DRAWINGS BEGINS WITH THE SHEET METAL SUBCONTRACTOR.
- B. THE SHEET METAL SUBCONTRACTOR SHALL PREPARE A COMPLETE SET OF ELECTRONIC DRAWINGS IN APPROVED VERSIONS OF AUTOCAD, REVIT, OR APPROVED ALTERNATIVE, AT SCALE NOT LESS THAN 3/8" EQUALS 1'-0" SHOWING: STRUCTURE, RATED PARTITIONS, CEILING TYPE AND OTHER INFORMATION AS NEEDED FOR COORDINATION. ALL TRADES SHALL ELECTRONICALLY ADD THEIR SYSTEMS TO THE ELECTRONIC FORMATTED DRAWINGS, EACH TRADE IN A DIFFERENT COLOR, SHOWING REQUIRED OFFSETS AND DIMENSIONS TO AVOID INTERFERENCES. THESE ELECTRONIC FILES WILL BE CONSIDERED THE PROJECT COORDINATION DRAWINGS.
- C. WHERE CONFLICTS OCCUR WITH PLACEMENT OF MATERIALS OF VARIOUS TRADES, THE SHEET METAL SUBCONTRACTOR WILL BE RESPONSIBLE TO COORDINATE THE AVAILABLE SPACE TO ACCOMMODATE
- D. SHEET METAL FABRICATION SHALL NOT START UNTIL COPIES OF COMPLETED COORDINATION DRAWINGS ARE RECEIVED BY THE ARCHITECT AND HAVE BEEN REVIEWED.
- E. REVIEW BY ENGINEER OF COORDINATION DRAWINGS IS LIMITED TO CONFIRMING THAT REQUIREMENTS FOR COORDINATION AND PREPARATION OF PLANS HAVE BEEN COMPLIED WITH BY THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND SHALL NOT DIMINISH RESPONSIBILITY UNDER THIS CONTRACT FOR FINAL COORDINATION OF INSTALLATION AND MAINTENANCE CLEARANCES OF ALL SYSTEMS AND EQUIPMENT WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER RELATED WORK.
- 1.13 SHOP DRAWING SUBMITTALS
- A. SUBMITTAL COVER SHEET:
- 1. SHOP DRAWING SUBMITTAL FOR EACH PRODUCT SHALL INCLUDE A COPY OF THE FOLLOWING COVER SHEET COMPLETELY FILLED OUT. INCOMPLETE OR INCORRECT COVER SHEET SUBMITTAL SHALL CONSTITUTE REASON FOR REJECTION.
- 2. PROVIDE SEPARATE COVER SHEET (BELOW) FOR EACH PRODUCT, RATHER THAN ONE COVER SHEET FOR MULTIPLE PRODUCTS, WHETHER OR NOT SUPPLIED BY ONE MANUFACTURER OR VENDOR.

PROJECT: CONTRACTOR: DIVISION NO.: SECTION NO.: DESCRIPTION: CONTRACT DRAWING REFERENCE NO: EQUIPMENT TAG: SUBMISSION (CIRCLE ONE): FIRST, SECOND, THIRD, FOURTH DATE: INFORMATION AND CHECKLIST 1. Contractor's Log #ID 2. Name, address, and phone number of supplier. 3. Are all specified or scheduled items included and exactly match scheduled/specified items? 4. Is this item a substitution? 5. Are deviations clearly identified? 6. Does equipment fit space shown on construction documents, coordination drawings, and actual field conditions? 7. Has support, erection, weights, and installation been coordinated with all trades? 8. Does the proposed installation void warranties and/or violate UL or code requirements? 9. Does this material/equipment add expense to other trades or project costs? 10. Does equipment require interface with other trades? List divisions and specifics requiring coordination? 11. Is control interface coordinated? Yes No 12. List electrical characteristics (Voltage/Phase/Hz/Amps)		SHOP DRAWING COVER SHEE	ĒΤ		
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divisions and specifics requiring coordination? 11. Is control interface coordinated? Yes No Yes No	9.	Does this material/equipment add expense to other trades or project costs?	Yes	No	
	10.		Yes	No	
12. List electrical characteristics (Voltage/Phase/Hz/Amps)	11.	Is control interface coordinated?	Yes	No	
	12.	List electrical characteristics (Voltage/Phase/Hz/Amps)			

B. SUBMITTAL PROCEDURES, CONTENTS, AND FORMAT

1. CONSTRUCTION MANAGER OR GENERAL CONTRACTOR SHALL FIRST REVIEW SUBMITTAL PACKAGES FOR COMPLIANCE WITH CONTRACT DOCUMENTS. UPON REVIEW BY THE G.C. THE SUBMITTALS WILL THEN BE SUBMITTED FOR REVIEW BY ARCHITECT. REVIEW BY CONSTRUCTION MANAGER OR CONTRACTOR IS INTENDED TO ENSURE THAT THE SUBMITTALS INCLUDE THE FOREGOING COVER SHEET. ARE IN THE CORRECT ELECTRONIC FORMAT AS SPECIFIED BELOW. AND THAT THE DEVICES/EQUIPMENT/ITEMS FIT INTO THE SPACE PROVIDED. ALSO, THAT THE SUBMITTAL CONTAINS ADEQUATE INFORMATION TO VERIFY SPECIFICATION REQUIREMENTS AS WELL AS THE PERFORMANCE AND DIMENSIONAL REQUIREMENTS SHOWN ON THE DRAWINGS. IF A SHOP DRAWING IS RETURNED WITH A SUBMITTAL STATUS OF "REJECTED"

- OR "REJECTED: REVISE AND RESUBMIT", IT INDICATES THE SHOP DRAWING WAS NOT ADEQUATELY REVIEWED BY THE CONTRACTOR. SUBSEQUENT RE-SUBMITTALS SHALL BE COMPLETE AND SHALL INCLUDE A COVER LETTER SUMMARIZING THE CORRECTIONS MADE IN RESPONSE TO THE REVIEW COMMENTS.
- 2. SUBMITTALS WILL BE PROVIDED TO ENGINEER IN ELECTRONIC (PDF) FORMAT. A SINGLE PDF FILE SHALL BE SUBMITTED FOR EACH RESPECTIVE SUBMITTAL. THE PDF FILE WILL BE FORMATTED IN THE FOLLOWING WAY:
- a. SUBMITTALS WILL BE 'EMAILED' TO THE MECHANICAL/ELECTRICAL TEAM VIA THE FOLLOWING EMAIL ADDRESS(ES):
- 1. PROJECT MANAGERS EMAIL: pvankauwenberg@vanderweil.com
- 2. DL-BOS-SHOPDRAWINGS@VANDERWEIL.COM
- 3. SUBMITTAL CONTENTS
- a. ELECTRONIC SUBMITTALS SHALL BE COMPREHENSIVE AND FULLY SELF CONTAINED AND SHALL NOT CONTAIN LINKS TO ASSOCIATED WEBSITES.
- b. SUBMITTALS SHALL INCLUDE ALL CATALOG DATA AND PHYSICAL AND PERFORMANCE CHARACTERISTICS 1.17 CONTINUITY OF SERVICES AND PLANS AND DIAGRAMS AS NECESSARY TO CONFIRM COMPLIANCE WITH PLANS AND
- c. SUBMITTALS SHALL CONTAIN ONLY INFORMATION RELEVANT TO THE PARTICULAR EQUIPMENT OR MATERIALS TO BE FURNISHED. CLEARLY INDICATE THE PIECE OF EQUIPMENT OR MATERIAL BEING PROVIDED. DO NOT SUBMIT GENERIC CATALOG CUTS WHICH DESCRIBE SEVERAL DIFFERENT ITEMS IN ADDITION TO THOSE SPECIFIC ITEMS BEING PROVIDED.
- 4. SHOP DRAWINGS SHOWING MANUFACTURER'S PRODUCT DATA SHALL CONTAIN DETAILED DIMENSIONAL DRAWINGS, ACCURATE AND COMPLETE DESCRIPTION OF MATERIALS OF CONSTRUCTION, MANUFACTURER'S PUBLISHED PERFORMANCE CHARACTERISTICS AND CAPACITY RATINGS (PERFORMANCE DATA, ALONE, IS NOT ACCEPTABLE), ELECTRICAL REQUIREMENTS AND WIRING DIAGRAMS. DRAWINGS SHALL CLEARLY INDICATE LOCATION (TERMINAL BLOCK OR WIRE NUMBER), VOLTAGE AND FUNCTION FOR ALL FIELD TERMINATIONS, AND OTHER INFORMATION NECESSARY TO DEMONSTRATE COMPLIANCE WITH ALL REQUIREMENTS OF CONTRACT DOCUMENTS.
- D. ACCEPTABLE MANUFACTURERS: SUBSTITUTION OF PRODUCTS OTHER THAN THOSE OF THE ACCEPTABLE MANUFACTURERS SPECIFIED HEREIN SHALL NOT BE MADE. ONLY THE SPECIFIED ITEMS, OR COMPARABLE PRODUCTS BY ONE OF THE OTHER NAMED ALTERNATIVE MANUFACTURERS SHALL BE SUBMITTED. OTHER MANUFACTURERS AND PRODUCTS WILL NOT BE USED.
- E. DEVIATIONS 1. PROPOSED DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE REQUESTED INDIVIDUALLY IN WRITING WHETHER DEVIATIONS RESULT FROM FIELD CONDITIONS, STANDARD SHOP PRACTICE, OR OTHER CAUSE. SUBMIT LETTER WITH TRANSMITTAL OF SHOP DRAWINGS WHICH FLAGS THE DEVIATION TO THE ATTENTION
 - 2. WITHOUT LETTERS FLAGGING THE DEVIATION TO THE ARCHITECT, IT IS POSSIBLE THAT THE ARCHITECT MAY NOT NOTICE SUCH DEVIATION OR MAY NOT REALIZE ITS RAMIFICATIONS. THEREFORE, IF SUCH LETTERS ARE NOT SUBMITTED TO THE ARCHITECT, THE CONTRACTOR SHALL HOLD THE ARCHITECT AND HIS CONSULTANTS HARMLESS FOR ANY AND ALL ADVERSE CONSEQUENCES RESULTING FROM THE DEVIATIONS BEING IMPLEMENTED. THIS SHALL APPLY REGARDLESS OF WHETHER THE ARCHITECT HAS REVIEWED OR APPROVED SHOP DRAWINGS CONTAINING THE DEVIATION, AND WILL BE STRICTLY
- 3. APPROVAL OF PROPOSED DEVIATIONS, IF ANY, WILL BE MADE AT DISCRETION OF ARCHITECT.
- F. SUBMITTAL STATUS: SUBMITTALS WILL BE RETURNED MARKED/NOTED AS ILLUSTRATED BELOW: "APPROVED AS NOTED": REVIEWED AND FOUND GENERALLY ACCEPTABLE. MINOR DEVIATIONS NOTED. NO FURTHER SUBMITTAL IS REQUIRED IF NOTED DEVIATIONS ARE COMPLIED WITH/CORRECTED.
- "REJECTED: REVISE AND RESUBMIT": SUBMITTAL CONTAINS DEVIATIONS WHICH SHALL BE CORRECTED AND CONFIRMED BY A NEW SUBMITTAL
- "<u>REJECTED</u>": SUBMITTAL IS INCORRECT TO SUCH AN EXTENT THAT MATERIAL IS UNACCEPTABLE, OR IS INCOMPLETE TO SUCH AN EXTENT THAT A COMPLETE REVIEW CANNOT BE MADE. RESUBMIT IN ACCORDANCE WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- "NO ACTION": SUBMITTAL NOT REVIEWED. "REVIEWED FOR INFORMATION": THIS SUBMITTAL IS FOR INFORMATION ONLY.
- G. RESPONSIBILITY: INTENT OF ARCHITECT'S SUBMITTAL REVIEW IS TO CHECK FOR CAPACITY, RATING. AND CERTAIN CONSTRUCTION FEATURES. CONTRACTOR SHALL ENSURE THAT WORK MEETS REQUIREMENTS OF CONTRACT DOCUMENTS REGARDING INFORMATION THAT PERTAINS TO FABRICATION PROCESSES OR MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION; AND FOR COORDINATION OF WORK OF THIS AND OTHER SECTIONS. WORK SHALL COMPLY WITH SUBMITTALS MARKED "REVIEWED" TO EXTENT THAT THEY AGREE WITH CONTRACT DOCUMENTS. SUBMITTAL REVIEW SHALL NOT DIMINISH RESPONSIBILITY UNDER THIS CONTRACT FOR DIMENSIONAL COORDINATION, QUANTITIES, INSTALLATION, WIRING, SUPPORTS AND ACCESS FOR SERVICE, NOR SHOP DRAWING ERRORS OR DEVIATIONS FROM REQUIREMENTS OF CONTRACT DOCUMENTS. NOTING OF SOME ERRORS WHILE OVERLOOKING OTHERS WILL NOT EXCUSE PROCEEDING IN ERROR. CONTRACT DOCUMENTS REQUIREMENTS ARE NOT LIMITED, WAIVED NOR
- SUPERSEDED BY REVIEW. H. SCHEDULE: INCORPORATE SHOP DRAWING REVIEW PERIOD INTO CONSTRUCTION SCHEDULE SO THAT WORK IS NOT DELAYED. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR DELAYS CAUSED BY NOT INCORPORATING THE FOLLOWING SHOP DRAWING REVIEW TIME REQUIREMENTS INTO HIS PROJECT SC HEDULE. WORKING DAYS LISTED REFERENCE THE TIME IN THE ENGINEER'S OFFICE. IT DOES NOT INCLUDE TRANSMITTAL OR REVIEW TIME OF OTHERS. ALLOW AT LEAST 7 WORKING DAYS, EXCLUSIVE OF TRANSMITTAL TIME, FOR REVIEW EACH TIME SHOP DRAWING IS SUBMITTED OR RESUBMITTED WITH THE EXCEPTION THAT 14 WORKING DAYS, EXCLUSIVE OF TRANSMITTAL TIME, ARE REQUIRED FOR THE FOLLOWING:
- 1. HVAC TEMPERATURE CONTROL SUBMITTALS.
- 2. COORDINATION DRAWINGS.
- 3. FIRE PROTECTION FABRICATION DRAWINGS.
- 4. IF MORE THAN FIVE SHOP DRAWINGS OF A SINGLE TRADE ARE RECEIVED IN ONE CALENDAR WEEK 1.14 RECORD DRAWINGS (AS-BUILTS)
- A. AS WORK PROGRESSES AND FOR DURATION OF CONTRACT, MAINTAIN COMPLETE AND SEPARATE SET OF PRINTS OF CONTRACT DRAWINGS AT JOB SITE AT ALL TIMES. RECORD WORK COMPLETED AND ALL CHANGES FROM ORIGINAL CONTRACT DRAWINGS. SUCH CHANGES SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE RESULTING FROM RFI'S, FIELD CONDITIONS, AND MODIFICATIONS AND ADDITIONS. INCLUDE ACTUAL LOCATION OF EXISTING UTILITIES IF THEY DIFFER FROM DESIGN DOCUMENTS. AT COMPLETION OF PROJECT CONTRACTOR SHALL INCORPORATE ALL CHANGES INTO RECORD AS-BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR REVIEW AND APPROVAL.
- B. AT COMPLETION OF WORK, PREPARE A COMPLETE SET OF RECORD DRAWINGS IN ELECTRONIC FORMAT DELIVER TO THE ARCHITECT FOR APPROVAL.
- C. AFTER APPROVAL, DELIVER THE FOLLOWING:
- 1. ORIGINAL (NOT SCANNED) ELECTRONIC VERSION OF DRAWINGS IN APPROVED FORMAT, NOTATED AS "RECORD DRAWINGS," AND CONFORMED TO INCORPORATE ALL CHANGES TO THE ORIGINAL DESIGN NOTED ABOVE, THE CHANGES SHALL BE CLOUDED AND APPROPRIATELY IDENTIFIED. DELIVER ONE COPY EACH TO THE GENERAL CONTRACTOR, OWNER, ARCHITECT, AND ENGINEER.
- 1.15 BULLETINS, MANUALS, AND OPERATING INSTRUCTIONS ELECTRONIC FORMAT
- PROVIDE ELECTRONICALLY FORMATTED (SEARCHABLE PDF) FILES OF MANUFACTURER'S OPERATING AND MAINTENANCE INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT AND SYSTEM. COMPILE RESPECTIVE WORK OF EACH DISCIPLINE INTO A SINGLE FILE FOR EACH DISCIPLINE. INFORMATION SUCH AS MAKE, TYPE, SIZE, CAPACITY, SERIAL NUMBER, ETC. SHALL BE INCLUDED AS PART OF THE MANUAL. PROVIDE, WITHIN THE ELECTRONIC FILE, TABLE OF CONTENTS/INDEX LISTING.
- 1.16 SPECIAL RESPONSIBILITIES A. COOPERATE AND COORDINATE WITH WORK OF OTHER SECTIONS IN EXECUTING WORK OF THIS SECTION. 1. PERFORM WORK SO THAT PROGRESS OF ENTIRE PROJECT INCLUDING WORK OF OTHER SECTIONS SHALL
 - NOT BE INTERFERED WITH OR DELAYED. 2. PROVIDE INFORMATION AS REQUESTED ON ITEMS FURNISHED UNDER ONE SECTION WHICH SHALL BE INSTALLED UNDER OTHER SECTIONS
 - 3. FOR EQUIPMENT PROVIDED UNDER ANY DIVISION OR SECTION WHICH HAS CONNECTION MADE UNDER THE MECHANICAL OR ELECTRICAL SECTIONS, OBTAIN DETAILED INSTALLATION AND HOOKUP INFORMATION FROM THE EQUIPMENT MANUFACTURERS. 4. OBTAIN FINAL ROUGHING DIMENSIONS OR OTHER INFORMATION AS NEEDED FOR COMPLETE INSTALLATION
 - OF ITEMS FURNISHED UNDER OTHER SECTIONS OR BY OWNER. 5. KEEP FULLY INFORMED AS TO SHAPE, SIZE AND POSITION OF OPENINGS REQUIRED FOR MATERIAL OR EQUIPMENT TO BE PROVIDED UNDER ALL SECTIONS. GIVE FULL INFORMATION SO THAT OPENINGS REQUIRED BY WORK OF THIS SECTION MAY BE COORDINATED WITH OTHER WORK AND OTHER OPENINGS AND MAY BE PROVIDED FOR IN ADVANCE. IN CASE OF FAILURE TO PROVIDE SUFFICIENT INFORMATION IN PROPER TIME, PROVIDE CUTTING AND PATCHING OR HAVE SAME DONE, AT OWN EXPENSE AND TO FULL
 - 6. NOTIFY ARCHITECT OF LOCATION AND EXTENT OF EXISTING PIPING, CONDUIT, DUCTWORK AND EQUIPMENT THAT INTERFERES WITH NEW CONSTRUCTION. IN COORDINATION WITH AND WITH APPROVAL OF ARCHITECT, RELOCATE PIPING, DUCTWORK AND EQUIPMENT TO PERMIT NEW WORK TO BE PROVIDED. REMOVE NON_FUNCTIONING AND ABANDONED PIPING, DUCTWORK AND EQUIPMENT. DISPOSE OF OR STORE ITEMS.
- 1. DUCTWORK, CONDUIT, CABLE TRAY, PIPING, AND OTHER HORIZONTAL DISTRIBUTION SYSTEMS SHALL BE PROVIDED WITH APPROVED EXPANSION PROVISIONS WHEN PASSING BY BUILDING EXPANSION JOINTS.

B. BUILDING EXPANSION JOINTS AND FIREWALLS

SATISFACTION OF ARCHITECT.

SYSTEMS SHALL BE RUN THROUGH RATED WALLS, PARTITIONS, AND FLOORS VIA APPROVED FIREPROOFED SLEEVES. INSTALLATION SHALL PROVIDE ACCESS TO SYSTEMS 1. INSTALLATION SHALL ALLOW CLEARANCES FOR EASY ACCESS TO SYSTEMS FOR ROUTINE MAINTENANCE,

PROVIDE COPPER GROUND JUMPER ACROSS EXPANSION JOINTS FOR ELECTRICAL COMPONENTS.

FOR REPAIRS, AND FOR INSTALLING NEW CABLE IN CONDUIT AND CABLE TRAYS. 2. ACCESS PANELS SHALL BE INSTALLED IN CEILINGS THAT ARE NOT COMPOSED OF REMOVABLE TILES. THESE SHALL BE LOCATED WHEREVER SYSTEMS COMPONENTS EXIST THAT HAVE MOVING PARTS, MOTORS, OR OTHER COMPONENTS REQUIRING PERIODIC MAINTENANCE, ADJUSTMENT, OR REPLACEMENT, ACCESS PANELS SHALL BE SHOWN ON COORDINATION DRAWINGS AND SHALL BE OF THE TYPE AND FINISH AS APPROVED BY THE ARCHITECT.

D. PROTECTION OF WORK

- TESTED, AND ACCEPTED. CAREFULLY STORE MATERIALS AND EQUIPMENT THAT IS NOT IMMEDIATELY INSTALLED AFTER DELIVERY TO SITE. CLOSE OPEN ENDS OF WORK WITH TEMPORARY COVERS OR PLUG DURING CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL. COVER WORK SUBJECT TO
- FALLING DEBRIS WITH TEMPORARY COVERS. 2. PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR TO PROVIDE ADEQUATE PROTECTION OF ALL EQUIPMENT DURING THE COURSE OF CONSTRUCTION. THIS INCLUDES PROTECTION FROM MOISTURE AND FOREIGN
- MATERIAL. AT COMPLETION, ALL WORK MUST BE TURNED OVER TO OWNER CLEAN AND IN NEW CONDITION. 3. PROTECT THE WORK AND MATERIAL OF OTHER TRADES THAT MIGHT BE DAMAGED BY WORK OR WORKMEN AND MAKE GOOD ALL DAMAGE THUS CAUSED.
- INSTALLER OF FIREPROOFING AND PAID FOR BY TRADE RESPONSIBLE FOR DAMAGE AND SHALL NOT CONSTITUTE GROUNDS FOR AN EXTRA TO OWNER.
- A. DO NOT INTERRUPT EXISTING SERVICES WITHOUT OWNER'S WRITTEN APPROVAL
- REQUEST FOR INTERRUPTION, METHODS PROPOSED TO MINIMIZE LENGTH OF INTERRUPTION.
- C. INTERRUPTIONS SHALL BE SCHEDULED AT TIMES OF DAY AND WORK SO THAT THEY HAVE MINIMAL IMPACT ON
- D. SUBCONTRACTOR SHALL COORDINATE SHUTDOWNS OF EXISTING SYSTEMS.
- 1.18 PROJECT PUNCH LIST PROCEDURE: A. WHEN THE CONTRACT WORK IS SUBSTANTIALLY COMPLETE, EACH TRADE CONTRACTOR SHALL PHYSICALLY WALK DOWN THE INSTALLATION AND PREPARE A PUNCH LIST CONTAINING AN ITEMIZATION OF WORK REMAINING
- CONTRACTOR. B. REGARDLESS OF WHAT THE ENGINEER OBSERVES AND DOES NOT OBSERVE IN THE WALK-THROUGH, THE RESPONSIBILITY FOR SUCCESSFUL COMPLETION OF THE CONTRACT IN ALL OF ITS DETAILS REMAINS WITH
- C. IF, WHEN THE ENGINEER ARRIVES AT THE SITE CERTAIN AREAS ARE NOT COMPLETE AND READY FOR PUNCH
- ENGINEER WILL THEN RE-VISIT THE SITE FOR FINAL OBSERVATIONS AND PUNCH LIST. D. CONFIRMATION OF PUNCH LIST REMEDIATION. ONCE THE ENGINEER HAS SUBMITTED THE ENGINEERING PUNCH LIST, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THAT ALL THE LISTED ITEMS HAVE BEEN CORRECTLY REMEDIED. THE ENGINEER WILL NOT VISIT THE PROJECT TO RE-OBSERVE
- SAFETY AND SECURITY DRAWINGS WILL BE FURNISHED BY ENGINEER AT CONTRACTOR'S REQUEST. THESE
- PROCESSING COSTS. B. REQUESTS SHOULD BE MADE BY FILLING OUT A FORM LETTER AND PROVIDING AN AUTHORIZED SIGNATURE. THE REQUESTED INFORMATION WILL NOT BE RELEASED PRIOR TO RECEIPT OF THIS LETTER FOR THE APPROPRIATE
- 1.20 PROJECT CLOSE-OUT PROCEDURE:
- REVIEW REQUIREMENTS OF EACH SECTION OF THE SPECIFICATIONS AND SUBMIT FOR APPROVAL TO ARCHITECT THE SIGN-OFF FORMS THAT SHALL BECOME THE PROJECT CLOSE-OUT CHECKLIST. THESE, AT A MINIMUM, SHALL INCLUDE THE FOLLOWING INFORMATION SHOWN IN ATTACHED PROJECT CLOSEOUT CHECKLIST EXAMPLE. THE ARCHITECT AND/OR OWNER MAY INCORPORATE ADDITIONAL SPECIFIC ITEMS TO THE FOLLOWING CHECKLIST WHICH SHALL BECOME PART OF THE PROJECT REQUIREMENTS. REQUIREMENTS SHALL ALSO INCLUDE THE FOLLOWING:
 - a. NFPA 13 FIRE PROTECTION TEST CERTIFICATE COMPLETED AND SIGNED
 - c. EMERGENCY LIGHTING LOAD LETTER FROM ELECTRICAL CONTRACTOR CONFIRMING EMERGENCY LIGHTING SYSTEM IS FULLY
- e. A PLUMBING DISINFECTION OF WATER SYSTEM TEST CERTIFICATE f. HVAC TESTING AND BALANCING REPORT

INSTALLED AND OPERATIONAL.

- 1. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR WORK AND EQUIPMENT UNTIL FINALLY INSPECTED,
- E. FIREPROOFING: PATCHING AND REPAIRING OF FIREPROOFING DUE TO CUTTING OR DAMAGING TO FIREPROOFING DURING COURSE OF WORK SPECIFIED UNDER THIS SECTION SHALL BE PERFORMED BY

- B. SCHEDULE INTERRUPTIONS IN ADVANCE, ACCORDING TO OWNER'S INSTRUCTIONS. SUBMIT, IN WRITING, WITH
- OWNER'S OPERATIONS.
- E. INCLUDE PREMIUM TIME WORK ASSOCIATED WITH INTERRUPTIONS OF SERVICES AND/OR SHUTDOWNS TO AVOID DISRUPTION TO OWNER'S OPERATIONS.
- ARCHITECT'S OWN PUNCH LIST, WHICH WILL THEN BE DEVELOPED TO COMPLEMENT THAT OF THE TRADE

FOR 100% COMPLETION. THE PUNCH LIST SHALL BE SUBMITTED TO THE ARCHITECT AS A PREREQUISITE TO THE

- THE CONTRACTOR. OUT, THE ENGINEER WILL NOT REVIEW THESE AREAS. WHEN A SECOND NOTIFICATION IS ISSUED INDICATING THE INSTALLATION IS COMPLETED AND THE CONTRACTOR HAS PUNCHED AND CORRECTED THESE AREAS, THE
- THE AREAS ALREADY VISITED IN THE FINAL WALK-THROUGH.
- 1.19 ELECTRONIC FILES
- A. ELECTRONIC FILES FOR FIRE PROTECTION, PLUMBING, HVAC, ELECTRICAL, COMMUNICATION, OR ELECTRONIC FILES WILL BE PROVIDED ON ENGINEER'S FTP SITE IN THE SOFTWARE RELEASE USED BY THE ENGINEER. IF OTHER MEDIA OR SOFTWARE VERSION IS REQUESTED, ENGINEER WILL REQUIRE ADVANCE REIMBURSEMENT OF
- DOCUMENTS. THE CONTRACTOR SHALL REQUEST THE FORM LETTER FROM PROJECT MANAGER
- b. NFPA 72 FIRE ALARM COMPLETED FORM
- d. LIGHTING CONTROLS COMMISSIONING REPORT

CROCKFORDS -

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BIDDING &

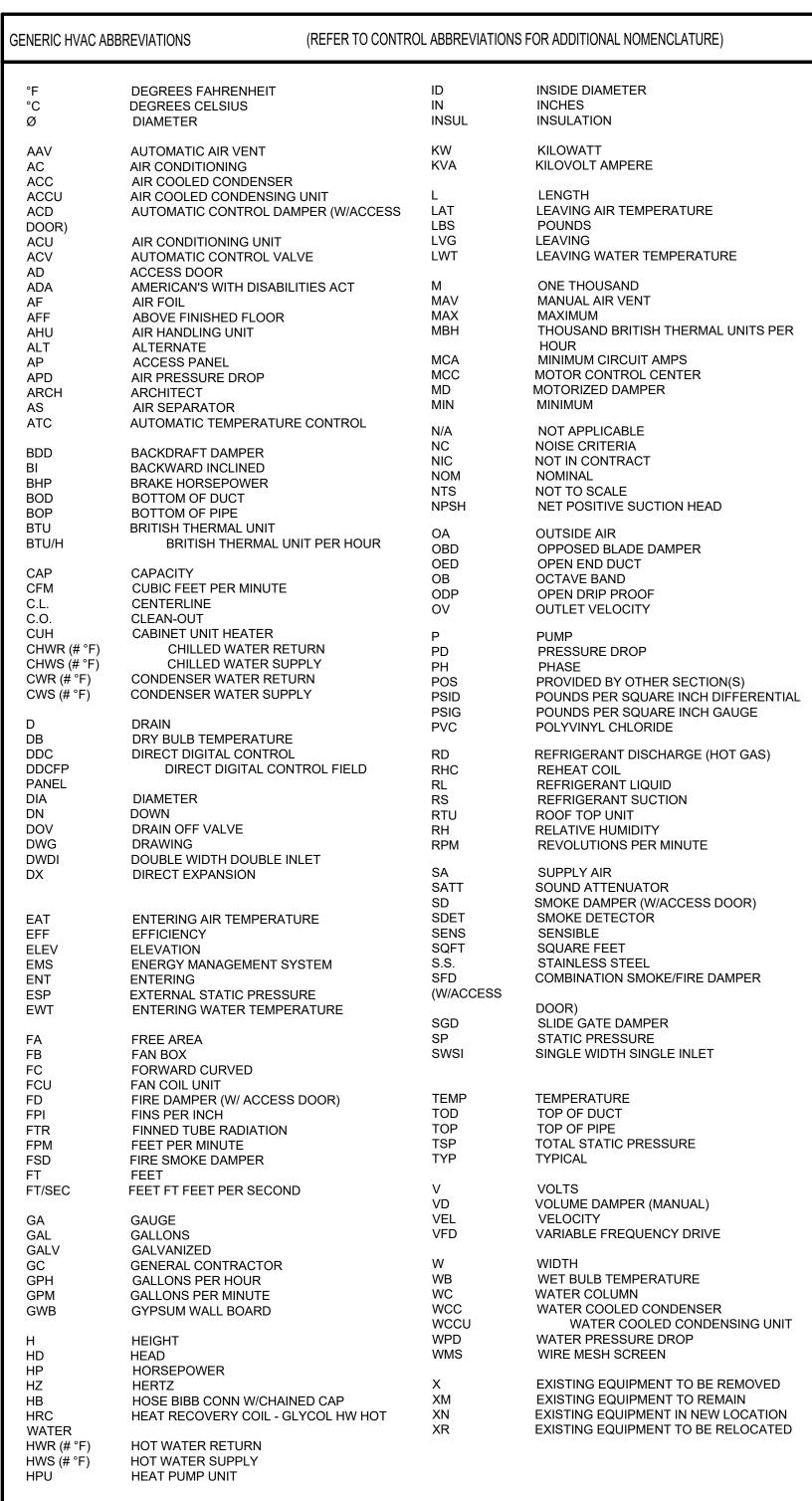
ISSUE 07/06/2022

DRAWN Author

REVISIONS

SCALE 12" = 1'-0"

DIVISION 20 SPECIFICATIONS



CALL OUT SYMBOLS

UC (1/2")

LVDR (1.5)

TEMPERATURE SENSOR OR HUMIDISTAT

HUMIDITY SENSOR OR HUMIDISTAT

PRESSURE TRANSMITTER

CARBON DIOXIDE SENSOR

REFRIGERANT SENSOR

LOUVERED DOOR

SUPPLY AIR FLOW

24X24 ACCESS PANEL

LINE VOLTAGE THERMOSTAT

TEMPERATURE SENSOR WITH INSULATED BASE

UNDERCUT DOOR (UNDER CUT DIMENSION)

(FREE AREA OF LOUVER IN SQUARE FEET)

RETURN OR EXHAUST AIR FLOW

CONNECT NEW TO EXISTING

DUCTWORK OR PIPING RISER

DIFFUSER, GRILLE, REGISTER LETTER DESIGNATOR (See schedule for ATD type)

LIMIT OF REMOVAL

DESIGNATION

REVISION NUMBER

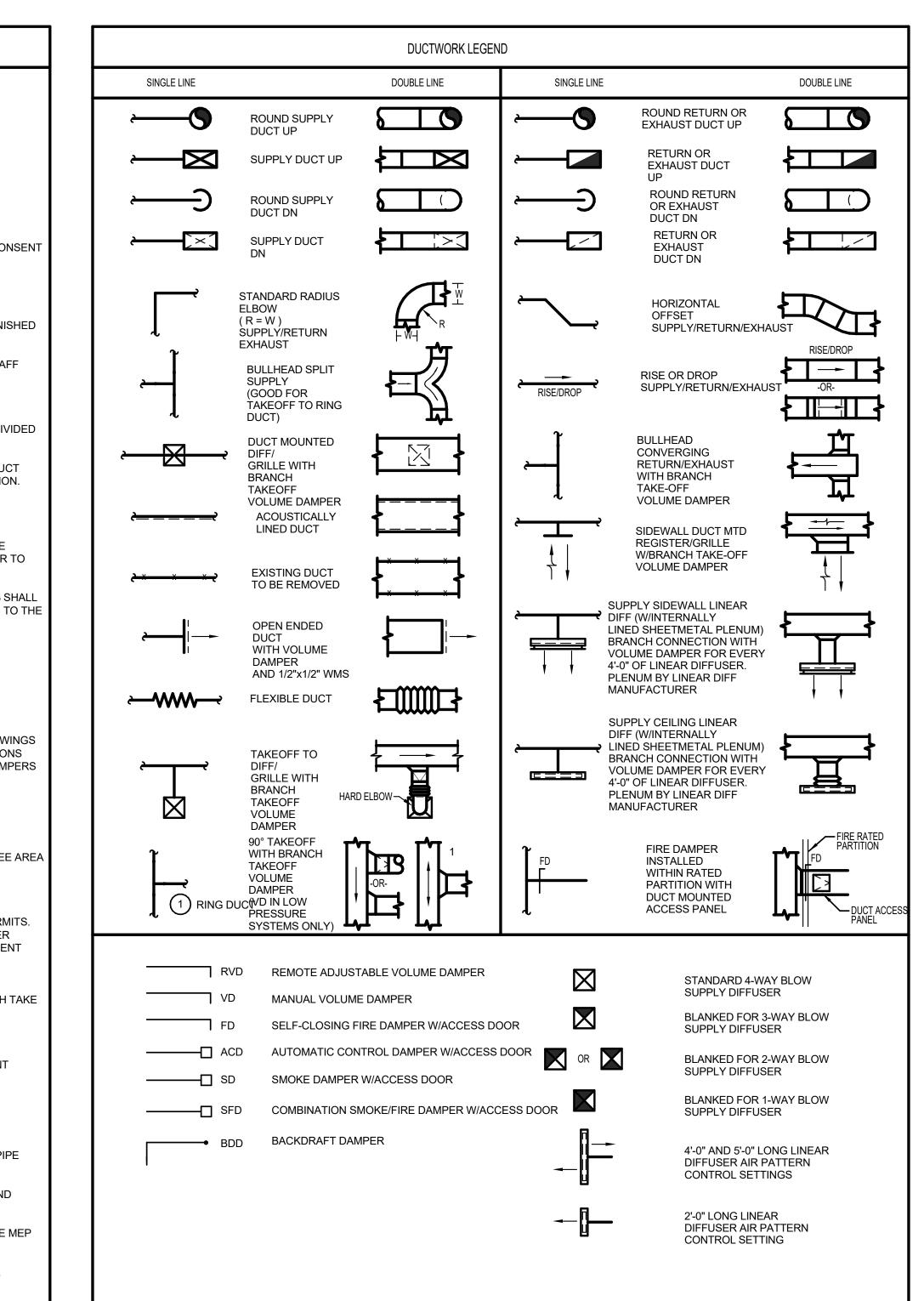
SECTION DESIGNATION

H3.1 SHEET NUMBER

DETAIL DESIGNATION
SHEET NUMBER

ATIONS (REFER TO CONTI	ROL ARRREVIATIONS	S FOR ADDITIONAL NOMENCLATURE)			GENERAL NOTES
THORS (REFER TO CORT)	NOL ADDINEVIATION	TOTADDITIONAL NOMENOLATORLY	╽┝		GENERAL NOTES
GREES FAHRENHEIT GREES CELSIUS	ID IN	INSIDE DIAMETER INCHES	'	1.	GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL "M-XXX" SERIES DRAWINGS.
METER	INSUL	INSULATION	2	2.	REFER TO REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR TERMINAL DEVICES.
OMATIC AIR VENT CONDITIONING	KW KVA	KILOWATT KILOVOLT AMPERE	(3.	DRAWINGS ARE DIAGRAMMATIC, DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
COOLED CONDENSER	1	LENGTH	4	4.	COORDINATE WORK OF THIS SECTION WITH THAT OF OTHER SECTIONS.
COOLED CONDENSING UNIT COMATIC CONTROL DAMPER (W/ACCESS	LAT LBS	LEAVING AIR TEMPERATURE POUNDS	Ę	5.	REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
CONDITIONING UNIT	LVG LWT	LEAVING LEAVING WATER TEMPERATURE	6	6.	COORDINATE ROOF PENETRATIONS WITH WORK OF OTHER SECTIONS AND WITH FLASHING REQUIREMENTS.
TOMATIC CONTROL VALVE CESS DOOR ERICAN'S WITH DISABILITIES ACT	M MAV	ONE THOUSAND MANUAL AIR VENT			SHEETMETAL FITTINGS SHOWN ARE TO BE PROVIDED. NO SUBSTITUTES SHALL BE ALLOWED WITHOUT PRIOR CONSTROM ENGINEER.
FOIL DVE FINISHED FLOOR HANDLING UNIT	MAX MBH	MAXIMUM THOUSAND BRITISH THERMAL UNITS PER	8		RUN DUCTS AND PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALL AND UNDERSIDE OF BEAMS AND JOISTS.
ERNATE CESS PANEL PRESSURE DROP	MCA MCC	HOUR MINIMUM CIRCUIT AMPS MOTOR CONTROL CENTER			ALL EQUIPMENT REQUIRING ACCESS AND MAINTENANCE SHALL BE INSTALLED A MAXIMUM OF 2 FEET ABOVE FINISH CEILING UNLESS OTHERWISE INDICATED ON FLOOR PLANS OR BY BUILDING ENGINEER.
CHITECT SEPARATOR OMATIC TEMPERATURE CONTROL	MD MIN	MOTORIZED DAMPER MINIMUM	,		INSTALL THERMOSTATS AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY ARCHITECT. MOUNTING HEIGHT AFF SHALL COMPLY WITH ADA.
CKDRAFT DAMPER CKWARD INCLINED	N/A NC NIC	NOT APPLICABLE NOISE CRITERIA NOT IN CONTRACT	,		EXTERIOR LOUVERS ARE INDICATED FOR LOCATION ONLY.
AKE HORSEPOWER ITOM OF DUCT ITOM OF PIPE	NOM NTS NPSH	NOMINAL NOT TO SCALE NET POSITIVE SUCTION HEAD			ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED AT NO ADDITIONAL COST.
TISH THERMAL UNIT BRITISH THERMAL UNIT PER HOUR	OA OBD	OUTSIDE AIR OPPOSED BLADE DAMPER	-		VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION
PACITY BIC FEET PER MINUTE	OED OB ODP	OPEN END DUCT OCTAVE BAND OPEN DRIP PROOF			ACCESS PANELS SHALL BE PROVIDED TO CLEAN COILS AND SERVICE DAMPERS, HEATERS, VALVES AND ALL CONCEALED MECHANICAL EQUIPMENT.
NTERLINE EAN-OUT BINET UNIT HEATER CHILLED WATER RETURN	OV P PD	OUTLET VELOCITY PUMP PRESSURE DROP	-		SUPPORT ALL EQUIPMENT, PIPING AND DUCTWORK FROM BUILDING STRUCTURE TO PROVIDE A VIBRATION FREE INSTALLATION. PROVIDE TO GC A LIST OF ALL WEIGHTS AND METHODS OF SUPPORT FOR COORDINATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
CHILLED WATER SUPPLY NDENSER WATER RETURN NDENSER WATER SUPPLY	PH POS PSID PSIG	PHASE PROVIDED BY OTHER SECTION(S) POUNDS PER SQUARE INCH DIFFERENTIAL POUNDS PER SQUARE INCH GAUGE			SMOKE DETECTORS SHALL BE FURNISHED AND WIRED TO THE FIRE ALARM SYSTEM BY DIVISION 28. DIVISION 23 SH MOUNT THE DETECTORS IN DUCTWORK, WHERE REQUIRED BY CODE, DIVISION 28 SHALL WIRE THE DETECTORS TO BAS SYSTEM AND FAN STARTERS FOR SHUTDOWN.
AIN Y BULB TEMPERATURE	PVC	POLYVINYL CHLORIDE		17.	ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH NEC, AND DIV. 26 SPECIFICATIONS.
ECT DIGITAL CONTROL DIRECT DIGITAL CONTROL FIELD	RD RHC RL	REFRIGERANT DISCHARGE (HOT GAS) REHEAT COIL REFRIGERANT LIQUID	,		INTERNAL AIR FLOW DIMENSIONS ARE SHOWN FOR DUCTS. CONTRACTOR SHALL INCREASE SIZE FOR LINER IF APPLICABLE.
METER VN	RS RTU	REFRIGERANT SUCTION ROOF TOP UNIT	.		ALL MATERIALS AND EQUIPMENT SHALL BE NEW.
AIN OFF VALVE AWING JBLE WIDTH DOUBLE INLET	RH RPM	RELATIVE HUMIDITY REVOLUTIONS PER MINUTE	2		PROVIDE FIRE DAMPERS OR SMOKE/FIRE DAMPERS AND ASSOCIATED ACCESS PANELS WHERE SHOWN ON DRAWIN
ECT EXPANSION	SA SATT SD	SUPPLY AIR SOUND ATTENUATOR SMOKE DAMPER (W/ACCESS DOOR)			IN COMPLIANCE WITH IMC 2018 AND NFPA 90A. FOR DUCTS THAT PENETRATE FIRE WALLS, FLOORS AND PARTITIONS PROVIDE SLEEVES WHERE PENETRATIONS ARE NOT PERPENDICULAR TO SURFACE PENETRATED. ENCLOSE DAMPE IN 10 GAUGE STEEL SLEEVE.
FERING AIR TEMPERATURE FICIENCY VATION	SDET SENS SQFT	SMOKE DETECTOR SENSIBLE SQUARE FEET	2		PROVIDE FLEXIBLE CONNECTIONS ON ALL DUCTS CONNECTING TO FANS AND AIR HANDLING UNITS UNLESS INTERNALLY ISOLATED. ALL DUCTS TO BE GROUNDED ACROSS FLEXIBLE CONNECTION WITH FLEXIBLE COPPER GROUNDING STRAPS.
ERGY MANAGEMENT SYSTEM ERING ERNAL STATIC PRESSURE	S.S. SFD (W/ACCESS	STAINLESS STEEL COMBINATION SMOKE/FIRE DAMPER			ALL RETURN AIR OPENINGS ABOVE CEILING SHALL BE PROVIDED WITH A 1/2" MESH ALUMINUM SCREEN (80% FREE AMINIMUM).
FERING WATER TEMPERATURE	SGD SP	DOOR) SLIDE GATE DAMPER STATIC PRESSURE	2		ANY DEMOLITION SHALL BE COORDINATED WITH OWNER, ARCHITECT, G.C. AND ENGINEER.
N BOX RWARD CURVED I COIL UNIT	SWSI	SINGLE WIDTH SINGLE INLET	2		ELBOWS IN DUCT SYSTEMS SHALL BE FULL RADIUS (CENTERLINE RADIUS = 1.5 DUCT WIDTH) WHERE SPACE PERMIT WHERE LIMITED CLEARANCE OCCURS, PROVIDE SHORT RADIUS ELBOW WITH FULL LENGTH SPLITTER VANES PER
E DAMPER (W/ ACCESS DOOR) S PER INCH	TEMP TOD	TEMPERATURE TOP OF DUCT			SMACNA. MITERED (SQUARE) ELBOWS WITH TURNING VANES MAY NOT BE SUBMITTED WITHOUT WRITTEN CONSENTROM THE ENGINEER.
NED TUBE RADIATION ET PER MINUTE SMOKE DAMPER	TOP TSP TYP	TOP OF PIPE TOTAL STATIC PRESSURE TYPICAL			MANUAL DAMPERS ARE NOT SHOWN ON THE DRAWINGS IN ORDER FOR DRAWING CLARITY. PROVIDE MANUAL ADJUSTABLE DAMPERS ON EACH LOW PRESSURE SUPPLY RETURN AND EXHAUST DUCT TAKE OFF, AND AT EACH TO REGISTERS, GRILLES AND DIFFUSERS.
T FT FEET PER SECOND	V VD	VOLTS VOLUME DAMPER (MANUAL)	2		CONDENSATE DRAIN PIPING SHALL PITCH AT 1/8"/FOOT.
JGE LONS LVANIZED	VEL VFD	VELOCITY VARIABLE FREQUENCY DRIVE			PROVIDE HANGERS, CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
NERAL CONTRACTOR LLONS PER HOUR	W WB	WIDTH WET BULB TEMPERATURE		28.	PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.
LONS PER MINUTE PSUM WALL BOARD	WC WCC	WATER COLUMN WATER COOLED CONDENSER		29.	PROVIDE AT LEAST THREE-ELBOW SWING FOR PIPE TAKE-OFFS TO TERMINAL EQUIPMENT AND RISERS.
GHT	WCCU WPD	WATER COOLED CONDENSING UNIT WATER PRESSURE DROP	(ISOLATION VALVES IN PIPING SYSTEMS ARE NOT SHOWN ON PLANS (FOR CLARITY) BUT ARE REQUIRED AT ALL PIPE
AD RSEPOWER	WMS	WIRE MESH SCREEN	,		BRANCHES AND CONNECTIONS TO EQUIPMENT REFER TO DETAIL SHEETS AND FLOW DIAGRAMS. CONTRACTOR SHALL REVIEW BASE BUILDING STANDARDS AND COMPLY WITH CONSTRUCTION PROCEDURES AND
RTZ SE BIBB CONN W/CHAINED CAP AT RECOVERY COIL - GLYCOL HW HOT	X XM XN XR	EXISTING EQUIPMENT TO BE REMOVED EXISTING EQUIPMENT TO REMAIN EXISTING EQUIPMENT IN NEW LOCATION EXISTING EQUIPMENT TO BE RELOCATED			REQUIREMENTS THROUGHOUT. ALL PIPING, DUCTWORK, AND HVAC SHALL BE LABELED IN ACCORDANCE WITH THE GUIDANCE SET FORTH IN THE M
T WATER RETURN T WATER SUPPLY	ΛN	EVISTING EMOITMENT TO RE KELOCATED			DESIGN STANDARDS. ACCESS PANELS MUST BE PROVIDED FOR ALL BASE BUILDING COMPONENTS TO INCLUDE, BUT NOT LIMITED TO.
AT PUMP UNIT					ISOLATION VALVES, SMOKE FIRE DAMPERS/ACTUATORS AND CONTROL VALVES.

EQUIF	PMENT SYMBO	DLS
SYMBOL	IDENTIFICATION/ TAG	DESCRIPTOR
		VARIABLE AIR VOLUME TERMINAL BOX WITHOUT HEATING COIL
		VARIABLE AIR VOLUME TERMINAL BOX WITH HEATING COIL
	FCU # (GPM)	CONCEALED FAN COIL UNIT (WITH AUXILIARY DRAIN PAN)



←	GATE VALVE	VB	VACUUM BREAKER
—	BALL VALVE		SOLENOID VALVE
	BALL VALVE WITH MEMORY STOP (BALANCING VALVE)		PRESSURE/TEMPERATURE WELL
ı	BALL VALVE WITH HOSE BIBB, CAP & CHAIN (DRAIN VALVES)	AAV	AUTOMATIC AIR VENT WITH ISOLATION VALVE
	BUTTERFLY VALVE	A-MAV	MANUAL AIR VENT (UTLIZING PLUG VALVE)
	BUTTERFLY VALVE WITH MEMORY STOP (BALANCING VALVE)		REDUCER (ECCENTRIC-FLAT ON BOTTOM OF FLAT ON TOP)
	GLOBE VALVE		REDUCER (CONCENTRIC)
	PLUG VALVE		FLEXIBLE CONNECTION
	PRESSURE REDUCING VALVE	E	EXPANSION JOINT
	CHECK VALVE	_=_	PIPE GUIDE
	STRAINER W/BALL VALVE, HOSE BIBB & CAP (GATE VALVE FOR STEAM)		ANCHOR
	AUTOMATIC CONTROL VALVE, MODULATING ACTUATOR	 0	RISE (SINGLE LINE - PLAN VIEW)
	AUTOMATIC CONTROL VALVE, TWO POSITION ACTUATOR		DROP (SINGLE LINE - PLAN VIEW)
	THREE WAY AUTOMATIC CONTROL VALVE, MODULATING ACTUATOR		TOP TAKEOFF
	AUTOMATIC FLOW CONTROL VALVE (PRESSURE INDEPENDENT)		BOTTOM TAKEOFF
	COMBINATION FLOWMETER/SHUT OFF/BALANCING VA (CIRCUIT SETTER)	ALVE ?	PIPE BREAK (SINGLE LINE)
<u> </u>	FLOW MEASURING DEVICE		DIRT LEG
	SAFETY RELIEF VALVE	C.O.	CLEAN OUT FOR CONDENSATE DRAIN
	UNION OR FLANGE (AS INDICATED BY PIPE SIZE)		DIRECTION OF FLOW IN PIPE
	END CAP	UP	PITCH PIPE UP IN DIRECTION OF FLOW
	PRESSURE GAUGE WITH GAUGE COCK		PITCH PIPE DOWN IN DIRECTION OF FLOW
	THERMOMETER		SUPPLY LINES (NEW)
	RISE (DOUBLE LINE - PLAN VIEW)		RETURN LINES (NEW)
	DROP (DOUBLE LINE - PLAN VIEW)		EXISTING
<u></u>	PIPE BREAK (DOUBLE LINE)	_ x_x_x _	DEMO/EXISTING TO BE REMOVED

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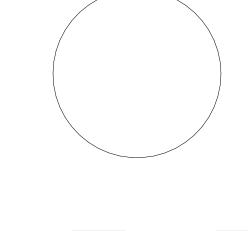
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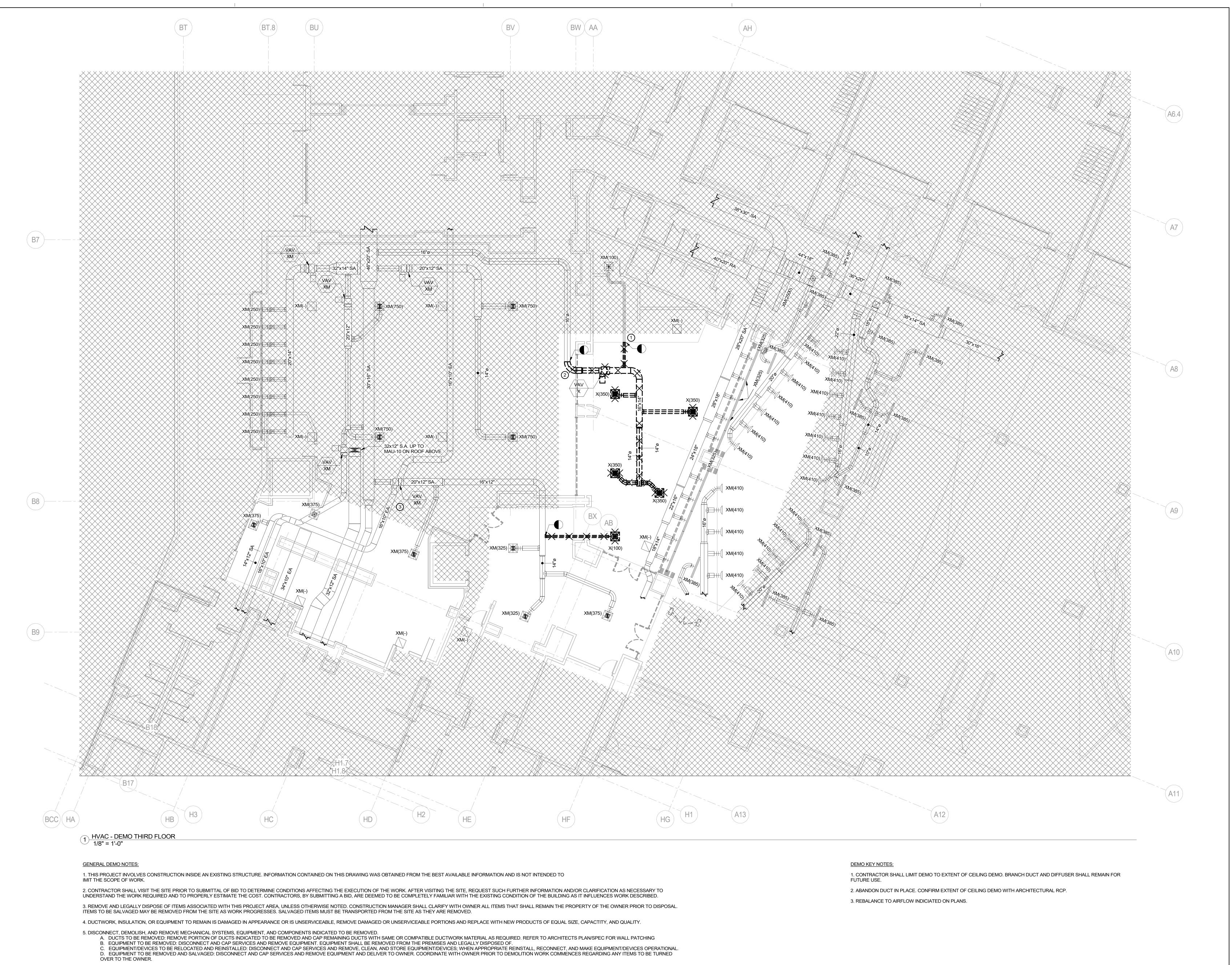


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SCALE 12" = 1'-0"

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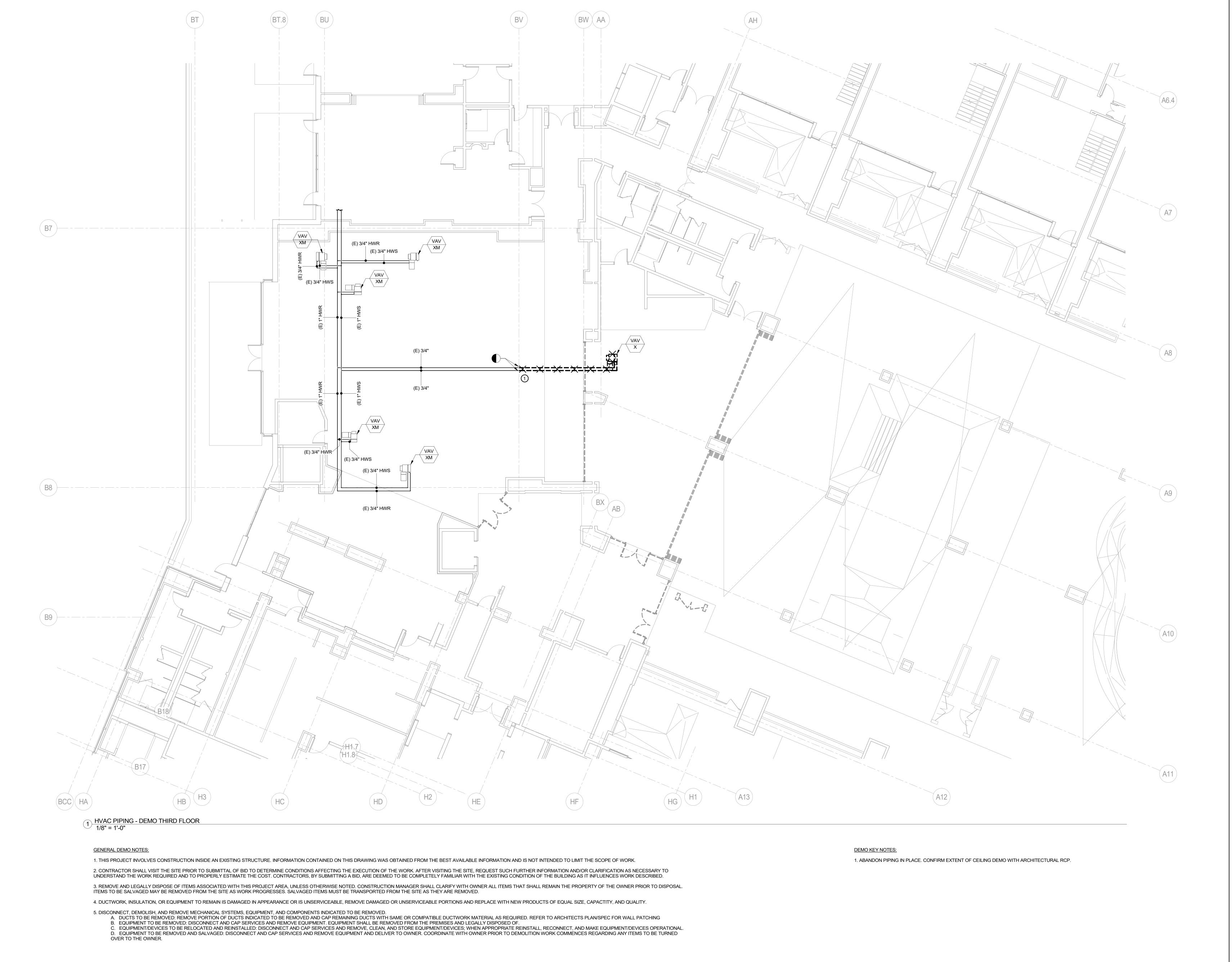
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DEMO DUCTWORK THIRD



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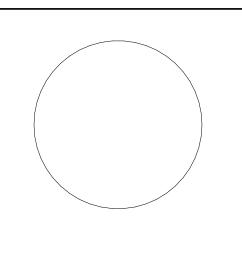
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DEMO PIPING THIRD FLOOR



HVAC DUCTWORK - FIRST FLOOR

1. COORDINATE INSTALLATION OF DUCTWORK WITH OTHER TRADES BEFORE FABRICATION PROVIDE OFFSETS AS REQUIRED TO AVOID INTERFERENCES.

- 2. FINAL LOCATION OF DIFFUSERS, REGISTERS AND GRILLES SHALL BE FROM ARCHITECTURAL REFLECTED CEILING PLANS.
- 3. REFER TO ARCHITECTURAL DRAWINGS FOR ALL WALL DEVICE MOUNTING HEIGHTS AND LOCATIONS.
- 4. BRANCH DUCT SIZES TO DIFFUSERS/GRILLE SHALL MATCH NECK SIZE OF AIR DEVICE UNLESS OTHERWISE NOTED.
- 5. ALL THERMOSTATS LOCATED ON PERIMETER WALLS & COLUMNS SHALL BE PROVIDED WITH INSULATED BACKPLATES.
- 6. CONTRACTOR SHALL SEAL ALL EXISTING TO REMAIN DUCTWORK JOINTS WITHIN SCOPE OF WORK IN ACCORDANCE WITH BASE BUILDING SPECIFICATIONS.
- 7. CONTRACTOR SHALL REPAIR ANY MISSING OR DAMAGED DUCTWORK INSULATION ON ALL EXISTING TO REMAIN DUCTWORK WITHIN SCOPE OF WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND/OR BASE BUILDING SPECIFICATIONS.
- 8. CONTRACTOR SHALL MAINTAIN BUILDING MANAGEMENT AIR QUALITY STANDARD DURING CONSTRUCTION.
- 9. COORDINATE ANY/ALL BASE BUILDING EQUIPMENT OR SYSTEM SHUTDOWN REQUIREMENTS WITH OWNER.
- 10. CONTRACTOR MAY SIZE LOW PRESSURE DUCTWORK TO ACCOMMODATE FIELD CONDITIONS BASED UPON THE "LOW PRESSURE DUCT SIZING TABLE" LOCATED WITHIN DIV 23 SPECIFICATIONS.
- 11. REFER TO HVAC SPECIFICATIONS FOR EXTENT AND LOCATION OF ACOUSTICALLY LINED DUCTWORK.
- 12. PROVIDE MANUAL ADJUSTABLE DAMPERS ON EACH LOW PRESSURE SUPPLY RETURN AND EXHAUST DUCT TAKE OFF, AND AT EACH TAKE OFF TO REGISTERS, GRILLES AND DIFFUSERS. PROVIDE REMOTE ADJUSTABLE VOLUME DAMPERS AT INACCESSIBLE LOCATIONS. WHERE MANUAL DAMPERS ARE SHOWN ON PLAN, PROVIDE AT EXACT LOCATION. OTHERWISE VD SHALL BE AS FAR UPSTREAM AS POSSIBLE.
- 13. ALL NEW LISTED DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.

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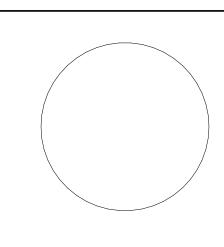
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DUCTWORK FIRST FLOOR



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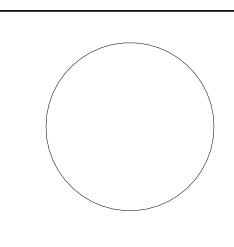
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2. REBALANCE TO AIRFLOW INDICATED ON PLANS.

DUCTWORK THIRD FLOOR



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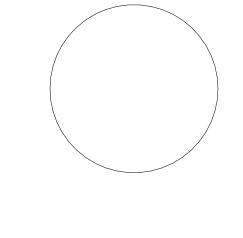
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DUCTWORK ROOF



KEY NOTES:

1. COORDINATE CEILING DEMO WITH ARCHITECTURAL RCP.

GENERAL NOTES:

1. ALL THERMOSTATS LOCATED ON PERIMETER WALLS & COLUMNS SHALL BE PROVIDED WITH INSULATED BACKPLATES.

2. CONTRACTOR SHALL MAINTAIN BUILDING MANAGEMENT AIR QUALITY STANDARD DURING CONSTRUCTION.

3. COORDINATE ANY/ALL BASE BUILDING EQUIPMENT OR SYSTEM SHUTDOWN REQUIREMENTS WITH OWNER.

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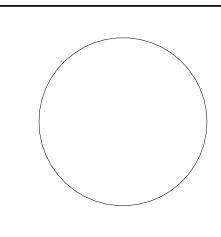
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PIPING FIRST FLOOR



1. ALL THERMOSTATS LOCATED ON PERIMETER WALLS & COLUMNS SHALL BE PROVIDED WITH INSULATED BACKPLATES.

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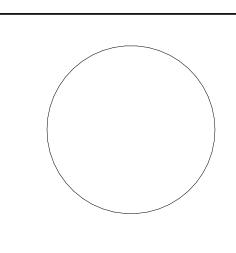
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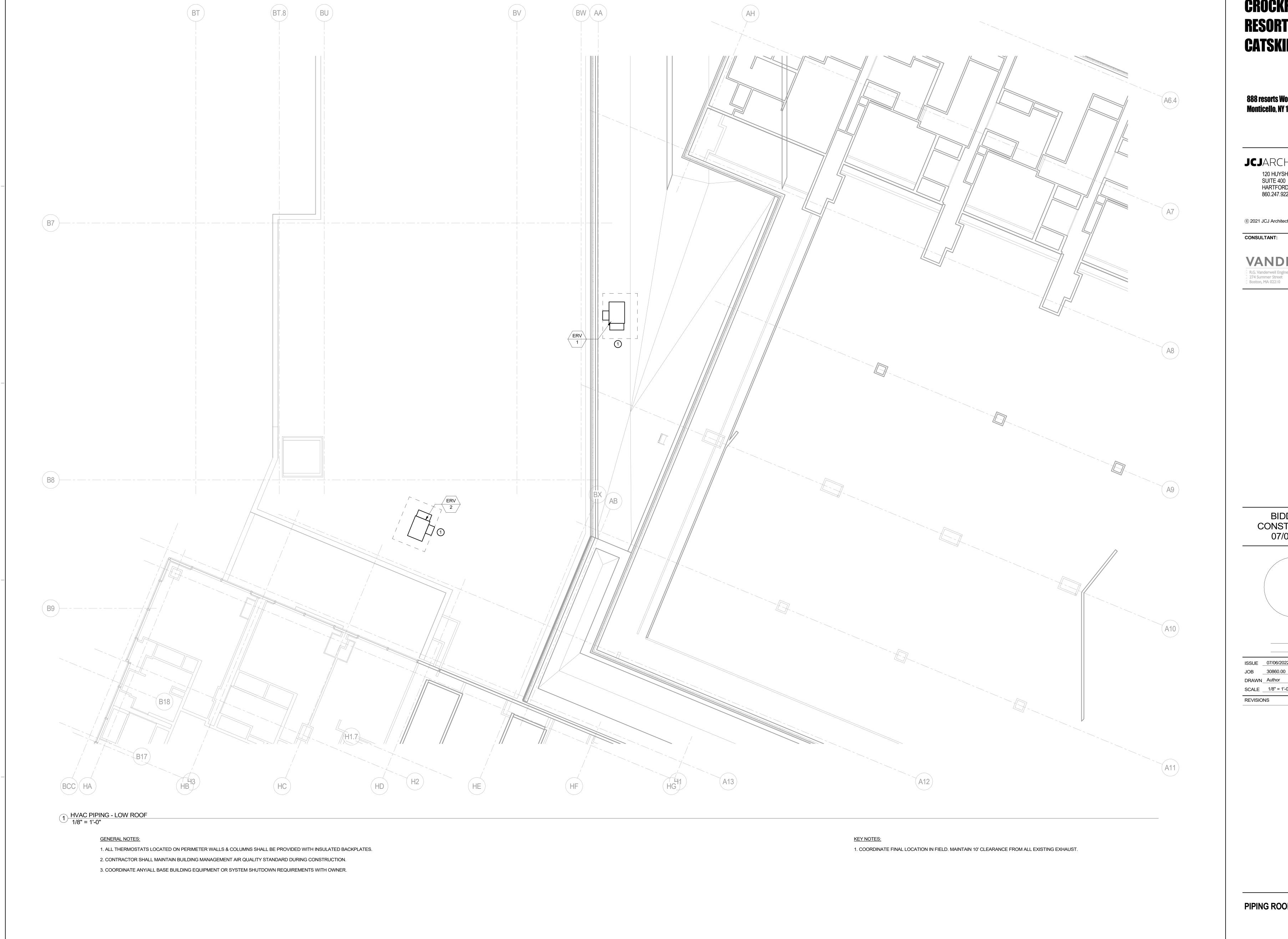
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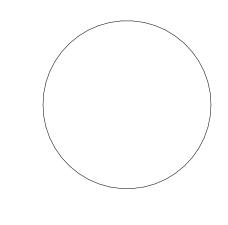
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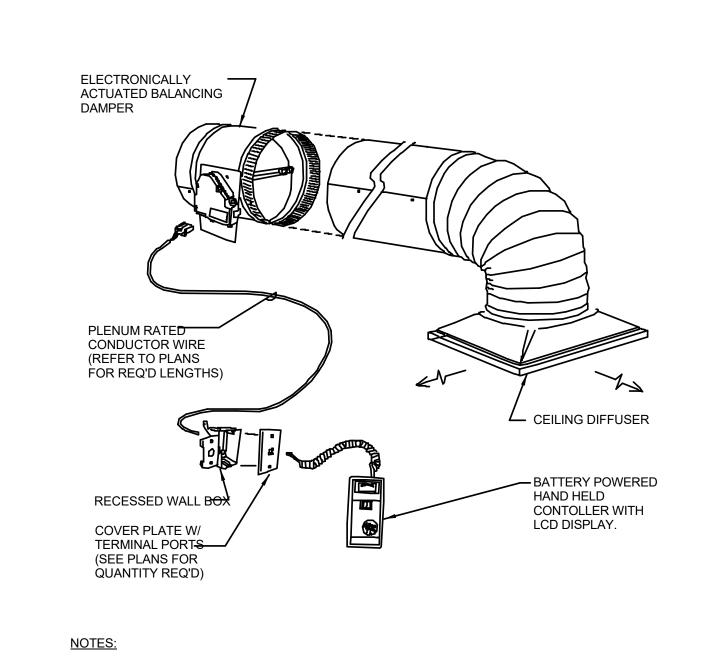
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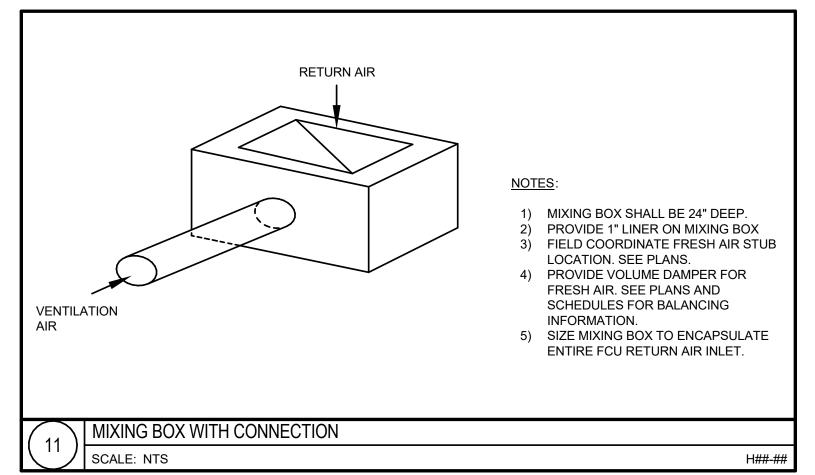


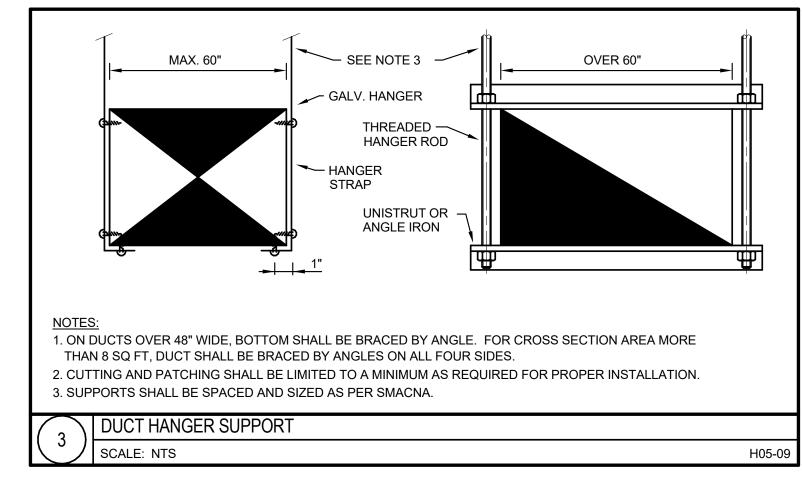
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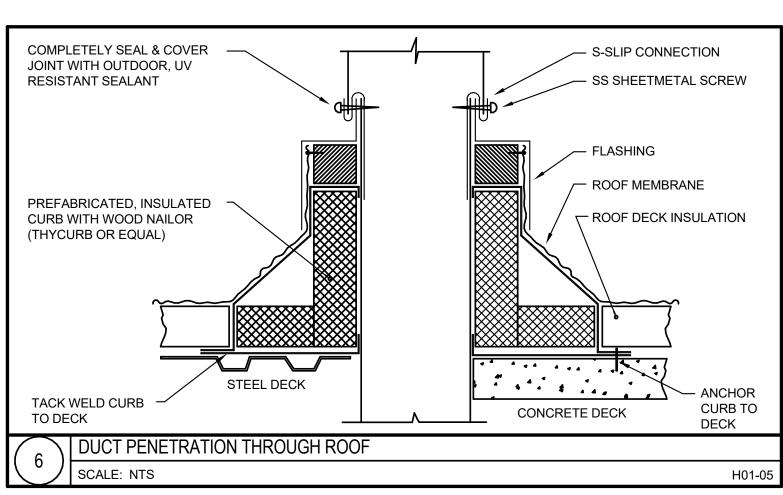
PIPING ROOF

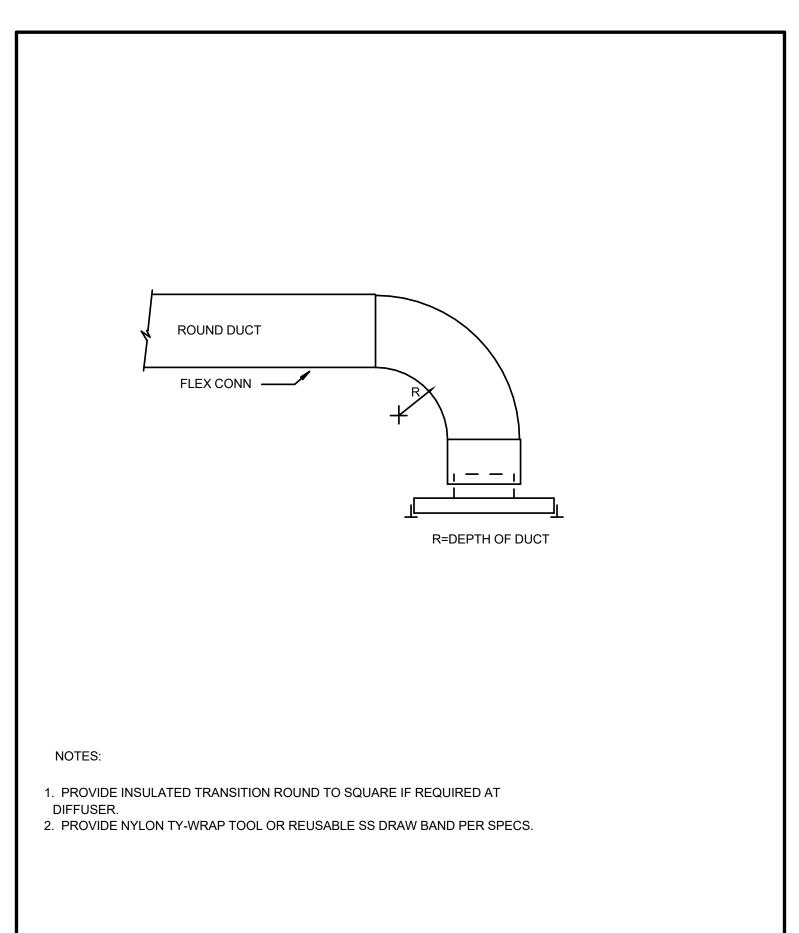


- 1. PROVIDE ELECTRONICALLY ACTUATED VOLUME DAMPERS SIMILAR TO YOUNG REGULATOR MODEL
- PROVIDE WITH ONE (1) HAND HELD DAMPER ACTUATOR SIMILAR TO YOUNG REGULATOR MODEL EBD-P.
- 3. PROVIDE WALL-BOX COVER(S) WITH PORTS EQUALING THE QUANTITY OF REMOTE VOLUME DAMPERS. REFER TO FLOOR PLANS FOR QUANTITIES AND LOCATIONS OF WALL MOUNTED DEVICES. 4. CONTRACTOR SHALL COORDINATE LENGTH OF INDIVIDUAL CONDUCTOR WIRES BETWEEN WALL-BOX AND REMOTE VOLUME DAMPERS AS SHOWN ON FLOOR PLANS.
- REMOTLEY (ELECTRONIC) ADJUSTABLE BALANCING DAMPER SCALE: NTS





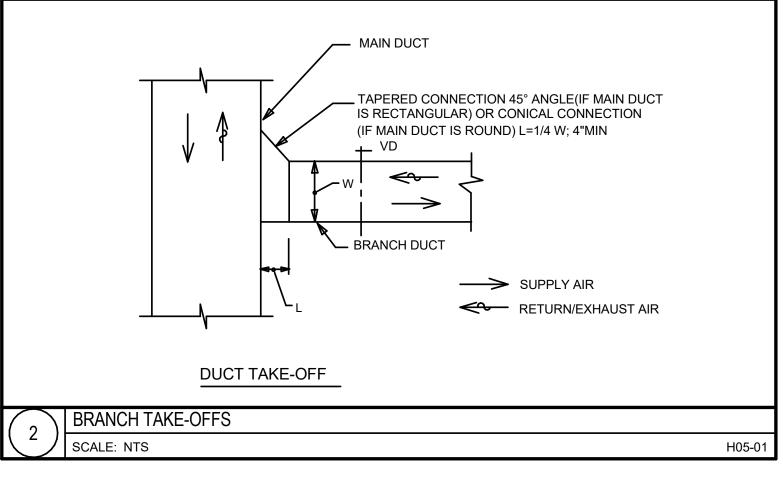


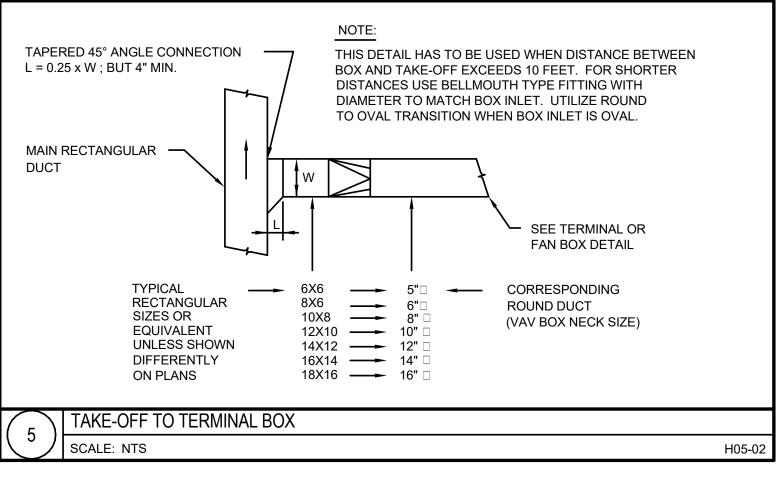


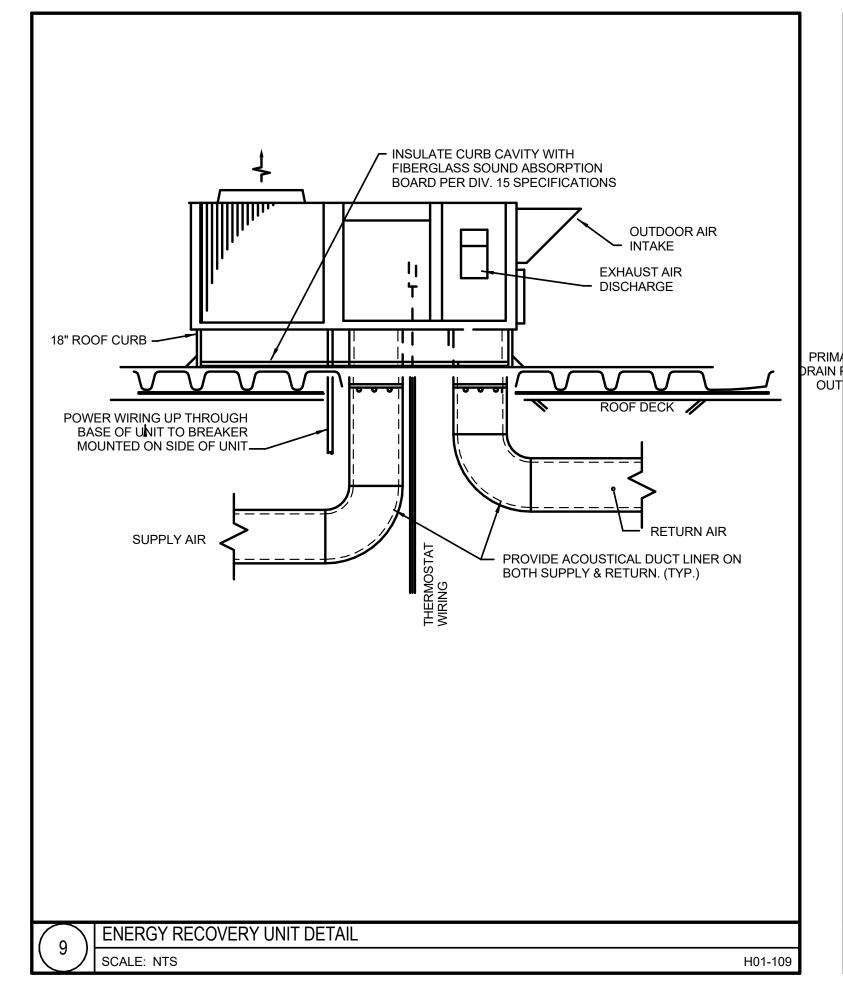
TYPICAL SUPPLY DIFFUSER/REGISTER DUCTWORK & CONNECTION

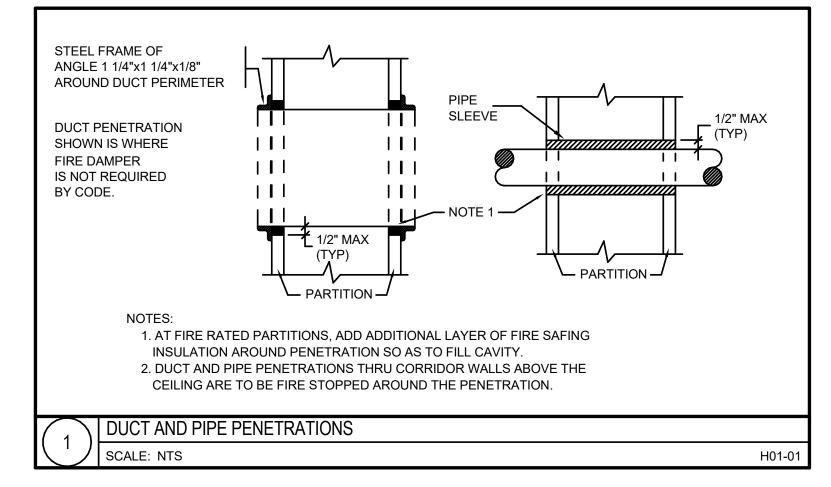
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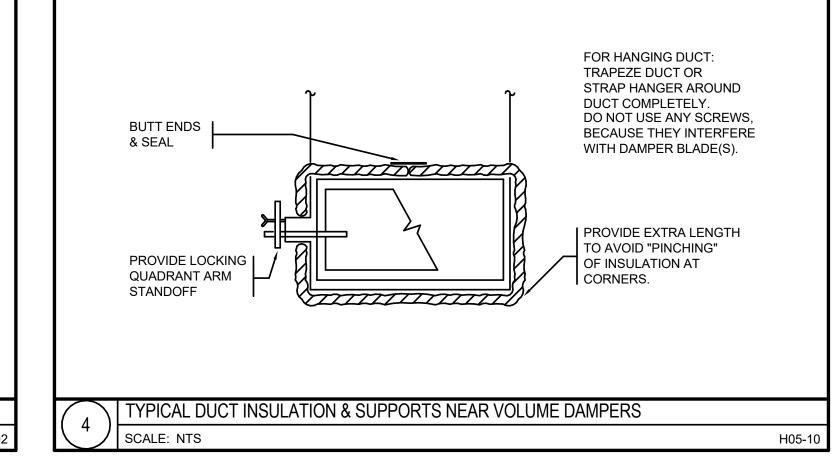
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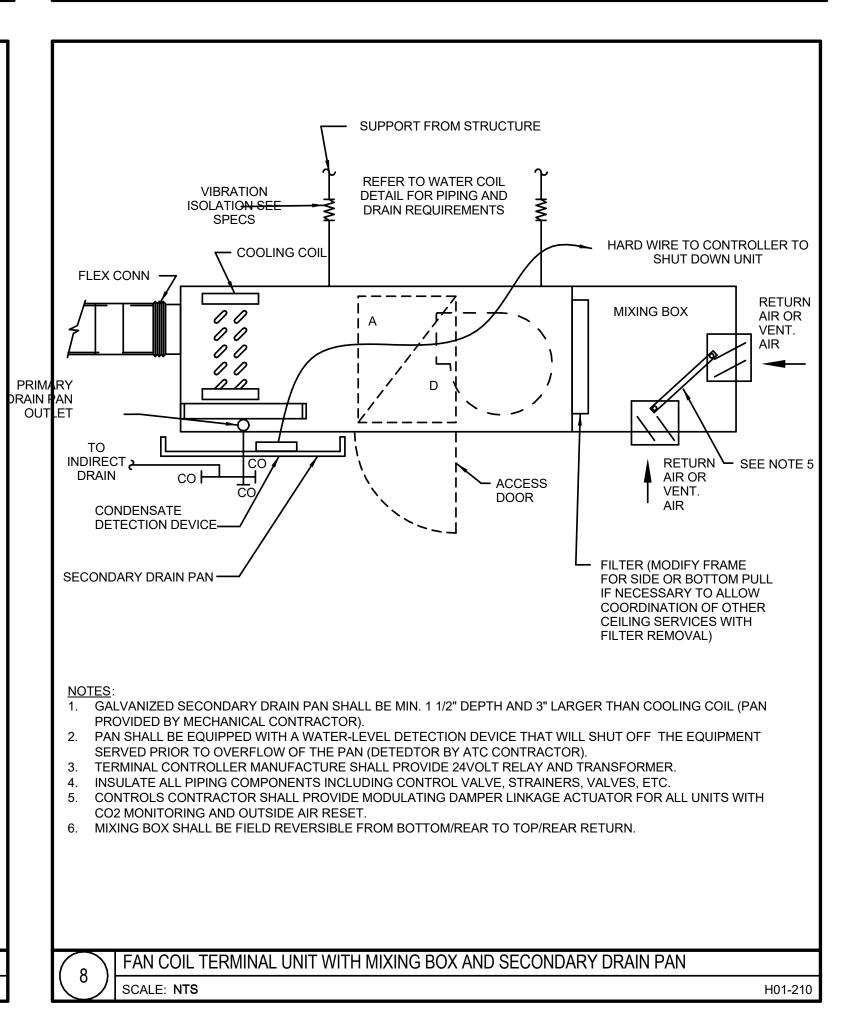












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JCJARCHITECTURE 120 HUYSHOPE AVENUE

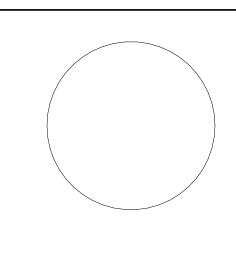
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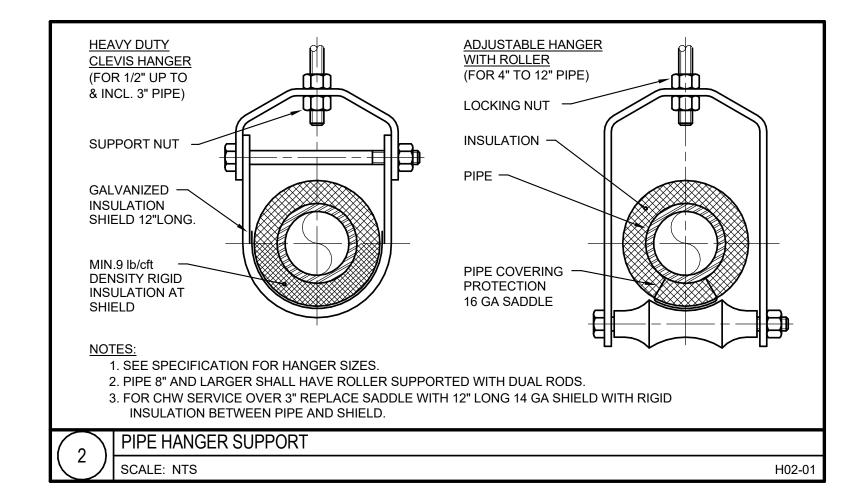


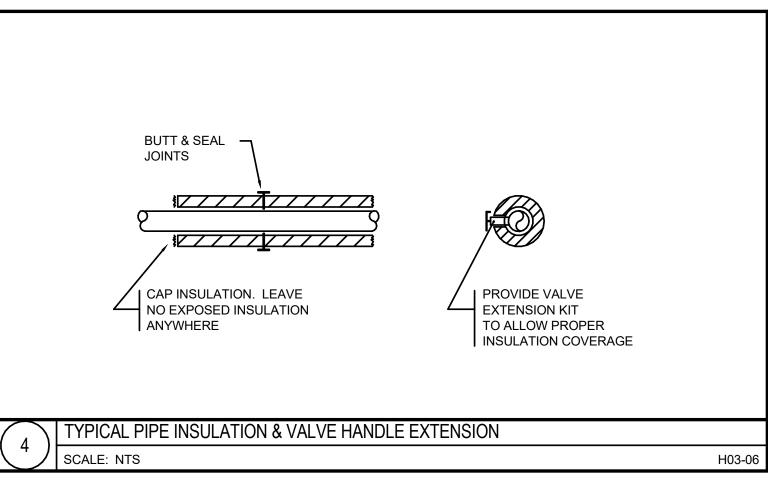
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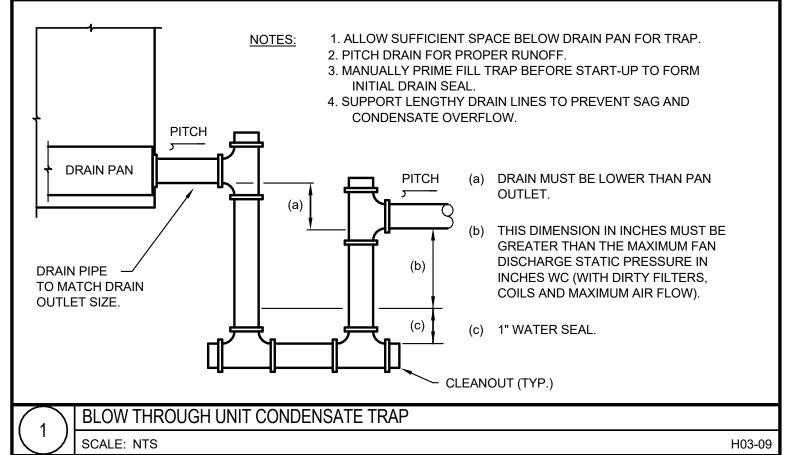
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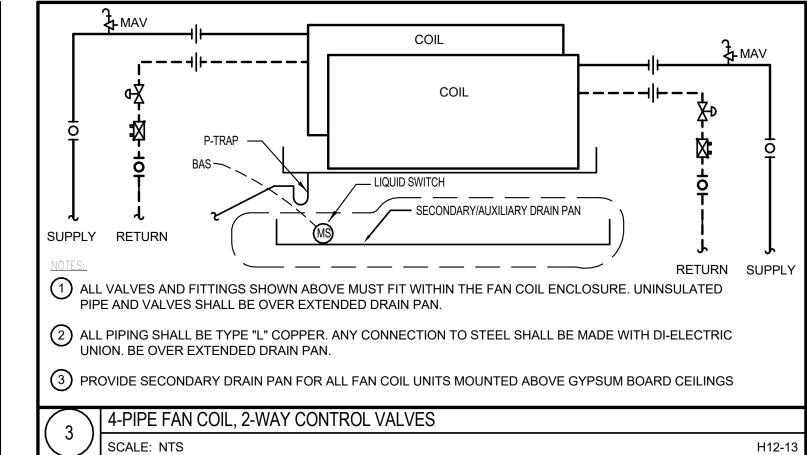
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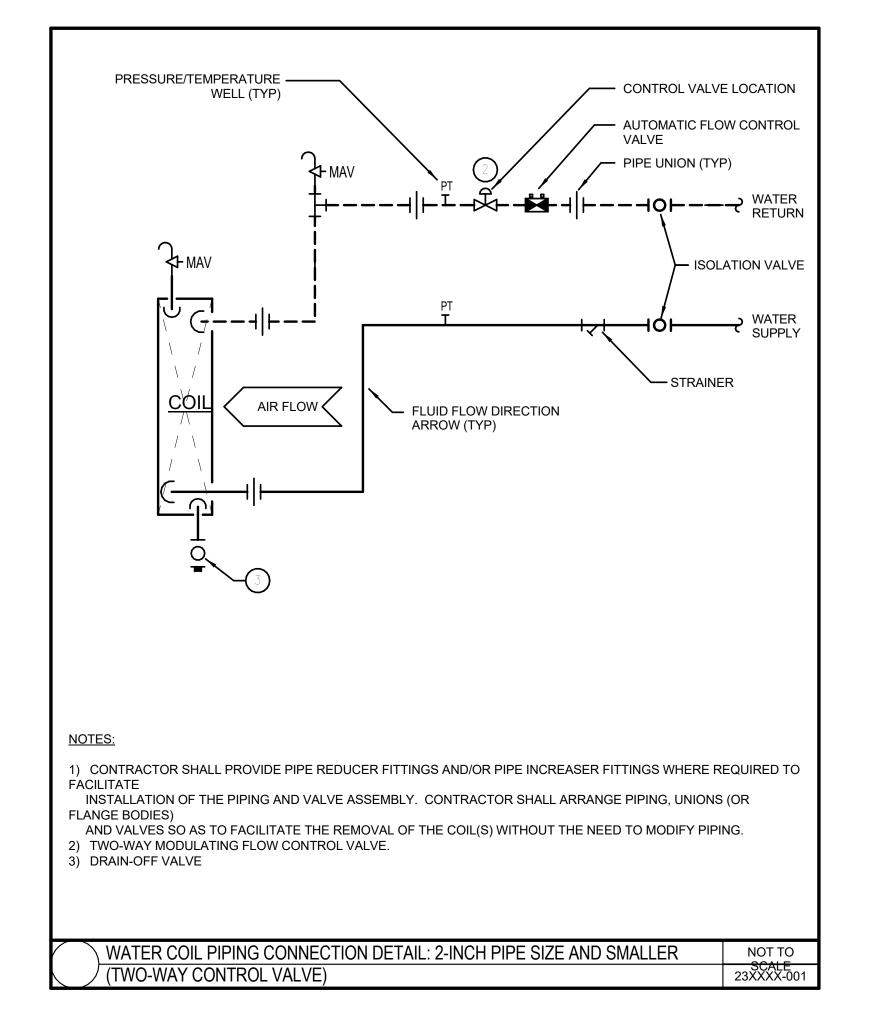
DETAILS











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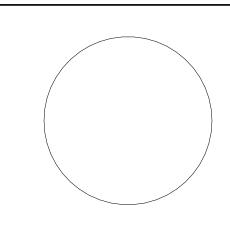
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DETAILS

								H)R	IZC	TNC	AL	FA	N C	COII	L UI	VIT S	CHE	DU	LE													
		F.A	AN							COOL	ING CO	IL (CHIL	LED WA	TER)						HOT WATER HEATING COIL							TRICAL	DATA					
UNIT NO.					TOTAL	05110			AIR DA	ΑТА				CHILL	ED WAT	ER DAT								DUNIOUT							FAN	MANUFACTURER/ MODEL NUMBER (AS	REMARKS
ONT NO.	SERVICE	FAN CFM OA	A CFM	E.S.P. (IN.WG)	MBH	MBH		T (°F) WB	LA ¹	T (°F)	P.D. (IN.WG	NO. ROWS	FLOW (GPM)	EWT (°F)	LWT (°F)	WPD	RUNOUT PIP SIZE (IN.)	E MBH	(GPM)	(°F)	LAT (°F)	EWT (°F)	LWT (°F)	RUNOUT PIPE SIZE (IN.)	ROWS	V	Ph	Hz	MCA	MSCP		STANDARD)	NEWARRO
FCU-1	LOUNGE	1995	500	0.75	86.2	58.9	80	67	53.5	52.9	-	6	12.3	42	56	2.9	1-1/2"	53.6	2.7	60	84.7	160	120	3/4"	1	460	3	60	2.75	15.0	1.5	JOHNSON CONTROLS AHD20	SEE NOTES: 1 THRU 11
FCU-2	LOUNGE	1995	500	0.75	86.2	58.9	80	67	53.5	52.9	-	6	12.3	42	56	2.9	1-1/2"	53.6	2.7	60	84.7	160	120	3/4"	1	460	3	60	2.75	15.0	1.5	JOHNSON CONTROLS AHD20	SEE NOTES: 1 THRU 1
FCU-3	LOUNGE	1995	500	0.75	86.2	58.9	80	67	53.5	52.9	-	6	12.3	42	56	2.9	1-1/2"	53.6	2.7	60	84.7	160	120	3/4"	1	460	3	60	2.75	15.0	1.5	JOHNSON CONTROLS AHD20	SEE NOTES: 1 THRU 1
FCU-4	SLOTS	1600	325	0.75	62.1	44.3	80	67	55.1	54.5	-	6	8.8	42	56	1.8	1-1/4"	40.1	2.1	60	83.1	160	120	3/4"	1	460	3	60	2.75	15.0	1.5	JOHNSON CONTROLS AHD16	SEE NOTES: 1 THRU 1
FCU-5	WINE BAR	1200	225	0.75	51.3	35.2	80	67	53.6	53.0	-	6	7.3	42	56	3.1	1-1/4"	29.7	1.5	60	82.9	160	120	3/4"	1	460	3	60	2.13	15.0	1	JOHNSON CONTROLS AHD12	SEE NOTES: 1 THRU 1

- 1. SINGLE POINT ELECTRIC CONNECTION WITH BOTTOM HINGED ACCESS, FAN INTERLOCK RELAY.
- 2. FACTORY PRE-WIRED TERMINAL STRIP (DAMPERS, UNIT SHUTDOWN & CONTROL VALVES) ALL INTERCONNECTING WIRES BY CONTROL CONTRACTOR.
- 3. PROVIDE WITH MANUFACTURERS ELECTRONIC CONDENSATE DRAIN PAN OVERFLOW PROTECTION SWITCH WIRED TO FAN MOTOR AND COOLING COIL CONTROL VALVE TO DEACTIVATE UNIT UPON DETECTION OF A FULL DRAIN PAN, CONFORMING TO IMC 2018.
- 4. PROVIDE WITH CUSTOM MIXING BOX ON BACK OF UNIT. 5. PROVIDE PREMIUM EFFICIENCY FULLY MODULATING ECM MOTORS.
- 6. PROVIDE WITH PLENUM RATED FACTORY CONDENSATE PUMP.
- 7. PROVIDE 1" MERV-7 FILTER 8. PROVIDE UNIT MOUNTED FUSED DISCONNECT SWITCH.
- 9. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF PANEL MOUNTINGS. COIL PIPING CONNECTIONS, ELECTRICAL, AND CONTROLS CONNECTIONS SHALL BE ON SAME SIDE OF UNIT. 10. PROVIDE WITH VARIABLE FAN SPEED.
- 11. HOT WATER COIL SHALL BE LOCATED IN THE REHEAT COIL POSITION AND SHALL BE CAPABLE OF REHEAT FOR DEHUMIDIFICATION.

