Drawings for informational purposes only. Contractor reserves the right to substitute add or remove materials, products, means and methods.

CORDTSEN
DESIGN
ARCHITECTURE

42 West Main Road
Middletown, RI 02842

CordtsenDesign.com
401.619.4689

CODDINGTON COVE COMMONS

300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

Permit Set: November 22, 2024

STRUCTURAL & MEP DRAWINGS

GN1.0	GENERAL NOTES	M2.0	MECHANICAL SPECIFICATIONS	E5.0	ELECTRICAL SPECIFICATIONS I	P2.0	DOMESTIC WATER & GAS
S1.0	BUILDING 1 FOUNDATION PLAN	E0.0	ELECTRICAL SYMBOL LIST, ABBREVIATIONS, & NOTES	E5.1	ELECTRICAL SPECIFICATIONS II	P3.0	PLUMBING DETAILS
S2.0	FOUNDATION SECTIONS & DETAILS	ES1.0	ELECTRICAL LAYOUT & UTILITY PLAN	FA0.0	FIRE ALARM SYMBOL LIST, RISER DIAGRAM, & NOTES	P4.0	PLUMBING SPECIFICATIONS
S3.0	BUILDING 1 ROOF FRAMING PLANS	ES1.1	ELECTRICAL SITE DETAILS	FA1.0	FLOOR PLAN - FIRE ALARM	P4.1	PLUMBING SPECIFICATIONS
S4.0	BUILDING 1 BRACED WALL PLAN	ES1.2	ELECTRICAL SITE DETAILS II	FA2.0	FIRE ALARM SPECIFICATIONS		
		E1.0	FLOOR PLAN - LIGHTING				
M0.0	MECHANICAL LEGENDS, NOTES, SCHEDULES, & DETAILS	E2.0	FLOOR PLAN - POWER	P0.1	PLUMBING LEGEND, NOTES, & SCHEDULES		
M1.0	FLOOR PLAN - MECHANICAL	E3.0	ELECTRICAL RISER DIAGRAM				
		E4.0	ELECTRICAL SCHEDULES	P1.0	SANITARY, WASTE, & VENT		

DRAWING LIST

ARCHITECTURAL DRAWINGS

CORDTSEN
DESIGN
ARCHITECTURE
42 West Main Road
Middletown, RI 02842
CordtsenDesign.com
401.619.4689

REVISIONS:

DESCRIPTION:

SCALE:

DATE: NOVEMBER 22, 2024

CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

G1.0

GENERAL NOTES:

1. CONTRACTORS SHALL NOT SCALE THESE DRAWINGS FOR CONSTRUCTION PURPOSES. IN THE EVENT OF OMISSION OF NECESSARY DIMENSIONS OR INFORMATION, CONTRACTOR SHALL NOTIFY ARCHITECT. FIGURED AND CALCULATED DIMENSION TAKES PRECEDENCE OVER SCALED MEASUREMENTS. ALL PLAN DETAILS AND WALL SECTIONS ARE ASSUMED TO BE TYPICAL CONDITIONS UNLESS DETAILED OR NOTED OTHERWISE.
2. VERIFY ALL DIMENSIONS, CONDITIONS, AND GRADES AT JOBSITE ALL CONTRACTORS SHALL COORDINATE THEIR WORK WITH OTHER TRADES AND REPORT DISCREPANCIES, PRIOR TO THEIR CONSTRUCTION, TO THE ARCHITECT FOR REVIEW AND CLARIFICATION OR ACTION.
3. VERIFY SIZE, LOCATIONS, AND CHARACTERISTICS OF ALL EQUIPMENT TO BE FURNISHED WITH MANUFACTURERS OR SUPPLIERS BEFORE BEGINNING CONSTRUCTION.
4. VERIFY SIZE AND LOCATION OF ALL OPENINGS FOR MECHANICAL AND ELECTRICAL EQUIPMENT AND RELATED WORK WITH CONTRACTORS INVOLVED AND EQUIPMENT TO BE FURNISHED. FOR CONSTRUCTION DETAILS NOT SHOWN, USE THE MANUFACTURER'S STANDARD DETAILS OR APPROVED SHOP DRAWINGS / DATA SHEETS.
5. VERIFY ALL ELEVATIONS AND DIMENSIONS OF STRUCTURAL ELEMENTS WITH ARCHITECTURAL DRAWINGS. IN CASE OF CONFLICT, NOTIFY ARCHITECT. THE CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR THEM. ALL DIMENSIONAL DISCREPANCIES ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT.
6. ALL WEATHER - EXPOSED SURFACES SHALL HAVE A WEATHER RESISTIVE BARRIER (WRB) TO PROTECT THE INTERIOR WALL COVERING. EXTERIOR OPENINGS SHALL BE FLASHED IN SUCH A MANNER AS TO MAKE THEM WATERPROOF.
7. ALL DIMENSIONS ARE TO FACE OF STUD/FRAMING UNLESS OTHERWISE NOTED.
8. 2X6 NOM. EXTERIOR WALL FRAMING & 2X4 NOM. INTERIOR WALL FRAMING, TYPICAL, UNLESS OTHERWISE NOTED.
9. ALTERATIONS, RENOVATIONS OR REPAIRS TO EXISTING ROOF/ CEILING, WALLS, & FLOOR CAVITIES SHALL BE INSULATED TO FULL DEPTH W/ INSULATION HAVING MIN. NOMINAL R-VALUE OF R3 PER INCH, UNLESS NOTED OTHERWISE.
10. CONTRACTOR TO VERIFY FINAL FINISH SELECTIONS W/ OWNER.
11. NO WORK TO START UNIT APPROVED PLANS ARE OBTAINED FROM THE APPLICABLE BUILDING DEPARTMENT.
12. ALL WORK SHALL CONFORM TO NATIONAL, STATE, AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
13. ALL UNNOTED OR NON-VISIBLE EASEMENTS ARE THE RESPONSIBILITY OF THE OWNER/ BUILDER
14. ANY OMISSIONS OR DISCREPANCIES OF PLANS AND/OR JOB CONDITIONS SHALL BE CLARIFIED WITH THE ARCHITECT/ ENGINEER BEFORE PROCEEDING WITH THE WORK.
15. NO DEVIATIONS OR CHANGES TO THE STRUCTURAL SYSTEM SHALL BE MADE UNLESS APPROVED BY THE ARCHITECT/ ENGINEER.
16. CONTRACTOR TO VERIFY DIMENSIONS OF FOUNDATION WITH FLOOR PLANS BEFORE THE START OF FRAMING.
17. CONTRACTOR TO PROVIDE DRY WELLS AS REQUIRED BY STATE AND LOCAL CODES.
18. DO NOT SCALE DRAWINGS, WRITTEN DIMENSIONS TAKE PRECEDENCE.
19. OWNER/BUILDER ARE RESPONSIBLE FOR ALL INSPECTIONS, APPROVALS, CERTIFICATES, CERT. OF OCCUPANCY OR COMPLETION AND U.L. APPROVAL.
20. THESE SET OF DRAWINGS ARE THE PROPERTY OF CORDTSEN DESIGN ARCHITECTURE AND SHALL NOT BE ALTERED OR BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT.
21. THE ARCHITECT IS NOT RETAINED FOR SUPERVISION OF THE WORK AND IS RESPONSIBLE FOR DESIGN INTENT ONLY.
22. THE CONTRACTOR SHALL OBTAIN CERTIFICATE OF OCCUPANCY.
23. THE CONTRACTOR SHALL KEEP PREMISES REASONABLY CLEAN AT ALL TIMES. AT THE COMPLETION OF WORK, THE CONTRACTOR SHALL REMOVE ALL RUBBISH, WASTE MATERIALS, TOOLS, ETC., CLEAN GLASS AND LEAVE WORK BROOM CLEAN.
24. THE CONTRACTOR SHALL CARRY WORKMAN'S COMPENSATION AND GENERAL LIABILITY INSURANCE. ALL SHALL COMPLY WITH STATE AND LOCAL CODES AND ORDINANCES.
25. THE CONTRACTOR SHOULD FULLY GUARANTEE HIS WORK AND THE WORK OF THE SUB-CONTRACTORS FOR A PERIOD OF AT LEAST ONE YEAR AFTER COMPLETION OF PROJECT.
26. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER, ARCHITECT/ENGINEER, AND THEIR AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSES AND EXPENSES, INCLUDING ATTORNEYS FEES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS OR EXPENSE (A) IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF INCLUDING THE LOSS OR USE RESULTING THEREFROM). (B) IS CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM, OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE REGARDLESS OF WHETHER OR NOT IT IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER.
27. ALL MATERIALS, ASSEMBLIES, AND METHOD OF CONSTRUCTION INCLUDING BUT NOT LIMITED TO FORM-WORK, BLOCK-WORK, FRAMING, NAILING, PLACING OF CONCRETE, ETC. ARE TO BE CAREFULLY SUPERVISED BY THE CONTRACTOR TO BE SURE THEY ARE IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS, APPLICABLE CODES AND GOOD PRACTICE. DEVIATIONS FROM THE DRAWINGS AND SPECIFICATIONS WILL NOT BE PERMITTED WITHOUT WRITTEN AUTHORIZATION OF THE ARCHITECT/ENGINEER.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SHOP DRAWINGS NEEDED, UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS AND CONDITIONS PERTAINING ARE TO BE FIELD VERIFIED.
29. CONTRACTOR TO REMOVE & RELOCATE AS REQUIRED ALL EXISTING WORK WHICH INTERFERES WITH NEW CONSTRUCTION IN A WORKMAN LIKE MANNER.
30. ALL MATERIALS ARE TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS, UNLESS NOTED OTHERWISE.
31. PLEASE NOTE THAT THESE PLANS ARE PROTECTED AGAINST ANY UNAUTHORIZED USE UNDER FEDERAL LAW BY THE ARCHITECTURAL WORKS COPYRIGHT PROTECTION ACT OF 1990 (AWCPA), WHICH HAS SEVERE PENALTIES.