		CONDENSATE PUMP SCHEDULE														
UNIT NO.	LOCATION	CAP. (GPH)	MAX FLUID TEMP. (°F)	HEAD (FT.)	SHUT-OFF HEAD (FT.)	MOTOR HP	REC.CAP. GAL.	W	MENSIO D	NS (in) H	ELECT V/□/HZ		MANUFACTURER MODEL NUMBER (AS STANDARD)	REMARKS		
CP-1	FCUs/AC-1	38	110	12	18	-	0.25	11.25	5.5	5.25	120/1/60	1.7	HARTELL KL-20X-1ULT	SEE NOTES: 1 THRU 3		
OTES:																

- 1 PROVIDE SAFTEY SWITCH FOR OVERFLOW PROTECTION & CHECK VALVE ASSEMBLY
- 2 PROVIDE 6 FT POWER WIRING IN METAL CONDUIT SUITABLE FOR HARD WIRING CONNECTION ABOVE CEILING.
- 3 PUMP TO BE RATED FOR PLENUM APPLICATION

	AIR INLET AND OUTLET SCHEDULE														
DEVICE TAG	DEVICE CONNECTION SIZE	AIR FLOW RANGE (CFM)	FACE / MODULE SIZE (INCHES)	SERVICE	TOTAL AIR PRESURE AT MAXIMUM CFM INDICATED (IN WG)	NOISE CRITERIA AT THE MAXIMUM CFM INDICATED (NC)	MOUNTING STYLE	MANUFACTURER MODEL NUMBER (BASIS OF DESIGN)	REMARKS						
A1	14" DIA.	0-500	24x24	SUPPLY	0.071	<10	ACT/GYP	PRICE SMX	NOTES 1, 2, 3, 4, 5						
B1	14" DIA.	0-500	24x24	SUPPLY	0.071	<10	ACT/GYP	PRICE SPD	NOTES 1, 2, 3, 4, 5						
C1	15" DIA.	0-600	24x24	RETURN / EXHAUST	0.059	<10	ACT/GYP	PRICE SMX	NOTES 1, 2, 3, 4, 7						
D1	15" DIA.	0-600	24x24	RETURN / EXHAUST	0.059	<10	ACT/GYP	PRICE SPD	NOTES 1, 2, 3, 4, 7						

DIFFUSERS.

- DIFFUSERS SHALL MEET ALL N.C. LEVELS INDICATED ON SCHEDULE. COORDINATE COLOR, FINISH, FRAMES & BORDER TYPES WITH ARCHITECT. 7.
- DIFFUSER BLOW PATTERN AS INDICATED ON PLANS BRANCH RUNOUTS SHALL BE SAME AS NECK SIZE SCHEDULED, UNLESS
- OTHERWISE INDICATED ON FLOOR PLANS. PROVIDE MANUFACTURERS 4'-0" LONG ACOUSTICALLY LINED PLENUM.
 REFER TO DRAWINGS FOR ADDITIONAL PLENUM HEIGHT REQUIREMENTS
- PROVIDE RETURN AIR SOUND BOOT
 PROVIDE SIDEWALL DIFFUSERS WITH 45° THROW
 SIDEWALL "DEVICE CONNECTION SIZE" IS BASED ON SIZE OF SPIRAL DUCTWORK
 PROVIDE SIDEWALL DIFFUSERS WITH AIR-SCOOP/EXTRACTOR DEVICE ASD OR EQUAL
 GRILLE SHALL BE ALUMINUM.
 - PROVIDE WITH INSULATED RETURN HOOD/LIGHT SHIELD TITUS FBRI OR SIMILAR

6. PROVIDE MANUFACTURERS MITERED CORNERS AND BLANK OFF SECTIONS FOR CONTINUOUS LENGTH LINEAR

													Al	R-TO-A	IR H	EAT	EXC	CHAI	NGE	R S	CHEC	DUL	E									
						BU	JILDING	SUPPLY	DATA								BUILDII	NG EXHA	AUST DA	TA				% EFFI	ICIENCY	ELECTRICAL DATA						
UNIT NO.	SYSTEM SERVED	CFM	FA ⁻	WIN T(°F)	ITER	 Γ(°F)	FAT	SUM T(°F)	IMER LAT	(°F)	RECOVER	RED MBH	MAX PD			MER LAT(°	'F)	MAX PD (IN WC)	WIN-	WIN- SUM-		Ph	Hz	MCA	MOP	MANUFACTURER MODEL NUMBER (AS STANDARD)	REMARKS					
	JERNES		DB	WB	DB	WB	DB	WB	DB	WB	WINTER	SUMMER	(IN WC)		DB	WB	DB	WB	DB	WB	<u>`</u>	WB	(IN WC)	TER	SUM- MER	v	FII	П	IVICA	IVIOP	(1.0 0 1.1 1.02 11 1.2)	
ERV-1	FCU-1/2/3	1500	0	-1.5	56.1	46.4	90.8	76.2	78.6	66.7	91.6	56.7	0.76	1400	75.0	58.1	14.6	14.5	75.0	62.5	87.9	73.5	0.64	79.4	76.0	208	1	60	21.9	25	GREENHECK ERVe-20-15L	2, 3, 4, 5, 6
ERV-2	FCU-4/5	500	0	-1.5	56.4	47.4	90.8	76.2	78.6	66.3	30.7	19.6	0.61	450	75.0	58.1	11.6	11.5	75.0	62.5	88.3	74.2	0.55	82.1	83.7	208	3	60	22.2	25	GREENHECK ERV-10-20L-VG	1, 3, 4, 5, 6

- 1. PROVIDE WITH 2 KW PRE-HEATER
- 2. PROVIDE WITH 4.1 KW PRE-HEATER 3. PROVIDE WITH HINGED ACCESS
- 4. PROVIDE SUPPLY AND EXHAUST FAN WITH VFD. 5. PROVIDE FACTORY SUPPLIED MINIMUM 18" ROOF CURB.
- 6. PROVIDE WITH INTEGRAL MOTORIZED DAMPERS FOR OUTDOOR AIR AND EXHAUST.

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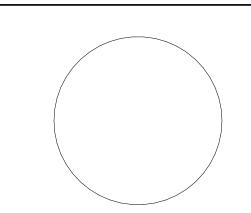
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REVISIONS

SCHEDULES

	IIV2	IRUMENTIL	DENTIFICATION L	ETTERS	
	FIRST LETTER(S)			SUCCEEDING LETTERS	
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
Α	ANALYSIS		ALARM		
В	BURNER FLAME		USERS CHOICE(*)	USERS CHOICE(*)	USERS CHOICE(*)
С	CARBON DIOXIDE			CONTROL	
D	DENSITY (S.G.)/DEWPOINT	DIFFERENTIAL		DAMPER	
Ε	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO			
G	GAUGE		GLASS	GATE	
Н	HAND (MANUAL)				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE	RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
М	MOTION/MOISTURE	MOMENTARY			
N	DIAL VOLATILE OR GAME COMPUTER		USERS CHOICE(*)	USERS CHOICE(*)	USERS CHOICE(*)
0	OXYGEN		OXYGEN		
Р	PRESSURE (OR VACUUM)		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT(*)	INTEGRATE	INTEGRATE		
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
Т	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE(*)		MULTIFUNCTION(*)	MULTIFUNCTION(*)	MULTIFUNCTION(*)
٧	VIBRATION, MECH ANALYSIS			VALVE	
W	WEIGHT OR FORCE		WELL		
Χ	CARBON MONOXIDE		UNCLASSIFIED(*)	TRANSFORMER	UNCLASSIFIED(*)
Υ	EVENT (STATUS)			RELAY OR COMPUTE(*)	
Z	POSITION, DIMENSION			DRIVER, ACTUATOR OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(*) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.

EXAMPLE: PT=PRESSURE TRANSMITTER, HS=HAND SWITCH

SEQUENCE OF CONTROLS - GENERAL

- SEQUENCES OUTLINED (UNLESS OTHERWISE SPECIFIED) SHALL BE PERFORMED BY DIRECT DIGITAL
- 2. UNLESS OTHERWISE SPECIFIED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE BY THE OPERATOR THROUGH THE BAS.
- 3. ABILITY TO REVIEW ALL MEASURED DATA, CONTROL SETPOINTS AND FUNCTIONS SHALL BE PROVIDED AT BAS WORKSTATION.
- 4. PROVIDE MENU DRIVEN CAPABILITY TO OVERRIDE AUTOMATED START/STOP OR OPERATING MODES FOR EACH PIECE OF EQUIPMENT (INCLUDING FAN COIL UNITS, FANS, VAV BOXES, ETC...). IF A SEQUENCE IS DISABLED BY MANUAL INPUT AND THE BAS ATTEMPTS AN AUTOMATED CHANGE IN OPERATING MODE, AN ALARM SHALL BE INITIATED AT THE BAS STATING THAT THE SYSTEM WAS UNABLE TO CHANGE THE MODE DUE TO USER INPUT. WHERE APPLICABLE A MANUAL INPUT COMMAND WILL THEN BE REQUIRED FROM THE USER INSTRUCTING THE BAS TO START THE NEXT SEQUENTIAL PIECE OF EQUIPMENT.
- 5. THE DESIGN INTENT IS FOR THE BAS TO MONITOR PRESSURES, TEMPERATURES AND FLOWS. MONITORED DATA WILL BE USED TO ENERGIZE OR DE-ENERGIZE EQUIPMENT IN ACCORDANCE WITH THE SEQUENCES OUTLINED.
- 6. THE FOLLOWING DEFINITIONS APPLY TO THE SEQUENCES OF OPERATION:
 - a. BAS: BUIDING DDC AUTOMATION SYSTEM (FX JOHNSON)
 - b. END DEVICE / POINT: MONITORED SENSORS AND CONTROLLED OPERATORS FOR SPECIFIC EQUIPMENT ITEMS. END DEVICES WILL PROVIDE A VARIETY OF ANALOG OR BINARY INPUT SOURCES TO THE DDCFPS AS WELL AS RECEIVE OUTPUTS FROM LOCAL CONTROLLERS OR DDCFPS.
- 7. UNLESS NOTED OTHERWISE THE FOLLOWING SHALL BE INITIAL SPACETEMPERATURE SETPOINTS (ALL SETPOINTS SHALL BE ADJUSTABLE THROUGH DDC SYTEM):
- a. OFFICE SPACES, CONFERENCE ROOMS AND OTHER OCCUPIED SPACES: 5:30 AM TO 5:00 PM MONDAY THROUGH FRIDAY

UNOCCUPIED ALL OTHER TIME PERIODS DAYTIME OCCUPIED COOLING 75 DEGREES F (ADJ.) DAYTIME OCCUPIED HEATING 70 DEGREES F (ADJ.)

NIGHT TIME UNOCCUPIED COOLING 85 DEGREES F (ADJ.) NIGHT TIME UNOCCUPIED HEATING 55 DEGREES F (ADJ.)

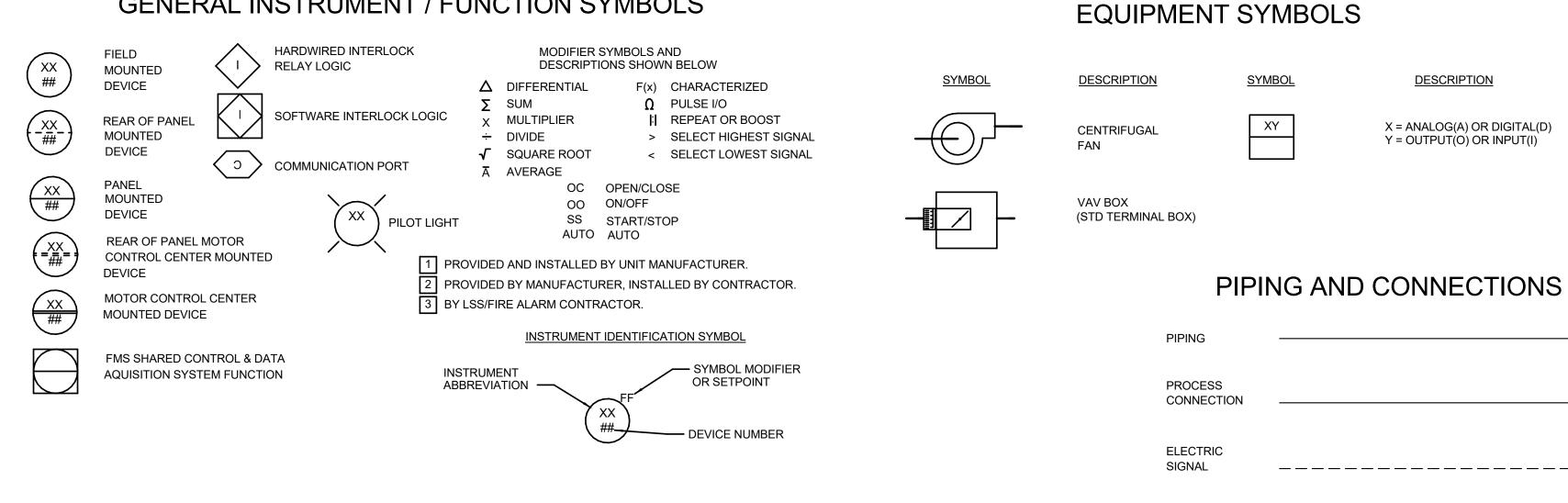
- b. ELECTRIC CLOSETS: COOLING 85 DEGREES F (ADJ.)
- c. DATA ROOMS, IDF, MDF, TELE/DATA ROOMS: COOLING 75 DEGREES F (ADJ.)
- * REFER TO INDIVIDUAL SEQUENCES FOR ADDITIONAL VARIABLE SETPOINTS.

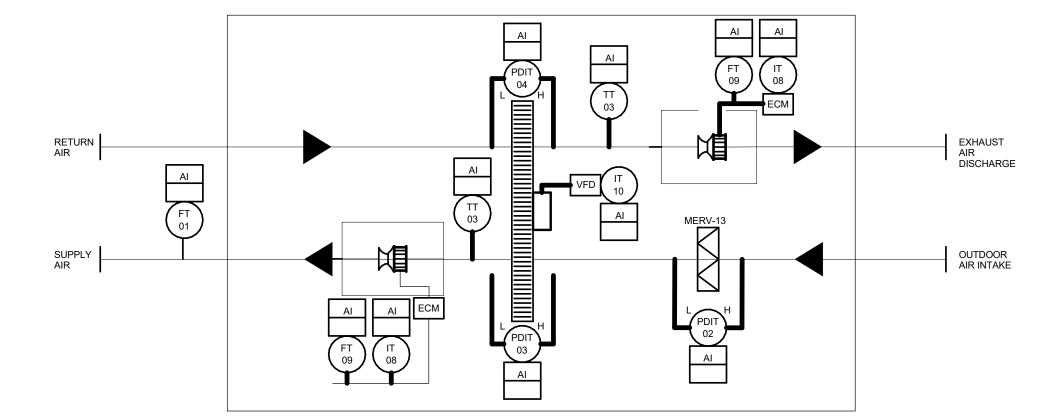
8. THERMOSTATS

ATC SHALL PROVIDE SPACE MOUNTED THERMOSTATS SHALL HAVE LED DISPLAYS WITH +/-2°F ADJUSTMENT CAPABILITIES.

9. ALL SENSORS AND DEVICES APPEARING ON THE CONTROL DIAGRAMS AND/OR DRAWINGS BUT ARE NOT REFERENCED SPECIFICALLY IN SEQUENCES SHALL BE INSTALLED AND SEND FEEDBACK TO THE DDC CONTROL SYSTEM TO ASSIST THE OPERATOR. SIMILARLY, DEVICES REQUIRED TO COMPLETE ALL SEQUENCES HEREIN WHICH ARE NOT SHOWN ON THE DESIGN DOCUMENTS SHALL BE INCLUDED UNDER THE ATC CONTRACTORS SCOPE OF WORK.

GENERAL INSTRUMENT / FUNCTION SYMBOLS





SEQUENCE OF OPERATION

- A. GENERAL
- 1. REQUIREMENTS OF "SEQUENCE OF OPERATION-GENERAL" APPLY TO ALL SEQUENCES. 2. THE ERV SHALL BE CONTROLLED BY THE BASE BUILDING BMS.
- 3. THE ATC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERCONNECTING WIRING. 4. THE VENTILATION AIR TO THE INDOOR FCUs WILL BE CONTROLLED BY A DEDICATED ROOF MOUNTED ERV
- CONTROLLED IN RESPONSE TO OCCUPANCY SCHEDULE. 5. ERV UNIT SHALL BE CONTROLLED BY A LOCAL (BOX MOUNTED) DIRECT DIGITAL CONTROLLER COMMUNICATING WITH THE ERV PACKAGED CONTROLS.
- 6. ERV AIR FLOW RATE SHALL BE CONSTANT VOLUME. 7. OCCUPIED/UNOCCUPIED PERIODS SHALL BE DETERMINED BY AN OWNER SPECIFIED SCHEDULE.
- 1. THE FOLLOWING SAFETIES, WHICH ARE INTEGRAL TO THE UNIT, SHALL SHUTDOWN THE UNIT.
- a. INTEGRAL UNIT FAULT SIGNALS
- C. OCCUPIED/UNOCCUPIED MODE
- 1. THE VENTILATION AIR TO THE SPACE SHALL BE CONSTANT. 2. DURING OCCUPIED PERIODS THE ERV FANS SHALL ENERGIZE AND PROVIDE SCHEDULED AIRFLOW AT CONSTANT RATE. DURING UNOCCUPIED PERIODS THE FANS SHALL DE-ENERGIZE.

ENERGY RECOVERY UNIT CONTROL DIAGRAM
P&ID



DATA LINK SIGNAL

CONTROLS LEGEND

BIDDING &

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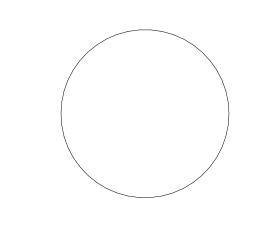
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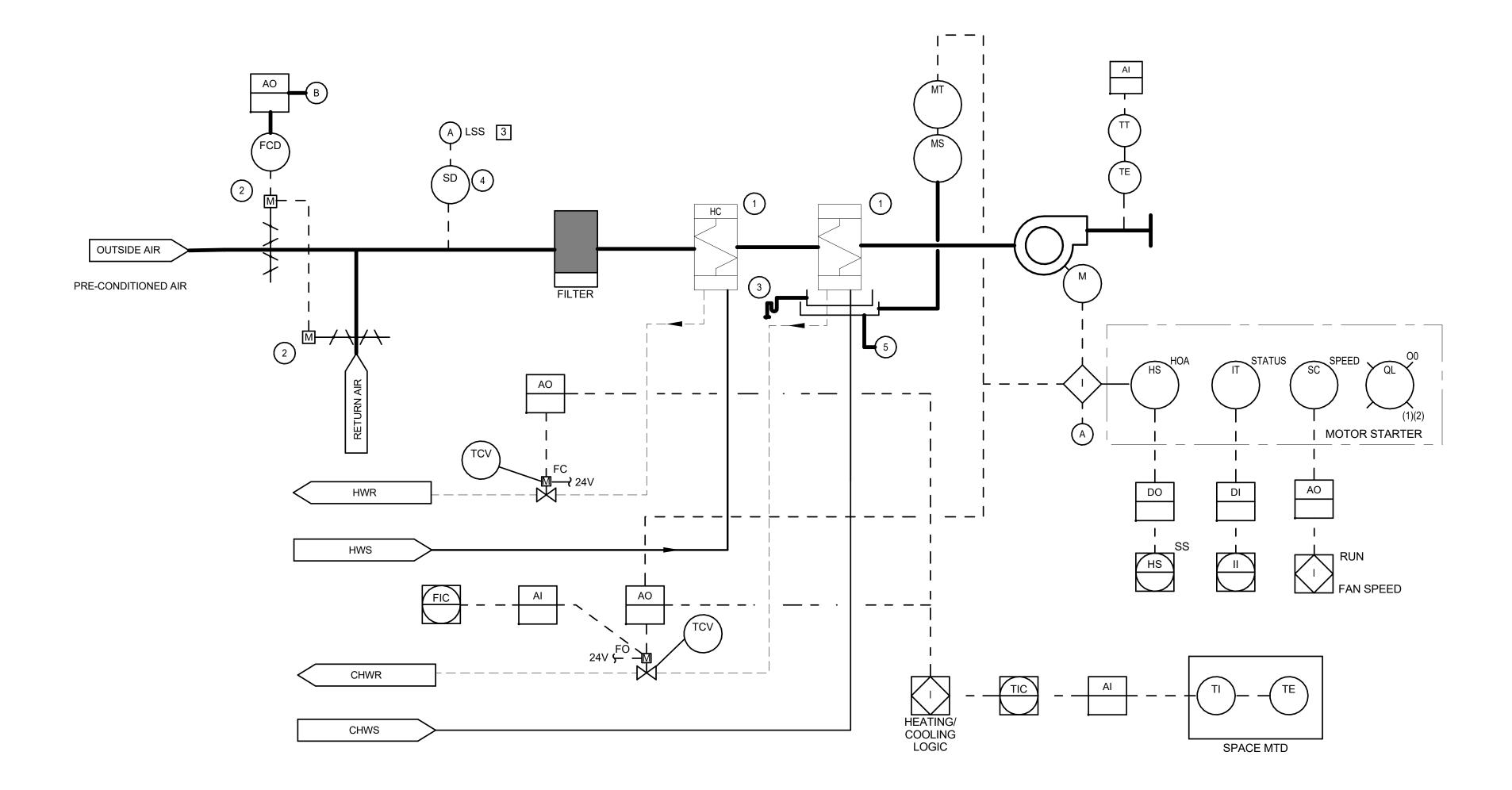
RESORTS WORLD



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REVISIONS

CONTROLS DIAGRAMS



1 TYPICAL 4-PIPE HORIZONTAL FAN COIL UNIT W/ MIXING BOX

GENERAL NOTES: 1. REFER TO HVAC CONTROLS SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. 2. REFER TO DWG M001 FOR INSTRUMENTATION SYMBOLS AND LEGEND. 3. FOLLOWING SYMBOLS INDICATES POINT OF RESPONSIBILITY. 1 BY LSS/FIRE ALARM CONTRACTOR. 2 PROVIDED BY UNIT MANUFACTURER, INSTALLED BY CONTROLS CONTRACTOR. 3 BY LSS/FIRE ALARM CONTRACTOR.

KEY NOTES:

FOR COIL CONNECTION & DETAILS SEE DRAWING SERIES M500.

4. FOR EQUIPMENT SCHEDULES SEE DRAWINGS SERIES M600.

5. FOR EQUIPMENT AND PIPING DETAILS SEE DRAWINGS SERIES M500.

- 2 DAMPERS PROVIDED BY UNIT MANUFACTURER, ACTUATORS BY CONTROL CONTRACTOR.
- PIPE CONDENSATE TO DRAIN, FULL SIZE BASE ON UNIT MANUFACTURER.
- SMOKE DETECTOR ON UNITS EQUAL OR GREATER THAN 2000 CFM. (RETURN SIDE)
- ALL FAN COIL UNIT WITH EVAPORATOR COOLING COILS SHALL BE PROVIDED WITH A MANUFACTURERS FLOAT SWITCH INSIDE MAIN DRAIN PAN OR A SECONDARY DRAIN PAIN (NON-PIPED) WITH LEAK DETECTION. DETECTION OF WATER SHOULD DE-ENERGIZE UNIT & CLOSE CHILLED WATER VALVE.
- 6 ALL INTERCONNECT WIRING & CONTACT ARE PROVIDED BY ATC CONTRACTOR.

GENERAL NOTES:

1. REQUIREMENTS OF "SEQUENCE OF OPERATION - GENERAL" ON DWG. M701 APPLY TO ALL SEQUENCES.

- TEMPERATURE SETTINGS SHALL BE AS OUTLINED IN THE "SEQUENCE OF CONTROLS - GENERAL" ON M701.
- 3. ALL SETPOINTS SHALL BE ADJUSTABLE FROM THE DDC SYSTEM.

SEQUENCE OF OPERATIONS

- A. GENERAL

 1. FAN COIL UNITS (FCU) SHALL BE PROVIDED WITH DDC CONTROLLERS AND INTERLOCKED TO THE BMS.
- 2. SUPPLY FAN SPEED SHALL BE CONTROLLABLE THROUGH THE BMS.

2. HEATING 85 F

B. OCCUPIED MODE

1. <u>GENERAL</u>

a. UNIT CONTROL VALVES SHALL OPERATE TO MAINTAIN CONSTANT DISCHARGE AIR TEMPERATURE:

1. COOLING: 55 F

2. THE FAN SHALL ENERGIZE AND RUN AT 40% SPEED DURING OCCUPIED MODE.

- 3. COOLING: AT MINIMUM FAN SPEED, THE CONTROL VALVE SHALL MODULATE BASED ON SPACE TEMPERATURE. UPON RISE IN SPACE TEMPERATURE ABOVE THE OCCUPIED SETPOINT, THE FAN SHALL SLOWLY RAMP UP TO MAXIMUM SPEED AND THE CHILLED WATER COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. WHEN SET POINT IS ACHIEVED THE REVERSE SHALL OCCUR. IF SPACE TEMPERATURE REACHES 3°F (ADJ.) BELOW SPACE SETPOINT, CONTROL VALVE SHALL MODULATE TOWARDS CLOSED POSITION UNTIL SPACE TEMPERATURE RISES ABOVE SETPOINT.
- 4. HEATING: AT MINIMUM FAN SPEED, THE CONTROL VALVE SHALL MODULATE BASED ON SPACE TEMPERATURE. UPON DROP IN SPACE TEMPERATURE BELOW THE OCCUPIED HEATING SETPOINT, THE FAN SHALL SLOWLY RAMP UP TO MAXIMUM SPEED AND THE HEATING COIL SHALL ENERGIZE AND MODULATE TO MAINTAIN DISCHARGE TEMPERATURE SETPOINT. WHEN SET POINT IS ACHIEVED THE REVERSE SHALL OCCUR. IF SPACE TEMPERATURE REACHES 3°F (ADJ.) ABOVE SPACE SETPOINT, CONTROL VALVE SHALL MODULATE TO CLOSED POSITION UNTIL SPACE TEMPERATURE FALLS BELOW SETPOINT.

C. UNOCCUPIED MODE

- THE SUPPLY FAN SHALL BE DE-ACTIVATED AND THE CHILLED WATER CONTROL VALVES SHALL BE CLOSED AND AND HEATING COIL DE-ENERGIZED.
- 2. UPON A RISE IN SPACE TEMPERATURE ABOVE THE UN-OCCUPIED SETPOINT THE SUPPLY FAN SHALL ENERGIZE AND THE THE CHILLED WATER COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN SET POINT IS ACHIEVED THE COOLING COIL CONTROL VALVE SHALL CLOSE AND THE SUPPLY FAN SHALL DE-ENERGIZE.
- 3. UPON A DROP IN SPACE TEMPERATURE BELOW THE UN-OCCUPIED SETPOINT THE SUPPLY FAN SHALL ENERGIZE AND THE HHEATING COIL SHALL ENERGIZE AND MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN SET POINT IS ACHIEVED THE HEATING COIL SHALL DE-ENERGIZE AND THE SUPPLY FAN SHALL DE-ENERGIZE.

D. LEAK DETECTION

1. LEAK DETECTOR TO BE HARD WIRED TO SHUT DOWN THE UNIT AND TO SHUT OFF THE CHILLED WATER CONTROL VALVE. ATC CONTRACTOR TO PROVIDE ALL INTERCONNECTION WIRING, CONTACTS AND ALARM THROUGH THE DDC SYSTEM.

E. DEHUMIDIFICATION

1. IF SPACE HUMIDITY RISES ABOVE 60%RH, THE FCU SHALL OPERATE IN DEHUMIDIFCATION MODE FOR 30 MINUTES.

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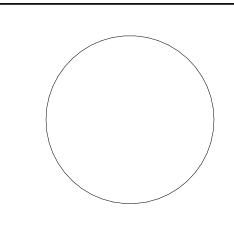
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SCALE 12" = 1'-0"

REVISIONS

CONTROLS DIAGRAMS

DIVISION 23: HEATING, VENTILATING AND AIR CONDITIONING REQUIREMENTS

I. GENERAL REQUIREMENTS:

- 1. THE WORK REQUIREMENTS DESCRIBED WITHIN DIVISION 20 SPECIFICATION SECTION "COMMON MECHANICAL / ELECTRICAL REQUIREMENTS" FORM COMPLIMENTARY REQUIREMENTS TO THE SCOPE OF WORK CONTAINED WITHIN DIVISION 23. REFER TO DRAWING H0.3 FOR SAID DIVISION 20 REQUIREMENTS.
- 2. CONTRACTOR SHALL PROVIDE MEANS OF SECURING AND ATTACHMENT TO ROOF FOR ALL ROOF-MOUNTED EQUIPMENT IN ACCORDANCE WITH STATE BUILDING CODE AND ALL OTHER APPLICABLE CODES. CONTRACTOR SHALL SUBMIT TO ARCHITECT THE PROPOSED MEANS OF EQUIPMENT SECURING AND ATTACHMENT TO ROOF, STAMPED AND SIGNED BY A REGISTERED STRUCTURAL PROFESSIONAL ENGINEER.
- 3. PRIOR TO ANY DEMOLITION OR NEW WORK, TESTING AND BALANCING CONTRACTOR SHALL TAKE CFM AND STATIC PRESSURE READINGS AT ALL LOCATIONS WHERE NEW SYSTEMS ARE TO CONNECT TO EXISTING, AND ELSEWHERE AS NOTED ON PLANS. SUBMIT TO ARCHITECT AND ENGINEER PRIOR TO STARTING NEW WORK.
- 4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING SYSTEMS AS INDICATED ON THE DRAWINGS. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM CONDITIONS.
- a) ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED AS WELL AS WITH EXISTING SYSTEMS, THE STRUCTURE, AND OTHER OBSTRUCTIONS.
- b) SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION OF NEW WORK SHALL BE COORDINATED IN ADVANCE WITH THE CONSTRUCTION MANAGER AND BUILDING OWNER.
- 5. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR TERMINAL DEVICES.
- 6. ALL MATERIALS AND EQUIPMENT SHALL BE UNUSED AND OF NEW MANUFACTURE, EXCEPT FOR EXISTING COMPONENTS INDICATED TO REMAIN AND BE REUSED.
- 7. ACCESS PANELS SHALL BE PROVIDED IN WALLS AND GYPSUM WALL BOARD CEILINGS TO FACILITATE CLEANING, ACCESS AND SERVICE TO: DAMPERS, HEATERS, VALVES, VARIABLE AIR VOLUME BOXES, FAN BOXES AND ALL CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS ARE NOT INDICATED WITHIN THE PLANS. THE BIDDING CONTRACTOR SHALL REVIEW ARCHITECTURAL AND MECHANICAL PLANS TO DETERMINE THE LOCATION AND QUANTITY OF ACCESS PANELS REQUIRED. WITHIN THE MECHANICAL BID ALL ACCESS PANELS SHALL BE CLEARLY ENUMERATED AND PRICING SHALL BE ALLOCATED FOR STANDARD STYLE ACCESS PANELS. AN ALTERNATE PRICE SHALL BE INDICATED FOR AN INCREASE IN QUALITY FROM STANDARD ACCESS PANELS TO DECORATIVE ACCESS PANELS.
- 8. INSTALL THERMOSTATS AT MOUNTING HEIGHTS ABOVE FINISHED FLOOR IN ACCORDANCE WITH "ADA" REQUIREMENTS, OR AS DIRECTED OTHERWISE BY ARCHITECT.
- 2. CONTRACTOR SHALL PROVIDE THE FOLLOWING SERVICES ON ALL EXISTING HVAC EQUIPMENT INDICATED TO REMAIN: a) CLEAN CONDENSATE PAN AND TRAP
- b) CALIBRATE CONTROLS
- c) FILTER CHANGES d) VERIFY FAN ROTATION AND OPERATION
- e) BALANCING
- f) VERIFY PITCH OF CONDENSATE DRAIN PIPES AND DRAIN PAN g) VERIFY EQUIPMENT CONTROL OPERATION
- h) LUBRICATION OF FANS, MOTORS, ETC.
 i) CLEAN HEATING/COOLING COILS
- 0 EXISTING TO BE REUSED/RELOCATED EQUIPMENT: CONTRACT
- 10 EXISTING TO BE REUSED/RELOCATED EQUIPMENT: CONTRACTOR SHALL REPORT ANY EQUIPMENT DEFICIENCIES FOUND TO THE OWNER AND THE ARCHITECT AND/OR ENGINEER.
- 11 WORK SHALL CONFORM TO THE CURRENT IN-FORCE EDITIONS OF THE FOLLOWING:
- a) SHEET METAL SMACNA STANDARDS (2005 3RD EDITION)
- b) MASSACHUSETTS STATE BUILDING CODE (CMR-780, NINTH EDITION). c) INTERNATIONAL MECHANICAL CODE (IMC-2015)
- d) INTERNATIONAL ENERGY CONSERVATION CODE (IECC-2015)
 e) INTERNATIONAL EXISTING BUILDING CODE (2015)
- e) ALL OTHER APPLICABLE STATE AND LOCAL CODES AND ORDINANCES f) WORK SHALL ALSO CONFORM TO BASE BUILDING SPECIFICATIONS AND STANDARDS.
- 12. SUBMITTALS:

MECHANICAL CONTRACTOR SHALL SUBMIT FOR REVIEW, SHOP DRAWINGS FOR ALL MATERIAL AND EQUIPMENT, CONTRACTOR SHALL POINT OUT ANY DEVIATIONS OF THE SHOP DRAWINGS FROM THE DESIGN, SCHEDULE AT LEAST TEN WORKING DAYS EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW. SHOP DRAWINGS MAY BE PAPER OR ELECTRONIC. ELECTRONIC SHOP DRAWINGS SHALL BE IN SEARCHABLE PDF FORMAT. IN ADDITION TO THE FOREGOING, SUBMIT PAPER SHOP DRAWINGS SHOWING THE FOLLOWING:

a) DUCTWORK SHOP DRAWINGS AND DETAILS. THE ROUTING OF DUCTWORK ON VANDERWEIL'S DRAWINGS IS SHOWN DIAGRAMMATICALLY AND APPROXIMATELY, AS ARE THE POSITIONS OF NEW VAV BOXES AND OTHER ABOVE-THE-CEILING COMPONENTS. THE CONTRACTOR SHALL DETERMINE EXACT ROUTING AND LOCATIONS, PROVIDING PROPER CLEARANCES, MAKING PROVISIONS FOR MAINTENANCE ACCESS, AND COORDINATING WITH EXISTING AND NEW COMPONENTS OF OTHER TRADES, THE STRUCTURE, AND OTHER OBSTRUCTIONS. THE DUCTWORK SHOP DRAWING SUBMITTAL SHALL BE BASED ON THIS COORDINATION EFFORT AND SHALL SHOW ALL AIR DISTRIBUTION COMPONENTS. DUCTWORK AND COMPONENTS SHALL BE DRAWN TO SCALE, AND DUCT SIZES SHALL BE INDICATED.

b) PIPING SHOP DRAWINGS SHOWING LAYOUT, COMPONENTS, AND DETAILS.

- c) CONTROLS SHOP DRAWINGS, INCLUDING EQUIPMENT AND SYSTEM CONTROL SCHEMATICS, SEQUENCES OF OPERATIONS, LOGIC DIAGRAMS AND SYSTEM COMPONENTS INCLUDING DETAILS OF TIE-IN TO EXISTING BUILDING CONTROL MANAGEMENT SYSTEM. SUBMIT A POINT BY POINT STATEMENT OF COMPLIANCE WITH THE SPECIFICATIONS, SEQUENCE OF OPERATIONS AND DRAWING P&ID'S. THIS STATEMENT SHALL CONSIST OF A LIST OF ALL NUMBERED PARAGRAPHS. WHERE THE SYSTEM COMPLIES FULLY, SUCH SHALL BE INDICATED BY PLACING THE WORD "COMPLY" OPPOSITE THE PARAGRAPH NUMBER. WHERE THE SYSTEM DOES NOT COMPLY, OR ACCOMPLISHES THE STATED FUNCTION IN A MANNER DIFFERENT FROM THAT DESCRIBED, A FULL DESCRIPTION OF THE DEVIATION SHALL BE PROVIDED.
- 13. MOTORS AND STARTERS:
- PROVIDE MOTORS AND CONTROLS, AND FURNISH STARTERS FOR HVAC EQUIPMENT, EXCEPT FOR UNITS SERVED BY MCC WHICH ARE PROVIDED UNDER ELECTRIC WORK. PROVIDE CONTROL AND OTHER RELATED WIRING INCLUDING INTERLOCKS. ALL MOTORS SHALL TO BE PREMIUM EFFICIENCY. ALL THREE PHASE MOTORS SHALL BE RATED FOR INVERTER DUTY SERVICE.
- 14. VIBRATION ISOLATION:
- PROVIDE VIBRATION ISOLATION FOR EACH PIECE OF ROTATING OR RECIPROCATING HVAC EQUIPMENT SHOWN ON THE DRAWINGS. ALL ISOLATION COMPONENTS SHALL BE SUPPLIED BY A SINGLE MANUFACTURER MASON INDUSTRIES OR AMBER BOOTH. TYPES OF ISOLATORS, REQUIRED DEFLECTIONS, AND INSTALLATION PRACTICES SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE VIBRATION ISOLATION MANUFACTURER.
- 15. SEISMIC RESTRAINTS:
- PROVIDE RESTRAINTS AS REQUIRED BY CODE. FOR EACH SEISMIC RESTRAINT, PROVIDE CERTIFIED CALCULATIONS TO VERIFY ADEQUACY TO MEET THE FOLLOWING DESIGN REQUIREMENTS: ABILITY TO ACCOMMODATE RELATIVE SEISMIC DISPLACEMENTS OF SUPPORTED ITEM BETWEEN POINTS OF SUPPORT. ABILITY TO ACCOMMODATE THE REQUIRED SEISMIC FORCES. FOR EACH RESPECTIVE SET OF ANCHOR BOLTS PROVIDE CALCULATIONS TO VERIFY ADEQUACY TO MEET COMBINED SEISMIC-INDUCED SHEER AND TENSION FORCES. FOR EACH WELDMENT BETWEEN STRUCTURE AND ITEM SUBJECT TO SEISMIC FORCE, PROVIDE CALCULATIONS TO VERIFY ADEQUACY. CALCULATIONS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER WHO IS REGISTERED IN THE STATE WHERE THE WORK IS BEING PERFORMED AND HAS SPECIFIC EXPERIENCE IN SEISMIC CALCULATIONS. RESTRAINTS SHALL MAINTAIN THE RESTRAINED ITEM IN A CAPTIVE POSITION WITHOUT SHORT CIRCUITING THE VIBRATION ISOLATION.
- 16. HANGERS AND SUPPORTS:
- a) STRUCTURAL STEEL SUPPORTS, HANGERS, ETC. SHALL BE ANGLE IRON, STEEL CHANNEL OR STEEL ROD USED WITH APPROVED CLAMPS, INSERTS, ETC... ALL SUPPORTS, HANGERS, BRACKETS, ETC.., SHALL BE AS APPROVED BY THE ENGINEER. ALL HANGERS SHALL BE GALVANIZED OR PAINTED WITH TWO COATS OF RUSTOLEUM PAINT BEFORE THEIR INSTALLATION.
- b) ATTACH HANGERS AND SUPPORTS DIRECTLY ONTO THE STRUCTURE BY FIRST REMOVING EXISTING FIRE PROOFING AND AFTER SECURING THE ATTACHMENT, REPAIRING THE FIRE PROOFING TO ITS ORIGINAL CONDITION, CONTINUOUSLY OVER THE ATTACHMENT.

17. CLEANING:

- a) CONTRACTOR WILL CLEAN THE ENTIRE INSTALLATION AND ALL WORK AREAS SHALL BE LEFT AS CLEAN AS NEW. CLEAN INTERNALS OF ALL DUCTWORK AND AIR HANDLING UNITS, AND REPLACE FILTERS AFTERWARDS.
- b) DUCTWORK: DUCTS SHALL BE THOROUGHLY CLEANED SO THAT NO DIRT OR DUST SHALL BE DISCHARGED FROM DIFFUSERS, REGISTERS, OR GRILLES, WHEN SYSTEM IS OPERATED.
- c) PIPING: AFTER CHILLED WATER, CONDENSER WATER OR CONDENSATE PIPING HAVE BEEN PRESSURE TESTED AND APPROVED FOR TIGHTNESS, CLEAN AND FLUSH PIPING.
- d) EQUIPMENT: AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT INCLUDED IN THIS SECTION, INCLUDING REMOVAL OF CONCRETE RESIDUE.
- e) WORK AREA: AFTER COMPLETION OF PROJECT, REMOVE ALL CONSTRUCTION DEBRIS, TEMPORARY FACILITIES AND EQUIPMENT FROM WORK AREA. CLEAN WORK AREA TO PERMIT OCCUPATION.
- 18. START UP, TESTING AND BALANCING:
 - a) START UP ALL SYSTEMS, PRESSURE TEST DUCTWORK AND PIPING, AND BALANCE SYSTEMS INCLUDING, BUT NOT LIMITED TO, ALL NEW AND EXISTING REGISTERS, GRILLES, DIFFUSERS, VAV BOXES, FAN POWERED BOXES, HEAT PUMPS, FANS, ETC WITHIN THE AREA OF WORK TO PERFORMANCE DATA SHOWN ON PLANS, SCHEDULES, AND AS SPECIFIED.
- b) DO NOT COVER OR CONCEAL WORK BEFORE TESTING AND INSPECTION AND OBTAINING APPROVAL.
- c) LEAKS, DAMAGE AND DEFECTS DISCOVERED OR RESULTING FROM STARTUP, TESTING, AND BALANCING SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITION WITH ACCEPTABLE MATERIALS. TEST SHALL BE CONTINUED UNTIL SYSTEM OPERATES WITHOUT ADJUSTMENT OR REPAIR.
- d) REPORT ON REPORTING FORMS, SUBMITTED TO ARCHITECT FOR APPROVAL IN ADVANCE.
- e) SUBMIT ELECTRONIC COPY OF TESTING AND BALANCING REPORTS TO ARCHITECT FOR APPROVAL
- f) THIS CONTRACTOR SHALL FURNISH ALL TEST MEDIUMS AND DISPOSE OF ALL TEST MEDIUMS AT AN APPROVED OFF SITE LOCATION AFTER TESTING IS COMPLETE.
- g) NOTE REQUIREMENT ABOVE FOR CFM AND STATIC PRESSURE READINGS PRIOR TO DEMOLITION.
- h) THE BALANCING CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DIRECTIONAL ADJUSTMENT OF ALL LINEAR DIFFUSERS AS INDICATED ON PLANS. IF NO DIRECTIONAL FLOW IS INDICATED INTERIOR LINEAR DIFFUSERS SHALL BE DIRECTED HORIZONTALLY AND PERIMETER LINEAR DIFFUSER SHALL BE DIRECTED VERTICALLY, IF PERIMETER LINEAR DIFFUSERS HAVE MULTIPLE SLOTS THE PERIMETER SLOT DIRECTED VERTICALLY AND THE INTERIOR SLOT DIRECTED HORIZONTALLY TOWARDS THE INTERIOR SPACE.
- 19. WARRANTY:
 - a) WARRANT WORK OF THIS SECTION IN WRITING FOR ONE YEAR FROM DATE OF OWNERS ACCEPTANCE OF SUBSTANTIAL COMPLETION. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPTLY AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER WARRANTY WITHIN CONTRACT PRICE.

II. DUCTWORK AND AIR DISTRIBUTION EQUIPMENT:

1. ROUTING AND SIZING OF DUCTWORK: THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. REFER TO GENERAL NOTE "SUBMITTALS", FOR ROUTING. WHERE DUCT SIZES ARE NOT INDICATED, CONTRACTOR SHALL SELECT SIZES BASED ON THE CFM USING THE "LOW PRESSURE DUCT SIZING TABLE."

LOW PRESSURE DUCT SIZING TABLE

Airflow (cfm)	Round Duct Size (inches)	FLAT OVAL Size (inches)	Equi	Equivalent Rectangular Duct Sizes (inches x inches)				
80-100	6	4x10	4x8	6x6				
100-150	8	6x9	4x12	6x8				
150-200	8	6x10	6x10	8x8				
200-300	10	6x14	6x12	8x10				
300-400	10	6x17	6x16	8x12	10x10			
400-500	12	6x20	6x20	8x14	10x10			
500-600	12	8x16	6x24	8x16	10x12			
600-750	14	8x19	8x18	10x14	12x12			
750-1000	14	8x25	8x24	10x16	12x14			
1000-1200	16	8x30	8x26	10x20	12x16	14x14		
1200-1400	16	10x26	8x30	10x24	12x18	14x16		
1200-1700	18	10x32	10x26	12x22	14x18	16x16		
1700-1900	18	12x26	10x28	12x24	14x20	16x18		
1900-2200	20	12x28	12x26	14x24	16x20	18x18		
2200-2500	20	12x34	12x30	14x26	16x22	18x20		
2500-2800	22	12x37	12x36	14x30	16x26	18x24		

2. SPECIAL DUCTWORK REQUIREMENTS:

- a) NEW ROUND DUCT IN EXPOSED AREAS SHALL BE SPIRAL, DOUBLE WALL, FLANGED, AND GASKETED. DIMENSIONS ON PLAN REPRESENT INTERNAL AIR FLOW DIMENSIONS. CONTRACTOR SHALL INCREASE SIZE FOR LINER WHERE APPLICABLE. NEW RECTANGULAR DUCT IN EXPOSED AREAS SHALL BE DOUBLE WALL. EXISTING RECTANGULAR DUCT SHALL HAVE NEW RIGID INSULATION APPLIED THAT IS FIELD PAINTABLE.
- b) DIFFUSER SIZES SHOWN ARE NECK SIZES; REGISTER AND GRILLE SIZES ARE NOMINAL.
- c) PROVIDE FLEXIBLE CONNECTIONS ON ALL DUCTS CONNECTED TO EQUIPMENT AND COMPONENTS WITH ROTATING OR VIBRATING PARTS. ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTION WITH FLEXIBLE COPPER GROUNDING STRAPS.
- d) ALL DUCTS PENETRATING RATED FIRE WALLS SHALL BE PROVIDED WITH FIRE DAMPERS AND ACCESS DOORS.
- e) DUCTWORK SHALL NOT RUN ALONG FULL HEIGHT PARTITIONS.

SPIN IN COLLARS AND STRAIGHT TAPS SHALL NOT BE USED.

f) PATCH AND SEAL ALL EXISTING OPENINGS IN DUCTWORK NOT UTILIZED FOR NEW LAYOUT.

PREVAIL. SIZE OF DUCT RUN-OUTS TO DIFFUSER SHALL EQUAL DIFFUSER NECK SIZE.

- g) THE INSIDE OF ALL UNLINED DUCTWORK VISIBLE THROUGH A GRILLE OR DIFFUSER SHALL BE PAINTED FLAT BLACK.

 h) WHEN SECTION OF DUCTWORK IS NOT LABELED FOR SIZE, THE LARGER SIZE INDICATED ON THE CONNECTED DUCT SHALL
- i) DUCT BRANCH CONNECTIONS AND TAKE OFFS SHALL BE MADE WITH 45° CONNECTION, BELLMOUTH OR CONICAL ONLY.
- j) ELBOWS AND BENDS FOR RECTANGULAR DUCTS SHALL HAVE CENTER LINE RADIUS OF 1.5 TIMES DUCT WIDTH WHEREVER POSSIBLE. WHERE CENTERLINE RADIUS IS LESS THAN 1.5 TIMES DUCT WITH, ELBOWS SHALL BE RADIUS THROAT WITH RADIUS HEEL AND FULL LENGTH SPLITTER VANES.

3. MATERIALS AND PRESSURE RATINGS:

e) DOUBLE WALLED DUCTWORK:

- a) SHEET METAL DUCTS SHALL BE CONSTRUCTED OF HOT DIPPED G90 GALVANIZED SHEET METAL UNLESS OTHERWISE SPECIFIED.
- b) KITCHEN HOOD EXHAUST DUCTS SHALL BE 16 GA. ALL WELDED CARBON STEEL AND WILL BE INSTALLED IN ACCORDANCE WITH NFPA-96.
- c) SHOWER EXHAUST DUCTWORK SHALL BE (ALUMINUM WITH WELDED SEAMS). DUCTWORK SHALL PITCH TOWARDS SHOWERS. d) ALL MEDIUM PRESSURE DUCTWORK BETWEEN MAIN SYSTEM FAN AND AIR TERMINAL DEVICE SHALL BE MINIMUM 4"(wg) PRESSURE CLASS, SEAL CLASS A, LEAKAGE CLASS 6. ALL LOW PRESSURE DUCTWORK BETWEEN TERMINAL DEVICE AND AIR OUTLETS SHALL BE MINIMUM 2"(wg) PRESSURE CLASS. SEAL CLASS B, LEAKAGE CLASS 12.
- 1) DOUBLE WALLED DUCTWORK SHALL BE SUITABLE TO SUSTAIN INTERNAL PRESSURES STATED BELOW. THE OUTER CASING SHALL BE SOLID GALVANIZED STEEL AND THE INNER CASING SHALL BE PERFORATED GALVANIZED STEEL. THE DUCT ASSEMBLY SHALL HAVE AN R-VALUE OF NOT LESS THAN 6. THE INSULATION SHALL BE ENCAPSULATED TO ENSURE IT DOES NOT TOUCH THE AIR STREAM. DOUBLE WALLED DUCTS SHALL BE BY MCGILL, SHEET METAL CONNECTORS INC, OR APPROVED EQUAL. PROVIDE INSULATED DOUBLE WALL DUCTWORK FOR THE FOLLOWING SYSTEMS:
- i) ALL EXPOSED ROUND, RECTANGULAR AND FLAT OVAL DUCTWORK.

4. FLEXIBLE DUCTWORK:

- a) FLEXIBLE DUCTWORK, CONNECTING TO UNINSULATED OR UNLINED DUCT, SHALL BE VINYL COATED FIBERGLASS CLOTH 0.0057" MINIMUM THICKNESS, 25 STRANDS PER INCH MINIMUM THREAD COUNT WITH CORROSION-RESISTANT HELICAL WIRE REINFORCEMENT. FLEX DUCT SHALL BE UL RATED FOR 12" W.C. POSITIVE PRESSURE, 2" W.C. NEGATIVE PRESSURE WITH A MAXIMUM VELOCITY OF 4000 FPM. FLEXDUCT MUST BE LISTED AS A CLASS 1 CONNECTOR ACCORDING TO UL 181 AND SHALL MEET THE REQUIREMENTS OF NFPA 90A MAXIMUM ASTM E-84 FIRE HAZARD RATING SHALL BE 25 FLAME SPREAD, 50 FUEL CONTRIBUTED AND 50 SMOKE DEVELOPED. UNINSULATED FLEXIBLE DUCT SHALL BE EQUIVALENT TO FLEXMASTER TYPE 4.
- b) FLEXIBLE DUCT CONNECTED TO INSULATED OR LINED DUCT SHALL BE INSULATED WITH 1-1/2", 1/2 LB. DENSITY FIBERGLASS INSULATION AND FLAME RETARDANT (UL LISTED) VAPOR BARRIER, MEETING ASTM E-84 RATING AS
- c) SUBMITTALS SHALL INCLUDE DATA ON CORE, IN ADDITION TO OTHER DATA LISTED ABOVE REQUIRED TO ENSURE THAT SUBMITTED PRODUCT MEETS THE REQUIREMENTS OF THESE SPECIFICATIONS.
- d) PROVIDE SEALING COMPOUND FOR INSTALLATION. SEE FURTHER PARAGRAPHS IN THIS SPECIFICATION, AND DETAILS FOR OTHER INSTALLATION REQUIREMENTS.
- e) FLEXIBLE DUCTWORK SHALL BE A 5'-0' LONG. FLEXIBLE DUCTS SHALL BE INSTALLED WITH MINIMUM SAG OF 1/2" PER 1"-0". MORE THAN ONE (1) 90 DEGREE TURNS/BENDS OF FLEXIBLE DUCT ARE PROHIBITED.
- 5. VOLUME DAMPERS:

REFERENCED ABOVE.

- a) GENERAL: FOR CLARITY PURPOSES; PLANS/DRAWINGS DO NOT INDICATE VOLUME DAMPERS TO DIFFUSERS, REGISTERS OR GRILLES. DAMPERS SHALL BE TAMCO.
- b) PROVIDE MANUAL ADJUSTABLE VOLUME DAMPERS, WITH EXTENDED MOUNT INDICATING AND LOCKING QUADRANTS ON EACH SUPPLY, RETURN, AND GENERAL EXHAUST DUCT TAKEOFF, AND AT EACH TAKEOFF TO A REGISTER, GRILLE, OR DIFFUSER (NOT ALL DAMPERS ARE SHOWN ON DRAWINGS). DAMPERS SHALL BE LOCATED AS FAR UPSTREAM AS POSSIBLE IN THE BRANCH DUCT OR TAKE OFF TO MINIMIZE DOWNSTREAM NOISE.
- c) REMOTE ADJUSTABLE VOLUME DAMPERS: REMOTE ADJUSTABLE VOLUME DAMPERS ARE REQUIRED IN AREAS WHERE CEILING CAVITY ACCESS IS LIMITED BY HARD (SOLID) CEILINGS, EQUIPMENT OBSTRUCTIONS, ARCHITECTURAL FEATURES, ETC. CONTRACTOR SHALL COORDINATE BETWEEN MECHANICAL PLANS AND ARCHITECTURAL CEILING PLANS TO DETERMINE IF AND WHERE REMOTE ADJUSTABLE VOLUME DAMPERS ARE REQUIRED. CONTRACTOR SHALL CLEARLY IDENTIFY WITH THEIR BID THE QUANTITY OF REMOTE ADJUSTABLE VOLUME DAMPERS BEING PROVIDED AND A DESCRIPTION OF THEIR MOUNTING LOCATIONS.
- i) MANUALLY ADJUSTED REMOTE VOLUME DAMPERS SHALL BE SIMILAR TO YOUNG REGULATOR MODEL 270. REFER TO FLOOR PLANS AND DETAILS FOR TYPES OF OPERATORS (CEILING MOUNTED OR CONCEALED).
- ii) ELECTRONICALLY ADJUSTED REMOTE VOLUME DAMPERS SHALL BE SIMILAR TO YOUNG REGULATOR MODEL EBD. PROVIDE WITH RECESSED WALL-BOX TERMINATION PORT, REFER TO FLOOR PLANS FOR QUANTITY AND LOCATION OF PORTS REQUIRED AT EACH WALL-BOX. WIRING SHALL BE NON-SHIELDED PLENUM RATED WIRE, LENGTHS SHALL BE BASED ON FLOOR PLAN REQUIREMENTS. PROVIDE WITH ONE HAND HELD BATTERY POWERED DAMPER ACTUATOR WITH LCD POSITION INDICATOR, SIMILAR TO YOUNG REGULATOR EBD-P.
- 6. DIFFUSERS, REGISTERS AND GRILLES (AIR INLETS AND OUTLETS):
- a) GENERAL: PROVIDE DIFFUSERS, REGISTERS, AND GRILLES FOR SUPPLY, RETURN, AND EXHAUST OUTLETS, OF SIZE, TYPE, MATERIAL AND DESIGN SHOWN ON DRAWINGS. ACCEPTABLE MANUFACTURERS SHALL BE NAILOR, METALAIRE, TITUS, OR PRICE. SOUND PRESSURE LEVELS SHALL NOT EXCEED NC 30. COLOR AND FINISH SHALL BE SELECTED BY THE ARCHITECT.
- b) EXISTING TO REMAIN/BE REUSED DIFFUSERS/REGISTIERS/GRILLES SHALL BE CLEANED, TOUCH-UP PAINTED AND RENDERED IN 'LIKE-NEW-CONDITION' BY THE CONTRACTOR.
- 7. ACOUSTICAL DUCTWORK LINING: (LOW PRESSURE DUCTWORK ONLY)
- a) PROVIDE ACOUSTICAL LINING BY CERTAIN-TEED, KNAUF, OWENS CORNING, OR MANVILLE TO ACHIEVE A MINIMUM INSULATORY VALUE OF R-6 (AS INSTALLED) FOR THE FOLLOWING DUCTWORK:
- 1) SUPPLY AND RETURN AIR DUCTWORK, INCLUDING PLENUMS, FOR MINIMUM OF 20 FEET FROM CONNECTION OF AIR HANDLING UNITS.
- 2) ALL LOW PRESSURE DUCTWORK DOWNSTREAM OF VARIABLE VOLUME, CONSTANT VOLUME BOXES, FAN BOXES, FAN COIL UNITS, AND HEAT PUMPS.
- 3) EXHAUST DUCTWORK, INCLUDING PLENUMS, FOR MINIMUM OF 20 FEET FROM AIR HANDLERS AND EXHAUST FANS.4) ALL TRANSFER AIR DUCTS
- 5) ALL OTHER DUCTWORK INDICATED AS LINED ON DRAWINGS.
- b) MATERIALS AND INSTALLATION SHALL MEET THE FOLLOWING STANDARDS, AS APPLICABLE:
- 1) NFPA-90A, UL723, NFPA-255; SMACNA DUCT LINER APPLICATIONS STANDARD; SMACNA MECHANICAL FASTENERS STANDARD; ADHESIVE AND SEALANT COUNCIL; ADHESIVES STANDARD FOR DUCT LINER ASC-A-7001A; ASTM E-84 FIRE HAZARD CLASSIFICATIONS OF 25 FLAME SPREAD, 50 SMOKE DEVELOPED, AND 50 FUEL CONTRIBUTED.
- 8. DUCTWORK INSULATION (EXTERNAL)
 - a) INSULATION SHALL BE CERTAIN-TEED, KNAUF, MANVILLE, OR OWENS CORNING. MATERIALS SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND SMACNA AND MUST BE NON-FERMALDEHYDE (FSK WRAP). INSULATE (EXISTING AND NEW) SUPPLY, FRESH AIR, AND RETURN DUCTS AND PLENUMS WITH A MINIMUM OF R-6 (AS INSTALLED) INSULATION WHEN LOCATED WITHIN UNCONDITIONED SPACES AND A MINIMUM OF R-8 (AS INSTALLED) INSULATION WHEN LOCATED OUTSIDE THE BUILDING ENVELOP. INSULATION SHALL BE FIBROUS GLASS DUCT WRAP, WITH FOIL-KRAFT FLAME RESISTANT VAPOR BARRIER. ASTM E-84 FIRE HAZARD RATINGS SHALL BE 25 FLAME SPREAD. 50 SMOKE DEVELOPED AND 50 FUEL CONTRIBUTED.
- b) INSULATE STANDING SEAMS IN DUCTWORK WITH THE SAME MATERIAL AND THICKNESS AS DUCT.

c) ACOUSTICALLY LINED DUCTWORK SHALL NOT BE INSULATED.

d) INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS AROUND ENTIRE PERIMETER OF DUCTS. DUCTS SUPPORTED BY METAL STRAPS SHALL HAVE INSULATION ENCOMPASSING STRAPS, WHERE STRAPS PENETRATE AT TOP OF DUCT TIGHTLY SEAL AROUND STRAP WITH INSULATING TAPE. DUCTS SUPPORTED BY TRAPEZE TYPE HANGERS UNDER DUCTS SHALL HAVE 6 LB. DENSITY RIGID INSULATION PROVIDED BETWEEN DUCT AND HANGER, INSULATION SHALL BE SAME THICKNESS AND VAPOR BARRIER AS SPECIFIED FOR SPECIFIC DUCT TYPE. RIGID INSULATION SECTION SHALL BE FULL WIDTH OF DUCT AND MINIMUM 12" LONG. TAPE AND SEAL ALL SEAMS WHERE RIGID INSULATION MEETS OTHER INSULATION.

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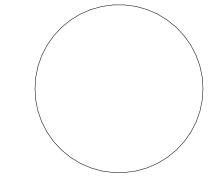
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SCALE 12" = 1'-0"

SPECIFICATIONS

DIVISION 23: HEATING, VENTILATING AND AIR CONDITIONING REQUIREMENTS

9. ENERGY RECOVERY UNITS:

a) PROVIDE ENERGY RECOVERY UNIT SUITABLE FOR OUTDOOR INSTALLATION AND WITH THE CAPACITIES AS INDICATED WITHIN THE EQUIPMENT SCHEDULES AND THE ARRANGEMENT AS ILLUSTRATED WITHIN THE FLOOR PLANS AS WELL AS ALL FEATURES AND ACCESSORIES NOTED WITHIN THE DRAWINGS.

b) CASING SHALL BE OF DOUBLE WALLED CONSTRUCTION WITH EXTERIOR AND INTERIOR CASING BEING CONSTRUCTED OF GALVANIZED STEEL WITH WATERPROOF INSULATION.

c) INSTALLATION: THE ENERGY RECOVERY UNIT SHALL BE ROOF MOUNTED WITH FACTORY SUPPLIED 18" (MINIMUM) ROOF CURB. UNIT SHALL BE ORIENTED WITH BOTTOM RETURN/SUPPLY AIR CONNECTIONS.

10. FAN COIL UNITS

a) PROVIDE FAN COIL UNITS (4-PIPE) IN THE CAPACITIES AND QUANTITIES AS INDICATED WITHIN THE PLANS AND EQUIPMENT SCHEDULES. FAN COILS SHALL BE MANUFACTURED BY EITHER: JCI, WILLIAMS, TITUS, YORK, TRANE. PRICE OR CARRIER.

b) DRAIN PANS: ALL FAN COIL UNITS SHALL BE PROVIDED WITH MANUFACTURER PROVIDED DRAIN PANS AND CONDENSATE DRAIN CONNECTION. ALL FAN COIL UNITS LOCATED ABOVE HARD CEILINGS, IN NON-ACCESS SPACES, OR WITHIN THE VICINITY OF ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH AN AUXILIARY (SECONDARY) DRAIN PAN WHICH SHALL BE FABRICATED BY THE CONTRACTOR. THE AUXILIARY PAN SHALL NOT BE LESS THAN 3 INCHES LARGER THAN THE UNIT OR THE COIL DIMENSIONS IN WIDTH AND LENGTH AND SHALL BE CONSTRUCTED OF CORROSION-RESISTANT MATERIAL.GALVANIZED SHEET STEEL PANS SHALL HAVE A MINIMUM THICKNESS OF NOT LESS THAN 0.0236 INCH (0.6010 MM) (NO. 24 GAGE). NONMETALLIC PANS SHALL HAVE A MINIMUM THICKNESS OF NOT LESS THAN 0.0625 INCH (1.6 MM). THE AUXILIARY PAN SHALL HAVE A MINIMUM HOLDING DEPTH OF 1-1/2 INCHES. THE PAN SHALL BE EQUIPPED WITH A WATER-LEVEL DETECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT OFF THE EQUIPMENT SERVED PRIOR TO OVERFLOW OF THE PAN. WATER LEVEL DETECTOR SHALL ISSUE AN ALARM TO THE BUILDING AUTOMATION SYSTEM.

c) PROVIDE VALVING AND FITTINGS AS SHOWN ON DETAILS.

d) PROVIDE ALL FAN COIL UNITS WITH FULLY MODULATING ECM MOTORS.

e) PROVIDE UNIT MOUNTED DISCONNECT SWITCH.

III. <u>HYDRONIC SYSTEMS:</u>

PIPING AND FITTINGS:

- a) ALL EXPOSED PIPING SHALL BE WRAPPED IN PVC JACKET AND MAINTAIN REQUIRED INSULATION VALUES. COLORS BY ARCHITECT
- b) PIPE MATERIALS AND FITTING MATERIALS SHALL BE AS INDICATED IN SCHEDULE OF PIPE AND FITTING MATERIALS. NOTE: THERE SHALL BE NO MECHANICAL COUPLED FITTINGS.
- c) PIPING 2-1/2 AND LARGER AND ALL DIRECT-BURIED PIPING SHALL BE WELDED STEEL. PIPING 2" AND SMALLER (EXCEPT DIRECT-BURIED PIPING) SHALL BE SCREWED STEEL OR COPPER, STEEL PIPING SHALL BE ASTM A53 OR A106, GRADE B, COPPER PIPING SHALL BE ASTM B88.

d) PRO-PRESS AND COPPER LOCK GLUE FITTINGS ARE NOT PERMITTED.

SCHEDULE OF PIPING AND FITTING MATERIALS

SERVICE	PIPE MATERIAL WEIGHT	JOINT TYPE/ STYLE	FITTING MATERIAL	PRESSURE RATING (PSIG, SWP OR WEIGHT)
CHILLED / HOT WATER	STEEL SCHEDULE 40 or TYPE 'L' COPPER	SCREWED IRON or 95/5 SOLDERED	MALLEABLE or WROUGHT COPPER	150 PSIG
CHILLED / HOT WATER	STEEL SCHEDULE 40	WELDED	STEEL	SCHEDULE 40
CONDENSER WATER	STEEL SCHEDULE 40 or TYPE 'L' COPPER	SCREWED IRON or 95/5 SOLDERED	MALLEABLE or WROUGHT COPPER	150 PSIG
CONDENSER WATER	STEEL SCHEDULE 40	WELDED	STEEL	SCHEDULE 40
HEATING HOT WATER	STEEL SCHEDULE 40 or TYPE 'L' COPPER	SCREWED IRON or 95/5 SOLDERED	MALLEABLE or WROUGHT COPPER	150 PSIG
HEATING HOT WATER	STEEL SCHEDULE 40	WELDED	STEEL	SCHEDULE 40
CLEAR WATER CONDENSATE DRAIN	TYPE 'L' COPPER	95/5 SOLDERED	WROUGHT COPPER	125 PSIG
STEAM (LP)	STEEL SCHEDULE 40	SCREWED	MALLEABLE	150 PSIG
STEAM (LP)	STEEL SCHEDULE 40	WELDED	STEEL	SCHEDULE 40
STEAM CONDENSATE	STEEL SCHEDULE 80	WELDED	STEEL	SCHEDULE 80

2. VALVES AND STRAINERS

a) VALVES SHALL HAVE NAME OF MANUFACTURER AND GUARANTEED WORKING PRESSURE CAST OR STAMPED ON BODIES. VALVES OF SIMILAR TYPE SHALL BE BY A SINGLE MANUFACTURER. VALVES SHALL BE AS MANUFACTURED BY APOLLO, CRANE, HAMMOND, JENKINS, STOCKHOLM OR MILWAUKEE.

b) FOR WATER SERVICE, STRAINERS SHALL BE FULL SIZE OF EXTERNAL PIPE SIZE AND HAVE A MAXIMUM CLEAN PRESSURE DROP OF ONE PSI (FOR STEAM CONDENSATE 1/4 PSI). STRAINERS SHALL BE PER MANUFACTURER'S TABLE BY SARCO,

WATTS, OR ARMSTRONG. INSTALL STRAINERS AT LOCATIONS THAT WILL ALLOW REMOVAL OF SCREENS FOR CLEANING.

c) VALVE FOR WATER SERVICES SHALL BE AS SHOWN ON THE FOLLOWING TABLE(S):

GLYCOL AND HOT WATER SERVICE

MAXIMUM 250°F AND 175 PSIG (1/2" THRU 12"); 125 PSIG (14" THRU 24")

SPECIALTY	<u>APPLICATION</u>	<u>TYPE</u>	SIZEON (INCIPIES	NE <u>BODY/SEAT;</u>) BODY/TRIM		IMUM RATING DTES 1 & 2)
BALL	ISOLATION (WITH LOCKING HANDLE)	FULL PORT, 3-PIECE	1" TO 2"	BRONZE / TEFLON	SWEAT (NOTE 1)	400 PSIG WOG
VALVE	AND MODULATION	FULL PORT, 3-PIECE	1/2 TO 2"	BRONZE / TEFLON	THREADED	400 PSIG WOG
GATE VALVE	NOT USED					
GLOBE VALVE	ATC MODULATION	CONTROL VALVE	½" TO 6"	BRONZE / METAL	THREADED	400 PSIG WOG
BUTTERFLY VALVE	ISOLATION AND MODULATION	GENERAL SERVICE	2- 1 " - 12"	DUCTILE IRON / EPDM	THREADED LUG	200 PSIG CWP; 200 PSIG BI-DIRECTIONAL SHUTOFI 200 PSIG DEAD END SERVICE
			14" - 24"	DUCTILE IRON / EPDM	THREADED LUG	150 PSIG CWP; 150 PSIG BI-DIRECTIONAL SHUTOFI 150 PSIG DEAD END SERVICE
PLUG VALVE	MANUAL BALANCING	NON - LUBRICATED	3" TO 12"	STEEL / IRON	FLANGED	CLASS 125
CHECK VALVE	PUMPS	SILENT	1" TO 2"	BRONZE / BRONZE	THREADED	200 PSIG WOG
		SILENT GLOBE	2-1" TO 24"	IRON / BRONZE	FLANGED	CLASS 125
	PIPING	Y-PATTERN SWING	1/2 TO 2"	BRONZE / BRONZE	THREADED	200 PSIG WOG
			2-1" TO 24"	IRON / BRONZE	FLANGED	CLASS 125
STRAINER	CONTROL VALVES AND FLOW METERS	Y-TYPE	1/2" TO 2"	BRONZE / STAINLESS (1/16" DIAMETER)	THREADED	200 PSIG WOG
			2-1" TO 4"	IRON / STAINLESS (1/16" DIAMETER)	FLANGED	CLASS 125
			5" TO 24"	IRON / STAINLESS (1/8" DIAMETER)	FLANGED	CLASS 125
	PUMP SUCTION	Y-TYPE	1/2" TO 2"	BRONZE / STAINLESS (1/16" DIAMETER)	THREADED	200 PSIG WOG
			2-1" TO 4"	IRON / STAINLESS (3/16" DIAMETER)	FLANGED	CLASS 125
			5" TO 24"	IRON / STAINLESS (1/4" DIAMETER)	FLANGED	CLASS 125
		ANGLE SUCTION DIFFUSER END SUCTION PUMPS	2" TO 12"	IRON / STAINLESS (3/16" DIAMETER)	FLANGED	CLASS 125

1) THESE ARE MINIMUM RATINGS FOR ASTM A126, CLASS B AND ASTM B-61 AND 62. FOR HIGHER PRESSURES AND TEMPERATURES, ADJUST THESE VALUES TO INCLUDE STATIC HEAD PLUS 1.1 TIMES PRESSURE RELIEF VALVE SETTING PLUS PUMP SHUTOFF HEAD PRESSURE. FOR ACTUAL MAXIMUM ALLOWABLE VALVE AND PRESSURE RATINGS, REFER TO "PRESSURE-TEMPEATURE RATINGS -NON SHOCK" TABLES AND "ADJUSTED PRESSURE RATINGS" FOR COPPER TUBE, SOLDERED END VALVES AND STRAINERS.

2) SWP = STEAM WORKING PRESSURE CWP = COLD WATER WORKING PRESSURE WSP = WORKING STEAM PRESSURE WOG = WATER, OIL OR GAS

3) USE 1/8" DIAMETER FOR PLATE HEAT EXCHANGER APPLICATION.

3. AUTOMATIC FLOW CONTROL VALVES

a) PROVIDE AUTOMATIC PRESSURE COMPENSATING FLOW CONTROL VALVES BY GRISWOLD OR AUTOFLOW WHERE INDICATED ON THE DRAWINGS. VALVES SHALL BE FACTORY SET AND SHALL AUTOMATICALLY LIMIT THE RATE OF FLOW TO REQUIRED ENGINEERED CAPACITY WITHIN ±5% ACCURACY OVER AN OPERATING PRESSURE DIFFERENTIAL OF AT LEAST 14 TIMES THE MINIMUM REQUIRED FOR CONTROL. PROVIDE GAUGE KIT VALVE MANUFACTURER FOR USE BY BUILDING OPERATING

4. COMBINATION BALANCING AND SHUT-OFF VALVES:

a) PROVIDE CALIBRATED COMBINATION BALANCING SHUT-OFF VALVES. ACCEPTABLE MANUFACTURERS SHALL BE ARMSTRONG, BELL AND GOSSET, FLOWSET, OR TACO.

PIPING INSULATION

a. PIPE INSULATION SHALL BE FIBROUS GLASS INSULATION WITH FACTORY-APPLIED FIRE RETARDANT VAPOR BARRIER JACKET WITH MAXIMUM K FACTOR OF 0.23 AT 75°F MEAN TEMPERATURE: INSULATION SHALL BE BY OWNERS CORNING, CERTAIN-TEED, MANVILLE, OR KNAUF. ASTM E-84 FIRE HAZARD RATINGS SHALL BE 25 FLAME SPREAD. 50 SMOKE DEVELOPED AND 50 FUEL CONTRIBUTED. ALL OUTDOOR PIPING SHALL BE TWO (2) TIMES THE THICKNESS LISTED IN THE TABLE BELOW AND SHALL BE ADDITIONALLY COVERED WITH WEATHERPROOF ALUMINUM JACKET.

b. COOLING COIL CONDENSATE DRAIN PIPING FIBROUS GLASS INSULATION.

c. REFRIGERANT SUCTION LINES, REFRIGERANT HOT GAS BYPASS LINES, OUTDOOR COOLING TOWER DRAIN PIPING, AND OUTDOOR REFRIGERANT LIQUID LINES SHALL BE INSULATED WITH 3/4" THICK RIGID CLOSED CELL FOAM INSULATION, ARMSTRONG RIGID ARMAFLEX, MANVILLE, OWNES CORNING, OR HALSTEAD/NOMACO (INSULTUBE), EXCEPT IN COMPUTER ROOM PLENA AND RETURN AIR PLENUM PIPING SHALL BE INSULATED WITH 3/4" FIBERGLASS PIPE INSULATION. ALL OUTDOOR PIPING SHALL BE ADDITIONALLY COVERED WITH WEATHERPROOF ALUMINUM JACKET.

SCHEDULE OF PIPE INSULATION THICKNESS:

ELUID CEDVICE	PI	PIPE DIAMETER (INCHES)						
FLUID SERVICE	PIPE SIZE UNDER 1-1/2 INCH	PIPE SIZE 1-1/2 INCH AND OVER						
HEATING HOT WATER	1.5 THICK	2.0 THICK						
CHILLED WATER, BRINE, OR GLYCOL	1.5 THICK	1.5 THICK						
COOLING COIL CONDENSATE	0.75 THICK	0.75 THICK						
CONDENSER WATER	N/a	N/a						
STEAM AND STEAM CONDENSATE	1.5 THICK	3.0 THICK						

6. EQUIPMENT INSULATION

a) INSULATION SHALL BE CERTAIN-TEED, KNAUF, MANVILLE, OR OWENS CORNING AND SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

b) INSULATE THE FOLLOWING EQUIPMENT:

1) HEAT EXCHANGERS 2) EXPANSION TANKS 3) AIR SEPARATORS 4) CONDENSATE DRAIN PANS 5) DUCT-MOUNTED COILS 6) PUMPS

IV. <u>AUTOMATIC TEMPERATURE CONTROLS</u>

PROVIDE COMPLETE SYSTEM OF AUTOMATIC TEMPERATURE CONTROLS BY BUILDING CONTROL MANUFACTURER. CONTROL SYSTEM SHALL BE CAPABLE OF PERFORMING ALL SEQUENCES OF OPERATION TO CONFORM WITH BUILDING STANDARDS. INDIVIDUAL CONTROL COMPONENTS MAY NOT BE SHOWN ON CONTRACT DOCUMENTS, BUT ATC CONTRACTOR SHALL PROVIDE ALL COMPONENTS AND CONTROL WIRING NECESSARY FOR A COMPLETE OPERABLE SYSTEM. ATC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SYSTEM COMPONENTS, WHETHER HE SUBCONTRACTS ELECTRICAL AND OTHER WORK OR NOT. ALL CONTROL VALVES SHALL BE ELECTRICALLY ACTUATED.

- ALL CONTROL WIRING SHALL COMPLY WITH THE REQUIREMENTS OF THE ELECTRICAL SECTION OF THESE CONTRACT
- 3. THERMOSTATS INSTALLED ON EXTERIOR WALLS SHALL BE PROVIDED WITH INSULATED BACK PLATES.
- 4. PNEUMATIC TUBING, IF PROVIDED, SHALL BE TYPE FR POLYETHYLENE. IF TUBING IS USED FOR OPERATING A COMPONENT OF A SMOKE CONTROL SYSTEM, IT SHALL BE ENCLOSED IN CONDUIT.
- 5. WIRING BETWEEN FIRE ALARM SYSTEM AND TEMPERATURE CONTROL SYSTEM, EXCEPT FOR DUCT MOUNTED SMOKE DETECTORS, SHALL BE BY ATC CONTRACTOR.
- 6. DDC/BUILDING AUTOMATION SYSTEM INTERFACE
- a) PROVIDE ALL NECESSARY COMPONENTS AND WIRING FOR INTERLOCK TO EXISTING DDC/BUILDING AUTOMATION SYSTEM. ALL COMPONENTS MUST BE COMPATIBLE WITH EXISTING OUTPUT DEVICES. PROVIDE HAND HELD OPERATOR'S TERMINALS FOR LOCAL OUTPUT OF SENSORS WHEN NO OUTPUT DEVICES EXIST.
- b) PROVIDE TO OWNER FULL OPERATING AND MAINTENANCE INSTRUCTIONS FOR NEW AND/OR ALTERATION OF DDC
- c) ATC SHALL UPDATE BMS EQUIPMENT GRAPHICS PER BASE BUILDING ENGINEER STANDARDS AND REQUIREMENTS.

CROCKFORDS -**CATSKILLS**

Monticello. NY 12701

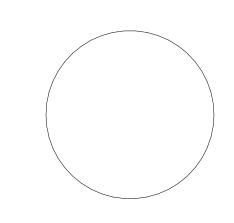
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BIDDING &



ISSUE 07/06/2022

DRAWN Author SCALE 12" = 1'-0"

REVISIONS

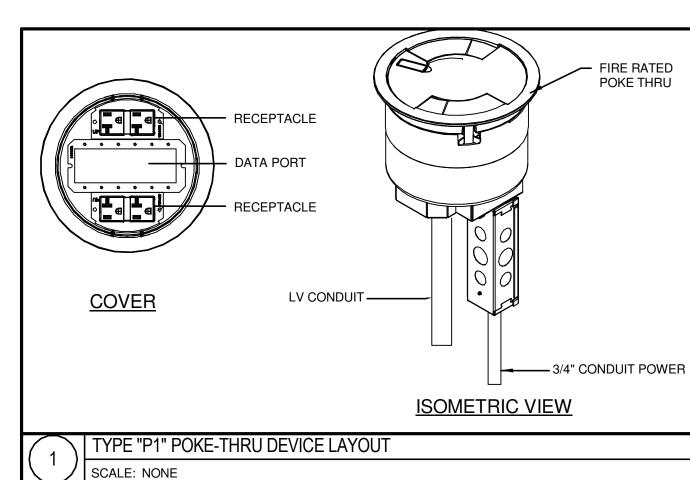
SPECIFICATIONS

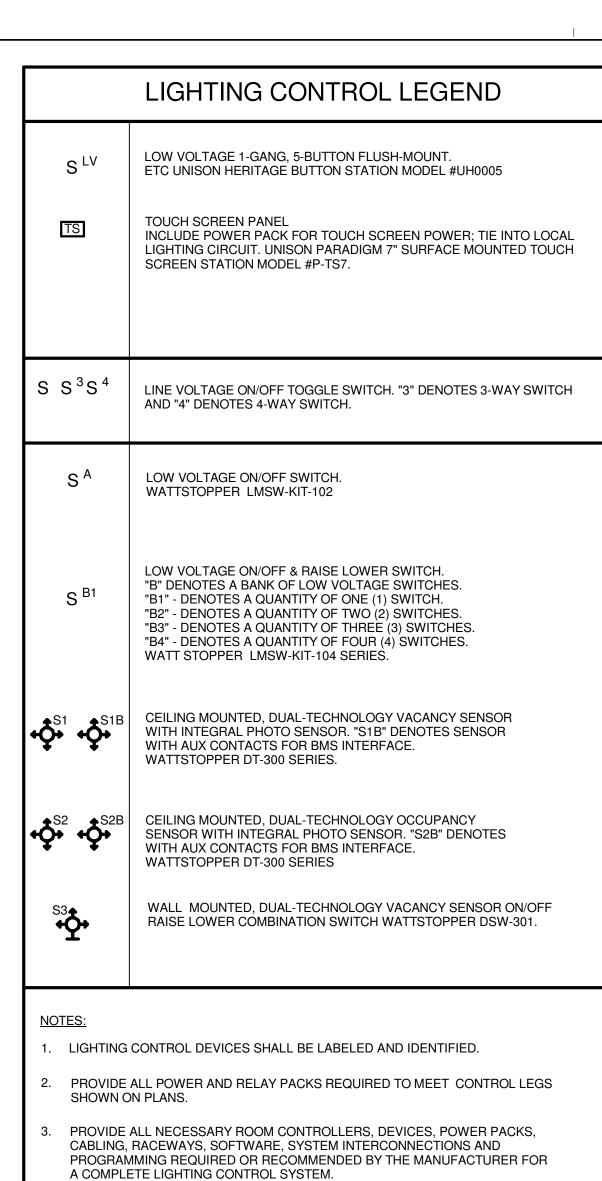
WIRING DEVICES LEGEND 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE. "2" DENOTES CIRCUIT NUMBER. 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER. 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DOUBLE DUPLEX RECEPTACLE. 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DOUBLE DUPLEX RECEPTACLES MOUNTED ABOVE COUNTER. 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., ISOLATED GROUND DUPLEX RECEPTACLE. 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE EQUIPPED WITH INTEGRAL GROUND FAULT INTERRUPTER. 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE. "USB" DENOTES COMBINATION RECEPTACLE WITH INTEGRAL USB CHARGER. PROVIDE DEVICE BY HUBBELL MODEL# USB20ACS**WR (COLOR AS NOTED ON PLANS) OR EQUAL. 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE FLUSH FLOOR MOUNTED. 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE CEILING MOUNTED. KDS 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE CEILING MOUNTED. "KDS" DENOTES KITCHEN DISPLAY SCREEN. 125 VOLT. 2 POLE. 3 WIRE. 20 AMP., DUPLEX RECEPTACLE CEILING MOUNTED. "MB" DENOTES MENU BOARD. SPECIAL PURPOSE RECEPTACLE. REFER TO "SPECIAL PURPOSE RECEPTACLE SCHEDULE". SPECIAL PURPOSE RECEPTACLE, FLUSH MOUNTED. REFER TO "SPECIAL PURPOSE RECEPTACLES SCHEDULE". RECESSED WALL MOUNTED 120V,2 POLE, 20 AMP. DUPLEX RECEPTACLE. "TV" DENOTES POWER FOR TELEVISION. NOTES:

FLOOR BOX LEGEND FLUSH FLOOR POWER AT RECEPTION KIOSK AND POS. FLUSH NÉTWORK PORTS IN THE CENTER COMPARTMENT FOR USE BY LOW VOLTAGE CONTRACTOR. WIREMOLD #6ATCPNK OR EQUAL. PROVIDE (1) 3/4" CONDUIT FOR POWER FROM PANEL TO BOX. REFER TO ARCHITECTS DRAWINGS FOR LOCATIONS. REFER TO LOW INFORMATION. TWO (2) DUPLEX RECEPTACLES AND TWO (2) COMMUNICATION OUTLETS IN 3-GANG OUTLET BOX WITH LOW VOLTAGE DIVIDER. PROVIDE TWO (2) CATEGORY 6 CABLES TO DATA ROOM INDICATED. TWO (2) DUPLEX RECEPTACLES AND TWO (2) COMMUNICATION OUTLETS IN RECESSED FLOOR BOX WITH LOW VOLTAGE DIVIDER UNLESS OTHERWISE NOTED ON DRAWINGS. PROVIDE TWO (2) CATEGORY 6 CABLES TO DATA ROOM INDICATED. ONE (1) DUPLEX RECEPTACLE AND TWO (2) COMMUNICATION OUTLETS IN 2-GANG OUTLET BOX WITH LOW VOLTAGE DIVIDER.

ALL RECEPTACLES SHALL BE INSTALLED WITH GROUND PRONG IN THE DOWN POSITION.

2. ALL RECEPTACLES SHALL BE SIDE WIRED.





DENOTES FLEXIBLE LIQUID TIGHT CONNECTION AND CONDUCTORS BY THE ELECTRICAL CONTRACTOR TO EQUIPMENT BY OTHERS. LOW VOLTAGE CONDUIT SYSTEMS JUNCTION AND/OR PULL BOX -DENOTES TO CONNECT TO AUTOMATIC DOOR. -DENOTES CONNECTION TO ELECTRIC WATER COOLER. PROVIDE GFCI PROTECTION; HUBBELL "GFBF20ILA" OR EQUAL IJ SEC SN -DENOTES TO CONNECT TO SECURITY PANELS. TELEPHONE AND DATA SYSTEMS AUDIO / VISUAL SYSTEM SECURITY CONDUIT SYSTEMS MP DISCONNECT FURNISHED BY SIGN VENDOR -DENOTES TO CONNECT TO TRAP PRIMER. SYSTEM ARE TO BE INSTALLED AND NOTIFY ENGINEER IN WRITING OF - DENOTES CONNECTION TO MOTORIZED PARTITION CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF WORK -DENOTES CONNECTION TO SOAP DISPENSER SECTIONS FOR RACEWAY SIZES, ROUTING AND LOCATION OF DEVICES. -DENOTES CONNECTION TO PAPER TOWEL DISPENSER RELATED DISCIPLINES TO REVIEW INSTALLATION OF SYSTEM. THIS MEETING IS TO HELP RELATED TRADES UNDERSTAND THE REQUIREMENTS OF THE -DENOTES CONNECTION TO FLUSH VALVE TRANSFORMER INSTALLATION. -DENOTES CONNECTION TO HEAT TRACE. NEEDED TO PROPERLY LOCATE THE DEVICE. KEEP FULLY INFORMED ABOUT SHAPE SIZE AND POSITION OF OPENINGS -DENOTES CONNECTION TO TOWEL DISPENSER. REQUIRED FOR MATERIAL AND EQUIPMENT. -DENOTES CONNECTION TO MOTORIZED SHADES. SCHEDULE WHEN THE CONDUIT SYSTEM CAN BE UTILIZED FOR CABLE ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, GUIDELINES AND THE APPLICABLE REQUIREMENTS OF THE NEC, LOCAL SCHEDULE. DESIGNATION "M44N-2" DENOTES BRANCH CIRCUIT CODES, THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION'S "STANDARD OF INSTALLATION" AND IN ACCORDANCE WITH RECOGNIZED THERE ARE SEVERAL UNITS WITH THE SAME EQUIPMENT M44N-2 INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE THE INTENDED DESIGNATION. FUNCTION.

LIGHTING EQUIPMENT LEGEND (REFER TO LIGHTING FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION) "A" INDICATES FIXTURE TYPE "13" INDICATES CIRCUIT NUMBER "a" INDICATES SWITCH CONTROL **ОО** "EM" INDICATES EMERGENCY DESIGNATION LIGHTING FIXTURES INDICATED WITH SHADING DENOTES CIRCUITED TO NORMAL/EMERGENCY SUPPLY. ILLUMINATED "EXIT" SIGN LIGHTING FIXTURE. CEILING MOUNTED OR WALL MOUNTED PROVIDE DIRECTIONAL ARROWS AS INDICATED ON FLOOR PLANS. DOT " . " DENOTES SIDE WITH FACE.

GENERAL DEMOLITION NOTES

- THIS EXISTING FLOOR PLAN HAS BEEN DEVELOPED UTILIZING EXISTING DOCUMENTS AND READILY OBSERVABLE SITE CONDITIONS. ALL DEVICES, RECEPTACLES, LIGHTS, CONDUITS. JUNCTION BOXES, ELECTRICAL EQUIPMENT, EQUIPMENT SIZES, ETC. SHOWN ARE FOR REFERENCE ONLY AND MAY NOT INDICATE CORRECT IDENTIFICATION, AND SIZE; AND TOTAL QUANTITIES OF ITEMS SCHEDULED FOR DEMOLITION. VISIT SITE AND FIELD VERIFY THE NUMBER OF DEVICES WITHIN THE CONSTRUCTION PHASE AREA PRIOR TO THE BID AND REMOVAL. THE DRAWINGS DO NOT LIMIT THE AMOUNT OF DEMOLITION WORK REQUIRED THE ELECTRICAL CONTRACTOR MUST PERFORM THE DEMOLITION WORK AS INDICATED ON THE DEMOLITION DRAWINGS AND AS REQUIRED FOR THE NEW WORK.
- DEMOLITION WORK MUST FOLLOW THE CONSTRUCTION PHASING SEQUENCE AND MUST BE COORDINATED WITH THE GENERAL AND MECHANICAL DRAWINGS AND CONTRACTORS.
- REMOVE ALL DEVICES, EQUIPMENT, MATERIAL, AND CIRCUITS IN THEIR ENTIRETY, WHICH INTERFERE WITH THE NEW CONSTRUCTION AS DIRECTED BY THE CONSTRUCTION MANAGER. NO ELECTRICAL OR ELECTRONIC CIRCUIT TRACERS WERE USED TO VERIFY CONFIGURATION OF SYSTEM. ALWAYS FIELD VERIFY SYSTEM PRIOR TO STARTING WORK AT SITE. THE TERM ASSOCIATED CIRCUITRY SHALL MEAN CONDUIT, FITTINGS, SUPPORTS JUNCTION BOXES, CONDUCTORS, ETC. BACK TO THE RESPECTIVE PANELBOARD (POWER SOURCE); OR TO THE LAST JUNCTION BOX OR DEVICE IF THE REMAINING PORTION OF THE CIRCUIT SERVES EXISTING EQUIPMENT OR AREAS WHICH SHALL REMAIN.
- MAINTAIN AND RESTORE, IF INTERRUPTED BY REMOVALS OR IN PATH OF NEW CONSTRUCTION, ALL CIRCUITS, CONDUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS (SHOWN OR NOT SHOWN). VERIFY CIRCUITS, DEVICES, AND EQUIPMENT SCHEDULED FOR REMOVAL TO ASSURE THAT THEIR REMOVAL WILL NOT ADVERSELY AFFECT ADJACENT AREAS NOT BEING RENOVATED.
- ELECTRICAL SUBCONTRACTOR SHALL MAINTAIN POWER TO ALL CIRCUITS ADJACENT TO THE CONSTRUCTION AREA. THIS SHALL INCLUDE ANY CIRCUITS PASSING THROUGH THE CONSTRUCTION AREA OR CIRCUITS BEING POWERED FROM POWER PANELS OR BUS DUCTS WITHIN THE CONSTRUCTION AREA FIXTEND AND RELOCATE THESE CIRCUITS AS REQUIRED TO MAINTAIN SERVICE AND TO AVOID INTERFERENCE WITH THE NEW WORK. SUBCONTRACTOR SHALL NOTIFY REPRESENTATIVE FROM CONSTRUCTION MANAGER SHOULD IT BE NECESSARY TO INTERRUPT POWER TO AREAS ADJACENT TO THIS CONSTRUCTION AREA.
- ELECTRICAL SUBCONTRACTOR SHALL VERIFY ALL LIGHTING CIRCUITS WITHIN THE CONSTRUCTION AREA BEFORE DISCONNECTING POWER. CONTRACTOR SHALL PROVIDE NECESSARY WIRING TO MAINTAIN LIGHTING IN AREAS ADJACENT TO THIS CONSTRUCTION AREA WHICH WOULD BE AFFECTED BY THIS DEMOLITION WORK.
- IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADE'S WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, AFTER COMPLETION OF OTHER TRADE'S WORK IN THAT AREA, IN ACCORDANCE WITH THE PLANS AND/OR AS
- ALL EXISTING CONDUITS STUBBED THROUGH FLOOR SERVING ITEMS TO BE REMOVED AND NOT SHOWN OR NOT REQUIRED TO BE REUSED, SHALL BE CUT OFF FLUSH WITH SLAB LEVEL WITH CONCRETE. EXISTING FLUSH OUTLET BOXES MAY BE REUSED IF AT PROPER HEIGHT, LOCATION AND IN GOOD CONDITION. EXISTING CONCEALED RACEWAYS MAY BE REUSED IF IN GOOD CONDITION; RACEWAYS FOR CIRCUITRY SHOWN ON PLANS SHALL
- IN ALL EXISTING OR NEW AREAS SPECIFIED OR SHOWN TO BE PAINTED, THIS CONTRACTOR SHALL REMOVE ALL ELECTRICAL ITEMS AS REQUIRED INCLUDING BUT NOT LIMITED TO LIGHTING FIXTURES, DEVICE PLATES, DEVICES, ETC., REINSTALLING SAME AFTER COMPLETION OF PAINTING. ANY ITEM NOT REMOVED AND PAINTED OVER SHALL BE SUITABLY CLEANED OR REPLACED WITH NEW ITEM BY THIS CONTRACTOR.
- INVENTORY MAJOR ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
- EXISTING FIRE ALARM DEVICES SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. THE FIRE ALARM SYSTEM SHALL BE MAINTAINED AND OPERATIONAL
- DISCONNECT, MAKE SAFE AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN
- BRANCH CIRCUIT WIRING TO DEVICES IN AREAS OF DEMOLITION SHALL BE DISCONNECTED, MADE SAFE AND REMOVED COMPLETELY BACK TO THE PANELBOARD. THE CONTRACTOR SHALL NOT ABANDON BRANCH CIRCUIT WIRING IN EXISTING WALLS AND CEILINGS. MAINTAIN THE CONTINUITY OF BRANCH CIRCUIT WIRING TO ANY AREAS WHICH ARE TO REMAIN BUT ARE AFFECTED BY THE DEMOLITION OR NEW CONSTRUCTION.
- 14 THE CONTRACTOR SHALL CREATE A DETAILED SCHEDULE OF ITEMS REMOVED FROM THE EXISTING PANELBOARDS TO IDENTIFY ANY OUTSTANDING ITEMS THAT NEED TO BE MAINTAINED. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE SEQUENCE OF POWER INTERRUPTIONS TO THE ELECTRICAL SYSTEM WITH OWNER DO NOT INTERRUPT EXISTING SERVICES WITHOUT OWNER APPROVAL. CARRY A PRICE FOR INTERRUPTIONS TO OCCUR DURING NON PEAK HOURS SUCH AS WEEKENDS OR A TIME THAT WILL HAVE MINIMAL IMPACT TO THE BUILDING OPERATION.
- PANELBOARDS THAT ARE SHOWN 'EXISTING TO REMAIN': BRANCH CIRCUIT WIRING THAT IS TO BE DEMOLISHED SHALL BE REMOVED BACK TO THE PANELBOARD. THE ASSOCIATED CIRCUIT BREAKER SHALL BE TURNED OFF AND MARKED AS SPARE IN THE PANELBOARD DIRECTORY. DO NOT ABANDON BRANCH CIRCUIT WIRING ABOVE CEILINGS.

LOW VOLTAGE SYSTEM NOTES

- THIS CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SYSTEM OF BOXES AND PATHWAYS FOR THE TEL/DATA DEVICES SHOWN ON THE TEL/DATA DRAWINGS. REFER TO THE TEL/DATA DRAWINGS FOR DEVICE QUANTITY, PATHWAY SIZING, AND LOCATIONS. ALL CONDUITS SHALL BE PROVIDED WITH BUSHINGS ON BOTH ENDS AND A PULL STRING.
- THIS CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SYSTEM OF BOXES AND PATHWAYS FOR THE SECURITY DEVICES AS DESCRIBED IN THE SECURITY DRAWINGS. REFER TO THE SECURITY DRAWINGS FOR DEVICE QUANTITY, PATHWAY SIZING, AND LOCATIONS. ALL CONDUITS SHALL BE PROVIDED WITH BUSHINGS ON BOTH ENDS AND A PULL STRING.
- THIS CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SYSTEM OF BOXES AND PATHWAYS FOR THE A/V DEVICES AS DESCRIBED IN THE A/V DRAWINGS. REFER TO THE A/V DRAWINGS FOR DEVICE QUANTITY, PATHWAY SIZING, AND LOCATIONS. ALL CONDUITS

SHALL BE SHALL BE PROVIDED WITH BUSHINGS ON BOTH ENDS AND A PULL STRING.

INCLUDE FIRE STOPPING OF ALL PENETRATIONS ASSOCIATED WITH THE ABOVE SYSTEMS.

WIRING DEVICE COLORS

- UNLESS NOTED OTHERWISE ON THE PLANS, WIRING DEVICES IN FRONT OF HOUSE AREAS SHALL BE BLACK WITH BLACK FACEPLATE.
- WIRING DEVICES IN BACK OF HOUSE AREAS SHALL BE WHITE WITH STAINLESS STEEL

LEGEND NOTES

CROCKFORDS -

CATSKILLS

888 resorts World Di

SUITE 400

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THIS SHEET IS A GENERAL LIST OF SYMBOLS AND SHALL BE USED AS A REFERENCE TO DEFINE ITEMS INDICATED ON THE DRAWINGS. NOT ALL SYMBOLS ARE NECESSARILY USED ON THIS PROJECT.

CODE ANALYSIS SUMMARY

APPLICABLE BUILDING CODES:

BUILDING:

2020 NEW YORK STATE BUILDING CODES (2018 INTERNATIONAL BUILDING CODE WITH AMENDMENTS) (2018 INTERNATIONAL EXISTING BUILDING CODE WITH AMENDMENTS)

ELECTRICAL

2020 NEW YORK STATE ELECTRIC CODE (2017 NATIONAL ELECTRIC CODE)

ENERGY CONSERVATION:

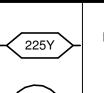
2016 ASHRAE 90.1)

2020 ENERGY CONSERVATION CODE OF NEW YORK STATE (2018 INTERNATIONAL ENERGY CONSERVATION CODE AND

SITE VISIT NOTES

- BEFORE SUBMITTING BID, VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY AN EXPERIENCED OBSERVER.
- BEFORE STARTING WORK IN A PARTICULAR AREA OF THE PROJECT VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED INCLUDING PREPARATORY WORK DONE UNDER OTHER SECTIONS OR CONTRACTS OR BY OWNER. REPORT CONDITIONS THAT MIGHT AFFECT WORK ADVERSELY IN WRITING THROUGH CONTRACTOR TO ARCHITECT. DO NOT PROCEED WITH WORK UNTIL DEFECTS HAVE BEEN CORRECTED AND CONDITIONS ARE SATISFACTORY. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS AND PREPARATORY WORK.

KEY LEGEND



E401

FEEDER SIZE TAG SYMBOL. REFER TO "LEGEND OF FEEDER SIZES".

DETAIL CALL-OUT. DENOTES DETAIL "1" ON DRAWING "E-401". SECTION DETAIL.

"E401" DENOTES SHEET 1" DENOTES DETAIL NUMBER

ELEVATION CALL-OUT. DENOTES ELEVATION "1" ON DRAWING "E-401". SECTION DETAIL. "E401" DENOTES SHEET 1" DENOTES ELEVATION NUMBER

EXISTING EQUIPMENT LEGEND

SYMBOLS OUT OF FUNCTION AND DASHED DENOTES EXISTING TO BE REMOVED.

SYMBOLS OUT OF FUNCTION DENOTES EXISTING

"XN" ADJACENT TO EQUIPMENT DENOTES EXISTING EQUIPMENT TO BE REMOVED AND REPLACED WITH NEW.

RELOCATED AS SHOWN. CUT BACK AND/OR EXTEND EXISTING

"XM" ADJACENT TO EQUIPMENT DENOTES EXISTING EQUIPMENT

"XR" ADJACENT TO EQUIPMENT DENOTES EXISTING TO BE

BRANCH CIRCUIT WIRING AND CONDUIT AS REQUIRED SO AS TO PROVIDE A COMPLETE OPERATIONAL INSTALLATION.

> "XD" ADJACENT TO EQUIPMENT DENOTES EXISTING TO BE REMOVED. CUT BACK AND MAKE SAFE ALL ASSOCIATED BRANCH

CIRCUIT WIRING CONDUIT BACK TO POWER SOURCE AND LABEL BREAKER IN PANELBOARD AS SPARE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CIRCUITRY TO DEVICES UNAFFECTED BY DEMOLITION.

"XL" ADJACENT TO EQUIPMENT DENOTES RELOCATED EXISTING

AT NEW LOCATION

"XS" ADJACENT TO EQUIPMENT DENOTES EXISTING TO BE REMOVED, STORED, CLEANED AND REINSTALLED IN EXISTING LOCATION.

LEGEND AND GENERAL NOTES

OVERLOAD PROTECTION. "P" DENOTES EQUIPPED WITH PILOT LIGHT, PROVIDED BY ELECTRICAL CONTRACTOR A COMPLETE LIGHTING CONTROL SYSTEM. ENCLOSED CIRCUIT BREAKER "200" DENOTES AMPERAGE PROVIDE UL924 LISTED EMERGENCY BYPASS RELAYS/MODULES FOR CONTROLLED EMERGENCY LIGHTING CIRCUITS TO RAISE CONTROLLED CP CONTROL PANEL FOR PACKAGED EQUIPMENT (P.O.S.) EMERGENCY LIGHTS TO FULL BRIGHTNESS DURING A POWER FAILURE. MOUNTED RECESSED FIRE RATED POKE-THRU DEVICE WITH HINGED SERVICE TOP WITH NICKEL FINISH. UNIT SHALL BE PRE-WIRED WITH (2) 20 AMP DUPLEX RECEPTACLES IN THE SIDE COMPARTMENTS PLUS PROVIDE ALL CONDUIT WIREWAYS, JUNCTION BOXES, PULL BOXES, WORK BOXES, CABLE TRAY, CIRCUIT BREAKERS AND POWER WIRING FOR LOW VOLTAGE SYSTEMS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN. INCLUDING AS NECESSARY FOR THE PROPER AND COMPLETE PERFORMANCE OF THE WORK. LOW VOLTAGE SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO: VOLTAGE DRAWINGS FOR CONDUIT SIZE, QUANTITY AND DESTINATION **EXAMINATION:** a. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH THE LOW VOLTAGE b. EXAMINE LOW VOLTAGE SYSTEM DOCUMENTS PROVIDED UNDER OTHER COORDINATION: a. PROVIDE FOR A PRE-CONSTRUCTION MEETING WITH REPRESENTATIVES OF PROVIDE TWO (2) CATEGORY 6 CABLES TO DATA ROOM INDICATED. b. OBTAIN FINAL ROUGHING DIMENSIONS AND OTHER INFORMATION AS ONE (1) DUPLEX RECEPTACLES AND ONE (1) COMMUNICATION FB4 OUTLET IN 3-GANG OUTLET BOX WITH LOW VOLTAGE DIVIDER. PROVIDE ONE (1) CATEGORY 6 CABLES TO DATA ROOM INDICATED. d. PROVIDE FOR COORDINATION MEETINGS WITH THE CABLE INSTALLER TO a. INSTALL RACEWAYS, BOXES AND CABLE TRAY WHERE INDICATED, IN b. REFER TO THE LATEST EDITION OF THE EIA/TIA STANDARDS FOR ADDITIONAL INSTALLATION REQUIREMENTS. . BOXES SHALL BE SET FLUSH WITH FINISHED WALL SURFACE. PROVIDE PLASTER REDUCER RINGS AS REQUIRED. USE GANGED BOXES FOR OUTLETS HAVING THREE OR MORE CONDUITS ENTERING. d. BACKBONE AND MAJOR RACEWAY GROUPINGS (MULTIPLE 4" OR 5" CONDUITS) SHALL HAVE PULL BOXES SPACED NOT GREATER THAN 100

FEET APART AND IN RUNS WITH MORE THAN TWO RIGHT ANGLE BENDS.

e. PROVIDE NYLON PULL-IN WIRE IN CONDUITS FOR USE BY CABLE

PROVIDE POWER REQUIREMENTS SUCH AS DUPLEX OUTLETS AND

PROVIDE LABEL ON PULL AND JUNCTION BOXES FOR ALL SYSTEMS.

2) PROVIDE 4" CONDUIT SLEEVES THROUGH RATED WALLS.

k. PROVIDE A DOUBLE GANG OUTLET BOX AND SINGLE GANG PLASTER RING

m. CONDUITS FEEDING DATA/TELECOM LOCATIONS MUST BE 1" AND MUST BE BONDED TO CABLE TRY IN ADDITION TO THE BUSHING AND PULL

n. ALL CONDUCTIVE MATERIALS INCLUDING CONDUIT. WALL BOXES, CABLE

TELECOMMUNICATION AT FLOOR BOXES AND POKE THRU'S ELECTRICAL CONTRACTOR SHALL PROVIDE A 1" CONDUIT WITH PULL STRING TO

FOR TELECOMMUNICATION. WHEN MOUNTING THE OUTLET BOX IN A STEEL

MINIMUM SIZE BOX SHALL BE 4-11/16" SQUARE, 2-1/8" DEEP WITH SINGLE OR

TRAY, SLEEVES, ETC MUST BE BONDED TOGETHER TO ENSURE A PROPER GROUNDING PATH IN ACCORDANCE WITH NEC ARTICLES 250.92 AND 392.6.

a. GENERALLY RACEWAYS SHALL BE EMT AND RUN CONCEALED IN WALLS AND ABOVE CEILINGS. EMT SHALL BE USED IN CEILING AIR PLENUM AND AS

b. RACEWAY FOR WALL BOXES SHALL BE INSTALLED IN CONDUIT TO AUDIO

RACEWAYS FOR FLOOR BOXES SHALL BE INSTALLED IN CONDUIT TO TO

d. CONDUIT RUNS SHALL BE AS INDICATED ON DRAWINGS BUT NO SMALLER

THAN 1". PROVIDE INSULATED GROUND BUSHING AT END OF EACH CONDUIT

WHERE TELECOM DRAWINGS PROVIDES FUTURE PROVISIONS FOR

CONDUIT AND CABLE TRAY FOR TELECOMMUNICATIONS WIRING SHALL BE

1) BOND ALL EMPTY CONDUITS TO THE CABLE TRAY SYSTEM WITH A

GROUND TERMINAL CONNECTIONS, AS SHOWN ON DRAWINGS.

INSTALLED TO MAINTAIN A MINIMUM OF 5" SEPARATION FROM

FLUORESCENT LIGHTING FIXTURES.

STUDDED WALL, USE A BACK BRACE.

DOUBLE GANG PLASTER RING AS APPLICABLE.

STRING. A BONDABLE BUSHING MAY BE USED.

VISUAL ROOM OR TELECOMMUNICATIONS CLOSET.

AUDIO VISUAL ROOM OR TELECOMMUNICATIONS CLOSET.

i. CABLE TRAY:

#12 AWG COPPER

APPLICATION:

TEL/DATA ROOM.

SHOWN ON DRAWINGS.

INSTALLER. PULL WIRE SHALL BE LABELED AT BOTH ENDS.

-DENOTES CONNECTION TO SIGNAGE. LOCAL DISCONNECT REQUIRED -DENOTES CONNECTION TO AUTO-FAUCET OR AUTOMATIC FLUSH PLUMBING AND MECHANICAL EQUIPMENT DESIGNATION. REFER TO DESIGNATION FOR EQUIPMENT SUCH AS UNIT HEATERS, WHERE

CIRCUITRY, RACEWAYS AND FEEDERS LEGEND

LP2A-1,3,5

L2PA-2

60A-3P*

T3K

HOMERUN TO PANEL "LP2A", CIRCUIT #1,3,5 VIA 20A-1P CIRCUIT

BREAKERS. EACH ARROW HEAD INDICATES TWO (2) #12 AWG CU

GROUNDING CONDUCTORS AND ISOLATED GROUND CONDUCTORS

CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED. REFER TO THE

GENERAL NOTES ON THIS DRAWING FOR ADDITIONAL INFORMATION.

"BRANCH CIRCUIT SCHEDULE" NOTES AND CIRCUIT LENGTH TABLE

MINIMUM) PHASE AND NEUTRAL CONDUCTORS. EQUIPMENT

ARE NOT INDICATED. PROVIDE GROUNDING CONDUCTORS IN

ACCORDANCE WITH SPECIFICATIONS AND N.E.C. MINIMUM SIZE

FOR WIRE SIZE INCREASES DUE TO VOLTAGE DROP, REFER TO

HOMERUN TO PANEL "L2PA" CIRCUIT #2 VIA 60A-3P CIRCUIT

BREAKER, REFER TO "BRANCH CIRCUITS SCHEDULE" FOR

CONDUCTOR QUANTITIES AND CONDUIT SIZES (NOTE THAT:

EQUIPMENT LEGEND

DRY TYPE TRANSFORMER. "T3" DENOTES TYPE. REFER

DESCRIPTIONS. AN ASTERISK "*" DENOTES TRAPEZE

MOUNTING DETAIL" FOR ADDITIONAL INFORMATION.

DRY TYPE TRANSFORMER. "T3K" DENOTES K-RATED

TYPE TRANSFORMER. REFER TO "K-RATED DRY TYPE

TRANSFORMER SCHEDULE" FOR DESCRIPTIONS. AN

ASTERISK "*" DENOTES TRAPEZE MOUNTED, REFER TO

"DRY-TYPE TRANSFORMER MOUNTING DETAIL" FOR

MOTOR. NUMERAL INDICATES HORSEPOWER RATING

MANUAL MOTOR STARTER COMPLETE WITH THERMAL

TO "DRY TYPE TRANSFORMER SCHEDULE" FOR

MOUNTED, REFER TO "DRY-TYPE TRANSFORMER

CIRCUITRY TURNING UP

CIRCUITRY TURNING DOWN

208Y/120 VOLT, 3Φ, 4 WIRE PANEL

480Y/277 VOLT. 3Φ 4 WIRE PANEL

ADDITIONAL INFORMATION.

"MS" = MOTORIZED SHADE

"MC" = MOTORIZED CURTAIN

DISCONNECT SWITCH (UNFUSED)

DISCONNECT SWITCH (FUSED)

ASTERISK "*" INDICATES NEUTRAL CONDUCTOR REQUIRED IN

CIRCUIT, AS INDICATED IN THE "BRANCH CIRCUIT SCHEDULE".)

LOW VOLTAGE CONDUIT SYSTEMS

1. PROVIDE ALL CONDUIT WIREWAYS, JUNCTION BOXES, PULL BOXES, WORK BOXES, CABLE TRAY, CIRCUIT BREAKERS AND POWER WIRING FOR LOW VOLTAGE SYSTEMS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN, INCLUDING AS NECESSARY FOR THE PROPER AND COMPLETE PERFORMANCE OF THE WORK. LOW VOLTAGE SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO:

- a. TELEPHONE AND DATA SYSTEMS
- b. AUDIO / VISUAL SYSTEMc. SECURITY CONDUIT SYSTEMS

2. EXAMINATION:

- a. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH THE LOW VOLTAGE SYSTEM ARE TO BE INSTALLED AND NOTIFY ENGINEER IN WRITING OF CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF WORK.
- b. EXAMINE LOW VOLTAGE SYSTEM DOCUMENTS PROVIDED UNDER OTHER SECTIONS FOR RACEWAY SIZES, ROUTING AND LOCATION OF DEVICES.

COORDINATION:

- PROVIDE FOR A PRE-CONSTRUCTION MEETING WITH REPRESENTATIVES OF RELATED
 DISCIPLINES TO REVIEW INSTALLATION OF SYSTEM. THIS MEETING IS TO HELP RELATED
 TRADES UNDERSTAND THE REQUIREMENTS OF THE INSTALLATION.
- b. OBTAIN FINAL ROUGHING DIMENSIONS AND OTHER INFORMATION AS NEEDED TO PROPERLY LOCATE THE DEVICE.
- c. KEEP FULLY INFORMED ABOUT SHAPE SIZE AND POSITION OF OPENINGS REQUIRED FOR MATERIAL AND EQUIPMENT.
- d. PROVIDE FOR COORDINATION MEETINGS WITH THE CABLE INSTALLER TO SCHEDULE WHEN THE CONDUIT SYSTEM CAN BE UTILIZED FOR CABLE PULLING.

4. INSTALLATION:

- a. INSTALL RACEWAYS, BOXES AND CABLE TRAY WHERE INDICATED, IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, GUIDELINES AND THE APPLICABLE REQUIREMENTS OF THE NEC, LOCAL CODES, THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION'S "STANDARD OF INSTALLATION" AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE THE INTENDED FUNCTION.
- REFER TO THE LATEST EDITION OF THE EIA/TIA STANDARDS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
- c. BOXES SHALL BE SET FLUSH WITH FINISHED WALL SURFACE. PROVIDE PLASTER REDUCER RINGS AS REQUIRED. USE GANGED BOXES FOR OUTLETS HAVING THREE OR
- d. BACKBONE AND MAJOR RACEWAY GROUPINGS (MULTIPLE 4" OR 5" CONDUITS) SHALL HAVE PULL BOXES SPACED NOT GREATER THAN 100 FEET APART AND IN RUNS WITH MORE THAN TWO RIGHT ANGLE BENDS.
- e. PROVIDE NYLON PULL-IN WIRE IN CONDUITS FOR USE BY CABLE INSTALLER. PULL WIRE SHALL BE LABELED AT BOTH ENDS.
- f. PROVIDE POWER REQUIREMENTS SUCH AS DUPLEX OUTLETS AND GROUND TERMINAL CONNECTIONS, AS SHOWN ON DRAWINGS.
- g. PROVIDE LABEL ON PULL AND JUNCTION BOXES FOR ALL SYSTEMS.
 h. CONDUIT AND CABLE TRAY FOR TELECOMMUNICATIONS WIRING SHALL BE INSTALLED TO MAINTAIN A MINIMUM OF 5" SEPARATION FROM FLUORESCENT LIGHTING FIXTURES.
- i. CABLE TRAY:
 1) BOND ALL EMPTY CONDUITS TO THE CABLE TRAY SYSTEM WITH A #12 AWG
 COPPER
- INSULATED CONDUCTOR.
 2) PROVIDE 4" CONDUIT SLEEVES THROUGH RATED WALLS.
- 2) PROVIDE 4" CONDUIT SLEEVES THROUGH RATED WALLS.
 j. WHERE TELECOM DRAWINGS PROVIDES FUTURE PROVISIONS FOR
- TELECOMMUNICATION AT FLOOR BOXES AND POKE THRU'S ELECTRICAL CONTRACTOR SHALL PROVIDE A 1" CONDUIT WITH PULL STRING TO TEL/DATA ROOM.

 k. PROVIDE A DOUBLE GANG OUTLET BOX AND SINGLE GANG PLASTER RING FOR TELECOMMUNICATION. WHEN MOUNTING THE OUTLET BOX IN A STEEL STUDDED WALL,
- USE A BACK BRACE.

 I. MINIMUM SIZE BOX SHALL BE 4-11/16" SQUARE, 2-1/8" DEEP WITH SINGLE OR DOUBLE
- I. MINIMUM SIZE BOX SHALL BE 4-11/16" SQUARE, 2-1/8" DEEP WITH SINGLE OR DOUBLE GANG PLASTER RING AS APPLICABLE.

 ***CONDUITS FEEDING DATA/TELECOM LOCATIONS MUST BE 1" AND MUST BE BONDED TO
- m. CONDUITS FEEDING DATA/TELECOM LOCATIONS MUST BE 1" AND MUST BE BONDED TO CABLE TRY IN ADDITION TO THE BUSHING AND PULL STRING. A BONDABLE BUSHING MAY BE USED.
- n. ALL CONDUCTIVE MATERIALS INCLUDING CONDUIT, WALL BOXES, CABLE TRAY, SLEEVES, ETC MUST BE BONDED TOGETHER TO ENSURE A PROPER GROUNDING PATH IN ACCORDANCE WITH NEC ARTICLES 250.92 AND 392.6.

5. APPLICATION:

- a. GENERALLY RACEWAYS SHALL BE EMT AND RUN CONCEALED IN WALLS AND ABOVE CEILINGS. EMT SHALL BE USED IN CEILING AIR PLENUM AND AS SHOWN ON DRAWINGS.
- RACEWAY FOR WALL BOXES SHALL BE INSTALLED IN CONDUIT TO AUDIO VISUAL ROOM OR TELECOMMUNICATIONS CLOSET.
- c. RACEWAYS FOR FLOOR BOXES SHALL BE INSTALLED IN CONDUIT TO TO AUDIO VISUAL ROOM OR TELECOMMUNICATIONS CLOSET.

d. CONDUIT RUNS SHALL BE AS INDICATED ON DRAWINGS BUT NO SMALLER THAN 1".

PROVIDE INSULATED GROUND BUSHING AT END OF EACH CONDUIT RUN.

264400 PANELBOARDS

PART 1 - GENERAL

- 1. PROVIDE UL-LISTED SAFETY DEAD-FRONT POWER PANELBOARDS WHERE SHOWN ON DRAWINGS AND AS SCHEDULED. PANELBOARDS SHALL MEET OR EXCEED REQUIREMENTS OF NEMA STANDARD PUBLICATION PB-1 AND UL-50 AND 67. PROVIDE CABINETS WITH FLUSH HINGES AND COMBINATION CATCH AND LOCK. PROVIDE WIRING GUTTERS TO ACCOMMODATE LARGE MULTIPLIER FEEDER CABLES AND LUGS. EXCEPT AS SHOWN OTHERWISE ON DRAWINGS, WIRING GUTTERS SHALL BE AT LEAST 4".
- 2. PANELBOARDS SHALL BE BY SQUARE D TO MATCH THE EXISTING.
- 3. PANELBOARDS SHALL HAVE INTEGRATED SHORT CIRCUIT CURRENT RATING EQUAL TO OR GREATER THAN CIRCUIT BREAKER AIC RATINGS SHOWN ON DRAWINGS.
- 4. MAIN BUS BARS SHALL BE COPPER, SIZED AS REQUIRED BY UL STANDARDS.
- 5. PROVIDE MOLDED CASE, BOLT-ON, THERMAL-MAGNETIC TRIP, SINGLE, TWO OR THREE POLE BRANCH CIRCUIT BREAKERS AS SHOWN ON DRAWINGS. MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP. CIRCUIT BREAKERS SHALL BE LISTED AND LABELED FOR 75° CONDUCTOR AMPACITIES.
- 6. PROVIDE BUS CONNECTIONS FOR FUTURE OVER CURRENT DEVICE WITH SUITABLE INSULATION AND BRACING TO MAINTAIN PROPER SHORT CIRCUIT RATING AND VOLTAGE CLEARANCES, WHERE REQUIRED ON DRAWINGS. PROVIDE FOR READY INSERTION OF FUTURE BREAKER.
- PROVIDE SEPARATE EQUIPMENT GROUND BUS FOR EACH PANELBOARD.
- 8. PANELS SHALL HAVE HEAVY DUTY, CONTINUOUS, SECTION VERTICAL-HINGING TO BOX SECTION FOR ACCESS TO WIRING GUTTERS IN ADDITION TO TRIM DOOR (DOOR IN DOOR TYPE). OPENING INNER DOOR SHALL EXPOSE CIRCUIT BREAKER OPERATOR HANDLES AND PANELBOARD DIRECTORY. OPENING OUTER DOOR SHALL EXPOSE TERMINALS AND CIRCUIT BREAKERS IN A SINGLE OPERATION.
- 9. PROVIDE 1/2" SPACERS FOR PANELBOARDS MOUNTED AT EXTERIOR WALLS BELOW GRADE TO ESTABLISH 1/2" AIR SPACE BEHIND PANEL.
- 0. PROVIDE TYPED PANELBOARD DIRECTORIES THAT SHOW USE OF EACH CIRCUIT AND ELECTRICAL CHARACTERISTICS OF PANELBOARD. PANELBOARD DESIGNATIONS SHALL BE LABELED ON THE FRONT OF THE PANEL WITH A SCREW-ON NAMEPLATE, AND ON THE DIRECTORY.

264100 SAFETY DISCONNECT SWITCHES

PART 1 - GENERAL 1.1 SWITCHES

- A. PROVIDE UL-LISTED QUICK-MAKE/QUICK-BREAK SAFETY SWITCHES. CURRENT-CARRYING PARTS SHALL BE HIGH-CONDUCTIVITY COPPER. CONTACTS SHALL BE SILVER-TUNGSTEN OR
- B. TYPE HD, (HEAVY DUTY), UNLESS SPECIFIED OTHERWISE. PROVIDE [DUST PROOF] NEMA 1 ENCLOSURE FOR DRY APPLICATION. PROVIDE NEMA 12 ENCLOSURE FOR MECHANICAL SPACES IN DRY APPLICATIONS. PROVIDE NEMA 3R FOR WET APPLICATIONS. SWITCHES SHALL BE RATED 600V MINIMUM AS REQUIRED FOR VOLTAGE OF ASSOCIATED CIRCUIT AND SHALL BE RATED IN HORSEPOWER. FUSES SHALL INTERRUPT LOCKED ROTOR CURRENT OF ASSOCIATED MOTOR OR TEN TIMES FULL RATED LOAD CURRENT, WHICHEVER IS GREATER.
- C. CURRENT-CARRYING PARTS SHALL BE HIGH-CONDUCTIVITY COPPER. CONTACTS SHALL BE SILVER-TUNGSTEN OR PLATED. PROVIDE POSITIVE PRESSURE FUSE CLIPS AND SWITCH OPERATING MECHANISM SUITABLE FOR CONTINUOUS USE AT RATED CAPACITY WITHOUT AUXILIARY SPRINGS IN CURRENT PATH.
- D. SWITCHES SHALL WITHSTAND AVAILABLE FAULT CURRENT OR LET-THROUGH CURRENT BEFORE OPERATING, WITHOUT DAMAGE OR RATING CHANGE.

26130 BOXES AND DEVICES

PART 1 - GENERAL

1.1 OUTLET BOXES

- A. OUTLET BOXES ON CONCEALED WORK SHALL BE AT LEAST 4" SQUARE OR OCTAGONAL, GALVANIZED PRESSED STEEL WITH PLASTER RINGS AS REQUIRED. OUTLET BOXES FOR EXPOSED CONDUIT WORK SHALL BE CAST ALUMINUM ALLOY WITH CAST ALUMINUM ALLOY COVERS. TYPE "FS" BOX
- B. SWITCH BOXES, RECEPTACLE BOXES AND OTHER OUTLET BOXES SHALL BE STANDARD 4"
 SQUARE WITH PLASTER RINGS OR GANG COVER AS REQUIRED.
- C. OUTLET BOXES SHALL BE BY STEEL CITY ELECTRIC COMPANY, APPLETON ELECTRIC COMPANY, NATIONAL ELECTRIC PRODUCTS COMPANY OR APPROVED EQUAL.
- D. PROVIDE ONLY ENOUGH CONDUIT OPENINGS TO ACCOMMODATE CONDUITS AT INDIVIDUAL LOCATION. EACH BOX SHALL BE LARGE ENOUGH TO ACCOMMODATE NUMBER AND SIZES OF CONDUITS, WIRES AND SPLICES TO MEET NEC REQUIREMENTS, BUT SHALL BE AT LEAST SIZE SHOWN OR SPECIFIED. NECESSARY VOLUME SHALL BE OBTAINED BY USING BOXES OF PROPER DIMENSIONS. BOX DEPTHS GREATER THAN 2 " SHALL NOT BE USED TO OBTAIN NECESSARY VOLUME, BUT MAY BE USED WITH ARCHITECT'S APPROVAL TO FACILITATE INSTALLATION. OCTAGONAL HUNG CEILING BOXES WITH SUSPENSION BARS MAY BE 3 1/2 " DEEP. RECTANGULAR BOXES FOR INTER-CONNECTION OF BRANCH CIRCUIT CONDUITS MAY BE 2 1/2 DEEP.
- 1.2 JUNCTION BOXES, PULL BOXES, AND CABLE TROUGHS
- A. PROVIDE CODE GAUGE GALVANIZED STEEL JUNCTION AND PULL BOXES FOR CONDUIT 11/4"
 TRADE SIZE AND LARGER, WHERE INDICATED AND AS NECESSARY TO FACILITATE
 INSTALLATION, OF REQUIRED DIMENSIONS, WITH ACCESSIBLE, REMOVABLE SCREW-ON
 COVERS. PROVIDE JUNCTION AND PULL BOXES IN SPECIAL SIZES AND SHAPES
 DETERMINED IN FIELD WHERE NECESSARY. JUNCTION BOXES FOR EXPOSED CONDUIT
 WORK IN FINISHED AREAS SHALL BE CAST ALUMINUM ALLOY WITH CAST ALUMINUM ALLOY
- JUNCTION BOX COVERS SHALL BE READILY ACCESSIBLE. DO NOT INSTALL JUNCTION BOXES ABOVE SUSPENDED CEILINGS EXCEPT WHERE CEILING IS REMOVABLE OR WHERE ACCESS PANEL IS PROVIDED.

1.3 WIRING DEVICES AND PLATES

- A. PROVIDE WIRING DEVICES BY SINGLE MANUFACTURER: CATALOG DESIGNATIONS OF HUBBELL ARE SPECIFIED TO ESTABLISH STANDARDS OF QUALITY FOR MATERIALS AND PERFORMANCE ACCEPTABLE ALTERNATES ARE ARROW-HART, LEVITON, BRYANT, OR APPROVED EQUAL.
- B. COLOR OF THE DEVICES AND FACEPLATES SHALL BEBY ARCHITECT. NAMEPLATE DESIGNATIONS FOR DEVICE PLATES SHALL BE STICK-ON TYPE WITH PANEL AND CIRCUIT

261200 RACEWAY & WIRING

PART 1 - GENERAL

- A. RIGID METALLIC CONDUIT (RMC) AND ELECTRICAL METALLIC TUBING (EMT) SHALL BE OF ZINC-COATED STEEL MANUFACTURED BY ALLIED TUBE AND CONDUIT, WHEATLAND TUBE, OR APPROVED EQUAL.
- B. FLEXIBLE METALLIC CONDUIT SHALL BE GALVANIZED STEEL, SPIRAL WRAPPED METALLIC CONDUIT (GREENFIELD).
- C. CONDUIT EXPANSION FITTINGS SHALL BE THREADED HOT-DIPPED GALVANIZED MALLEABLE IRON WITH INTERNAL BONDING ASSEMBLY BY O.Z./GEDNEY OR APPROVED EQUAL.
- D. CONDUIT FIRE SEAL FITTINGS SHALL HAVE HEAT-ACTIVATED INTUMESCENT MATERIAL FOR FIRE RATING EQUAL TO OR HIGHER THAN THAT OF FLOOR OR WALL BY O.Z./GEDNEY OR
- PROVIDE THREADED MALLEABLE IRON OR STEEL CONNECTORS AND COUPLINGS WITH INSULATED THROATS; MANUFACTURED ELBOWS; LOCKNUTS; AND PLASTIC OR BAKELITE BUSHINGS AT TERMINATIONS, AS NECESSARY. COUPLINGS AND CONNECTORS SHALL BE GLAND AND RING COMPRESSION OR STAINLESS STEEL MULTIPLE POINT LOCKING OR STEEL CONCRETE-TIGHT SET SCREW. COMPRESSION COUPLINGS AND CONNECTORS SHALL FORM

POSITIVE GROUND. BUSHINGS FOR RIGID STEEL AND CONNECTORS FOR EMT SHALL HAVE

- 1.2 WIRE AND CABLE (600V INSULATION)
- A. PROVIDE SINGLE-CONDUCTOR, ANNEALED COPPER WIRE AND CABLE WITH INSULATION RATED 600 V, OF SIZES SPECIFIED AND SCHEDULED ON DRAWINGS BY ROME, OKONITE OR APPROVED EQUAL. WIRE SIZES SHOWN AND SPECIFIED ARE AMERICAN WIRE GAUGE FOR

INSULATING INSERTS THAT MEET REQUIREMENTS OF UL 514 FLAME TEST.

- B. WIRE #10 AND LARGER SHALL BE STRANDED. WIRE AND CABLE SHALL HAVE THWN-THHN OR XHHW INSULATION.
 1.3 TERMINATIONS
- A. PROVIDE STANDARD BOLT-ON LUGS WITH HEX SCREWS TO ATTACH COPPER WIRE AND CABLE TO PANELBOARDS AND ELECTRICAL EQUIPMENT.

1.4 COLOR CODING

- A. MAKE TERMINATIONS AND SPLICES FOR CONDUCTORS #6 AND LARGER WITH CORROSION-RESISTANT, HIGH-CONDUCTIVITY PRESSURE INDENT, HEX SCREW OR BOLT-CLAMP CONNECTORS, WITH OR WITHOUT TONGUES, DESIGNED SPECIFICALLY FOR
- B. COLOR CODE SECONDARY SERVICE, FEEDERS AND BRANCH CIRCUIT CONDUCTORS AS FOLLOWS: 208/120 VOLTS, 3 , 4W BLACK, RED, BLUE, WHITE, GREEN 480/277 VOLTS, 3 , 4W BROWN, ORANGE, YELLOW, WHITE, GREEN

PART 2 - INSTALLATION

INTENDED SERVICE.

- 2.1 WIRING METHODS
- A. ALL FEEDERS SHALL BE EMT UNLESS NOTED OTHERWISE. REFER TO DETAILS ON DRAWING E8.02 FOR ADDITIONAL INFORMATION.
- B. THE BRANCH CIRCUIT WIRING INTENT IS A COMBINATION OF ELECTRICAL METALLIC TUBING (EMT) WITH WIRING AND METAL CLAD (MC) CABLE. ALL HOME RUNS TO THE PANELS MAY BE CONDUIT AND WIRE OR MC CABLE. AS MC CABLE CONVERGES ON THE PANELS THE BRANCH CIRCUITS SHALL BE RUN WITHIN CABLE TRAY WITH A SOLID BOTTOM PLATE. THE PLATE AND TRAY WILL BE PAINTED OUT BY OTHERS.
- CONDUITS SHALL BE MINIMUM OF 3/4" AND CONTAIN A MAXIMUM OF THREE (3) BRANCH CIRCUITS PER CONDUIT. EACH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR.
- D. MC CABLE SHALL CONSIST OF SINGLE CIRCUIT CABLE AND MULTI-CONDUCTOR CABLE FOR HOMERUNS THAT CONTAIN A MAXIMUM OF THREE (3) BRANCH CIRCUITS PER CABLE. EACH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR.

EACH BRANCH CIRCUIT SHALL CONTAIN AN EQUIPMENT GROUND CONDUCTOR. THE

BRANCH CIRCUITS RUN AS A MULTI-WIRE BRANCH CIRCUIT.

INSTALL CONNECTORS AND COUPLINGS AS RECOMMENDED BY MANUFACTURERS.
COMPRESSION FITTINGS SHALL NOT BE USED WITH RIGID STEEL OR INTERMEDIATE METALLIC

EQUIPMENT GROUND CONDUCTOR MAY BE SHARED AMONGST A MAXIMUM OF THREE (3)

- G. SIZE RIGID STEEL CONDUIT, EMT AND FLEXIBLE METALLIC CONDUIT AS REQUIRED BY NEC EXCEPT AS SPECIFIED OR SHOWN ON DRAWINGS OTHERWISE.
- H. INSTALL CONDUIT SYSTEMS COMPLETE BEFORE DRAWING IN CONDUCTORS. BLOW THROUGH AND CLEAN CONDUIT FREE OF DEBRIS BEFORE CONDUCTORS ARE INSTALLED.
 I. CHECK RACEWAY SIZES TO DETERMINE THAT GREEN EQUIPMENT GROUND CONDUCTOR FITS IN SAME RACEWAY WITH PHASE AND NEUTRAL CONDUCTORS TO MEET NEC PERCENTAGE OF FILL REQUIREMENTS. INCREASE DUCT, CONDUIT, TUBING AND RACEWAY SIZES SHOWN OR SPECIFIED AS REQUIRED TO ACCOMMODATE CONDUCTORS.
- EXPANSION/DEFLECTION FITTINGS: CONDUIT OR EMT SECURED RIGIDLY ON OPPOSITE SIDES OF BUILDING EXPANSION JOINTS AND LONG RUNS OF EXPOSED RACEWAY SUBJECT TO STRESS SHALL HAVE EXPANSION FITTINGS. FITTINGS SHALL SAFELY DEFLECT AND EXPAND TO TWICE DISTANCE OF STRUCTURAL MOVEMENT.PROVIDE SEPARATE EXTERNAL COPPER BONDING JUMPER SECURED WITH GROUNDING STRAPS ON EACH END OF FITTING.
- K. ATTACH PULL ROPES TO CONDUCTORS WITH BASKET-WEAVE GRIPS ON PULLING EYES. PULL CABLES THAT SHARE CONDUIT AT SAME TIME.
- L. WIRE AND CONDUIT SIZES INDICATED ON HOMERUNS SHALL BE CONTINUOUS THROUGHOUT THE CIRCUIT. CONDUIT HOMERUNS SHOWN ON THE DRAWING WITH MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGRAMATICALLY. THIS CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS DONE SO STRICTLY BY THE NATIONAL ELECTRIC CODE.
- M. THE E.C. IS RESPONSIBLE FOR ALL NECESSARY CORE DRILLING. ALSO, THE E.C. SHALL PROVIDE FIRE STOPPING AND WEATHERPROOF SEALANT AROUND THE ANNULAR OF EACH CONDUIT THAT IS CORE DRILLED.
- N. ALL CONDUITS SHALL BE SUPPORTED BY USE OF HOT DIPPED GALVANIZED POWER STRUT, RACKS, THREADED ROD, BEAM CLAMPS, POWER TRAP AND ALL NECESSARY ACCESSORIES FOR A COMPLETE WIRING SYSTEM. ALL RACKS SHALL BE PROVIDED WITH DOUBLE TIERS FOR FUTURE CONDUITS.
- O. ALL WIRING SHALL BE RUN CONCEALED WHERE POSSIBLE.

260100 BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL 1.1 <u>REFERENCES</u>

AFFECT WORK OF THIS SECTION.

OF THE INDICATION OR DESCRIPTION.

- A. THE WORK REQUIREMENTS DESCRIBED WITHIN DIVISION 20 SPECIFICATION SECTION "COMMON MECHANICAL/ELECTRICAL REQUIREMENTS" FORM COMPLIMENTARY REQUIREMENTS TO THE SCOPE OF WORK CONTAINED WITHIN DIVISION 23. REFER TO DRAWING H0.2 FOR SAID DIVISION 20 REQUIREMENTS.
- 20 REQUIREMENTS.

 B. EXAMINE DRAWINGS AND OTHER SECTIONS OF SPECIFICATIONS FOR REQUIREMENTS THAT
- C. AS USED IN THIS SECTION, "PROVIDE" MEANS "FURNISH AND INSTALL" AND "POS" MEANS "PROVIDED UNDER OTHER SECTIONS". "FURNISH" MEANS "TO PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT," AND "INSTALL" MEANS "TO UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT."
- D. PERFORM WORK AND PROVIDE MATERIAL AND EQUIPMENT AS SHOWN ON DRAWINGS AND AS SPECIFIED OR INDICATED IN THIS SECTION OF THE SPECIFICATIONS. PROVIDE WORK SPECIFIED AND NOT SHOWN, AND WORK SHOWN AND NOT SPECIFIED AS THOUGH EXPLICITLY REQUIRED BY BOTH. ALTHOUGH WORK IS NOT SPECIFICALLY SHOWN OR SPECIFIED, PROVIDE SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES, DEVICES AND MATERIALS OBVIOUSLY NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION. REMOVE ALL DEBRIS CAUSED BY CONTRACTORS WORK.
- E. AS WORK PROGRESSES AND FOR DURATION OF CONTRACT, MAINTAIN COMPLETE AND SEPARATE SET OF PRINTS OF CONTRACT DRAWINGS AT JOB SITE AT ALL TIMES. RECORD WORK COMPLETED AND ALL CHANGES FROM ORIGINAL CONTRACT DRAWINGS CLEARLY AND ACCURATELY INCLUDING WORK INSTALLED AS A MODIFICATION OR ADDITION TO THE ORIGINAL DESIGN.
- F. ITEMS REFERRED TO IN SINGULAR NUMBER IN CONTRACT DOCUMENTS SHALL BE PROVIDED IN QUANTITIES NECESSARY TO COMPLETE WORK.
- 1.2 CONTRACT DOCUMENTS
 A. EXCEPT WHERE MODIFIED BY A SPECIFIC NOTATION TO THE CONTRARY, IT SHALL BE
 UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF ANY ITEM, IN THE DRAWINGS OR
 SPECIFICATIONS OR BOTH, CARRIES WITH IT THE INSTRUCTION TO FURNISH AND INSTALL THE
 ITEM, REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION IS EXPLICITLY STATED AS PART
- B. DRAWINGS ARE DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE ABSOLUTELY PRECISE; THEY ARE NOT INTENDED TO SPECIFY OR TO SHOW EVERY OFFSET, FITTING, AND COMPONENT. THE PURPOSE OF THE DRAWINGS IS TO INDICATE A SYSTEMS CONCEPT, THE MAIN COMPONENTS OF THE SYSTEMS, AND THE APPROXIMATE GEOMETRICAL RELATIONSHIPS. BASED ON THE SYSTEMS CONCEPT, THE MAIN COMPONENTS, AND THE APPROXIMATE GEOMETRICAL RELATIONSHIPS, THE CONTRACTOR SHALL PROVIDE ALL OTHER COMPONENTS AND MATERIALS NECESSARY TO MAKE THE SYSTEMS FULLY COMPLETE AND OPERATIONAL.
- C. BRANCH CIRCUIT WIRING MAY NOT BE GRAPHICALLY SHOWN ON DRAWINGS AND MAY BE SHOWN BY CIRCUIT NUMBERS BESIDE DEVICES AND EQUIPMENT. PROVIDE COMPLETE WIRING SYSTEM WHETHER OR NOT SHOWN GRAPHICALLY. WIRING IS SHOWN BY CONDUIT RUNS ON DRAWINGS WHERE SPECIFIC ROUTING IS REQUIRED OR FOR SPECIAL REASONS. ONLY ROOMS WITH MULTIPLE SWITCHING HAVE "SWITCH CONTROL LETTERS" ASSIGNED.
- D. REMOVE, EXTEND, ALTER AND RECONNECT EXISTING CONDUITS AS DIRECTED BY OWNER.
 RECONNECT EXISTING CONDUIT THAT IS CUT AND DISCONNECTED TO ACCOMMODATE WORK.
 PROVIDE NEW CONDUIT WHERE WIRE CANNOT BE PULLED IN EXISTING. CONNECT NEW AND
 EXISTING WORK TO FUNCTION AS COMPLETE, CONTINUOUSLY GROUNDED SYSTEM. REMOVE
- E. THE E.C. SHALL FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE ELECTRICAL WORK COMPLETE AND READY FOR OPERATION.

CONDUIT AND EQUIPMENT NOT INTENDED FOR REUSE AND STORE WHERE DIRECTED.

- F. EXACT LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL DRAWINGS.
- 1.3 <u>DISCREPANCIES IN DOCUMENTS</u>
- A. ADDRESS QUESTIONS REGARDING DRAWINGS TO OWNER IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, OWNER'S INTERPRETATION OF MEANING AND INTENT OF DRAWINGS SHALL BE FINAL.
- 1.4 CODES, STANDARDS, AUTHORITIES, AND PERMITS
- A. PERFORM WORK IN STRICT ACCORDANCE WITH THE RULES, REGULATIONS, STANDARDS, CODES, ORDINANCES, AND LAWS OF LOCAL, STATE, AND OTHER AUTHORITIES HAVING LEGAL JURISDICTION OVER THE SITE.
- B. MATERIAL AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS' LABORATORIES (UL).
- C. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACKCHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION.

1.5 GUARENTEE

- A. GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.
- B. SUBMIT GUARANTEE TO OWNER BEFORE FINAL PAYMENT.
- C. STATEMENT OF GUARANTEE REQUIREMENTS SHALL NOT BE INTERPRETED TO LIMIT OWNER'S RIGHTS UNDER LAW AND THIS CONTRACT.

1.6 SUBMITTALS

- A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA WITHIN 30 DAYS AFTER AWARD OF CONTRACT. CHECK, STAMP AND MARK WITH PROJECT NAME SUBMITTALS BEFORE TRANSMITTING TO OWNER. INDICATE DEVIATIONS FROM CONTRACT DOCUMENTS.
- B. DEVIATIONS FROM CONTRACT DOCUMENTS, OR PROPOSED SUBSTITUTION OF MATERIALS OR EQUIPMENT FOR THOSE SPECIFIED SHALL BE REQUESTED IN SEPARATE LETTER WHETHER
- DEVIATIONS ARE DUE TO FIELD CONDITIONS, STANDARD SHOP PRACTICE, OR OTHER CAUSE.

 C. SCHEDULE AT LEAST TEN WORKING DAYS, EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL
- D. MATERIAL AND EQUIPMENT REQUIRING SHOP DRAWING AND PRODUCT DATA SUBMITTAL SHALL INCLUDE CABLE, CONDUIT, DISCONNECTS, VFD'S AND FILTERS.

1.7 NAMEPLATES

- A. PROVIDE NAMEPLATES IN OR ON PANELBOARDS. NAMEPLATES SHALL BE WHITE BAKELITE WITH 1/4" HIGH BLACK RECESSED LETTERS. NAMEPLATES SHALL BE SECURED TO EQUIPMENT WITH GALVANIZED SCREWS.
- MATERIALS AND WORKMANSHIP

 A. WORK SHALL BE EXECUTED IN WORKMANLIKE MANNER AND SHALL PRESENT NEAT,
 RECTILINEAR AND MECHANICAL APPEARANCE WHEN COMPLETED. MAINTAIN MAXIMUM
 HEADROOM AT ALL TIMES. DO NOT RUN RACEWAYS EXPOSED UNLESS SHOWN EXPOSED ON
 DRAWINGS. MATERIAL AND EQUIPMENT SHALL BE NEW AND INSTALLED ACCORDING TO
 MANUFACTURER'S RECOMMENDED BEST PRACTICE SO THAT COMPLETED INSTALLATION SHALL

A. DO NOT INTERRUPT EXISTING SERVICES WITHOUT OWNER'S AND ENGINEER'S APPROVALS.

- OPERATE SAFELY AND EFFICIENTLY.
- 1.9 CONTINUITY OF SERVICES

260600 GROUNDING AND BONDING

PART 1 - GENERAL

- 1.1 GROUNDING
- A. PROVIDE EQUIPMENT GROUNDING SYSTEM AS PER N.E.C.B. SYSTEM SHALL MEET NEC REQUIREMENTS, MODIFIED AS SHOWN ON DRAWINGS AND AS
- C. A GROUNDING CONDUCTOR SHALL BE INCLUDED IN EACH RACEWAY AND SIZED IN ACCORDANCE WITH THE N.E.C.

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SPECIFICATIONS SHEET 1

F-2

PART 1 - GENERAL 1.1 SUMMARY A. TEST WIRING AND CONNECTIONS FOR CONTINUITY AND GROUNDS BEFORE CONNECTING; DEMONSTRATE INSULATION RESISTANCE BY MEGGER TEST AS REQUIRED. INSULATION RESISTANCE BETWEEN CONDUCTORS AND GROUNDS FOR SECONDARY DISTRIBUTIONS SYSTEMS SHALL MEET NEC REQUIREMENTS. B. VERIFY AND CORRECT AS NECESSARY: VOLTAGES, TRIP SETTINGS AND PHASING ON EQUIPMENT FROM SECONDARY DISTRIBUTION SYSTEM TO POINTS OF USE. TEST SECONDARY VOLTAGES AT PANELBOARDS, AND AT OTHER LOCATIONS ON DISTRIBUTION SYSTEMS AS NECESSARY. TEST SECONDARY VOLTAGES UNDER NO-LOAD AND FULL-LOAD CONDITIONS. C. PROVIDE NECESSARY TESTING EQUIPMENT AND TESTING. D. FAILURE OR DEFECTS IN WORKMANSHIP OR MATERIALS REVEALED BY TESTS OR INSPECTION SHALL BE CORRECTED PROMPTLY AND RETESTED. REPLACE DEFECTIVE MATERIAL. E. CLEAN PANELS. PANELBOARD INTERIORS SHALL BE CLEANED AND VACUUMED. F. BEFORE ENERGIZING ANY MOTOR, IT SHALL BE VISUALLY INSPECTED FOR SERVICEABILITY. VERIFY THAT PROPER ALIGNMENT HAS BEEN PERFORMED. CHECK NAMEPLATE FOR ELECTRICAL POWER REQUIREMENTS. G. CHECK BOLT TORQUES FOR FEEDER TERMINATIONS AND OTHER ASSOCIATED EQUIPMENT IN THIS SECTION BY CALIBRATED TORQUE WRENCH METHOD. H. TEST RUN ALL MOTORS PREFERABLY UNCOUPLED OR UNLOADED, BEFORE PLACING INTO REGULAR SERVICE. A CHECK ON THE MOTOR FOR ROTATION, SPEED, CURRENT AND TEMPERATURE RISE SHALL BE MADE AND RESULTS RECORDED. PART 3 - INSTALLATION FEEDER TESTING a. PERFORM TESTS AND INSPECTIONS AND PREPARE TEST REPORTS. b. TESTS AND INSPECTIONS: 1) AFTER INSTALLING CONDUCTORS AND CABLES AND BEFORE ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, TEST ALL FEEDER CONDUCTORS, FOR COMPLIANCE WITH REQUIREMENTS. 2) PERFORM EACH VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST STATED IN NETA ACCEPTANCE TESTING SPECIFICATION. CERTIFY COMPLIANCE WITH TEST PARAMETERS. 3) PERFORM FIELD QUALITY CONTROL TEST REPORTS FOR EACH FEEDER AND RECORD RESULTS IN FORM 4) INFRARED SCANNING: AFTER SUBSTANTIAL COMPLETION, BUT NOT MORE THAN 60 DAYS AFTER FINAL ACCEPTANCE, PERFORM AN INFRARED SCAN OF EACH FEEDER IN UNIT SUBSTATIONS AND DISTRIBUTION PANEL. REMOVE EQUIPMENT COVERS SO CONDUCTORS AND BUSSING ARE ACCESSIBLE TO PORTABLE a. FOLLOW-UP INFRARED SCANNING: PERFORM AN ADDITIONAL FOLLOW-UP INFRARED SCAN OF EACH SPLICE 11 MONTHS AFTER DATE OF SUBSTANTIAL COMPLETION. b. INSTRUMENT: USE AN INFRARED SCANNING DEVICE DESIGNED TO MEASURE TEMPERATURE OR TO DETECT SIGNIFICANT DEVIATIONS FROM NORMAL VALUES. PROVIDE CALIBRATION RECORD FOR DEVICE. RECORD OF INFRARED SCANNING: PREPARE A CERTIFIED REPORT THAT IDENTIFIES SPLICES CHECKED AND THAT DESCRIBES SCANNING RESULTS. INCLUDE NOTATION OF DEFICIENCIES DETECTED, REMEDIAL ACTION TAKEN, AND OBSERVATIONS AFTER REMEDIAL ACTION. TEST REPORTS: PREPARE A WRITTEN REPORT TO RECORD THE FOLLOWING: TEST PROCEDURES USED. 2) TEST RESULTS THAT COMPLY WITH REQUIREMENTS. 3) TEST RESULTS THAT DO NOT COMPLY WITH REQUIREMENTS AND CORRECTIVE ACTION TAKEN TO ACHIEVE COMPLIANCE WITH REQUIREMENTS. d. REMOVE AND REPLACE MALFUNCTIONING UNITS AND RETEST AS SPECIFIED ABOVE. **PANELBOARDS** a. PERFORM TESTS AND INSPECTIONS. b. ACCEPTANCE TESTING PREPARATION: 1) TEST INSULATION RESISTANCE FOR EACH PANELBOARD BUS, COMPONENT, CONNECTING SUPPLY, FEEDER, AND CONTROL CIRCUIT. 2) TEST CONTINUITY OF EACH CIRCUIT. c. TESTS AND INSPECTIONS: 1) PERFORM EACH VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST STATED IN NETA ACCEPTANCE TESTING SPECIFICATION. CERTIFY COMPLIANCE WITH TEST PARAMETERS. 2) CORRECT MALFUNCTIONING UNITS ON-SITE, WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE; OTHERWISE, REPLACE WITH NEW UNITS AND RETEST. 3) PERFORM THE FOLLOWING INFRARED SCAN TESTS AND INSPECTIONS AND PREPARE REPORTS: a. INITIAL INFRARED SCANNING: AFTER SUBSTANTIAL COMPLETION, BUT NOT MORE THAN 60 DAYS AFTER FINAL ACCEPTANCE, PERFORM AN INFRARED SCAN OF EACH PANELBOARD. REMOVE FRONT PANELS SO JOINTS AND CONNECTIONS ARE ACCESSIBLE TO PORTABLE SCANNER. b. FOLLOW-UP INFRARED SCANNING: PERFORM AN ADDITIONAL FOLLOW-UP INFRARED SCAN OF EACH PANELBOARD 11 MONTHS AFTER DATE OF SUBSTANTIAL COMPLETION. c. INSTRUMENTS AND EQUIPMENT: (1) USE AN INFRARED SCANNING DEVICE DESIGNED TO MEASURE TEMPERATURE OR TO DETECT SIGNIFICANT DEVIATIONS FROM NORMAL VALUES. PROVIDE CALIBRATION RECORD FOR DEVICE. d. PANELBOARDS WILL BE CONSIDERED DEFECTIVE IF THEY DO NOT PASS TESTS AND INSPECTIONS. e. PREPARE TEST AND INSPECTION REPORTS, INCLUDING A CERTIFIED REPORT THAT IDENTIFIES PANELBOARDS INCLUDED AND THAT DESCRIBES SCANNING RESULTS. INCLUDE NOTATION OF DEFICIENCIES DETECTED, REMEDIAL ACTION TAKEN, AND OBSERVATIONS AFTER REMEDIAL ACTION.

260700 TESTING, INSPECTION, AND CLEANING

260943 LIGHTING CONTROL SYSTEM FUNCTIONAL TESTING

- LIGHTING SYSTEM FUNCTIONAL TESTING. CONTROLS FOR AUTOMATIC LIGHTING SYSTEMS SHALL COMPLY WITH THIS SECTION.
- FUNCTIONAL TESTING. PRIOR TO ISSUING THE FINAL ELECTRICAL AFFIDAVITS, THE REGISTERED DESIGN PROFESSIONAL SHALL BE PROVIDED WITH FORMAL EVIDENCE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS. FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH SECTIONS 3, 4 AND 5 FOR THE APPLICABLE CONTROL TYPE.
- FOLLOWING PROCEDURES SHALL BE PERFORMED:
 - A. CERTIFY THAT THE OCCUPANT SENSOR HAS BEEN LOCATED AND AIMED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
 - C. FOR PROJECTS WITH MORE THAN SEVEN OCCUPANT SENSORS TESTING SHALL BE DONE FOR EACH UNIQUE COMBINATION OF SENSOR TYPE AND SPACE GEOMETRY. WHERE MULTIPLES OF EACH UNIQUE COMBINATION OF SENSOR TYPE AND SPACE GEOMETRY ARE PROVIDED, NOT LESS THAN 10 PERCENT, BUT IN NO CASE LESS THAN ONE, OF EACH COMBINATION SHALL BE TESTED UNLESS THE CODE OFFICIAL REQUIRES A HIGHER

FAIL, ALL REMAINING IDENTICAL COMBINATIONS SHALL BE TESTED.

- CORRECT OPERATION.
- THE REQUIRED TIME.
- PERMITTED LEVEL WHEN AN OCCUPANT ENTERS THE SPACE.
- WHEN MANUALLY ACTIVATED.
- AREAS OR BY HVAC OPERATION.
- PROCEDURES SHALL BE PERFORMED:
- WEEKEND AND HOLIDAY SCHEDULES. B. PROVIDE DOCUMENTATION TO THE OWNER OF TIME- SWITCH CONTROLS PROGRAMMING
- INCLUDING WEEKDAY, WEEKEND, HOLIDAY SCHEDULES, AND SET-UP AND PREFERENCE
- VERIFY THE CORRECT TIME AND DATE IN THE TIME SWITCH.
- VERIFY THAT ANY BATTERY BACK-UP IS INSTALLED AND ENERGIZED. VERIFY THAT THE OVERRIDE TIME LIMIT IS SET TO NOT MORE THAN 2 HOURS.
- F. SIMULATE OCCUPIED CONDITION. VERIFY AND DOCUMENT THE FOLLOWING:
- F.2. THE SWITCH ONLY OPERATES LIGHTING IN THE ENCLOSED SPACE IN WHICH THE
- G. SIMULATE UNOCCUPIED CONDITION. VERIFY AND DOCUMENT THE FOLLOWING: G.1. NONEXEMPT LIGHTING TURNS OFF.
- G.2. MANUAL OVERRIDE SWITCH ALLOWS ONLY THE LIGHTS IN THE ENCLOSED SPACE
- THE FOLLOWING SHALL BE VERIFIED: A. CONTROL DEVICES HAVE BEEN PROPERLY LOCATED, FIELD CALIBRATED AND SET FOR
- B. DAYLIGHT CONTROLLED LIGHTING LOADS ADJUST TO LIGHT LEVEL SET POINTS IN
- RESPONSE TO AVAILABLE DAYLIGHT.
- ONLY TO AUTHORIZED PERSONNEL.
- THE ELECTRICAL CONTRACTOR IS TO PROVIDE FORMAL DOCUMENTATION THAT THE ABOVE REQUIRED TESTING HAS OCCURRED. THE ELECTRICAL CONTRACTOR IS TO SUBMIT A LIST OF ALL THE SPACES AND AREAS WITHIN THE SCOPE OF THIS PROJECT WITH LIGHTING CONTROLS. THE LIST IS TO BE ON THE CONTRACTORS LETTER HEAD AND SIGNED BY THE ELECTRICAL CONTRACTORS REPRESENTATIVE WHO'S LICENCES WAS USED TO OBTAIN THE PERMIT. THE LIST WILL INDICATE EACH AND EVERY ROOM DEFINED BY NAME AND NUMBER AND THE RESULTS OF THE REQUIRED TESTING. LIGHTING CONTROL SYSTEMS SHALL BE COMMISSIONED BY THE AUTHORIZED MANUFACTURERS FACTORY TECHNICIAN. FORMAL DOCUMENTATION IS TO BE INCLUDED IN THIS DOCUMENT BY THE MANUFACTURERS REPRESENTATIVE THAT THE SYSTEM(S) IS FULLY TESTED AND IN PERFECT OPERATING CONDITION. DOCUMENTATION IS TO BE ON THE MANUFACTURERS LETTER HEAD AND SIGNED.

OCCUPANT SENSOR CONTROLS. WHERE OCCUPANT SENSOR CONTROLS ARE PROVIDED, THE

- B. FOR PROJECTS WITH SEVEN OR FEWER OCCUPANT SENSORS, EACH SENSOR SHALL BE
- PERCENTAGE TO BE TESTED. WHERE 30 PERCENT OR MORE OF THE TESTED CONTROLS
- FOR OCCUPANT SENSOR CONTROLS TO BE TESTED, VERIFY THE FOLLOWING: C.1. WHERE OCCUPANT SENSOR CONTROLS INCLUDE STATUS INDICATORS, VERIFY
 - C.2. THE CONTROLLED LIGHTS TURN OFF OR DOWN TO THE PERMITTED LEVEL WITHIN
 - C.3. FOR AUTO-ON OCCUPANT SENSOR CONTROLS , THE LIGHTS TURN ON TO THE
 - C.4. FOR MANUAL-ON OCCUPANT SENSOR CONTROLS , THE LIGHTS TURN ON ONLY
 - C.5. THE LIGHTS ARE NOT INCORRECTLY TURNED ON BY MOVEMENT IN ADJACENT
- TIME-SWITCH CONTROLS. WHERE TIME-SWITCH CONTROLS ARE PROVIDED, THE FOLLOWING
- A. CONFIRM THAT THE TIME-SWITCH CONTROL IS PROGRAMMED WITH ACCURATE WEEKDAY,

- F.1. ALL LIGHTS CAN BE TURNED ON AND OFF BY THEIR RESPECTIVE AREA CONTROL
- SWITCH IS LOCATED.
- WHERE THE OVER- RIDE SWITCH IS LOCATED TO TURN ON OR REMAIN ON THE NEXT SCHEDULED SHUTOFF OCCURS.
- DAYLIGHT RESPONSIVE CONTROLS. WHERE DAY-LIGHT RESPONSIVE CONTROLS ARE PROVIDED,
- ACCURATE SETPOINTS AND THRESHOLD LIGHT LEVELS.
- C. THE LOCATIONS OF CALIBRATION ADJUSTMENT EQUIPMENT ARE READILY ACCESSIBLE

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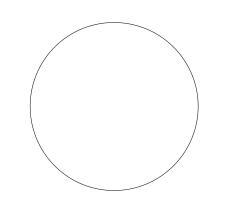
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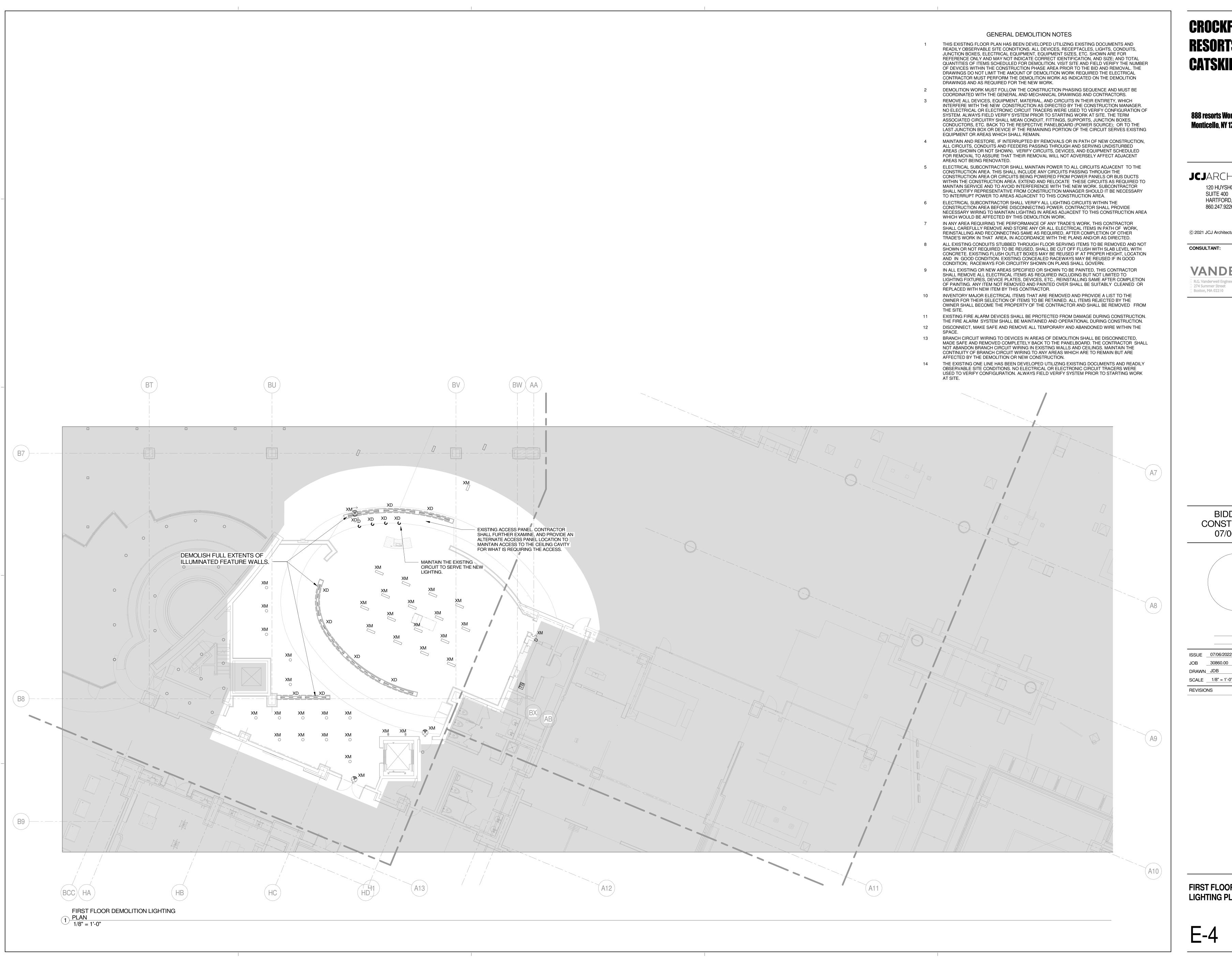
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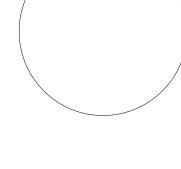
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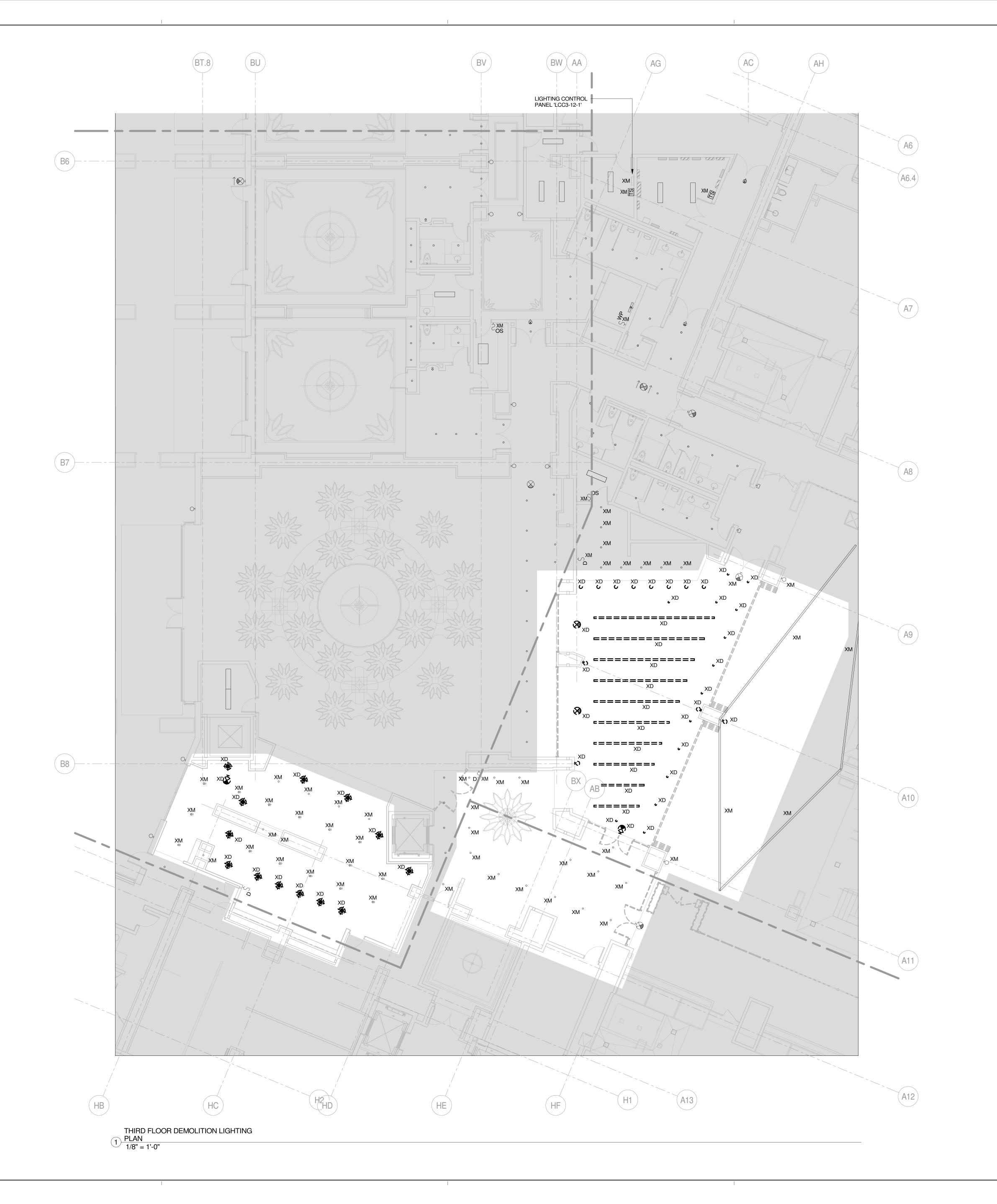
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SCALE ___1/8" = 1'-0"

FIRST FLOOR DEMOLITION **LIGHTING PLAN**



GENERAL DEMOLITION NOTES

- THIS EXISTING FLOOR PLAN HAS BEEN DEVELOPED UTILIZING EXISTING DOCUMENTS AND READILY OBSERVABLE SITE CONDITIONS. ALL DEVICES, RECEPTACLES, LIGHTS, CONDUITS, JUNCTION BOXES, ELECTRICAL EQUIPMENT, EQUIPMENT SIZES, ETC. SHOWN ARE FOR REFERENCE ONLY AND MAY NOT INDICATE CORRECT IDENTIFICATION, AND SIZE; AND TOTAL QUANTITIES OF ITEMS SCHEDULED FOR DEMOLITION. VISIT SITE AND FIELD VERIFY THE NUMBER OF DEVICES WITHIN THE CONSTRUCTION PHASE AREA PRIOR TO THE BID AND REMOVAL. THE DRAWINGS DO NOT LIMIT THE AMOUNT OF DEMOLITION WORK REQUIRED THE ELECTRICAL CONTRACTOR MUST PERFORM THE DEMOLITION WORK AS INDICATED ON THE DEMOLITION DRAWINGS AND AS REQUIRED FOR THE NEW WORK.
- DEMOLITION WORK MUST FOLLOW THE CONSTRUCTION PHASING SEQUENCE AND MUST BE COORDINATED WITH THE GENERAL AND MECHANICAL DRAWINGS AND CONTRACTORS.

 REMOVE ALL DEVICES, EQUIPMENT, MATERIAL, AND CIRCUITS IN THEIR ENTIRETY, WHICH INTERFERE WITH THE NEW CONSTRUCTION AS DIRECTED BY THE CONSTRUCTION MANAGER. NO ELECTRICAL OR ELECTRONIC CIRCUIT TRACERS WERE USED TO VERIFY CONFIGURATION OF SYSTEM. ALWAYS FIELD VERIFY SYSTEM PRIOR TO STARTING WORK AT SITE. THE TERM ASSOCIATED CIRCUITRY SHALL MEAN CONDUIT, FITTINGS, SUPPORTS, JUNCTION BOXES, CONDUCTORS, ETC. BACK TO THE RESPECTIVE PANELBOARD (POWER SOURCE); OR TO THE LAST JUNCTION BOX OR DEVICE IF THE REMAINING PORTION OF THE CIRCUIT SERVES EXISTING EQUIPMENT OR AREAS WHICH SHALL REMAIN.
- MAINTAIN AND RESTORE, IF INTERRUPTED BY REMOVALS OR IN PATH OF NEW CONSTRUCTION, ALL CIRCUITS, CONDUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS (SHOWN OR NOT SHOWN). VERIFY CIRCUITS, DEVICES, AND EQUIPMENT SCHEDULED FOR REMOVAL TO ASSURE THAT THEIR REMOVAL WILL NOT ADVERSELY AFFECT ADJACENT AREAS NOT BEING RENOVATED.
- ELECTRICAL SUBCONTRACTOR SHALL MAINTAIN POWER TO ALL CIRCUITS ADJACENT TO THE CONSTRUCTION AREA. THIS SHALL INCLUDE ANY CIRCUITS PASSING THROUGH THE CONSTRUCTION AREA OR CIRCUITS BEING POWERED FROM POWER PANELS OR BUS DUCTS WITHIN THE CONSTRUCTION AREA. EXTEND AND RELOCATE THESE CIRCUITS AS REQUIRED TO MAINTAIN SERVICE AND TO AVOID INTERFERENCE WITH THE NEW WORK. SUBCONTRACTOR SHALL NOTIFY REPRESENTATIVE FROM CONSTRUCTION MANAGER SHOULD IT BE NECESSARY TO INTERRUPT POWER TO AREAS ADJACENT TO THIS CONSTRUCTION AREA.
- ELECTRICAL SUBCONTRACTOR SHALL VERIFY ALL LIGHTING CIRCUITS WITHIN THE CONSTRUCTION AREA BEFORE DISCONNECTING POWER. CONTRACTOR SHALL PROVIDE NECESSARY WIRING TO MAINTAIN LIGHTING IN AREAS ADJACENT TO THIS CONSTRUCTION AREA WHICH WOULD BE AFFECTED BY THIS DEMOLITION WORK.
- IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADE'S WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, AFTER COMPLETION OF OTHER TRADE'S WORK IN THAT AREA, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED.
- ALL EXISTING CONDUITS STUBBED THROUGH FLOOR SERVING ITEMS TO BE REMOVED AND NOT SHOWN OR NOT REQUIRED TO BE REUSED, SHALL BE CUT OFF FLUSH WITH SLAB LEVEL WITH CONCRETE. EXISTING FLUSH OUTLET BOXES MAY BE REUSED IF AT PROPER HEIGHT, LOCATION AND IN GOOD CONDITION. EXISTING CONCEALED RACEWAYS MAY BE REUSED IF IN GOOD CONDITION; RACEWAYS FOR CIRCUITRY SHOWN ON PLANS SHALL GOVERN.

 IN ALL EXISTING OR NEW AREAS SPECIFIED OR SHOWN TO BE PAINTED, THIS CONTRACTOR SHALL REMOVE ALL ELECTRICAL ITEMS AS REQUIRED INCLUDING BUT NOT LIMITED TO LIGHTING FIXTURES, DEVICE PLATES, DEVICES, ETC., REINSTALLING SAME AFTER COMPLETION
- OF PAINTING. ANY ITEM NOT REMOVED AND PAINTED OVER SHALL BE SUITABLY CLEANED OR REPLACED WITH NEW ITEM BY THIS CONTRACTOR.

 INVENTORY MAJOR ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE
- OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

 EXISTING FIRE ALARM DEVICES SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION.
- THE FIRE ALARM SYSTEM SHALL BE MAINTAINED AND OPERATIONAL DURING CONSTRUCTION.

 12 DISCONNECT, MAKE SAFE AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN THE SPACE.

 13 BRANCH CIRCUIT WIRING TO DEVICES IN AREAS OF DEMOLITION SHALL BE DISCONNECTED,
- MADE SAFE AND REMOVED COMPLETELY BACK TO THE PANELBOARD. THE CONTRACTOR SHALL NOT ABANDON BRANCH CIRCUIT WIRING IN EXISTING WALLS AND CEILINGS. MAINTAIN THE CONTINUITY OF BRANCH CIRCUIT WIRING TO ANY AREAS WHICH ARE TO REMAIN BUT ARE AFFECTED BY THE DEMOLITION OR NEW CONSTRUCTION.
- THE EXISTING ONE LINE HAS BEEN DEVELOPED UTILIZING EXISTING DOCUMENTS AND READILY OBSERVABLE SITE CONDITIONS. NO ELECTRICAL OR ELECTRONIC CIRCUIT TRACERS WERE USED TO VERIFY CONFIGURATION. ALWAYS FIELD VERIFY SYSTEM PRIOR TO STARTING WORK AT SITE.

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SUITE 400

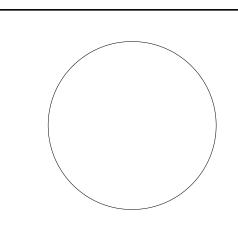
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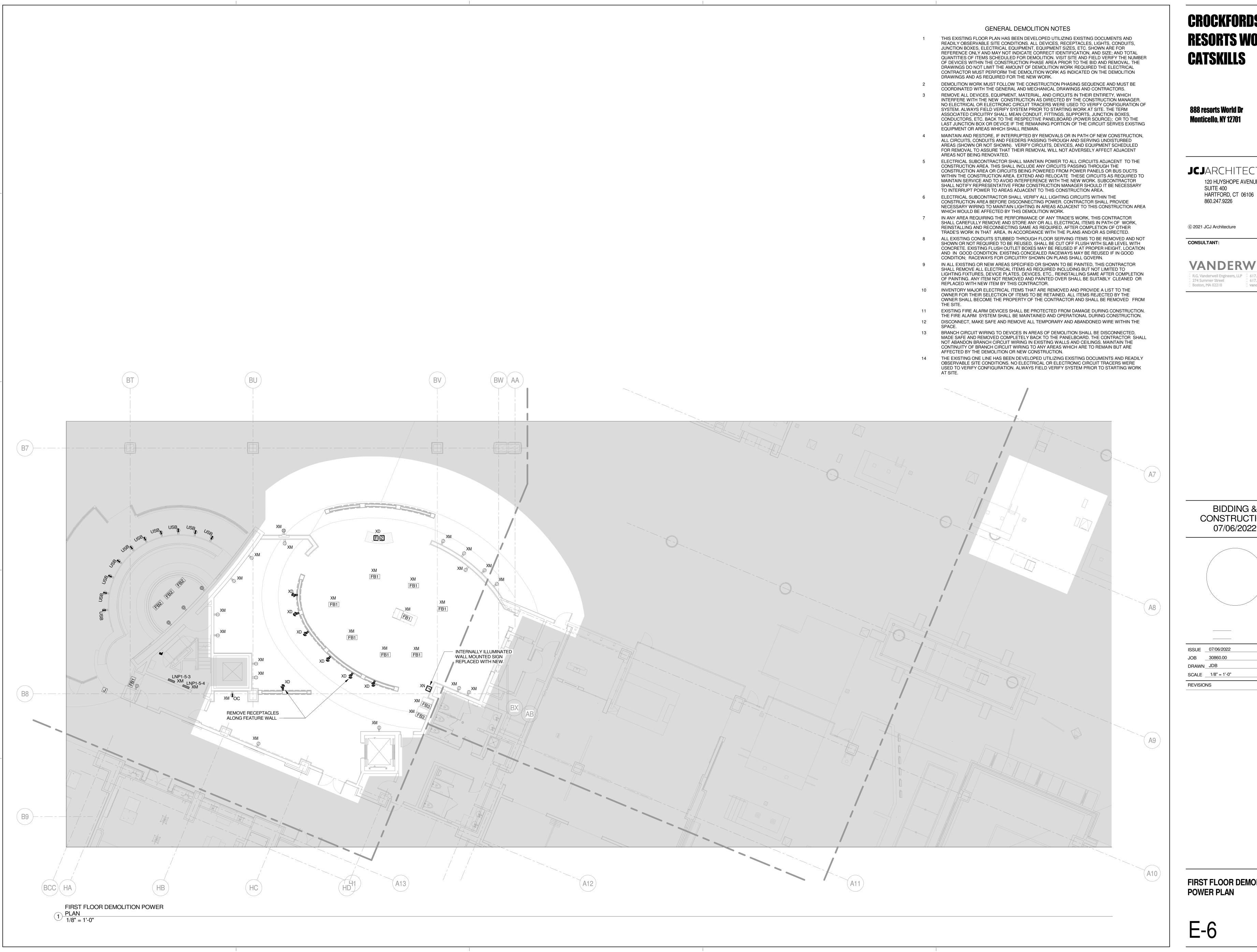


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SCALE 1/8" = 1'-0"

DRAWN_JDB

THIRD FLOOR DEMOLITION LIGHTING PLAN



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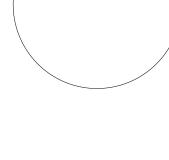
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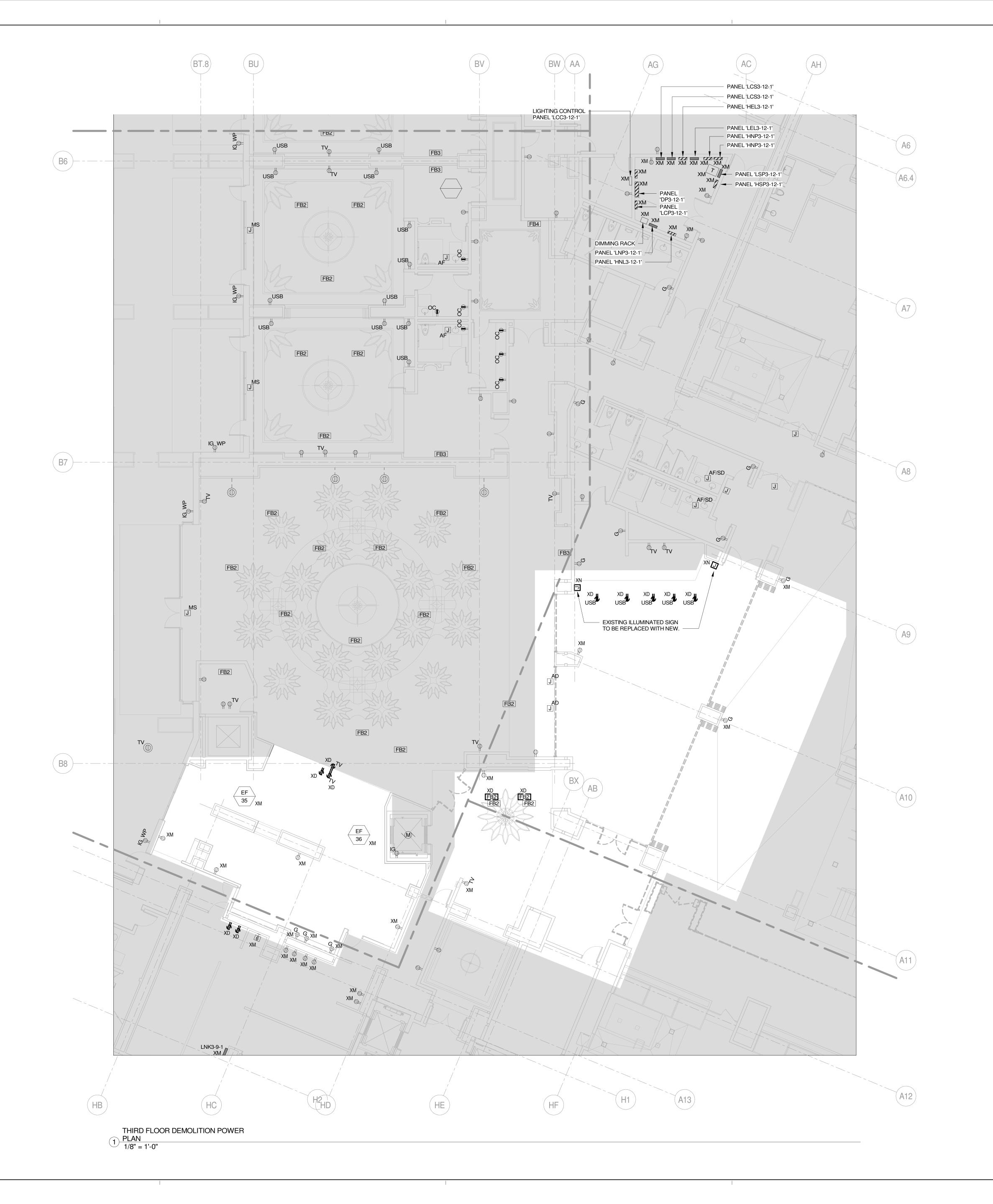
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FIRST FLOOR DEMOLITION



GENERAL DEMOLITION NOTES

- THIS EXISTING FLOOR PLAN HAS BEEN DEVELOPED UTILIZING EXISTING DOCUMENTS AND READILY OBSERVABLE SITE CONDITIONS. ALL DEVICES, RECEPTACLES, LIGHTS, CONDUITS, JUNCTION BOXES, ELECTRICAL EQUIPMENT, EQUIPMENT SIZES, ETC. SHOWN ARE FOR REFERENCE ONLY AND MAY NOT INDICATE CORRECT IDENTIFICATION, AND SIZE; AND TOTAL QUANTITIES OF ITEMS SCHEDULED FOR DEMOLITION. VISIT SITE AND FIELD VERIFY THE NUMBER OF DEVICES WITHIN THE CONSTRUCTION PHASE AREA PRIOR TO THE BID AND REMOVAL. THE DRAWINGS DO NOT LIMIT THE AMOUNT OF DEMOLITION WORK REQUIRED THE ELECTRICAL CONTRACTOR MUST PERFORM THE DEMOLITION WORK AS INDICATED ON THE DEMOLITION DRAWINGS AND AS REQUIRED FOR THE NEW WORK.
- DEMOLITION WORK MUST FOLLOW THE CONSTRUCTION PHASING SEQUENCE AND MUST BE COORDINATED WITH THE GENERAL AND MECHANICAL DRAWINGS AND CONTRACTORS.

 REMOVE ALL DEVICES, EQUIPMENT, MATERIAL, AND CIRCUITS IN THEIR ENTIRETY, WHICH INTERFERE WITH THE NEW CONSTRUCTION AS DIRECTED BY THE CONSTRUCTION MANAGER. NO ELECTRICAL OR ELECTRONIC CIRCUIT TRACERS WERE USED TO VERIFY CONFIGURATION OF SYSTEM. ALWAYS FIELD VERIFY SYSTEM PRIOR TO STARTING WORK AT SITE. THE TERM ASSOCIATED CIRCUITRY SHALL MEAN CONDUIT, FITTINGS, SUPPORTS, JUNCTION BOXES, CONDUCTORS, ETC. BACK TO THE RESPECTIVE PANELBOARD (POWER SOURCE); OR TO THE LAST JUNCTION BOX OR DEVICE IF THE REMAINING PORTION OF THE CIRCUIT SERVES EXISTING EQUIPMENT OR AREAS WHICH SHALL REMAIN.
- MAINTAIN AND RESTORE, IF INTERRUPTED BY REMOVALS OR IN PATH OF NEW CONSTRUCTION, ALL CIRCUITS, CONDUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS (SHOWN OR NOT SHOWN). VERIFY CIRCUITS, DEVICES, AND EQUIPMENT SCHEDULED FOR REMOVAL TO ASSURE THAT THEIR REMOVAL WILL NOT ADVERSELY AFFECT ADJACENT AREAS NOT BEING RENOVATED.
- ELECTRICAL SUBCONTRACTOR SHALL MAINTAIN POWER TO ALL CIRCUITS ADJACENT TO THE CONSTRUCTION AREA. THIS SHALL INCLUDE ANY CIRCUITS PASSING THROUGH THE CONSTRUCTION AREA OR CIRCUITS BEING POWERED FROM POWER PANELS OR BUS DUCTS WITHIN THE CONSTRUCTION AREA. EXTEND AND RELOCATE THESE CIRCUITS AS REQUIRED TO MAINTAIN SERVICE AND TO AVOID INTERFERENCE WITH THE NEW WORK. SUBCONTRACTOR SHALL NOTIFY REPRESENTATIVE FROM CONSTRUCTION MANAGER SHOULD IT BE NECESSARY TO INTERRUPT POWER TO AREAS ADJACENT TO THIS CONSTRUCTION AREA.
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- SHALL REMOVE ALL ELECTRICAL ITEMS AS REQUIRED INCLUDING BUT NOT LIMITED TO LIGHTING FIXTURES, DEVICE PLATES, DEVICES, ETC., REINSTALLING SAME AFTER COMPLETION OF PAINTING. ANY ITEM NOT REMOVED AND PAINTED OVER SHALL BE SUITABLY CLEANED OR REPLACED WITH NEW ITEM BY THIS CONTRACTOR.