ARCHITECT & CONTRACTOR SITE PROGRESS INSPECTION NOTE:

PRIOR TO RELEASE OF ANY AFFIDAVIT OR CERTIFICATES REQUIRED FROM THE ARCHITECT STIPULATING COMPLIANCE TO THE DRAWINGS, THE CONTRACTOR SHALL PROVIDE THE ARCHITECT WITH PHOTOGRAPHS AND/OR ACCESS TO INSPECT & TEST ALL SUBSTANTIAL WORK COMPLETION & EXISTING FOOTINGS. NOTABLY BUT NOT EXCLUSIVE OF SYSTEMS THAT WILL BE BURIED OR CONCEALED. FAILURE TO DO SO MAY RESULT IN DESTRUCTIVE METHODS TO EXPOSE SYSTEMS AT THE CONTRACTORS EXPENSE.

CODE REFERENCES

510 - BUILDING CODE COMMISSION

RISBC-1	RHODE ISLAND BUILDING CODE	2021
RISBC-3	RHODE ISLAND PLUMBING CODE	2021
RISBC-4	RHODE ISLAND MECHANICAL CODE	2021
RISBC-5	RHODE ISLAND ELECTRICAL CODE	2021
RISBC-8	STATE OF RHODE ISLAND ENERGY CONSERVATION CODE	2021
RISRC-1	STATE REHABILITATION BUILDING & FIRE CODE FOR EXISTING STRUCTURES	2021

450 - FIRE SAFETY CODE BOARD OF APPEAL AND REVIEW

	RHODE ISLAND FIRE SAFETY CODE SECTIONS 1 THRU 6	2021
RIFC	RHODE ISLAND FIRE CODE NFPA 1, 2018 WITH RHODE ISLAND AMENDMENTS	2021
RILSC	RHODE ISLAND LIFE SAFETY CODE NFPA 101, 2018 WITH RHODE ISLAND AMENDMENTS	2021
	RHODE ISLAND FIRE ALARM CODE NFPA 72, 2019 WITH RHODE ISLAND AMENDMENTS	2021

PROJECT INFORMATION

PHASE 01: NEW CONSTRUCTION OF 1 OF 4 ONE-STORY, 14,610 SF, 12 TRADESMAN UNIT BUILDING.

1. USE AND OCCUPANCY
   - RISBC-1: 306.2 MODERATE HAZARD FACTORY INDUSTRIAL = GROUP F-1

2. BUILDING TYPE
   - RISBC-1: 602.5 TYPE V = TYPE V-B

3. ALLOWABLE BUILDING HEIGHTS & AREAS
   - RISBC-1: TABLE 504.3 = 60'
   - RISBC-1: TABLE 504.4 (WITH SPRINKLERS) = 2 STORIES
   - RISBC-1: TABLE 506.2 (14,400 SF PROPOSED) = 34,000 SF

4. OCCUPANT LOAD
   - RISBC-1: TABLE 1004.5
     INDUSTRIAL AREA (PER UNIT) = 1,184 SF / 100 gross = 11.8
     OCCUPANT LOAD TOTAL = 12

FIRE RATINGS

5. BUILDING TO HAVE SPRINKLERS AS REQUIRED.

6. FIRE SEPARATION BETWEEN USES.
   ONE HOUR RATING PROVIDED BETWEEN UNITS
   - RISBC-1: TABLE 508.4
   - RILSC: TABLE 6.1.14.4.1 (b)

7. FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HRS)
   - RISBC-1: TABLE 601 (TYPE V-B)
   ALL ELEMENTS ARE 0 HRS

MEANS OF EGRESS

8. SINGLE MEANS OF EGRESS
   - RILSC: 40.2.4.1.2 (NEW GENERAL INDUSTRIAL OCCUPANCY)
   - RILSC: 40.2.5.1 (COMMON PATH OF TRAVEL DOES NOT EXCEED 100 FEET WHEN PROTECTED BY AN AUTOMATIC SPRINKLER SYSTEM)
   - RISBC-1: TABLE 1006.2.1 (SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY) max. 100' common path of egress travel
   - RISBC-1: TABLE 1006.3.3(2)(b) (MAXIMUM EXIT ACCESS TRAVEL DISTANCE OF 100 FEET)

9. MINIMUM NUMBER OF EXITS
   - RISBC-1: 1006.3.3 SINGLE EXIT SHALL BE PERMITTED IF ONE OF THE FOLLOWING CONDITIONS EXISTS.
     1. OCCUPANT LOAD AND COMMON PATH OF EGRESS TRAVEL DOES NOT EXCEED VALUES IN TABLE 1006.3.3(2)
     2. ROOMS, AREAS, AND SPACES COMPLYING WITH SECTION 1006.2.1 WITH EXCITS THAT DISCHARGE DIRECTLY TO THE EXTERIOR AT THE LEVEL OF EXIT DISCHARGE, ARE PERMITTED TO HAVE ONE EXIT OR ACCESS TO A SINGLE EXIT.

10. TRAVEL DISTANCE
    - RISBC-1: TABLE 1017.2 (MAX EXIT ACCESS TRAVEL DISTANCE IS 250 FEET)
    - RILSC: 40.2.6.1 (MAX TRAVEL TO EXIT IS 250 FEET, WHEN PROTECTED BY AN APPROVED AUTOMATIC SPRINKLER SYSTEM)

WINDOWS

11. NEW EXTERIOR GLAZED DOORS TO BE WITH IMPACT RESISTANT GLASS
    - RISBC-1: 1609.2 PROTECTION OF OPENINGS.
      IN WIND-BORNE DEBRIS REGIONS (TABLE 1608.1 & FIGURE 1609(A), GLAZING IN BUILDINGS SHALL BE IMPACT RESISTANT...

PLUMBING SYSTEMS

12. NUMBER OF PLUMBING FIXTURES: FACTORY/INDUSTRIAL
    - RISBC-1: TABLE 2902.1:
      MALE/FEMALE: (1 PER 100)
      - 1 WATER CLOSET & 1 LAVATORY
      - 1 DRINKING FOUNTAIN (2902.6 ...NOT REQUIRED FOR OCC LOAD OF 15 OR FEWER)
      - 1 SERVICE SINK WILL BE PROVIDED PER UNIT

13. - RISBC-1: 2902.2 SEPARATE FACILITIES. WHERE PLUMBING FIXTURES ARE REQUIRED SEPARATE FACILITIES SHALL BE PROVIDED FOR EACH SEX.
    EXCEPTIONS:
    2. ...NOT REQUIRED IN STRUCTURES OR TENANT SPACES WITH A TOTAL OCCUPANT LOAD, INCLUDING BOTH EMPLOYEES AND CUSTOMERS, OF 15 OR FEWER.