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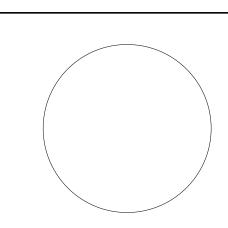
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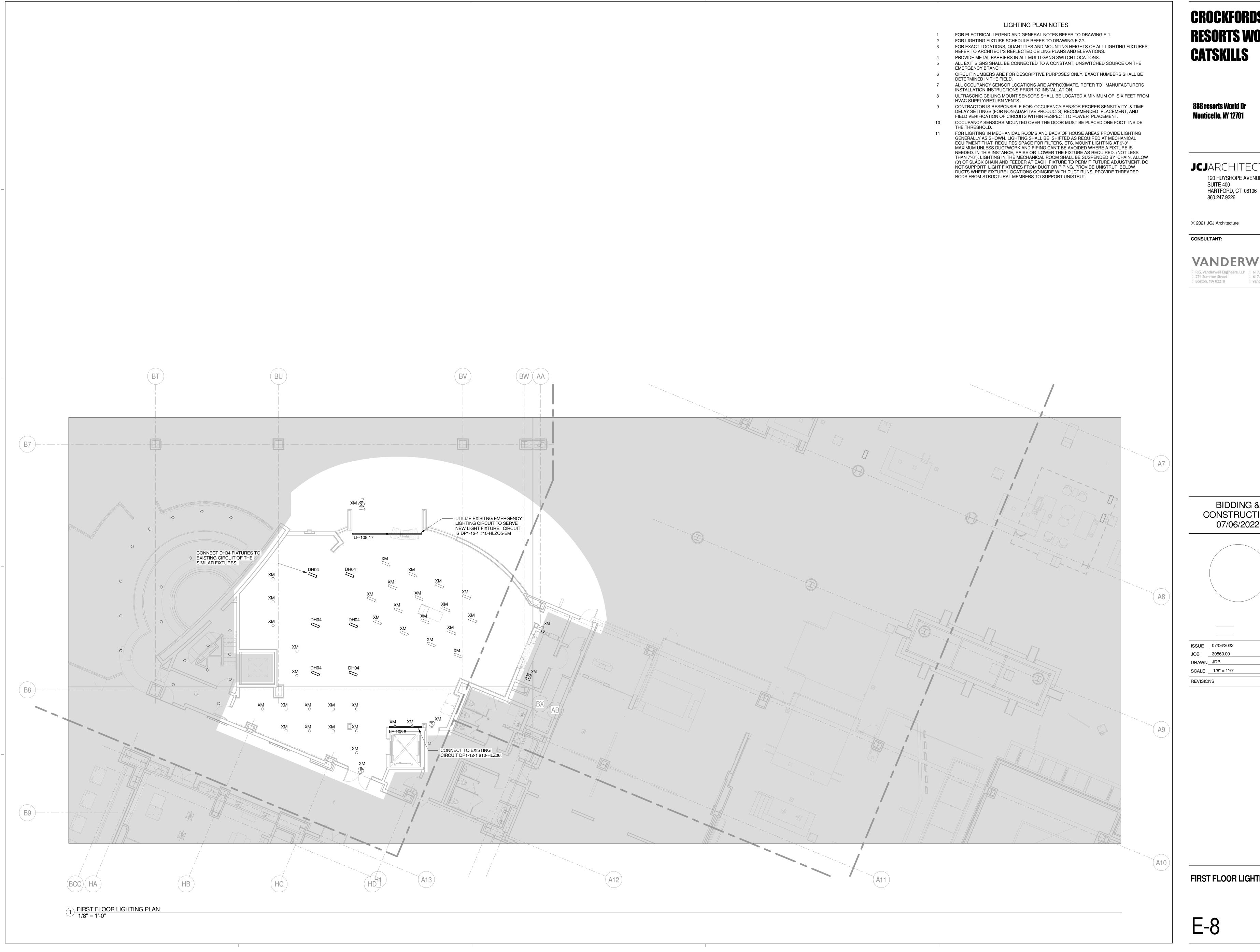
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SCALE ___1/8" = 1'-0"

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THIRD FLOOR DEMOLITION POWER PLAN



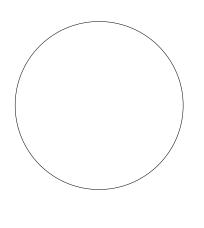
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FIRST FLOOR LIGHTING PLAN



LIGHTING PLAN NOTES

- FOR ELECTRICAL LEGEND AND GENERAL NOTES REFER TO DRAWING E-1. FOR LIGHTING FIXTURE SCHEDULE REFER TO DRAWING E-22.
- FOR EXACT LOCATIONS, QUANTITIES AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES REFER TO ARCHITECT'S REFLECTED CEILING PLANS AND ELEVATIONS.
- PROVIDE METAL BARRIERS IN ALL MULTI-GANG SWITCH LOCATIONS.
- ALL EXIT SIGNS SHALL BE CONNECTED TO A CONSTANT, UNSWITCHED SOURCE ON THE EMERGENCY BRANCH.
- CIRCUIT NUMBERS ARE FOR DESCRIPTIVE PURPOSES ONLY. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD.
- ALL OCCUPANCY SENSOR LOCATIONS ARE APPROXIMATE, REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION. ULTRASONIC CEILING MOUNT SENSORS SHALL BE LOCATED A MINIMUM OF SIX FEET FROM
- HVAC SUPPLY/RETURN VENTS. CONTRACTOR IS RESPONSIBLE FOR: OCCUPANCY SENSOR PROPER SENSITIVITY & TIME
- DELAY SETTINGS (FOR NON-ADAPTIVE PRODUCTS) RECOMMENDED PLACEMENT, AND FIELD VERIFICATION OF CIRCUITS WITHIN RESPECT TO POWER PLACEMENT. OCCUPANCY SENSORS MOUNTED OVER THE DOOR MUST BE PLACED ONE FOOT INSIDE
- THE THRESHOLD. FOR LIGHTING IN MECHANICAL ROOMS AND BACK OF HOUSE AREAS PROVIDE LIGHTING GENERALLY AS SHOWN. LIGHTING SHALL BE SHIFTED AS REQUIRED AT MECHANICAL EQUIPMENT THAT REQUIRES SPACE FOR FILTERS, ETC. MOUNT LIGHTING AT 9'-0" MAXIMUM UNLESS DUCTWORK AND PIPING CAN'T BE AVOIDED WHERE A FIXTURE IS

NEEDED. IN THIS INSTANCE, RAISE OR LOWER THE FIXTURE AS REQUIRED. (NOT LESS THAN 7'-6"). LIGHTING IN THE MECHANICAL ROOM SHALL BE SUSPENDED BY CHAIN. ALLOW (3') OF SLACK CHAIN AND FEEDER AT EACH FIXTURE TO PERMIT FUTURE ADJUSTMENT. DO NOT SUPPORT LIGHT FIXTURES FROM DUCT OR PIPING. PROVIDE UNISTRUT BELOW DUCTS WHERE FIXTURE LOCATIONS COINCIDE WITH DUCT RUNS. PROVIDE THREADED RODS FROM STRUCTURAL MEMBERS TO SUPPORT UNISTRUT.

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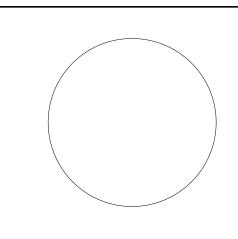
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SCALE ___1/8" = 1'-0" REVISIONS

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THIRD FLOOR LIGHTING

POWER PLAN NOTES FOR ELECTRICAL LEGEND AND GENERAL NOTES REFER TO DRAWING E-1. FOR ELECTRICAL POWER ONE LINE & RISER DIAGRAMS, REFER TO DRAWINGS E-14 TO E-18. FOR EXACT MOUNTING HEIGHTS OF ALL DEVICES REFER TO ARCHITECTURAL PLANS AND ELEVATIONS. MOUNT DEVICES IN A COMMON VERTICAL PLANE, AND PROVIDE MULTI-GANG DEVICE PLATES WHEREVER POSSIBLE. CIRCUIT NUMBERS SHOWN ON DRAWINGS ARE FOR DESCRIPTIVE PURPOSES ONLY. EXACT CIRCUIT NUMBERS SHALL BE DETERMINED IN THE FIELD. ALL RECEPTACLES WITHIN CAFETERIA AND FOOD SERVICE AREAS SHALL BE GFI TYPE WITH WEATHERPROOF STAINLESS STEEL COVER. POWER FOR FURNITURE IN THIS AREA BY OWNER. LCS1-11-2 #33 WALL MOUNTED ILLUMINATED SIGNAGE ABOVE ENTRANCE. ILLUMINATED BLADE SIGN. CONNECT TO SAME CIRCUIT AS EXISTING SIGN BEHIND BATHROOMS. INTERNALLY ILLUMINATED WALL MOUNTED SIGN AT EXISTING LOCATION. DISCONNECT EXISTING AND CONNECT NEW. WALL MOUNTED ILLUMINATED SIGNAGE. CONNECT TO SAME CIRCUIT AS EXISTING SIGN BEHIND BATHROOMS. 1) FIRST FLOOR POWER PLAN 1/8" = 1'-0"

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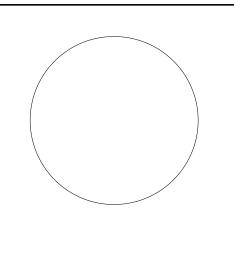
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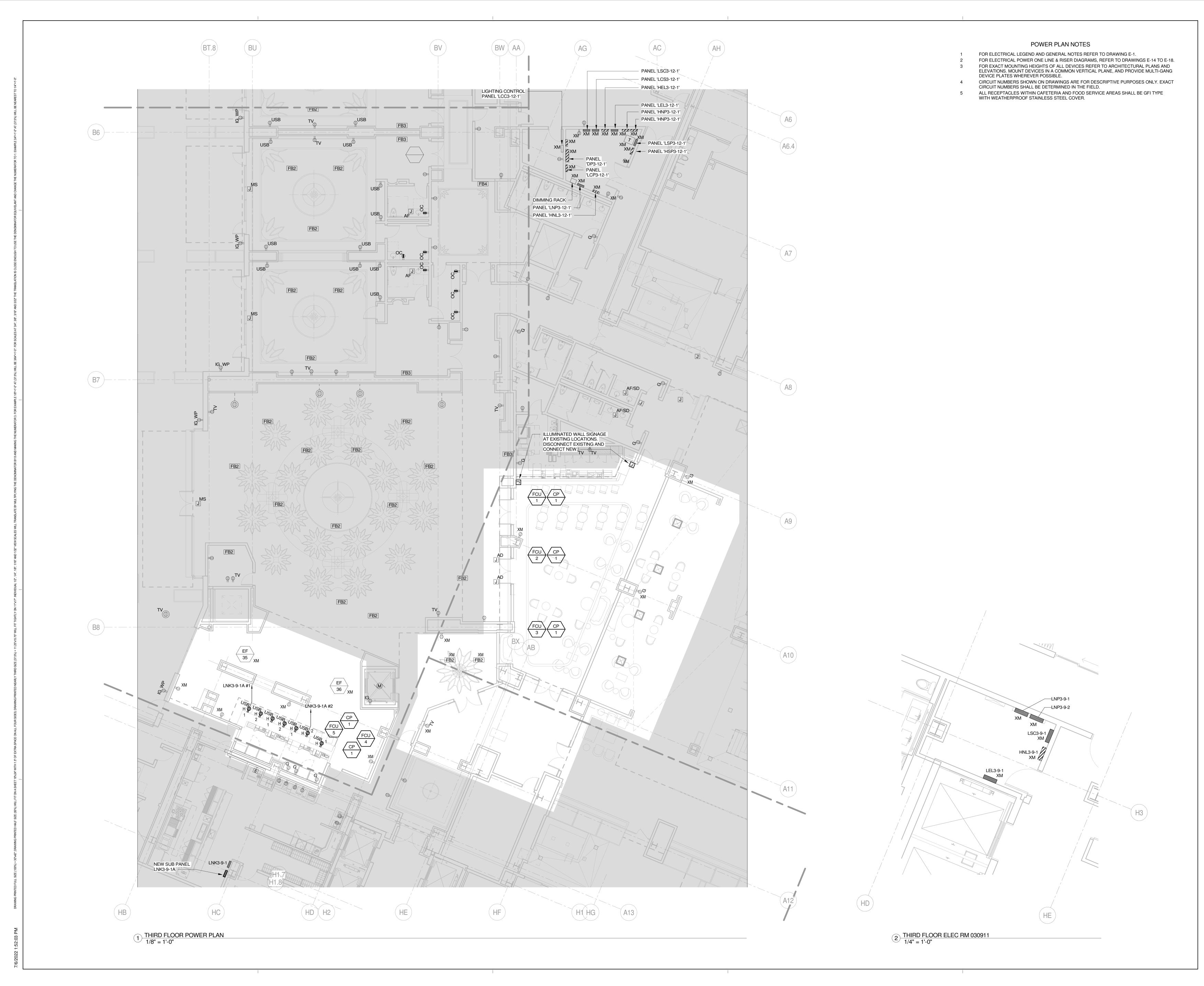
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FIRST FLOOR POWER PLAN



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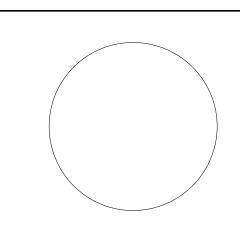
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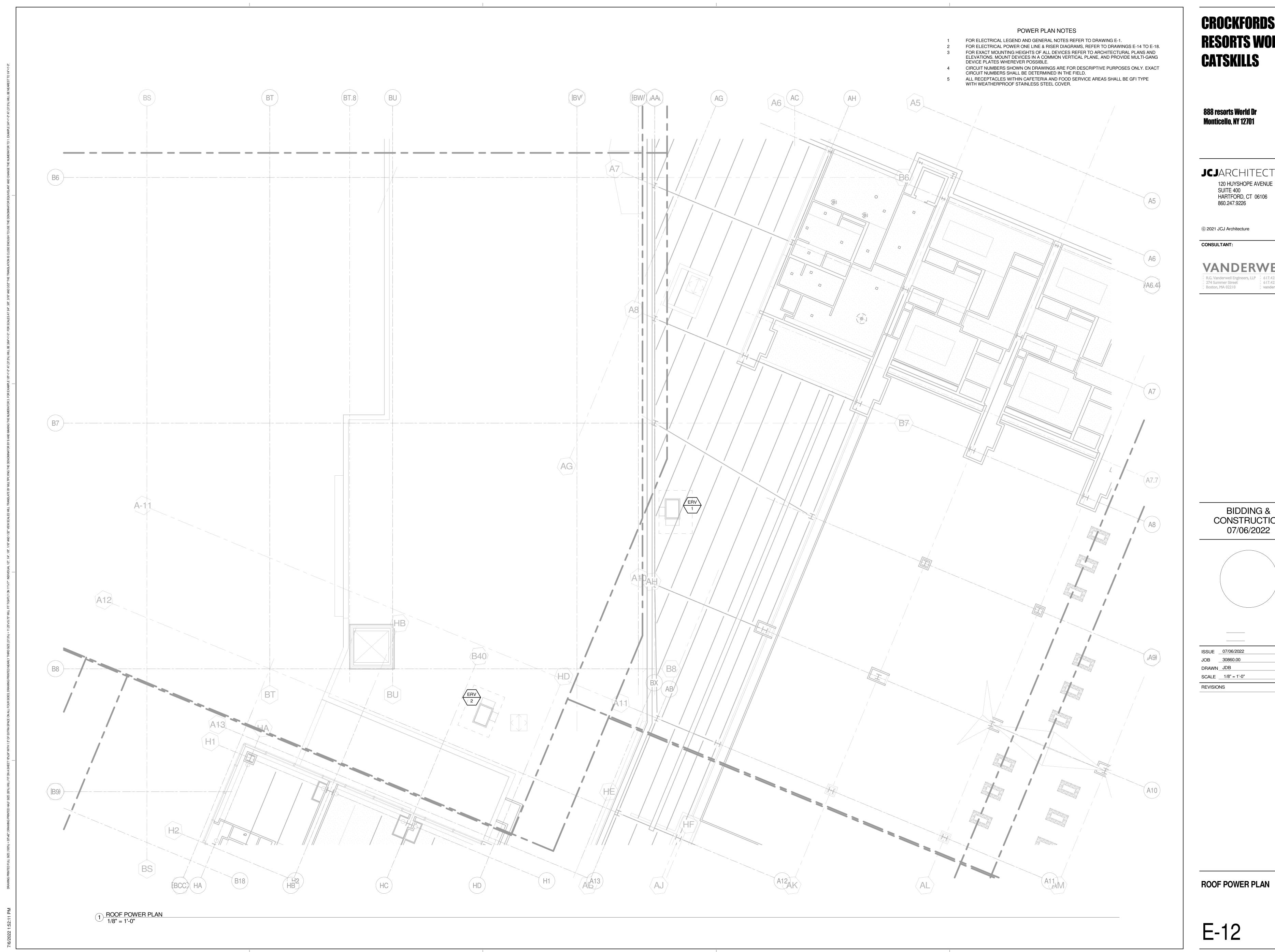
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SCALE As indicated

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THIRD FLOOR POWER PLAN



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NEW PANEL.

2 THIRD FLOOR BAR 1/4" = 1'-0"

ELECTRICAL SHEET NOTES - FOOD SERVICE

- COORDINATE ALL EQUIPMENT OUTLET CONNECTIONS WITH KITCHEN EQUIPMENT CONTRACTOR PRIOR TO ROUGHING.
- ALL EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH LIQUIDTIGHT FLEXIBLE
- 3 ALL RECEPTACLES ON BUILDING WALLS, AT COUNTER HEIGHT, SHALL BE MOUNTED
- HORIZONTALLY, UNLESS NOTED OTHERWISE.

 4 THE ELECTRICAL CONTRACTOR SHALL PROVIDE OCTAGONAL JUNCTION BOX AND 3/4"
 CONDUIT STUBBED ABOVE HUNG CEILING FOR INSTALLATION OF FIRE SUPPRESSION
 SYSTEM. REMOTE MANUAL PULL STATION BY KITCHEN EQUIPMENT CONTRACTOR. VERIFY
 - EXACT LOCATION WITH FIRE AUTHORITIES. PROVIDE CONNECTION FROM FIRE SUPPRESSION SYSTEM TO FIRE ALARM CONTROL PANEL AND ALL REQUIRED RELAYS TO ACTIVATE FIRE ALARM SYSTEM UPON ACTIVATION OF FIRE SUPPRESSION. SYSTEM.

 VERIFY EXACT MOUNTING HEIGHT FOR ALL OUTLET CONNECTIONS WITH KITCHEN
- EQUIPMENTS CONTRACTOR, EQUIPMENT MANUFACTURER AND/OR ARCHITECT.

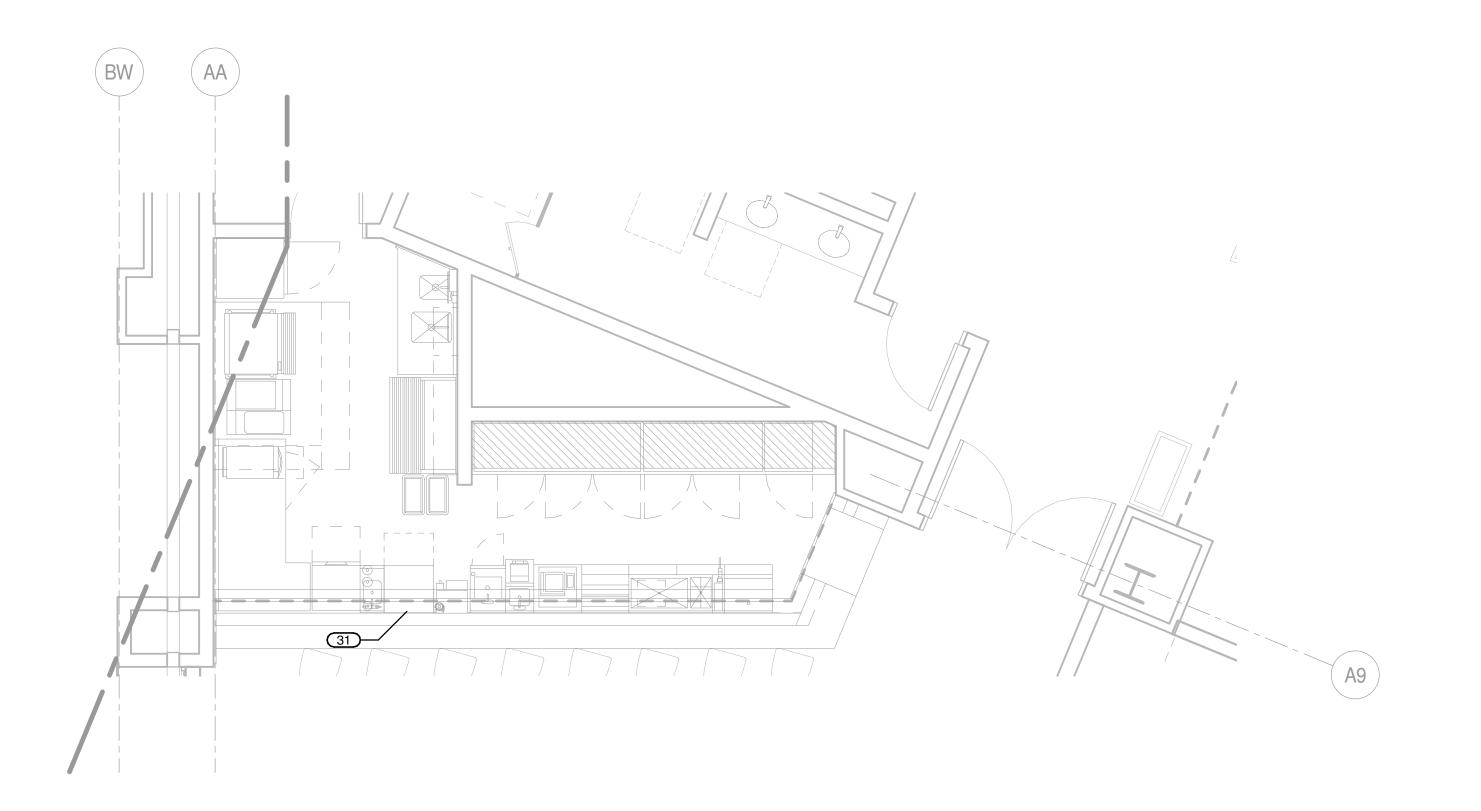
 DISCONNECT SWITCHES, MOTOR STARTERS OR OTHER DEVICES (EXCEPT FOR RECEPTACLES OR JUNCTION BOX CONNECTIONS) SHALL NOT BE LOCATED BEHIND

KITCHEN EQUIPMENT OR BELOW EXHAUST HOOD ASSEMBLIES.

EXHAUST HOOD AND VENTILATOR LOCATIONS:

- THE ELECTRICAL CONTRACTOR SHALL PROVIDE SHUNT-TRIP CIRCUIT BREAKERS FOR ALL EQUIPMENT LOCATED BELOW EXHAUST HOOD ASSEMBLIES. SHUNT-TRIP CIRCUIT BREAKERS SHALL BE CONNECTED TO RESPECTIVE FIRE PROTECTION SYSTEM TO SHUT DOWN EQUIPMENT UPON ACTIVATION OF FIRE PROTECTION SYSTEM.

 THE ELECTRICAL CONTRACTOR SHALL PROVIDE WIRING FOR THE FOLLOWING AT ALL
- a.BRANCH CIRCUIT WIRING TO CONTROL PANEL.
 b.CONTROL WIRING FROM CONTROL PANEL TO EACH HOOD SECTION FOR DAMPERS,
 SOLENOIDS AND LIGHTS.
 c.CONTROL WIRING FROM CONTROL PANEL TO SUPPLY AND EXHAUST FANS.
- d.FIRE SYSTEMS CONTROL WIRING BETWEEN FIRE SUPPRESSION SYSTEM, CONTROL PANELS AND REMOTE FIRE CONTROL SHUT-OFFS.
 e.CONTROL WIRING FROM CONTROL PANEL TO REMOTE DETERGENT PUMPS.
 f.COORDINATE ALL SPECIFIC REQUIREMENTS WITH THE KITCHEN EQUIPMENT CONTRACTOR.
- ALL 15 AND 20 AMPERE, 125 VOLT RECEPTACLES WITHIN KITCHEN AREA SHALL BE GFCI PROTECTED BY RECEPTACLE OR BREAKERS.
- CONTRACTOR SHALL PROVIDE DISCONNECT SWITCHES IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES. ALL DISCONNECT SWITCHES IN DISH WASHING, COOKING AND SERVERY AREAS SHALL BE NEMA TYPE 3R. DISCONNECTS SHALL BE WALL MOUNTED AND LOCATED TO AVOID THE SPLASHING OF WATER.
- 11 LOCATE JUNCTION BOX FOR WALK-IN REFRIGERATION EQUIPMENT AT CEILING OF UNIT. ROUTE CONDUIT TO JUNCTION BOX AT DOOR PANEL INSIDE UNIT FOR CONNECTION OF LIGHTS, DOOR HEATERS, ETC.
- 12 FIELD WIRING BETWEEN THE CONDENSING UNIT, THE EVAPORATOR COIL AND RELATED COMPONENTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. PROVIDE 6#12 IN A 3/4" CONDUIT FROM THE REMOTE CONDENSING UNIT TO THE EVAPORATOR COIL THERMOSTAT AND SOLENOID VALVE CONTROL WIRING. (THERMOSTAT & SOLENOID BY
- 13 REFER TO FOOD SERVICE DRAWINGS FOR DEVICE TYPES.



_										
	FOOD SERVICE DEVICE LEGEND									
	CP CONTROL PANEL									
	DC	DROP CORD								
	DR-15	DUPLEX RECEPTACLE - 15A								
	DR-20	DUPLEX RECEPTACLE - 20A								
	DS	DISCONNECT SWITCH								
	FDS	FUSED DISCONNECT SWITCH								
	JB	JUNCTION BOX								
	PB	PULL BOX								
	QDR-15	DOUBLE DUPLEX RECEPTACLE - 15A								
	QDR-20	DOUBLE DUPLEX RECEPTACLE - 20A								
	SR-*	SPECIAL PURPOSE RECEPTACLE, ASTERISK DENOTES A SYMBOL NUMBER PER SPECIAL PURPOSE RECEPTACLE SCHEDULE ON DRAWING E-601.								

#			El	_ECTR	ICAL I	FOOD	SERV	ICE SCHEDULE			
ITEM #	DESCRIPTION	VOLTAGE	Ф	AMPS	kVA	DEVICE	BREAKER	WIRE & CONDUIT	PANEL	CIRCUIT	REMARKS
				•		•					
1	P.O.S. STATION	120	1	5	0.6	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	4	
1	P.O.S. STATION	120	1	5	0.6	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	7	
2	P.O.S. CHECK PRINTER	120	1	5	0.6	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	3	
2	P.O.S. CHECK PRINTER	120	1	5	0.6	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	6	
9	WINE COOLER	120	1	2	0.26	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	8	
9	WINE COOLER	120	1	2	0.26	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE			EXISTING DEVICE TO REMAIN
12	WINE DISPENSING SYSTEM	120	1	2	0.24	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	9	
12	WINE DISPENSING SYSTEM	120	1	2	0.24	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE			EXISTING DEVICE TO REMAIN
13	BACK BAR EQUIPMENT	120	1	2	0.22	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	10	
13	BACK BAR EQUIPMENT	120	1	2	0.22	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE			EXISTING DEVICE TO REMAIN
14	SPHERE ICE MACHINE	120	1	5	0.6	JB	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	5	
21	ICE MACHINE	208	1	2	0.42	JB	20A-2P*	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1	39,41	SERVED FROM BREAKER FREED UP FROM DEMOLITION
22	REFRIGERATOR, REACH-IN, GLASS DOOR	120	1	4	0.46	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	11	
22A	DROP DOWN CORD REEL	120	1	15	1.8	DR-15	15A-1P	SEE BRANCH CIRCUIT SCHEDULE			FED FROM ITEM 22
31	SPHERE ICE MACHINE	120	1	5	0.6	JB	15A-1P	SEE BRANCH CIRCUIT SCHEDULE	LNK3-9-1A	12	

1 THIRD FLOOR KITCHEN 1/4" = 1'-0"

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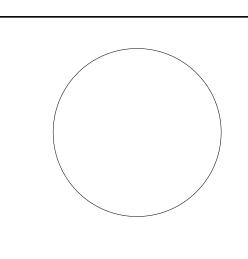
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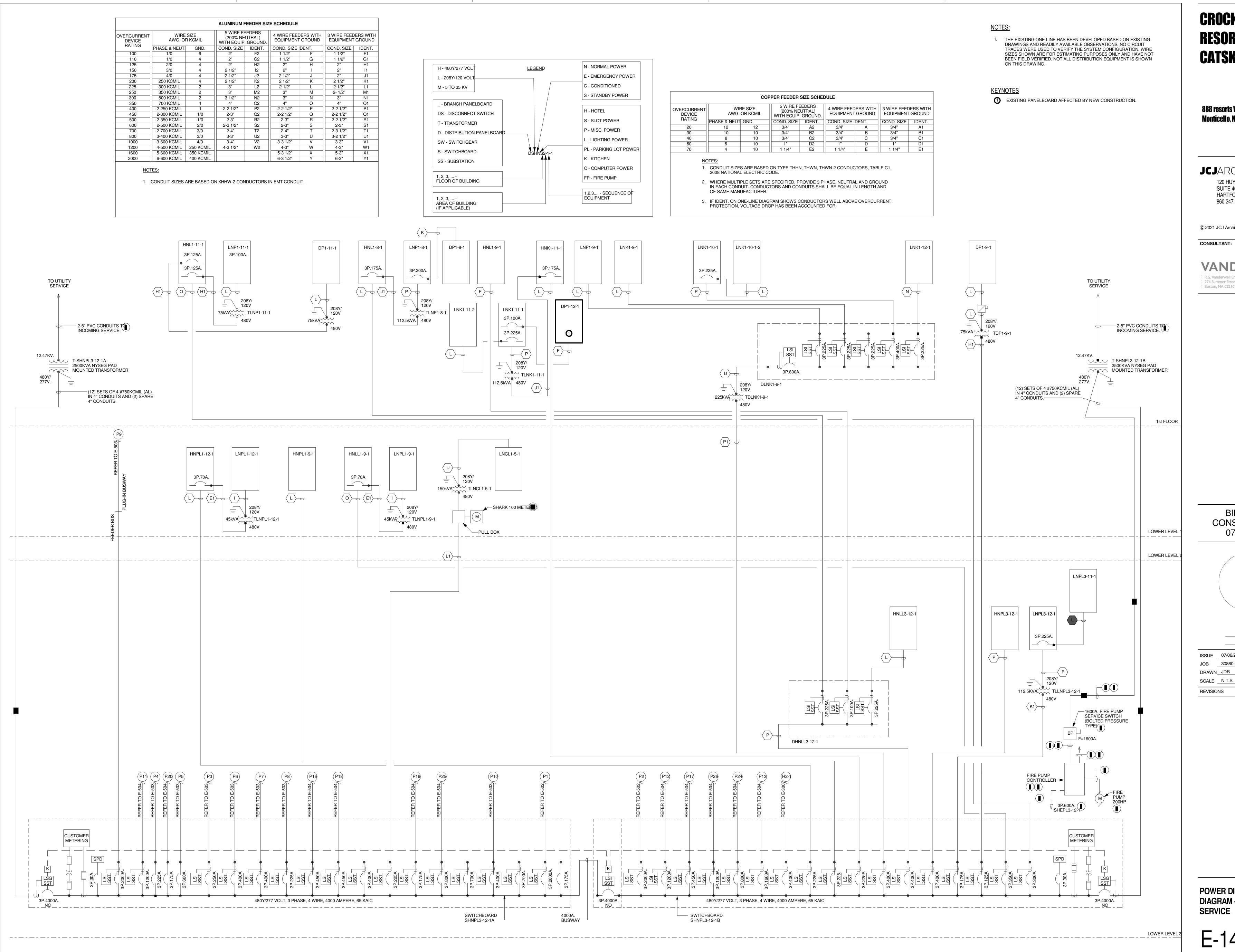


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ELECTRICAL ENLARGED KITCHEN



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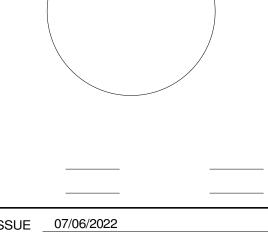
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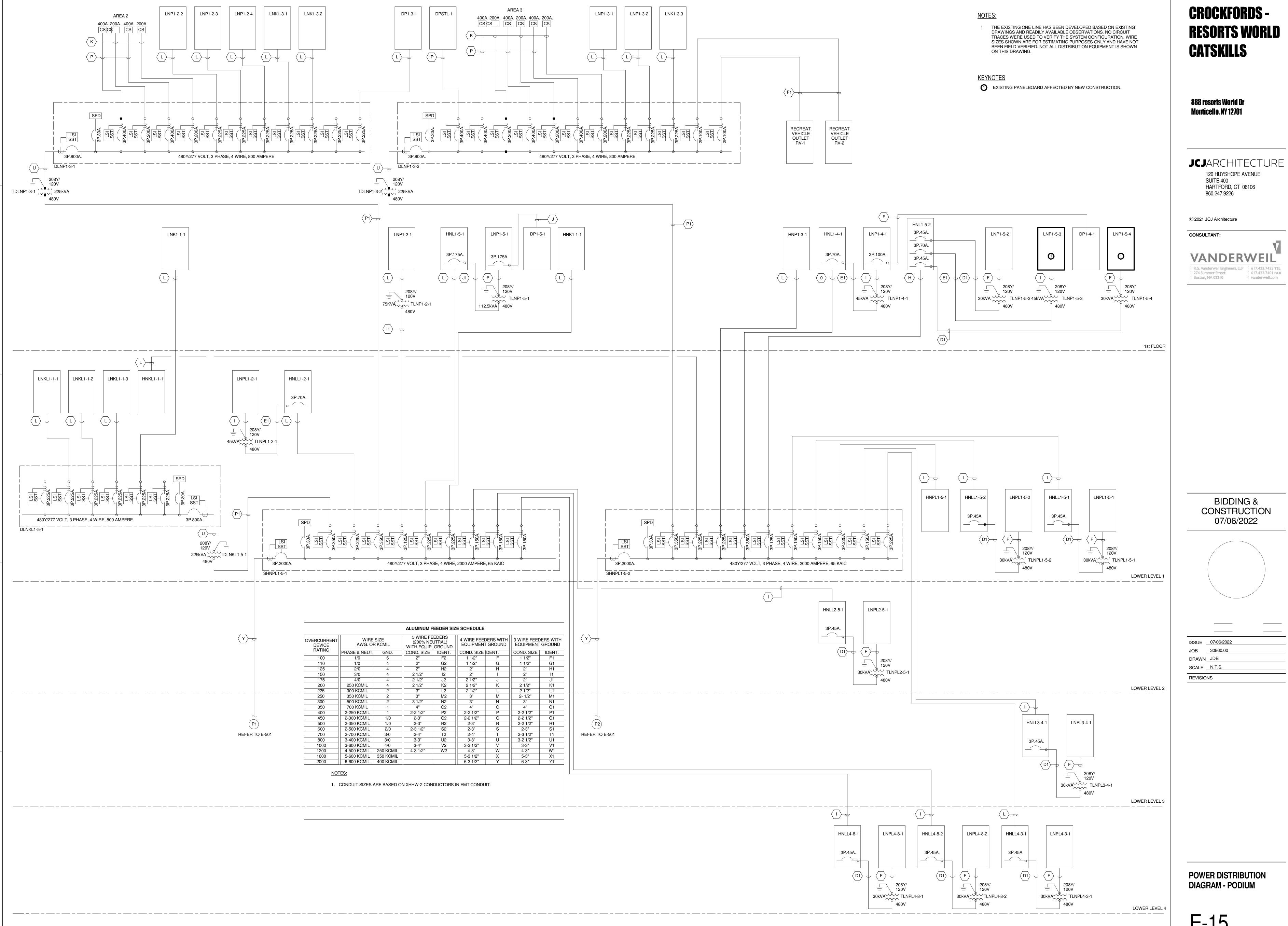
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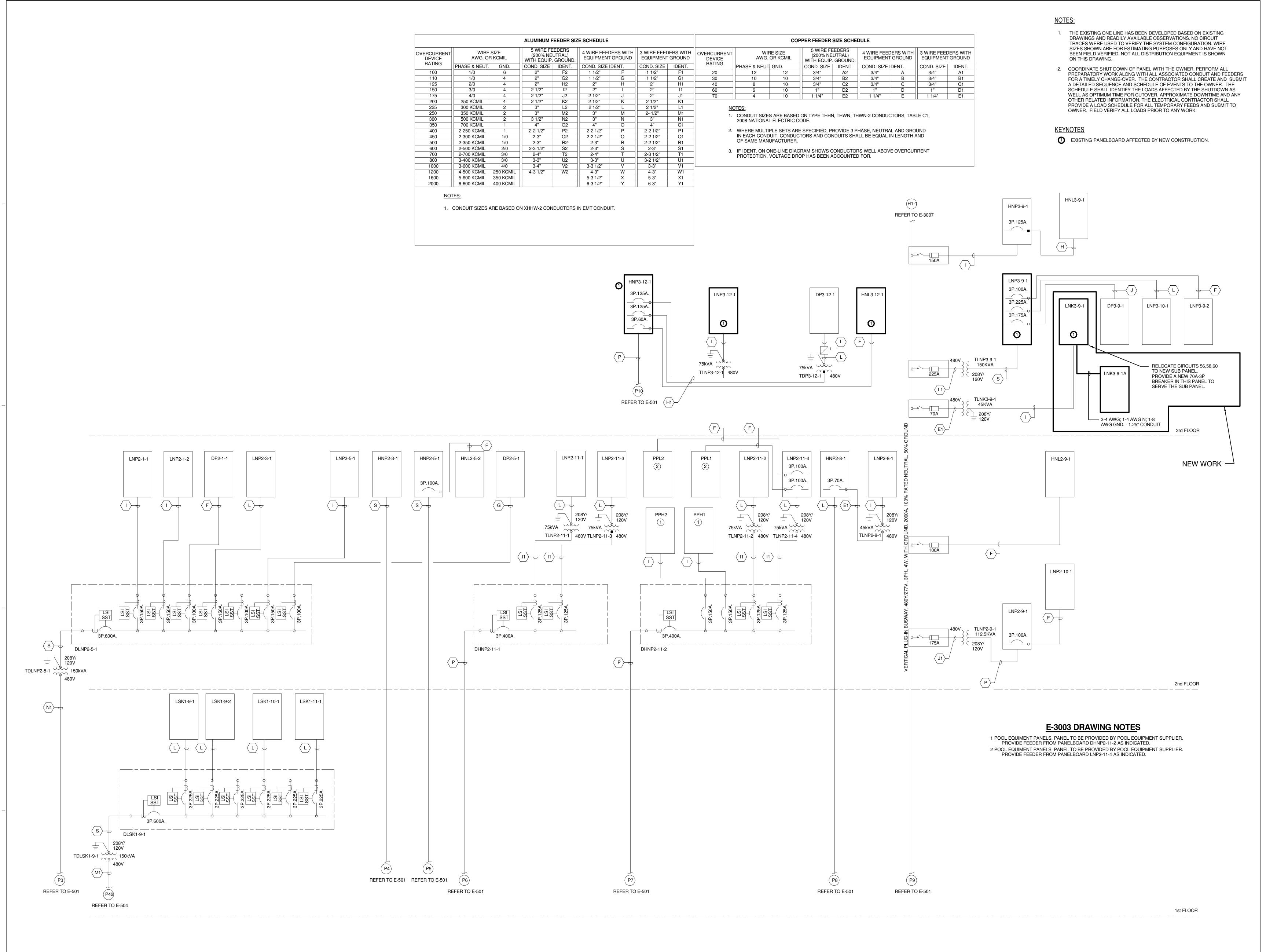
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POWER DISTRIBUTION **DIAGRAM - INCOMING SERVICE**



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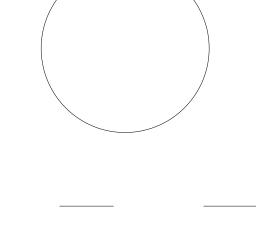
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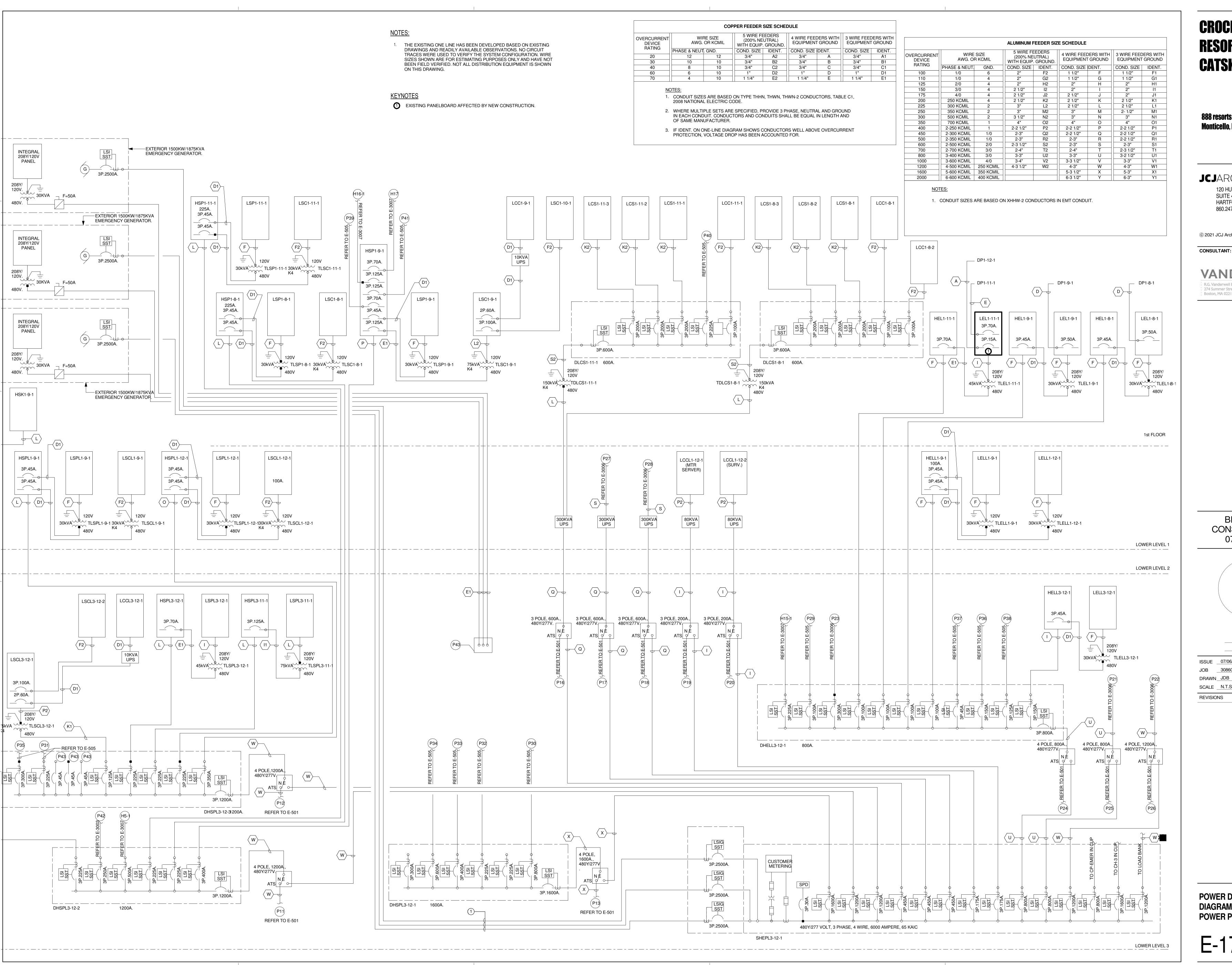
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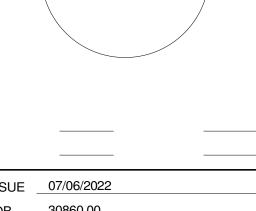
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POWER DISTRIBUTION **DIAGRAM - EMERGENCY POWER PODIUM**

ALUMINUM FEEDER SIZE SCHEDULE COPPER FEEDER SIZE SCHEDULE 4 WIRE FEEDERS WITH | 3 WIRE FEEDERS WITH | OVERCURRENT WIRE SIZE OVERCURRENT 4 WIRE FEEDERS WITH 3 WIRE FEEDERS WITH | (200% NEUTHAL) | EQUIPMENT GROUND | EQUIPMENT GROUND | (200% NEUTRAL) (200% NEUTRAL) AWG. OR KCMIL AWG. OR KCMIL EQUIPMENT GROUND | EQUIPMENT GROUND WITH EQUIP. GROUND. RATING RATING COND. SIZE | IDENT. | COND. SIZE |DENT. COND. SIZE | IDENT. COND. SIZE | IDENT. | COND. SIZE | IDENT.
 3/4"
 A2

 3/4"
 B2

 3/4"
 B

 3/4"
 B

 3/4"
 B
 110 1 1/2" G 1 1/2" G1 125 C2 150 10 | 1 1/4" | E2 | 1 1/4" | E | 1 1/4" | E1 K2 2 1/2" K 2 1/2" K1 250 KCMIL 225 300 KCMIL L2 2 1/2" L 2 1/2" L1 350 KCMIL 2- 1/2" 1. CONDUIT SIZES ARE BASED ON TYPE THHN, THWN, THWN-2 CONDUCTORS, TABLE C1, 500 KCMIL 2008 NATIONAL ELECTRIC CODE. 700 KCMIL 400 2-250 KCMIL 2-2 1/2" P2 2-2 1/2" P 2-2 1/2" P1 2. WHERE MULTIPLE SETS ARE SPECIFIED, PROVIDE 3 PHASE, NEUTRAL AND GROUND 2-300 KCMIL 2-3" Q2 2-2 1/2" Q IN EACH CONDUIT. CONDUCTORS AND CONDUITS SHALL BE EQUAL IN LENGTH AND OF SAME MANUFACTURER. 2-350 KCMIL 2-500 KCMIL 2/0 2-3 1/2" 3. IF IDENT. ON ONE-LINE DIAGRAM SHOWS CONDUCTORS WELL ABOVE OVERCURRENT 3/0 2-4" T2 2-4" T 2-3 1/2" 2-700 KCMIL PROTECTION, VOLTAGE DROP HAS BEEN ACCOUNTED FOR. 3-400 KCMIL 3/0 3-3" U2 3-3" U 3-2 1/2" U1 6-3 1/2" Y 6-3" Y1 2000 6-600 KCMIL 400 KCMIL NOTES: 1. CONDUIT SIZES ARE BASED ON XHHW-2 CONDUCTORS IN EMT CONDUIT.

NOTES:

1. THE EXISTING ONE LINE HAS BEEN DEVELOPED BASED ON EXISTING DRAWINGS AND READILY AVAILABLE OBSERVATIONS. NO CIRCUIT TRACES WERE USED TO VERIFY THE SYSTEM CONFIGURATION. WIRE SIZES SHOWN ARE FOR ESTIMATING PURPOSES ONLY AND HAVE NOT BEEN FIELD VERIFIED. NOT ALL DISTRIBUTION EQUIPMENT IS SHOWN ON THIS DRAWING.

<u>KEYNOTES</u>

1 EXISTING PANELBOARD AFFECTED BY NEW CONSTRUCTION.

CROCKFORDS RESORTS WORLD
CATSKILLS

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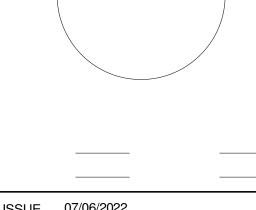
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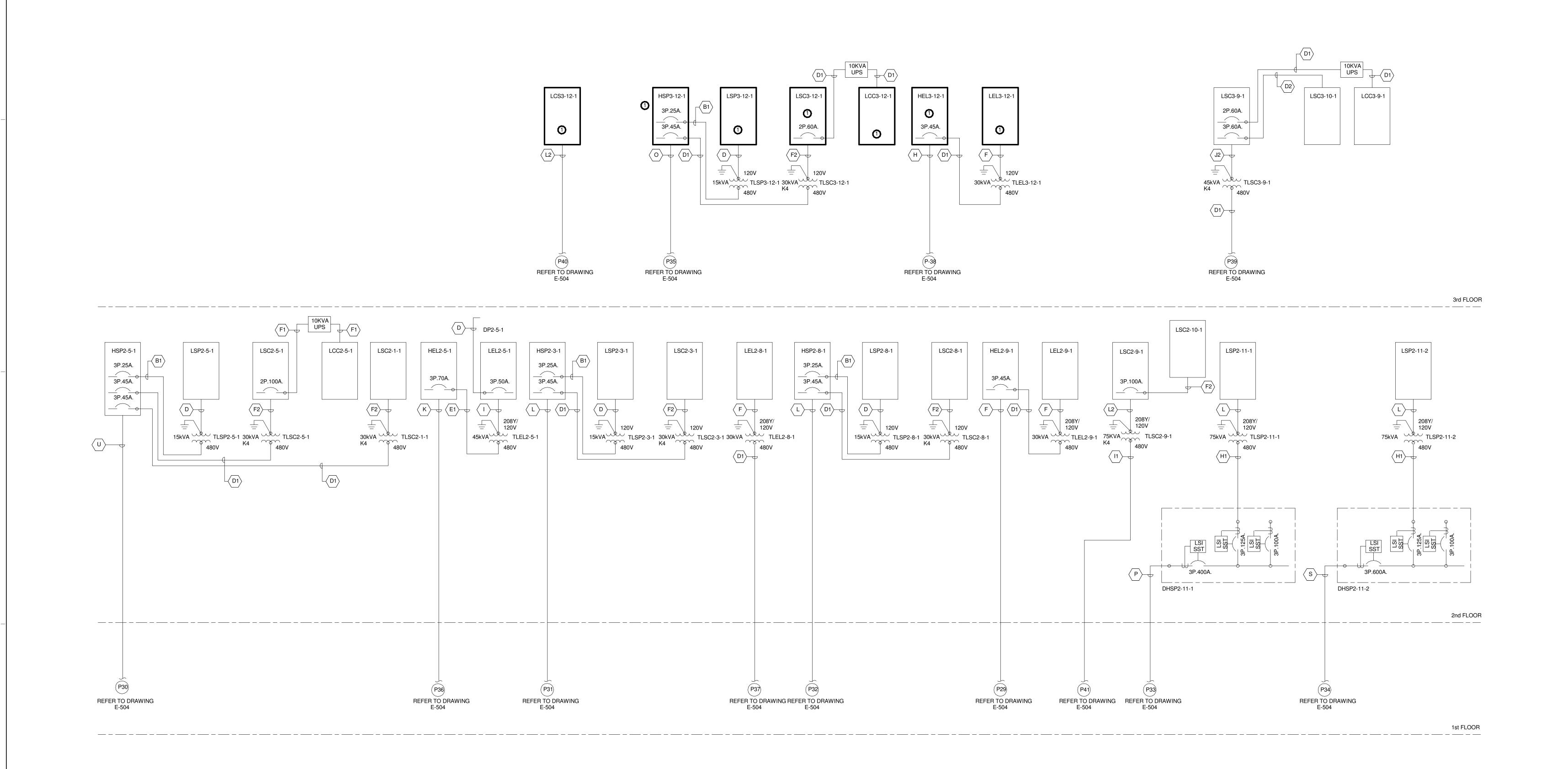
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POWER DISTRIBUTION
DIAGRAM - EMERGENCY



		SPECIAL PURPO			SCHEDIII				
			JOL NEGE	i iaul		· L			
SYMBOL	NEMA NO.	DEVICE RATI	NGS	CIRCUIT BREAKER					
H_1	5-15R	15A., 125V., 2P., 3W.		15A - 1P	2#12 & 1#12 GND	- 3/4"	C.		
H 2	5-20R	20A., 125V., 2P., 3W.		20A - 1P	2#12 & 1#12 GND	- 3/4"	C.		
H 3	5-30R	30A., 125V., 2P., 3W.		30A - 1P	2#10 & 1#10 GND	- 3/4"	C.		
H 4	5-50R	50A., 125V., 2P., 3W.		50A - 1P	2#6 & 1#10 GND	- 3/4"	C.		
H 5	6-15R	15A., 250V., 2P., 3W.		15A - 2P	2#12 & 1#12 GND	- 3/4"	C.		
H 5*	6-15R	15A., 250V., 2P., 3W.		15A - 2P	2#12 & 1#12 GND	- 3/4"	C.		
H 6	6-20R	20A., 250V., 2P., 3W.		20A - 2P	2#12 & 1#12 GND	- 3/4"	C.		
H 7	6-30R	30A., 250V., 2P., 3W.		30A - 2P	2#10 & 1#10 GND	- 3/4"	C.		
H 8	6-50R	50A., 250V., 2P., 3W.		50A - 2P	2#6 & 1#10 GND	- 3/4"	C.		
H 9	14-15R	15A., 125/250V., 3P., 4W.		15A - 2P	3#12 & 1#12 GND	- 3/4"	C.		
H 10	14-20R	20A., 125/250V., 3P., 4W.		20A - 2P	3#12 & 1#12 GND	- 3/4"	C.		
H11	14-30R	30A., 125/250V., 3P., 4W.		30A - 2P	3#10 & 1#10 GND	- 3/4"	C.		
H 12	14-50R	50A., 125/250V., 3P., 4W.		50A - 2P	3#6 & 1#10 GND	- 3/4"	C.		
H 13	14-60R	60A., 125/250V., 3P., 4W.		60A - 2P	3#6 & 1#10 GND	- 3/4"	C.		
H 14	15-15R	15А., 250V., 3Ф, 3Р., 4W.		15A - 3P	3#12 & 1#12 GND	- 3/4"	C.		
H 15	15-20R	20A., 250V., 3Ф, 3Р., 4W.		20A - 3P	3#12 & 1#12 GND	- 3/4"	C.		
H 16	15-30R	30A., 250V., 3Ф, 3Р., 4W.		30A - 3P	3#10 & 1#10 GND	- 3/4"	C.		
H 17	15-50R	50A., 250V., 3Ф, 3Р., 4W.		50A - 3P	3#6 & 1#10 GND	- 3/4"	C.		
H 18	15-60R	60A., 250V., 3Ф, 3Р., 4W.		60A - 3P	3#6 & 1#10 GND	- 3/4"	C.		
H 19	L5-15R	15A., 125V., 2P., 3W.	TWIST-LOCK	15A - 1P	2#12 & 1#12 GND	- 3/4"	C.		
H20	L5-20R	20A., 125V., 2P., 3W.	TWIST-LOCK	20A - 1P	2#12 & 1#12 GND	- 3/4"	C.		
H21	L5-30R	30A., 125V., 2P., 3W.	TWIST-LOCK	30A - 1P	2#10 & 1#10 GND	- 3/4"			
H 22	L6-15R	15A., 250V., 2P., 3W.	TWIST-LOCK	15A - 2P	2#12 & 1#12 GND	- 3/4"	C.		
H23	L6-20R	20A., 250V., 2P., 3W.	TWIST-LOCK	20A - 2P	2#12 & 1#12 GND	- 3/4"	C.		
H 24	L6-30R	30A., 250V., 2P., 3W.	TWIST-LOCK	30A - 2P	2#10 & 1#10 GND	- 3/4"	C.		
H 25	L14-20R	20A., 125/250V., 3P., 4W.	TWIST-LOCK	20A - 2P	3#12 & 1#12 GND	- 3/4"	C.		
H 26	L14-30R	30A., 125/250V., 3P., 4W.	TWIST-LOCK	30A - 2P	3#10 & 1#10 GND	- 3/4"	C.		
H 27	L15-20R	20A., 250V., 3Φ, 3P., 4W.	TWIST-LOCK	20A - 3P	3#12 & 1#12 GND	- 3/4"			
H 28	L15-30R	30A., 250V., 3Φ, 3P., 4W.	TWIST-LOCK	30A - 3P	3#10 & 1#10 GND	- 3/4"	C.		
H 29	L16-20R	20A., 480V., 3Φ, 3P., 4W.	TWIST-LOCK	20A - 3P	3#12 & 1#12 GND	- 3/4"	C.		
H30	L16-30R	30A., 480V., 3Φ, 3P., 4W.	TWIST-LOCK	30A - 3P	3#10 & 1#10 GND	- 3/4"	C.		
H31	L21-20R	20A., 125/208V., 3Φ, 4P., 5W.	TWIST-LOCK	20A - 3P	4#12 & 1#12 GND	- 3/4"			
H 32	L21-30R	30A., 125/208V., 3Ф, 4Р., 5W.	TWIST-LOCK	30A - 3P	4#10 & 1#10 GND	- 3/4"	C.		
NOTE:	: 0011	33,0/2007., 07, 11 ., 077.		3371 01	ATTO G THE TO GIND	5 / 1	<u>J.</u>		

1. COORDINATE EXACT NEMA CONFIGURATION WITH EQUIPMENT MANUFACTURER/PROVIDER.

* DUPLEX NEMA 6-15R RECEPTACLE.

BRANCH CIRCUITS SCHEDULE						
120 OR 277 VOLT 1Ф, 2W. CIRCUITS						
CIRCUIT BREAKER CONDUCTOR						
20A-1P	2 #12 & 1 #12 GND 3/4"C.					
30A-1P	2 #10 & 1 #10 GND 3/4"C.					
40A-1P	2 #8 & 1 #10 GND 3/4"C.					
50A-1P	2 #6 & 1 #10 GND 3/4"C.					
60A-1P	2 #6 & 1 #10 GND 3/4"C.					
208 VOLT 1Ф, 2W. CIRCUITS						
20A-2P	2 #12 & 1 #12 GND 3/4"C.					
30A-2P	2 #10 & 1 #10 GND 3/4"C.					
40A-2P	2 #8 & 1 #10 GND 3/4"C.					
50A-2P	2 #6 & 1 #10 GND 3/4"C.					
60A-2P	2 #6 & 1 #10 GND 3/4"C.					
208/120 VOLT, 1Ф, 3W. CIRCUITS						
20A-2P*	3 #12 & 1 #12 GND 3/4"C.					
30A-2P*	3 #10 & 1 #10 GND 3/4"C.					
40A-2P*	3 #8 & 1 #10 GND 3/4"C.					
50A-2P*	3 #6 & 1 #10 GND 3/4"C.					
60A-2P*	3 #6 & 1 #10 GND 3/4"C.					
208 OR 480 V	OLTS, 3Ф, 3W. CIRCUITS					
20A-3P	3 #12 & 1 #12 GND 3/4"C.					
30A-3P	3 #10 & 1 #10 GND 3/4"C.					
40A-3P	3 #8 & 1 #10 GND 3/4"C.					
50A-3P	3 #6 & 1 #10 GND 3/4"C.					
60A-3P	3 #6 & 1 #10 GND 3/4"C.					
208Y/120 & 480Y/	277 VOLT, 3Φ,4W. CIRCUITS					
20A-3P*	4 #12 & 1 #12 GND 3/4"C.					
30A-3P*	4 #10 & 1 #10 GND 3/4"C.					
40A-3P*	4 #8 & 1 #10 GND 3/4"C.					
50A-3P*	4 #6 & 1 #10 GND 1"C.					
60A-3P*	4 #6 & 1 #10 GND 1"C.					

NOTE

ALL BRANCH CIRCUIT SIZES ARE BASED ON RACEWAY LENGTH OF 65 FEET FOR 120 VOLT BRANCH CIRCUITS AND 150 FEET FOR 277 VOLT BRANCH CIRCUITS. IF LENGTH EXCEEDS 65 FEET (120 VOLT CIRCUITS) OR 150 FEET (277 VOLT CIRCUITS) THEN USE WIRE SIZE DENOTED BELOW AND INCREASE RACEWAY ACCORDINGLY. REDUCE LARGE CABLE SIZES IN JUNCTION BOX PRIOR TO DEVICE TERMINATION. PROVIDE WIRE REDUCERS AT BREAKERS WHEN REQUIRED.

CIRCUIT LENGTH							
WIRE SIZE	120V CIRCUIT	277V CIRCUIT					
#10	65 FT. TO 120 FT.	150 FT. TO 240 FT.					
#8	120 FT. TO 180 FT.	ABOVE 240 FT.					
#6	ABOVE 180 FT.	-					

- 2. REFER TO SPECIFICATION FOR EXTENT OF USE FOR TYPE MC CABLE. THIS SCHEDULE DEFINES MINIMUM WIRE AND CONDUIT SIZES FOR EACH CIRCUIT TAG INDICATED. WHEREVER CIRCUIT TAGS ARE INDICATED ON DRAWINGS, DETERMINE MINIMUM WIRE AND CONDUIT SIZE REQUIRED BY SELECTING THE APPROPRIATE ROW FOR ACTUAL CIRCUIT VOLTAGE/PHASE AND THEN SELECTING THE APPROPRIATE COLUMN FOR ACTUAL CABLE LENGTH OF CIRCUIT (CL) BASED ON PROPOSED FIELD ROUTING. ONCE THE APPROPRIATE COLUMN IS SELECTED, THE REQUIRED MINIMUM WIRE AND CONDUIT SIZES ARE IDENTIFIED BY THE INTERSECTION OF THAT COLUMN AND THE ROW FOR THE ASSOCIATED
- 3. WIRE AND CONDUIT TAGS REPRESENT BASE AMPACITY AND NUMBER OF WIRES (NOT INCLUDING GROUNDS.) BASE AMPACITIES INDICATED ARE VALID FOR 90°C RATED COPPER CONDUCTORS (APPLIED AT THEIR 60°C RATING) IN 30°C AMBIENT TEMPERATURE. INCREASE WIRE AND CONDUIT SIZES TO COMPENSATE FOR LOWER TEMPERATURE RATED WIRES AND HIGHER AMBIENT TEMPERATURES.
- 4. WHERE OVERSIZED CONDUCTORS ARE TOO LARGE TO DIRECTLY CONNECT TO SOURCE OR DEVICE TERMINALS, TRANSITION TO SMALLER CONDUCTORS (NO LESS THAN MINIMUM SIZE SHOWN FOR THAT CIRCUIT TAG IN SCHEDULE ABOVE) TO ACCOMMODATE REQUIRED TERMINATIONS. PROVIDE SPLICES, WIRE REDUCERS OR POWER BLOCKS IN APPROPRIATELY SIZED JUNCTION BOXES TO TRANSITION BETWEEN DIFFERENT SIZE CONDUCTORS. LENGTHS OF CONDUCTOR BETWEEN TRANSITION TO SMALLER CABLE AND FINAL TERMINATION SHOULD BE LIMITED TO NO MORE THAN 10 FEET WHEREVER POSSIBLE.
- SCHEDULE ABOVE, UPSIZE WIRE AND CONDUIT SIZES AS REQUIRED TO LIMIT VOLTAGE DROP TO NO MORE THAN 3% (FOR BRANCH CIRCUITS) AT 70% CIRCUIT BREAKER RATING. (FOR EXAMPLE, 20-AMP CIRCUIT CONDUCTORS ARE ASSUMED TO BE CARRYING 14 AMPS.) VOLTAGE DROP SHALL BE LIMITED TO 2% WHEN CIRCUITS ARE TO BE USED AS FEEDERS.

FOR CIRCUIT LENGTHS EXCEEDING MAXIMUM LENGTHS SHOWN IN

- 6. WHERE CIRCUITS ARE TO BE USED FOR FEEDERS, RATHER THAN BRANCH CIRCUITS, VOLTAGE DROP SHALL BE LIMITED TO NO MORE THAN 2%. ALLOWABLE MAXIMUM DISTANCES INDICATED IN SCHEDULE ABOVE SHALL BE REDUCED BY 33%.
- 7. CONDUIT SIZES INDICATED ARE VALID FOR THHN/THWN AND XHHW CONDUCTOR TYPES INSTALLED IN EMT, ENT, FMC, IMC, LFMC, RMC AND RIGID PVC (SCHEDULE 80, SCHEDULE 40, TYPE A, AND TYPE EB) CONDUIT TYPES. INCREASE CONDUIT SIZES AS REQUIRED TO COMPENSATE FOR CONDUCTOR TYPES WITH LARGER OVERALL DIAMETERS AND FOR CONDUIT TYPES WITH SMALLER INTERNAL DIAMETERS.
- 8. CONDUIT SIZES INDICATED ARE REQUIRED MINIMUM SIZES AND MAY BE INCREASED FOR LONG RUNS OR WHERE MULTIPLE BENDS ARE NECESSARY.
- 9. CONDUITS SMALLER THAN 3 INCHES SHALL BE UPGRADED TO THE NEXT LARGER TRADE SIZE WHEN USED FOR DIRECT-BURIED AND IN-SLAB INSTALLATIONS.
- UPGRADE CONDUIT SIZES FOR CIRCUITS RUN IN CONCRETE-ENCASED UNDERGROUND DUCTBANKS TO THE SIZES INDICATED FOR THE DUCTBANK CONDUITS.
- 11. TAGS WITH ISOLATED GROUND (+IG) INDICATED SHALL INCLUDE A SEPARATE IG CONDUCTOR, SAME SIZE AS ASSOCIATED CIRCUIT GROUND CONDUCTOR, TIED TO THE IG BUS. CONDUIT SIZES INDICATED IN SCHEDULE ABOVE ARE LARGE ENOUGH TO ACCOMMODATE AN IG CONDUCTOR IN ADDITION TO CONDUCTORS SHOWN.

PANEL NAME: LNK3-9-1A MOUNTING: Surface VOLTAGE: 208Y/120V SSC RATING: 10K FED FROM:				BU	BUS AMPS: 100 MLO: Yes MCB: No MCB RATING: — SHUNT TRIP: No					PANELBOARD OPTIONS & ACCESSORIES NEUTRAL BUS: Yes SUB-FEED LUGS: I NEUTRAL BUS RATING: 100% FEED-THRU LUGS: I EQUIPMENT GROUND: Yes SURGE SUPPRESSION: I ISOLATED GROUND: No					No		
СКТ	TYPE	DESCRIPTION	BKR TYPE	TRIP	POLE	A (k	(VA)	B (k	(VA)	C (F	(VA)	POLE	TRIP	BKR TYPE	DESCRIPTION	TYPE	СК
1	R	WINE BAR RECS		20	1	0.72	0.54					1	20		WINE BAR RECS	R	2
3	K	P.O.S. CHECK PRINTER		15	1			0.6	0.6			1	15		P.O.S. STATION	K	4
5	K	SPHERE ICE MACHINE		15	1					0.6	0.6	1	15		P.O.S. CHECK PRINTER	K	(
7	K	P.O.S. STATION		15	1	0.6	0.26					1	15		WINE COOLER	K	1
9	K	WINE DISPENSING SYST	EM	15	1			0.24	0.22			1	15		BACK BAR EQUIPMENT	K	1
11	K	REFRIGERATOR, REACH	-IN	20	1					0.46	0.6	1	15		SPHERE ICE MACHINE	K	1
13	М	CP-1		15	1	0.2	0.2					1	15		CP-1	М	1
15	М	CP-1		15	1			0.2	0.2			1	15		CP-1	М	1
17	М	CP-1		15	1					0.2							1
19																	2
21																	2
23																	2
25																	2
27																	2
29																	3
			PH	SE LO	DAD:	2.	46	2	2	2.	42			•			
			PH	SE A	MPS:	2	21	1	7	2	:1	1					
	D TYP	PE CONNECTED (kVA) DEI			TYPE ECEP1		:		AKER 1 IK = ST						PANEL TOTALS		
		-	1.02		GHTIN		-					Ma (E	OHID)		CONNECTED LOAD (kVA):	6.88	R
Л		1 / 2		'	\sim 11111N	J		100 =	JI 1001	10 I A	טט ו בי		αυπ)			0.00	J
Л ?		1.26 4.78			FCH/F			G - C	BOLIN		T 5 M	a		l	DEMAND I OAD (KVA).	5.24	2
/I ?		4.78	3.1	M = M	ECH/E				ROUN	D FAU	LT 5 M	a			DEMAND LOAD (kVA):	5.22	
Л ?			3.1	M = M K = KI	TCHE	V		A = A	RC FA	D FAUI ULT	LT 5 M	a			CONNECTED LOAD (AMPS):	19	
Л			3.1	M = M K = KI C = C		N UOUS	}	A = A ST =		D FAUI ULT TRIP		a			\ ,		

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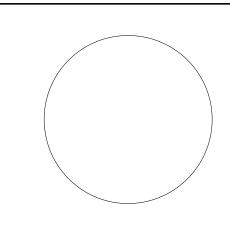
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REVISIONS

ELECTRICAL GENERAL SCHEDULES

MECHAN	ICAL EQUIPMENT SCHEDULE DEVICE LEGEND
ABBREVIATION	DESCRIPTION
СР	CONTROL PANEL:
	EQUIPMENT HAVING A CONTROL PANEL SHALL BE FURNISHED AND INSTALLED BY DIVISION 23 AND WIRED BY DIVISION 26.
CSD	COMBINATION FUSED DISCONNECT & STARTER:
	EQUIPMENT REQUIRING A STARTER SHALL BE FURNISHED WITH A COMBINATION STARTER/FUSED DISCONNECT BY DIVISION 26. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND WIRE THE COMBINATION STARTER/FUSED DISCONNECT.
FDS	FUSED DISCONNECT SWITCH:
	UNLESS OTHERWISE INDICATED, ALL FUSED DISCONNECT SWITCHES ARE PROVIDED BY DIVISION 26.
JB	JUNCTION BOX:
	UNLESS OTHERWISE INDICATED, JUNCTION BOX PROVIDED AND INSTALLED BY DIVISON 26.
MMS	MANUAL MOTOR STARTER:
	THERMAL OVERLOAD PROVIDED AND INSTALLED BY DIV. 26.
VFD	VARIABLE FREQUENCY DRIVE:
	UNLESS OTHERWISE INDICATED, VARIABLE FREQUENCY DRIVES PROVIDED AND INSTALLED BY DIV. 26. PROVIDE FILTERS AT EACH VFD TO REDUCE HARMONIC DISTORTION. REFER TO SPECIFICATIONS. COORDINATE LOCATION OF VFD WITH MECHANICAL CONTRACTOR AND FIELD CONDITIONS. EQUIPMENT WITH VFD NOT WITHIN SIGHT OF THE ASSOCIATED EQUIPMENT SHALL BE PROVIDED WITH A LOCAL DISCONNECT. DISCONNECT SWITCHES LOCATED AT MOTORS, SERVED BY A VFD, SHALL HAVE ELECTRICAL INTERLOCK KIT FOR INTERFACE TO VFD SHUTDOWN. A PIVOT ARM OPERATES FROM THE SWITCH MECHANISM, BREAKING THE CONTROL CIRCUIT BEFORE THEMAIN SWITCH BLADES BREAK. PROVIDE, IN ADDITION TO THE MOTOR FEED, 2#12IN A 3/4" CONDUIT FROM THE DISCONNECT TO THE VFD.
VFD*	VFD'S SHOWN IN THIS SCHEDULE DENOTED WITH" * " INDICATES VFD PROVIDED WITH EQUIPMENT. ELECTRICAL CONTRACTOR SHALL PROVIDE FUSED DISCONNECT SWITCH WITH PIVOT ARM CONTACTS AT EQUIPMENT EXTERIOR. THE PIVOT ARM OPERATES FROM THE SWITCH MECHANISM, BREAKING THE CONTROL CIRCUIT BEFORE THE MAIN SWITCH BLADES BREAK. PROVIDE IN ADDITION TO THE MOTOR FEED, 2#12 IN A 3/4" CONDUIT FROM THE DISCONNECT TO THE VFD.

NAME #						MEC	HA	NICAL EQ	UIPME I	NT SC	HEDU	LE					
TAG	DESCRIPTION	TRADE -		LOAD		VOLTAGE	Ф	POWER SYSTEM	PANEL	CKT	CIRCUIT	BRAN	ICH CIRCUITRY	,	DEVICE	LOCATION	KEY NOTE
NAME #	DESCRIPTION	INADE	HP	W	FLA	VOLTAGE	Ψ	POWERSTSTEW	PANEL	CKI	BREAKER	CONDUCTORS	GROUND	CONDUIT	DEVICE	LOCATION	KETNOTE
CP 1 C	CONDENSATE PUMP	HVAC	0	0	2	120	1	NORMAL	LNK3-9-1A	13	15A-1P	2-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
CP 1 C	CONDENSATE PUMP	HVAC	0	0	2	120	1	NORMAL	LNK3-9-1A	14	15A-1P	2-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
CP 1 C	CONDENSATE PUMP	HVAC	0	0	2	120	1	NORMAL	LNK3-9-1A	15	15A-1P	2-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
CP 1 C	CONDENSATE PUMP	HVAC	0	0	2	120	1	NORMAL	LNK3-9-1A	16	15A-1P	2-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
CP 1 C	CONDENSATE PUMP	HVAC	0	0	2	120	1	NORMAL	LNK3-9-1A	17	15A-1P	2-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
ERV 1 E	ENERGY RECOVERY VENTILATOR	HVAC	0	0	18	208	1	NORMAL	LNP3-9-1	43,45	25A-2P	2-10 AWG	1-10 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
ERV 2 E	ENERGY RECOVERY VENTILATOR	HVAC	0	0	18	208	3	NORMAL	LNP3-9-1	47,49,51	25A-3P	3-10 AWG	1-10 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
FCU 1 F	FAN COIL UNIT	HVAC	1.5	0	3	480	3	NORMAL	HNP3-12-1	25,27,29	15A-3P	3-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
FCU 2 F	FAN COIL UNIT	HVAC	1.5	0	3	480	3	NORMAL	HNP3-12-1	31,33,35	15A-3P	3-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
FCU 3 F	FAN COIL UNIT	HVAC	1.5	0	3	480	3	NORMAL	HNP3-12-1	37,39,41	15A-3P	3-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
FCU 4 F	FAN COIL UNIT	HVAC	1.5	0	3	480	3	NORMAL	HNP3-12-1	32,34,36	15A-3P	3-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-
FCU 5 F	FAN COIL UNIT	HVAC	1	0	2	480	3	NORMAL	HNP3-12-1	38,40,42	15A-3P	3-12 AWG	1-12 AWG	3/4"C	FDS	REFER TO HVAC DRAWINGS	-

ELECTR	ICAL SHEET NOTES - MECHANICAL EQUIPMENT SCHEDULE
1	REFER TO THE MECHANICAL, PLUMBING AND FIRE PROTECTION DRAWINGS AND SPECIFICATIONS FOR THE LOCATIONS OF ALL EQUIPMENT REQUIRING AN ELECTRICAL CONNECTION. PROVIDE FLEXIBLE CONNECTIONS TO ASSOCIATED EQUIPMENT.
2	LOCATE DISCONNECT SWITCHES, COMBINATION CONTROLLERS AND VFD'S AS CLOSE AS PRACTICABLE TO EQUIPMENT SERVED, AND IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE. CONTROL EQUIPMENT NOT WITHIN SITE OF THE MOTOR SHALL BE PROVIDED WITH A LOCAL FUSED DISCONNECT WITH ENCLOSURE PROPERLY RATED FOR THE APPLICATION. ELECTRICAL EQUIPMENT SHALL BE RATED FOR THE MAXIMUM AVAILABLE FAULT CURRENT, AND SHALL BE RATED IN HORSEPOWER TO MEET THE REQUIREMENTS OF THE EQUIPMENT SERVED.
3	PROVIDE NAMEPLATE FOR EACH CONTROLLER AND/OR DISCONNECT MOUNTED ON FRONT OF UNIT ENCLOSURE. NAMEPLATE SHALL INDICATE EQUIPMENT NAME (I.E. AHU-4), CONTROLLER DESIGNATION (I.E. VFD, STARTER, ETC), EQUIPMENT ELECTRICAL CHARACTERISTICS (I.E. VOLTAGE, PHASE, HP), SOURCE FED FROM (I.E. FED FROM PANEL M432) AND LOCATION OF SOURCE (I.E. LOCATED IN ELEC RM 142).
4	REFER TO POWER PLANS FOR ALL FAN COIL, FAN BOX, AND UNIT HEATER BRANCH CIRCUIT WIRING INFORMATION.
5	AQUASTAT FOR WATER HEATER CIRCULATION PUMP, FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.

ELECTRI	CAL KEY NOTES - MECHANICAL EQUIPMENT SCHEDULE
KEY NOTE	DESCRIPTION
	MULTIPLE INSTANCES OF EQUIPMENT ARE SHOWN THROUGHOUT THE PROJECT. REFER TO THE ELECTRICAL POWER PLANS FOR THE PANEL AND CIRCUIT NUMBER DESIGNATED FOR EACH INSTANCE OF EQUIPMENT.

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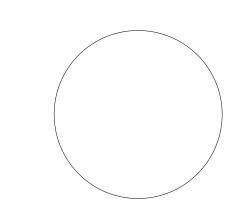
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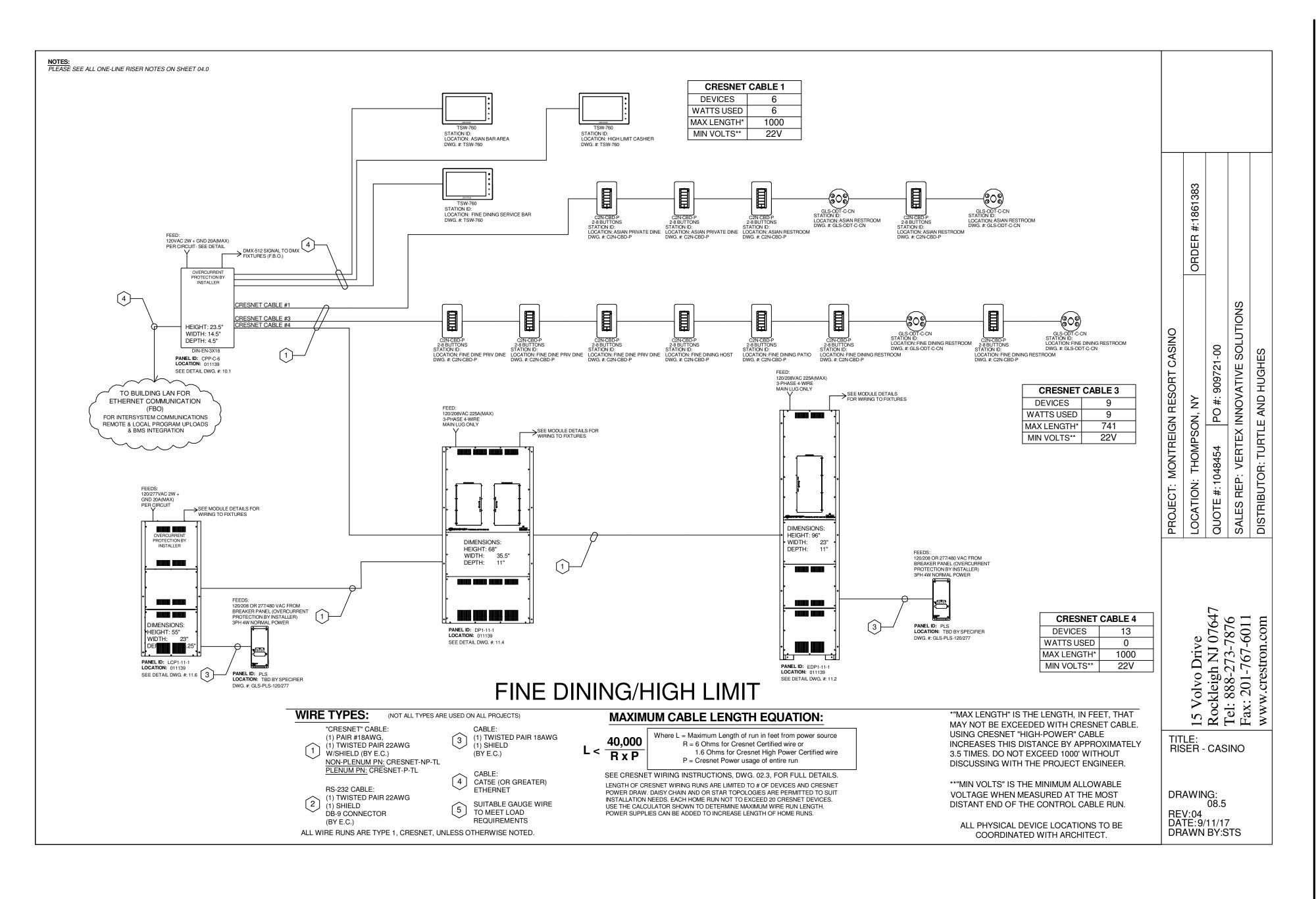


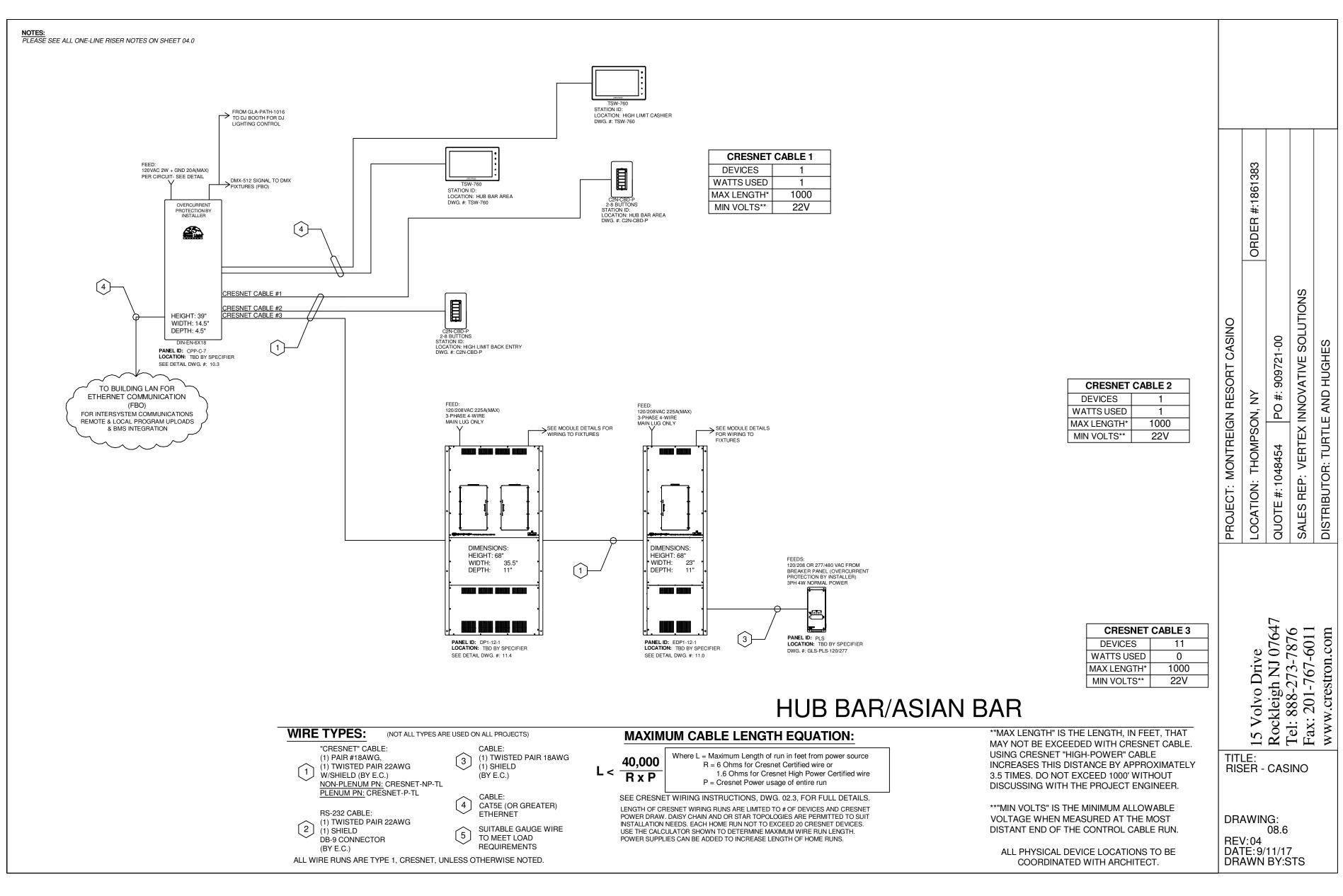
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MECHANICAL EQUIPMENT SCHEDULE





\EXISTING SYSTEM RISER

MODEL GLERILO-2X4-120-60 AICTYPE NORMAL 22,000 FEED 3PH 4-WIRE, MLO BHEALSING CAUTINET MODULE2K SCHOOLELE CIRCUITS MODEL 1 GLX-DIMFLV8 2 GLX-DIMFLV8 3 GLX-DIMFLV8 4 GLX-DIM6 5 GLX-DIM6 6 GLX-DIM6 7 GLX-DIM6 LIGHTING CONTROL MODEL GI ENTLO 3X2-120-42 AICTYPE EMERGENCY RATING FEED 3PH 4-WIRE, MLO BHERLISKS CAUTINEP FMODUBE2K SCHEDULE MODEL CIRCUITS GLX-DIMFLV8 GLX-DIMFLV8

GLX-DIMFLV8

GLX-DIM6

BLANK

6 BLANK

LIGHTING CONTROL

- THE EXISTING LIGHTING CONTROL SYSTEM IS CRESTRON. THE RISERS HAVE BEEN DEVELOPED BASED ON EXISTING SHOP DRAWINGS AND READILY AVAILABLE OBSERVATIONS. NO CIRCUIT TRACES WERE USED TO VERIFY THE SYSTEM CONFIGURATION. NOT ALL LIGHTING CONTROL EQUIPMENT IS SHOWN ON THIS DRAWING.
- DELEGATED DESIGN. THE LIGHTING CONTROLS MANUFACTURE SHALL DESIGN THE MODIFICATION OF THE EXISTING SYSTEM TO ACCOMMODATE NEW FIXTURE CONTROLS. REFER TO THE LIGHTING FIXTURE SPECIFICATION FOR TYPE OF CONTROL (0-10V, FORWARD PHASE, DMX, ETC). PROVIDE NEW CRESTRON COMPONENTS AND MODULES FOR A FULLY OPERATIONAL SYSTEM. PROVIDE CRESTRON GLX-DIMFLV8 AND GLX-DIM6 MODULES AS REQUIRED TO PROVIDE DIMMING OF NEW FIXTURES. INCLUDE ALL PROGRAMMING REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
- PROVIDE ENGINEERING ASSISTANCE AS NEEDED DURING DELIVERY AND INSTALLATION TO ASSIST INSTALLING CONTRACTOR.
- A QUALIFIED FACTORY AUTHORIZED TECHNICIAN OR QUALIFIED AGENT SHALL PROVIDE A SUFFICIENT LEVEL OF INSPECTION PRIOR TO ENERGIZING THE SYSTEM TO ASSURE WITH A HIGH LEVEL OF CONFIDENCE THAT PASSIVE AND ACTIVE LIGHTING SYSTEM COMPONENTS HAVE BEEN PROVIDED AND INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND MANUFACTURER'S RECOMMENDATIONS WHICHEVER IS MORE STRINGENT. INSPECTIONS SHALL INCLUDE: LIGHTING FIXTURES, DRIVERS, LAMPS, FIXTURES WIRING, GROUNDING, NETWORK WIRE CONNECTORS, CONNECTIONS, LABELING, ENCLOSURES, AND GENERAL WORKMANSHIP. INSPECTION SHEETS FOR A MINIMUM OF FIVE (5) OF EACH FIXTURE TYPE AND OTHER SYSTEM ELEMENTS SHALL BE CREATED, FILLED IN, DATED, INITIALED, AND INCLUDED IN THE SYSTEM O&M MANUAL.
- A QUALIFIED FACTORY AUTHORIZED TECHNICIAN SHALL SUPERVISE INITIAL TURN-ON AND SHALL COOPERATE WITH THE INSTALLING CONTRACTOR IN MAKING ANY REQUIRED ADJUSTMENT OR TRIMMING OF COMPONENTS TO ENABLE THE SYSTEM TO FUNCTION AS
- AS A PORTION OF THE FINAL INSPECTION, THE TECHNICIAN SHALL DEMONSTRATE THE SYSTEM IN THE PRESENCE OF THE DESIGN PROFESSIONAL, OWNER AND/OR CONTROLS CONSULTANT, AS DIRECTED, TO PROVE THAT THE SYSTEM IS OPERATING PROPERLY AS WELL AS PROVIDING INSTRUCTION IN THE USE AND OWNER MAINTENANCE OF THE SYSTEM.
- PROVIDE A MINIMUM OF (1) TWO (2) HOUR SESSION OF FORMAL OPERATION AND MAINTENANCE INSTRUCTION SEPARATE FROM THE DEMONSTRATION AND OFFERED AT THE CONVENIENCE OF THE OWNER'S SCHEDULE IN THE PRESENCE OF THE CONTROLS
- PROVIDE FORMAL DEMONSTRATION OF THE SYSTEM OPERATION TO THE COMMISSIONING AGENT.

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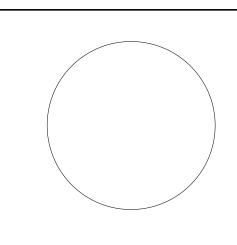
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SCALE N.T.S. REVISIONS

> LIGHTING CONTROL **DIAGRAM**

E-21

LIGHTING CONTROL MODEL GLE-MIJO-2X4-120-60 AICTYPE 3PH 4-WIRE, MLO BHEALSING CAUTOREP BY CODE OF 122K SCHEDELE CIRCUITS MODEL 1 GLX-DIMFLV8 2 GLX-DIMFLV8
3 GLX-DIMFLV8 4 GLX-HSW8 5 GLX-HSW8 6 GLX-DIM6 7 GLX-DIM6 LIGHTING CONTROL

WODEL GI EWIL02X2-120-30 AICTYPE EMERGENCY 3PH 4-WIRE, MLO BABAKERS GABANEPBNROĐUA 22K

\ EXISTING SYSTEM CABINETS

(3) SCOPE NOTES

LIGHTING FIXTURE NOTES

1. FURNISH ALL LIGHTING FIXTURES COMPLETE WITH MOUNTING ACCESSORIES TO MEET JOB REQUIREMENTS. VERIFY FIXTURE MOUNTING AND LOCATION AGAINST ARCHITECTS PLANS, ELEVATIONS AND DETAIL DRAWINGS. EXACT LOCATION OF ALL FIXTURES SHALL BE CONFIRMED WITH THE ARCHITECT PRIOR TO ROUGHING IN. REFER TO ARCHITECT \ LIGHTING DESIGNER DRAWINGS AND/OR SPECIFICATIONS FOR ADDITIONAL FIXTURES OR REQUIREMENTS NOT SHOWN IN ELECTRICAL LIGHTING FIXTURE SCHEDULE.

CONTRACTOR SHALL CONFIRM FIXTURE VOLTAGES, CEILING TRIMS, AND MOUNTING HARDWARE ARE COMPATIBLE WITH THEIR APPLICATIONS AS DETERMINED BY THE DESIGN PROFESSIONAL PRIOR TO ORDERING FIXTURES. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE COORDINATION OF ALL LIGHTING EQUIPMENT AND CONTROL DEVICES WITH CEILING AND WALL TYPES SPECIFIED PRIOR TO ORDERING LIGHTING

ALL LIGHTING FIXTURES, LAMPS, AND RELATED DEVICES FURNISHED UNDER THIS CONTRACT SHALL CARRY THE APPROVAL LABEL OF UL OR ETL FOR THE SPECIFIC APPLICATION IN WHICH THEY ARE USED.

WHITE L.E.D.S SHALL MEET, AT A MINIMUM, CHROMATICITY STANDARDS SET BY ANSI/NEMA/ANSLG C79.377-2011. L.E.D. LUMEN MAINTENANCE SHALL BE MEASURED IN ACCORDANCE WITH IESNA LM-60 STANDARDS. PHOTOMETRIC TESTING FOR SOLID STATE LUMINAIRES SHALL BE IN ACCORDANCE WITH IESNA LM-79 STANDARDS.

FIXTURE SUBMITTAL PACKAGE SHALL BE IN ELECTRONIC SEARCHABLE FORMAT (NOT SCANNED) AND INCLUDE THE FOLLOWING INFORMATION: SUMMARY SHEET LISTING ALL THE LIGHT FIXTURES TYPES, THE CATALOG NUMBER FOR EACH, THE QUANTITY OF EACH FIXTURE THE (SOURCE) LAMP TYPE AND MANUFACTURER, THE DRIVER AND THE VOLTAGE.

FIXTURE MANUFACTURER FIXTURE CATALOG NUMBER

OBTAINED FROM ARCHITECTURAL DRAWINGS.

VOLTAGE SYSTEM WATTAGE (LAMP AND DRIVER/BALLAST) SOURCE (LAMP) MANUFACTURER/CATALOG NUMBER

SOURCE (LAMP) TYPE AND QUANTITY PER FIXTURE DRIVER MANUFACTURER/CATALOG NUMBER

CONTRACTORS COMMENTS EACH FIXTURE TYPE SHALL HAVE A FIXTURE SPEC SHEET THAT INCLUDES PHOTOMETRIC DATA, FOLLOWED BY A CUT SHEET OF THE (SOURCE) LAMP WHICH IS FOLLOWED BY A CUT SHEET OF THE DRIVER/BALLAST.

PRODUCT DATA SHALL INCLUDE PHYSICAL DIMENSIONS, AND ANY SPECIAL MOUNTING DETAILS. PROVIDE AN EXIT SIGN SUBMITTAL THAT INCLUDES EACH ARCHITECTURAL FLOOR PLAN WITH THE CEILINGS AND THE EXIT SIGNS NOTED.

REQUIREMENTS ASSOCIATED WITH SUBMITTING LIGHTING FIXTURE SUBSTITUTIONS.

EACH FIXTURE TYPE SHALL HAVE AN INDIVIDUAL SUMMARY SHEET THAT IDENTIFIES THE FOLLOWING:

EACH SIGN SHALL BE IDENTIFIED BY TYPE (X1, X2, ETC). THE IDENTIFIER SHALL INCLUDE EXIT SIGN MOUNTING TYPE (CEILING, PENDANT, WALL, END), QUANTITY OF FACE (SINGLE OR DOUBLE) AND DIRECTION OF CHEVRONS. FOR LINEAR CONTINUOUS ROWS OF FIXTURES THAT CONTAIN SECTIONS OF DAYLIGHTING DIMMING ZONES AND OR EMERGENCY LIGHTING SECTION, PROVIDE DETAILED FACTORY SHOP DRAWINGS FOR EACH CONTINUOUS RUN TYPE THAT INDICATES EACH FIXTURE SECTION. THE SHOP DRAWINGS SHALL IDENTIFY FIXTURES WITH SEPARATE DRIVERS TO ACCOMMODATE EMERGENCY LIGHTING AND/OR DAY-LIGHTING CONTROL

CONTRACTOR SHALL PROVIDE THE FOLLOWING WITH THEIR BID: THE UNIT PRICE FOR EACH LIGHTING FIXTURE TYPE LISTED WITHIN THE LIGHTING FIXTURE SCHEDULE. THE UNIT PRICE SHALL BE FOR ONE OF THE LISTED MANUFACTURER'S FOR THAT PARTICULAR FIXTURE. THE MANUFACTURER SHALL BE IDENTIFIED. SUBSTITUTIONS FOR FIXTURES PROVIDED BY MANUFACTURERS NOT LISTED IN THE SCHEDULE ARE NOT ACCEPTABLE. SEE BELOW FOR

THE SPECIFIED FIXTURES HAVE BEEN SELECTED FOR PERFORMANCE AND/OR AESTHETIC REASONS. "ALTERNATE MANUFACTURER" AND "OR APPROVED EQUAL" MEANS EQUIVALENT OR SUPERIOR IN PERFORMANCE, MATERIALS, WORKMANSHIP AND APPEARANCE TO THE SPECIFIED EQUIPMENT. FIXTURE SUBSTITUTIONS SHALL ONLY BE CONSIDERED IF:

THE TOTAL QUANTITY OF EACH FIXTURE TYPE WITH THE EXTENDED COST FOR THAT QUANTITY.

THE SUBMITTING AGENT MUST SUBMIT IN WRITING THE REASONS THAT THIS FIXTURE SHOULD BE CONSIDERED AN EQUAL, TO BE CONSIDERED. THE ACCEPTANCE OR REJECTION OF ANY FIXTURE SUBSTITUTION SHALL BE SOLE DETERMINATION OF THE DESIGN TEAM AND BASED ON, BUT NOT LIMITED TO: OPTICAL PERFORMANCE, CONSTRUCTION QUALITY, AESTHETICS, SHAPE, SIZE, LAMPING, FUNCTIONALITY,

ACCESSORIES, LEAD TIMES, COSTS, AND FEATURES. THE SUBSTITUTED FIXTURE SHALL BE ACCOMPANIED BY A CUT SHEET OF THE BASIS OF DESIGN FIXTURE FOR A SIDE BY SIDE COMPARISON.

THE SUBSTITUTED FIXTURE SHALL HAVE NEARLY IDENTICAL LUMEN OUTPUT TO THE SPECIFIED FIXTURE. ANY SUBSTITUTE OR ALTERNATE FIXTURE SHALL BE PROVIDED WITH FULL PHOTOMETRICS IDENTIFYING FC LEVELS FOR THE PROJECT AREA. THE DESIGN LIGHTING POWER DENSITY HAS BEEN ESTABLISHED TO MEET PROJECT LEED GOALS OR TO COMPLY WITH THE ENERGY CODE. ALTERNATE OR SUBSTITUTED FIXTURES SHALL HAVE THE IDENTICAL (OR LESS) SYSTEM WATTAGE TO THE SPECIFIED FIXTURE. ANY SUBSTITUTE OR ALTERNATE FIXTURE SHALL BE PROVIDED WITH FULL ACCOMPANYING COMCHECK CALCULATION IDENTIFYING COMPLIANCE

WITH PROJECT OR CODE REQUIRED LPD LIGHT POWER DENSITY LEVELS. IF REQUESTED BY THE DESIGN TEAM, A NON-RETURNABLE WORKING SAMPLE OF THE SUBSTITUTION FIXTURE MUST BE PROVIDED TO THE ARCHITECT WITHIN 10 WORKING DAYS UPON REQUEST. THE SAMPLE SHALL BE CORD AND PLUG CONNECTED FOR 120 VOLT OPERATION AND

INCLUDE CONTROLS THAT MATCH THE SUPPLIED CONTROLS FOR FULL SYSTEM EVALUATION. PROVIDE CONTRACTOR'S CERTIFICATION STATING THAT THE PROPOSED SUBSTITUTION CONFORMS TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS IN EVERY RESPECT AND IS APPROPRIATE FOR THE APPLICATIONS INDICATED IN THE DOCUMENTS.

CONTRACTOR'S CERTIFICATION STATING THAT ANY MODIFICATIONS TO ANY BUILDING SYSTEM OR EQUIPMENT THAT MAY RESULT FROM THE

PROPOSED LIGHTING FIXTURE SUBSTITUTION WILL BE DESIGNED AND CONSTRUCTED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR'S WAIVER OF RIGHTS TO ADDITIONAL PAYMENT OR TIME THAT MAY BECOME NECESSARY SHOULD THE PROPOSED SUBSTITUTION FAIL TO PERFORM IN A MANNER THAT MATCHES THE SPECIFIED FIXTURE.

CONTRACTOR-NET UNIT PRICE FOR THE SPECIFIED FIXTURE AND FOR THE PROPOSED SUBSTITUTE FIXTURE. THE LIGHTING DESIGNER AND ENGINEER SHALL BE REIMBURSED BY THE CONTRACTOR FOR ALL OF THE DESIGNER'S TIME ASSOCIATED WITH THE REVIEW OF THE PROPOSED FIXTURE SUBSTITUTION(S). PAYMENT SHALL BE MADE IN ADVANCE OF THE REVIEW. BASED ON THI DESIGNER'S ESTIMATE OF THE REQUIRED TIME. THE PAYMENT SHALL BE BASED ON THE DESIGNER'S STANDARD HOURLY RATES FOR THE PERSONNEL INVOLVED IN THE REVIEW ALL OF THE INFORMATION ABOVE SHALL BE PROVIDED WITH FIXTURE SUBMITTAL FOR REVIEW OF ALTERNATE OR SUBSTITUTE FIXTURES. IF

ALL REQUIRED INFORMATION IS NOT PROVIDED ALTERNATE OR SUBSTITUTE FIXTURES WILL NOT BE REVIEWED. THE LIGHTING FIXTURE SCHEDULE IDENTIFIES FIXTURES BY TYPE AND IN SOME CASES THE NOMINAL LENGTH. THE ELECTRICAL DRAWINGS MAY INCLUDE A SUB NUMBER TO INDICATE THE SUBDIVIDED FIXTURE LENGTHS TO IDENTIFY EMERGENCY LIGHTING FIXTURES, FIXTURES WITH DAY-LIGHTING CONTROL AS WELL AS ACCOUNT FOR FIXTURE WATTAGES BY FOOT. PROVIDE CONTINUOUS RUNS OF JOINED FIXTURES TO CREATE LONGER CONTINUOUS RUN LENGTHS FOR A VIRTUALLY SEAMLESS CONNECTION TO MATCH THE TOTAL FIXTURE LENGTHS INDICATED ON THE ARCHITECTURAL REFLECTED CEILING PLANS. LENSES ARE TO BE AS LONG AS POSSIBLE WITH MINIMAL BREAKS. FIXTURE TAKEOFFS SHALL BE BASED ON OVERALL RUN LENGTHS BASED ON THE LONGEST BODY SECTION THAT CAN BE MANUFACTURED. FOR CONTINUOUS FIXTURES, THERE ARE TO BE NO END CAPS BETWEEN JOINTS. RATHER A HAIRLINE SEAM AND SHARED PENDANT SUPPORTS AT JOINTS. POWER DROPS FOR NORMAL AND EMERGENCY POWER SHALL BE PROVIDED IN THE SMALLEST NUMBER POSSIBLE. FIXTURES SHALL BE PROVIDED WITH SEPARATE DRIVERS TO ACCOMMODATE EMERGENCY LIGHTING OR DAY-LIGHTING CONTROL. ELECTRICAL CONTRACTOR TO COORDINATE ALL POWER DROP LOCATIONS WITH ARCHITECT AND LIGHTING DESIGNER.

SERIES FIXTURES SHALL SATISFY LENGTHS AS SHOWN ON THE DRAWINGS. FIXTURE LETTERS SHOWN ONCE ON A CONTINUOUS ROW OF FIXTURES SHALL BE TYPICAL FOR THAT ROW UNLESS OTHERWISE NOTED.

SERIES FIXTURES SHALL HAVE THE LENS FLUSH, EVEN AND MEET IN A HAIRLINE JOINT. PROTRUDING, ANGLED OR OVERLY SPACED LENSING IS NOT ACCEPTABLE. FIXTURES SHALL BE BUTTEN TOGETHER; PLUMB AND ALIGNED SO THAT THERE IS NOT LIGHT LEAKS/MISALIGNMENTS BETWEEN FIXTURES AND OTHER FITTINGS. SUSPENDED CONTINUOUS ROW FIXTURES SHALL HAVE THE SUSPENSION POINTS FOR THAT FIXTURE PERFECTLY ALIGNED TO AVOID VISIBLE BENDING AND MISALIGNMENT ALONG THE CONTINUOUS ROW. FOR COVE MOUNTED LINEAR PROVIDE DETAILED SHOP DRAWINGS FOR EACH COVE DENOTING FIXTURE LAYOUT. COVE DIMENSIONS SHALL BE

ALL FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE, INDEPENDENT OF HUNG CEILING WITH ROD OR JACK CHAIN SUPPORT. STEM LENGTHS, STEM FINISHES AND STEM LOCATIONS OF ALL PENDANT FIXTURES TO BE VERIFIED AND CONFIRMED BY OWNER, ARCHITECT AND ENGINEER PRIOR TO ORDERING STEMS. ALL FIXTURE SUSPENSION CABLE SHALL BE TRIMMED SUCH THAT THE CABLE IS NOT VISIBLE AND DOES NOT

HANG OVER OR BELOW THE LIGHT FIXTURE. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL DRIVERS AND OR TRANSFORMERS REQUIRED TO OPERATE ALL FIXTURES SPECIFIED, INCLUDING REMOTE DRIVERS AND/OR TRANSFORMERS AND THE ENCLOSURES FOR SAME. CONTRACTOR SHALL SELECT, FURNISH AND INSTALL THE CORRECT SIZE OF SECONDARY WIRING FROM REMOTE TRANSFORMERS AND/OR REMOTE

DRVIERS AS REQUIRED TO KEEP VOLTAGE DROP IN THE SECONDARY WIRING BELOW 3% OF RATED VOLTAGE. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF COMPATIBILITY BETWEEN FIXTURES, DRIVERS AND/OR TRANSFORMERS SPECIFIED, AND DIMMING AND OTHER CONTROL DEVICES SPECIFIED. ALL DRIVERS/BALLASTS USED WITH OCCUPANCY SENSORS SHALL BE FULLY

COMPATIBLE. NOTIFY ARCHITECT AND ENGINEER CONSULTANT OF ANY INCOMPATIBILITY PRIOR TO ORDERING EQUIPMENT ELECTRICAL SUBCONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE COORDINATION OF ALL LIGHTING EQUIPMENT AND CONTROL DEVICES WITH CEILING AND WALL TYPES SPECIFIED PRIOR TO ORDERING LIGHTING EQUIPMENT. UNLESS NOTED TO THE CONTRARY PROVIDE WHITE CEILING

TRIMS FOR ALL RECESSED LUMINAIRES. PRELIMINARY AIMING OF ALL ADJUSTABLE LIGHTING EQUIPMENT SHALL BE DONE DURING INSTALLATION BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THE LIGHTING PLANS / AIMING DIAGRAM, WHERE SUCH A DIAGRAM IS INCLUDED IN CONTRACT DOCUMENTS OR AS AN ADDENDUM. FINAL AIMING OF ALL ADJUSTABLE LIGHTING EQUIPMENT SHALL BE DONE BY THE ELECTRICAL CONTRACTOR AS DIRECTED BY THE ARCHITECT. CONTRACTOR SHALL PROVIDE LABOR AND EQUIPMENT FOR FOCUSING OF ADJUSTABLE FIXTURES AND PRESETTING OF LIGHTING CONTROL SYSTEMS. FOCUSING AND PRESETTING SHALL BE DONE IN THE PRESENCE OF THE DESIGN PROFESSIONAL. CONTRACTOR SHALL FOCUS LIGHTING AFTER DARK IF DIRECTED BY THE OWNERS REPRESENTATIVE. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL PROVIDE AT LEAST ONE DAY OF A FACTORY-TRAINED AND CERTIFIED TECHNICIAN TO PROVIDE WARRANTY START UP AND PROGRAMMING FOR ALL LIGHTING CONTROL SYSTEMS AND

PROGRAMMABLE LIGHTING FIXTURES IN ALL FIXTURES WITH ADJUSTABLE SOCKETS, SET SOCKETS DURING INSTALLATION TO LOCATE SPECIFIED LIGHT SOURCE IN CORRECT RELATIONSHIP TO REFLECTOR AS RECOMMENDED BY FIXTURE MANUFACTURER.

INSTALL CONES IN WALL WASHERS WITH CUTOUT(S) IN INNER REFLECTOR FACING WALL(S) TO BE LIT. WHERE CONTROL DEVICES WITH FINNED HEAT SINKS. SUCH AS LUTRON "NOVA" SERIES. ARE SPECIFIED. FINS SHALL NOT BE REMOVED TO MAKE

DEVICES FIT BOXES MORE CONVENIENTLY. REFER TO MANUFACTURERS SPECIFICATIONS FOR THE NUMBER OF GANG BOXES REQUIRED TO ACCOMMODATE THE SPECIFIED EQUIPMENT WITHOUT BREAKING OFF FINS. RELAYS USED FOR CONTROL OF LIGHTING (IF ANY) SHALL BE LOCATED AND THE LOCATION SOUNDPROOFED SO AS TO BE INAUDIBLE FROM

NORMALLY OCCUPIED AREAS WHEN ACTIVATED.

TO ASSURE THE MINIMIZATION OF NOISE, FIXTURES MUST BE MOUNTED SECURELY TO THE SUPPORTING STRUCTURE, AND ALL LOOSE INTERNAL PARTS MUST BE SECURELY TIGHTENED BEFORE ACTIVATING CIRCUITS. WHERE TRANSFORMERS HAVE SELECTOR SWITCHES TO ALLOW USE OF VARIOUS WATTAGE LAMPS, THESE SWITCHES MUST BE SET TO THE WATTAGE OF THE SPECIFIED LAMP.

LED DRIVERS LOCATED ABOVE THE CEILING OR EXTERIOR OF THE BUILDING SHALL BE LISTED FOR THE APPLICATION. THERE HAS BEEN ATTEMPTS BY ELECTRICAL CONTRACTORS TO INSTALL DIFFERENT TYPES OF FLEXIBLE CORDS IN THE WALLS, OTHER INTERSTITIAL SPACES ABOVE THE CEILING, AND EXTERIOR LOCATIONS. THE INSTALLATION OF FLEXIBLE CORDS ABOVE THE CEILING AND IN WALLS IS PROHIBITED BY NEC 400.12. A PROPERLY RECOGNIZED NEC CHAPTER 3 WIRING METHOD SHALL BE UTILIZED FOR THIS TYPE OF INSTALLATION. IN ANY APPLICATION, MATERIALS LISTED AND LABELED FOR THE USE SHALL BE USED. ALL INSTRUCTIONS AND LISTING INFORMATION SHALL BE SUBMITTED WITH THE FIXTURE AND AVAILABLE FOR REVIEW BY THE ENGINEER AT THE TIME OF INSPECTION TO VERIFY COMPLIANCE.

EXIT SIGNS SHALL BE PROVIDED WITH ARROWS AS INDICATED ON DRAWINGS. EXIT SIGNS SHALL TYPICALLY BE CEILING MOUNTED WHERE VISIBLE OR ON WALL WHERE CEILING MOUNTING IS NOT PRACTICAL. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFIC MOUNTING DIRECTION AND FOR LOCATION COORDINATION, ALL SINGLE AND DOUBLE FACE PENDANT OR END MOUNTED EXIT SIGNS SHALL HAVE A MIRROR BACKING.

INCLUDE COST OF ADDING 4 ADDITIONAL EXIT SIGNS LOCATED PER DIRECTION OF THE ARCHITECT/ENGINEER. COST SHALL INCLUDE BRANCH CIRCUIT WIRING AS WELL AS PREMIUM TIME.

CORRELATED COLOR TEMPERATURE (CCT): THE ABSOLUTE TEMPERATURE MEASURED IN DEGREES KELVIN, OF A BLACKBODY RADIATOR HAVING CHROMATICITY RESEMBLING THAT OF AN ELECTRIC LIGHT SOURCE. FOR LED SOURCES, CCT SHALL NOT DEVIATE FROM THE REFERENCE COLOR TEMPERATURE BY NO MORE THAN THREE MACADAM ELLIPSES, AS DEFINED BY NEMA/ANSI/ANSI/G C38.377-2011. COLOR RENDERING INDEX (CRI): MEASURE OF COLOR SHIFT OBJECTS UNDERGO WHEN ILLUMINATED BY AN ELECTRIC LIGHT SOURCE AS COMPARED WITH THE COLOR OF THE SAME OBJECTS ILLUMINATED BY A REFERENCE SOURCE AT THE SAME COLOR TEMPERATURE. CRI VALUES FOR ELECTRIC LIGHT SOURCES RANGE FROM APPROXIMATELY 20 (LOW PRESSURE SODIUM) TO 99 (HALOGEN). CRI VALUES FOR LED

LED LIGHT ENGINE: THE COMBINED LED LIGHT SOURCE AND ITS ASSOCIATED ELECTRONIC DRIVER. THE LED LIGHT ENGINE MAY HAVE AN INTEGRAL DRIVER OR THE DRIVER MAY BE HOUSED IN A SEPARATE ENCLOSURE.

SOURCES SHALL BE MEASURES AFTER 6000 HOURS AND SHALL NOT DEVIATE MORE THAN 3 POINTS FROM THE RATED VALUE.

LED DRIVER: CONTROL DEVICE THAT MAINTAINS CONSTANT AMOUNT OF CURRENT TO THE LED LIGHT SOURCE. LED DRIVERS GENERALLY OPERATE AT 12VDC OR 24 VDC. SOME DRIVERS ARE DESIGNED TO ACCEPT BRANCH CIRCUIT VOLTAGE RANGING FROM 120VAC THROUGH

277VAC OR MAY REQUIRE A SEPARATE TRANSFORMER. TRANSFORMER: ELECTROMAGNETIC OR ELECTRONIC DEVICE THAT STEPS DOWN PRIMARY VOLTAGE TO A LOWER SECONDARY VOLTAGE.

GENERALLY SECONDARY VOLTAGE WILL BE 12V OR 24V. DIMMING: THE REDUCTION OF LIGHT INTENSITY OF A LIGHT SOURCE. ALL SOURCES SHALL HAVE A SMOOTH, FLICKER-FREE AND CONTINUOUS DIMMING CURVE AS NOTED IN LUMINAIRE DESCRIPTION. LED SOURCES MAY BE DIMMED BY EITHER CONSTANT CURRENT REDUCTION (CCR)

OR BY PULSE WIDTH MODULATION (PWM) DIMMING FOR CONSTANT CURRENT DRIVERS. RATED LUMEN MAINTENANCE LIFE: THE ÉLAPSED OPERATING TIME OVER WHICH AN LED LIGHT SOURCE WILL MAINTAIN THE PERCENTAGE OF ITS INITIAL LUMEN OUTPUT.L70: TIME, IN HOURS, TO 70% LUMEN MAINTENANCE.L50: TIME, IN HOURS, TO 50% LUMEN MAINTENANCE

			LIGHTING	G FIXTURE SCHED	ULE	<u>-</u>		
TYPE	DESCRIPTION	MOUNTING	MANUFACTURER	MODEL	DIMMI NG	VOLT AGE	TOTAL WATTAGE	COMMENTS
DH04	RECESSED ADJUSTABLE STRAIGH APERTURE TRIMMED LED SMALL LIGHT FIXTURE.	RECESSED	LF ILLUMINATION	MF33BNT16L9030WGGD2UWW	Yes	277	16	NEW FIXTURES TO MATCH EXISTING.
DS-01	WALL WASHER LED FIXTURE.	RECESSED	LUMENALPHA	LACSLUM-A-L13-27K-CR95-W-RD-NST / LACSMTG-A-120-L13-CR95-DA1-NC	Yes	120	13	NEW FIXTURES TO MATCH EXISTING.
LF-102	DECORATIVE WALL SCONCE	WALL	FINE ART HANDCRAFTED LIGHTING	FORET WALL SCONCE	Yes	120	20	REFER TO LIGHTING CONSULTANTS DRAWINGS FOR SPECIFICATIONS.
LF-103	CEILING MOUNTED PENDANT AT BAR	PENDANT	HAMMERTON STUDIO	GEM LINEAR SUSPENSION	Yes	120	36	REFER TO LIGHTING CONSULTANTS DRAWINGS FOR SPECIFICATIONS.
LF-104	PERIMETER COVE LIGHTING AND CHANNEL	RECESSED	LUMINII OPTIC ARTS	LineLED LLDW36	Yes	120	390	REFER TO LIGHTING CONSULTANTS DRAWINGS FOR SPECIFICATIONS.
LF-105	LOUNGE FEATURE LIGHTING	PENDANT	QUALITY LIGHTING SYSTEMS INC.		Yes	120	150	REFER TO LIGHTING CONSULTANTS DRAWINGS FOR SPECIFICATIONS.
LF-106	DECORATIVE SLOTS SURFACE MOUNTED FIXTURE.	SURFACE	HAMMERTON STUDIO	GEM FLUSH MOUNT	Yes	120	16	REFER TO LIGHTING CONSULTANTS DRAWINGS FOR SPECIFICATIONS.
LF-107	RECESSED LIGHT FIXTURE	RECESSED	LUMENCORE	LCRS ROUND 4.5"	Yes	120	20	REFER TO LIGHTING CONSULTANTS DRAWINGS FOR SPECIFICATIONS.
LF-108.8	LINEAR RECESSED WALL WASH FIXTURE	RECESSED	FOCAL POINT	FSM2PR	Yes	120	64	REFER TO LIGHTING CONSULTANTS DRAWINGS FOR SPECIFICATIONS.
LF-108.17	LINEAR RECESSED WALL WASH FIXTURE	RECESSED	FOCAL POINT	FSM2PR	Yes	120	136	REFER TO LIGHTING CONSULTANTS DRAWINGS FOR SPECIFICATIONS.
X1C1	EXIT SIGN. EDGE LIT WITH MIRROR BACKING, CEILING MOUNTED, SINGLE FACE WITH ARROWS AS INDICATED. RED FACE	CEILING	LITHONIA	EDGR-1-RMR	No	277	2	COORDINATE FACES AND CHEVRONS WITH FLOOR PLANS. COORDINATE MOUNTING KIT WITH FLOOR PLANS.
X1W1	EXIT SIGN. EDGE LIT WITH MIRROR BACKING, WALL MOUNTED, SINGLE FACE WITH ARROWS AS INDICATED.	SURFACE	LITHONIA	EDGR-1-RMR	No	277	2	COORDINATE FACES AND CHEVRONS WITH FLOOR PLANS

CROCKFORDS -**CATSKILLS**

Monticello. NY 1270

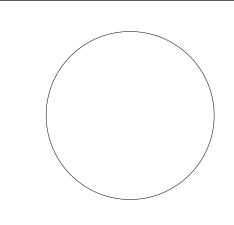
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SUITE 400 HARTFORD, CT 06106 860.247.9226

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BIDDING &

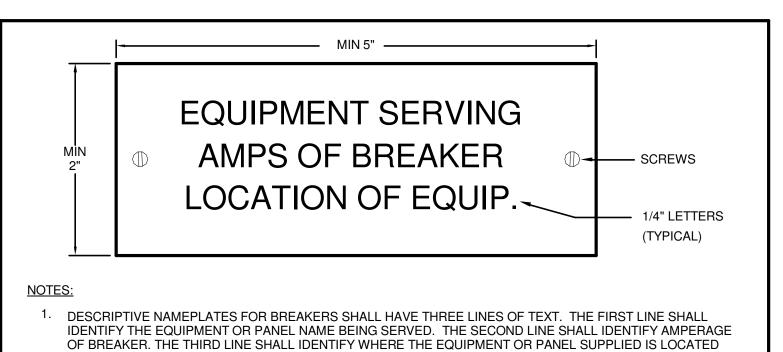


ISSUE 07/06/2022

DRAWN JDB SCALE 12" = 1'-0"

REVISIONS

ELECTRICAL LIGHTING FIXTURE SCHEDULE



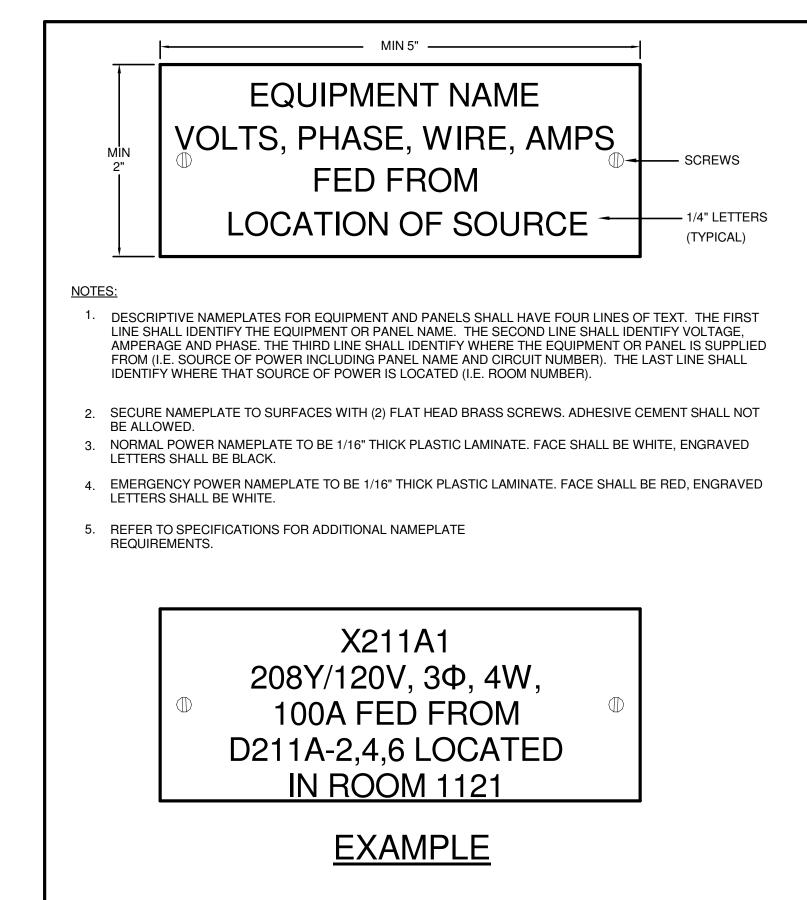
- IDENTIFY THE EQUIPMENT OR PANEL NAME BEING SERVED. THE SECOND LINE SHALL IDENTIFY AMPERAGE OF BREAKER. THE THIRD LINE SHALL IDENTIFY WHERE THE EQUIPMENT OR PANEL SUPPLIED IS LOCATED (I.E. ROOM NUMBER, ROOF, ETC).
- SECURE NAMEPLATE TO SURFACES WITH (2) FLAT HEAD BRASS SCREWS. ADHESIVE CEMENT SHALL NOT NORMAL POWER NAMEPLATE TO BE 1/16" THICK PLASTIC LAMINATE. FACE SHALL BE WHITE, ENGRAVED
- 4. EMERGENCY POWER NAMEPLATE TO BE 1/16" THICK PLASTIC LAMINATE. FACE SHALL BE RED, ENGRAVED LETTERS SHALL BE WHITE.
- 5. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE

REQUIREMENTS.

PANEL X211A1 100 AMP **LOCATED IN ROOM 1121**

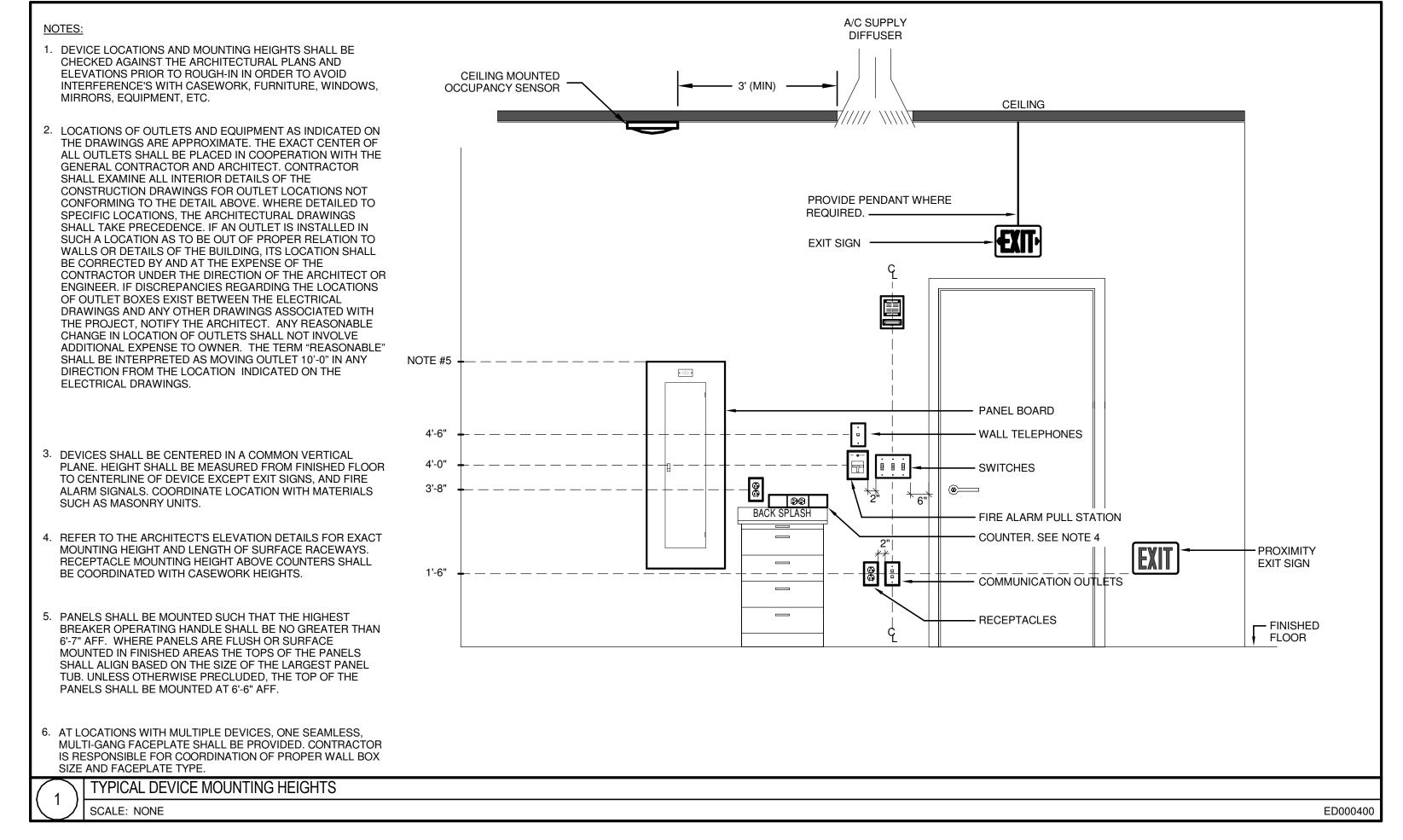
EXAMPLE

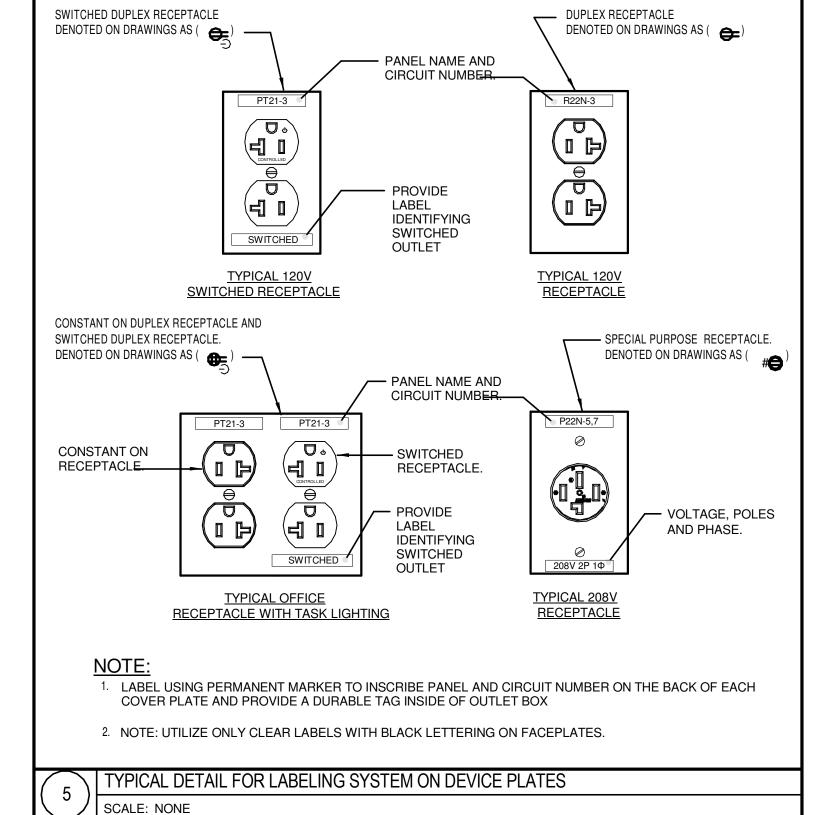
SCALE: NONE

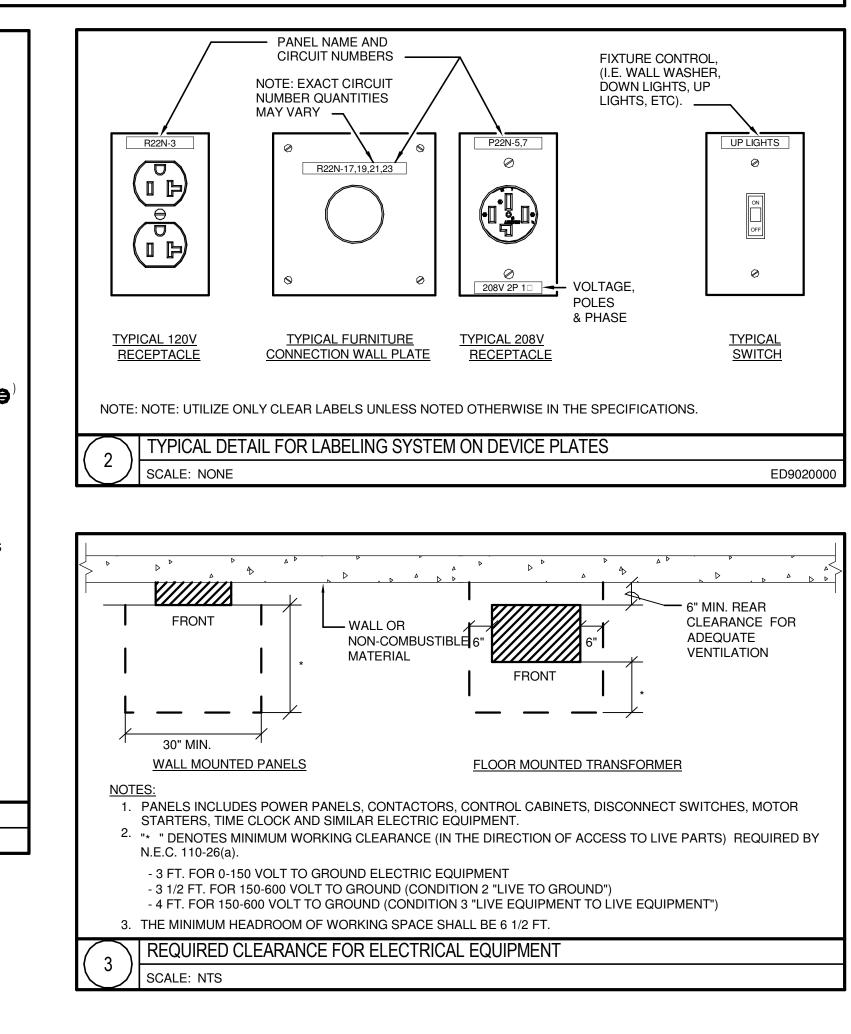


| EQUIPMENT NAMEPLATE TYPE 1 DETAIL

SCALE: NONE









888 resorts World Dr **Monticello, NY 12701**

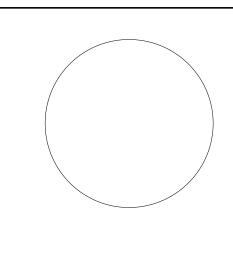
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BIDDING & CONSTRUCTION 07/06/2022



ISSUE __07/06/2022 JOB 30860.00 DRAWN_JDB SCALE N.T.S.

REVISIONS

ELECTRICAL DETAILS

GENERAL DEMOLITION NOTES

- THIS EXISTING FLOOR PLAN HAS BEEN DEVELOPED UTILIZING EXISTING DOCUMENTS AND READILY OBSERVABLE SITE CONDITIONS. ALL DEVICES, CONDUITS, TELECOMMUNICATIONS EQUIPMENT, ETC. SHOWN ARE FOR REFERENCE ONLY AND MAY NOT INDICATE CORRECT IDENTIFICATION, AND SIZE; AND TOTAL QUANTITIES OF ITEMS SCHEDULED FOR DEMOLITION. VISIT SITE AND FIELD VERIFY THE NUMBER OF DEVICES WITHIN THE CONSTRUCTION PHASE AREA PRIOR TO THE BID AND REMOVAL. THE DRAWINGS DO NOT LIMIT THE AMOUNT OF DEMOLITION WORK REQUIRED. THE TELECOMMUNICATIONS CONTRACTOR MUST PERFORM THE DEMOLITION WORK AS INDICATED ON THE DEMOLITION DRAWINGS AND AS REQUIRED FOR THE NEW WORK.
- DEMOLITION WORK MUST FOLLOW THE CONSTRUCTION PHASING SEQUENCE AND MUST BE COORDINATED WITH THE CONSTRUCTION DRAWINGS AND CONTRACTORS.
- REMOVE ALL DEVICES, EQUIPMENT, MATERIAL, AND ASSOCIATED CABLING IN THEIR ENTIRETY, WHICH INTERFERE WITH THE NEW CONSTRUCTION AS DIRECTED BY THE CONSTRUCTION MANAGER. ALWAYS FIELD VERIFY SYSTEM PRIOR TO STARTING WORK AT SITE. THE TERM ASSOCIATED CABLING SHALL MEAN CONDUIT, FITTINGS, SUPPORTS, JUNCTION BOXES, CABLES, ETC. BACK TO THE RESPECTIVE EQUIPMENT ROOM.
- 4. MAINTAIN AND RESTORE, IF INTERRUPTED BY REMOVALS OR IN PATH OF NEW CONSTRUCTION, ALL CABLES AND CONDUITS PASSING THROUGH AND SERVING UNDISTURBED AREAS (SHOWN OR NOT SHOWN). VERIFY CABLES, DEVICES, AND EQUIPMENT SCHEDULED FOR REMOVAL TO ASSURE THAT THEIR REMOVAL WILL NOT ADVERSELY AFFECT ADJACENT AREAS NOT BEING RENOVATED.
- 5. IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADE'S WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL TELECOMMUNICATIONS ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, AFTER COMPLETION OF OTHER TRADE'S WORK IN THAT AREA, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED.
- 6. IN ALL EXISTING OR NEW AREAS SPECIFIED OR SHOWN TO BE PAINTED, THIS CONTRACTOR SHALL REMOVE BAG AND PROTECT DURING WORK ALL TELECOMMUNICATIONS ITEMS AS REQUIRED INCLUDING BUT NOT LIMITED TO DEVICE PLATES, DEVICES, ETC., REINSTALLING SAME AFTER COMPLETION OF PAINTING. ANY ITEM NOT REMOVED AND PAINTED OVER SHALL BE SUITABLY CLEANED OR REPLACED WITH NEW ITEM BY THIS CONTRACTOR.
- INVENTORY MAJOR TELECOMMUNICATIONS ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
- 8. DISCONNECT, MAKE SAFE AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN THE SPACE.
- 9. FLAG, LABEL AND CLEARLY IDENTIFY CABLES AND ITEMS TO REMAIN IN PLACE. AND OR SERVICE, THROUGHOUT THE PROJECT OR ANY PORTION OF THE PROJECT. REPAIR AND/OR REPLACE ANY CABLE OR DEVICE DAMAGED DURING THE PROJECT, WITHIN 24 HOURS OF NOTIFICATION OF DAMAGES OR DISRUPTION.

TELECOM CONDUIT FILL CHART - 40% FILL

				С	ONDUI	T INNEF	R DIAME	ETER S	IZE	
CABLE TYPE	JACKET	CABLE O.D.	0.75"	1"	1.25"	1.5"	2"	2.5"	3"	4"
CAT6	CMR	0.2	5	9	14	20	36	56	81	100
CAT6A	CMR	0.34	1	3	4	6	12	19	27	48
CAT6A	CMR	0.307	2	4	7	10	18	28	41	73
CAT6	CMP	0.2	5	9	14	21	37	57	83	110
CAT6A	CMP	0.34	2	3	5	7	13	21	30	53

TELECOM BACKBOX REQUIREMENTS

- FOR WIRELESS LOCATIONS: PROVIDE A SINGLE GANG, 3" x 2", 2-3/4" DEEP, OUTLET BOX WITH A SINGLE GANG PLASTER RING AND A CONDUIT SIZED AS REQUIRED BASED ON THE CABLE FILL CHART, WITH CONNECTORS, BUSHINGS AND PULL STRING TO THE NEAREST ACCESSIBLE CEILING SPACE ON THE SAME FLOOR AS THE ROOM BEING SERVED BY THE OUTLET LOCATION.
- 2. FOR WALL MOUNTED LOCATIONS: PROVIDE A TWO GANG, 4-11/16" SQUARE, 2-1/8" DEEP, OUTLET BOX WITH A SINGLE GANG PLASTER RING AND A CONDUIT SIZED AS REQUIRED BASED ON THE CABLE FILL CHART, WITH CONNECTORS, BUSHINGS AND PULL STRING TO THE NEAREST ACCESSIBLE CEILING SPACE ON THE SAME FLOOR AS THE ROOM BEING SERVED BY THE OUTLET LOCATION.
- B. FOR FLOOR MOUNTED LOCATIONS: PROVIDE A CONDUIT SIZED AS REQUIRED BASED ON THE CABLE FILL CHART, WITH CONNECTORS, BUSHINGS AND PULL STRING TO THE NEAREST ACCESSIBLE CEILING SPACE ON THE SAME FLOOR AS THE ROOM BEING SERVED BY THE OUTLET LOCATION.

GENERAL NOTES

- THE WORK REQUIREMENTS DESCRIBED WITHIN DIVISION 20 SPECIFICATION SECTION "COMMON MECHANICAL / ELECTRICAL REQUIREMENTS" FORM COMPLIMENTARY REQUIREMENTS TO THE SCOPE OF WORK CONTAINED WITHIN DIVISION 27 AND 28.
- 2. CONDITIONS OF THE CONTRACT AND DIVISION 1, GENERAL REQUIREMENTS APPLY TO WORK OF THIS SECTION. EXAMINE DRAWINGS AND OTHER SPECIFICATIONS FOR REQUIREMENTS THAT AFFECT WORK OF THIS SECTION.
- B. PROVIDE ITEMS REFERRED TO IN SINGULAR OR PLURAL NUMBERS IN CONTRACT DOCUMENTS IN QUANTITIES NECESSARY TO COMPLETE WORK.
- PERFORM WORK AS REQUIRED BY CODES, REGULATIONS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS AND OTHER AUTHORITIES WITH LAWFUL JURISDICTION.
- MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CBM APPROVED FOR INTENDED SERVICE. MATERIAL AND INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODE.
- 6. MAINTAIN RECORD DRAWINGS ON SITE. RECORD SET MUST BE COMPLETE AND CURRENT AND AVAILABLE FOR INSPECTION WHEN REQUISITIONS FOR PAYMENT ARE SUBMITTED.
- GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.
- 8. SUBMIT GUARANTEE TO ARCHITECT BEFORE APPLICATION FOR FINAL PAYMENT.
- 9. STATEMENT OF GUARANTEE REQUIREMENTS SHALL NOT BE INTERPRETED TO LIMIT OWNER'S RIGHTS UNDER LAW AND THIS CONTRACT.
- 10. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS. PROVIDE INFORMATION AND COMPONENTS SHOWN ON RISER DIAGRAMS BUT NOT SHOWN ON PLANS, AND VICE VERSA, AS IF EXPRESSLY REQUIRED ON BOTH.
- 11. ALL WIRING SHALL BE RUN CONCEALED UNLESS SPECIFIED OTHERWISE.
- 12. ALL RACEWAYS RUNNING THROUGH BUILDING EXPANSION JOINTS SHALL BE EQUIPPED WITH EXPANSION FITTINGS.
- 13. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING HEIGHTS AND LOCATIONS FOR TELECOM EQUIPMENT. COORDINATE EXACT MOUNTING LOCATIONS WITH THE ARCHITECT.
- 14. ALL GROUNDING SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL AND STATE ELECTRICAL CODES.
- 15. REFER TO SPECIFICATION FOR CABLE COLORS
- 16. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONDUIT, JUNCTION BOXES, CABLE TRAYS, PANELS, PULL STRINGS, ENCLOSURES, FLOOR BOXES, POWER CIRCUITS, TELCOM GROUNDING SYSTEM, POWER CABLE AND POWER CONNECTIONS UNDER THIS SECTION.
- 17. CONDUIT SHALL NOT EXCEED 100'-0" OR A TOTAL OF 180 DEGREES IN BENDS BETWEEN PULL BOXES FOR DISTRIBUTION OF TELE/DATA CABLE.
- 18. VERIFY ALL DEVICE PLATE FINISHES WITH ARCHITECT AND/OR OWNER.
- 19. LABEL ALL CABLE, CONDUIT AND BACK BOXES FOR EASE OF IDENTIFICATION.
- 20. ALL CABLE RUNS MUST BE CONTINUOUS FROM SOURCE TO DESTINATION. NO EXCEPTIONS.
- 21. PROVIDE A SERVICE LOOP OF 15'-0" MINIMUM AT ALL BACKBONE TERMINATION LOCATIONS AND SPLICE POINTS.
- 22. INTERBUILDING AND INTRABUILDING OPTICAL FIBER CABLING SHALL BE CLEARLY AND VISIBLY IDENTIFIED BY THE CONTRACTOR IN ALL MANHOLES, PULL BOXES, ENTRANCE POINTS, SERVICE ENTRENCES AND 3'-0" BEFORE ENTERING A FREE STANDING RACK, WALL MOUNTED ENCLOSURE OR SURFACE MOUNT FIBER CABINET UTILIZING AN OPTICAL FIBER CABLE MARKER TAG SYSTEM.
- 23. WHEN ROUTING COMMUNICATIONS CABLES USING OPEN CABLING METHODS, MAINTAIN A MINIMUM SPACING OF 1'-0" FROM ELECTRICAL FEEDERS, BRANCH CIRCUIT WIRING AND AUXILIARY SYSTEM CABLING.
- 24. WHEN ROUTING COMMUNICATIONS CABLES USING OPEN CABLING METHODS, MINIMUM SPACING FROM ELECTRICAL APPARATUS SUCH AS MOTOR DRIVEN EQUIPMENT AND TRANSFORMERS SHALL BE 4'-0". SPACING REQUIREMENTS SHALL APPLY TO OPEN CABLE PATHS WHERE EQUIPMENT IS LOCATED ON THE SAME FLOOR, FLOOR ABOVE, FLOOR BELOW OR IN ROOMS ADJACENT TO SUCH EQUIPMENT AS THOUGH WALLS AND FLOORS DID NOT EXIST. EXCEPTION: BUILDING CONSTRUCTION THAT RESULTS IN METALLIC BARRIER BETWEEN ELECTRICAL APPARATUS AND CABLE PATHWAYS SHALL BE CONSIDERED SUITABLE SEPARATION.

TELECOM SYMBOLS LEGEND

WAP	WALL MOUNTED WIRELESS LOCATION (2) - CAT 6A CMP CABLES
WAP	CEILING MOUNTED WIRELESS LOCATION (2) - CAT 6A CMP CABLES CEILING MOUNTED WIRELESS DATA LOCATIONS ARE TO BE MOUNTED TO THE BUILDING STRUCTURE ABOVE THE CEILING. THE CEILING MOUNTED WIRELESS DATA DEVICE BOX ASSEMBLY IS TO BE (UL) RATE FOR PLENUM.
1	WALL MOUNTED DATA 1 LOCATION (1) - CAT 6 CMP CABLE
2	WALL MOUNTED DATA 2 LOCATION (2) - CAT 6 CMP CABLES
3	WALL MOUNTED DATA 3 LOCATION (3) - CAT 6 CMP CABLES
4	WALL MOUNTED DATA 4 LOCATION (4) - CAT 6 CMP CABLES
1	FLOOR MOUNTED DATA 1 LOCATION (1) - CAT 6 CMP CABLE
2	FLOOR MOUNTED DATA 2 LOCATION (2) - CAT 6 CMP CABLES
3	FLOOR MOUNTED DATA 3 LOCATION (3) - CAT 6 CMP CABLES
4	FLOOR MOUNTED DATA 4 LOCATION (4) - CAT 6 CMP CABLES
1	CEILING MOUNTED DATA 1 LOCATION (1) - CAT 6 CMP CABLE
2	CEILING MOUNTED DATA 2 LOCATION (2) - CAT 6 CMP CABLES
3	CEILING MOUNTED DATA 3 LOCATION (3) - CAT 6 CMP CABLES
4	CEILING MOUNTED DATA 4 LOCATION (4) - CAT 6 CMP CABLES
CAM	CEILING MOUNTED DATA 1 LOCATION - FOR CAMERA (1) - CAT 6 CMP CABLE
W	WALL MOUNTED PHONE VOICE 1 LOCATION (1) - CAT 6 CMP CABLE
TV	WALL MOUNTED TV DATA 1 LOCATION (1) - CAT 6 CMP CABLE OR (THIS NEEDS TO EDITED FOR EACH JOB) WALL MOUNTED TV COAX LOCATION (1) - RG-6 PLENUM RATED COAX CABLE
TV	FLOOR MOUNTED TV DATA 1 LOCATION (1) - CAT 6 CMP CABLE OR (THIS NEEDS TO EDITED FOR EACH JOB) FLOOR MOUNTED TV COAX LOCATION (1) - RG-6 PLENUM RATED COAX CABLE
RS	CEILING MOUNTED DATA 1 LOCATION - FOR ROOM SCHEDULER (1) - CAT 6 CMP CABLE
RS	WALL MOUNTED DATA 1 LOCATION - FOR ROOM SCHEDULER (1) - CAT 6 CMP CABLE
(F)	FEED LOCATION (# DENOTES THE NUMBER OF CABLES AT THE FEED LOCATION) PROVIDE A 2-GANG MUDRING WITH GROMMET FACEPLATE AT FEED LOCATIONS AS IDENTIFIED ON PLANS. PROVIDE POLYETHYLENE SLEEVE FROM GROMMET TO MODULAR FURNITURE ENTRY POINT.

		D - [
		GF - GFI IG -
ULER		IG
ER		C - ETR
THE EEED		N - R -
THE FEED FACEPLATE		Χ -
URNITURE		
	. '	

	KEY LEGEND
, and a second	TAIL CALL-OUT - PLAN VIEW. NOTES DETAIL "1" ON DRAWING "T-501".
	TAIL CALL-OUT - ELEVATION VIEW. NOTES DETAIL "2" ON DRAWING "T-501".
	ELECTRICAL LEGEND
Ф	125 VOLT, 2 POLE, 3 WIRE, 20 AMP, DUPLEX RECEPTACLE.
\bigoplus	125 VOLT, 2 POLE, 3 WIRE, 20 AMP, DOUBLE DUPLEX RECEPTACLE.
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP, DUPLEX RECEPTACLE FLUSH FLOOR MOUNTED
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP, DOUBLE DUPLEX RECEPTACLE FLUSH FLOOR MOUNTED
H20	L5-20R - 20 AMP, 125 VOLT, 2 POLE, 3 WIRE TWIST LOCK RECEPTACLE
H21	L5-30R - 30 AMP, 125 VOLT, 2 POLE, 3 WIRE TWIST LOCK RECEPTACLE
H23	L6-20R - 20 AMP, 250 VOLT, 2 POLE, 3 WIRE TWIST LOCK RECEPTACLE
H24	L6-30R - 30 AMP, 250 VOLT, 2 POLE, 3 WIRE TWIST LOCK RECEPTACLE
8 8	GROUND BAR WITH INSULATED #6 CONNECTED TO GROUND IN ELECTRICAL ENTRANCE ROOM
ELEC	TRICAL LOCATION DESIGNATORS
	D TO GROUND FAULT CIRCUIT BREAKER GRAL GROUND FAULT INTERRUPTER
OL	JTLET LOCATION DESIGNATORS

GNATORS

VANDERWEIL PROJECT INFO

TELECOM-SHEET LIST

TELECOM - DEMO FIRST FLOOR LEVEL

Sheet Name

RESORTS WORLD

TELECOM - LEGEND

TELECOM - SPECIFICATIONS

TELECOM - THIRD FLOOR

TELECOM - DEMO THIRD FLOOR

TELECOM - FIRST FLOOR LEVEL

PROJECT NUMBER

PROJECT NAME

Sheet Number

TC-001

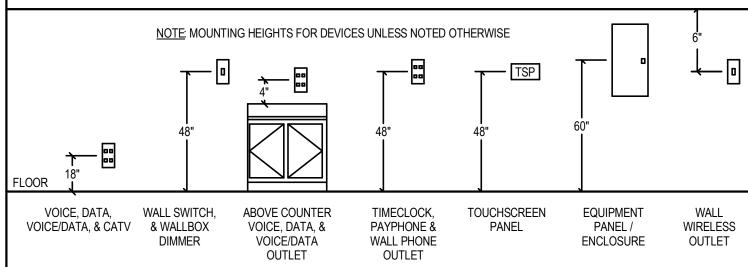
TC-103

TC-203

NATORS

- MOUNT 6" ABOVE COUNTER TOP BACK SPLASH - EXISTING TO REMAIN
- **RELOCATE** REMOVE

DEVICE MOUNTING HEIGHT DIAGRAM



LEGEND NOTES

THIS SHEET IS A GENERAL LIST OF SYMBOLS AND SHALL BE USED AS A REFERENCE TO DEFINE ITEMS INDICATED ON THE DRAWINGS. NOT ALL SYMBOLS ARE NECESSARILY USED ON THIS PROJECT.

CROCKFORDS -**RESORTS WORLD** CATSKILLS

888 resorts World Dr **Monticello, NY 12701**

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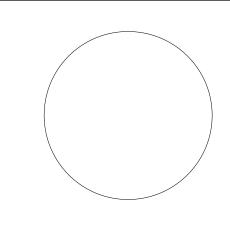
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BIDDING & CONSTRUCTION 07/06/2022



ISSUE 07/06/2022 DRAWN TM SCALE 12" = 1'-0"

REVISIONS

TELECOM - LEGEND

SECTION 271000 - STRUCTURED CABLING

- PART 1 GENERAL
- 1.1 RELATED DOCUMENTS
- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Where Paragraphs of this Section conflict with similar paragraphs of the General and Supplementary Conditions and Division 1, requirements of this Section shall prevail.
- 1.2 SUMMARY
- A. Description, this project consists of, but is not limited to, the following:
- 1. A complete and operational horizontal cabling distribution system consisting of:
- a. Plenum rated Category 6 station cabling;
- b. Associated terminations, connections, connectors, mounts, brackets, enclosures and accessories to ensure a complete system.
- 2. A 20 year applications and system warranty.
- B. Section Includes:
- Pathways.
- 2. UTP cable
- 3. UTP cable hardware.
- 4. Grounding.
- Identification products
- 1.3 STANDARDS
- A. ANSI/TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises.
- B. ANSI/TIA-568-C.1: Commercial Building Telecommunications Cabling Standard
- C. ANSI/TIA-568-C.2: Balanced Twisted-Pair Telecommunications Cabling and Components
- D. ANSI/TIA/EIA-569-B: Commercial Building Standard for Telecommunications Pathways and
- E. ANSI/TIA/EIA-606-A: Administration Standard for the Telecommunications Infrastructure of
- Commercial Buildings F. ANSI/J-STD-607-A: Commercial Building Grounding and Bonding Requirements for
- G. ANSI/TIA-1152, Requirements for Field Test Instruments and Measurements for Balance Twisted-Pair Cabling.
- 1.4 DEFINITIONS
- A. ANSI: American National Standards institute.
- B. BICSI: Building Industry Consulting Service International.
- C. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.
- D. EIA: Electronic Industries Alliance.
- E. EMI: Electromagnetic interference
- F. ER: Equipment Room.
- G. HC: Horizontal Cross-Connect
- H. IDC: Insulation displacement connector
- I. ITSIM: Information Technology Systems Installation Methods Manual
- J. LAN: Local area network.
- K. Telecommunications Outlet/Connectors: A connecting device in the work area on which horizontal cable terminates.
- L. RCDD: Registered Communications Distribution Designer.
- M. TIA: Telecommunications Industry Association.
- N. TDMM: Telecommunications Distribution Methods Manual.
- O. TR: Telecommunications Room.
- P. UTP: Unshielded twisted pair.
- 1.5 ADMINISTRATIVE REQUIREMENTS
- A. Coordinate layout and installation of telecommunications cabling with Owner, Architect and architectural drawings and elevations.
- B. Review the related drawings and specifications for other trades/sections, including but not limited to: Architectural, Mechanical, Electrical, Electrical, Structural and Civil.
- C. Coordinate telecommunications outlet/connector locations with location of power receptacles.
- 1.6 ACTION SUBMITTALS
- A. Shop Drawings:
- 1. System Labeling Schedules: Electronic copy of labeling schedules, in software and format selected by Owner.
- 2. Electronic form cabling administration drawings.
- 3. Wiring diagrams for each system and subsystem to show typical wiring schematics, including the following:
- a. Cross-connects.
- b. Horizontal cable
- c. Patch panels.
- d. Patch cords and work area cords.
- 4. Cross-connects and patch panels. Detail mounting assemblies, and show elevations and physical relationship between the installed components.
- 1.7 INFORMATIONAL SUBMITTALS
- A. Qualification Data: For Installer, qualified layout technician, installation supervisor, and field
- B. Submit documentation regarding the manufacturer's warranty. The documentation will include

a sample of the warranty that would be provided to the customer when the installation is complete and documentation of the support procedure for warranty issues. Provide an application assurance manual documenting the vendor supported applications and application guidelines. In addition the contractor will furnish manufacturer's documentation stating the contractor is certified to perform warranty work.

- 1.8 CLOSEOUT SUBMITTALS
- A. Submit, upon completion of the installation:
 - Electronic copies of complete operating manuals and user guide for each system and record drawings. Instructions must include part numbers and names, addresses, and telephone numbers of parts source.
- 2. Test reports, as specified in field quality control article under execution, on CDs using excel or other similar software. If the software used to document test results is proprietary, than the contractor will include the necessary software and licenses to read and store the test
- 3. Electronic floor plans showing communications outlets and identification numbers for each system. Submit completed cable schedules for each cable by system, using the final room numbers. This submittal must be approved prior to authorization for final payment.
- 1.9 QUALITY ASSURANCE
- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.
- 1. Project Manager: Shall be an RCDD.
- 2. Layout Responsibility: Preparation of Shop Drawings, Cabling Administration Drawings, and field testing program development by an RCDD.
- 3. Installation Supervision: Installation shall be under the direct supervision of BICSI Certified ITS Technician, who shall be present at all times when Work of this Section is performed at
- B. Provide evidence that the contractor is authorized by the manufacturer to furnish warranty services, components, and systems.
- C. Provide and/or warranty section a warranty for all parts, components, and materials against defects, faulty workmanship, and/or failure for one full year following system(s) acceptance.
- D. Meet with designated representative of the owner, architect and consultant for coordination meeting prior to commencement of work.
- 1.10 DELIVERY, STORAGE, AND HANDLING
- A. Schedule, arrange, and coordinate with involved parties/trades for shipment, arrivals, loading dock, elevators (as applicable), acceptance, storage, and security of equipment and materials. Assure that these activities do not interfere with other trades or the progress of this project.
- B. Store and protect materials according to manufacturer's specifications and recommendations
- 1.11 WARRANTY
- A. Extended Warranty: Manufacturer's standard form in which manufacturer agrees to repair or
- place horizontal UTP cabling and components that fail within specified warranty period 1. Warranty Period: Twenty years from date of Substantial Completion.
- PART 2 PRODUCTS
- 2.1 PATHWAYS
- A. General Requirements: Comply with ANSI/TIA/EIA-569-B.
- B. Cable Support: Cable supports shall be sized to allow a fill ratio that meets the standards specified herein and identified to support the Category of cabling being installed, designed to prevent degradation of cable performance and pinch points that could damage cable.
- Spools, J-hooks, Velcro straps and D-rings.
- 2.2 UTP CABLE
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- 1. Belden.
- 2. Berk-Tek.
- Commscope 4. Hitachi.
- 5. Mohawk.
- B. Horizontal Cabling Description: 100-ohm, four-pair UTP, covered with a thermoplastic jacket.
 - Provide the following colors:
 - a. Data 1, Blue.
 - b. Data 2, Yellow.
- c. Voice 1, White.
- C. Patch and Work Area Cords Description: Factory-made, four-pair cables in various colors and lengths; terminated with 8-position 8-contact modular plug at each end.
- Patch cords shall have bend-relief-compliant boots. Provide one Patch Cord per cable terminated on patch panel in the following lengths:
- a. Length:
- 1) 50 percent 10 foot.
- 2) 40 percent 7 foot.
- 10 percent 4 foot.
- Work Area cords shall have bend-relief-compliant anti-snag boots and color-coded icons. Provide one Work Area Cord per telecommunications outlet connector terminated in the following lengths:
- a. Length:
- 1) 40 percent 10 foot.
- 2) 40 percent 7 foot.
- 3) 20 percent 4 foot.
- 2.3 UTP CABLE HARDWARE
- A. Manufacturers: Provide products by AMP or approved equivalent. B. Connecting Blocks: 110-style IDC. Provide blocks for the number of cables terminated on the
- block, plus 25 percent spare. Integral with connector bodies, including plugs and jacks where

indicated.

- C. Patch Panel: modular panels housing multiple-numbered jack units with IDC-type connectors at each jack for permanent termination of pair groups of installed cables.
- 1. Number of Jacks per Field: One for each four-pair UTP cable indicated, plus 25 percent spare per system.
- D. Telecommunications Outlet Connectors: 100-ohm, Modular, color-coded, 8-position 8-contact,
- a. Color: Match cable color.

twisted-pair connector.

- b. Icon: Indicate service provided.
- E. Workstation Faceplate: Multi-port-connector assemblies mounted in single gang faceplate.
- 1. Plastic Faceplate: High-impact plastic.

adhesives, and inks used by label printers.

- 2. For use with snap-in jacks. a. Flush mounting jacks.
- 3. Legend: Machine printed, in the field, using adhesive-tape label.
- 2.4 IDENTIFICATION PRODUCTS
- A. Comply with ANSI/TIA/EIA-606-A for labeling materials, including label stocks, laminating

PART 3 - EXECUTION

- 3.1 WIRING METHODS
- A. Install cables in pathways and cable trays except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used unless otherwise noted. Conceal pathways and cables unless otherwise noted.
- 3.2 INSTALLATION OF CABLES
- A. Comply with NECA 1.
- B. Four pair UTP cabling wiring scheme: T568B.
- C. General Requirements for Cabling:
- 1. Comply with ANSI/TIA-568-C.1.
- 2. Comply with BICSI ITSIM, Cable Termination Practices.
- 3. Install 110-style IDC termination hardware unless otherwise indicated.
- 4. Terminate conductors; no cable shall contain unterminated elements unless otherwise noted. Make terminations only at indicated outlets, terminals, cross-connects, and patch
- 5. Cables may not be spliced. Secure and support cables at intervals not exceeding 5 feet. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
- 6. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling
- Termination Practices" Chapter. Install lacing bars and distribution spools.
- 7. Install conductors parallel with or at right angles to sides and back of enclosure. 8. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during
- installation and replace it with new cable. 9. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
- 10. Route cables, in bundles of no more than fifty. Bundle cables using Hook and Loop wire management straps, tie wraps are not acceptable.
- 11. In the communications equipment room, install a 10 foot long cable service loop.
- 12. In the ceiling above the work area outlet, install a 3 foot long cable service loop.
- 13. Pulling Cable: Comply with BICSI ITSIM, monitor cable pull tensions. D. Group connecting hardware for cables into separate logical fields.
- E. Separation from EMI Sources:
- 1. Comply with BICSI TDMM and ANSI/TIA-569-B for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines
- and equipment. Separation between open communications cables or cables in nonmetallic raceways and
- unshielded power conductors and electrical equipment shall be as follows:
- a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
- b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches. c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.
- 3. Separation between communications cables in grounded metallic raceways and unshielded
- power lines or electrical equipment shall be as follows:
- a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches. b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
- c. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches. 4. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be
- as follows:
- a. Electrical Equipment Rating Less Than 2 kVA: No requirement. b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
- c. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.
- 5. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches. 6. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 5
- inches. 3.3 FIRESTOPPING
- A. Comply with requirements in Section 078413 "Penetration Firestopping."
- B. Comply with ANSI/TIA-569-B, Annex A, "Firestopping."

- C. Comply with BICSI TDMM, "Firestopping Systems" Article.
- 3.4 GROUNDING
- A. Install grounding according to BICSI TDMM, "Bonding and Grounding (Earthing)" Chapter.
- B. Comply with ANSI/J-STD-607-A.
- 3.5 IDENTIFICATION
- A. Identify system components, wiring, and cabling complying with ANSI/TIA/EIA-606-A.
- 1. Administration Class: 2.
- 2. Color-code cross-connect fields. Apply colors to voice and data service backboards, connections, covers, and labels.
- B. Paint and label colors for equipment identification shall comply with ANSI/TIA/EIA-606-A for Class 2 level of administration.
- C. Cable Schedule: Post in prominent location in communications each equipment room. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.
- D. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, hardware, horizontal cables, work areas, grounding buses and pathways, and equipment grounding conductors. Follow convention of ANSI/TIA/EIA-606-A. Furnish electronic record of all drawings, in software and format selected by Owner.
- E. Cable Identification:
- 1. Label each horizontal cable within 4 inches of each termination, where it is accessible in a rack, cabinet, junction box or outlet box.
- 2. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Prior to labeling, coordinate with owner for labeling scheme. Label each connector, faceplate, 110-block or other connecting hardware.
- F. Labels shall be preprinted or computer-printed type with printing area and font color that contrasts with cable jacket color but still complies with requirements in ANSI/TIA/EIA-606-A.
- 1. Cables use flexible vinyl or polyester that flex as cables are bent.
- 3.6 FIELD QUALITY CONTROL A. Perform the following tests and inspections:
- 1. Visually inspect cable jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin
- assignments, and inspect cabling connections for compliance with standards. 2. Visually confirm correct marking of outlets, cover plates, outlet/connectors, and patch
- 3. Visually inspect cable placement, cable termination, grounding and bonding, equipment, patch cords and work area cords, and labeling of all components. 4. Test instruments shall meet or exceed applicable requirements in standards specified
- a. Test for each outlet. Perform the following tests according to ANSI/TIA-568-C.2:
- 1) Wire map. 2) Length (physical vs. electrical, and length requirements).

5. Horizontal UTP Performance Tests:

- 3) DC loop resistance. 4) Return loss.
- 5) Insertion loss
- 6) ACRF. 7) PSACRF.
- Propagation delay skew.
- 9) PSANEXT loss. 10) Average PSANEXT loss.
- 12) Average PSAACRF loss 13) Return loss.
- 14) Propagation delay.
- B. End-to-end cabling will be considered defective if it does not pass tests and inspections.

11) PSAACRF.

- C. Prepare test and inspection reports
- 3.7 CLEANING A. Clean equipment any work areas prior to presentation for acceptance by client. This work will include wiping of work areas, removal of streaks, dust, stains, etc., and assurances that

systems and components as represented are new and undamaged.

A. Train Owner's maintenance personnel in cable-plant management operations, including changing signal pathways for different workstations, rerouting signals in failed cables, and

workstation outlets.

3.8 DEMONSTRATION

3.9 SYSTEM ACCEPTANCE A. Obtain written acceptance from the owner or the owner's representative at the completion of system installation, testing, documentation and training. Failure of the contractor to obtain sign off will result in the contractor remaining responsible for extending, at no charge to the owner, conditions of the warranty and guarantees until such time that sign off had occurred. Time included in the above condition will be presented to the owner in addition to the standard

keeping records of cabling assignments and revisions when extending wiring to establish new

END OF SECTION

warranties.

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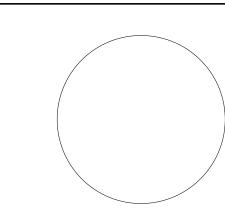
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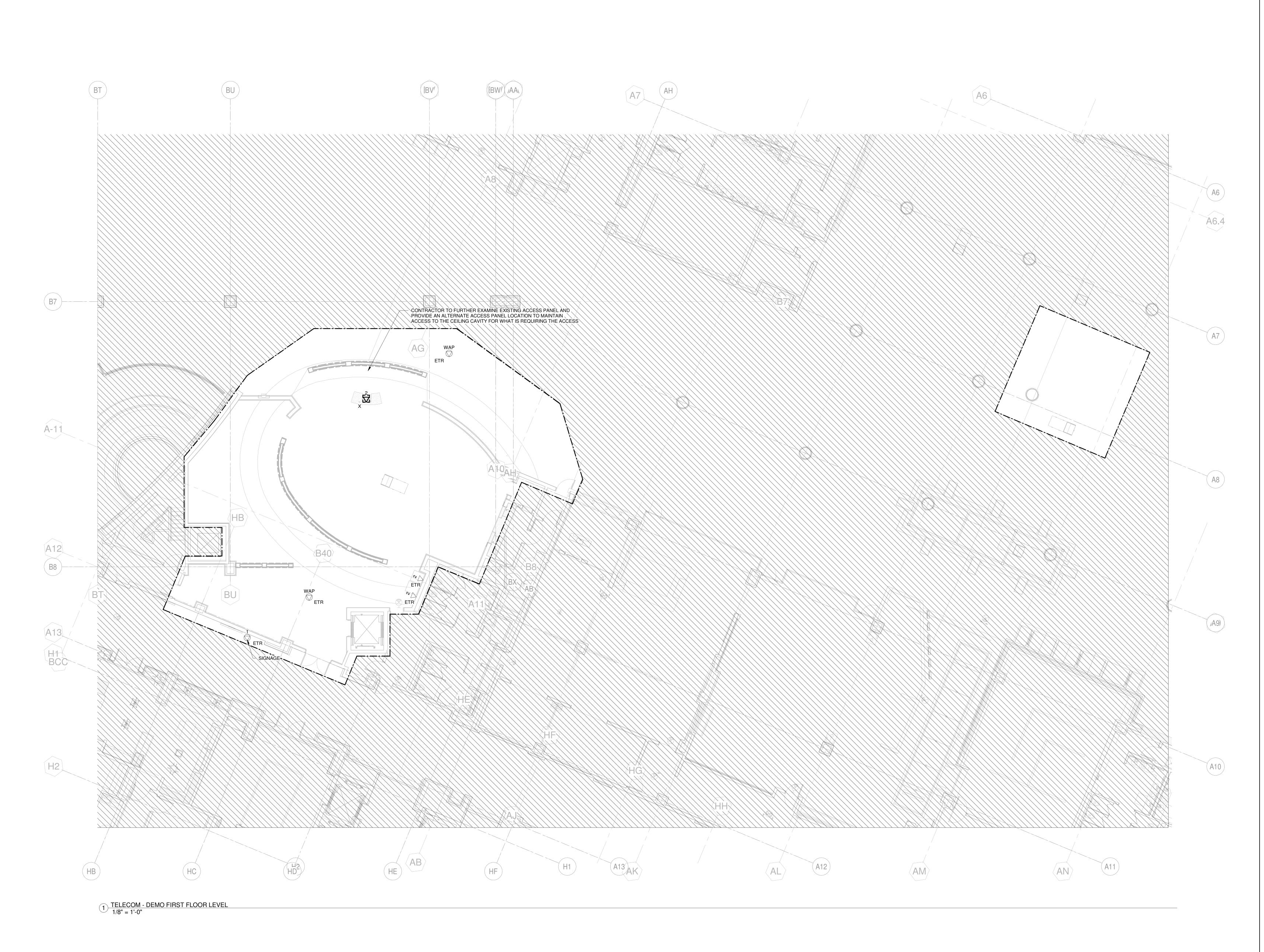
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TELECOM - SPECIFICATIONS



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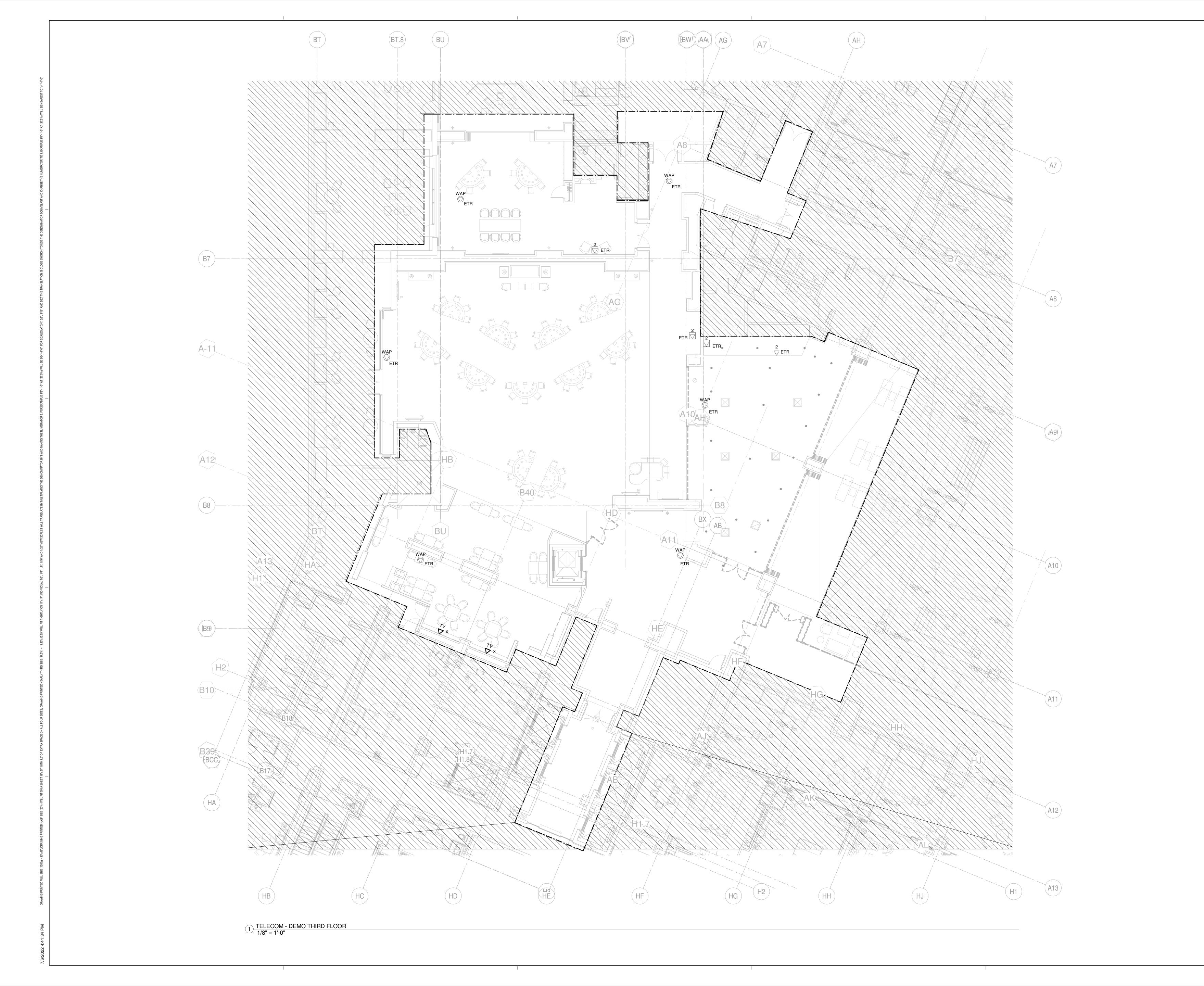
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TELECOM - DEMO FIRST FLOOR LEVEL



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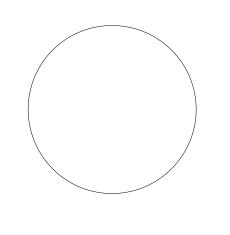
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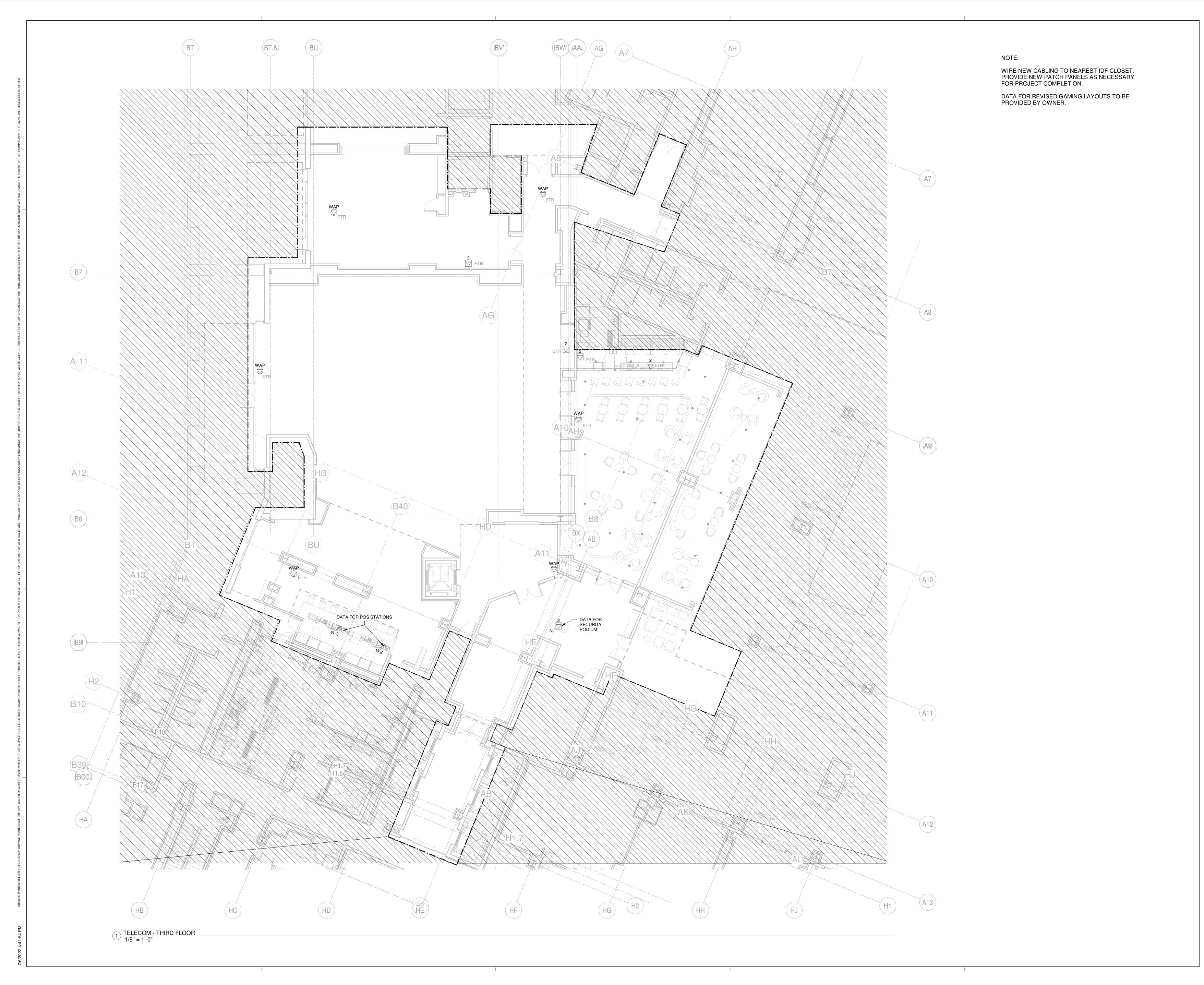
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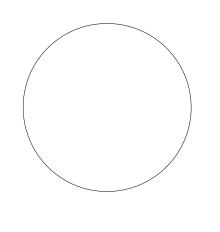
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TELECOM - THIRD FLOOR

DEMOLITION NOTES

1. PROJECT CONDITIONS

a. THE CONTRACTOR SHALL COMPLETELY FAMILIARIZE HIMSELF WITH ALL EXISTING BUILDING AND SITE CONDITIONS AND LIMITATIONS WHICH MAY HAVE A BEARING ON THE OPERATIONS HEREIN SPECIFIED, AND SHALL INCLUDE ALL WORK REQUIRED TO COMPLETE THE PROJECT AS SHOWN ON THE DRAWINGS. NO EXTRA COMPENSATION WILL BE ALLOWED FOR UNFORESEEN CONDITIONS THAT CAN BE DETERMINED FROM A CAREFUL EXAMINATION OF THE SITE AND AREAS TO BE RENOVATED.

b. ITEMS OF VALUE WHICH ARE NOT INDICATED TO BE RETURNED TO THE OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR. STORAGE OR SALE OF ITEMS ON THE PROJECT SITE IS PROHIBITED.

c. PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT DUST MIGRATION.

d. UTILITIES: MAINTAIN ALL UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION. KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING USED AREAS WITHOUT FIRST OBTAINING PERMISSION FROM THE OWNER. PROVIDE TEMPORARY SERVICES AS REQUIRED. COORDINATE ALL WORK WITH OWNER.

e. ALL WORK MUST BE COORDINATED W/ OWNER PRIOR TO ANY COMMENCEMENT OF WORK.

2. SCOPE OF WORK

a. PERFORM WORK AND PROVIDE MATERIAL AND EQUIPMENT AS SHOWN ON DRAWINGS AND AS SPECIFIED IN THIS SECTION OF SPECIFICATIONS. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS FROM AUTHORITIES THAT HAVE JURISDICTION AS REQUIRED TO PERFORM WORK IN ACCORDANCE WITH ALL LEGAL REQUIREMENTS AND WITH SPECIFICATIONS AND DRAWINGS.

3. REGULATORS REQUIREMENTS

a. STRICTLY COMPLY WITH APPLICABLE CODES, REGULATIONS AND REQUIREMENTS OF AUTHORITY HAVING JURISDICTION.

4. HANDLING OF MATERIALS

a. REMOVE ALL MATERIAL DEBRIS FROM THE SITE AS IT ACCUMULATES. DO NOT STORE, SELL, BURN, OR OTHERWISE DISPOSE OF DEBRIS ON SITE. REMOVE ALL MATERIALS IN SUCH MANNER AS TO PREVENT SPILLAGE. KEEP ALL PAVEMENTS AND AREAS ADJACENT TO AND LEADING FROM THE SITE, CLEAN AND FREE OF MUD, DIRT, AND DEBRIS AT ALL TIMES.

5. TRANSFER OF RESPONSIBILITY AND DISPOSITION OF MATERIALS

a. UPON RECEIPT OF NOTICE TO PROCEED WITH THE WORK, THE TITLE TO ALL MATERIALS FOR DEMOLITION SHALL BE VESTED IN THE CONTRACTOR WHEREUPON THE OWNER WILL NOT BE RESPONSIBLE FOR THE CONDITION, LOSS, OR DAMAGE TO SAID PROPERTY. ALL SUCH ITEMS SHALL BE REMOVED FROM THE OWNER'S PROPERTY.

6. CLEAN-UP AND REPAIR

a. UPON COMPLETION OF DEMOLITION WORK, REMOVE TOOLS, EQUIPMENT AND DEMOLISHED MATERIALS FROM SITE. REMOVE PROTECTION AND LEAVE INTERIOR AREAS BROOM CLEAN.

b. REPAIR DEMOLITION PERFORMED IN EXCESS OF THAT REQUIRED. RETURN STRUCTURES AND SURFACES TO EXISTING CONDITION PRIOR TO COMMENCEMENT OF SELECTIVE DEMOLITION WORK. REPAIR ADJACENT CONSTRUCTION OR SURFACES SOILED OR DAMAGED BY SELECTIVE DEMOLITION WORK.

GENERAL NOTES

- 1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL DRAWINGS MARKED P
- 2. DRAWINGS ARE DIAGRAMMATIC: DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN
- 3. DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL. DIMENSIONS SHOWN IN ELEVATION ARE
- 4. DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES IN FIELD, WHETHER OR NOT SHOWN ON DRAWINGS. EXERCISE CAUTION AND IDENTIFY LOCATIONS OF UNMARKED UTILITY LINES AS NECESSARY TO PERFORM WORK OF THIS SECTION.
- 5. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE LATEST PLUMBING CODE AND ALL APPLICABLE LOCAL CODES.
- 6. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE THE WORK WITH THAT OF ALL OTHER TRADES, INCLUDING BUT NOT LIMITED TO, ELECTRICAL, HVAC, PROCESS PIPING,
- ANY INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE, AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF THE WORK.

SPRINKLER, PLUMBING STRUCTURAL AND GENERAL ARCHITECTURE.

- 8. ALL PIPING PENETRATING CEILINGS AND WALLS SHALL BE INSTALLED WITH ESCUTCHEONS AT THE PENETRATION. ALL PIPING PENETRATING EXTERIOR WALLS AND ROOFS SHALL BE FLASHED IN AN APPROVED MANNER AND SHALL BE SEALED WATERTIGHT. PIPING PENETRATING FIRE RATED PARTITIONS SHALL BE PROVIDED WITH FIRE RATED SEALS AS REQUIRED BY LOCAL CODE AUTHORITY. (SEE DETAILS)
- 9. MANUFACTURERS' MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.
- 10. INSTALLATION SHALL ADHERE TO MANUFACTURERS' RECOMMENDATIONS.
- 11. PROVIDE ACCESS PANELS TO SYSTEM COMPONENTS THAT ARE CONCEALED AND REQUIRE PERIODIC SERVICE.
- 12. TOPS OF ALL FLOOR DRAINS SHALL BE SET FLUSH WITH FINISHED FLOOR. ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING STRUCTURE OR COMPONENTS.
- 13. ALL PLUMBING EQUIPMENT, PIPING, INSULATION, ETC., INSTALLED IN HVAC PLENUM SPACES SHALL MEET CODE REQUIREMENTS FOR SMOKE AND COMBUSTIBILITY.
- 14. PROVIDE SHUTOFF VALVES ON ALL BRANCH PIPING AND ON ALL SUPPLIES TO INDIVIDUAL FIXTURES AND EQUIPMENT. PROVIDE BALL VALVES ON ALL WATER MAIN BRANCHES IN CORRIDORS AND WHERE INDICATED ON DRAWINGS.
- 15. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
- 16. PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.
- 17. PROVIDE GAUGE FITTINGS AND THERMOMETER WELLS AT HOT WATER SUPPLY AND RETURN BRANCHES AND AT PUMP INLETS AND OUTLETS.
- 18. PITCH GRAVITY PIPING IN DIRECTION OF FLOW.

SYMBOL

FD-1

FS-1

TYPE

FLOOR DRAIN

FLOOR SINK

2. DRAIN SIZES ARE INDICATED ON THE DRAWINGS.

19. VERIFY EXACT SIZES, LOCATIONS, INVERTS AND ELEVATIONS PRIOR TO RUNNING ANY PIPING. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL FIXTURES AND EQUIPMENT.

MODEL

ZN-1970

ZN-1910-2-23

OUTLET

CAULK, NO HUB

CAULK, NO HUB

1. BEFORE SETTING DRAINS, OBTAIN EXACT INFORMATION RELATIVE TO FINISH FLOOR LEVEL AT TOP OF DRAINS AND TYPE OF ROOF CONSTRUCTION FOR ROOF DRAIN INSTALLATION.

MFGR

ZURN

ZURN

ABBREVIATIONS

	BV	BALL VALVE
	BLDG	BUILDING
	CFM	CUBIC FEET PER MINUTE
	CTE	CONNECT TO EXISTING
	DN	DOWN
	DWG	DRAWING
	EWH	ELECTRIC WATER HEATER
	ETBR	EXISTING TO BE REMOVED
	ETR	EXISTING TO REMAIN
	GPM	GALLON PER MINUTE
	IN	INCHES
GENERAL	IW	INDIRECT WASTE
JEN I	MV	MIXING VALVE
	NTS	NOT TO SCALE
	PC	PLUMBING CONTRACTOR
	PSI	POUNDS PER SQUARE INCH
	PRV	PRESSURE REDUCING VALVE
	PVB	PRESSURE VACUUM BREAKER
	RPBP	REDUCED PRESSURE BACKFLOW PREVENTOR
	TP	TRAP PRIMER
	WHA	WATER HAMMER ARRESTOR
	W/	WITH

	/	*************************************
	CO	CLEANOUT
	FCO	FLOOR CLEANOUT
	FD	FLOOR DRAIN
	FS	FLOOR SINK
	GW	GREASE WASTE
ш	IW	INDIRECT WASTE
AAG	OED	OPEN END DRAIN
DRAINAGE	SAN	SANITARY
□	V	VENT
	WCO	WALL CLEANOUT
	W	WASTE
	W & T	WASTE & TRAP
	W & V	WASTE & VENT

DOMESTIC WATER	CW	COLD WATER
	HW	HOT WATER
1C	HWR	HOT WATER RETURN
VES.	140HW	140 HOT WATER
0	140HWR	140 HOT WATER RETURN
SES	G	NATURAL GAS (LOW PRESSURE)
S		·

G (X PSI) NATURAL GAS (X PSI)

LOCATION

FIXTURE

SINK

NICKEL BRONZE GENERAL KITCHEN AREAS W/ 9" DIA STRAINER, ARE COATING

FOOD COUNTERS, PREP SINKS 8" SQ x 6" DEEP, ARE INTERIOR, HALF GRATE, ALUMINUM BUCKET STRAINER

PLUMBING FIXTURE CONNECTION SCHEDULE

DRAIN SCHEDULE

STRAINER

NICKEL BRONZE

SYMBOLS

	⊗	CONNECT TO EXISTING
		CAP OR END OF PIPE
		DIRECTION OF FLOW
	5	DIRECTION OF SLOPE
	\times \times	ETBR
RAL	2	PIPE BREAK
GENERAL	C	PIPE FITTING DOWN OR DROP
ਹ	()	PIPE FITTING TEE DOWN
	0	PIPE FITTING UP
ш	-	CLEANOUT
\GE		ELOOD OD CDADE CLEANOLIT

Е	-	CLEANOUT
ORAINAGE	\oslash	FLOOR OR GRADE CLEANOUT
RAI	0	FLOOR DRAIN
)0	P TRAP
ES.	7	BALL VALVE
VALVES	Ŋ	BALANCING VALVE
/	•	CHECK VALVE

PIPE LINETYPES

 PIPE (EXISTING)
 PIPE (ABOVE GRADE)
 VENT PIPE (ABOVE GRADE)
PIPE (BELOW GRADE)
 VENT PIPE (BELOW GRADE)

REFERENCE

	X	X: DETAIL DESIGNATION NUMBER
RENCE	X-#	X-#: DETAIL DESIGNATION DRAWING
REFER	E	HANDICAPPED ACCESSIBLE (HC)

COLD HOT

	X	X: DETAIL DESIGNATION NUMBER
RENCE	X-#	X-#: DETAIL DESIGNATION DRAWING
REFER	E	HANDICAPPED ACCESSIBLE (HC)

REMARKS

WASTE VENT TRAP

2" | 1 1/2" | 1/2"

BIDDING & CONSTRUCTION

CROCKFORDS -

CATSKILLS

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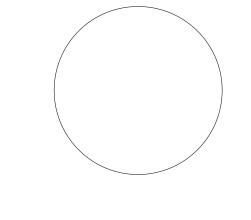
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DRAWN_	RD	
SCALE _	NTS	

REVISIONS

LEGEND, SCHEDULES, AND **GENERAL NOTES**

PART 1 - GENERAL

<u>SUMMARY</u> REQUIREMENTS OF THIS SECTION APPLY TO DIVISION 22 SECTIONS FURNISH SERVICES, SKILLED AND COMMON LABOR, AND APPARATUS AND MATERIALS REQUIRED FOR THE COMPLETE INSTALLATION AS SHOWN AND WITHIN THE INTENT OF THE DRAWINGS AND THESE SPECIFICATIONS. AND IN ACCORDANCE WITH REQUISITE LOCAL

- PLUMBING CODES. THE FOLLOWING REQUIREMENTS ARE MINIMUM: PREPARE COORDINATION DRAWINGS, SHOP DRAWINGS, SUBMITTALS, AS-BUILT DRAWINGS, AND OPERATING AND MAINTENANCE INSTRUCTIONS.
- DETERMINE ITEMS AND QUANTITIES REQUIRED.
- PROVIDE COMPLETE, CONTINUOUS, OPERATIONAL, AND 1.2 FUNCTIONING SYSTEMS. FULLY COORDINATE WITH WORK OF OTHER SECTIONS. INCLUDING FIELD VERIFICATION OF ELEVATIONS, DIMENSIONS,
- CLEARANCE, AND ACCESS REPAIR OF ALL DAMAGE DONE TO PREMISES AS A RESULT OF THIS INSTALLATION AND REMOVAL OF DEBRIS LEFT BY THOSE
- ENGAGED IN THIS INSTALLATION. RIGGING, HOISTING, TRANSPORTATION, AND ASSOCIATED

WORK NECESSARY FOR PLACEMENT OF EQUIPMENT IN THE

- DISASSEMBLY AND RE-ASSEMBLY OF EQUIPMENT FURNISHED UNDER THIS SECTION, SHOULD THIS BE REQUIRED IN ORDER TO MOVE EQUIPMENT INTO FINAL LOCATION SHOWN ON THE
- TEMPORARY SCAFFOLDING NECESSARY FOR PERFORMANCE OF THE WORK IN THIS DIVISION.
- 9. CUTTING AND CORE DRILLING REQUIRED 10. PIPE SLEEVES FOR ALL HOLES IN WALLS, FLOORS, AND CEILINGS, AND CUTTING OF FLOOR SLABS AND SLABS ON
- 11. WATERPROOFING WHERE NECESSARY FOR INSTALLATION UNDER THIS DIVISION. 12. COOPERATION WITH AND ASSISTANCE TO THE BUILDING
- MANAGEMENT SYSTEM CONTRACTOR AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL PLUMBING SYSTEM. 13. COUNTERFLASHING OF ROOF PENETRATIONS FOR WORK OF
- DIVISION 22. 14. SIZES, AND LOCATIONS FOR INSTALLATION OF ANY CURBS AND PADS FOR WORK OF DIVISION 22
- TEMPORARY AND PERMANENT STANDS AND SUPPORTS FOR EQUIPMENT REQUIRING THEM INCLUDING VIBRATION
- 16. TEMPORARY PROTECTION OF EXISTING INSTALLATION.
- 17. PIPING, VALVES AND EQUIPMENT IDENTIFICATION. 18. FIRESTOPPING OF PENETRATIONS OF PIPING, THROUGH WALLS, FLOORS, AND CEILING ASSEMBLIES.
- 19. TEMPORARY UTILITIES AS REQUIRED TO INSTALL WORK ON DIVISION 22 INCLUDING LIGHTING, WATER, GAS, ELECTRICITY,
- 20. FEES, PERMITS, INSPECTIONS, TAXES, AND APPROACH FROM AGENCIES THAT HAVE JURISDICTION OVER INSTALLATION OF

a. CLEARANCES FOR INSTALLING AND MAINTAINING

MAINTENANCE.

f. VALVE STEM MOVEMENT.

STRUCTURAL DRAWINGS.

RECORD DOCUMENT REQUIREMENTS.

1.12 <u>RECORD DRAWINGS</u>

AND APPROVAL.

MATERIALS AND SUBSTITUTIONS

PIPE, FITTINGS AND VALVES

GENERAL

C. PIPE MATERIALS

CLEARANCES FOR SERVICING AND MAINTAINING

c. EQUIPMENT CONNECTIONS AND SUPPORT DETAILS.

SIZES AND LOCATIONS OF NEW AND EXISTING

SIZES AND LOCATIONS OF NEW OPENINGS, EITHER

MAINTAIN ONE COMPLETE SET OF COMPOSITE COORDINATION

SLEEVED, CUT, OR CORE-DRILLED, IN NEW CONCRETE

CONSTRUCTION UNLESS SPECIFICALLY SHOWN ON THE

EQUIPMENT SUPPORT CURBS ON ROOF.

DRAWINGS AT THE JOB SITE. PERIODICALLY UPDATE

SUBMIT FINAL COORDINATION DRAWINGS AS PART OF

AS WORK PROGRESSES AND FOR DURATION OF CONTRACT, MAINTAIN

COMPLETE AND SEPARATE SET OF PRINTS OF CONTRACT DRAWINGS

AT JOB SITE AT ALL TIMES. RECORD WORK COMPLETED AND ALL

CHANGES FROM ORIGINAL CONTRACT DRAWINGS. SUCH CHANGES

SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE RESULTING FROM

RFI'S. FIELD CONDITIONS, AND MODIFICATIONS AND ADDITIONS.

INCLUDE ACTUAL LOCATION OF EXISTING UTILITIES IF THEY DIFFER

FROM DESIGN DOCUMENTS. AT COMPLETION OF PROJECT

CONTRACTOR SHALL INCORPORATE ALL CHANGES INTO RECORD AS-

BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR REVIEW

A. COMPLY WITH DIVISION 01 SECTION "GENERAL REQUIREMENTS - SPECIFIED ITEMS AND SUBSTITUTES."

C. PRODUCT INSTALLATION SHALL ADHERE TO MANUFACTURER'S RECOMMENDATIONS.

DRAWINGS BASED ON ACTUAL FIELD CONDITIONS.

d. FIRE-RATED WALL AND FLOOR PENETRATIONS.

EQUIPMENT, INCLUDING SPECIFIC CEILING TILE OR

CEILING ACCESS PANEL ACCESS AND SPACE FOR

EQUIPMENT DISASSEMBLY REQUIRED FOR PERIODIC

SIZES AND LOCATION OF REQUIRED CONCRETE PADS

- DIVISION 22. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION. PERFORM WORK IN ACCORDANCE WITH ALL LEGAL REQUIREMENTS AND WITH SPECIFICATIONS. DRAWINGS, ADDENDA AND CHANGE ORDERS, ALL OF WHICH
- ARE PART OF CONTRACT DOCUMENTS. 21. POTABLE WATER DISINFECTION REPORT
- 22. PARTICIPATION IN AND COORDINATION WITH THE COMMISSIONING PROCESS.

<u>DEFINITIONS</u>

WARRANTY

- A. "PROVIDE" MEANS "FURNISH AND INSTALL." "FURNISH" MEANS "TO PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT,"
- "INSTALL" MEANS "TO UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT.
- 'POS' MEANS PROVIDED UNDER OTHER SPECIFICATION SECTION. "ARCHITECT" MEANS THE "PRIME DESIGN CONSULTANT." IF R.G. VANDERWEIL ENGINEERS, LLP IS NOT THE PRIME DESIGN CONSULTANT, THE ARCHITECT MAY AUTHORIZE R.G. VANDERWEIL
- ENGINEERS, LLP TO ACT ON THE ARCHITECT'S BEHALF IN MATTERS CONCERNING THE ALL SECTIONS OF SPECIFICATIONS. CONTRACT DOCUMENTS REFER TO ARCHITECTURAL, FIRE PROTECTION, PLUMBING, HVAC.
- ELECTRICAL, STRUCTURAL, TELE/DATA AND ALL OTHER DRAWINGS AND OTHER SECTIONS THAT INDICATE TYPES OF CONSTRUCTION IN WHICH WORK SHALL BE INSTALLED AND WORK OF OTHER TRADES WITH WHICH WORK OF THIS SECTION MUST BE COORDINATED EXCEPT WHERE MODIFIED BY A SPECIFIC NOTATION TO THE
- CONTRARY, IT SHALL BE UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF AN ITEM IN THE DRAWINGS OR SPECIFICATIONS OR BOTH, CARRIES WITH IT THE INSTRUCTION TO FURNISH AND INSTALL THE ITEM. REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION IS EXPLICITLY STATED AS PART OF THE INDICATION OR DESCRIPTION. ITEMS REFERRED TO IN SINGULAR NUMBER IN CONTRACT DOCUMENTS
- SHALL BE PROVIDED IN QUANTITIES NECESSARY TO COMPLETE WORK. DATA THAT MAY BE FURNISHED ELECTRONICALLY (ON COMPACT DISK (CD), ELECTRONIC MAIL, OR OTHERWISE) IS DIAGRAMMATIC. ELECTRONICALLY FURNISHED INFORMATION IS SUBJECT TO THE SAME
- LIMITATION OF PRECISION DESCRIBED ABOVE. IF FURNISHED. ELECTRONIC DATA IS FOR CONVENIENCE AND GENERALIZED REFERENCE, AND SHALL NOT SUBSTITUTE FOR SEALED OR STAMPED CONSTRUCTION DOCUMENTS. ELECTRONIC CAD FILES

ELECTRONIC CAD FILES FOR PLUMBING DRAWINGS WILL BE

FURNISHED BY ENGINEER AT CONTRACTOR'S REQUEST. ENGINEER

WILL FORWARD THE 'RELEASE OF LIABILITY' FORM TO CONTRACTOR FOR COMPLETION/SIGNATURE. CONTRACTOR TO RETURN FORM TO ENGINEER PRIOR TO ENGINEER'S ISSUANCE OF ELECTRONIC CAD

B. THE INSTALLING CONTRACTOR SHALL CERTIFY RECORD DRAWINGS

C. AT COMPLETION OF WORK, PREPARE A COMPLETE SET OF RECORD

FOR ACCURACY. THE ARCHITECT/ENGINEER WILL NOT CERTIFY THE

ACCURACY OF THE RECORD DRAWINGS - THIS IS THE SOLE

DRAWINGS IN ELECTRONIC FORMAT. DELIVER THESE TO THE

DRAWINGS SHALL SHOW RECORD CONDITION OF DETAILS,

ORIGINAL (NOT SCANNED) ELECTRONIC VERSION OF

DRAWINGS IN APPROVED FORMAT, NOTATED AS "RECORD

DRAWINGS," AND CONFORMED TO INCORPORATE ALL

CHANGES TO THE ORIGINAL DESIGN NOTED ABOVE. THE

CHANGES SHALL BE CLOUDED AND APPROPRIATELY

IDENTIFIED. DELIVER ONE COPY EACH TO THE GENERAL

DELIVER TO THE OWNER ONE SET OF BLACKLINE RECORD

DRAWINGS STAMPED "RECORD" AND SIGNED BY THE

ELECTRONIC VERSION OF CONTRACT SPECIFICATIONS WITH

PROVIDE ELECTRONICALLY FORMATTED (SEARCHABLE PDF)

FILES OF MANUFACTURER'S OPERATING AND MAINTENANCE

INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT AND SYSTEM.

COMPILE RESPECTIVE WORK OF EACH DISCIPLINE INTO A

SINGLE FILE FOR EACH DISCIPLINE. PROVIDE, WITHIN THE

ELECTRONIC FILE, TABLE OF CONTENTS/INDEX LISTING.

PROVIDE VALVE DIRECTORY FOR ALL ISOLATION VALVES

D. FIXTURE FITTINGS INTENDED TO DELIVER POTABLE WATER FOR HUMAN CONSUMPTION SHALL BE CERTIFIED FOR "LEAD-FREE" AND SHALL COMPLY WITH THE NEW FEDERAL MANDATE KNOWN AS THE "REDUCTION OF LEAD IN DRINKING WATER ACT-

A. IN ADDITION TO MATERIAL AND EQUIPMENT SPECIFIED, PROVIDE INCIDENTAL MATERIALS TO EFFECT A COMPLETE INSTALLATION. SUCH INCIDENTAL MATERIALS INCLUDE SOLDERS, TAPES, CAULKING, MASTICS, GASKETS AND SIMILAR ITEMS.

B. MATERIALS AND EQUIPMENT SHALL BE UNIFORM THROUGHOUT THE INSTALLATION. EQUIPMENT OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER. MATERIALS AND EQUIPMENT SHALL BE NEW.

A. ALL PIPE, FITTINGS, AND VALVES USED IN POTABLE WATER DISTRIBUTION SYSTEM MUST COMPLY WITH THE NEW FEDERAL MANDATE KNOWN AS THE "REDUCTION OF LEAD IN DRINKING WATER ACT-2014".

B. FIXTURE TRIM, TRAPS, FAUCETS, ESCUTCHEONS AND WASTE PIPES EXPOSED TO VIEW IN FINISHED SPACES SHALL BE I.P.S. BRASS WITH POLISHED CHROMIUM PLATING OVER NICKEL FINISH.

A. REFER TO ARCHITECTURAL AND PLUMBING DRAWINGS FOR QUANTITIES, LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES PROVIDED UNDER THIS SECTION

B. PLASTIC PIPING SYSTEMS: DO NOT USE PLASTIC PIPING SYSTEMS IN RETURN AIR PLENUMS. ALL PIPING USED IN PLENUM APPLICATIONS SHALL BE SO RATED.

ADDENDA INCORPORATED, WILL BE PROVIDED BY

CONTRACTOR, OWNER, ARCHITECT, AND ENGINEER.

VANDERWEIL AS THE RECORD SPECIFICATIONS.

BULLETINS, MANUALS, AND OPERATING INSTRUCTIONS - ELECTRONIC

SECTIONS, RISER DIAGRAMS, CONTROL CHANGES AND

CORRECTIONS TO SCHEDULES. SCHEDULES SHALL SHOW ACTUAL MANUFACTURER AND MAKE AND MODEL NUMBERS OF

1.5 <u>DISCREPANCIES IN DOCUMENTS</u>

RESPONSIBILITY OF THE CONTRACTOR.

D. AFTER APPROVAL, DELIVER THE FOLLOWING:

FINAL EQUIPMENT INSTALLATION.

APPROPRIATE SUBCONTRACTORS.

ARCHITECT FOR APPROVAL.

WHERE DRAWINGS OR SPECIFICATIONS CONFLICT OR ARE UNCLEAR. SUBMIT CLARIFICATION REQUEST IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, ARCHITECT'S INTERPRETATION OF CONTRACT DOCUMENTS SHALL BE FINAL, AND NO ADDITIONAL

COMPENSATION SHALL BE PERMITTED DUE TO DISCREPANCIES OR UN-

INSTRUCTIONS OR CODES AND STANDARDS WITHIN CONTRACT PRICE.

WHERE DRAWINGS OR SPECIFICATIONS DO NOT COINCIDE WITH MANUFACTURERS' RECOMMENDATIONS OR WITH APPLICABLE CODES AND STANDARDS, SUBMIT CLARIFICATION REQUEST IN WRITING BEFORE INSTALLATION. OTHERWISE, MAKE CHANGES IN INSTALLED WORK REQUIRED FOR COMPLIANCE WITH MANUFACTURER

CLARITIES THUS RESOLVED.

- IT IS THE REQUIREMENT OF THESE CONTRACT DOCUMENTS TO REQUIRE PROVISION OF SYSTEMS AND COMPONENTS THAT ARE FULLY COMPLETE AND OPERATIONAL AND FULLY SUITABLE FOR THE INTENDED USE. THERE MAY BE SITUATIONS IN THE DOCUMENTS WHERE INSUFFICIENT INFORMATION EXISTS TO PRECISELY DESCRIBE A CERTAIN COMPONENT OR SUBSYSTEM, OR THE ROUTING OF A COMPONENT OR ITS COORDINATION WITH OTHER BUILDING ELEMENTS. IN THESE CASES, WHERE NOTIFICATION REQUIRED BY PARAGRAPH (A) ABOVE HAS NOT BEEN SUBMITTED. PROVIDE THE SPECIFIC COMPONENT OR SUBSYSTEM WITH ALL PARTS NECESSARY FOR THE INTENDED USE FULLY COMPLETE AND OPERATIONAL AND INSTALLED IN WORKMANLIKE MANNER EITHER CONCEALED OR
- EXPOSED IN ACCORDANCE WITH THE DESIGN INTENT. IN CASES COVERED BY PARAGRAPH (C) ABOVE. WHERE THE CONTRACTOR BELIEVES ENGINEERING GUIDANCE IS NEEDED THE CONTRACTOR SHALL. SUBMIT A SKETCH IDENTIFYING PROPOSED SOLUTION, ARCHITECT SHALL REVIEW, NOTE IF NECESSARY, AND APPROVE THE SKETCH.
- WHERE DISCREPANCIES EXIST BETWEEN THE MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL AND TELE/DATA DRAWINGS IN REGARDS TO WHAT TRADE OWNS EQUIPMENT SUCH AS DISCONNECTS. STARTERS, ETC., SUBMIT RFI TO THE ARCHITECT REGARDING SUCH DISCREPANCY.
- MODIFICATIONS IN LAYOUT TO OBTAIN THE INTENDED AESTHETICS IN SPACES USED BY BUILDING OCCUPANTS, PRIOR TO INSTALLATION OF VISIBLE MATERIAL AND EQUIPMENT (INCLUDING ACCESS PANELS), REVIEW ARCHITECTURAL DRAWINGS FOR DESIRED LOCATIONS AND WHERE NOT DEFINITIVELY INDICATED, REQUEST INFORMATION FROM ARCHITECT.
- CHECK CONTRACT DRAWINGS, AS WELL AS SHOP DRAWINGS, TO VERIFY AND COORDINATE SPACES IN WHICH WORK OF THIS SECTION MAINTAIN MAXIMUM HEADROOM AT ALL LOCATIONS. ALL PIPING, DUCT,
- CONDUIT, AND ASSOCIATED COMPONENTS TO BE AS TIGHT TO UNDERSIDE OF STRUCTURE AS POSSIBLE. MAKE REASONABLE MODIFICATIONS IN LAYOUT AND COMPONENTS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES.
- SYSTEMS SHALL BE RUN IN A RECTILINEAR FASHION. REQUEST FOR INFORMATION (RFI'S)
- WHERE AN RFI IS A REQUEST TO RESOLVE A CONFLICT OR AN UN-CLARITY, OR A REQUEST FOR ADDITIONAL DETAIL, CONTRACTOR'S RFI SHALL INCLUDED SKETCH OR EQUIVALENT DESCRIPTION OF CONTRACTOR'S PROPOSED SOLUTION, IN ACCORDANCE WITH PARAGRAPHS "DISCREPANCIES IN DOCUMENTS; AND "MODIFICATIONS IN LAYOUT" ABOVE.
- TO EXPEDITE THE PROCESSING OF RFI'S, THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC CORRESPONDENCE WITH THE FOLLOWING

RECORD DOCUMENTS: UPON COMPLETION OF THE WORK COVERED

BY THIS CONTRACT. INCLUDE CHANGES INSTALLED UNDER THIS

CONTRACT WHICH ARE NOT IN ACCORDANCE WITH THE CONTRACT

DRAWINGS. NOTE THAT THESE AS-BUILT DRAWINGS ARE TO BE BASED

INTENT OF ARCHITECT'S SUBMITTAL REVIEW IS TO CHECK FOR

CAPACITY, RATING, AND CERTAIN CONSTRUCTION FEATURES.

CONTRACTOR SHALL ENSURE THAT WORK MEETS REQUIREMENTS OF

CONTRACT DOCUMENTS REGARDING INFORMATION THAT PERTAINS

TO FABRICATION PROCESSES OR MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION; AND FOR

COORDINATION OF WORK OF THIS AND OTHER SECTIONS. WORK SHALL COMPLY WITH SUBMITTALS MARKED "REVIEWED" TO EXTENT THAT

THEY AGREE WITH CONTRACT DOCUMENTS. SUBMITTAL REVIEW SHALL

NOT DIMINISH RESPONSIBILITY UNDER THIS CONTRACT FOR

DIMENSIONAL COORDINATION, QUANTITIES, INSTALLATION, WIRING,

SUPPORTS AND ACCESS FOR SERVICE. NOR SHOP DRAWING ERRORS

OR DEVIATIONS FROM REQUIREMENTS OF CONTRACT DOCUMENTS.

NOTING OF SOME ERRORS WHILE OVERLOOKING OTHERS WILL NOT

EXCUSE PROCEEDING IN ERROR. CONTRACT DOCUMENTS

SCHEDULE: INCORPORATE SHOP DRAWING REVIEW PERIOD INTO

CONSTRUCTION SCHEDULE SO THAT WORK IS NOT DELAYED.

CAUSED BY NOT INCORPORATING THE FOLLOWING SHOP DRAWING REVIEW TIME REQUIREMENTS INTO HIS PROJECT SCHEDULE. WORKING

DAYS LISTED REFERENCE THE TIME IN THE ENGINEER'S OFFICE. IT

DOES NOT INCLUDE TRANSMITTAL OR REVIEW TIME OF OTHERS.

PREPARE A FORMAL TRAINING PROGRAM FOR OPERATING STAFF

CONSIST OF THE DESIGN, START-UP, AND OPERATION OF THE

PRIOR TO THE SCHEDULED START-UP DATE. THE PROGRAM WILL

PROVIDE INDEXED BINDER AND TRAINING MATERIALS TO EACH

PLUMBING SYSTEMS. COORDINATE THE TRAINING PROGRAM WITH

THE PRODUCTION OF THE OPERATION AND MAINTENANCE MANUALS.

CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR DELAYS

REQUIREMENTS ARE NOT LIMITED, WAIVED NOR SUPERSEDED BY

THE SHOP DRAWINGS AND COORDINATION DRAWINGS.

<u>RESPONSIBILITY</u>

START-UP TRAINING

PARTICIPANT.

ON THE CONTRACT DRAWINGS. IN ADDITION, SUBMIT FINAL COPIES OF

INFORMATION CONTAINED WITHIN, AT THE MINIMUM, AS WELL AS THE CONTRACTOR'S PROPOSED SOLUTION, WITH SKETCHES AS REQUIRED:

- PROJECT NAME AND RFI NUMBER DATE OF RFI SUBMISSION / DATE OF REQUIRED RFI RESPONSE (3-DAY MINIMUM)
- NAME OF CONTRACTING COMPANY SUBMITTING RFI AND NAME OF PERSON SUBMITTING RFI SPECIFICATION SECTION CITED AND DRAWING NUMBER REFERENCED
- CONTRACTOR EMAIL ADDRESS AND FAX NUMBER (FOR RESPONSE)
- CONTRACTOR FIELD QUESTION (PROVIDE A NARRATIVE WITH SUPPLEMENTAL SKETCH)
- CONTRACTOR PROPOSED SOLUTION (PROVIDE A NARRATIVE WITH SUPPLEMENTAL SKETCH)
- 8. RESPONDENT NARRATIVE BOX (FOR ENGINEER'S RESPONSE) CODES, STANDARDS, AUTHORITIES AND PERMITS PERFORM WORK IN ACCORDANCE WITH RULES, REGULATIONS,
- STANDARDS, CODES, ORDINANCES, AND LAWS OF LOCAL, STATE, AND FEDERAL GOVERNMENTS, AND OTHER AUTHORITIES THAT HAVE LEGAL JURISDICTION OVER THE SITE. PRIOR TO WORK COMMENCEMENT OF WORK, NOTIFY STATE AND APPLICABLE AUTHORITIES AND SUBMIT ALL OF THE APPLICABLE NOTIFICATIONS FOR CONSTRUCTION, OPERATION AND/OR
- DEMOLITION. MATERIALS AND EQUIPMENT SHALL BE MANUFACTURED. INSTALLED AND TESTED AS SPECIFIED IN LATEST EDITIONS OF APPLICABLE PUBLICATIONS, STANDARDS, RULINGS AND DETERMINATIONS

1.12 GUARANTEE

A. A. GUARANTEE THE WORK OF THIS SECTION IN WRITING FOR ONE YEAR FOLLOWING THE DATE OF SUBSTANTIAL COMPLETION. IF THE EQUIPMENT IS USED FOR VENTILATION, TEMPORARY HEAT, OR OTHER USE PRIOR TO INITIAL BENEFICIAL OCCUPANCY BY THE OWNER. THE BID PRICE SHALL INCLUDE AN EXTENDED PERIOD OF WARRANTY COVERING THE ONE-YEAR OF BENEFICIAL OCCUPANCY BY THE OWNER. THE GUARANTEE SHALL REPAIR OR REPLACE DEFECTIVE MATERIALS. EQUIPMENT. WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPTLY AND TO ARCHITECT'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.

- SUBMIT UNDER PROVISIONS OF DIVISION 01 SECTIONS "GENERAL REQUIREMENTS", AND DIVISION 01 SECTION "SPECIAL PROCEDURES."
- PRODUCT DATA: SUBMIT MANUFACTURER'S TECHNICAL PRODUCT SPECIFICATION SHEETS FOR EACH SYSTEM COMPONENT AND DEVICE TO BE PROVIDED THAT INCLUDES DATA NEEDED TO PROVE COMPLIANCE WITH THIS SPECIFICATION. CLEARLY INDICATE THE EXACT MODEL OF EACH COMPONENT TO BE PROVIDED. SHOP DRAWINGS SHALL BE DRAWN TO A SCALE OF 1/4 INCH = 1 FOOT (1:25) OR LARGER. AND SHALL INCLUDE COMPLETE DIMENSIONS. LOCATIONS, ELEVATIONS, AND CLEARANCES FOR PLUMBING, PIPING, DUCTWORK, EQUIPMENT, AND VALVE NUMBERS. IDENTIFY **EQUIPMENT USING DESIGNATIONS SHOWN ON THE CONTRACT** DOCUMENTS

ALL SHOP DRAWINGS SHALL CLEARLY CALL OUT IN BOLD LETTERS AND CLOUD SYMBOLS DEVIATIONS FROM THE SPECIFICATIONS AND CONTRACT DOCUMENTS, NO MATTER HOW MINOR.

SHOP DRAWINGS SHALL BE SUBMITTED WITH A SEPARATE COVER SHEET COMPLETED FOR EACH PRODUCT, RATHER THAN ONE COVER SHEET FOR MULTIPLE PRODUCTS, WHETHER OR NOT SUPPLIED BY ONE MANUFACTURER OR VENDOR.

SHOP DRAWING COVER SHEET							
PROJE	ECT:	CONTRA	CTOR:				
DIVISIO	DIVISION NO.: SECTIO						
DESCF	RIPTION:				•		
CONTR	RACT DRAWING RE	EFERENCE NO:					
EQUIP	MENT TAG:						
SUBMI	SSION (CIRCLE OF	NE): FIRST, SECOND, THIRD	, FOURTH				
DATE:							
INFOR	MATION AND CHE	CKLIST					
1.	Contractor's Log #	ID					
2.	Name, address, ar	nd phone number of supplier.					
3.	Are all specified or scheduled items included and exactly match scheduled/specified items?				No		
4.	Is this item a substitution?				No		
5.	Are deviations clearly identified?				No		
6. Does equipment fit space shown on construction documents, coordination drawings, and actual field conditions?				Yes	No		
7.	Has support, erection, weights, and installation been coordinated with all trades?				No		
8.	Does the proposed installation void warranties and/or violate UL or code requirements?				No		
9.	Does this material/equipment add expense to other trades or project costs?			Yes	No		
10.	Does equipment require interface with other trades? List divisions and specifics requiring coordination?			Yes	No		
11.	11. Is control interface coordinated?			Yes	No		
12.	List electrical characteristics (Voltage/Phase/Hz/Amps)						

SUBMITTAL PROCEDURES, CONTENTS, AND FORMAT

 CONSTRUCTION MANAGER OR GENERAL CONTRACTOR SHALL FIRST REVIEW SUBMITTAL PACKAGES FOR COMPLIANCE WITH CONTRACT DOCUMENTS. UPON REVIEW BY THE G.C. THE SUBMITTALS WILL THEN BE SUBMITTED FOR REVIEW BY ARCHITECT. REVIEW BY CONSTRUCTION MANAGER OR CONTRACTOR IS INTENDED TO ENSURE THAT THE SUBMITTALS INCLUDE THE FOREGOING COVER SHEET, ARE IN THE CORRECT ELECTRONIC FORMAT AS SPECIFIED BELOW. AND THAT THE DEVICES/EQUIPMENT/ITEMS FIT INTO THE SPACE PROVIDED. ALSO, THAT THE SUBMITTAL CONTAINS ADEQUATE INFORMATION TO VERIFY SPECIFICATION REQUIREMENTS AS WELL AS THE PERFORMANCE AND DIMENSIONAL REQUIREMENTS SHOWN ON THE DRAWINGS. IF A SHOP DRAWING IS RETURNED WITH A SUBMITTAL STATUS OF

"REJECTED" OR "REVISE AND RESUBMIT", IT INDICATES THE

SHOP DRAWING WAS NOT ADEQUATELY REVIEWED BY THE CONTRACTOR. SUBSEQUENT SUBMITTALS SHALL INCLUDE A WRITTEN RESPONSE TO PREVIOUS ITEMS.

- SUBMITTALS WILL BE PROVIDED TO ENGINEER IN ELECTRONIC (PDF) FORMAT. A SINGLE PDF FILE SHALL BE SUBMITTED FOR EACH RESPECTIVE SUBMITTAL. THE PDF FILE WILL BE FORMATTED IN THE FOLLOWING WAY:
- a. FIRST PAGE: CONTRACTOR TRANSMITTAL
- SECOND PAGE: SHOP DRAWING COVER SHEET (ILLUSTRATED ABOVE) FILLED OUT/COMPLETED BY SUBMITTING CONTRACTOR.
- c. SUBSEQUENT PAGES: EQUIPMENT/DEVICE SUBMITTAL INFORMATION, DIAGRAMS, MANUFACTURER REQUIREMENTS, ETC.

MECHANICAL/ELECTRICAL TEAM VIA THE ARCHITECT: 1.11 COORDINATION DRAWINGS:

SUBMITTALS WILL BE 'EMAILED' TO THE

A. A SINGLE SET OF COORDINATION DRAWINGS SHALL BE MUTUALLY

- PREPARED BY ALL MECHANICAL, PLUMBING, FP AND ELECTRICAL
- B. THE INITIATION OF THESE DRAWINGS BEGINS WITH THE SHEET METAL SUBCONTRACTOR. C. FABRICATION SHALL NOT START UNTIL COPIES OF COMPLETED
- HAVE BEEN REVIEWED. REVIEW BY ENGINEER OF COORDINATION DRAWINGS IS LIMITED TO CONFIRMING THAT REQUIREMENTS FOR COORDINATION AND PREPARATION OF PLANS HAVE BEEN COMPLIED WITH BY THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND SHALL NOT DIMINISH RESPONSIBILITY UNDER THIS CONTRACT FOR FINAL COORDINATION OF INSTALLATION AND MAINTENANCE CLEARANCES OF ALL SYSTEMS AND EQUIPMENT WITH ARCHITECTURAL, STRUCTURAL,

COORDINATION DRAWINGS ARE RECEIVED BY THE ARCHITECT AND

E. HOLD REGULAR COORDINATION SESSIONS WITH TRADES UNTIL COORDINATION ISSUES ARE RESOLVED.

MECHANICAL, ELECTRICAL AND OTHER RELATED WORK.

- PREPARE SEPARATE COMPOSITE COORDINATION DRAWINGS TO A SCALE OF 1/4 INCH = 1 FOOT (1:25) OR LARGER. SHOWING WORK OF DIVISIONS TO DEMONSTRATE COORDINATION CLEARANCE ACCESS ETC. BETWEEN DUCTWORK, EQUIPMENT, TEMPERATURE CONTROLS, CABLE TRAYS. CONDUITS. LIGHT FIXTURES. PIPING. PLUMBING STRUCTURAL ELEMENTS, ARCHITECTURAL ELEMENTS, ETC. THESE DRAWINGS ARE TO BE THE BASIS FOR THE DETAILED SHOP DRAWINGS AND NEED NOT BE SUBMITTED, BUT ARE TO BE AVAILABLE FOR REVIEW UPON REQUEST.
- PREPARE FLOOR PLANS, ELEVATIONS, AND DETAILS TO INDICATE PENETRATIONS IN FLOORS, WALLS, AND CEILINGS AND THEIR RELATIONSHIP TO OTHER PENETRATIONS AND INSTALLATIONS.
- EACH TRADE IS TO ADJUST THEIR SHOP DRAWINGS BASED ON THE OUTCOME OF COORDINATION SESSIONS.
- INDICATE LOCATIONS WHERE SPACE IS LIMITED FOR INSTALLATION AND ACCESS AND WHERE SEQUENCING AND COORDINATION OF INSTALLATIONS ARE OF IMPORTANCE TO THE EFFICIENT FLOW OF THE WORK.
- INDICATE SCHEDULING, SEQUENCING, MOVEMENT, AND POSITIONING OF LARGE EQUIPMENT INTO THE BUILDING DURING CONSTRUCTION.
 - INDICATE THE PROPOSED LOCATIONS, OF PIPING, DUCTWORK,

EQUIPMENT, AND MATERIALS. INCLUDE THE FOLLOWING:

WATER PIPING SERVICES	CODE	PIPE MATERIAL	FABRICATION OR JOINTING METHOD	VALVES
POTABLE HOT, COLD, HWR DOMESTIC WATER	CW HW HWR	TYPE L SEAMLESS COPPER TUBING, CONFORMING TO ASTM B-88	ASTM SOLDER FILLER MATERIAL SHALL BE LEAD FREE TO COMPLY WITH THE FEDERAL MANDATE OF 2014. ASTM B-813 LIQUID OR PASTE FLUX. SOLDERING PROCEDURES SHALL COMPLY WITH ASTM B-828. PRESS FITTINGS 1/2" THROUGH 4" SHALL BE JOINED USING CERTIFIED VIEGA PROPRESS TOOLS. 2-1/2" THROUGH 4". INSTALLERS SHALL BE TRAINED AND CERTIFIED BY MANUFACTURER'S REPRESENTATIVE.	2 " AND SMALLER - ALL BRONZE LEAD FREE, 2-PIECE, FUL PORT, 316STST BALL AND STEM, PTFE SEATS, PRESS END CONNECTIONS. 600 PSIG WOG. VIEGA
NOTES 1. JOINTS MADE BETWEEN DISSIMI	_ _AR MATE	 RIALS SHALL BE JOINED WITH PROP	ER ADAPTERS AND TRANSITION FITTINGS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.	

DRAINAGE PIPING SERVICES	CODE	PIPE MATERIAL	FABRICATION OR JOINTING METHOD
INDIRECT WASTE	IW	SCHEDULE 40 GALVANIZED STEEL TYPE L COPPER	THREAD SOLDER
GREASE WASTE	GW	EPOXY COATED CAST IRON NO-HUB PIPE CONFORMING TO CISPI 301, CHARLOTTE EDGE HP.	HEAVY DUTY CISPI APPROVED STAINLESS STEEL NO-HUB PATTERN, TO SUIT PIPE MATERIAL. COUPLING, NEOPRENE GASKET, STAINLESS STE BAND CLAMPS SHALL BE HUSKY SD4000
SANITARY VENT	V	CAST IRON NO-HUB PIPE CONFORMING TO CISPI 301	HEAVY DUTY CISPI APPROVED STAINLESS STEEL NO-HUB PATTERN, TO SUIT PIPE MATERIAL. COUPLING, NEOPRENE GASKET, STAINLESS STE BAND CLAMPS SHALL BE HUSKY SD4000

PIPE IDENTIFICATION

- PROVIDE COLOR-CODED PIPE IDENTIFICATION MARKERS AT INTERVALS NO LONGER THAN 20'-0". PIPE MARKERS SHALL BE SNAP-ON LAMINATED PLASTIC PROTECTED BY CLEAR ACRYLIC COATING. PIPE MARKERS SHALL BE APPLIED AFTER ARCHITECTURAL PAINTING
- WHERE SUCH IS REQUIRED. PROVIDE ARROW MARKER WITH EACH PIPE IDENTIFICATION MARKER TO INDICATE DIRECTION OF FLOW. IF FLOW CAN BE IN EITHER
- DIRECTION, USE DOUBLE-HEADED ARROW MARKER. PROVIDE PVC JACKETS COVERS OVER ASJ IN ALL FOOD SERVICE AREAS. IN ADDITION, PROVIDE PVC COVERS ON ALL EXPOSED PIPING LOWER THAN 8 FEET THROUGHOUT
- LAMINATED PLASTIC TAGS TO ALL VALVES. TAGS SHALL HAVE BLACK CHARACTERS ON WHITE FACE, CONSECUTIVELY NUMBERED AND PREFIXED WITH LETTER P FOR GENERAL VALVES. TAGS SHALL BE AT LEAST 1" DIAMETER WITH NUMERALS AT LEAST 3/8" HIGH AND ATTACHED BY AN "S" HOOK.

VALVE TAGS: UPON COMPLETION OF WORK, ATTACH ENGRAVED

- WHERE VALVES ARE INSTALLED IN AN EXISTING BUILDING, SYNCHRONIZE AND CONTINUE VALVE TAG NUMBERING SYSTEM. COORDINATE WITH OWNER.
- <u>INSULATION</u> INSULATE ALL HOT, COLD, AND RE-CIRCULATING PIPING. HOT, COLD, AND RE-CIRCULATING PIPING WITHIN FOOD SERVICE AREAS SHALL BE FLEXIBLE ELASTOMERIC INSULATION CONFORMING TO ASTM C 534 TYPE 1. MATERIALS SHALL HAVE A MAXIMUM THERMAL CONDUCTIVITY

OF 0.27 BTU-IN./H-FT2-DEG F AT A 75 DEG F MEAN TEMPERATURE WHEN

INSULATION, JACKETS AND ADHESIVES SHALL BE FLAME RETARDANT AND SHALL HAVE ASTM E-84 FIRE HAZARD RATINGS OF 25 FLAME SPREAD, 50 SMOKE DEVELOPED AND 50 FUEL CONTRIBUTED.

TESTED IN ACCORDANCE WITH ASTM E84.

ALL INSULATED HOT, COLD, AND RE-CIRCULATED PIPING SHALL BE PROVIDED WITH ALL SERVICE JACKETS. ALL INSULATED HOT, COLD,

AND RE-CIRCULATED PIPING BELOW CEILINGS IN FOOD SERVICE AREAS SHALL BE PROVIDED WITH PVC JACKETS. COLD WATER PIPING INSULATION SHALL BE 1/2" THICKNESS. HOT AND RE-CIRCULATED WATER PIPING INSULATION SHALL BE 1" FOR PIPING LESS THAN 1-1/2".

HANGERS, ANCHORS, CLAMPS AND INSERTS

- PROVIDE ADJUSTABLE CLEVIS HANGERS FOR PIPING 4" & LARGER, AND CAST BRASS SPLIT-RING HINGED HANGERS FOR SMALLER PIPING. SUPPORT PIPING FROM BUILDING STRUCTURE TO MAINTAIN REQUIRED GRADE AND PITCH OF PIPE LINES, PREVENT VIBRATION, SECURE PIPING IN PLACE. SECURE HANGERS TO INSERTS WHERE PRACTICAL. HANGER RODS SHALL HAVE MACHINE THREADS. HANGER RODS SHALL BE CONNECTED TO BEAM CLAMP, UL-APPROVED
- CONCRETE INSERTS OR PHILLIPS OR APPROVED EQUAL EXPANSION SHIELDS. RAMSET OR POWER DRIVEN INSERTS WILL NOT BE ALLOWED. COVER INSERTS WITH JACKET MATERIAL MATCHING ADJACENT PIPE INSULATION. INSTALL SHIELDS OVER JACKET, ARRANGED TO PROTECT JACKET FROM TEAR OR PUNCTURE BY HANGER, SUPPORT, AND
- PROVIDE SUPPORT MATERIALS: HANGER STRAPS, HANGER RODS, SADDLES, SUPPORT RINGS, AND HIGH DENSITY INSERTS. HANGER SPACING SHALL MEET REQUIREMENTS OF STATE AND LOCAL

SLEEVES AND PENETRATIONS

PROVIDE SLEEVES FOR ALL PENETRATIONS. PIPE SLEEVES THROUGH FIRE-RATED CONSTRUCTION SHALL BE SCHEDULE 40 STEEL. SLEEVES THROUGH PARTITIONS AND NON-FIRE-RATED CONSTRUCTION SHALL BE 26 GAUGE GALVANIZED STEEL WITH LOCK LONGITUDINAL SEAMS. AS SPECIFIED IN THIS SECTION OF THE SPECIFICATIONS. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS

B. FIRE STOP PENETRATION SEALS IN FIRE-RATED CONSTRUCTION SHALL BE CERAMIC FIBER, MINERAL FIBER, OR SILICONE FOAM. PROVIDE MINERAL FIBER BOARD, MATTING OR PUTTY INSTALL NEW ELECTRIC WATER HEATERS, ELECTRIC WATER COOLERS, KITCHEN SINKS, FOR DAMMING AND FORMING. FINISH SEALS FLUSH TO WALL SURFACE AND FILL GAPS WITH SILICONE ADHESIVE SEALANT CAULKING.

C. COORDINATE PROPER FIRE SEAL STOPPING OF THERMOPLASTIC PIPE

PENETRATIONS: PROVIDE A PROPER ENGINEERED UL FIRESTOPPED

- PENETRATION PRODUCT EQUAL TO THE WALL OR FLOOR THROUGH WHICH IT PASSES, SUBMIT PROPER HILTI, 3M FOR FIRESPEC UL DETAILS FOR EACH PENETRATION. D. PACKING FOR SLEEVES THAT DO NOT REQUIRE MAINTENANCE OF FIRE
- RATING SHALL BE OAKUM, SILICATE FOAM, CERAMIC FIBER OR MINERAL FIBER WITH APPROVED SEALANT.
- PACK OR FOAM TO WITHIN ONE INCH OF BOTH WALL SURFACES. SEAL PENETRATION PACKING WITH APPROVED CAULKING AND PAINTABLE WATERPROOF MASTIC SURFACE FINISH OR SILICONE CAULKING.

PART 3 - EXECUTION EXAMINATION OF SITE

A. VISIT AND EXAMINE THE SITE AND BECOME FAMILIAR WITH CONDITIONS THAT MAY AFFECT THE WORK COVERED BY THIS DIVISION OF THE SPECIFICATIONS. TAKE MEASUREMENTS, EXAMINE AREAS WHERE WORK IS TO BE PERFORMED AND GET SUCH OTHER INFORMATION NECESSARY FOR PROPER EXECUTION OF THE WORK. ASCERTAIN AND CHECK CONDITIONS WITH THE DRAWINGS AND SPECIFICATIONS, OTHER TRADES, EXISTING CONDITIONS AND BY WHAT MEANS THE WORK IS TO BE PERFORMED. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE FOR EXTRA EXPENSE DUE TO FAILURE OR NEGLECT TO MAKE SUCH EXAMINATION AND CORRELATION. WHERE REVISIONS OR CHANGES IN THE EXISTING WORK ARE REQUIRED TO PERMIT THE INSTALLATION OF NEW WORK, THEY SHALL BE MADE AT NO ADDITIONAL COST NO ALLOWANCE SHALL BE SUBSEQUENTLY MADE FOR ERROR OR OMISSION.

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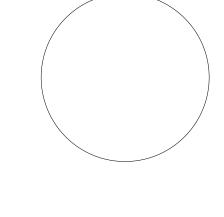
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PLUMBING SPECIFICATIONS

- UNDERSTANDING OF WORK: STUDY, EXAMINE, AND COMPARE OF THE CONTRACT DOCUMENTS, INCLUDING DRAWINGS AND SPECIFICATIONS. THE SUBCONTRACTOR SHALL HAVE A FULL UNDERSTANDING OF HOW THE WORK IN THIS PART IS SCHEDULED, PHASED, AND INSTALLED WITH WORK OF OTHER TRADES.
 - INCLUDE IN THIS INSTALLATION PIPING, DUCTWORK, DEVICES, AND EQUIPMENT THAT ARE NECESSARY FOR COMPLETE AND OPERATING SYSTEMS AS SPECIFIED AND AS REQUIRED.
- AND DEVICES FULL SIZE TO THE NEAREST SUITABLE MAIN OR CERTAIN INSTALLATIONS MAY BE PRESENTED AS TYPICAL, AND FULL DETAILS ARE NOT REPEATED FOR EACH CASE. SUBCONTRACTOR SHALL PROVIDE COMPLETE INSTALLATION
- SPECIFIC INSTALLATION AS PART OF THE BASIC WORK. INSTALLATION OF WORK PRESENTED ON THE DIAGRAMS ARE APPLICABLE TO THE PLANS, AND WORK DEPICTED ON THE PLANS ARE APPLICABLE TO THE DIAGRAMS

CONNECT PIPING AND DUCTWORK FROM FIXTURES, OUTLETS,

AS IF FULL DETAILS APPLY TO EACH AND EVERY CASE, AND

MAKE ADJUSTMENTS TO TYPICAL DETAILS TO SUIT EACH

IF THERE IS A DISCREPANCY IN THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL FIGURE THE WORK BASED ON THE MOST STRINGENT REQUIREMENTS TO COMPLETE THE INSTALLATION AND OBTAIN CLARIFICATION FROM THE ARCHITECT BEFORE INSTALLATION.

ACCURACY OF DATA

THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATION OF PIPING, DUCTS, AND EQUIPMENT. SHOULD IT BE NECESSARY TO DEVIATE FROM ARRANGEMENT OR LOCATION INDICATED IN ORDER TO MEET ARCHITECTURAL CONDITIONS OR SITE CONDITIONS, OR DUE TO INTERFERENCE WITH OTHER WORK, MAKE SUCH DEVIATIONS AS OFFSETS, RISES AND DROPS IN PIPING AND DUCTS THAT MAY BE NECESSARY. WHETHER SHOWN OR NOT. WITHOUT EXTRA EXPENSE. EXTREME ACCURACY OF THE DATA GIVEN HEREIN AND ON THE DRAWINGS IS NOT GUARANTEED. THE DRAWINGS AND SPECIFICATIONS ARE FOR THE ASSISTANCE AND

- COOPERATE AND COORDINATE WITH WORK OF OTHER SECTIONS IN EXECUTING WORK OF THIS SECTION. 2. PERFORM WORK SO THAT PROGRESS OF ENTIRE PROJECT INCLUDING WORK OF OTHER SECTIONS SHALL NOT BE
- INTERFERED WITH OR DELAYED. PROVIDE INFORMATION AS REQUESTED ON ITEMS FURNISHED UNDER ONE SECTION WHICH SHALL BE INSTALLED UNDER
- 4. FOR EQUIPMENT PROVIDED UNDER ANY DIVISION OR SECTION WHICH HAS CONNECTION MADE UNDER THE MECHANICAL OR ELECTRICAL SECTIONS, OBTAIN DETAILED INSTALLATION AND HOOKUP INFORMATION FROM THE EQUIPMENT MANUFACTURERS.
- 5. OBTAIN FINAL ROUGHING DIMENSIONS OR OTHER INFORMATION AS NEEDED FOR COMPLETE INSTALLATION OF ITEMS FURNISHED UNDER OTHER SECTIONS OR BY OWNER.
- 6. KEEP FULLY INFORMED AS TO SHAPE, SIZE AND POSITION OF OPENINGS REQUIRED FOR MATERIAL OR EQUIPMENT TO BE PROVIDED UNDER ALL SECTIONS. GIVE FULL INFORMATION SO THAT OPENINGS REQUIRED BY WORK OF THIS SECTION MAY BE COORDINATED WITH OTHER WORK AND OTHER OPENINGS AND MAY BE PROVIDED FOR IN ADVANCE. IN CASE OF FAILURE TO PROVIDE SUFFICIENT INFORMATION IN PROPER TIME, PROVIDE CUTTING AND PATCHING OR HAVE SAME DONE, AT OWN EXPENSE AND TO FULL SATISFACTION OF ARCHITECT.
- 7. NOTIFY ARCHITECT OF LOCATION AND EXTENT OF EXISTING PIPING. CONDUIT. DUCTWORK AND EQUIPMENT THAT INTERFERES WITH NEW CONSTRUCTION. IN COORDINATION WITH AND WITH APPROVAL OF ARCHITECT, RELOCATE PIPING, DUCTWORK AND EQUIPMENT TO PERMIT NEW WORK TO BE PROVIDED. REMOVE NONFUNCTIONING AND ABANDONED PIPING, DUCTWORK AND EQUIPMENT. DISPOSE OF OR STORE

TO GREATEST EXTENT POSSIBLE. CONFORM TO ARRANGEMENTS INDICATED BY THE CONTRACT DOCUMENTS. RECOGNIZING THAT PORTIONS OF THE WORK ARE SHOWN ONLY IN DIAGRAMMATIC FORM. COORDINATE WITH INDIVIDUAL SYSTEM REQUIREMENTS.

- INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, WHERE INSTALLED EXPOSED IN FINISHED SPACES. INSTALL MECHANICAL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS IS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING. WITH MINIMUM OF INTERFERENCE WITH
- K. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT GIVING RIGHT-OF-WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIED SLOPE

OTHER INSTALLATIONS. EXTEND GREASE FITTINGS TO AN ACCESSIBLE

COORDINATE WITH THE LOCATIONS OF ELECTRICAL PANELS AND AVOID INSTALLING PIPING AND DUCTWORK OVER THEM. ELECTRICAL PANELS ARE PURPOSELY LOCATED AND HAVE PRIORITY FOR LOCATION. THE CONTRACTOR IS RESPONSIBLE FOR REQUIRED PIPING AND DUCTWORK OFFSETS TO ENSURE THAT THE PANELS ARE LOCATED AS DESIGNED AND FOR OTHER CONDITIONS.

BUILDING EXPANSION JOINTS AND FIREWALLS

- A. PLUMBING PIPING AND OTHER HORIZONTAL DISTRIBUTION SYSTEMS SHALL BE PROVIDED WITH APPROVED EXPANSION PROVISIONS WHEN PASSING BY BUILDING EXPANSION JOINTS. SYSTEMS SHALL BE RUN THROUGH RATED WALLS, PARTITIONS, AND FLOORS VIA APPROVED FIREPROOFED SLEEVES.
- INSTALLATION SHALL PROVIDE ACCESS TO SYSTEMS
- A. INSTALLATION SHALL ALLOW CLEARANCES FOR EASY ACCESS TO SYSTEMS FOR ROUTINE MAINTENANCE, FOR REPAIRS, AND FOR INSTALLING NEW CABLE IN CONDUIT AND CABLE TRAYS.
- B. ACCESS PANELS SHALL BE INSTALLED IN CEILINGS THAT ARE NOT COMPOSED OF REMOVABLE TILES. THESE SHALL BE LOCATED WHEREVER SYSTEMS COMPONENTS EXIST THAT HAVE MOVING PARTS MOTORS. OR OTHER COMPONENTS REQUIRING PERIODIC MAINTENANCE, ADJUSTMENT, OR REPLACEMENT. ACCESS PANELS SHALL BE SHOWN ON COORDINATION DRAWINGS AND SHALL BE OF THE TYPE AND FINISH AS APPROVED BY THE ARCHITECT.
- **INSTALLATION**
- MANUFACTURER'S DIRECTIONS: FOLLOW MANUFACTURER'S DIRECTIONS COVERING POINTS NOT SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN. MANUFACTURER'S DIRECTIONS DO NOT TAKE PRECEDENCE OVER DRAWINGS AND SPECIFICATIONS. WHERE THESE ARE IN CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS, NOTIFY THE PROJECT MANAGER FOR CLARIFICATION BEFORE INSTALLING THE WORK
- B. CARPENTRY, CUTTING, PATCHING, AND CORE DRILLING: PROVIDE CARPENTRY, CUTTING, PATCHING, AND CORE DRILLING REQUIRED FOR INSTALLATION OF MATERIAL AND
- EQUIPMENT SPECIFIED IN THIS DIVISION. NO PENETRATIONS SHALL BE SLEEVED, CUT, OR CORE DRILLED THROUGH CONCRETE CONSTRUCTION WITHOUT A SUBMITTAL INDICATING EXACT LOCATIONS AND SIZES AND SPECIFIC WRITTEN APPROVAL FROM THE UNIVERSITY OR UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL
- IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO ACCURATELY SIZE AND LOCATE OPENINGS THROUGH THE STRUCTURE. THE DIMENSIONS SHOWN ON THE STRUCTURAL

DRAWINGS ARE FOR GENERAL INFORMATION ONLY. PROVIDE SPECIFIC SIZES, DIMENSIONS, REQUIREMENTS, ETC.

4. COMPLY WITH INDIVIDUAL SECTIONS FOR OTHER EQUIPMENT

REPAIR DAMAGED GALVANIZING, PAINT, OR COATINGS. USE

Z.R.C. (NO KNOWN EQUAL) COLD GALVANIZED COMPOUND

EACH CONTRACTOR SHALL BE RESPONSIBLE FOR WORK AND

CAREFULLY STORE MATERIALS AND EQUIPMENT THAT IS NOT

IMMEDIATELY INSTALLED AFTER DELIVERY TO SITE. CLOSE OPEN

ENDS OF WORK WITH TEMPORARY COVERS OR PLUG DURING

EQUIPMENT UNTIL FINALLY INSPECTED, TESTED, AND ACCEPTED.

MAINTAIN WATERPROOF INTEGRITY OF PENETRATIONS OF MATERIALS INTENDED TO BE WATERPROOF. PROVIDE FLASHINGS AT EXTERIOR ROOF PENETRATIONS. CAULK PENETRATIONS OF FOUNDATION WALLS AND FLOORS WATERTIGHT. PROVIDE MEMBRANE CLAMPS AT

C. WATERPROOF CONSTRUCTION:

TO BE PAINTED.

PROTECTION OF WORK

FOR GALVANIZED REPAIRS.

- C. PROTECT THE WORK AND MATERIAL OF OTHER TRADES THAT MIGHT PENETRATIONS OF WATERPROOF MEMBRANES. BE DAMAGED BY WORK OR WORKMEN AND MAKE GOOD ALL DAMAGE PROVIDE WATERPROOF NEMA 3R ENCLOSURES FOR THUS CAUSED. EQUIPMENT OR DEVICES MOUNTED OUTSIDE OR OTHERWISE EXPOSED TO THE WEATHER. FIREPROOFING:
- D. PAINTING OF MECHANICAL EQUIPMENT AND HARDWARE: A. CLIPS, HANGERS, CLAMPS, SUPPORTS AND OTHER ATTACHMENTS TO SURFACES TO BE FIREPROOFED SHALL BE INSTALLED, INSOFAR AS COMPLY WITH APPLICABLE DIVISION 09 SECTIONS FOR PAINTS POSSIBLE, PRIOR TO START OF SPRAY FIBER WORK. AND COATINGS.
 - B. PIPING AND OTHER ITEMS THAT WOULD INTERFERE WITH PROPER 2. PROVIDE MOISTURE RESISTANT PAINT FOR EXTERIOR APPLICATION OF FIREPROOFING SHALL BE INSTALLED AFTER

COVERS.

- COMPLETION OF SPRAY FIBER WORK. 3. COLORS SHALL BE AS SHOWN ON THE DRAWINGS UNLESS C. PATCHING AND REPAIRING OF FIREPROOFING DUE TO CUTTING OR DAMAGING TO FIREPROOFING DURING COURSE OF WORK SPECIFIED
 - AND SHALL NOT CONSTITUTE GROUNDS FOR AN EXTRA TO OWNER. ASSUME RESPONSIBILITY FOR DAMAGE TO OF THE WORK OR PREMISES BEFORE SUBSTANTIAL COMPLETION. SHOULD NEW OR EXISTING EQUIPMENT BECOME DAMAGED, RESTORE IT TO ITS ORIGINAL CONDITION AND FINISH BEFORE FINAL ACCEPTANCE DAMAGE INCURRED TO OWNER PROPERTY OR TO THE WORK OF

UNDER THIS SECTION SHALL BE PERFORMED BY INSTALLER OF

FIREPROOFING AND PAID FOR BY TRADE RESPONSIBLE FOR DAMAGE

OTHER DIVISIONS, CAUSED BY THIS DIVISION, SHALL BE REPLACED OR

REPAIRED BY, AND AT THE EXPENSE OF, THE SUBCONTRACTOR

CONSTRUCTION. THIS INCLUDES PROTECTION FROM MOISTURE AND

FOREIGN MATERIAL. AT COMPLETION, ALL WORK MUST BE TURNED

OVER TO OWNER CLEAN AND IN NEW CONDITION.

WARRANTY **CONTINUITY OF SERVICES**

- CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL. A. DO NOT INTERRUPT EXISTING SERVICES WITHOUT OWNER'S COVER WORK SUBJECT TO FALLING DEBRIS WITH TEMPORARY B. SCHEDULE INTERRUPTIONS IN ADVANCE, ACCORDING TO OWNER'S B. PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR TO PROVIDE ADEQUATE PROTECTION OF ALL EQUIPMENT DURING THE COURSE OF
 - INSTRUCTIONS. SUBMIT, IN WRITING, WITH REQUEST FOR INTERRUPTION, METHODS PROPOSED TO MINIMIZE LENGTH OF INTERRUPTIONS SHALL BE SCHEDULED AT TIMES OF DAY AND WORK
 - SO THAT THEY HAVE MINIMAL IMPACT ON OWNER'S OPERATIONS. SUBCONTRACTOR SHALL COORDINATE SHUTDOWNS OF EXISTING SYSTEMS. 3.11 **CLEANING**

PIPING FURNISH PIPE CLEANING CHEMICALS, CHEMICAL FEED EQUIPMENT, MATERIALS AND LABOR NECESSARY TO CLEAN

- PERMANENTLY INSTALL NECESSARY CHEMICAL INJECTION FITTINGS COMPLETE WITH STOP VALVES. AFTER PIPING SYSTEMS HAVE BEEN PRESSURE TESTED AND
- APPROVED FOR TIGHTNESS, CLEAN AND FLUSH PIPING AS SPECIFIED AND IN ACCORDANCE WITH APPLICABLE CODES. MAINTAIN CONTINUOUS BLOWDOWN AND MAKE-UP DURING FLUSHING OPERATION.
- EQUIPMENT 1. AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT, INCLUDING CONCRETE RESIDUE, DIRT AND PAINT RESIDUE.

3.12 <u>TESTS</u> A. UPON COMPLETION OF THE MECHANICAL CONSTRUCTION WORK, PERFORM TESTS AND PROVIDE TEST REPORTS AS SPECIFIED IN THIS AND OTHER SECTIONS.

- EACH TRADE SHALL ARRANGE THAT AN OFFICER OF THE CONTRACTING COMPANY SHALL CERTIFY THAT EACH AND EVERY SYSTEM HAS BEEN TESTED. AT THE CONCLUSION OF THE TESTS, SUBMIT A LETTER AND ENCLOSED COMMISSIONING FORMS SIGNED BY THE OFFICER STATING:
- ALL TESTS SHALL BE MADE IN THE PRESENCE OF A REPRESENTATIVE OF THE PROJECT MANAGER. THE SUBCONTRACTOR SHALL SUBMIT TO THE PROJECT MANAGER 3 COPIES OF TEST RESULTS, CERTIFIED IN WRITING, WITNESSED, SIGNED AND DATED, IMMEDIATELY UPON COMPLETION OF WORK. UNSATISFACTORY CONDITION REVEALED BY THESE TEST RESULTS, OR UNSATISFACTORY METHODS OF TESTS AND/OR TESTING APPARATUS AND INSTRUMENTS, SHALL BE CORRECTED BY THE SUBCONTRACTOR TO THE SATISFACTION OF THE PROJECT MANAGER.
- THE PROJECT MANAGER RESERVES THE RIGHT TO REQUIRE THAT THE SUBCONTRACTOR PERFORM AND REPEAT TESTS THAT ARE DEEMED NECESSARY TO COMPLETE OR CHECK THE TESTS OR THE CERTIFIED RECORDS OF THE SUBCONTRACTOR DURING THE COURSE OF THE WORK. CORRECT UNSATISFACTORY PORTION OF ITS WORK THAT IS REVEALED BY THE TESTS OR THAT MAY BE DUE TO PROGRESSIVE DETERIORATION DURING THIS PERIOD, UNLESS THE ITEM IN QUESTION WAS A DIRECT SPECIFICATION.

E. TESTING CRITERIA

SYSTEM	TEST MEDIUM	TEST PRESSURE	TEST DURATION	OTHER
DRAINAGE AND VENT (ALL SYSTEMS)	WATER	10 FEET	30 MINUTES	
WATER (ALL SYSTEMS)	WATER	150 PSIG MIN OR 1.5 OPERATING PRESSURE	1 HOUR	DO NOT SUBMIT THERMOPLASTIC PIPING SYSTEMS TO TEST PRESSURES HIGHER THAN 90 PSIG

- 1. FOR EACH SYSTEM NOTED ABOVE, AT THE END OF THE TEST PERIOD FLUSH THE SYSTEM WITH COMPONENT FLUID AND THE SYSTEM SHALL BE DRAINED COMPLETELY; FILL SYSTEM WITH THE PRODUCT FLUID CONTRACTOR SHALL RETURN THE PIPING SYSTEM TO ITS PRE-TEST CONDITION
- SUBMIT AS PART OF THE CLOSEOUT DOCUMENTS, A TEST REPORT FOR EACH FLUID SYSTEM ABOVE. THE TEST FORM FOR THE SELECTED PIPING SYSTEM SHALL BE FILLED-OUT, SIGNED AND DATED BY THE CONTRACTOR AND OWNER OR ITS REPRESENTATIVE WITNESSING THE TEST AS THE ACCEPTANCE DOCUMENT FOR FILING IN OWNER'S DOCUMENTATION FILE FOR THE PROJECT.
- 3. REPAIR ALL SYSTEMS LEAKS WHERE FOUND DURING TEST PROCEDURES. RETEST SYSTEMS AFTER REPAIRS PER THE ABOVE TABLE.

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- OWNER MAY INCORPORATE ADDITIONAL SPECIFIC ITEMS TO THE FOLLOWING CHECKLIST WHICH SHALL BECOME PART OF THE PROJECT REQUIREMENTS. SUBMIT RECORD DRAWINGS TO OWNER AND
- MAINTENANCE AND OPERATING INSTRUCTIONS AND TRAINING

ARCHITECT/ENGINEER

- A. REFER TO DIVISION 01 SECTION "GENERAL REQUIREMENTS", FOR MAINTENANCE AND OPERATING INSTRUCTIONS, AND TRAINING REQUIREMENTS.
- B. AT TIME OF OCCUPANCY, ARRANGE FOR MANUFACTURER'S REPRESENTATIVES TO INSTRUCT OPERATING AND MAINTENANCE PERSONNEL IN THE USE OF EQUIPMENT REQUIRING OPERATING AND MAINTENANCE. ARRANGE FOR PERSONNEL TO BE INSTRUCTED AT ONE TIME. COSTS FOR THIS SERVICE SHALL BE INCLUDED IN THE SUBCONTRACT.
- MAINTENANCE AND OPERATING INSTRUCTIONS AND TRAINING FOR -FURNISHED EQUIPMENT WILL BE PROVIDED BY THE EQUIPMENT VENDOR. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OTHER EQUIPMENT.

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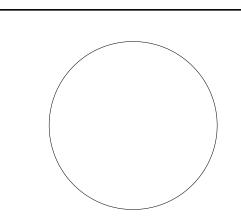
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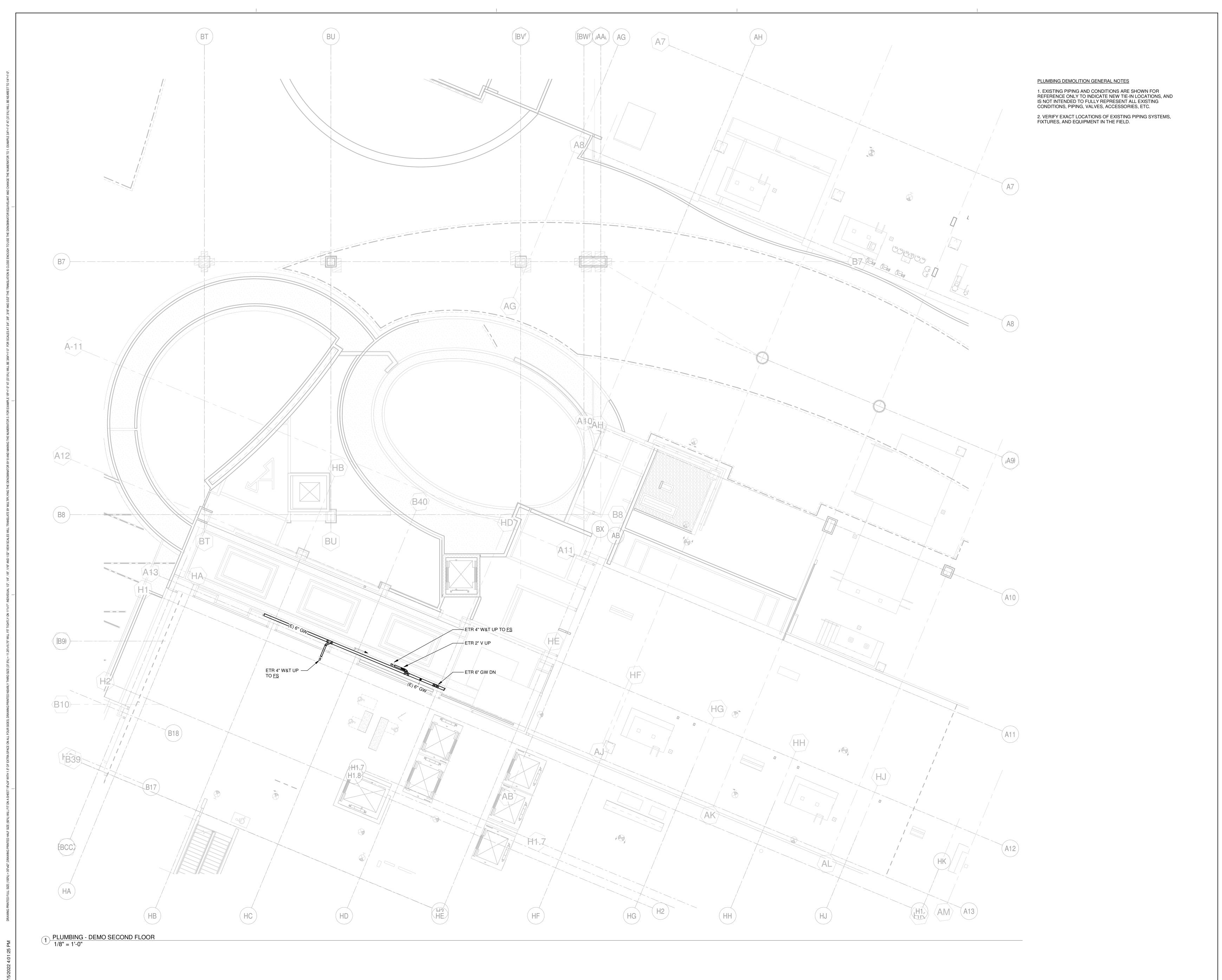
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REVISIONS

PLUMBING SPECIFICATIONS

SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF MECHANICAL SYSTEMS, MATERIALS, AND EQUIPMENT. COMPLY WITH THE FOLLOWING REQUIREMENTS: COORDINATE MECHANICAL SYSTEMS, EQUIPMENT, AND MATERIALS GUIDANCE OF THIS SECTION AND EXACT LOCATIONS, DISTANCES, INSTALLATION WITH OTHER BUILDING COMPONENTS. AND ELEVATIONS SHALL BE GOVERNED BY ACTUAL SITE CONDITIONS VERIFY DIMENSIONS BY FIELD MEASUREMENTS. DRAWINGS ARE DIAGRAMMATIC. THEY INDICATE GENERAL ARRANGEMENTS OF PLUMBING SYSTEMS AND OTHER WORK. THEY DO ARRANGE FOR CHASES. SLOTS, AND OPENINGS IN OTHER BUILDING NOT SHOW ALL OFFSETS REQUIRED FOR COORDINATION NOR DO THEY COMPONENTS DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR SHOW THE EXACT ROUTINGS AND LOCATIONS NEEDED TO MECHANICAL INSTALLATIONS. COORDINATE WITH STRUCTURE AND OTHER TRADES AND TO MEET COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES CEILING HEIGHTS AND OTHER ARCHITECTURAL REQUIREMENTS. AND SLEEVES TO BE SET IN POURED-IN-PLACE CONCRETE AND OTHER INFORMATION AND COMPONENTS SHOWN ON SINGLE LINE STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED. /SCHEMATIC DIAGRAMS BUT NOT SHOWN ON PLANS, AND VICE VERSA, SEQUENCE, COORDINATE, AND INTEGRATE INSTALLATIONS OF SHALL APPLY OR BE PROVIDED AS IF EXPRESSLY REQUIRED ON MECHANICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. GIVE PARTICULAR ATTENTION TO LARGE EQUIPMENT **COORDINATION ITEMS** REQUIRING POSITIONING PRIOR TO CLOSING IN THE BUILDING. COORDINATE MECHANICAL WORK WITH THAT OF OTHER TRADES IN WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED ORDER TO: AVOID INTERFERENCES BETWEEN GENERAL INSTALL SYSTEMS. MATERIALS AND EQUIPMENT TO PROVIDE THE CONSTRUCTION, MECHANICAL, ELECTRICAL, STRUCTURAL AND MAXIMUM HEADROOM POSSIBLE. WORK SHALL BE ABOVE CEILINGS OR OTHER SPECIALTY TRADES. MAINTAIN CLEARANCES AND ADVISE CEILING LINE. OTHER TRADES OF CLEARANCE REQUIREMENTS FOR OPERATION, COORDINATE INSTALLATION AND CONNECTION OF MECHANICAL REPAIR, REMOVAL AND TESTING OF MECHANICAL EQUIPMENT. SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES INDICATE AISLE WAYS AND ACCESS WAYS REQUIRED ON AND SERVICES. COMPLY WITH REQUIREMENTS OF GOVERNING COORDINATED SHOP DRAWINGS FOR ROOF EQUIPMENT AREA. REGULATIONS, FRANCHISED SERVICE COMPANIES, AND CONTROLLING MECHANICAL EQUIPMENT ROOMS, DATA AND TELECOMM ROOMS, AGENCIES. PROVIDE REQUIRED CONNECTION FOR EACH SERVICE. CEILING SPACES, SHAFTS, CORRIDORS, LABORATORIES, ETC. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO CONFORM WITH APPROVED SUBMITTAL DATA, INCLUDING COORDINATION DRAWINGS, **DISINFECTION OF WATER SYSTEMS** HAS PLINCHED AND CORRECTED THESE AREAS. THE ENGINEER WILL THEN RE-VISIT THE SITE FOR FINAL OBSERVATIONS AND PUNCH LIST. WATER PIPING SYSTEMS SHALL BE THOROUGHLY DISINFECTED WITH A SOLUTION CONTAINING NO LESS THAN 50 PARTS PER MILLION OF 1. SYSTEMS SHALL BE OPERATED UNDER ACTUAL OR SIMULATED AVAILABLE CHLORINE. FULL LOAD CONDITIONS. IDENTIFY THE OPERATING CONDITIONS IN THE WORK PLAN. B. CHLORINATING MATERIALS SHALL BE EITHER LIQUID CHLORINE OR SODIUM HYPO CHLORITE SOLUTION, SHALL BE INTRODUCED INTO THE WORK PLAN SHALL INCORPORATE THE "DEMONSTRATION OF SYSTEM AND DRAWN TO ALL POINTS IN THE SYSTEM. SUCCESSFUL OPERATION" DESCRIBED BELOW. 3. THE ARCHITECT/OWNER MAY CHECK THE COMPLETED AND DISINFECTION SOLUTION SHALL BE ALLOWED TO REMAIN IN SYSTEM COMMISSIONED INSTALLATION EITHER SEQUENTIALLY AS FOR 24 HOURS, DURING THIS TIME, VALVES AND FAUCETS SHALL BE OPENED AND CLOSED SEVERAL TIMES. AFTER DISINFECTION, DIFFERENT PARTS ARE COMPLETED, AND/OR WHEN THE SOLUTION SHALL BE FLUSHED FROM THE SYSTEM WITH CLEAR WATER ENTIRE INSTALLATION IS COMPLETE, AT THE SOLE OPTION OF UNTIL RESIDUAL CHLORINE CONTENT IS NO GREATER THAN 0.2 PARTS THE ARCHITECT/OWNER. 3.15 PROJECT CLOSE-OUT PROCEDURE SUBMIT A CHLORINATION DISINFECTION REPORT AS RECORD OF A. A. PROJECT CLOSE-OUT CHECKLIST PROCEDURE. 1. REVIEW REQUIREMENTS OF EACH SECTION OF THE PROJECT PUNCH LIST PROCEDURE SPECIFICATIONS AND SUBMIT FOR APPROVAL TO ARCHITECT IF, WHEN THE ENGINEER ARRIVES AT THE SITE CERTAIN AREAS ARE THE SIGN-OFF FORMS THAT SHALL BECOME THE PROJECT NOT COMPLETE AND READY FOR PUNCH OUT, THE ENGINEER WILL NOT CLOSE-OUT CHECKLIST, THIS, AT A MINIMUM, SHALL INCLUDE REVIEW THESE AREAS. WHEN A SECOND NOTIFICATION IS ISSUED THE FOLLOWING INFORMATION SHOWN IN ATTACHED PROJECT INDICATING THE INSTALLATION IS COMPLETED AND THE CONTRACTOR CLOSEOUT CHECKLIST EXAMPLE. THE ARCHITECT AND/OR



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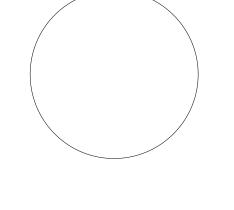
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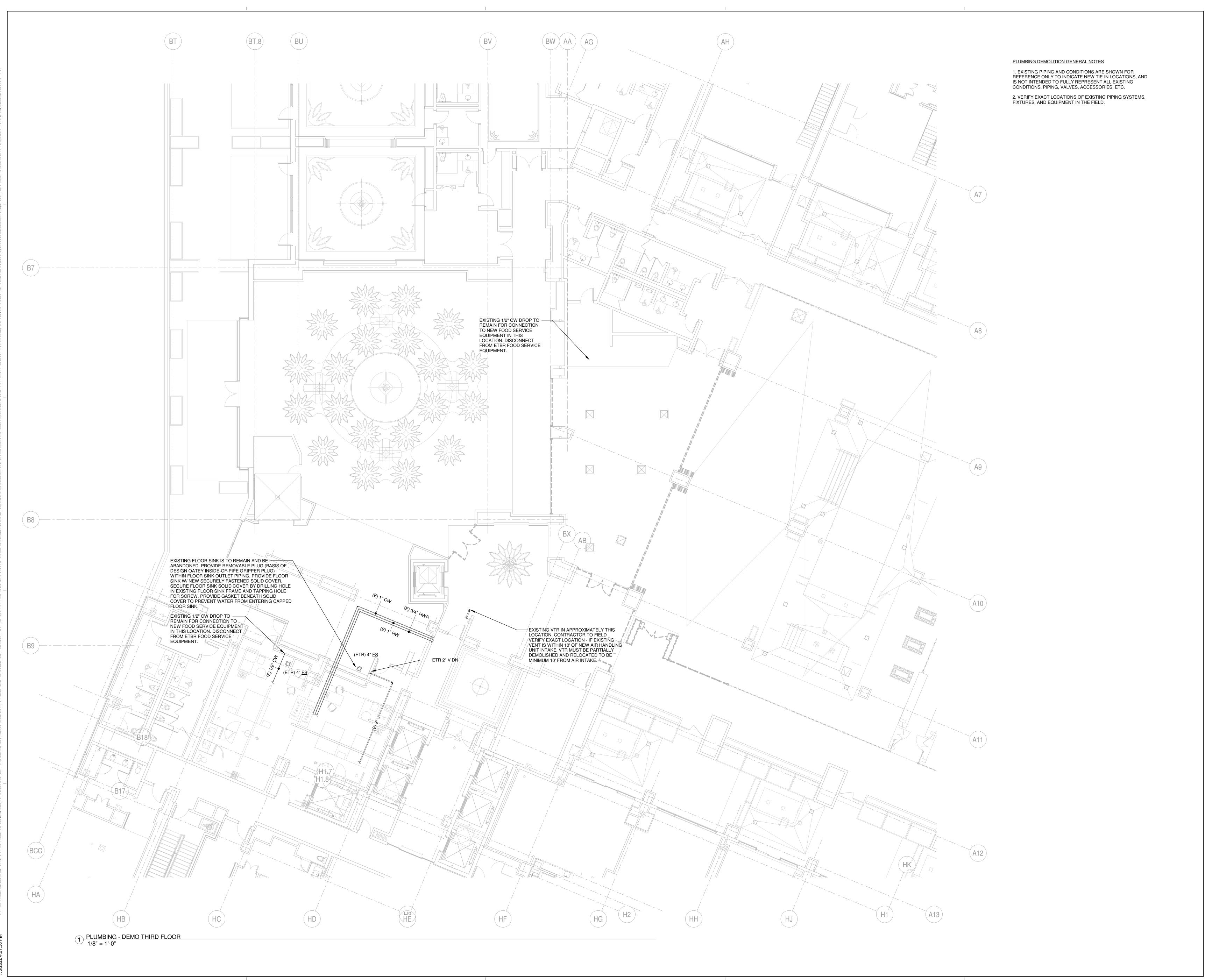
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DRAWN RD

SCALE 1/8" = 1'-0"

REVISIONS

DEMO SECOND FLOOR



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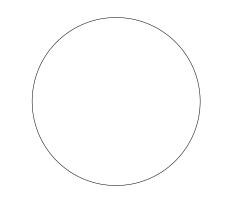
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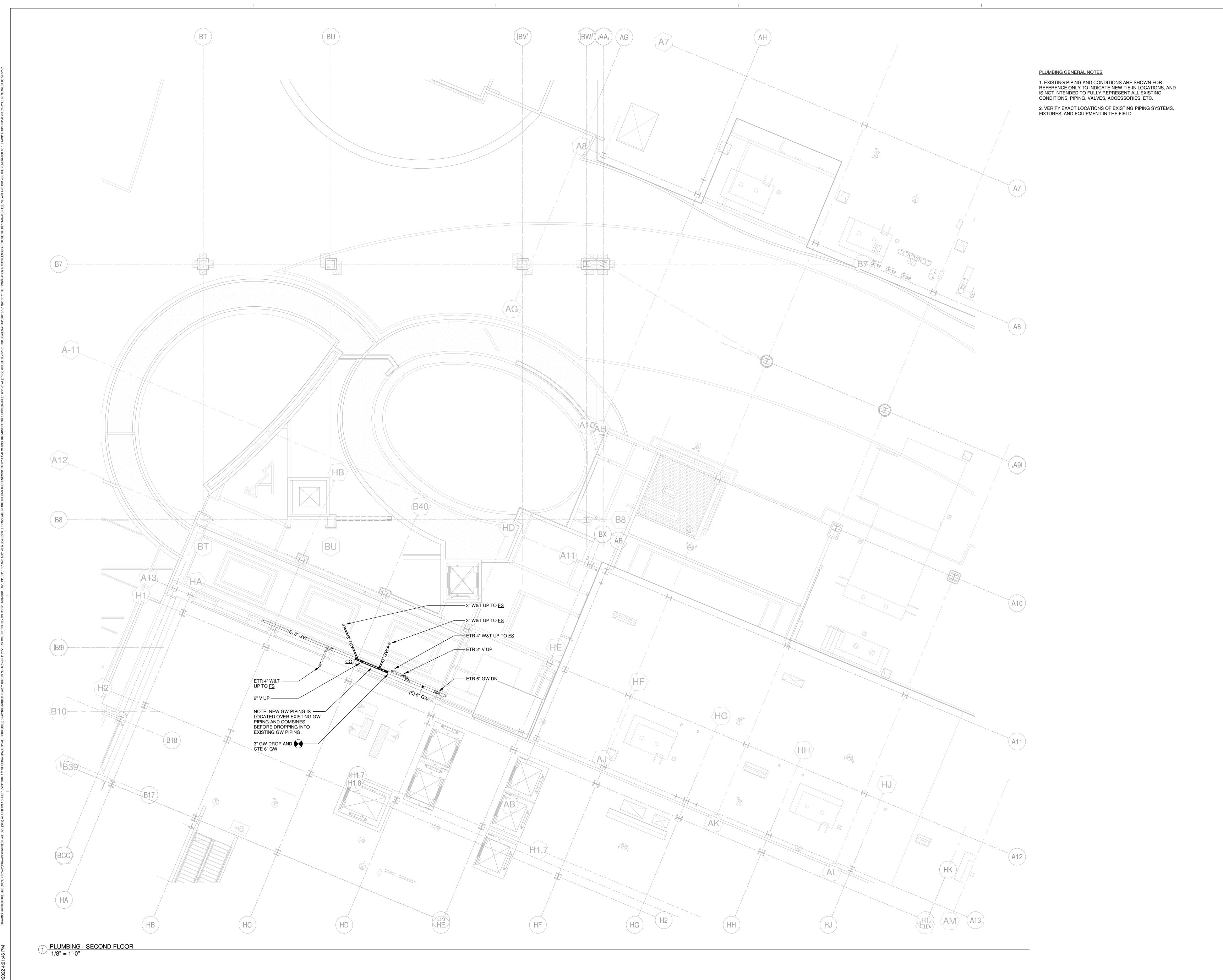
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DEMO THIRD FLOOR

P-5



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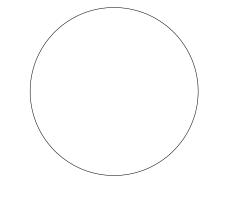
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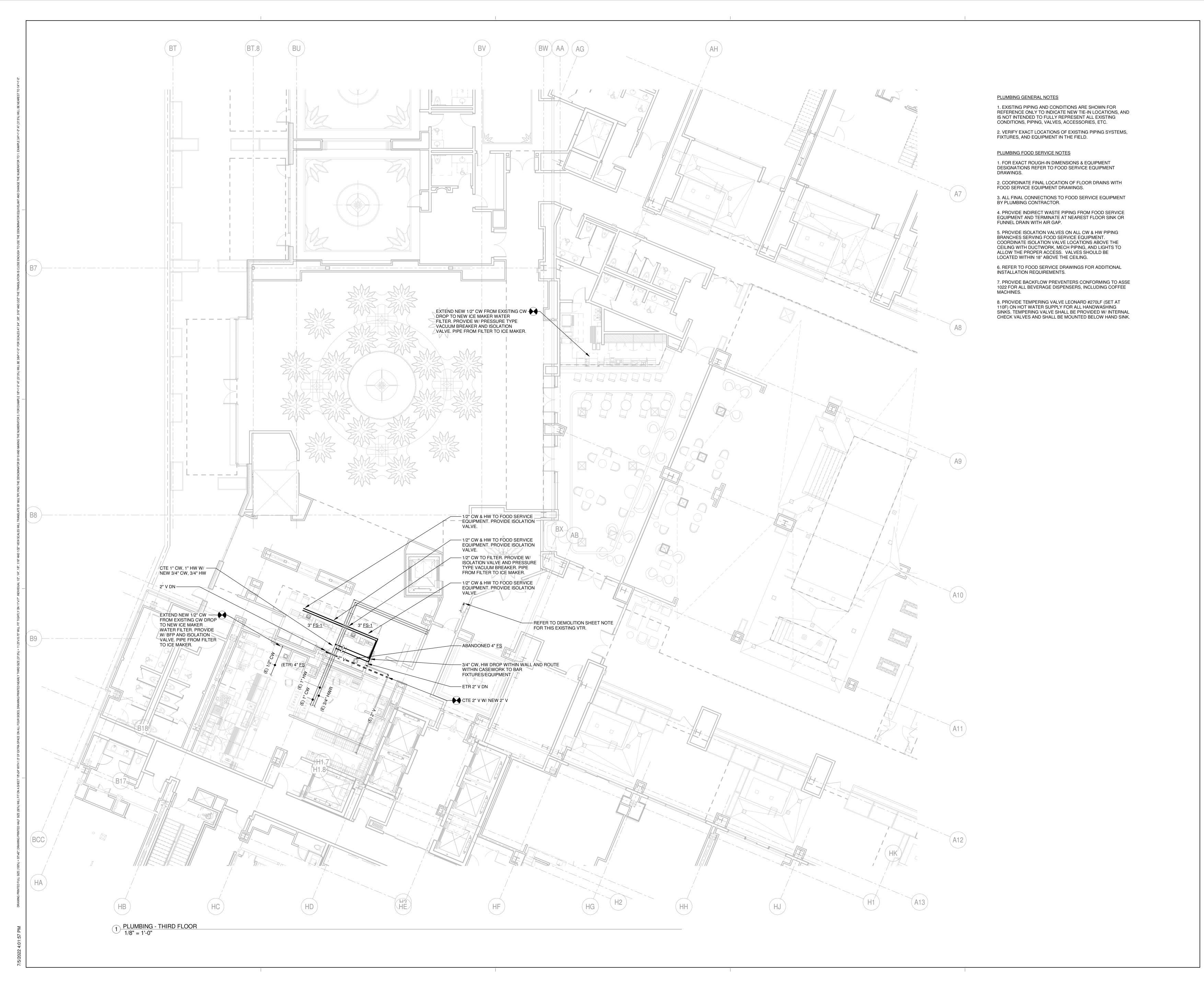
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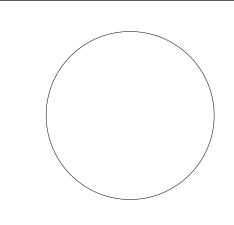
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REVISIONS

THIRD FLOOR

P-7

	1						
	SYMBOLS						
	EQUIPMENT & COMPONENTS						
ACE	ACCESSORY CABINET ENCLOSURE						
ADSP	AIR SAMPLING SMOKE DETECTOR POWER SUPPLY						
AMP	AMPLIFIER						
BATT	BATTERY CABINET						
DACR	DIGITAL ALARM COMMUNICATOR RECEIVER						
DACT	DIGITAL ALARM COMMUNICATOR RECEIVER DIGITAL ALARM COMMUNICATOR TRANSMITTER						
DARR	DIGITAL ALARM COMMUNICATOR TRANSMITTER DIGITAL ALARM RADIO RECEIVER						
DART	DIGITAL ALARM RADIO TRANSMITTER						
DCCR	DIGITAL ALARM RADIO TRANSMITTER DIGITAL CELLULAR COMMUNICATION RECEIVER						
DCCT	DIGITAL CELLULAR COMMUNICATION TRANSMITTER						
DOCS	DOCUMENT STORAGE CABINET						
	EMERGENCY VOICE MICROPHONE MODULE						
	END OF LINE RESISTOR						
FAA	FIRE ALARM REMOTE ANNUNCIATOR						
# FACU							
	FIRE ALARM TERMINAL CABINET						
	FIRE FIGHTER'S SMOKE CONTROL PANEL						
FSRU	FIRE SUPPRESSION RELEASING CONTROL UNIT						
FSRUd	FIRE SUPPRESSION RELEASING CONTROL UNIT (CONVENTIONAL)						
GAP	GRAPHIC ANNUNCIATOR PANEL						
IPCR	INTERNET PROTOCOL COMMUNICATION RECEIVER						
IPCT	INTERNET PROTOCOL COMMUNICATION TRANSMITTER						
IS	ISOLATION MODULE						
JB	JUNCTION BOX						
КВ	KEY BOX						
MD	MAGNETIC DOOR HOLDER						
MB	MUNICIPAL MASTER BOX						
PRN	PRINTER						
RAI	REMOTE ALARM INDICATOR						
RPS	REMOTE POWER SUPPLY						
RTP	ROOM TEMPERATURE SWITCH						
RTS	REMOTE TEST SWITCH						
	INTERFACE MODULES						
СМ	CONTROL MODULE						
ММ	MONITOR MODULE						
RM	RELAY MODULE						
	MANUAL INITIATING DEVICES AND CONTROLS						
F	FIRE ALARM MANUAL PULL STATION						
Fc	FIRE ALARM MANUAL PULL STATION (CONVENTIONAL)						
FX	MANUAL PULL STATION - FIRE SUPPRESSION SYSTEM RELEASE						
FXd	MANUAL PULL STATION (CONVENTIONAL) - FIRE SUPPRESSION SYSTEM RELEASE						
	MANUAL PUSH BUTTON - FIRE SUPPRESSION SYSTEM ABORT						

EC MANUAL PULL STATION (CONVENTIONAL) - EMERGENCY ALARM

(HAZMAT)

	0) (1 1 1 0 1 0
	SYMBOLS
	SYSTEM SPOT-TYPE FIRE DETECTORS
오	BASIC SYMBOL FOR SPOT-TYPE FIRE DETECTOR - WALL MOUNT
\bigcirc	BASIC SYMBOL FOR SPOT-TYPE FIRE DETECTOR - CLNG MOUNT
8	BASIC SYMBOL FOR SPOT-TYPE FIRE DETECTOR - W/ SOUNDER BASE
\bigcirc	PHOTOELECTRIC SMOKE DETECTOR
	PHOTOELECTRIC IN-DUCT SMOKE DETECTOR
	PHOTOELECTRIC SAMPLING-TUBE DUCT SMOKE DETECTOR
⚠ ^t	FIXED TEMPERATURE / RATE OF RISE HEAT DETECTOR (t = ACTIVATION TEMPERATURE OF FIXED TEMP THERMAL ELEMENT)
₹	COMBINATION PHOTOELECTRIC SMOKE / FIXED TEMP HEAT DETECTOR (t = ACTIVATION TEMPERATURE OF THERMAL ELEMENT)
	COMBINATION PHOTOELECTRIC SMOKE / CO DETECTOR
COCCUT ^t	MULTI-CRITERIA PHOTOELECTRIC SMOKE / FIXED TEMP HEAT / CO DETECTOR (t = ACTIVATION TEMPERATURE OF THERMAL ELEMENT)
	SPECIAL TECHNOLOGY FIRE DETECTORS
	BASIC SYMBOL FOR SPECIAL TECHNOLOGY FIRE DETECTOR - WALL MOUNT
	BASIC SYMBOL FOR SPECIAL TECHNOLOGY FIRE DETECTOR - CLNG MOUNT
≥ AS	AIR SAMPLING SMOKE DETECTOR
	AIR SAMPLING TYPE DUCT DETECTOR
	COMBINATION AIR SAMPLING SMOKE / CO DETECTOR
	COMBINATION AIR SAMPLING SMOKE / H2 DETECTOR
<u>∧</u> B _{BT}	END-TO-END OPTICAL BEAM SMOKE DETECTOR (TRANSMITTER UNIT)
	END-TO-END OPTICAL BEAM SMOKE DETECTOR (RECEIVER UNIT)
	SINGLE-END OPTICAL BEAM SMOKE DETECTOR (TRANSMITTER / RECEIVER UNIT)
<u>⊅…</u>	SINGLE-END OPTICAL BEAM SMOKE DETECTOR (REFLECTOR PANEL)
	ULTRAVIOLET SPECTRUM FLAME DETECTOR
	INFRARED SPECTRUM FLAME DETECTOR
	COMBINATION ULTRAVIOLET / INFRARED SPECTRUM FLAME DETECTOR
2111	CONVENTIONAL SPOT-TYPE FIRE DETECTORS
\cap	BASIC SYMBOL FOR CONVENTIONAL FIRE DETECTOR - WALL MOUNT
O O	BASIC SYMBOL FOR CONVENTIONAL FIRE DETECTOR - CEILING
0	MOUNT CONVENTIONAL PHOTOELECTRIC SMOKE DETECTOR
① ^t	CONVENTIONAL FIXED TEMPERATURE HEAT DETECTOR (t =
	ACTIVATION TEMPERATURE) SINGLE / MULLIPLE STATION SMOKE ALARMS
内	SINGLE / MULTIPLE STATION SMOKE ALARMS BASIC SYMBOL FOR SMOKE ALARM - WALL MOUNT
关	BASIC SYMBOL FOR SMOKE ALARM - CEILING MOUNT
S S	SINGLE / MULTIPLE STATION SMOKE ALARM
	SINGLE / MULTIPLE STATION SMOKE ALARM SINGLE / MULTIPLE STATION COMBINATION SMOKE / CO ALARM
	RADIO PES COMMUNICATIONS ENHANCEMENT SYSTEMS
BDA	BI-DIRECTIONAL RADIO SIGNAL AMPLIFIER
BDAA	BI-DIRECTIONAL RADIO SIGNAL AMPLIFIER BI-DIRECTIONAL RADIO SIGNAL AMPLIFIER ALARM PANEL
DDAA	
[EEDC]	WIRED FIRE FIGHTER COMMUNICATION SYSTEMS FIRE FIGHTER'S PHONE CONTROLLER / HANDSET - PRIORITY
FFPC	COMMAND LOCATION

FFP FIRE FIGHTER'S PHONE HANDSET

FIRE FIGHTER'S PHONE PLUG-IN PHONE JACK

SYMBOLS NOTIFICATION APPLIANCES AUDIBLE HORN - WALL MOUNT AUDIBLE HORN - CLNG MOUNT VISUAL STROBE - WALL MOUNT VISUAL STROBE - CLNG MOUNT COMBINATION AUDIBLE HORN / VISUAL STROBE - WALL MOUNT COMBINATION AUDIBLE HORN / VISUAL STROBE - CLNG MOUNT AUDIBLE & INTELLIGIBLE SPEAKER - WALL MOUNT AUDIBLE & INTELLIGIBLE SPEAKER - CLNG MOUNT COMBINATION AUDIBLE & INTELLIGIBLE SPEAKER / VISUAL STROBE - WALL MOUNT COMBINATION AUDIBLE & INTELLIGIBLE SPEAKER / VISUAL STROBE - CLNG MOUNT VISUAL FLASHING BEACON AUDIBLE ALARM BELL NOTIFICATION APPLIANCE ANNOTATION C = CEILING MOUNT cd = VISUAL STROBE CANDELA OUTPUT w = SPEAKER WATTAGE TAP **EXISTING EQUIPMENT DESIGNATIONS** EXISTING EQUIPMENT TO REMAIN. WHERE ARCHITECTURAL WORK IS REQUIRED AT DEVICE LOCATION, DISCONNECT, REMOVE AND REINSTALL DEVICE AS NECESSARY TO ACCOMMODATE ARCHITECTURAL WORK. FOR SURFACE MOUNTED RACEWAY, THIS DESIGNATION SHALL INDICATE RACEWAY AND DEVICES TO REMAIN UNLESS OTHERWISE EXISTING EQUIPMENT TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW. EXISTING CIRCUIT WIRING AND PATHWAY TO BE MAINTAINED AND REUSED FOR NEW EQUIPMENT CONNECTION. EXISTING EQUIPMENT TO NEW "XL" LOCATION. CUT BACK AND/OR EXTEND EXISTING CIRCUIT WIRING AND PATHWAY AS REQUIRED SO AS TO PROVIDE A COMPLETE OPERATIONAL INSTALLATION. EXISTING RELOCATED "XR" EQUIPMENT AT "XL" NEW REMOVE EXISTING EQUIPMENT. PROVIDE NOTICE TO OWNER OF EQUIPMENT REMOVED. AS DIRECTED BY THE OWNER, BOX REMOVED EQUIPMENT AND RETURN TO THE OWNER AS SPARE INVENTORY. GENERAL ANNOTATION SECTION NUMBER dwg DRAWING NUMBER ELEVATION NUMBER dwg DRAWING NUMBER DETAIL / PART-PLAN NUMBER dwg DRAWING NUMBER CONNECT TO EXISTING

KEY NOTE

NOTE - NOT ALL SYMBOLS USED FOR THIS PROJECT

AMPERES ACOUSTICAL CEILING TILE ABOVE FINISH FLOOR ABOVE FINISH GRADE AUTHORITY HAVING JURISDICTION ARCH ARCHITECT AWG AMERICAN WIRE GAUGE BLDG BUILDING CENTER LINE CONCRETE MASONRY UNIT CARBON MONOXIDE CONT CONTINUATION DRAWING ELECTRICAL ELEC ELEV **ELEVATION** EXISTING FT FEET GALV GALVANIZED GND GROUND GWB GYPSUM WALL BOARD HAZMAT HAZARDOUS MATERIAL MAX MAXIMUM MIN MINIMUM MECH MECHANICAL MISCELLANEOUS MISC **METERS** MILLIMETERS NOT APPLICABLE NORMALLY CLOSED NOT IN CONTRACT NORMALLY OPEN NATIONALLY RECOGNIZED TESTING LABORATORY NTS NOT TO SCALE PUBLIC EMERGENCY SERVICE QTY QUANTITY SQFT SQUARE FEET SQM SQUARE METERS TEMP TEMPERATURE TYP **TYPICAL** VOLTS WEATHER PROOF **EXPLOSION PROOF** SYSTEMS, EQUIPMENT, AND MATERIALS ACU AUTONOMOUS CONTROL UNIT AMP AMPLIFIER ASSD AIR-SAMPLING SMOKE DETECTOR AUXILIARY 24V POWER CIRCUIT ANALOG VOICE CIRCUIT BI-DIRECTIONAL AMPLIFIER BDAA BI-DIRECTIONAL AMPLIFIER ALARM PANEL COAXIAL CABLE NETWORK COMMUNICATION CIRCUIT DIGITAL VOICE CIRCUIT EMERGENCY COMMUNICATION SYSTEM ELECTRICAL METALLIC TUBING EOL END OF LINE RESISTOR FACU FIRE ALARM CONTROL UNIT FIRE ALARM SYSTEM FATC FIRE ALARM TERMINAL CABINET FLEXIBLE METALLIC CONDUIT FMCL LIQUID TIGHT FLEXIBLE METALLIC CONDUIT FIBER OPTIC CABLE POWER LIMITED FIRE ALARM CABLE FPLP POWER LIMITED FIRE ALARM CABLE - PLENUM FPLR POWER LIMITED FIRE ALARM CABLE - RISER FSRU FIRE SUPPRESSION RELEASING UNIT FIXED TEMPERATURE GRAPHIC ANNUNCIATOR PANEL HIGH LEVEL INTERFACE INITIATING DEVICE CIRCUIT INTERFACE MODULE JUNCTION BOX METAL CLAD CABLE MAGNETIC DOOR HOLD-OPEN MFVN MANAGED FACILITIES-BASED VOICE NETWORK NAC NOTIFICATION APPLIANCE CIRCUIT PROTECTED PREMISES PRINTER PSTN PUBLIC-SWITCHED TELEPHONE NETWORK RAI REMOTE ALARM INDICATOR RCES RADIO COMMUNICATION ENHANCEMENT SYSTEM RATE OF RISE RIGID METALLIC CONDUIT REMOTE POWER SUPPLY RELEASING SERVICE SIGNALING LINE CIRCUIT SPEAKER CIRCUIT

STR

STROBE CIRCUIT

TERMINAL BLOCK

ABBREVIATIONS

GENERAL

ABBREVIATIONS FAS INTERFACE MODULE / FIRE SUPPRESSION FSRU COMMON ALARM OUTPUT (MM) FSRU CLEAN AGENT DISCHARGE OUTPUT (MM) FSRU COMMON SUPERVISORY OUTPUT (MM) FSRU COMMON TROUBLE OUTPUT (MM) FSRU WATER FLOW OUTPUT (MM) KEY MAINTENANCE SWITCH (MM) LOW AIR OR WATER SPRINKLER / STANDPIPE SYSTEM PRESSURE (MM) NITROGEN GENERATOR LOW PURITY (MM) ENERGIZE CLEAN AGENT RELEASING ACTUATOR (RM) ENERGIZE PREACTION SPRINKLER RELEASING SOLENOID (RM) SPRINKLER / STANDPIPE VALVE TAMPER SWITCH IN OFF-NORMAL CLEAN AGENT ACTUATOR CONTROL HEAD TAMPER SWITCH IN OFF-NORMAL POSITION (MM) SPRINKLER / STANDPIPE SYSTEM WATER FLOW (MM) FIRE WATER TANK HIGH LEVEL ALARM (MM) FIRE WATER TANK LOW LEVEL ALARM (MM) WTVL FIRE WATER TANK VERY LOW LEVEL ALARM (MM) FAS / ELECTRIC FIRE PUMP INTERFACES FPCS FIRE PUMP CONNECTED TO STANDBY POWER (MM) FIRE PUMP LOW TEMPERATURE (MM) FIRE PUMP POWER PHASE LOSS (MM) FIRE PUMP POWER PHASE REVERSAL (MM) FPRN FIRE PUMP RUNNING (MM) FPVB FIRE PUMP VFD BYPASS ENGAGED (MM) FIRE PUMP VFD FAILURE (MM) FPVO FIRE PUMP VFD OVERPRESSURE (MM) FAS / DIESEL FIRE PUMP INTERFACES FPET FIRE PUMP ENGINE TROUBLE (MM) FPLF FIRE PUMP LOW FUEL (MM) FIRE PUMP LOW TEMPERATURE (MM) FPMS FIRE PUMP MAIN SWITCH IN OFF OR MANUAL POSITION (MM) FPRN FIRE PUMP RUNNING (MM) FAS / ELEVATOR INTERFACES ACTIVATE "FLASHING HAT" ALARM INDICATOR (RM) OPEN ELEVATOR HOISTWAY VENT (RM) RECALL CAB(S) TO ALTERNATE RECALL LEVEL (RM) RECALL CAB(S) TO PRIMARY RECALL LEVEL (RM) SHUNT ELEVATOR POWER (RM) OCCUPANT EVACUATION ELEVATOR INTERFACE (RM) FAS / HVAC & SMOKE CONTROL INTERFACES @-AFL SMOKE CONTROL FAN ID "@" AIRFLOW VERIFICATION (MM) @-DSC SMOKE CONTROL FAN ID "@" LOCAL POWER DISCONNECT OPEN (MM) @-CL DAMPER / COMPONENT ID "@" IN CLOSED POSITION (MM) DAMPER / COMPONENT ID "@" IN OPEN POSITION (MM) OPEN / CLOSE DAMPER / COMPONENT ID "@" (RM) FIRE SMOKE DAMPER (RM) SMOKE DAMPER (RM)

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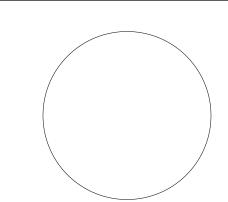
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DRAWN Author SCALE NONE

REVISIONS

NOTE - NOT ALL ABBREVIATIONS USED FOR THIS PROJECT

STA-@ START HVAC / SMOKE CONTROL FAN ID "@" (RM)

BDAC LOSS OF AC POWER (MM)

BDLB LOW BATTERY (MM)

BDAM ANTENNA MALFUNCTION (MM)

BDSM SIGNAL BOOSTER FAILURE (MM)

STOP HVAC / SMOKE CONTROL FAN ID "@" (RM)

CONVENTIONAL DUCT SMOKE DETECTOR ALARM (MM)

BI-DIRECTIONAL AMPLIFIER INTERFACES

CONVENTIONAL INITIATING DEVICES

CONVENTIONAL FIRE ALARM MANUAL PULL STATION (MM)

FAS / OTHER SYSTEM INTERFACES

OVERRIDE SOUND CONTROLS - SHUTDOWN AV SYSTEMS (RM)

DE-ENERGIZE NATURAL GAS SUPPLY SHUTOFF SOLENOID (RM)

SECS FAS COMMON SUPERVISORY SIGNAL TO SECURITY SYSTEM (RM)

SPECIAL TECHNOLOGY DETECTION

ASDP AIR SAMPLING SMOKE DETECTION PRE-ALARM (ALERT/ACTION) ASDT AIR SAMPLING SMOKE DETECTOR / POWER SUPPLY TROUBLE

CONVENTIONAL HEAT DETECTOR ALARM (MM)

OVERRIDE LIGHTING CONTROLS TO NORMAL (RM)

GENR EMERGENCY / STANDBY GENERATOR RUNNING (MM) PASO OVERRIDE PUBLIC ADDRESS SYSTEM - MUTE SOUND (RM) SECA FAS COMMON ALARM SIGNAL TO SECURITY SYSTEM (RM)

FAS COMMON TROUBLE SIGNAL TO SECURITY SYSTEM (RM)

@-PW EQUIPMENT ID "@" POWER OFF NORMAL (MM)

BMSS FAS COMMON SUPERVISORY TO BMS (RM)

SHUT DOWN FUEL OIL PUMP(S) (RM)

SM OVERRIDE SOUND MASKING CONTROLS (RM)

ASD1 AIR SAMPLING SMOKE DETECTION FIRE 1 ASD2 AIR SAMPLING SMOKE DETECTION FIRE 2

BEDA BEAM DETECTOR ALARM (MM) BDT BEAM DETECTOR TROUBLE (MM)

BMSA FAS COMMON ALARM TO BMS (RM)

BMST FAS COMMON TROUBLE TO BMS (RM)

RT ROOM TEMPERATURE SWITCH (MM)

DR RELEASE DOOR(S) (RM)

FIRE ALARM - SYMBOLS & **ABBREVATIONS**

FIRE ALARM SIGNALING AUDIBILITY AND INTELLIGIBILITY										
ROOMS OR AREAS	INTELLIGIBILITY REQUIRED?	DESIGN AMBIENT SOUND PRESSURE LEVEL (dB)	MINIMUM WATT TAP (WATTS)	NOTES						
INDIVIDUAL OFFICES	NO	35	1/2 W	-						
CONFERENCE ROOMS	YES	55	1/4 W	-						
LOUNGE AREAS	YES	55	1/4 W	-						
CORRIDORS, LOBBIES AND VESTIBULES	YES	55	1/4 W	-						
BATHROOMS	NO	55	1/4 W	-						
STORAGE AND TRASH CLOSETS	NO	30	1/4 W	-						
ELECTRICAL (NO TRANSFORMATION), JANITOR, STORAGE AND TRASH CLOSETS	NO	30	1/4 W	-						
ELECTRICAL (W/ TRANSFORMATION), TELLE/DATA, AND ELEVATOR EQUIPMENT ROOMS	NO	75	1 W	-						
	ROOMS OR AREAS INDIVIDUAL OFFICES CONFERENCE ROOMS LOUNGE AREAS CORRIDORS, LOBBIES AND VESTIBULES BATHROOMS STORAGE AND TRASH CLOSETS ELECTRICAL (NO TRANSFORMATION), JANITOR, STORAGE AND TRASH CLOSETS ELECTRICAL (W/ TRANSFORMATION), TELLE/DATA, AND ELEVATOR EQUIPMENT	ROOMS OR AREAS INTELLIGIBILITY REQUIRED? INDIVIDUAL OFFICES NO CONFERENCE ROOMS YES LOUNGE AREAS YES CORRIDORS, LOBBIES AND VESTIBULES BATHROOMS NO STORAGE AND TRASH CLOSETS ELECTRICAL (NO TRANSFORMATION), JANITOR, STORAGE AND TRASH CLOSETS ELECTRICAL (W/ TRANSFORMATION), TELLE/DATA, AND ELEVATOR EQUIPMENT NO	ROOMS OR AREAS INTELLIGIBILITY REQUIRED? INDIVIDUAL OFFICES NO 35 CONFERENCE ROOMS YES 55 LOUNGE AREAS YES 55 CORRIDORS, LOBBIES AND VESTIBULES BATHROOMS NO 55 STORAGE AND TRASH CLOSETS ELECTRICAL (NO TRANSFORMATION), JANITOR, STORAGE AND TRASH CLOSETS ELECTRICAL (W/ TRANSFORMATION), TELLE/DATA, AND ELEVATOR EQUIPMENT) NO DESIGN AMBIENT SOUND PRESSURE LEVEL (IdB) NO 35 VES 55 NO 35 NO 30 30 30 75	ROOMS OR AREAS INTELLIGIBILITY SOUND PRESSURE LEVEL (dB) INDIVIDUAL OFFICES NO 35 1/2 W CONFERENCE ROOMS YES 55 1/4 W LOUNGE AREAS YES 55 1/4 W CORRIDORS, LOBBIES AND VESTIBULES NO STORAGE AND TRASH CLOSETS ELECTRICAL (NO TRANSFORMATION), JANITOR, STORAGE AND TRASH CLOSETS ELECTRICAL (W/ TRANSFORMATION), TELLE/DATA, AND ELEVATOR EQUIPMENT) NO DESIGN AMBIENT MINIMUM WATT TAP CUANT TAP (WATT SOUND PRESSURE WATT TAP (WATT TAP						

NOTES:

VOICE INTELLIGIBILITY FOR ACOUSTICALLY DISTINGUISHABLE SPACES (ADS) SHALL MEET THE REQUIREMENTS OF NFPA 72, ANNEX D.

MODIFICATIONS TO EXISTING SYSTEMS

- PREPARE, IN NARRATIVE AND DRAWING FORMAT AS DIRECTED BY THE AUTHORITY OF HAVING JURISDICTION, A FORMAL IMPAIRMENT PLAN.
 COORDINATE IMPAIRMENT PLAN WITH GENERAL CONTRACTOR FOR INCORPORATION INTO THE NFPA 241 FIRE SAFETY PROGRAM PREPARED BY THE GENERAL CONTRACTOR.
- IMPAIRMENT PLAN SHALL IDENTIFY THE BUILDING OCCUPANCY (OR VACANCY) DURING CONSTRUCTION AND NATURE OF THE SYSTEM IMPAIRMENT.
- IMPAIRMENT PLAN SHALL IDENTIFY MAXIMUM IMPAIRMENT DURATION PERMITTED BY THE AUTHORITY HAVING JURISDICTION BEFORE ALTERNATE PROTECTION OR FIRE WATCHES ARE NECESSARY.
- IMPAIRMENT PLAN SHALL IDENTIFY THE DURATION AND TIMING OF FIRE ALARM SYSTEM SHUTDOWNS AND RESULTANT REQUIREMENT FOR TEMPORARY PROTECTION MEASURES OR FIRE WATCHES, IF ANY.
- IMPAIRMENT PLAN SHALL IDENTIFY THE NECESSARY PROVISIONS FOR TEMPORARY CIRCUIT CONNECTIONS TO EXISTING FIRE ALARM DEVICES AND APPLIANCES TO REMAIN IN SERVICE.
- IMPAIRMENT PLAN SHALL IDENTIFY ADDITIONAL PROTECTION FEATURES INCLUDING FIRE WATCHES AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- 8. FIRE ALARM OUTSIDE OF RENOVATION WORK AREA. INITIATING DEVICES AND NOTIFICATION APPLIANCES IN AREAS ADJACENT TO THE RENOVATION WORK AREA MUST REMAIN IN SERVICE THROUGHOUT THE DURATION OF CONSTRUCTION. PROVIDE TEMPORARY CIRCUIT CONNECTIONS AS NECESSARY TO MAINTAIN SERVICE UNTIL NEW CIRCUITS ARE COMPLETED.
- 9. STROBE SYNCHRONIZATION ALLOWANCE. THE FLASH PATTERN OF EXISTING STROBE NOTIFICATION APPLIANCES ADJACENT TO THE RENOVATION WORK AREA BUT OPEN TO VIEW OF NEW STROBE NOTIFICATION APPLIANCES WITHIN THE RENOVATION WORK AREA SHALL BE SYNCHRONIZED. INCLUDE A COST ALLOWANCE FOR THE REPLACEMENT OF EXISTING NOTIFICATION APPLIANCES, NEW POWER SUPPLIES, SYNC-MODULES, AND OTHER NECESSARY MODULES REQUIRED FOR SYNCHRONIZATION WHERE THE EXISTING FIRE ALARM SYSTEM IS DETERMINED IN THE FIELD TO NOT BE CAPABLE OF SYNCHRONIZATION BETWEEN EXISTING AND NEW NOTIFICATION APPLIANCES.
- 0. FIRE ALARM PULL BOXES WITHIN RENOVATION WORK AREA. MAINTAIN MANUAL PULL BOXES AT EXITS WITHIN AREA OF RENOVATION. REPLACE PULL BOXES WITH NEW AT THE CONCLUSION OF CONSTRUCTION.
- 1. FIRE ALARM NOTIFICATION APPLIANCES WITHIN RENOVATION WORK AREA. MAINTAIN NOMINAL AUDIBLE AND VISIBLE SIGNALING WITHIN THE RENOVATION WORK AREA. AT A MINIMUM, LOCATE COMBINATION AUDIBLE VISIBLE NOTIFICATION APPLIANCES AT EACH EXIT FROM THE WORK AREA.
- SMOKE AND HEAT DETECTORS WITHIN RENOVATION WORK AREA. PROTECT EXISTING DETECTORS TO REMAIN FROM DUST AND DEBRIS THROUGHOUT THE DURATION OF CONSTRUCTION. REPLACE DETECTORS WITH NEW AT THE CONCLUSION OF CONSTRUCTION.
- 3. FIRE ALARM INTERFACE MODULES WITHIN RENOVATION WORK AREA.
 MAINTAIN THE OPERATION OF EXISTING INPUT AND OUTPUT INTERFACE
 MODULES TO EXISTING EQUIPMENT THROUGHOUT THE DURATION OF
 CONSTRUCTION.
- 14. PROTECTION. PROTECT EXISTING FIRE ALARM DEVICES, APPLIANCES, AND EQUIPMENT FROM DUST, DEBRIS, PAINT, SPRAY-ON FIRE-PROOFING, AND SIMILAR THROUGHOUT THE DURATION OF CONSTRUCTION.
- 15. FIXED-TEMPERATURE LINEAR HEAT DETECTION. INSTALL TEMPORARY FIXED-TEMPERATURE (190°F) LINEAR HEAT DETECTION IN RENOVATION WORK AREAS WHERE THE SPRINKLER SYSTEM WILL BE IMPAIRED FOR LONGER THAN ONE (1) WORK SHIFT OR AS OTHERWISE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. COORDINATE REQUIREMENTS FOR TEMPORARY LINEAR HEAT DETECTION WITH DIVISION 21 WORK. WHERE REQUIRED, INSTALL LINEAR HEAT DETECTION WITHIN EACH BEAM POCKET WITH CABLES PARALLEL TO STRUCTURAL BEAMS. LINEAR HEAT DETECTION SHALL BE SUPERVISED BY THE BUILDING FIRE ALARM SYSTEM. ACTIVATION OF THE LINEAR HEAT DETECTION SYSTEM SHALL INITIATE THE BUILDING ALARM SEQUENCE OF OPERATION.
- 16. PROGRAMMING. UPDATE FIRE ALARM SYSTEM PROGRAMMING AS REQUIRED TO INCLUDE NEW ADDRESSES, DELETED ADDRESSES AND SEQUENCE OF OPERATIONS CHANGES. MATCH EXISTING DEVICE ADDRESS NOMENCLATURE. VERIFY BUILDING ROOM NAMES AND NUMBERS IN FIELD.
- 7. EXISTING WORK STATIONS. UPDATE PROGRAMMING AND GRAPHICS FILES OF EXISTING WORKSTATIONS AS REQUIRED TO ACCURATELY REFLECT FIRE ALARM SYSTEM MODIFICATIONS.
- 8. EXISTING GRAPHIC ANNUNCIATORS & SWITCHES. REPLACE EXISTING GRAPHIC ANNUNCIATOR, OPERATOR SWITCHES, LABELS AND SIMILAR AS REQUIRED TO ACCURATELY REFLECT THE FIRE ALARM SYSTEM MODIFICATIONS.
- EXISTING IDENTIFICATION. REPLACE EXISTING FIRE ALARM SIGNAGE, GRAPHICS, FRAMED MAPS, AND SIMILAR WITH NEW AS REQUIRED TO ACCURATELY REFLECT FIRE ALARM SYSTEM MODIFICATIONS.
- 20. EXISTING DOCUMENTATION. AMEND EXISTING PROPERTY RECORDS WITH SUPPLEMENTAL FIRE ALARM RECORD DOCUMENTATION INCLUDING DRAWINGS AND TEST REPORTS FOR THE ALTERATION WORK PERFORMED.

DOCUMENT SUBMITTAL PROCESS

- 1. THE DESIGN CONTENT OF THESE DRAWINGS IS INTENDED TO SATISFY THE STATE BUILDING CODE REQUIREMENTS FOR CONSTRUCTION DOCUMENTS. WHEN STAMPED AND SEALED BY THE ENGINEER OF RECORD THEY ARE INTENDED TO BE USED AS PART OF THE BUILDING PERMIT APPLICATION ONLY.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING A COMPLETE SHOP DRAWING SUBMITTAL INCLUSIVE OF ALL INFORMATION REQUIRED BY THE STATE BUILDING CODE AND THE CONSTRUCTION DOCUMENTS. SHOP DRAWINGS REVIEWED BY THE ENGINEER OF RECORD SHALL BE USED FOR SUPPLEMENTAL FIRE PROTECTION SYSTEM INSTALLATION PERMITS OR SUBMITTALS WHERE SUCH PERMITS OR SUBMITTALS ARE REQUIRED BY THE AUTHORITY HAVING
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING A COMPLETE RECORD DRAWING SUBMITTAL INCLUSIVE OF ALL FIELD CHANGES AND ALL INFORMATION REQUIRED BY THE STATE BUILDING CODE AND THE CONSTRUCTION DOCUMENTS.
- I. SHOP DRAWINGS AND RECORD DRAWING SUBMITTALS SHALL BE PREPARED BY THE CONTRACTOR'S QUALIFIED ENGINEERING TECHNICIAN AND SHALL INDICATE THE TECHNICIAN'S NICET CERTIFICATION NUMBER OR PROFESSIONAL ENGINEERING SEAL & SIGNATURE AS REQUIRED BY THE CONSTRUCTION DOCUMENTS.
- THE ENGINEER OF RECORD SHALL NOT SIGN AND SEAL SHOP DRAWING OR RECORD DRAWING SUBMITTALS PREPARED BY THE CONTRACTOR. WHERE THE AUTHORITY HAVING JURISDICTION REQUIRES SHOP DRAWING OR RECORD DRAWING SUBMITTALS TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, THE SUBMITTALS SHALL BE PREPARED BY A QUALIFIED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR.

INSPECTION AND TESTING

- PREPARE A TYPEWRITTEN COMPUTER-OUTPUT TEST PLAN THAT CLEARLY ESTABLISHES THE SCOPE OF FIRE ALARM AND SIGNALING SYSTEM TESTING. INCLUDE AT A MINIMUM TESTING METHODS, PERSONNEL, DURATION, PLANNED IMPAIRMENTS, AND REQUIRED COORDINATION FOR INTEGRATED TESTING OF EMERGENCY CONTROL FUNCTION INTERFACES. COORDINATE NFPA 3 "RECOMMENDED PRACTICE FOR COMMISSIONING OF FIRE PROTECTION AND LIFE SAFETY SYSTEMS" AND NFPA 4 "STANDARD FOR INTEGRATED FIRE PROTECTION AND LIFE SAFETY SYSTEM TESTING" REQUIREMENTS WITH THE FIRE AND LIFE SAFETY COMMISSION AGENT (FCXA) WHERE AN FCXA IS CONTRACTED BY THE OWNER.
- FUNCTIONAL FIELD TESTS SHALL BE WITNESSED BY THE CONSTRUCTION MANAGER (CM), THEIR DESIGNEES, AND WHEN CONTRACTED BY THE OWNER THE FIRE AND LIFE SAFETY COMMISSION AGENT (FCxA); PROVIDE NOTIFICATIONS A MINIMUM OF TWO (2) WEEKS IN ADVANCE.
- ACCEPTANCE FIELD TESTING SHALL BE WITNESSED BY THE CM, THEIR DESIGNEES, AND AUTHORITIES HAVING JURISDICTION (AHJ); PROVIDE NOTIFICATIONS A MINIMUM OF TWO (2) WEEKS IN ADVANCE.
 PERFORM VISUAL INSPECTIONS IN ACCORDANCE WITH FIRE ALARM SYSTEM MANUFACTURER RECOMMENDATIONS AND NFPA 72 FOR INITIAL ACCEPTANCE INSPECTIONS. CORRECT DEFICIENCIES.
- 5. DOCUMENT INSPECTIONS BY COMPLETING APPLICABLE SECTIONS OF THE NFPA 72 "SYSTEM RECORD OF INSPECTION AND TESTING" REPORT.

TEST PLAN.

- 6. PROVIDE WRITTEN NOTIFICATIONS FOR FUNCTIONAL FIELD TESTS; INCLUDE
- 7. PERFORM FUNCTIONAL TESTING IN ACCORDANCE WITH ACCORDANCE WITH FIRE ALARM SYSTEM MANUFACTURER RECOMMENDATIONS NFPA 72 FOR "INITIAL ACCEPTANCE TESTING". CORRECT DEFICIENCIES. REPEAT FUNCTIONAL TESTING INCLUDING RETESTING OF UNAFFECTED COMPONENTS IN ACCORDANCE WITH NFPA 72 FOR "REACCEPTANCE TESTING"
- 8. REPEAT FUNCTIONAL TESTING AS REQUIRED BY THE FIRE AND LIFE SAFETY COMMISSION AGENT (FCxA) WHERE AN FCxA IS CONTRACTED BY THE
- DOCUMENT 100 PERCENT SATISFACTORY FUNCTIONAL TESTS BY
 COMPLETING REMAINING SECTIONS OF THE NFPA 72 "SYSTEM RECORD OF
- INSPECTION AND TESTING" REPORT.

 10. SUBMIT NFPA 72 "STATEMENT OF COMPLETION" AND COMPLETED NFPA 72
- "SYSTEM RECORD OF INSPECTION AND TESTING" REPORT.

 11. PROVIDE WRITTEN NOTIFICATIONS FOR ACCEPTANCE FIELD TESTS; INCLUDE TEST PLAN, NFPA 72 "STATEMENT OF COMPLETION", NFPA 72 "SYSTEM RECORD OF INSPECTION AND TESTING" REPORT, AND NFPA 72 "SYSTEM RECORD OF COMPLETION".
- 12. PERFORM ACCEPTANCE FIELD TESTING. DEMONSTRATE SYSTEM OPERATION TO THE SATISFACTION OF THE AHJ. CORRECT AHJ NOTED DEFICIENCIES.REPEAT FUNCTIONAL TESTING INCLUDING RETESTING OF UNAFFECTED COMPONENTS IN ACCORDANCE WITH NFPA 72 FOR "REACCEPTANCE TESTING". AMEND NFPA 72 "SYSTEM RECORD OF INSPECTION AND TESTING" REPORT, AND NFPA 72 "SYSTEM RECORD OF
- PLACE SYSTEM INTO NORMAL OPERATING SERVICE WITHOUT SYSTEM FAULTS OR OUTSTANDING WORK.

GENERAL REQUIREMENTS

- 1. PURPOSE OF ENGINEERING DRAWINGS. THE DRAWINGS ARE DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE ABSOLUTELY PRECISE; THEY ARE NOT INTENDED TO SPECIFY OR TO SHOW EVERY REQUIRED COMPONENT OF THE SYSTEMS DESCRIBED. THE PURPOSE OF THE DRAWINGS IS TO INDICATE A SYSTEM CONCEPT, THE MAIN COMPONENTS OF THE SYSTEMS, AND THEIR APPROXIMATE GEOMETRIC RELATIONSHIPS. BASED UPON THE SYSTEMS CONCEPT, THE MAIN COMPONENTS, AND THEIR APPROXIMATE GEOMETRIC RELATIONSHIPS, PROVIDE ALL OTHER COMPONENTS AND MATERIALS NECESSARY TO MAKE THE SYSTEMS FULLY COMPLETE AND OPERATIONAL. GENERIC PERFORMANCE CRITERIA WIRING DIAGRAMS ARE REPRESENTED BY THE ENGINEERING DRAWINGS. ADAPT DIAGRAM ARRANGEMENT AS NECESSARY TO ACHIEVE SPECIFIED PERFORMANCE WITH FAS MANUFACTURER-SPECIFIC TECHNOLOGY.
- 2. MINIMUM PERFORMANCE REQUIREMENTS. INTERPRET DRAWING AND SPECIFICATION REQUIREMENTS THAT ARE MORE STRINGENT THAN FEDERAL, STATE, & MUNICIPAL CODE-MINIMUM AS DELIBERATELY CONSIDERED PERFORMANCE CRITERIA THAT ARE A MANDATORY PART OF THE WORK. WHERE DRAWINGS AND SPECIFICATIONS ARE SILENT ON A CODE REGULATED CONDITION, COMPLY WITH FEDERAL, STATE, & MUNICIPAL CODE-MINIMUM. COMPLY WITH NFPA STANDARD EDITIONS REFERENCED BY APPLICABLE FEDERAL, STATE, & MUNICIPAL CODES.
- 3. DESIGN STANDARDS. COMPLY WITH NFPA [72].
- 4. APPROVALS. PRODUCTS SHALL BE UL LISTED [OR] FM APPROVED FOR FIRE PROTECTION DUTY AND THE INTENDED SERVICE APPLICATION.
- ALL WORK IS NEW. UNLESS SPECIFICALLY NOTED AS EXISTING, ALL COMPONENTS INDICATED BY THE DRAWINGS ARE NEW.
- RELATED DOCUMENTS. THE NECESSARY UNDERSTANDING OF THE PROJECT SCOPE AND FIRE ALARM AND SIGNALING WORK CANNOT BE OBTAINED WITHOUT REVIEW OF ALL PROJECT DOCUMENTS. REVIEW COMPLETE PACKAGE OF PROJECT DRAWINGS, SPECIFICATIONS, AND NARRATIVES TO FULLY UNDERSTAND THE PROJECT SCOPE AND TO COORDINATE THE FIRE ALARM AND SIGNALING WORK WITH OTHER
- GENERAL INSTALLATION. INSTALL SYSTEM IN A WORKMANLIKE FASHION AND IN A RECTILINEAR ARRANGEMENT WITH PATHWAYS, EQUIPMENT, DEVICES, AND APPLIANCE PERPENDICULAR AND PARALLEL WITH BUILDING ARCHITECTURAL AND STRUCTURAL ELEMENTS. CONDUIT SHALL BE TIGHT TO UNDERSIDE OF DECK. EXPOSED CONDUIT SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION AND SHALL MAINTAIN NECESSARY CLEARANCES.
- FIRE DEPARTMENT OPERATIONS. INSTALL FIRE ALARM DISPLAYS, AND CONTROLS, PRIVATE-MODE SIGNALING APPLIANCES, SIGNAGE, AND OTHER COMPONENTS REQUIRING FIRE FIGHTER PERSONNEL INTERFACE DURING EMERGENCY OPERATIONS IN READILY IDENTIFIABLE LOCATIONS, WITH ADEQUATE OPERATIONAL CLEARANCES, AND IN ACCORDANCE WITH RESPONDING FIRE DEPARTMENT STANDARD EMERGENCY OPERATIONAL PROCEDURES.
- RACEWAY. UNLESS OTHERWISE NOTED, WIRE AND CABLE PATHWAYS SHALL BE DEDICATED CONTINUOUS METAL RACEWAY THROUGHOUT. COMPLY WITH NFPA 72 REQUIREMENTS BOTH MANDATORY AND RECOMMENDED FOR MINIMUM PHYSICAL SEPARATION OF SUPPLY AND RETURN PATHWAYS.CONDUIT SHALL BE MINIMUM 3/4-IN NOMINAL WITH RED MARKINGS EVERY 10-FT OR SOLID RED COLOR.
- 10. WIRE AND CABLE. FPL POWER-LIMITED FIRE ALARM SHALL BE CABLE RUN CONTINUOUS BETWEEN COMPONENT TERMINALS WITHOUT SPLICES. POWER LIMITED CIRCUITS SHALL NOT BE RUN IN THE SAME RACEWAY AS NON-POWER LIMITED CIRCUITS.
- SURVIVABILITY. FIRE ALARM EQUIPMENT AND PATHWAYS SHALL BE SURVIVABLE AGAINST THE EFFECTS OF FIRE DAMAGE AS INDICATED.
- 12. T-TAPPING. CIRCUITS SHALL BE ARRANGED WITHOUT T-TAPS.
 13. INTERFACES. DIVISION 28 WORK INCLUDES WIRING AND TERMINATIONS
- INTERFACES. DIVISION 28 WORK INCLUDES WIRING AND TERMINATIONS FROM INTERFACE MODULES TO ASSOCIATED EQUIPMENT TERMINALS. COORDINATE VOLTAGE REQUIREMENTS OF CONTROLLED EQUIPMENT WITH THE RATINGS OF THE ASSOCIATED FIRE ALARM INTERFACE MODULE. PROVIDE INTERPOSING RELAYS WHERE INDICATED OR OTHERWISE REQUIRED. UNLESS NOTED AS PERMISSIBLE FOR FAIL-SAFE CONTROL CIRCUITS, ADDRESSABLE RELAY MODULES SHALL BE LOCATED WITHIN 3-FT OF THE ASSOCIATED DEVICE OR CIRCUIT BEING CONTROLLED.
- 14. PRIMARY POWER SUPPLY SHALL BE FROM A SEPARATE FUSED CIRCUIT FREE FROM FAULTS INCLUDING GROUNDS, SHORTS, OPENS, STRAY VOLTAGE, OR INDUCED VOLTAGE. EACH BREAKER SHALL BE LOCKABLE AND IDENTIFIED AT BOTH THE POWER PANEL AND THE POWERED EQUIPMENT. A SURGE PROTECTIVE DEVICE SHALL BE PROVIDED FOR EACH PRIMARY POWER CIRCUIT.
- 15. COORDINATION. MAKE REASONABLE AND NECESSARY MODIFICATIONS IN LAYOUTS AND COMPONENT ARRANGEMENT NEEDED TO PREVENT CONFLICT WITH AND TO ACCOMMODATE OTHER DIVISIONS OF THE
- CLEARANCES. INSTALL CONDUIT, BOXES, CABINETS, AND SYSTEM COMPONENTS TO MAINTAIN MINIMUM CLEARANCES REQUIRED TO OPERATE AND MAINTAIN FIRE ALARM AND SIGNALING EQUIPMENT; TO INSTALL, OPERATE AND MAINTAIN EQUIPMENT AND FEATURES OF OTHER DIVISIONS; TO ACCOMMODATE FINISHED CEILING HEIGHTS; AND TO MAINTAIN MAXIMUM HEADROOM IN AREAS OPEN TO STRUCTURE ABOVE.
- PENETRATIONS. USE SPECIFIED SLEEVES, SLEEVE SEALS, AND ESCUTCHEONS AT RACEWAY PENETRATIONS. AT FIRE RESISTANCE RATED PENETRATIONS, THE PENETRATED FLOOR OR WALL, PENETRATING RACEWAY, SLEEVE OR SLEEVE SEAL, AND FIRESTOP MATERIAL AS AN ASSEMBLY SHALL COMPLY WITH A DESIGNATED UL THROUGH-PENETRATION FIRESTOP SYSTEM.
- ACCESS TO COMPONENTS. INSTALL WALL MOUNT EQUIPMENT CABINETS WITH CONTROLS AND DISPLAYS SUCH THAT THEY ARE READILY ACCESSIBLE AND VISIBLE TO RESPONDING PERSONNEL. INSTALL EQUIPMENT TO READILY PERMIT TESTING SERVICING, AND BATTERY REPLACEMENT. INSTALL FIRE DETECTORS SUCH THAT THEY WILL BE READILY ACCESSIBLE FOR TESTING AND MAINTENANCE FROM THE FLOOR SURFACE BELOW.
- SUPPORT. CONDUITS, CABLES, AND RACEWAY SHALL NOT BE SUPPORTED BY CEILING GRID SYSTEMS. SECURE CONDUITS, CABLES, AND RACEWAYS TO THE BUILDING STRUCTURE.
- IDENTIFICATION. PROVIDE IDENTIFICATION AT ALL DEVICES, APPLIANCES, MODULES, AND CABINET ENCLOSURES.
- FIRE PROTECTION DURING CONSTRUCTION. PROVIDE FIRE PROTECTION DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO SPRINKLER / STANDPIPE SUPERVISION, AUDIBLE AND VISIBLE ALARMS, AND CENTRAL STATION SUPERVISION AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- ON-STE AS-BUILT DOCUMENTATION. MAINTAIN COMPLETE AND SEPARATE SET OF INSTALLATION DRAWINGS ON SITE AT ALL TIMES. RECORD WORK COMPLETED AND ALL MODIFICATIONS CLEARLY AND ACCURATELY.

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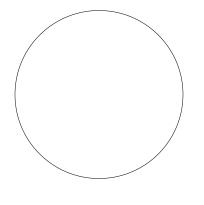
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BIDDING &



ISSUE 07/06/2022

DRAWN Author

SCALE NONE

REVISIONS

FIRE ALARM - NOTES AND DESIGN CRITERIA

RELATED DOCUMENTS

THE WORK REQUIREMENTS DESCRIBED WITHIN DIVISION 20 "COMMON MECHANICAL / ELECTRICAL REQUIREMENTS" FORM COMPLIMENTARY REQUIREMENTS TO THE SCOPE OF WORK OF THIS SECTION.

<u>SUBMITTALS</u>

COMPLY WITH DRAWINGS; STATE/LOCAL REGULATIONS; AND NFPA 72 CHAPTER "DOCUMENTATION". FOR PURPOSES OF APPLYING NFPA 72, ALL IDENTIFIED DOCUMENTATION REQUIREMENTS ARE A MANDATORY PART OF THE WORK. INCLUDING THOSE THAT "APPLY ONLY WHERE REQUIRED BY OTHER GOVERNING LAWS, CODES, OR STANDARDS, BY OTHER PARTS OF THE CODE; OR BY PROJECT SPECIFICATIONS OR DRAWINGS".

SUBMIT ACTION SUBMITTALS PRIOR TO APPLYING FOR AUTHORITY HAVING JURISDICTION INSTALLATION PERMITS (WHERE REQUIRED) AND SYSTEM

SUBMIT INFORMATIONAL SUBMITTALS AFTER SUCCESSFUL INITIAL SYSTEM TESTING AND PRIOR TO SCHEDULING AUTHORITY HAVING JURISDICTION FINAL APPROVAL DEMONSTRATION TESTING.

SUBMIT CLOSEOUT SUBMITTALS AS PART OF PROJECT CLOSEOUT PROCEDURE. ACTION SUBMITTALS

PRODUCT DATA: FOR EACH TYPE OF PRODUCT, INCLUDING FURNISHED OPTIONS AND ACCESSORIES, INCLUDE STATEMENT FROM MANUFACTURER. THAT ALL EQUIPMENT AND COMPONENTS HAVE BEEN TESTED AS A SYSTEM AND MEET ALL REQUIREMENTS OF THIS SPECIFICATION AND OF NFPA 72. INCLUDE STATEMENT ENDORSED BY THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE THAT THE ELECTRICAL CHARACTERISTICS OF THE SUBMITTED FIRE ALARM CABLES ARE WITHIN ALL OPERATING PARAMETERS OF THE FIRE ALARM SYSTEM AS DESIGNED AND REPRESENTED BY THE DETAILED FIRE ALARM SYSTEM SHOP DRAWINGS.

SHOP DRAWINGS: FOR FIRE ALARM SYSTEM AND FIRE SAFETY CONTROL INTERFACES, INCLUDE FLOOR PLANS, RISER DIAGRAM, COMPONENT WIRING DIAGRAMS, VOLTAGE DROP CALCULATIONS, POWER SUPPLY AND BATTERY CALCULATIONS, AMPLIFIER LOADING CALCULATIONS, SPEAKER CIRCUIT DB LOSS CALCULATIONS, CONDUIT FILL CALCULATIONS, AND SEQUENCE OF OPERATIONS.

INFORMATIONAL SUBMITTALS

QUALIFICATION DATA: FOR QUALIFIED INSTALLER AND CERTIFIED ENGINEERING

SEISMIC QUALIFICATION CERTIFICATES: WHERE APPLICABLE, FOR FIRE ALARM CONTROL UNIT, ACCESSORIES, AND COMPONENTS, FROM MANUFACTURER.

RECORD OF INSPECTION AND TESTING. DETAILED DOCUMENTATION OF COMPLETED 100 PERCENT FIRE ALARM AND SIGNALING SYSTEM INITIAL ACCEPTANCE TESTING: OR FOR EXISTING SYSTEMS REACCEPTANCE TESTING. USE NFPA 72 "SYSTEM RECORD OF INSPECTION AND TESTING" FORMS.

STATEMENT OF COMPLETION: WRITTEN STATEMENT THAT SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH APPROVED PLANS AND TESTED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS AND APPROPRIATE NFPA 72 REQUIREMENTS.

CLOSEOUT SUBMITTALS

RECORDS OF COMPLETION. PROVIDE DETAILED DESCRIPTION OF INSTALLED. ESTED. AND APPROVED FIRE ALARM AND SIGNALING SYSTEM: INCLUDING DESCRIPTION OF PROTECTED PREMISES, FIRE ALARM SYSTEM AND COMPONENT SUB-SYSTEMS, FIRE SAFETY FUNCTION INTERFACES, MONITORING SERVICE, AND ALL OTHER INFORMATION REQUIRED BY NFPA 72. USE NFPA 72 "SYSTEM RECORD OF COMPLETION" FORMS. FOR MODIFICATIONS TO EXISTING SYSTEMS, FORMAT AS A DATED REVISION TO THE ORIGINAL RECORD OF COMPLETION.

RECORD DRAWINGS. PROVIDE COMPLETE SHOP DRAWING RE-SUBMITTAL UPDATED TO REFLECT ACTUAL FINAL SYSTEM INSTALLATION AND SEQUENCE OF OPERATION OF ALL COMPONENTS, FOR MODIFICATIONS TO EXISTING SYSTEMS, FORMAT AS A DATED REVISION TO THE ORIGINAL RECORD DRAWINGS

DEVICE ADDRESS LIST. PROVIDE COMPLETE DEVICE ADDRESS LIST ORGANIZED BY SLC LOOP AND SYSTEM NODE. FOR MODIFICATIONS TO EXISTING SYSTEMS. FORMAT AS A DATED REVISION TO THE ORIGINAL DEVICE ADDRESS LIST.

OPERATION AND MAINTENANCE DATA: FOR FIRE ALARM SYSTEMS AND COMPONENTS TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS.

QUALITY ASSURANCE

INSTALLER QUALIFICATIONS: PERSONNEL LICENSED BY THE GOVERNING LICENSING AUTHORITY FOR THE INSTALLATION OF FIRE ALARM SYSTEMS. SUCCESSFULLY INSTALLED, TESTED, OBTAINED APPROVALS FOR, AND PUT INTO SERVICE NO LESS THAN THREE (3) FIRE ALARM SYSTEMS SIMILAR IN TYPE, SIZE, AND COMPLEXITY TO THAT OF THE WORK OF THIS SECTION.

CERTIFIED ENGINEERING TECHNICIAN QUALIFICATIONS: PERSONNEL TRAINED AND CERTIFIED BY THE FIRE ALARM SYSTEM MANUFACTURER AS AN APPROVED TECHNICIAN. SHOP DRAWINGS AND CALCULATIONS PREPARED BY PERSONNEL CERTIFIED BY NICET AS FIRE ALARM LEVEL III OR IV TECHNICIAN, OR LICENSED AS A PROFESSIONAL FIRE PROTECTION ENGINEER BY THE GOVERNING LICENSING AUTHORITY.

SOURCE LIMITATIONS FOR FIRE ALARM SYSTEM AND COMPONENTS: SINGLE VENDOR SOURCE TO PROVIDE FIRE ALARM SYSTEM COMPONENTS AND CONNECTED NON-SYSTEM COMPONENTS AS A SINGLE LISTED ADDRESSABLE FIRE ALARM AND SIGNALING SYSTEM.

MODIFICATIONS TO EXISTING SYSTEMS: COMPONENTS COMPATIBLE WITH, AND OPERATE AS AN EXTENSION OF, EXISTING SYSTEM

PRODUCT STANDARDS: LISTED IN THE "FIRE PROTECTION EQUIPMENT DIRECTORY" PUBLISHED BY UL OR THE "APPROVAL GUIDE" PUBLISHED BY FM

SUBJECT TO COMPLIANCE WITH REQUIREMENTS, INDICATION OF A UL PRODUCT REQUIREMENT WITHIN PART 2 SHALL BE CONSTRUED TO BE INCLUSIVE OF A CORRESPONDING FM GLOBAL APPROVED PRODUCT, WITH OR WITHOUT UL LISTING.

PRODUCT STANDARDS: UL'S "FIRE PROTECTION EQUIPMENT DIRECTORY" LISTING AND "APPROVAL GUIDE," PUBLISHED BY FM GLOBAL.

SUBJECT TO COMPLIANCE WITH REQUIREMENTS, INDICATION OF A UL PRODUCT REQUIREMENT WITHIN PART 2 SHALL BE CONSTRUED TO REQUIRE A UL LISTED AND FM APPROVED PRODUCT.

ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70. BY A QUALIFIED TESTING AGENCY. AND MARKED FOR INTENDED LOCATION AND APPLICATION.

EXPLOSION-PROOF: LISTED AND LABELED FOR USE IN "HAZARDOUS (CLASSIFIED) LOCATIONS"; CLASS AND DIVISION LISTING APPROPRIATE TO INTENDED LOCATION AND APPLICATION.

NFPA CERTIFICATION: OBTAIN CERTIFICATION ACCORDING TO NFPA 72 BY AN NRTL (NATIONALLY RECOGNIZED TESTING LABORATORY).

PART 1 - GENERAL

COORDINATION

COORDINATE CONSTRUCTION OPERATIONS WITH THOSE OF OTHER SECTIONS OF THE WORK AND OTHER ENTITIES TO ENSURE EFFICIENT AND ORDERLY INSTALLATION OF EACH PART OF THE WORK, COORDINATE OPERATIONS AND PRODUCT SELECTIONS OF THIS SECTION WITH OPERATIONS AND PRODUCT SELECTIONS INCLUDED IN DIFFERENT SECTIONS THAT DEPEND ON EACH OTHER FOR PROPER INSTALLATION, CONNECTION, AND OPERATION. SCHEDULE CONSTRUCTION OPERATIONS IN SEQUENCE REQUIRED TO OBTAIN THE BEST RESULTS WHERE INSTALLATION OF ONE PART OF THE WORK DEPENDS ON INSTALLATION OF OTHER COMPONENTS, BEFORE OR AFTER ITS OWN INSTALLATION. COORDINATE INSTALLATION OF DIFFERENT COMPONENTS WITH OTHER SECTIONS OF THE WORK TO ENSURE MAXIMUM PERFORMANCE AND ACCESSIBILITY FOR REQUIRED MAINTENANCE, SERVICE, AND REPAIR. MAKE ADEQUATE PROVISIONS TO ACCOMMODATE ITEMS SCHEDULED FOR LATER INSTALLATION.

COORDINATION DRAWINGS: CONTRIBUTE TO PREPARATION OF COORDINATION DRAWINGS IN THE SEQUENCE ESTABLISHED UNDER DIVISION 1 AND DIVISION 20; INDICATE WATER-BASED FIRE SUPPRESSION SYSTEM WORK COORDINATED WITH OTHER SECTIONS OF THE WORK.

MAINTENANCE MATERIALS

FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

SMOKE DETECTORS AND HEAT DETECTORS: FIVE (5) OF EACH TYPE

DETECTOR BASES: FIVE (5) OF EACH TYPE INSTALLED.

AUDIBLE AND VISUAL NOTIFICATION APPLIANCES: FIVE (5) OF EACH TYPE INSTALLED.

KEYS AND TOOLS: ONE EXTRA SET FOR ACCESS TO LOCKED OR

TAMPER-PROOF COMPONENTS. FUSES: TWO (2) OF EACH TYPE INSTALLED IN THE SYSTEM. PROVIDE IN

A BOX OR CABINET WITH COMPARTMENTS MARKED WITH FUSE TYPES AND SIZE. **WARRANTY**

SPECIAL WARRANTY: MANUFACTURER AGREES TO REPAIR OR REPLACE FIRE

ALARM SYSTEM EQUIPMENT AND COMPONENTS THAT FAIL IN MATERIALS ORWORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD. WARRANTY EXTENT: ALL EQUIPMENT AND COMPONENTS NOT

COVERED IN THE MAINTENANCE SERVICE AGREEMENT. WARRANTY PERIOD: FIVE (5) YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS

SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS LISTED AS A COMPONENT OF A SINGLE ADDRESSABLE FIRE ALARM AND SIGNALING

SYSTEM TECHNOLOGY PLATFORM BY THE FOLLOWING: • SAME MANUFACTURER AS THE SELECTED MANUFACTURER OF

THE FIRE ALARM AND SIGNALING SYSTEM TECHNOLOGY PLATFORM.

WHERE ADDITIONAL MANUFACTURER LISTINGS OR BASIS OF DESIGN PRODUCTS ARE INDICATED, PROVIDE PRODUCTS LISTED AND DUTY-RATED AS COMPATIBLE WITH THE SELECTED FIRE ALARM AND SIGNALING TECHNOLOGY PLATFORM.

PERFORMANCE REQUIREMENTS

MANUFACTURERS

OPERATIONAL PERFORMANCE: FIRE ALARM SYSTEM SHALL PROCESS ALARM, SUPERVISORY, AND TROUBLE STATUS SIGNALS AND PERFORM ASSOCIATED OUTPUT FUNCTIONS IN COMPLIANCE WITH NFPA 72. DIVISION 28 AND

CIRCUIT INTEGRITY AND FAULT PERFORMANCE: FIRE ALARM SYSTEM CIRCUIT INTEGRITY AND FUNCTIONAL PERFORMANCE CAPABILITY UNDER FAULT CONDITIONS SHALL COMPLY WITH THE NFPA 72 CIRCUIT CLASS DESIGNATIONS. SURVIVABILITY PERFORMANCE: FIRE ALARM SYSTEM FIRE RESISTIVE PERFORMANCE CAPABILITY SHALL COMPLY WITH THE NFPA 72 CIRCUIT LEVEL DESIGNATIONS.

SEISMIC PERFORMANCE: WHERE APPLICABLE, FIRE ALARM CONTROL UNIT AND RACEWAYS SHALL WITHSTAND THE EFFECTS OF EARTHQUAKE MOTIONS DETERMINED ACCORDING TO ASCE/SEI 7.

POWER SUPPLIES

GENERAL: SWITCHED-MODE SUPERVISED POWER SUPPLY BASE AND EXPANSION MODULES SUPPLYING REGULATED AND FILTERED 24-V DC POWER TO SYSTEM COMPONENTS, NOTIFICATION APPLIANCES, AND AUXILIARY POWER

RPS APPLICATIONS: POWER SUPPLY MODULES AND BATTERIES MOUNTED WITHIN DISTRIBUTED REMOTE POWER SUPPLY (RPS) EQUIPMENT CABINETS TO PROVIDE SUPPLEMENTAL POWER TO CONNECTED NOTIFICATION APPLIANCE CIRCUITS AND CONNECTED AUXILIARY POWER CIRCUITS.

SYSTEM SMOKE DETECTORS

COMPLY WITH "SYSTEM FIRE DETECTORS".

UL 268, PHOTOELECTRIC SPOT-TYPE WITH INSECT-SCREEN PROTECTED SENSING CHAMBER; FOR INSTALLATION IN TWIST-LOCK SYSTEM BASES.

OPERATING TEMPERATURE RANGE: 32 – 100 DEG F (0 – 38DEG C).

OPERATING HUMIDITY RANGE: 10 - 95 PERCENT RH. SENSITIVITY RANGE: 0.2 - 3.7 PERCENT OBS/FT.

AIR VELOCITY RATING: 0 - 4,000 FPM (0 - 1220 MPM).

PART 2 - PRODUCTS

NOTIFICATION APPLIANCES

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

• SAME MANUFACTURER AS THE SELECTED MANUFACTURER OF

THE FIRE ALARM AND SIGNALING SYSTEM TECHNOLOGY PLATFORM. MOUNTING: WALL OR CEILING MOUNT AS INDICATED ON DRAWINGS. HOUSING: THERMOPLASTIC, IMPACT RESISTANT, AND FLAME RETARDANT FINISH: WHITE HOUSING WITH RED CNTRASTING ENGRAVED LETTERING IDENTIFICATION: ENGRAVED LETTERING ON HOUSING INDICATING "FIRE"

AUDIBLE/INTELLIGIBLE NOTIFICATION APPLIANCES

COMPLY WITH "NOTIFICATION APPLIANCES".

SPEAKERS: UL 1480, 25 OR 70 NOMINAL VRMS SPEAKER WITHIN DEDICATED HOUSING, LISTED SOUND PRESSURE LEVEL OF 90 DBA MEASURED AT 10 FEET.

FREQUENCY RANGE: 400 TO 4000 HZ. WATTAGE TAPS: FIELD SELECTABLE 0.25 W, 0.50 W, 1.0 W, 2.0W.

VISIBLE NOTIFICATION APPLIANCES

COMPLY WITH "NOTIFICATION APPLIANCES".

STROBES: UL 1971, XENON STROBE WITH CLEAR POLYCARBONATE LENS MOUNTED ON AN ALUMINUM FACEPLATE AND FIELD SELECTABLE CANDELA OUTPUT SETTING WITHIN DEDICATED HOUSING, 24-V DC; WITH CANDELA SETTING INDICATOR VISIBLE THROUGH VIEWING WINDOW. STROBE FLASHING IN TEMPORAL PATTERN, SYNCHRONIZED THROUGHOUT EACH EVACUATION ZONE AND SYNCHRONIZED BETWEEN EVACUATION ZONES WHERE STROBES FROM MULTIPLE EVACUATION ZONES CAN BE OBSERVED BY A SINGLE VIEWER. COMPLY WITH DRAWINGS FOR APPLIANCE CANDELA OUTPUT.

COMBINATION AUDIBLE/INTELLIGIBLE AND VISIBLE NOTIFICATION APPLIANCES COMBINATION AUDIBLE/INTELLIGIBLE AND VISIBLE NOTIFICATION APPLIANCE WITH AUDIBLE AND VISIBLE SIGNALING ELEMENTS ASSEMBLED WITHIN A COMMON HOUSING.

AUDIBLE/INTELLIGIBLE SPEAKERS - COMPLY WITH "AUDIBLE/INTELLIGIBLE NOTIFICATION APPLIANCES".

VISIBLE STROBE - COMPLY WITH "VISIBLE NOTIFICATION APPLIANCES".

FIRE ALARM WIRE AND CABLE

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

 ANIXTER INC. BELDEN INC.

 SOUTHWIRE CC WEST PENN WIRE

FIRE ALARM CABLE: UL 1424, TYPE FPL, [FPLR AND FPLP,] POWER-LIMITED FIRE

ALARM CABLE: RED-JACKETED. TWISTED-PAIR AND PARALLEL-PAIR INSULATED

SOLID COPPER CONDUCTORS; UNSHIELDED AND SHIELDED. FIRE ALARM METAL-CLAD CABLE: UL 1424, TYPE MC-FPLP, POWER-LIMITED FIRE ALARM CABLE: JACKETED. TWISTED-PAIR SOLID COPPER CONDUCTORS WITH RED ALUMINUM INTERLOCKING OUTER ARMOR JACKET; UNSHIELDED AND SHIELDED.

BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE RED ALERT MC-FPLP CABLE.

MANUFACTURED BY SOUTHWIRE CO. MINIMUM FIRE ALARM CABLE CONDUCTOR SIZE:

 AUXILIARY (24 VDC) POWER: 14 AWG / 2C. • DATA COMMUNICATIONS NETWORK: 16 AWG / 2C. • DIGITAL VOICE RISER: 16 AWG / 2C. • NOTIFICATION APPLIANCE CIRCUITS: 14 AWG / 2C. • RELAY CIRCUITS: 14 AWG / 2C. • RS SERIAL DATA COMMUNICATIONS: 18 AWG / 2C.

• SIGNALING LINE CIRCUITS: 16 AWG / 2C.

SPEAKER CIRCUITS: 16 AWG / 2C.

• UPERVISION CIRCUITS: 16 AWG / 2C. DATA AND VOICE CIRCUITS:

> • FIRE ALARM CABLE FOR DATA COMMUNICATIONS NETWORK, DIGITAL VOICE RISER, SIGNALING LINE CIRCUITS, SPEAKER CIRCUITS, RS SERIAL DATA COMMUNICATIONS, AND OTHER MANUFACTURER-SPECIFIC DATA AND VOICE CIRCUITS SHALL BE SHIELDED. TWISTED-PAIR UNLESS FIRE ALARM MANUFACTURER'S INSTALLATION GUIDELINES RECOMMEND OR REQUIRE UNSHIELDED TWISTED-PAIR CABLE. • FIRE ALARM CABLE ELECTRICAL CHARACTERISTICS FOR DATA COMMUNICATIONS NETWORK, SIGNALING LINE CIRCUITS, RS SERIAL DATA COMMUNICATIONS, AND OTHER MANUFACTURER-SPECIFIC DATA CIRCUITS SHALL COMPLY WITH THE FIRE ALARM MANUFACTURER LIMITATIONS FOR LINEAR-UNIT AND TOTAL-CIRCUIT CAPACITANCE AND

FIRE ALARM RACEWAY AND BOXES

COMPLY WITH DIVISION 26.

RESISTANCE.

FINISH: FACTORY APPLIED RED FINISH FOR COVER PLATES AND CONNECTORS.

PART 3 - EXECUTION

PART 3 - EXECUTION

TECHNICIAN DESIGN AND LAYOUT

PREPARATION PREPARE AND SUBMIT "ACTION SUBMITTALS" PRIOR TO EQUIPMENT

PROCUREMENT.

ROLES AND RESPONSIBILITIES SHALL BE AS SET FORTH IN NSPE POSITION STATEMENT NO. 1749 "SFPE/NSPE/NICET JOINT POSITION OF THE ENGINEER AND THE ENGINEERING TECHNICIAN DESIGNING THE FIRE PROTECTION SYSTEM". AVAILABLE AT NSPE.ORG. AS APPLIED TO THE WORK, THE CONTRACT DOCUMENTS HAVE BEEN PREPARED BY THE "ENGINEER" AND SHOP DRAWINGS REQUIRED BY THIS SECTION OF THE WORK ARE PREPARED BY THE "CERTIFIED

ENGINEERING TECHNICIAN". AS THE CERTIFIED ENGINEERING TECHNICIAN, PREPARE SHOP DRAWINGS INCLUDING DRAWINGS, CALCULATIONS, CERTIFICATIONS, AND STATEMENTS INDICATING SYSTEM LAYOUT, CIRCUITING, AND CAPACITIES IN ACCORDANCE

DESIGN AND INSTALLATION STANDARD(S): NFPA 70 AND NFPA 72.

WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

COMPLY WITH THE PERFORMANCE REQUIREMENTS INDICATED BY THE CONTRACT DOCUMENTS WHERE SUCH REQUIREMENTS ARE MORE STRINGENT THAN THOSE OF THE DESIGN AND INSTALLATION STANDARD(S); OTHERWISE, COMPLY WITH THE PERFORMANCE REQUIREMENTS OF THE DESIGN AND INSTALLATION STANDARD(S).

EXAMINATION

ELECTRICAL SYSTEMS.

EXAMINE AREAS AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR VENTILATION, TEMPERATURE, HUMIDITY, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK. VERIFY THAT MANUFACTURER'S WRITTEN INSTRUCTIONS FOR ENVIRONMENTAL CONDITIONS HAVE BEEN PERMANENTLY ESTABLISHED IN SPACES WHERE EQUIPMENT AND WIRING ARE INSTALLED, BEFORE INSTALLATION BEGINS.

CONFIRM FIRE RESISTANCE RATING OF BUILDING CONSTRUCTION REQUIRED TO PERFORM AS FIRE ALARM SYSTEM SURVIVABILITY PROTECTION BEFORE INSTALLATION.

EXAMINE DEPTH OF STUD WALLS TO VERIFY CLEARANCE FOR FLUSH-MOUNT EQUIPMENT BEFORE INSTALLATION.

EXAMINE ROUGHING-IN FOR ELECTRICAL CONNECTIONS TO VERIFY ACTUAL LOCATIONS OF CONNECTIONS BEFORE INSTALLATION. EXAMINE PROPOSED MOUNTING LOCATIONS OF EQUIPMENT CABINETS WITH

SATISFACTORY ACCESS AND EASE OF IDENTIFICATION BEFORE INSTALLATION. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

USER DISPLAYS AND/OR CONTROLS WITH THE LOCAL FIRE OFFICIAL TO VERIFY

EQUIPMENT INSTALLATION COMPLY WITH THE MOST RESTRICTIVE REQUIREMENTS OF THIS SECTION AND APPLICABLE DIVISION 26 SECTIONS FOR THE INSTALLATION OF LOW VOLTAGE

COMPLY WITH NFPA 72. AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION FOR INSTALLATION AND TESTING OF FIRE ALARM EQUIPMENT. INSTALL ALL ELECTRICAL WIRING TO COMPLY WITH REQUIREMENTS IN NFPA 70 INCLUDING, BUT NOT LIMITED TO, ARTICLE 760, "FIRE ALARM SYSTEMS."

INSTALL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE REVIEWED FIRE ALARM SYSTEM SHOP DRAWINGS. WHERE FIELD MODIFICATIONS OF LAYOUT ARE NECESSARY, OBTAIN PRIOR APPROVAL FROM THE FIRE ALARM SYSTEM VENDOR'S QUALIFIED FIRE ALARM SYSTEM DESIGNER.

ARRANGE EQUIPMENT CABINETS, WIRE-WAYS, AND CONDUITS WITH ADEQUATE CLEARANCES TO FACILITATE ACCESS FOR INSPECTION, MAINTENANCE, AND COMPONENT REPLACEMENT.

INSTALL EQUIPMENT CABINETS WITH TOP AND BOTTOM OF CABINETS NOT MORE THAN 72 INCHES ABOVE FINISHED FLOOR AND NOT LESS THAN 12 INCHES ABOVE FINISHED FLOOR, RESPECTIVELY.

INSTALL BATTERY CABINETS WITH TOP AND BOTTOM OF CABINETS NOT MORE THAN 48 INCHES ABOVE FINISHED FLOOR AND NOT LESS THAN 12 INCHES ABOVE FINISHED FLOOR, RESPECTIVELY.

INSTALL FIRE ALARM SYSTEM MODULES AND AUXILIARY COMPONENTS IN ACCESSIBLE LOCATIONS WITH BOTTOM OF MODULES AND COMPONENTS NOT LESS THAN 12 INCHES

INSTALL EQUIPMENT CABINETS WITH USER DISPLAYS AND/OR CONTROLS INCLUDING FIRE ALARM CONTROL UNIT NODES AND REMOTE ANNUNCIATORS WITH DISPLAYS AND/OR CONTROLS AT NATURAL USER HEIGHT.

FLUSH-MOUNT EQUIPMENT CABINETS/BACK-BOXES NOT LOCATED IN

DESIGNATED EQUIPMENT ROOMS. FLUSH-MOUNT WALL- AND CEILING-MOUNTED INITIATING DEVICES, MODULES INDICATORS, AND NOTIFICATION APPLIANCES UNLESS OTHERWISE INDICATED.

SURFACE-MOUNT EQUIPMENT CABINETS/BACK-BOXES LOCATED IN DESIGNATED EQUIPMENT ROOMS. SURFACE-MOUNT INITIATING DEVICES, MODULES, INDICATORS, AND

NOTIFICATION APPLIANCES INSTALLED ON CONCRETE OR MASONRY UNIT SURFACE-MOUNT INITIATING DEVICES INSTALLED TO THE UNDERSIDE OF

SURFACE-MOUNT OR PENDANT-MOUNT NOTIFICATION APPLIANCES INSTALLED TO THE UNDERSIDE OF STRUCTURE. INSTALL CEILING MOUNTED DEVICES, MODULES, INDICATORS AND NOTIFICATION

APPLIANCES IN ALIGNMENT WITH ADJACENT CEILING FIXTURES AND CENTERED

WITHIN CEILING TILES. INSTALL WALL MOUNTED DEVICES, MODULES, INDICATORS AND NOTIFICATION APPLIANCES IN ALIGNMENT WITH ADJACENT SWITCHES AND WALL FIXTURES.

CONDITIONED SPACE. FIRE ALARM PATHWAY INSTALLATION

BUILDING STRUCTURE.

PATHWAYS FOR FIRE ALARM: THE PATHWAY SYSTEM FOR FIRE ALARM SHALL BE

DO NOT INSTALL ADDRESSABLE DEVICES IN AREAS SUBJECT TO TEMPERATURE

ADDRESSABLE MONITOR MODULES REMOTELY LOCATED WITHIN AN ADJACENT

EXTREMES. USE CONVENTIONAL INITIATING DEVICES SUPERVISED BY

COMPLY WITH DIVISION 26 FOR APPLICATION AND INSTALLATION OF EMT, IMC, RGS, FMC, AND LFMC WITH RESPECT TO ENVIRONMENTAL CONDITIONS AND RESISTANCE TO PHYSICAL DAMAGE.

PATHWAYS BENEATH SLAB, WITHIN SLAB, AND BURIED: COMPLY WITH DIVISION 26 FOR APPLICABLE RNC INSTALLATION REQUIREMENTS. CLASS A AND X PATHWAYS: UNLESS GREATER DISTANCES ARE INDICATED ON

THE DRAWINGS OR SPECIFICATIONS, INSTALL CLASS A AND X PATHWAYS IN COMPLIANCE WITH NFPA 72 RECOMMENDATIONS FOR MINIMUM HORIZONTAL

AND VERTICAL SEPARATION BETWEEN SUPPLY AND RETURN PATHWAYS. SYSTEM SPOT-TYPE FIRE DETECTOR INSTALLATION

DEDICATED CONTINUOUS METAL RACEWAY THROUGHOUT.

LOCATE SPOT-TYPE FIRE DETECTORS IN A MANNER THAT READILY PERMITS ACCESS – WITHOUT THE NEED OF A LIFT - FROM THE FLOOR BELOW FOR DETECTOR INSPECTION, TESTING, AND MAINTENANCE.

INSTALL FIRE DETECTORS ONLY AFTER ALL DUST AND DEBRIS PRODUCING

WORK IS COMPLETED. MAINTAIN FACTORY PROVIDED DETECTOR COVERS ON FIRE DETECTORS UNTIL FIRE ALARM SYSTEM IS APPROVED FOR CLOSEOUT AND TURNOVER. INSTALL REMOTE ALARM INDICATORS IN A VISIBLE LOCATION AS REQUIRED BY NFPA 72 FOR CONCEALED FIRE DETECTORS AND AS INDICATED BY THE

DRAWINGS SPOT-TYPE SMOKE- AND HEAT-DETECTOR LOCATIONS AND SPACING:

COMPLY WITH DRAWINGS, AND:

SUBMIT NFPA 72 "STATEMENT OF COMPLETION" AND COMPLETED NFPA 72 "SYSTEM RECORD OF INSPECTION AND TESTING" REPORT. PROVIDE WRITTEN NOTIFICATIONS FOR ACCEPTANCE FIELD TESTS; INCLUDE TEST PLAN. NFPA 72 "STATEMENT OF COMPLETION". NFPA 72 "SYSTEM RECORD

OF INSPECTION AND TESTING" REPORT, AND NFPA 72 "SYSTEM RECORD OF

• COMPLY WITH NFPA 72 "SMOKE-SENSING FIRE DETECTORS".

• COMPLY WITH NFPA 72 "HEAT-SENSING FIRE DETECTORS".

PERFORM ACCEPTANCE FIELD TESTING, DEMONSTRATE SYSTEM OPERATION TO THE SATISFACTION OF THE AHJ. CORRECT AHJ NOTED DEFICIENCIES. REPEAT FUNCTIONAL TESTING INCLUDING RETESTING OF UNAFFECTED COMPONENTS IN ACCORDANCE WITH NFPA 72 FOR "REACCEPTANCE TESTING". AMEND NFPA 72 "SYSTEM RECORD OF INSPECTION AND TESTING" REPORT, AND NFPA 72 "SYSTEM RECORD OF COMPLETION".

PLACE SYSTEM INTO NORMAL OPERATING SERVICE WITHOUT SYSTEM FAULTS OR OUTSTANDING WORK.

PART 3 - EXECUTION

NOTIFICATION APPLIANCE INSTALLATION

COMPLY WITH DRAWINGS AND NFPA 72 "NOTIFICATION APPLIANCES". WALL-MOUNTED AUDIBLE NOTIFICATION APPLIANCES: INSTALL WITH TOP OF APPLIANCE NOT LESS THAN 6 INCHES BELOW THE FINISHED CEILING AND NOT LESS THAN 90 INCHES BELOW THE FINISHED FLOOR.

WALL-MOUNTED VISIBLE AND -COMBINATION AUDIBLE/VISIBLE NOTIFICATION APPLIANCES: INSTALL WITH TOP OF APPLIANCE NOT LESS THAN 6 INCHES BELOW THE FINISHED CEILING AND THE ENTIRE APPLIANCE STROBE LENS NOT LESS THAN 80 INCHES AND NOT MORE THAN 96 INCHES ABOVE THE FINISHED FLOOR.

INSTALL ALL WALL-MOUNTED NOTIFICATION APPLIANCES WITH TOP OF APPLIANCE AT A COMMON ELEVATION WITH RESPECT TO FINISHED FLOOR. CONNECTIONS AND INTERFACES

MAKE CONNECTIONS TO PREMISES BUILDING SYSTEMS AND COMPONENTS VIA ADDRESSABLE INTERFACE MODULES. INCLUDE NECESSARY INTERFACE MODULES, RELAYS, WIRING, RESISTORS, AND COMPONENTS AS REQUIRED TO ACHIEVE THE INPUT/OUTPUT SEQUENCE OF OPERATIONS PERFORMANCE CRITERIA INDICATED BY THE DRAWINGS.

COORDINATE VOLTAGE AND CURRENT RATINGS OF CONNECTED COMPONENTS SUCH THAT CONNECTIONS AND INTERFACES OPERATE WITHIN LISTED LIMITATIONS. USE INTERPOSING RELAYS WHERE CONNECTED LOADS EXCEED RATING OF ADDRESSABLE INTERFACE MODULES.

ARRANGE CONNECTIONS AND INTERFACES SUCH THAT CIRCUITS ARE MONITORED FOR INTEGRITY AS REQUIRED BY NFPA 72.

INTERFACE TO PREMISES SYSTEMS AND COMPONENTS REQUIRING FIRE ALARM SUPERVISION OF STATUS WITH ADDRESSABLE INTERFACE MONITOR MODULES. INTERFACE TO PREMISES PREACTION SPRINKLER SOLENOIDS AND/OR FIRE EXTINGUISHING SYSTEM ACTUATORS WITH ADDRESSABLE INTERFACE CONTROL MODULES LISTED FOR RELEASING SERVICE. INSTALL A KEY OPERATED MAINTENANCE DISCONNECT SWITCH IN THE RELEASING CIRCUIT TO PERMIT FIRE ALARM SYSTEM COMPONENT TESTING WITHOUT SOLENOID/ACTUATOR RELEASE. OPERATION OF THE MAINTENANCE DISCONNECT SWITCH BE MONITORED BY THE FIRE ALARM SYSTEM AS A

INTERFACE TO PREMISES SYSTEMS AND COMPONENTS REQUIRING EMERGENCY CONTROL FUNCTION INTERFACE WITH ADDRESSABLE INTERFACE RELAY MODULES INSTALLED WITHIN 36 INCHES OF THE INTERFACE WIRING TERMINATION POINT.

EACH ADDRESSABLE INTERFACE RELAY MODULE USED FOR EMERGENCY CONTROL FUNCTION INTERFACE SHALL INCLUDE ONE (1) SET OF SPARE CONTACTS FOR MONITORING CONNECTION TO THE PREMISES BUILDING MANAGEMENT SYSTEM, SECURITY SYSTEM, OR SIMILAR SECONDARY PREMISES

FOR EACH HVAC AIR DISTRIBUTION UNIT, COORDINATE WITH DIVISION 23 FOR EXACT INTERFACE REQUIREMENTS, QUANTITY OF FAN DRIVES, AND DETAILED SEQUENCING FOR PROPER SHUTDOWN OF THE ASSOCIATED AIR DISTRIBUTION EQUIPMENT.

NEC CLASSIFIED HAZARDOUS LOCATIONS

SUPERVISORY CONDITION.

COMPLY WITH NFPA 70 AND DIVISION 26.

IDENTIFICATION

IDENTIFY SYSTEM COMPONENTS, WIRING, CABLING, AND TERMINALS. COMPLY WITH DIVISION 26.

LABEL ADDRESSABLE INITIATING DEVICES AND BASES AND NOTIFICATION APPLIANCES. COMPLY WITH DRAWINGS.

INSTALL FRAMED INSTRUCTIONS ADJACENT TO THE FIRE ALARM CONTROL UNIT. INSTALLED INSTRUCTIONS SHALL BE TYPEWRITTEN COMPUTER PRINTOUT INSTRUCTION CARD MOUNTED BEHIND A PLASTIC OR GLASS COVER IN A STAINLESS-STEEL OR ALUMINUM FRAME. INCLUDE INTERPRETATION AND DESCRIBE APPROPRIATE RESPONSE FOR DISPLAYS AND SIGNALS. BRIEFLY DESCRIBE THE FUNCTIONAL OPERATION OF THE SYSTEM UNDER NORMAL. ALARM, AND TROUBLE CONDITIONS.

<u>GROUNDING</u>

FOR GROUNDING.

COMPLY WITH DIVISION 26. COMPLY WITH FIRE ALARM SYSTEM MANUFACTURER INSTALLATION GUIDELINES

GROUND FIRE ALARM CONTROL UNIT AND ASSOCIATED CIRCUITS; COMPLY WITH IEEE 1100. INSTALL A GROUND WIRE FROM MAIN SERVICE GROUND TO FIRE ALARM CONTROL UNIT

FIELD QUALITY CONTROL DEVICES INSTALLED BUT NOT YET PLACED IN SERVICE SHALL BE PROTECTED FROM CONSTRUCTION DUST, DEBRIS, DIRT, MOISTURE, AND DAMAGE ACCORDING TO MANUFACTURER'S WRITTEN STORAGE INSTRUCTIONS.

DEVICES PLACED IN SERVICE BEFORE ALL OTHER TRADES HAVE COMPLETED CLEANUP SHALL BE REPLACED.

SYSTEM MANUFACTURER'S FACTORY-AUTHORIZED SERVICE TECHNICIANS. SMOKE CONTROL SYSTEMS: IN ADDITION TO DIV. 28 FIRE ALARM SYSTEM INSPECTION AND TESTING REQUIREMENTS, PERFORM ADDITIONAL INSPECTIONS AND INTEGRATED FUNCTIONAL TESTING AS REQUIRED TO SUPPORT SMOKE CONTROL SYSTEM SPECIAL INSPECTIONS COMMISSIONING. PREPARE A TYPEWRITTEN COMPUTER-OUTPUT TEST PLAN THAT CLEARLY ESTABLISHES THE SCOPE OF FIRE ALARM AND SIGNALING SYSTEM TESTING. INCLUDE AT A MINIMUM TESTING METHODS, PERSONNEL, DURATION, PLANNED

FIELD INSPECTIONS AND TESTING SHALL BE PERFORMED BY FIRE ALARM

EMERGENCY CONTROL FUNCTION INTERFACES. FUNCTIONAL FIELD TESTS SHALL BE WITNESSED BY THE CONSTRUCTION MANAGER (CM) AND THEIR DESIGNEES; PROVIDE NOTIFICATIONS A MINIMUM OF

IMPAIRMENTS, AND REQUIRED COORDINATION FOR INTEGRATED TESTING OF

TWO (2) WEEKS IN ADVANCE. ACCEPTANCE FIELD TESTING SHALL BE WITNESSED BY THE CM, THEIR DESIGNEES, AND AUTHORITIES HAVING JURISDICTION (AHJ); PROVIDE NOTIFICATIONS A MINIMUM OF TWO (2) WEEKS IN ADVANCE.

MANUFACTURER RECOMMENDATIONS AND NFPA 72 FOR INITIAL ACCEPTANCE INSPECTIONS. CORRECT DEFICIENCIES. DOCUMENT INSPECTIONS BY COMPLETING APPLICABLE SECTIONS OF THE NFPA 72 "SYSTEM RECORD OF INSPECTION AND TESTING" REPORT.

PROVIDE WRITTEN NOTIFICATIONS FOR FUNCTIONAL FIELD TESTS; INCLUDE

PERFORM VISUAL INSPECTIONS IN ACCORDANCE WITH FIRE ALARM SYSTEM

PERFORM FUNCTIONAL TESTING IN ACCORDANCE WITH ACCORDANCE WITH FIRE ALARM SYSTEM MANUFACTURER RECOMMENDATIONS AND NFPA 72 FOR "INITIAL ACCEPTANCE TESTING". CORRECT DEFICIENCIES. REPEAT FUNCTIONAL TESTING INCLUDING RETESTING OF UNAFFECTED COMPONENTS IN ACCORDANCE WITH NFPA 72 FOR "REACCEPTANCE TESTING". FOR MODIFICATIONS OF EXISTING SYSTEMS, PERFORM FUNCTIONAL TESTING IN ACCORDANCE WITH FIRE ALARM SYSTEM MANUFACTURER RECOMMENDATIONS

DOCUMENT 100 PERCENT SATISFACTORY FUNCTIONAL TESTS BY COMPLETING REMAINING SECTIONS OF THE NFPA 72 "SYSTEM RECORD OF INSPECTION AND

SUBMIT NFPA 72 "STATEMENT OF COMPLETION" AND COMPLETED NFPA 72 "SYSTEM RECORD OF INSPECTION AND TESTING" REPORT.

MAINTENANCE SERVICE

AND NFPA 72 FOR "REACCEPTANCE TESTING".

INITIAL MAINTENANCE SERVICE: BEGINNING AT SUBSTANTIAL COMPLETION. MAINTENANCE SERVICE SHALL INCLUDE TWELVE (12) MONTHS' FULL MAINTENANCE BY SKILLED EMPLOYEES OF MANUFACTURER'S DESIGNATED SERVICE ORGANIZATION. PARTS AND SUPPLIES SHALL BE MANUFACTURER'S PERFORM VISUAL INSPECTIONS AT INTERVALS REQUIRED BY NFPA 72

CHAPTER "INSPECTION, TESTING, AND MAINTENANCE".

"INSPECTION, TESTING, AND MAINTENANCE". TECHNICAL SUPPORT: BEGINNING WITH SUBSTANTIAL COMPLETION, PROVIDE SOFTWARE SUPPORT FOR TWELVE (12) MONTHS. UPDATE SOFTWARE TO LATEST VERSION AT PROJECT COMPLETION, PROVIDE 30 DAYS' NOTICE TO OWNER TO ALLOW SCHEDULING AND ACCESS TO SYSTEM AND TO ALLOW

OWNER TO UPGRADE COMPUTER EQUIPMENT IF NECESSARY.

PERFORM TESTS AT INTERVALS REQUIRED BY NFPA 72 CHAPTER

EXISTING SYSTEMS WITH SERVICE AGREEMENTS: COMPLY WITH TERMS OF EXISTING SERVICE AGREEMENT. DEMONSTRATION

ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN FIRE ALARM SYSTEM.

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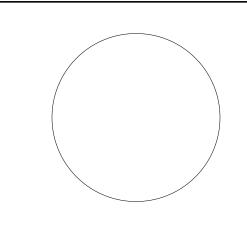
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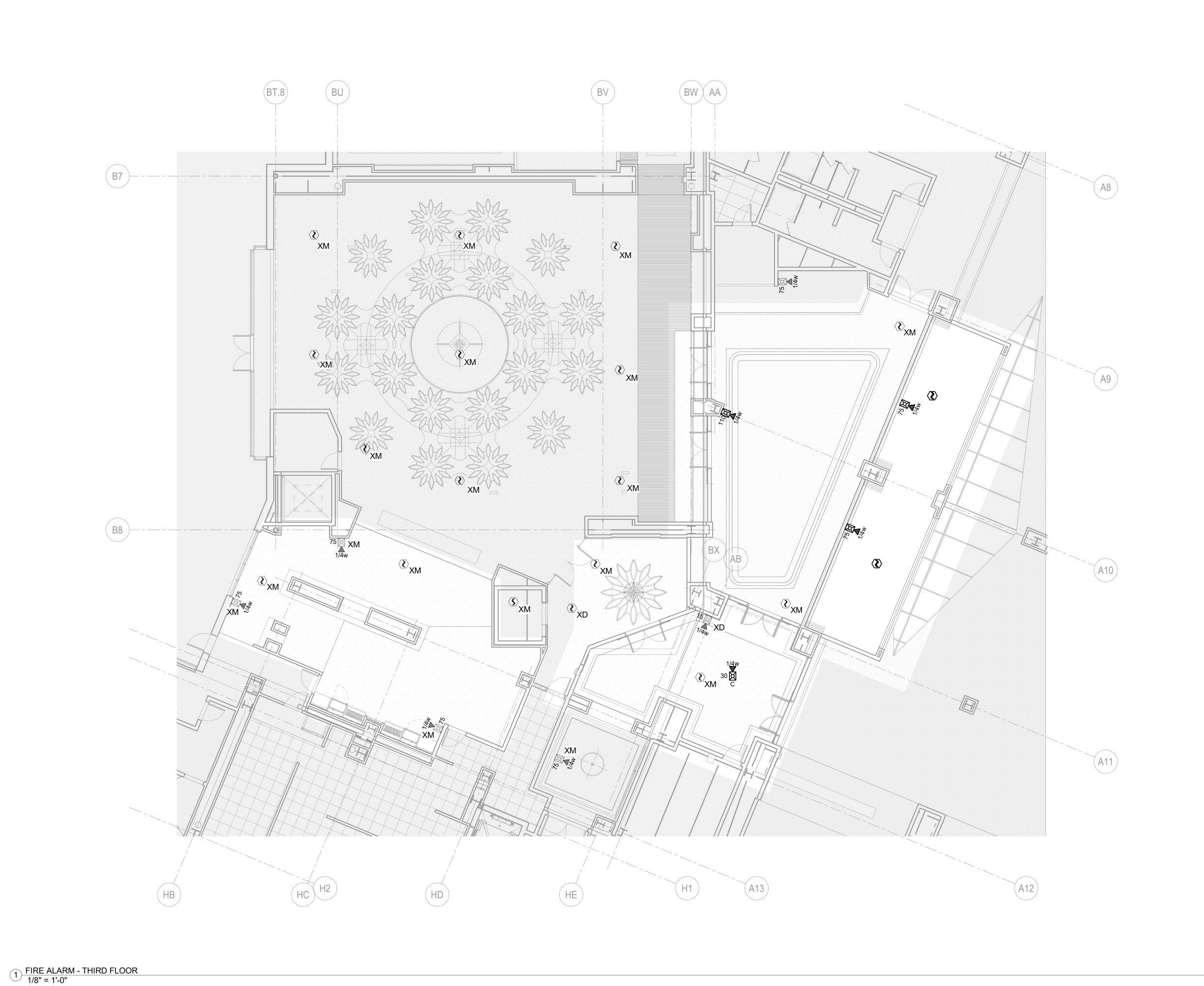
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SCALE NONE REVISIONS

DRAWN Author

FIRE ALARM

SPECIFICATIONS



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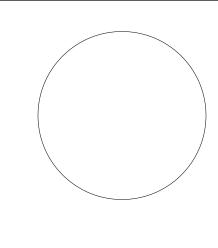
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BIDDING & CONSTRUCTION 07/06/2022



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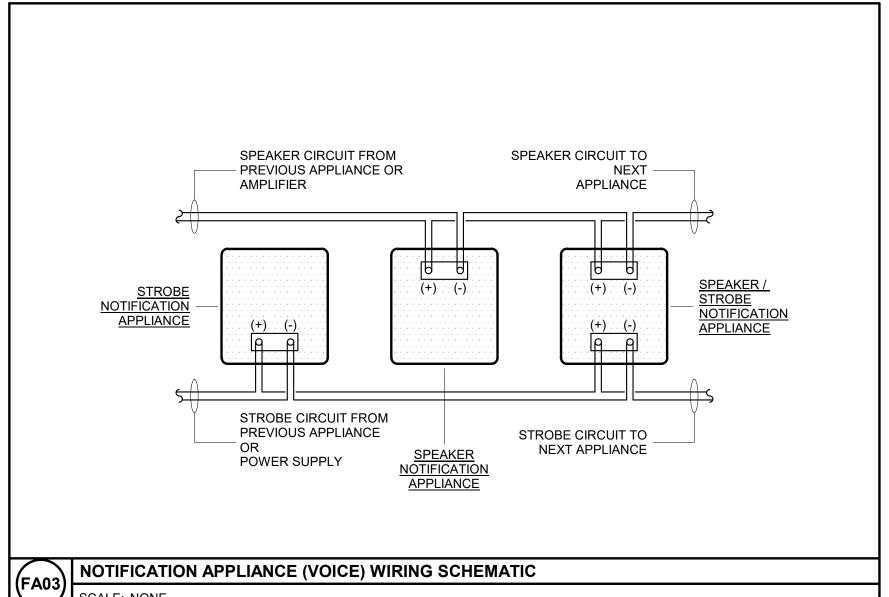
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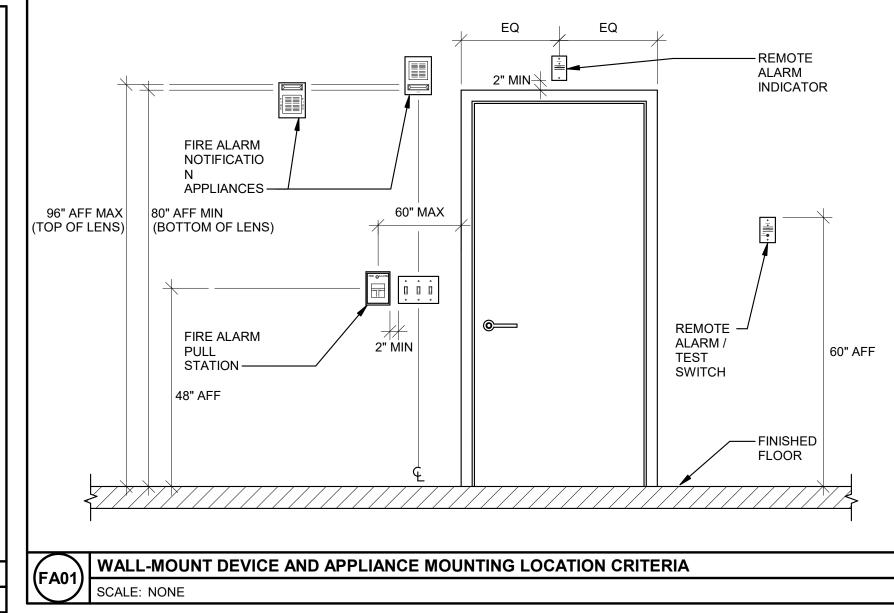
DRAWN Author

SCALE 1/8" = 1'-0"

REVISIONS

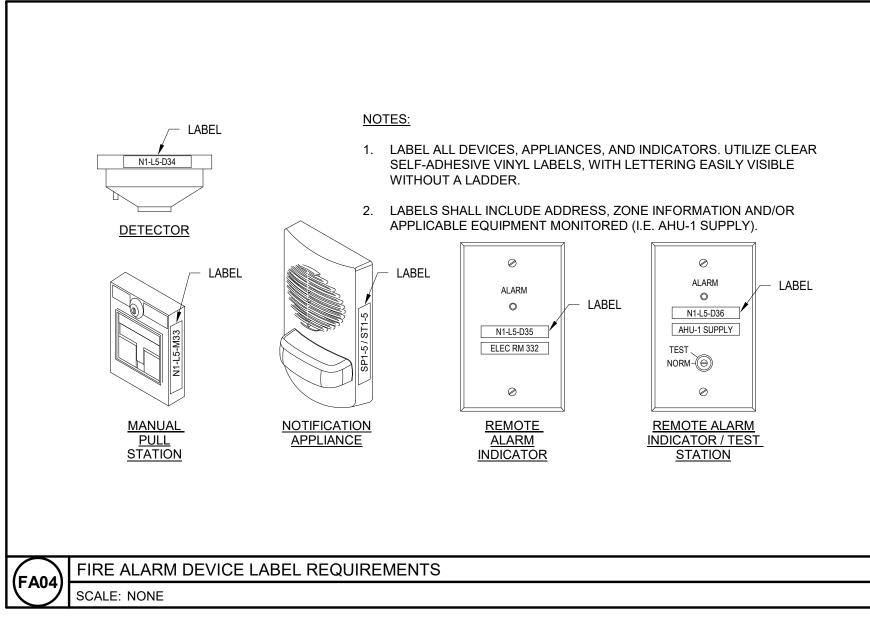
FIRE ALARM - THIRD FLOOR



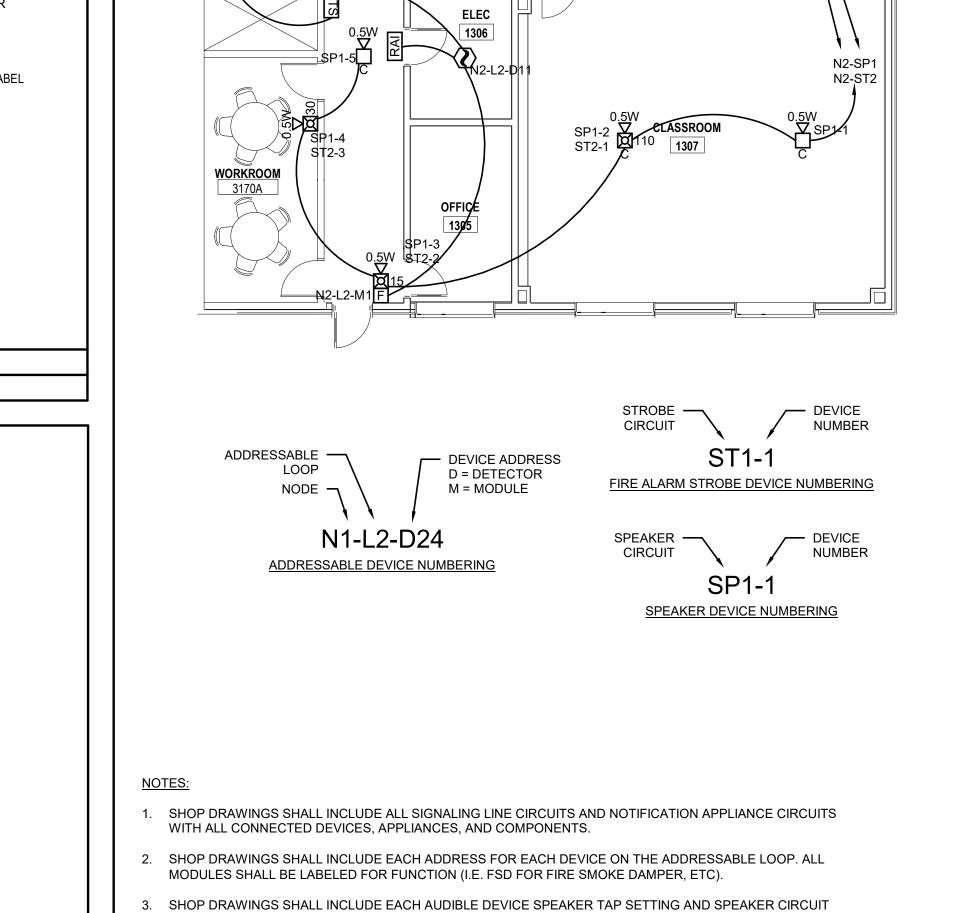


IDENTIFY THE CIRCUIT NUMBER —

IDENTIFY THE NODE NUMBER —



SCALE: NONE



4. SHOP DRAWINGS SHALL INCLUDE EACH VISIBLE DEVICE STROBE SETTING AND NAC CIRCUIT NUMBER.

FIRE ALARM SHOP DRAWING CONTENT REQUIREMENTS

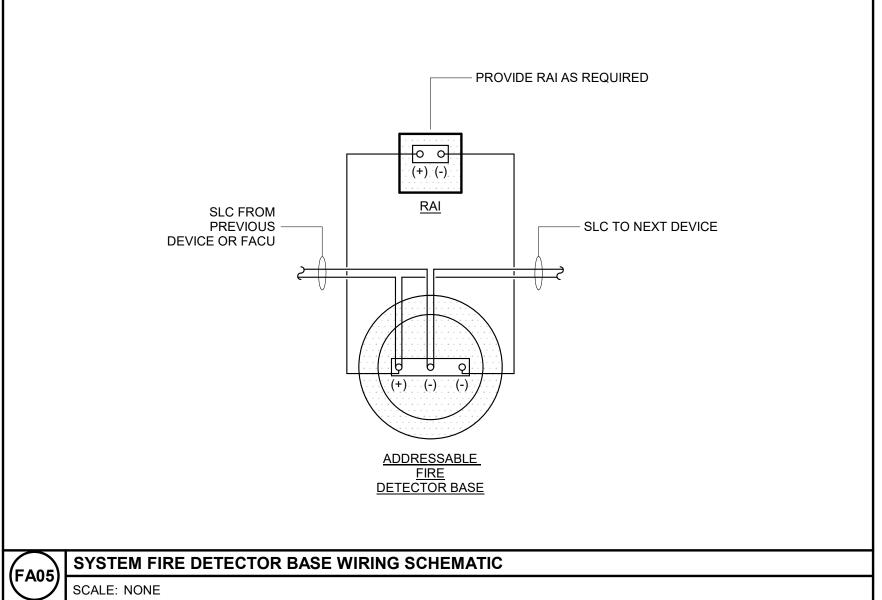
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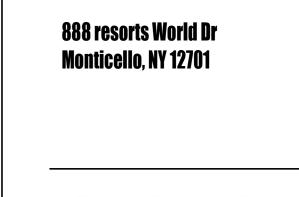
IDENTIFY THE NODE NUMBER

/ IDENTIFY THE

ADDRESSABLE

LOOP CARD NUMBER





CROCKFORDS -

CATSKILLS

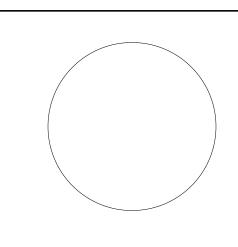
RESORTS WORLD

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BIDDING & CONSTRUCTION 07/06/2022



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REVISIONS

FIRE ALARM DETAILS

PREACTION / CLEAN AGENT FIRE ALARM & SIGNALING VISUAL FLASHING BEACON AUDIBLE ALARM BELL X MANUAL PULL STATION - FIRE SUPPRESSION SYSTEM RELEASE MANUAL PUSH BUTTON - FIRE SUPPRESSION SYSTEM ABORT AIR SAMPLING SMOKE DETECTOR ADSP AIR SAMPLING SMOKE DETECTOR POWER SUPPLY FSRU FIRE SUPPRESSION RELEASING CONTROL UNIT KMS KEY MAINTENANCE SWITCH CM CONTROL MODULE MM MONITOR MODULE

ABBREVIATIONS

ADDRESSABLE INTERFACE MODULES

CLEAN AGENT DISCHARGE (MM)
KEY MAINTENANCE SWITCH (MM)

LOW AIR OR WATER SPRINKLER / STANDPIPE SYSTEM PRESSURE (MM)

RCA ENERGIZE CLEAN AGENT RELEASING ACTUATOR (RM)
RSL ENERGIZE PREACTION SPRINKLER RELEASING SOLENOID (RM)
RS SPRINKLER / STANDPIPE VALVE TAMPER SWITCH IN OFFNORMAL POSITION (MM)
RCA ENERGIZE PREACTION SPRINKLER RELEASING SOLENOID (RM)
RS SPRINKLER / STANDPIPE VALVE TAMPER SWITCH IN OFFNORMAL POSITION (MM)
RCA ENERGIZE PREACTION (MM)
RCA ENERGIZE PREACTION (MM)
RCA ENERGIZE PREACTION (MM)
RCA ENERGIZE CLEAN AGENT ACTUATOR CONTROL HEAD TAMPER SWITCH IN OFF-NORMAL POSITION (MM)
RCA ENERGIZE CLEAN AGENT ACTUATOR CONTROL HEAD TAMPER SWITCH IN OFF-NORMAL POSITION (MM)
RCA ENERGIZE CLEAN AGENT RELEASING ACTUATOR (RM)
RCA ENERGIZE PREACTION SPRINKLER SWITCH IN OFFNORMAL POSITION (MM)
RCA ENERGIZE PREACTION SPRINKLER SWITCH IN OFFNORMAL POSITION (MM)
RCA ENERGIZE PREACTION SPRINKLER SWITCH IN OFFNORMAL POSITION (MM)
RCA ENERGIZE PREACTION SPRINKLER SWITCH IN OFFNORMAL POSITION (MM)
RCA ENERGIZE PREACTION SPRINKLER SWITCH IN OFFNORMAL POSITION (MM)
RCA ENERGIZE PREACTION SPRINKLER SWITCH IN OFFNORMAL POSITION (MM)

SYMBOLS SINGLE-LINE SYMBOLS - VALVES AND PIPE ACCESSORIES CHECK VALVE FLOW METER INDICATING ISOLATION VALVE INDICATING PRESSURE REGULATING ISOLATION VALVE NON-INDICATING (DRAIN) VALVE PILOT OPERATED PRESSURE CONTROL VALVE PILOT OPERATED PRESSURE RELIEF VALVE POST INDICATING ISOLATION VALVE PRESSURE GAUGE PRESSURE GAUGE PRESSURE RELIEF VALVE (SPRING OPERATED) SELECTOR VALVE (GASEOUS AGENTS / WATER MIST) H TEST AND DRAIN VALVE WATER FLOW SWITCH

SINGLE-LINE SYMBOLS - RISER AND ALARM CHECK VALVES

WET-PIPE RISER CHECK VALVE

WET-PIPE ALARM CHECK VALVE

DRY-PIPE ALARM CHECK VALVE

PREACTION ALARM CHECK VALVE

DELUGE ALARM CHECK VALVE

WET SYSTEM AIR RELEASE VENT

BACKFLOW PREVENTER - DOUBLE CHECK VALVE ASSEMBLY

BACKFLOW PREVENTER - REDUCED PRESSURE ZONE ASSEMBLY

SINGLE-LINE SYMBOLS - BACKFLOW PREVENTERS

SINGLE-LINE SYMBOLS - FIRE HOSE VALVES

FIRE HOSE VALVE

FIRE HOSE VALVE - PRESSURE REGULATING TYPE

FIRE HOSE VALVE AND HOSE REEL

FIRE HOSE VALVE CABINET

FIRE HOSE VALVE / HOSE REEL CABINET

SINGLE-LINE SYMBOLS - CONNECTIONS

FDC FIRE DEPARTMENT INLET CONNECTION

FIRE DEPARTMENT OUTLET HYDRANT CONNECTION

TH FIRE PUMP TEST HEADER CONNECTION

SYMBOLS SPRINKLERS AND NOZZLES PENDENT FRAME STANDARD SPRAY PATTERN SPRINKLER UPRIGHT FRAME STANDARD SPRAY PATTERN SPRINKLER SIDEWALL FRAME STANDARD SPRAY PATTERN SPRINKLER PEC PENDENT FRAME EXTENDED COVERAGE SPRAY PATTERN SPRINKLER UPRIGHT FRAME EXTENDED COVERAGE SPRAY PATTERN SPRINKLER CEC UPRIGHT FRAME EXTENDED COVERAGE SPRAY PATTERN SPRINKLER DRY DRY DRY DRY DRY PENDENT FRAME STANDARD SPRAY PATTERN DRY SPRINKLER

PENDENT FRAME STANDARD SPRAY PATTERN DRY SPRINKLER

DRY
UPRIGHT FRAME STANDARD SPRAY PATTERN DRY SPRINKLER

DRY
SIDEWALL FRAME STANDARD SPRAY PATTERN DRY SPRINKLER

ESFR
PENDENT FRAME ESFR SPRINKLER

UPRIGHT FRAME ESFR SPRINKLER

CMSA

PENDENT FRAME CMSA STORAGE PROTECTION SPRINKLER

UPRIGHT FRAME CMSA STORAGE PROTECTION SPRINKLER

WS
PENDENT-VERTICAL SIDEWALL FRAME NRTL LISTED WINDOW
SPRINKLER

WS HORIZONTAL SIDEWALL FRAME NRTL LISTED WINDOW SPRINKLER

A

UPRIGHT FRAME NRTL LISTED ATTIC SPRINKLER

© UPRIGHT FRAME NRTL LISTED COMBUSTIBLE CONCEALED SPACE SPRINKLER

PENDENT FRAME RESIDENTIAL SPRINKLER

 $abla^{\mathsf{R}}$ SIDEWALL FRAME RESIDENTIAL SPRINKLER

PENDENT FRAME STANDARD SPRAY PATTERN OPEN DELUGE SPRINKLER

UPRIGHT FRAME STANDARD SPRAY PATTERN OPEN DELUGE

SIDEWALL FRAME STANDARD SPRAY PATTERN OPEN DELUGE SPRINKLER

360-DEGREE DISCHARGE NOZZLE

180-DEGREE DISCHARGE NOZZLE

EXISTING EQUIPMENT*

* DASHED LINE-TYPE APPLIES UNIFORMLY TO EXISTING DIV. 21 EQUIPMENT AND PIPING; SYMBOLS SHOWN ARE REPRESENTATIVE.

EXISTING DIV. 21 EQUIPMENT AND PIPING

EXISTING SPRINKLER OR NOZZLE

REMOVAL OF EXISTING SPRINKLER OR NOZZLE

GENERAL ANNOTATION

x SECTION NUMBER

dwg DRAWING NUMBER

elevation number dwg drawing number

DETAIL / PART-PLAN NUMBER

dwg

DRAWING NUMBER

RISER DESIGNATION - SYSTEM TYPE

RISER DESIGNATION - RISER NUMBER

BEAM PENETRATION

CONNECT TO EXISTING

DIRECTION OF SLOPE

FLOW ARROW

HYDRAULIC CALCULATION NODE

KEY NOTE

NOTE - NOT ALL SYMBOLS USED FOR THIS PROJECT

ABBREVIATIONS

GENERAL ACOUSTICAL CEILING TILE ABOVE FINISH FLOOR ABOVE FINISH GRADE **AUTHORITY HAVING JURISDICTION** ARCHITECT BLDG BUILDING BOP BOR **BOTTOM OF PIPE** BOTTOM OF RISER CENTER LINE CMU CONT CONCRETE MASONRY UNIT CONTINUATION DN DWG ELEC DOWN DRAWING ELECTRICAL ELEV EX **ELEVATION EXISTING** GALV GPM GWB GALVANIZED **GALLONS PER MINUTE** GYPSUM WALL BOARD HAZMAT HAZARDOUS MATERIAL INTERLOCK MAXIMUM MINIMUM MECHANICAL MISC MISCELLANEOUS METERS MILLIMETERS NOT APPLICABLE NO AUTOMATIC SPRINKLERS NATIONAL HOSE STANDARD NORMALLY CLOSED NOT IN CONTRACT NORMALLY OPEN NRTL NATIONALLY RECOGNIZED TESTING LABORATORY NTS OED NOT TO SCALE OPEN-END DRAIN QTY SQFT SQM QUANTITY SQUARE FEET **SQUARE METERS** LITERS PER MINUTE TEMPERATURE TOP OF RISER

CLEAN AGENT DRY STANDPIPE FEED-MAIN DRY SPRINKLER DRY STANDPIPE FIRE DEPARTMENT CONNECTION FOAM-WATER SPRINKLER FIRE WATER SERVICE HIGH PRESSURE CARBON DIOXIDE

SYSTEM DESIGNATIONS

FWS FIRE WATER SERVICE
HCO2 HIGH PRESSURE CARBON DIOXIDE
LCO2 LOW PRESSURE CARBON DIOXIDE
PSP PREACTION SPRINKLER
SD SPRINKLER DRAIN
WBFS WATER-BASED FIRE SUPPRESSION
WCST WET COMBINATION SPRINKLER / STANDPIPE
WFM WET STANDPIPE FEED-MAIN
WSP WET SPRINKLER
WST WET STANDPIPE
WMST WATER MIST

TYPICAL

WITH

CA DFM DSP

EQUIPMENT & MATERIALS

ALARM CHECK VALVE AUTOMATIC TRANSFER SWITCH BACKFLOW PREVENTER BUTTERFLY OR BALL INDICATING VALVE DRY-PIPE ALARM VALVE DVCA DOUBLE CHECK VALVE ASSEMBLY DOUBLE CHECK VALVE DETECTOR ASSEMBLY DRY-PIPE MAIN RISER ASSEMBLY FIRE HOSE VALVE FIRE HOSE VALVE CABINET FHZC FIRE HOSE VALVE & ZONE CONTROL ASSEMBLY FIRE PUMP CONTROLLER FPUC-# FOAM-WATER SPRINKLER MAIN RISER ASSEMBLY FLOW SWITCH LPS LOW PRESSURE SWITCH NON RISING STEM GATE VALVE OSY OUTSIDE SCREW & YOKE INDICATING VALVE POST INDICATING VALVE POST INDICATING VALVE - WALL MOUNT PRESSURE MAINTENANCE PUMP PRESSURE MAINTENANCE PUMP CONTROLLER PREACTION MAIN RISER ASSEMBLY PREACTION MAIN RISER ASSEMBLY CABINET PRESSURE REGULATING VALVE PRESSURE SWITCH REDUCED PRESSURE ZONE ASSEMBLY SPRINKLER DRAIN RISER TEST HEADER TAMPER SWITCH

VARIABLE FREQUENCY DRIVE WET-PIPE ALARM VALVE

ZONE CONTROL ASSEMBLY

WET-PIPE MAIN RISER ASSEMBLY

ZONE CONTROL ASSEMBLY CABINET

NOTE - NOT ALL ABBREVIATIONS USED FOR THIS PROJECT

VFD

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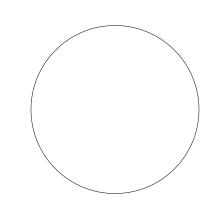
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SCALE NONE

REVISIONS

FIRE PROTECTION -SYMBOLS & ABBREVIATIONS

SPRINKLER SYSTEM DESIGN CRITERIA - NFPA 13

OCCUPANCY CLASSIFICATION	AREA DESCRIPTION	DESIGN DENSITY (GPM/SQ FT)	CALCULATION AREA (SQ FT)	MAX AREA PER SPRINKLER (SQ FT)	HOSE ALLOWANCE (GPM)
LIGHT HAZARD	OFFICE SPACE, LOBBY, COMMON AREA, RESTROOMS	0.10	1500	225	100
LIGHT HAZARD	MEETING ROOM, CONFERENCE ROOM	0.10	1500	225	100
ORDINARY HAZARD I	MECHANICAL ROOM ELECTRICAL ROOM, TEL/DATA	0.15	1500	130	250
ORDINARY HAZARD I	RETAIL STORAGE ROOMS LINDER 12-FEET	0.15	1500	130	250

MODIFICATIONS TO EXISTING SYSTEMS

- PREPARE, IN NARRATIVE AND DRAWING FORMAT AS DIRECTED BY THE AUTHORITY OF HAVING JURISDICTION, A FORMAL IMPAIRMENT PLAN.
- COORDINATE IMPAIRMENT PLAN WITH GENERAL CONTRACTOR FOR INCORPORATION INTO THE NFPA 241 FIRE SAFETY PROGRAM PREPARED BY THE GENERAL CONTRACTOR.
- IMPAIRMENT PLAN SHALL IDENTIFY THE BUILDING OCCUPANCY (OR VACANCY) DURING CONSTRUCTION AND NATURE OF THE SYSTEM IMPAIRMENT.
- PERMITTED BY THE AUTHORITY HAVING JURISDICTION BEFORE ALTERNATE PROTECTION OR FIRE WATCHES ARE NECESSARY.

IMPAIRMENT PLAN SHALL IDENTIFY MAXIMUM IMPAIRMENT DURATION

- IMPAIRMENT PLAN SHALL IDENTIFY THE DURATION AND TIMING OF FIRE SUPPRESSION SYSTEM SHUTDOWNS AND RESULTANT REQUIREMENT FOR TEMPORARY LINEAR HEAT DETECTION, IF ANY.
- IMPAIRMENT PLAN SHALL IDENTIFY THE NEED FOR FIRE WATCHES, IF ANY. IMPAIRMENT PLAN SHALL IDENTIFY THE NECESSARY PROVISIONS FOR
- TEMPORARY PIPING CONNECTIONS TO EXISTING FIRE SUPPRESSION SYSTEMS TO REMAIN IN SERVICE.
- IMPAIRMENT PLAN SHALL IDENTIFY ADDITIONAL PROTECTION FEATURES

AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

- SPRINKLERS OUTSIDE OF RENOVATION WORK AREA. SPRINKLERS PROTECTING AREAS ADJACENT TO THE RENOVATION WORK AREA MUST REMAIN IN SERVICE THROUGHOUT THE DURATION OF CONSTRUCTION. PROVIDE TEMPORARY PIPING CONNECTIONS AS NECESSARY TO MAINTAIN SERVICE UNTIL NEW PIPING SYSTEMS ARE COMPLETED.
- SPRINKLERS WITHIN RENOVATION WORK AREA. MAINTAIN SPRINKLER PROTECTION WITHIN THE RENOVATION WORK AREA TO THE GREATEST EXTENT PRACTICABLE. FOR SPRINKLERS SYSTEMS REQUIRING DRAIN-DOWN, REFILL SPRINKLER PIPING AT END OF EACH WORK SHIFT; OR WHERE REFILL IS NOT PRACTICABLE PROVIDE ALTERNATE PROTECTION OR FIRE WATCHES AS DIRECTED BY THE AUTHORITY HAVING JURISDICTION.
- PROTECTION. PROTECT EXISTING FIRE SUPPRESSION EQUIPMENT FROM DUST, DEBRIS, PAINT, SPRAY-ON FIRE-PROOFING, AND SIMILAR THROUGHOUT THE DURATION OF CONSTRUCTION. REPLACE WITH NEW EXISTING SPRINKLERS THAT BECOME DAMAGED, PAINTED, SPRAYED OR
- RENOVATION WORK AREA ON MULTIPLE FLOORS. NO TWO ADJACENT FLOOR SPRINKLER SYSTEMS SHALL BE IMPAIRED SIMULTANEOUSLY.
- FIRE DEPARTMENT CONNECTIONS. ALL BUILDING FIRE DEPARTMENT CONNECTIONS MUST REMAIN IN SERVICE THROUGHOUT THE DURATION OF CONSTRUCTION. PROVIDE TEMPORARY PIPING CONNECTIONS AS NECESSARY TO MAINTAIN SERVICE UNTIL NEW PIPING SYSTEMS ARE COMPLETED.
- WET STANDPIPES. AT LEAST ONE BUILDING WET-PIPE STANDPIPE MUST REMAIN IN SERVICE THROUGHOUT THE DURATION OF CONSTRUCTION. ALL BUILDING WET-PIPE STANDPIPES MUST REMAIN IN SERVICE DURING NORMAL BUSINESS HOURS.
- EXISTING IDENTIFICATION. REPLACE EXISTING FIRE SUPPRESSION SIGNAGE, GRAPHICS, FRAMED MAPS, AND SIMILAR WITH NEW AS
- EXISTING DOCUMENTATION. AMEND EXISTING PROPERTY RECORDS WITH SUPPLEMENTAL FIRE SUPPRESSION RECORD DOCUMENTATION INCLUDING DRAWINGS AND TEST REPORTS FOR THE ALTERATION WORK PERFORMED.

REQUIRED TO REFLECT FIRE SUPPRESSION SYSTEM MODIFICATIONS.

DOCUMENT SUBMITTAL PROCESS

- THE DESIGN CONTENT OF THESE DRAWINGS IS INTENDED TO SATISFY THE STATE BUILDING CODE REQUIREMENTS FOR CONSTRUCTION DOCUMENTS. WHEN STAMPED AND SEALED BY THE ENGINEER OF RECORD THEY ARE INTENDED TO BE USED AS PART OF THE BUILDING PERMIT APPLICATION ONLY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING A COMPLETE SHOP DRAWING SUBMITTAL INCLUSIVE OF ALL INFORMATION REQUIRED BY THE STATE BUILDING CODE AND THE CONSTRUCTION DOCUMENTS. SHOP DRAWINGS REVIEWED BY THE ENGINEER OF RECORD SHALL BE USED FORSUPPLEMENTAL FIRE PROTECTION SYSTEM INSTALLATION PERMITS OR SUBMITTALS WHERE SUCH PERMITS OR SUBMITTALS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING A COMPLETE RECORD DRAWING SUBMITTAL INCLUSIVE OF ALL FIELD CHANGES AND ALL INFORMATION REQUIRED BY THE STATE BUILDING CODE AND THE CONSTRUCTION DOCUMENTS.
- SHOP DRAWINGS AND RECORD DRAWING SUBMITTALS SHALL BE PREPARED BY THE CONTRACTOR'S QUALIFIED ENGINEERING TECHNICIAN AND SHALL INDICATE THE TECHNICIAN'S NICET CERTIFICATION NUMBER OR PROFESSIONAL ENGINEERING SEAL & SIGNATURE AS REQUIRED BY THE CONSTRUCTION DOCUMENTS.
- THE ENGINEER OF RECORD SHALL NOT SIGN AND SEAL SHOP DRAWING OR RECORD DRAWING SUBMITTALS PREPARED BY THE CONTRACTOR. WHERE THE AUTHORITY HAVING JURISDICTION REQUIRES SHOP DRAWING OR RECORD DRAWING SUBMITTALS TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, THE SUBMITTALS SHALL BE PREPARED BY A QUALIFIED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR.

INSPECTION AND TESTING

- PREPARE A TYPEWRITTEN COMPUTER-OUTPUT TEST PLAN THAT CLEARLY ESTABLISHES THE SCOPE OF FIRE SUPPRESSION SYSTEM TESTING. INCLUDE AT A MINIMUM TESTING METHODS, PERSONNEL, DURATION, PLANNED IMPAIRMENTS, AND REQUIRED COORDINATION FOR INTEGRATED TESTING OF EMERGENCY CONTROL FUNCTION INTERFACES. COORDINATE NFPA 3 "RECOMMENDED PRACTICE FOR COMMISSIONING OF FIRE PROTECTION AND LIFE SAFETY SYSTEMS" AND NFPA 4 "STANDARD FOR INTEGRATED FIRE PROTECTION AND LIFE SAFETY SYSTEM TESTING' REQUIREMENTS WITH THE FIRE AND LIFE SAFETY COMMISSION AGENT (FCxA) WHERE AN FCxA IS CONTRACTED BY THE OWNER.
- FUNCTIONAL FIELD TESTS SHALL BE WITNESSED BY THE CONSTRUCTION MANAGER (CM), THEIR DESIGNEES, AND WHEN CONTRACTED BY THE OWNER THE FIRE AND LIFE SAFETY COMMISSION AGENT (FCxA); PROVIDE NOTIFICATIONS A MINIMUM OF TWO (2) WEEKS IN ADVANCE.
- ACCEPTANCE FIELD TESTING SHALL BE WITNESSED BY THE CM, THEIR DESIGNEES, AND AUTHORITIES HAVING JURISDICTION (AHJ); PROVIDE NOTIFICATIONS A MINIMUM OF TWO (2) WEEKS IN ADVANCE.
- FLUSH, TEST, AND INSPECT SYSTEM PIPING IN ACCORDANCE WITH THE APPLICABLE NFPA WATER-BASED FIRE SUPPRESSION SYSTEM DESIGN AND INSTALLATION STANDARDS.
- HYDROSTATICALLY TEST SYSTEM PIPING IN ACCORDANCE WITH THE APPLICABLE NFPA WATER-BASED FIRE SUPPRESSION SYSTEM DESIGN AND INSTALLATION STANDARDS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.
- INSPECT AND ADJUST ALARM AND DELAY SETTINGS OF ALARM DEVICES. INSPECT AND ADJUST ALARM VALVE TRIM SETTINGS.
- INSPECT AND ADJUST AIR / NITROGEN SUPPLY AND DELIVERY SYSTEM
- INSPECT AND ADJUST PRESSURE RELIEF VALVES SUCH THAT NO WATER IS DISCHARGED UNDER NORMAL SYSTEM WORKING CONDITIONS. INSPECT AND ADJUST PRESSURE REGULATING VALVES IN ACCORDANCE
- VERIFY THAT EQUIPMENT HOSE THREADS ARE SAME AS LOCAL
- PROVIDE WRITTEN NOTIFICATIONS FOR FUNCTIONAL FIELD TESTS; INCLUDE TEST PLAN.

WITH THE MANUFACTURER'S RECOMMENDATIONS.

- FUNCTIONALLY TEST WATER-BASED FIRE SUPPRESSION SYSTEMS, INCLUDING REQUIRED FULL-FLOW TESTS. IN ACCORDANCE WITH THE APPLICABLE NFPA WATER-BASED FIRE SUPPRESSION SYSTEM DESIGN AND INSTALLATION STANDARDS. COMBINE TESTS TO CONSERVE WATER. CORRECT DEFICIENCIES AND RETEST SATISFACTORY RESULTS ARE
- REPEAT FUNCTIONAL TESTING AS REQUIRED BY THE FIRE AND LIFE SAFETY COMMISSION AGENT (FCxA) WHERE AN FCxA IS CONTRACTED BY
- PREPARE TEST AND INSPECTION REPORTS. USE NFPA "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE" FORMAT.
- PLACE SYSTEM INTO NORMAL OPERATING SERVICE WITHOUT SYSTEM IMPAIRMENTS OR OUTSTANDING WORK.

GENERAL REQUIREMENTS

- PURPOSE OF ENGINEERING DRAWINGS. THE DRAWINGS ARE DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE ABSOLUTELY PRECISE: THEY ARE NOT INTENDED TO SPECIFY OR TO SHOW EVERY REQUIRED COMPONENT OF THE SYSTEMS DESCRIBED. THE PURPOSE OF THE DRAWINGS IS TO INDICATE A SYSTEM CONCEPT. THE MAIN COMPONENTS OF THE SYSTEMS, AND THEIR APPROXIMATE GEOMETRIC RELATIONSHIPS. BASED UPON THE SYSTEMS CONCEPT, THE MAIN COMPONENTS, AND THEIR APPROXIMATE GEOMETRIC RELATIONSHIPS, PROVIDE ALL OTHER COMPONENTS AND MATERIALS NECESSARY TO MAKE THE SYSTEMS FULLY COMPLETE AND OPERATIONAL.
- MINIMUM PERFORMANCE REQUIREMENTS. INTERPRET DRAWING AND SPECIFICATION REQUIREMENTS THAT ARE MORE STRINGENT THAN FEDERAL, STATE, & MUNICIPAL CODE-MINIMUM AS DELIBERATELY CONSIDERED PERFORMANCE CRITERIA THAT ARE A MANDATORY PART OF THE WORK. WHERE DRAWINGS AND SPECIFICATIONS ARE SILENT ON A CODE REGULATED CONDITION, COMPLY WITH FEDERAL, STATE, & MUNICIPAL CODE-MINIMUM. COMPLY WITH NFPA STANDARD EDITIONS REFERENCED BY APPLICABLE FEDERAL, STATE, & MUNICIPAL CODES.
- DESIGN STANDARDS. COMPLY WITH NFPA [13, 14, 16, 20, & 2001].
- APPROVALS. PRODUCTS SHALL BE UL LISTED [AND | OR] FM APPROVED FOF FIRE PROTECTION DUTY AND THE INTENDED SERVICE APPLICATION.
- ALL WORK IS NEW. UNLESS SPECIFICALLY NOTED AS EXISTING, ALL COMPONENTS INDICATED BY THE DRAWINGS ARE NEW.
 - RELATED DOCUMENTS. THE NECESSARY UNDERSTANDING OF THE PROJECT SCOPE AND FIRE SUPPRESSION WORK CANNOT BE OBTAINED WITHOUT REVIEW OF ALL PROJECT DOCUMENTS. REVIEW COMPLETE PACKAGE OF PROJECT DRAWINGS, SPECIFICATIONS, AND NARRATIVES TO FULLY UNDERSTAND THE PROJECT SCOPE AND TO COORDINATE THE FIRE SUPPRESSION WORK WITH OTHER DIVISIONS.
- GENERAL INSTALLATION. INSTALL SYSTEM IN A WORKMANLIKE FASHION AND IN A RECTILINEAR ARRANGEMENT WITH PIPING AND SYSTEM COMPONENTS PERPENDICULAR AND PARALLEL WITH BUILDING ARCHITECTURAL AND STRUCTURAL ELEMENTS. PIPING SHALL BE CONCEALED ABOVE CEILING FINISHES. EXPOSED PIPING SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION AND SHALL MAINTAIN NECESSARY CLEARANCES.
- FIRE DEPARTMENT OPERATIONS. INSTALL FIRE HOSE VALVES, INLET CONNECTIONS, OUTLET CONNECTIONS, ISOLATION VALVES, PUMP CONTROLLERS, SIGNAGE AND OTHER COMPONENTS REQUIRING FIRE FIGHTER PERSONNEL INTERFACE DURING EMERGENCY OPERATIONS IN READILY IDENTIFIABLE LOCATIONS, WITH ADEQUATE OPERATIONAL CLEARANCES, AND IN ACCORDANCE WITH RESPONDING FIRE DEPARTMENT STANDARD EMERGENCY OPERATIONAL PROCEDURES.
- ALIGNMENT. SPRINKLERS INSTALLED IN FINISHED CEILINGS SHALL BE CENTER OF TILE OR ALIGNED WITH CEILING COMPONENTS WITH NO VISIBLE DEVIATION AND IN ACCORDANCE WITH ARCHITECTURAL REFLECTED CEILING PLANS.
- RETURN BENDS. INSTALL PENDENT SPRINKLERS IN FINISHED CEILINGS WITH RETURN BENDS CONNECTED TO THE TOP OF THE SUPPLYING BRANCH PIPE
- BUSHINGS. USE CONCENTRIC REDUCING FITTINGS FOR PIPE SIZE TRANSITIONS AND SPRINKLER NPT CONNECTIONS. BUSHINGS SHALL NOT BE

OR FLEXIBLE SPRINKLER CONNECTION.

- TEMPERATURE RATING. PROVIDE ORDINARY TEMPERATURE RATED SPRINKLERS UNLESS OTHERWISE NOTED. PROVIDE INTERMEDIATE OR HIGH TEMPERATURE RATED SPRINKLERS WHERE REQUIRED BY NFPA 13 BASED
- GUARDS. INSTALL GUARDS ON SPRINKLERS SUSCEPTIBLE TO MECHANICAL DAMAGE INCLUDING, BUT NOT LIMITED TO SPRINKLERS IN MECHANICAL ROOMS AND SPRINKLERS INSTALLED LESS THEN 7 FT AFF.

UPON PROXIMITY TO HEAT SOURCES OR AMBIENT CEILING TEMPERATURE.

- DRAINAGE. PRE-PLAN SYSTEM INSTALLATION WITH OTHER DIVISIONS OF WORK TO MINIMIZE THE NEED FOR AUXILIARY DRAIN VALVES, ARRANGE SYSTEM PIPING TO DRAIN BACK TO MAIN RISER DRAIN VALVE OR ZONE CONTROL ASSEMBLY DRAIN VALVE.
- COORDINATION. MAKE REASONABLE AND NECESSARY MODIFICATIONS IN LAYOUTS AND COMPONENT ARRANGEMENT NEEDED TO PREVENT CONFLICT WITH AND TO ACCOMMODATE OTHER DIVISIONS OF THE WORK.
- CLEARANCES. INSTALL PIPING. VALVES, AND SYSTEM COMPONENTS TO MAINTAIN MINIMUM CLEARANCES REQUIRED TO OPERATE AND MAINTAIN FIRE SUPPRESSION VALVES AND EQUIPMENT; TO INSTALL, OPERATE AND MAINTAIN EQUIPMENT AND FEATURES OF OTHER DIVISIONS; TO ACCOMMODATE FINISHED CEILING HEIGHTS; AND TO MAINTAIN MAXIMUM HEADROOM IN AREAS OPEN TO STRUCTURE ABOVE.
- PENETRATIONS. USE SPECIFIED SLEEVES, SLEEVE SEALS, AND ESCUTCHEONS AT PIPE PENETRATIONS. AT FIRE RESISTANCE RATED PENETRATIONS, THE PENETRATED FLOOR OR WALL, PENETRATING PIPE, SLEEVE OR SLEEVE SEAL, AND FIRESTOP MATERIAL AS AN ASSEMBLY SHALL COMPLY WITH A DESIGNATED UL THROUGH-PENETRATION FIRESTOP
- ACCESS TO VALVES. INSTALL VALVES SUCH THAT THEY ARE READILY ACCESSIBLE AND VISIBLE. LOCATE OVERHEAD VALVES SUCH THAT THEY ARE ACCESSIBLE VIA 8-FT (MAX) LADDER AND WITH POSITION INDICATOR
- SUPPORT. ATTACH HANGERS AND SUPPORTS DIRECTLY TO STRUCTURAL BEAMS, COLUMNS AND FLOOR SLABS. DO NOT ATTACH TO METAL-DECK ROOF / CEILING PANS. DO NOT ATTACH OR SUPPORT ANY DIVISION 21 WORK FROM NON-STRUCTURAL ELEMENTS OF ANY KIND. THREADED ROD SHALL NOT BE FORMED OR BENT. ALL BOWED, BENT OR OTHERWISE DEFORMED THREADED ROD SHALL BE REPLACED WITH NEW.

CLEARLY VISIBLE FROM THE FLOOR BELOW.

- RESTRAINT AGAINST MOVEMENT. INDEPENDENT OF CONSIDERATION OF SEISMIC PROTECTION, FIRE SUPPRESSION FEED-MAIN, STANDPIPE, AND SYSTEM RISER PIPING SUPPLIED BY FIRE PUMPS SHALL BE RIGIDLY RESTRAINED AGAINST MOVEMENT RESULTING FROM PUMP-INDUCED WATER PRESSURE AND VELOCITY FORCES.
- IDENTIFICATION. INSTALL VALVE SIGNAGE AND TAGS AT EACH CONTROL VALVE, INSTALL PIPE IDENTIFICATION LABELS; INSTALL HYDRAULIC DATA SIGNS AT EACH SYSTEM RISER; INSTALL SIGNAGE AT FIRE DEPARTMENT CONNECTIONS INDICATING SYSTEMS SERVED AND REQUIRED PRESSURE: INSTALL SUPPLEMENTAL SIGNAGE AS DIRECTED BY THE AUTHORITY HAVING JURISDICTION.
- FIRE PROTECTION DURING CONSTRUCTION. PROVIDE FIRE PROTECTION DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO MANUAL AND AUTOMATIC DRY-PIPE STANDPIPES AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- ON-SITE AS-BUILT DOCUMENTATION. MAINTAIN COMPLETE AND SEPARATE SET OF INSTALLATION DRAWINGS ON SITE AT ALL TIMES. RECORD WORK COMPLETED AND ALL MODIFICATIONS CLEARLY AND ACCURATELY.

CROCKFORDS -

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BIDDING &

CONSTRUCTION

ISSUE 07/06/2022

DRAWN Author SCALE 12" = 1'-0"

REVISIONS

JOB 30860.00

FIRE PROTECTION - NOTES AND DESIGN CRITERIA

FP-2

INTENDED LOCATION AND APPLICATION. COORDINATE CONSTRUCTION OPERATIONS WITH THOSE OF OTHER SECTIONS OF THE WORK AND OTHER ENTITIES TO ENSURE EFFICIENT AND ORDERLY INSTALLATION OF EACH PART OF THE WORK. COORDINATE OPERATIONS AND PRODUCT SELECTIONS OF THIS SECTION WITH OPERATIONS AND PRODUCT SELECTIONS INCLUDED IN DIFFERENT SECTIONS THAT DEPEND ON EACH OTHER FOR PROPER INSTALLATION, CONNECTION, AND OPERATION. SCHEDULE CONSTRUCTION OPERATIONS IN SEQUENCE REQUIRED TO OBTAIN THE BEST RESULTS WHERE INSTALLATION OF ONE PART OF THE WORK DEPENDS ON INSTALLATION OF OTHER COMPONENTS, BEFORE OR AFTER ITS OWN INSTALLATION. COORDINATE INSTALLATION OF DIFFERENT COMPONENTS WITH

ADEQUATE PROVISIONS TO ACCOMMODATE ITEMS SCHEDULED FOR LATER INSTALLATION. COORDINATION DRAWINGS: CONTRIBUTE TO PREPARATION OF COORDINATION DRAWINGS IN THE SEQUENCE ESTABLISHED UNDER DIVISION 1 AND DIVISION 20; INDICATE WATER-BASED FIRE SUPPRESSION SYSTEM WORK COORDINATED WITH OTHER SECTIONS OF THE WORK.

OTHER SECTIONS OF THE WORK TO ENSURE MAXIMUM PERFORMANCE AND

ACCESSIBILITY FOR REQUIRED MAINTENANCE, SERVICE, AND REPAIR. MAKE

MAINTENANCE MATERIALS

FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

> SPRINKLER CABINETS: FINISHED, WALL-MOUNTED, STEEL CABINET WITH HINGED COVER, AND WITH SPACE FOR MINIMUM OF SIX SPARE SPRINKLERS PLUS SPRINKLER WRENCH. INCLUDE NUMBER OF SPRINKLERS REQUIRED BY NFPA 13 AND SPRINKLER WRENCH. INCLUDE SEPARATE CABINET WITH SPRINKLERS AND WRENCH FOR EACH TYPE OF SPRINKLER USED ON PROJECT.

> CUSTOM-FINISH SPRINKLERS: PROVIDE A MINIMUM OF SIX SPARE COVER-PLATES OR SPRINKLERS FOR EACH CUSTOM FINISH IN ADDITION TO SPARES REQUIRED BY NFPA 13.

PART 2 - PRODUCTS

PART 2 - DUCTS PERFORMANCE REQUIREMENTS

DESIGN AND INSTALLATION STANDARD(S) • SPRINKLER SYSTEMS: COMPLY WITH NFPA 13. • STANDPIPE SYSTEMS: COMPLY WITH NEPA 14 • FM GLOBAL: COMPLY WITH FM GLOBAL DATASHEETS FOR THE DESIGN, INSTALLATION, AND TESTING OF WATER-BASED FIRE SUPPRESSION SYSTEMS.

STANDARD-PRESSURE PIPING SYSTEM COMPONENT: LISTED FOR 175 PSIG MINIMUM WORKING PRESSURE.

SEISMIC PERFORMANCE: WHERE REQUIRED, PIPING SYSTEMS SHALL WITHSTAND THE EFFECTS OF EARTHQUAKE MOTIONS DETERMINED ACCORDING

PIPING AND FITTINGS

TO NFPA 13 AND ASCE/SEI 7.

PIPE AND FITTINGS (SHALL BE ONE OF THE FOLLOWING) • ASTM A 53, A795 OR A135 SCHEDULE 40 STEEL PIPE WITH CUT-GROOVED ENDS; UL 213 GROOVED-END FITTINGS; UL 213 GROOVED-END PIPE COUPLINGS: AND GROOVED JOINTS. • ASTM A 53, A795 OR A135 SCHEDULE 40 STEEL PIPE WITH PLAIN ENDS; ASTM A 234/A 234M AND ASME B16.9 WELDING FITTINGS; AND WELDING JOINTS.

STANDARD-PRESSURE WET-PIPE WATER-BASED FIRE SUPPRESSION: **APPLICATIONS:**

 WET-PIPE [SPRINKLER] PIPE AND FITTINGS (SHALL BE ONE OF THE FOLLOWING): • ASTM A 53, A795 OR A135 SCHEDULE 40 STEEL PIPE WITH THREADED ENDS: UNCOATED ASME B16.4 CAST IRON THREADED FITTINGS: AND THREADED JOINTS. • ASTM A 53, A795 OR A135 SCHEDULE 40 STEEL PIPE WITH CUT-GROOVED ENDS; UL 213 GROOVED-END FITTINGS; UL 213 GROOVED-END PIPE COUPLINGS: AND GROOVED JOINTS. • PERMITTED FOR NPS 2-1/2 AND LARGER: ASTM A 135 OR ASTM A 795 SCHEDULE 10 STEEL PIPE WITH ROLL-GROOVED ENDS; UL 213 GROOVED-END FITTINGS; UL 213 GROOVED-END PIPE COUPLINGS; AND GROOVED JOINTS.

PIPE AND FITTINGS (SHALL BE ONE OF THE FOLLOWING): • ASTM A 53, A795 OR A135 SCHEDULE 40 GALVANIZED-COATED STEEL PIPE WITH THREADED ENDS: GALVANIZED-COATED ASME B16.4 CAST IRON THREADED FITTINGS; AND THREADED JOINTS. ASTM A 53, A795 OR A135 SCHEDULE 40 GALVANIZED-COATED STEEL PIPE WITH CUT-GROOVED ENDS; GALVANIZED-COATED UL 213 GROOVED-END FITTINGS; GALVANIZED-COATED UL 213 GROOVED-END PIPE COUPLINGS; AND GROOVED JOINTS

GROOVED-JOINT FITTINGS AND COUPLINGS MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: ANVIL INTERNATIONAL, INC. • TYCO FIRE & BUILDING PRODUCTS LP.

STEEL WELDED OUTLET FITTINGS

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: • ANVIL INTERNATIONAL, INC. VICTAULIC COMPANY.

SPECIALTY FIRE-PROTECTION PIPE FITTINGS

VICTAULIC COMPANY.

ELEXIBLE SPRINKLER CONNECTIONS MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: VICTAULIC COMPANY. STANDARD: UL 1474.

INSPECTOR'S TEST FITTINGS MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: AGF MANUFACTURING INC. • RELIABLE AUTOMATIC SPRINKLER CO., INC. • TYCO FIRE & BUILDING PRODUCTS LP. VICTAULIC COMPANY. STANDARD: UL'S "FIRE PROTECTION EQUIPMENT DIRECTORY",

SPRINKLERS

CATEGORY VEHZ

VIKING CORPORATION.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: • RELIABLE AUTOMATIC SPRINKLER CO., INC. • TYCO FIRE & BUILDING PRODUCTS LP. VICTAULIC COMPANY.

UNLESS OTHERWISE INDICATED OR REQUIRED BY APPLICATION, SPRINKLER PRESSURE RATING SHALL BE 175 PSIG.

UNLESS OTHERWISE INDICATED OR REQUIRED BY APPLICATION, SPRINKLER K-FACTOR AND THERMAL SENSITIVITY SHALL COMPLY WITH THE FOLLOWING: • LIGHT HAZARD: QUICK RESPONSE, MINIMUM 5.6 K-FACTOR. • ORDINARY HAZARD: QUICK RESPONSE, MINIMUM 8.0. • EXTRA HAZARD: STANDARD RESPONSE, MINIMUM 8.0.

UNLESS OTHERWISE INDICATED OR REQUIRED BY APPLICATION, SPRINKLERS SHALL BE NFPA 13 ORDINARY TEMPERATURE CLASSIFICATION.

SPRINKLERS SHALL BE HIGHER TEMPERATURE CLASSIFICATION IN ACCORDANCE WITH NFPA 13 FOR MAXIMUM AMBIENT CEILING TEMPERATURES GREATER THAN 100 DEG F

SPRINKLERS SHALL BE HIGHER TEMPERATURE CLASSIFICATION IN ACCORDANCE WITH NFPA 13 FOR SPECIFIC LOCATIONS INCLUDING, BUT NOT LIMITED TO: •STEAM EQUIPMENT AND HEATING DUCTS. •SKYLIGHTS AND DISPLAY WINDOWS.

•CONCEALED BUILDING SPACES, ATTICS, PEAKED ROOFS, AND METAL ROOFS •COMMERCIAL COOKING EQUIPMENT. RESIDENTIAL AREAS.

•AUTO-DEFROST WALK-IN COOLERS AND FREEZERS. SPRINKLERS SHALL BE HIGH TEMPERATURE CLASSIFICATION FOR EXTRA HAZARD OR HIGH-PILE / RACK STORAGE OCCUPANCIES WHERE

CORRESPONDING NFPA 13 HIGH TEMPERATURE SPRINKLER DESIGN

CRITERIA IS UTILIZED FOR HYDRAULIC CALCULATIONS. CONCEALED SPRINKLER COVER-PLATES: FLAT, NON-PERFORATED; FOR CEILING- AND WALL-MOUNT. FINISHES: POLISHED CHROME-PLATED, PAINTED, AND SPECIAL APPLICATION. SEISMIC APPLICATIONS: OVERSIZED TO CONCEAL SPRINKLER CEILING PENETRATION INCLUDING REQUIRED 1 INCH ANNULAR CLEARANCE AROUND PENETRATING SPRINKLER ASSEMBLY.

SPRINKLER GUARDS: STANDARD: LISTED FOR USE WITH ATTACHED SPRINKLER. TYPE: SINGLE-PIECE, WIRE CAGE WITH FASTENING DEVICE FOR ATTACHMENT TO SPRINKLER.

FINISH INDICATIONS SHALL APPLY UNIFORMLY TO SPRINKLER ASSEMBLY COMPONENTS EXPOSED TO VIEW INCLUDING FRAME, ESCUTCHEON, AND COVER PLATE.

SPRINKLERS INSTALLED IN CEILINGS SHALL BE: UL 199, STANDARD SPRAY, CONCEALED-PENDENT, WHITE FINISH.

PART 2 - PRODUCTS

SPRINKLERS IN OPEN CEILING AREAS SHALL BE: UL 199, STANDARD SPRAY UPRIGHT, BRONZE FINISH. PIPE HANGERS AND FASTENERS

PIPE HANGERS: MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

•COOPER B-LINE. ANVIL INTERNATIONAL GENERAL: STEEL, GALVANIZED ADJUSTABLE BAND TYPE AND CLEVIS. BAND TYPE HANGERS USED ON CPVC PIPING SHALL HAVE FLARED OR BEVELED EDGES.

HANGER ROD: CARBON STEEL, GALVANIZED.

•ITW RED HEAD.

ATTACHMENTS TO STEEL MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: •COOPER B-LINE. ANVIL INTERNATIONAL. GENERAL: CARBON OR MALLEABLE STEEL, GALVANIZED BEAM

DROP IN ANCHORS: MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

> •POWERS FASTNERS, INC. GENERAL: UL 203; MILD STEEL WITH ZINC PLATING.

PART 3 - EXECUTION

PART 3 - EXECUTION **PREPARATION**

CHARACTERISTICS.

SCHEDULE AND CONDUCT WATER SUPPLY FLOW TESTS PROMPTLY TO ESTABLISH AVAILABLE WATER SUPPLY FLOW AND PRESSURE

SCHEDULE AND SEQUENCE WATER SUPPLY FLOW TESTS AND SHOP DRAWING PREPARATION SUCH THAT THE FLOW TEST DATE IS NO MORE THAN TWELVE (12) MONTHS PRIOR TO THE SHOP DRAWING SUBMITTAL DATE.

TESTS SHALL BE CONDUCTED DURING TIME OF SEASONAL AND DAILY PEAK DEMAND BASED UPON REVIEW WITH LOCAL WATER AUTHORITY.

WHERE TESTING DURING TIME OF PEAK DEMAND IS NOT PERMITTED OR FEASIBLE, OBTAIN HISTORICAL DATA REGARDING SEASONAL AND DAILY SYSTEM PRESSURE VARIATIONS FROM LOCAL WATER AUTHORITY.

TECHNICIAN DESIGN AND LAYOUT

GENERAL:

ROLES AND RESPONSIBILITIES SHALL BE AS SET FORTH IN NSPE POSITION STATEMENT NO. 1749 "SFPE/NSPE/NICET JOINT POSITION OF THE ENGINEER AND THE ENGINEERING TECHNICIAN DESIGNING THE FIRE PROTECTION SYSTEM", AVAILABLE AT NSPE.ORG. AS APPLIED TO THE WORK, THE CONTRACT DOCUMENTS HAVE BEEN PREPARED BY THE "ENGINEER" AND SHOP DRAWINGS REQUIRED BY THIS SECTION OF THE WORK ARE PREPARED BY THE "CERTIFIED ENGINEERING TECHNICIAN".

AS THE CERTIFIED ENGINEERING TECHNICIAN, PREPARE SHOP DRAWINGS INDICATING SYSTEM LAYOUT AND SIZING IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO:

• EVALUATION OF WATER SUPPLY ADEQUACY. DETAILED SIZING AND LAYOUT OF PIPING AND APPURTENANCES INCLUDING FEED-MAINS, RISERS, CROSS MAINS, BRANCH LINES, VALVES, DRAINAGE PROVISIONS, HANGERS, RESTRAINTS, SUPPORTS, AND SIMILAR. DETAILED SPRINKLER LAYOUTS.

 HYDRAULIC CALCULATIONS. • INSTALLATION DETAILS FOR THE SPECIFIC EQUIPMENT BEING FURNISHED.

DESIGN AND INSTALLATION STANDARD(S): COMPLY WITH PART 2 ARTICLE "PERFORMANCE REQUIREMENTS". COMPLY WITH THE PERFORMANCE REQUIREMENTS INDICATED BY THE CONTRACT DOCUMENTS WHERE SUCH REQUIREMENTS ARE MORE STRINGENT THAN THOSE OF THE DESIGN AND INSTALLATION STANDARD(S): OTHERWISE. COMPLY WITH THE PERFORMANCE REQUIREMENTS OF THE DESIGN AND INSTALLATION STANDARD(S).

WATER SUPPLY EVALUATION: EVALUATE WATER SUPPLY FLOW TEST DATA OBTAINED AS PART OF THE WORK OF THIS SECTION AGAINST HISTORICAL DATA OBTAINED FROM THE WATER AUTHORITY AND, WHERE INCLUDED, WATER SUPPLY

FLOW TEST DATA INDICATED BY THE CONTRACT DOCUMENTS. PROMPTLY REPORT IN WRITING SIGNIFICANT DEVIATIONS BETWEEN WATER SUPPLY TEST RESULTS OBTAINED AS PART OF THE WORK OF THIS SECTION AND THOSE INDICATED BY THE CONTRACT DOCUMENTS OR HISTORICAL DATA; AND ANTICIPATED SYSTEM DESIGN IMPACTS.

COMPLETE THE EVALUATION OF WATER SUPPLY FLOW TEST DATA PRIOR TO PREPARING SHOP DRAWINGS AND ASSOCIATED HYDRAULIC CALCULATIONS.

DESIGN AND LAYOUT FIRE SUPPRESSION PIPING TO SATISFY PERFORMANCE REQUIREMENTS:

RECTILINEAR FIRE SUPPRESSION PIPING ARRANGEMENT WITH RESPECT TO BUILDING PARTITIONS AND STRUCTURAL

CONCEALED FIRE SUPPRESSION PIPING INSTALLATION THROUGHOUT FINISHED SPACES AND MAXIMUM HEADROOM BENEATH EXPOSED FIRE SUPPRESSION PIPING IN AREAS EXPOSED TO STRUCTURE ABOVE.

NO FIRE SUPPRESSION PIPING WITHIN ELECTRICAL, INFORMATION TECHNOLOGY, OR SIMILAR SPACES OTHER THAN BRANCH PIPING SERVING SPRINKLERS PROTECTING SUCH ELECTRICAL, INFORMATION

TECHNOLOGY, OR SIMILAR SPACE SPACES. NO FIRE SUPPRESSION PIPING DIRECTLY ABOVE ELECTRICAL

EQUIPMENT, ELECTRICAL PANELS, INFORMATION TECHNOLOGY EQUIPMENT, OR SIMILAR ENERGIZED EQUIPMENT. NO FIRE SUPPRESSION PIPING WITHIN EXIT ENCLOSURES EXCEPT

STANDPIPES SUPPLYING HOSE VALVES WITHIN THE EXIT ENCLOSURE, SPRINKLER ZONE CONTROL ASSEMBLIES AND PIPING IMMEDIATELY DOWNSTREAM, BRANCH PIPING SUPPLYING SPRINKLERS WITHIN THE EXIT ENCLOSURE. AND ASSOCIATED DRAIN CONNECTIONS AND RISERS

NO FIRE SUPPRESSION PIPING WITHIN OR IN PROXIMITY TO HAZARDOUS MATERIALS STORAGE OR PROCESSING OPERATIONS OTHER THAN BRANCH PIPING SERVING SPRINKLERS PROTECTING SUCH HAZARDOUS MATERIALS STORAGE OR PROCESSING OPERATIONS. FIRE SUPPRESSION PIPING SUPPORTED FROM PRIMARY BUILDING STRUCTURAL ELEMENTS OR APPROVED SUPPLEMENTAL SUPPORTS CAPABLE OF SUPPORTING THE ATTACHED LOAD.

FIRE SUPPRESSION PIPING CROSSING BUILDING EXPANSION JOINTS PROVIDED WITH EXPANSION FITTINGS APPROPRIATE TO THE JOINT DESIGN DEFLECTION VALUE.

FIRE SUPPRESSION PIPING PROTECTED AGAINST DAMAGE WHERE SUBJECT TO EARTHQUAKES.

FIRE SUPPRESSION PIPING PROTECTED AGAINST DAMAGE WHERE SUBJECT TO FREEZING WITHOUT THE USE OF HEAT-TRACE CABLES UNLESS INDICATED OTHERWISE.

FIRE SUPPRESSION PIPING ARRANGED SUCH THAT PIPING DRAINS BACK TO MAIN DRAINS AND DRAIN RISERS WITHOUT THE USE OF AUXILIARY DRAINS.

PART 3 - EXECUTION

AUTHORITIES HAVING JURISDICTION.

HYDRAULICALLY DESIGN WATER-BASED FIRE SUPPRESSION SYSTEM PIPING USING THE HAZEN-WILLIAMS OR DARCY-WEISBACH FORMULAS IN ACCORDANCE WITH THE DESIGN AND INSTALLATION STANDARD(S). • SPRINKLER SYSTEM OCCUPANCY HAZARD AND DISCHARGE CRITERIA: COMPLY WITH CRITERIA INDICATED BY DRAWINGS AS APPROVED BY

 CALCULATION AREAS SHALL NOT BE REDUCED FOR QUICK RESPONSE SPRINKLER APPLICATIONS. STANDPIPE SYSTEM FLOW AND PRESSURE CRITERIA: COMPLY WITH CRITERIA INDICATED BY DRAWINGS AS APPROVED BY AUTHORITIES HAVING JURISDICTION. MARGIN OF SAFETY BETWEEN AVAILABLE AND REQUIRED PRESSURE AT DESIGN FLOWRATE: 10 PSI MINIMUM, INCLUDING LOSSES THROUGH WATER-SERVICE PIPING, VALVES, AND BACKFLOW PREVENTERS. • FOR FIRE PUMP APPLICATIONS, SUBMIT FIRE PUMP PRODUCT DATA INCLUDING MANUFACTURER'S CHARACTERISTIC PUMP CURVE PRIOR TO PREPARING HYDRAULIC CALCULATIONS. • USE FLOW AND PRESSURE DATA POINTS FROM THE SUBMITTED

MANUFACTURER'S CHARACTERISTIC FIRE PUMP CURVE WHEN

PREPARING HYDRAULIC CALCULATIONS. • FOR DIRECT-ACTING PRESSURE REGULATING VALVE APPLICATIONS, INCLUDE MANUFACTURER'S PRESSURE LOSS CHART AND INDICATE THE CALCULATED FLOW THROUGH THE VALVE AND RESULTING PRESSURE • FOR APPLICATIONS WITH SYSTEM PRESSURES GREATER THAN 175 PSIG, PREPARE A CALCULATION AT MAXIMUM STATIC PRESSURE TO IDENTIFY BUILDING FLOOR ELEVATIONS REQUIRING PRESSURE REGULATING VALVES. • RISER DIAGRAM: INDICATE MAXIMUM STATIC PRESSURE AT EACH FLOOR ELEVATION, INCLUDING INLET AND OUTLET PRESSURE AT PRESSURE REGULATING VALVES WHERE PROVIDED. INCLUDE PRESSURE LOSSES ASSOCIATED WITH SPECIALTY FITTINGS AND ASSEMBLIES SUCH AS SEISMIC SEPARATION ASSEMBLIES

HYDRAULIC CALCULATIONS FOR SPRINKLER PIPING: • SPRINKLER MAINS INCLUDING ZONE CONTROL AND RISER VALVE ASSEMBLIES SHALL BE NO SMALLER THAN AS INDICATED BY THE DRAWINGS HYDRAULICALLY DETERMINE PIPE SIZES FOR SPRINKLER **BRANCH PIPING** • SPRINKLER ZONE CONTROL AND RISER VALVE ASSEMBLIES

AND FLEXIBLE SPRINKLER CONNECTIONS.

SHALL BE NO SMALLER THAN AS INDICATED BY THE DRAWINGS. HYDRAULICALLY DETERMINE PIPE SIZES FOR SPRINKLER PIPING DOWNSTREAM OF ZONE CONTROL ASSEMBLIES. • WHERE SPRINKLER SYSTEMS ARE SUPPLIED BY TWO (2) RISERS, PIPE SIZING SHALL BE BASED UPON SUPPLY FROM THE HYDRAULICALLY MOST REMOTE RISER ONLY. • INCLUDE ADDITIONAL HYDRAULIC CALCULATIONS AS REQUIRED WHEN THE HYDRAULICALLY MOST REMOTE AREA IS NOT CLEAR (NOT THE GEOMETRICALLY MOST REMOTE). • INCLUDE A MINIMUM OF THREE (3) CALCULATION AREAS FOR GRIDDED SYSTEMS DEMONSTRATING THAT THE HYDRAULICALLY MOST DEMANDING AREA IS IDENTIFIED. • DO NOT UTILIZE NFPA 13 AREA REDUCTION FOR QUICK RESPONSE SPRINKLERS UNLESS OTHERWISE INDICATED.

FLEXIBLE SPRINKLER CONNECTIONS: • HYDRAULIC CALCULATIONS: INCLUDE PRESSURE LOSSES THROUGH FLEXIBLE SPRINKLER CONNECTIONS. INDICATE INSTALLATION PARAMETERS FOR MAXIMUM HOSE LENGTH, MAXIMUM BEND RADIUS, MAXIMUM QUANTITY OF BENDS. AND FITTING PATTERNS ASSOCIATED WITH THE CALCULATED PRESSURE LOSS. SHOP DRAWINGS: INCLUDE LOCATIONS OF FLEXIBLE SPRINKLER CONNECTIONS WITH LIMITING INSTALLATION PARAMETERS AS DETERMINED VIA HYDRAULIC CALCULATIONS CLEARLY INDICATED

ON-SITE AS-BUILT DRAWINGS AS WORK PROGRESSES AND FOR THE DURATION OF THE CONSTRUCTION. OPERATIONS. MAINTAIN COMPLETE AND SEPARATE SET OF PRINTS OF SHOP DRAWINGS (WORKING PLANS) AT PROJECT SITE AT ALL TIMES. RECORD WORK COMPLETED AND ALL DEVIATIONS FROM REVIEWED SHOP DRAWINGS WORKING DLANS) CLEARLY AND ACCURATELY INCLUDE ACTUAL LOCATIONS

OF EXISTING UTILITIES IF THEY DIFFER FROM DESIGN DOCUMENTS. RECORD

EXAMINATION

VALVE TAG DESIGNATIONS AS INSTALLED.

EXAMINE SLEEVED PENETRATIONS THROUGH CONCRETE AND STRUCTURAL PENETRATIONS THROUGH STEEL AND VERIFY THAT THEY ARE SUITABLE FOR INTENDED PIPING INSTALLATION. EXAMINE WALLS AND PARTITIONS AND VERIFY THAT THEY ARE SUITABLE FOR

INSTALLATION OF PIPING, CABINETS, INLET CONNECTIONS AND SIMILAR EXAMINE AREAS TO CONTAIN STANDPIPE HOSE OUTLETS INCLUDING STAIRWELLS AND VESTIBULES AND VERIFY THAT DOOR SWINGS OR OTHER

OBSTRUCTIONS WILL NOT INTERFERE WITH THE INSTALLATION OR FUTURE OPERATION OF HOSE VALVES. REPORT CONFLICTS WITH PROPOSED SOLUTIONS. PROCEED WITH INSTALLATION AFTER CONFLICTS HAVE BEEN RESOLVED.

FURNISH DRAIN HOSE ASSEMBLY FOR CONDUCTING SPRINKLER DRAIN OUTLET DISCHARGE-TO-GRADE AWAY FROM BUILDING FAÇADE AND ADJACENT HARD-SCAPE SUBJECT TO STAINING; INCLUDE: • BRASS HEX NIPPLE FITTING; FURNISH ONE FITTING FOR EACH DRAIN OUTLET FITTING SIZE USED

 BRASS SWIVEL HOSE ADAPTER FITTINGS FOR CONNECTION TO 2 1/2 IN HOSE COUPLING; FURNISH ONE ADAPTER FITTING FOR EACH HEX NIPPLE OUTLET SIZE USED. • INDUSTRIAL DOUBLE-JACKET EPDM RUBBER-LINED INTERIOR / EXTERIOR FIRE HOSE WITH HOSE-COUPLING ENDS; 2 1/2 IN, 75 FT. • GALVANIZED-STEEL, WALL-MOUNT, HOSE AND COUPLING STORAGE

RACK. MOUNT ADJACENT TO MAIN SYSTEM RISER. PIPING INSTALLATION

LOCATIONS AND ARRANGEMENTS: DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING. INSTALL PIPING AS INDICATED.

> DEVIATIONS FROM APPROVED SHOP DRAWINGS REQUIRE WRITTEN APPROVAL FROM AUTHORITIES HAVING JURISDICTION. FILE WRITTEN APPROVAL WITH ARCHITECT BEFORE DEVIATING FROM APPROVED WORKING PLANS.

INSTALL HANGERS, FASTENERS, AND STRUCTURAL ATTACHMENTS: NPS 6 AND LARGER: USE CLEVIS TYPE HANGERS ONLY. • NPS 4 AND SMALLER: USE CLEVIS OR ADJUSTABLE BAND TYPE HANGERS • INSTALL BEAM CLAMPS WITH RETAINING STRAPS REGARDLESS OF SEISMIC CLASSIFICATION. • POWDER-DRIVEN OR PRE-EXPANDED INSERTS SHALL NOT BE • THREADED CONNECTIONS SHALL NOT BE USED FOR

ATTACHMENTS TO CONCRETE. WHERE APPLICABLE INSTALL SEISMIC RESTRAINTS AND FLEXIBLE COUPLINGS IN ACCORDANCE WITH NFPA 13.

INSTALL PROVISIONS TO ACCOMMODATE BUILDING EXPANSION JOINTS. PROVIDE FOR EXPANSION AT BUILDING EXPANSION JOINTS WITH ASSEMBLIES LISTED FOR THAT PURPOSE, COORDINATE THE MAXIMUM VALUE OF BUILDING DEFLECTION WITH THE APPROPRIATE STRUCTURAL SECTION OF THE WORK.

INSTALL SLEEVES, SLEEVE-SEALS, FIRE-STOPPING, AND PIPE ESCUTCHEONS. HOLE-CUT FITTINGS: WHERE USED, USE TWO-PIECE CAST TYPE FITTINGS ONLY. FITTINGS UTILIZING STRAPS, U-BOLTS, OR SIMILAR ARE NOT PERMITTED. INSTALL WATER-BASED FIRE SUPPRESSION PIPING WITH DRAINS FOR COMPLETE SYSTEM DRAINAGE.

INSTALL WATER-BASED FIRE SUPPRESSION PIPING SUCH THAT PIPING DRAINS BACK TO MAIN DRAINS AND DRAIN RISERS WITHOUT THE USE OF AUXILIARY

INSTALL "INSPECTOR'S TEST CONNECTIONS" IN SPRINKLER SYSTEM PIPING,

COMPLETE WITH SHUTOFF VALVE, AND SIZED AND LOCATED ACCORDING TO

INSTALL AUTOMATIC AIR RELEASE VENTS.

PART 3 - EXECUTION

SPRINKLER INSTALLATION

INSTALL SPRINKLERS IN SUSPENDED CEILINGS IN CENTER OF ACOUSTICAL CEILING PANELS WITH NO VISIBLE DEVIATION.

DO NOT INSTALL PENDENT OR SIDEWALL, WET-TYPE SPRINKLERS IN AREAS SUBJECT TO FREEZING. INSTALL DRY-TYPE SPRINKLERS WITH WATER SUPPLY FROM HEATED SPACE.

WHERE PENDENT SPRINKLERS ARE INDICATED FOR DRY-PIPE OR PREACTION SPRINKLER SYSTEMS, USE DRY-TYPE SPRINKLERS.

SUPPLY PENDENT SPRINKLERS USING A RETURN-BEND PIPING ARRANGEMENT

PIPING USED FOR SPRINKLER CONNECTION RETURN-BENDS, DROP-NIPPLES, AND RISER-SPRINGS SHALL BE NO SMALLER THAN NPS 1.

WITH CONNECTION AT THE TOP OF THE BRANCH PIPE TO PREVENT THE ACCUMULATION OF PIPING CORROSION, SCALE, AND SEDIMENT AT THE INSTALL SPRINKLERS SUCH THAT COVER PLATE OR ESCUTCHEON IS FLUSH AND

UNIFORM WITH RESPECT TO PENETRATED CEILING OR WALL FINISH AND COMPLIES WITH MANUFACTURER INSTALLATION REQUIREMENTS. CORRECT SPRINKLERS THAT ARE NOT FLUSH BY ADJUSTING THEM IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND/OR RE-INSTALLING SPRINKLERS.

ADJUSTABLE SPRINKLER DROP NIPPLES ARE NOT PERMITTED. INSTALL SPRINKLERS IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13 [AND FM GLOBAL] REGARDING OBSTRUCTIONS TO SPRINKLER DISCHARGE. CONSIDER ALL OBSTRUCTIONS SUCH AS STRUCTURAL ELEMENTS, DUCTWORK, PIPING. LIGHTING. CABLE TRAYS. AND FLOATING ORNAMENTAL CEILINGS. ADJUST SPRINKLER LOCATIONS AND/OR ADD SPRINKLERS AS A UNIT-COST ALLOWANCE WHERE INSTALLATIONS ARE NOT COORDINATED AND OBSTRUCTIONS CANNOT BE RELOCATED TO ACCOMMODATE SPRINKLERS AS

COORDINATE THE INSTALLATION OF SOLID BARRIERS BENEATH "NON FLAT". "NON SOLID". OR "NON CONTINUOUS" OBSTRUCTIONS REQUIRED BY FM GLOBAL WITH THE CONSTRUCTION MANAGER.

PROVIDE AND INSTALL GUARDS ON SPRINKLERS SUSCEPTIBLE TO MECHANICAL DAMAGE. AT A MINIMUM PROVIDE GUARDS FOR PENDENT AND UPRIGHT SPRINKLERS LOCATED IN THE FOLLOWING LOCATIONS: ELECTRICAL ROOMS AND CLOSETS, NEAR ADJACENT TO CEILING MOUNTED EQUIPMENT REQUIRING MAINTENANCE, BENEATH OBSTRUCTIONS SUCH AS DUCTWORK OR CATWALKS, WALK-IN FREEZERS OR COLD ROOMS, AND BENEATH STAIR LANDINGS.

WHERE NOT PROVIDED UNDER OTHER SECTIONS OF THE WORK, PROVIDE AND INSTALL NON-COMBUSTIBLE BAFFLES BETWEEN SPRINKLERS LESS THAN 6 FEET APART TO PREVENT COLD-SOLDERING.

INSTALLATION OF FLEXIBLE SPRINKLER CONNECTIONS

INSTALL FLEXIBLE SPRINKLER CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

NFPA "SYSTEMS ACCEPTANCE" CHAPTER.

INSTALLED.

INSTALL EACH FLEXIBLE SPRINKLER CONNECTION ACCORDING TO THE CRITERIA AND LIMITATIONS ESTABLISHED BY THE SUBMITTED PRODUCT DATA, SHOP DRAWINGS AND HYDRAULIC CALCULATIONS WITH RESPECT TO QUANTITY AND TYPE OF FITTING CONNECTIONS, MAXIMUM HOSE LENGTH, MAXIMUM QUANTITY OF BENDS, AND MINIMUM BEND RADIUS.

BRANCH CONNECTIONS SHALL BE MADE A MINIMUM 45 DEGREES FROM HORIZONTAL, WHERE CONNECTIONS FROM THE SIDE OR BOTTOM OF BRANCH ARE REQUIRED DUE TO COORDINATION, LOCATIONS SHALL BE CLEARLY INDICATED OR SHOP DRAWINGS AND APPROVED BY THE ENGINEER. **IDENTIFICATION**

INSTALL LABELING AND PIPE MARKERS ON EQUIPMENT AND PIPING ACCORDING TO NFPA 13 FOR IDENTIFICATION FOR FIRE SUPPRESSION PIPING AND EQUIPMENT.

FIELD QUALITY CONTROL FLUSH, TEST, AND INSPECT SPRINKLER SYSTEMS ACCORDING TO APPLICABLE

HYDROSTATICALLY TEST SYSTEM PIPING IN ACCORDANCE WITH THE APPLICABLE NFPA WATER-BASED FIRE SUPPRESSION SYSTEM DESIGN AND INSTALLATION STANDARDS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST. INSPECT SYSTEM COMPONENTS IN ACCORDANCE WITH THE APPLICABLE NFPA

WATER-BASED FIRE SUPPRESSION SYSTEM DESIGN AND INSTALLATION

STANDARDS. ADJUST SETTINGS OR REPLACE DAMAGED OR MALFUNCTIONING

COMPONENTS AND RETEST UNTIL PROPER OPERATION IS ACHIEVED. INSPECT AND ADJUST ALARM AND DELAY SETTINGS OF ALARM DEVICES.

FUNCTIONALLY TEST WATER-BASED FIRE SUPPRESSION SYSTEMS, INCLUDING REQUIRED FULL-FLOW TESTS, IN ACCORDANCE WITH THE APPLICABLE NFPA WATER-BASED FIRE SUPPRESSION SYSTEM DESIGN AND INSTALLATION STANDARDS, COMBINE TESTS TO CONSERVE WATER. CORRECT DEFICIENCIES AND RETEST SATISFACTORY RESULTS ARE ACHIEVED.

WATER-BASED FIRE SUPPRESSION SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.

PREPARE TEST AND INSPECTION REPORTS. USE NFPA "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE" FORMAT.

CLEAN DIRT AND DEBRIS FROM SYSTEM COMPONENTS. REMOVE AND REPLACE SPRINKLERS WITH PAINT OTHER THAN FACTORY FINISH OR SIMILAR.

MAINTAIN WATER-BASED FIRE SUPPRESSION SYSTEMS.

TRAIN OWNER'S MAINTENANCE PERSONAL TO ADJUST, OPERATE, AND

DEMONSTRATION

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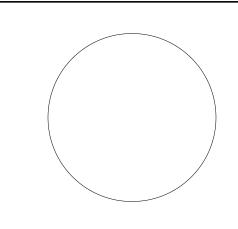
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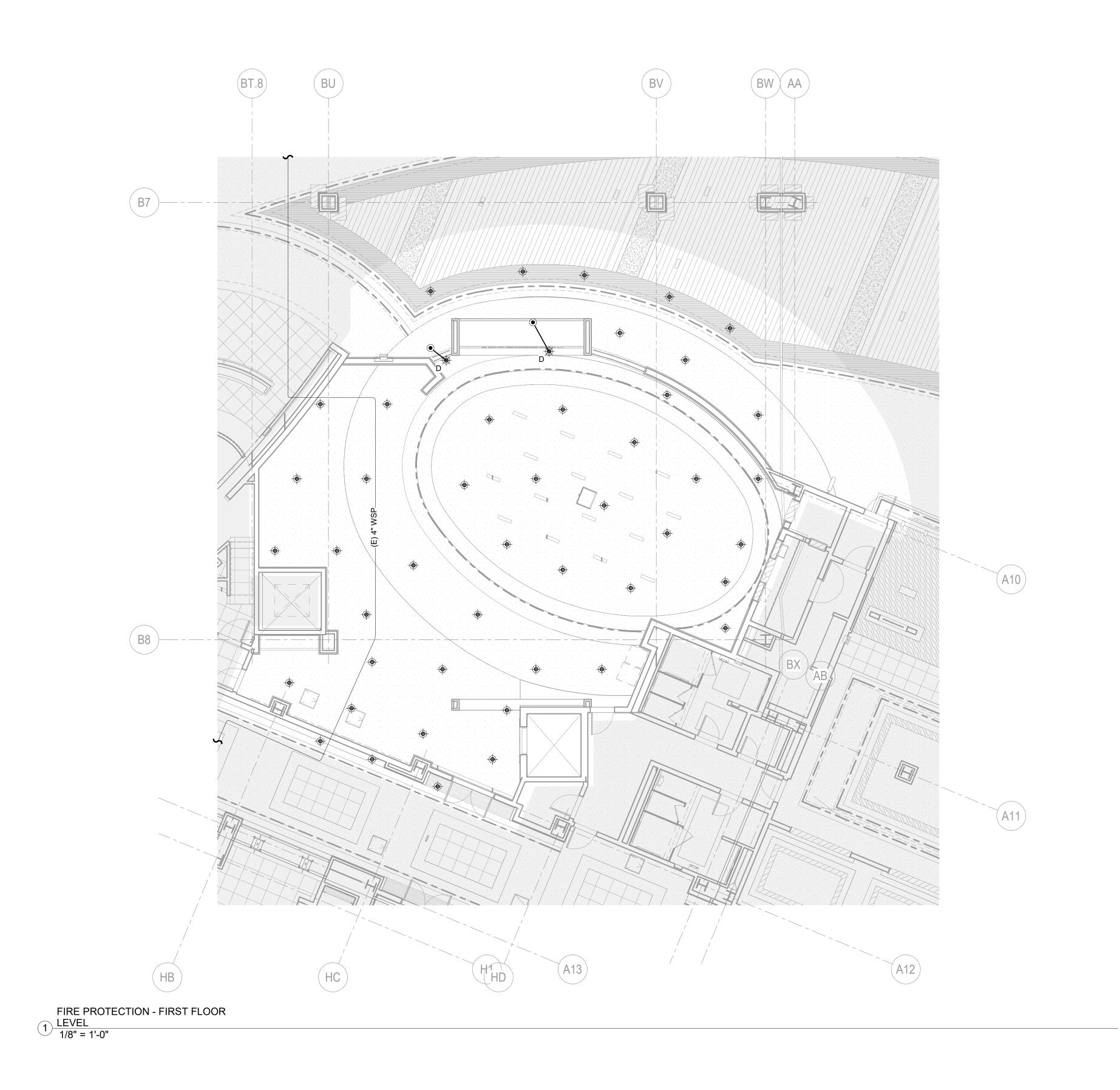
ISSUE 07/06/2022

DRAWN Author

SCALE NONE

REVISIONS

FIRE PROTECTION **SPECIFICATIONS**



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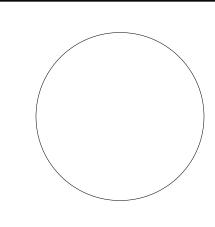
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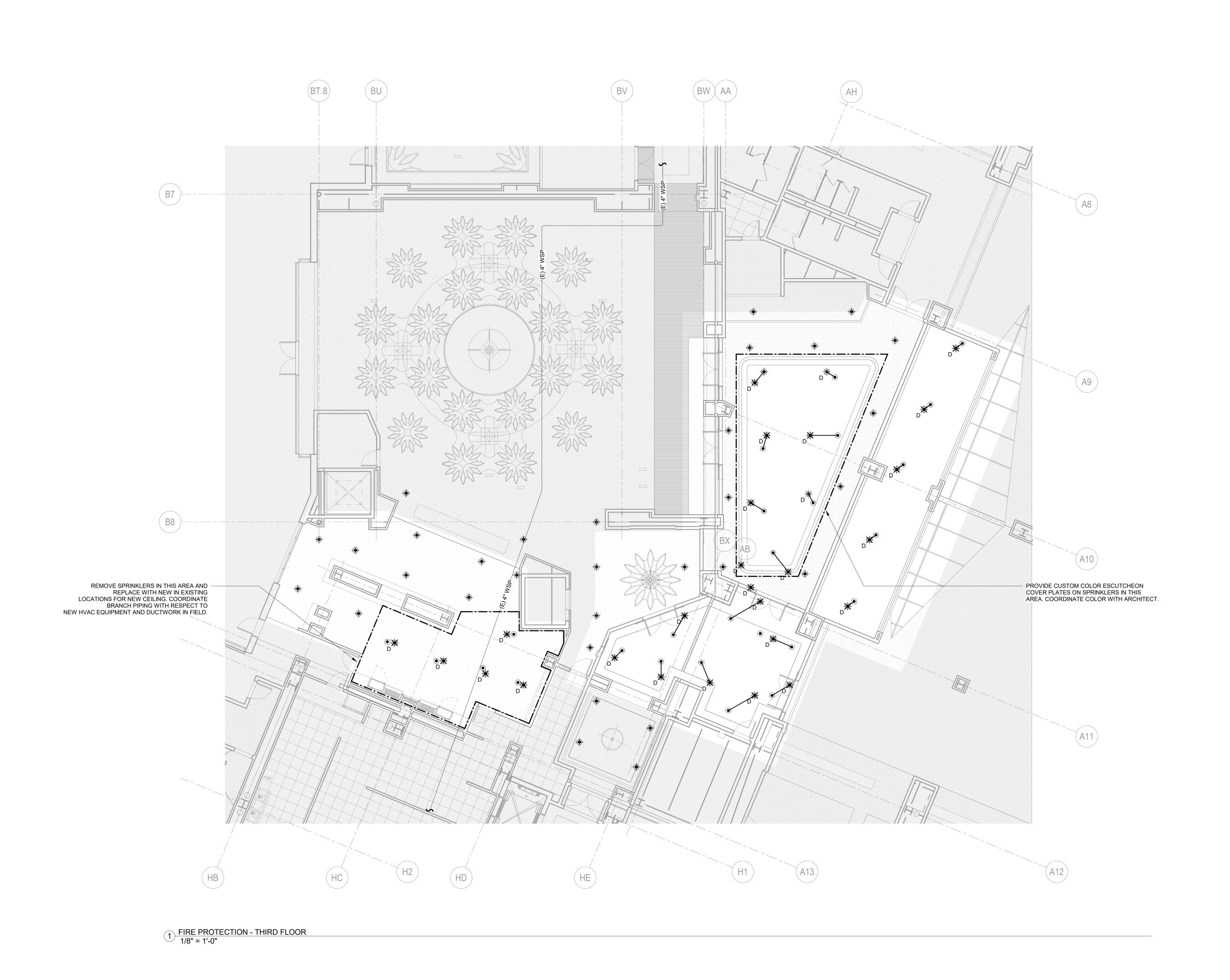
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SCALE 1/8" = 1'-0"

REVISIONS

FIRE PROTECTION - FIRST FLOOR LEVEL

FP-4



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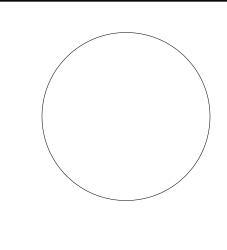
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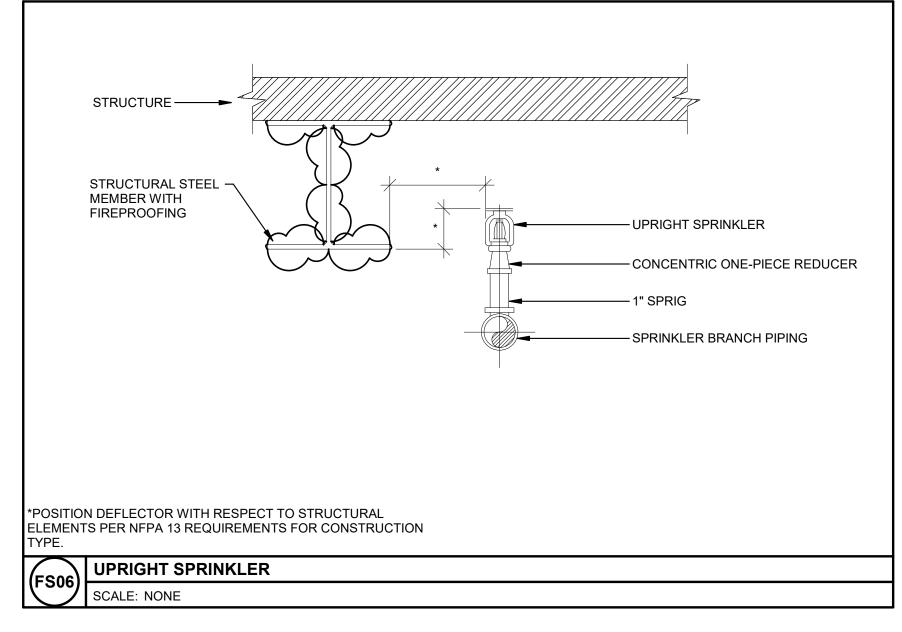
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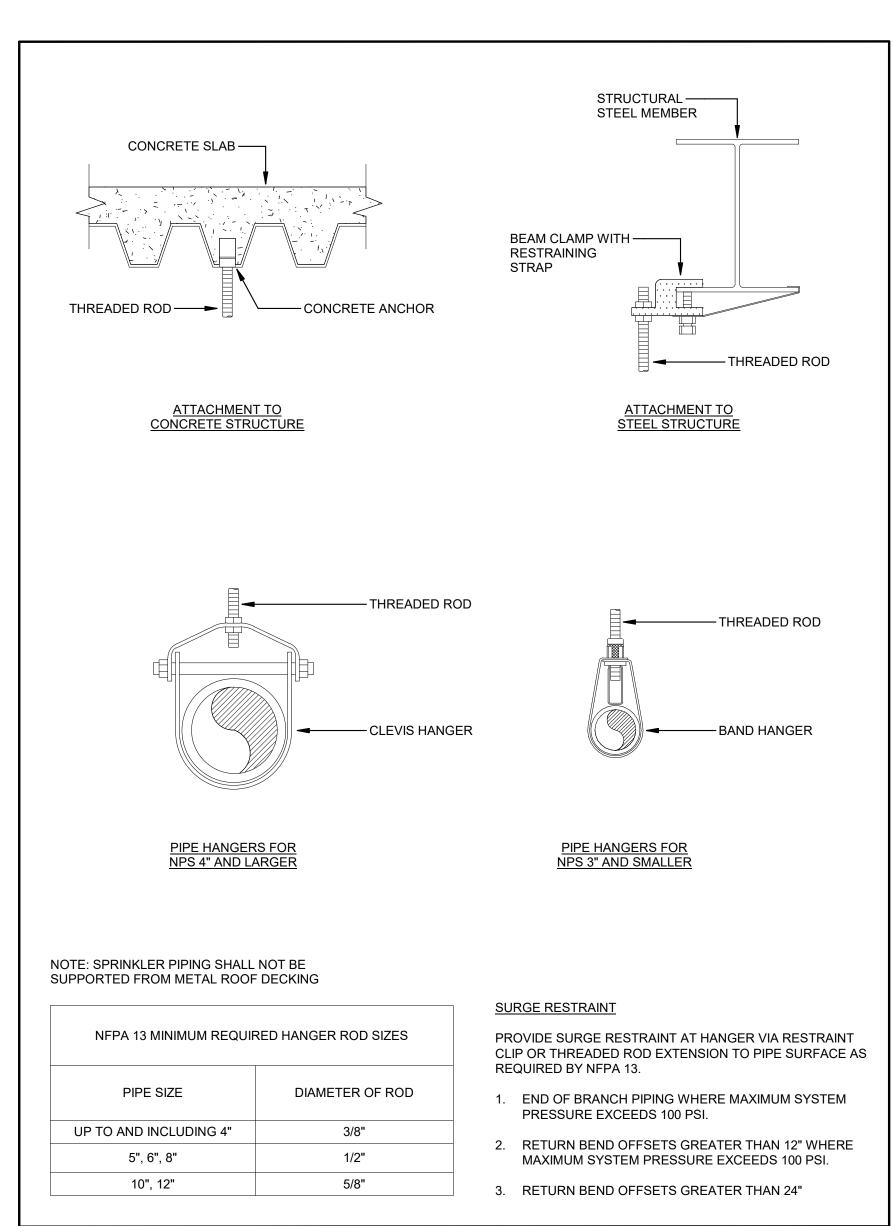
SCALE ___1/8" = 1'-0" REVISIONS

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FIRE PROTECTION - THIRD FLOOR

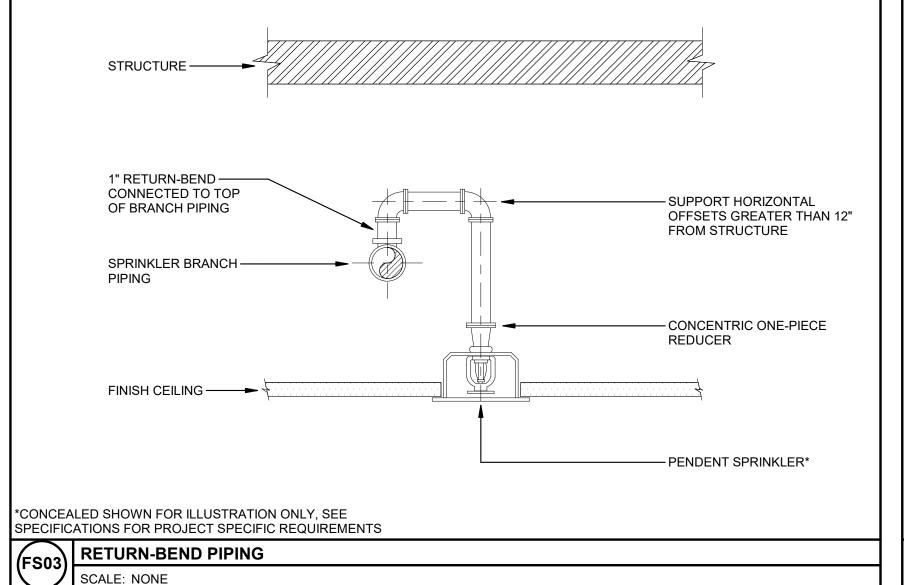
FP-5

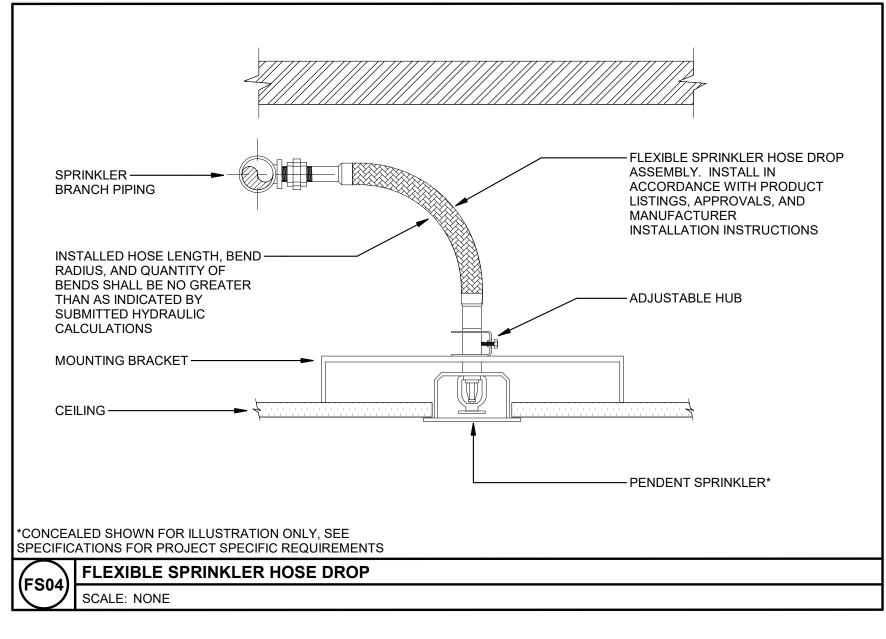


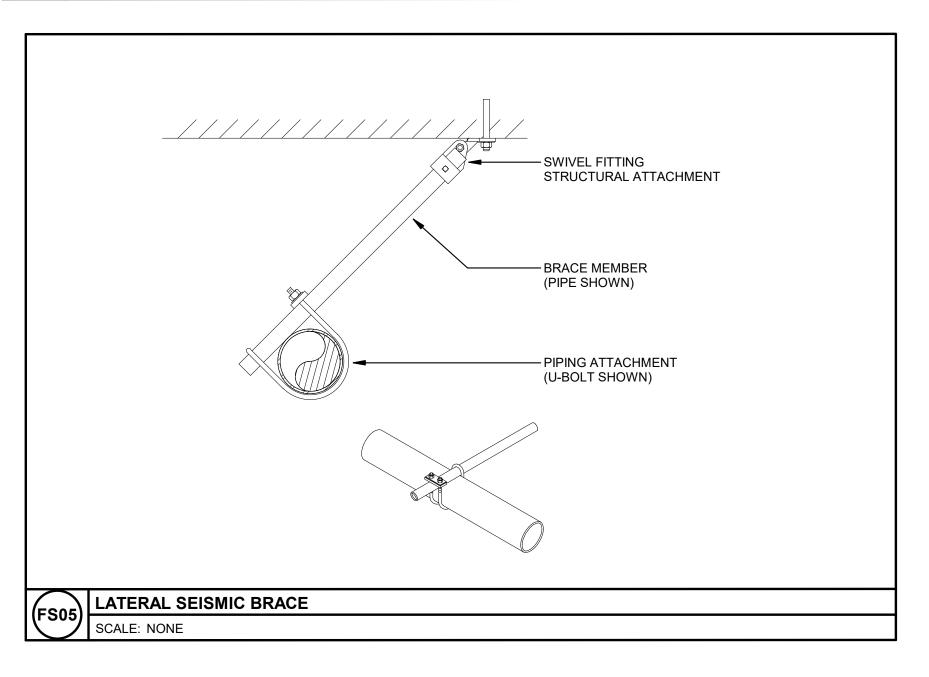


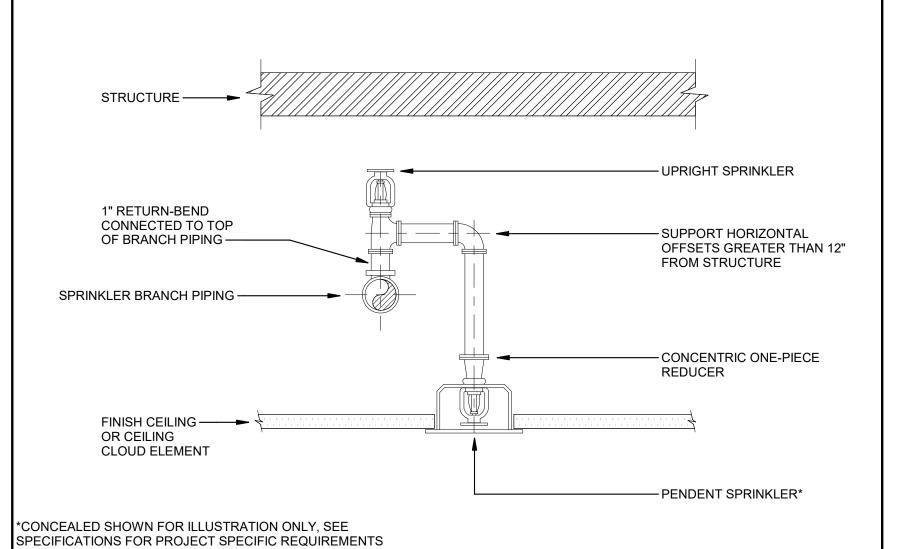
(FS07) PIPING SUPPORT

SCALE: NONE





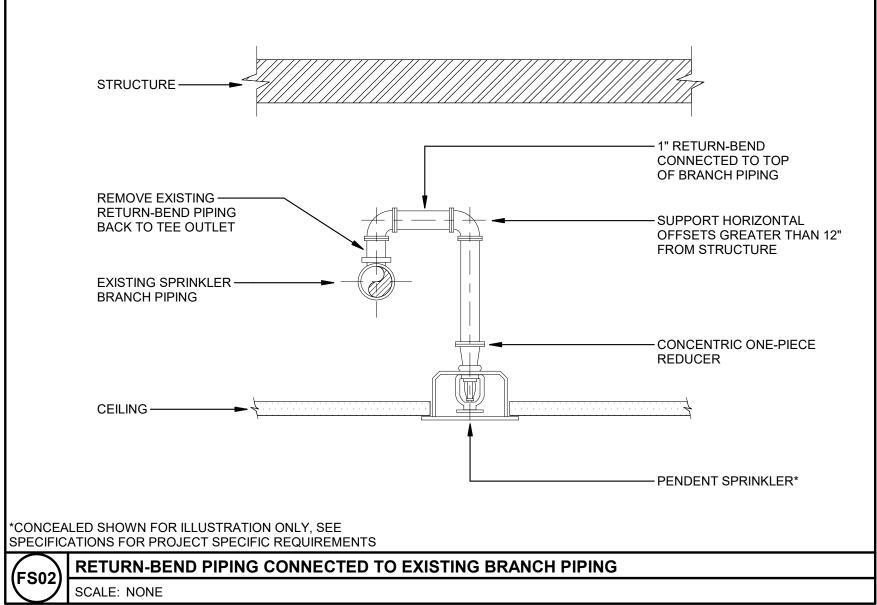




SPECIFICATIONS FOR PROJECT SPECIFIC REQUIREMENTS

RETURN-BEND PIPING (SPRINKLER PROTECTION ABOVE AND BELOW FINISH CEILING)

SCALE: NONE



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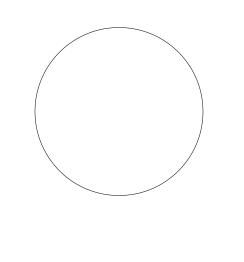
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REVISIONS

Date 1 Revision 1

FIRE PROTECTION DETAILS