ACCESSIBILITY

14. ADA DOOR CLEARANCES
    - ICC 117.1: FIGURE 404.2.3.2
      ALLOW 18" ON PULL SIDE AND 12" ON PUSH SIDE

15. CLEAR WIDTH OF AN ACCESSIBLE ROUTE = 36"
    - ICC 117.1: FIGURE 403.5

ARCHITECTURAL SYMBOLS LEGEND

	ADA 5'-0" DIA. TURNING CIRCLES
1 / A5.1 / TYP.	DRAWINGS CALLOUT
1 / A3.0	EXTERIOR ELEVATIONS
REF. / REF. / A7.0 / REF. / REF.	INTERIOR ELEVATIONS
1 / A3.0	BUILDING SECTION
1 / A5.0	WALL SECTION
ID	GRID LINE
A	INTERIOR DOOR TAG
	INTERIOR DOOR TAG
ID	WALL TAG
1W	WINDOW & EXTERIOR DOOR TAG
P1	PLUMBING ACCESSORY & FIXTURE TAG
C1	CASEWORK TAG
L1	LIGHTING FIXTURE TAG
1	REVISION TAG & REVISION CLOUD
1 T.O. SUBFLOOR EL. 0'-0"	LEVEL INDICATOR
DINING AREA #999 SQ FT	ROOM TAG
P1	NOTE IDENTIFICATION BUBBLE
	CENTERLINE MARK
	SLOPED CEILING INDICATOR
P / PX	NORTH ARROW P=PROJECT NORTH N=TRUE NORTH
12:12	ROOF PITCH MARKER (PLAN)
12 / 8	ROOF PITCH MARKER (ELEVATION)

ABBREVIATIONS:

&: AND
L: ANGLE
@: AT (SPACING)
#: POUND, NUMBER
C : CENTER LINE
A/C: AIR CONDITIONING
ACP: ACOUSTICAL CEILING PANEL
ADA: AMERICANS WITH DISABILITIES ACT
ADJ: ADJUSTABLE
AFF: ABOVE FINISH FLOOR
AHU: AIR HANDLING UNIT
ALT: ALTERNATE
ALUM: ALUMINUM
APPROX: APPROXIMATE
ARCH: ARCHITECT, ARCHITECTURAL
AR: ABUSE RESISTANT
AVB: AIR AND VAPOR BARRIER
BIT: BITUMINOUS
BLDG: BUILDING
BSMT: BASEMENT
B/: BOTTOM OF
CAB: CABINET
CD: CONSTRUCTION DOCUMENTS
CF: CUBIC FEET/FOOT
CH: CEILING HEIGHT
CJ: CONTROL JOINT
C : CENTERLINE
CLG: CEILING
CLR: CLEAR
CMU: CONCRETE MASONRY UNIT
CO: CLEAN OUT
COL: COLUMN
CONC: CONCRETE
CONST: CONSTRUCTION
CONT: CONTINUOUS
COMP: COMPUTER
COMP: COMPOSITE
CPT: CARPET
CT: CERAMIC TILE
CUH: CABINET UNIT HEATER
D: DEPTH, DEEP
DBL: DOUBLE
DD: DESIGN DOCUMENTS
DEMO: DEMOLITION
DEPT: DEPARTMENT
DF: DRINKING FOUNTAIN
DIA: DIAMETER
DIM: DIMENSION
DN: DOWN
DWG:DRAWING
E: EAST
EA: EACH
EF: EXHAUST FAN
EIFS:EXTERIOR INSULATION AND FINISH SYSTEM
EJ: EXPANSION JOINT
EL: ELEVATION
ELEC:ELECTRICAL
ELEV:ELEVATOR
ELEV:ELEVATION
EOS: EDGE OF SLAB
EP: ELECTRICAL PANEL
EPDM: ETHYLENE-PROPYLENE-DIENE MEMBRANE
EQ: EQUAL
EQUIP: EQUIPMENT
EUH: ELECTRIC UNIT HEATER
EWC: ELECTRIC WATER COOLER
EXTG: EXISTING
EXT: EXTERIOR
FACP: FIRE ALARM CONTROL PANEL
FD: FLOOR DRAIN
FDN: FOUNDATION
FE: FIRE EXTINGUISHER
FEC: FIRE EXTINGUISHER & CABINET
FIN: FINISHED
FL: FLOOR
FLUOR: FLUORESCENT
FP: FIRE PROTECTION
FRP: FIBERGLASS REINFORCED POLYMER
FT: FOOT, FEET
FTG: FOOTING
GA: GAUGE, GAGE
GALV: GALVANIZED
GC: GENERAL CONTRACTOR
GFCMU: GROUND-FACED CONCRETE MASONRY UNIT
GFI: GROUND FAULT INTERRUPTER
GL: GLASS, GLAZING
GND: GROUND
GYP BD: GYPSUM BOARD
HT: HEIGHT
HB: HOSE BIBB
HDWD: HARD WOOD
HGT: HEIGHT
HM: HOLLOW METAL
HORIZ: HORIZONTAL
HP: HIGH POINT
HPC: HIGH PERFORMANCE COATING
HSS: HOLLOW STRUCTURAL SECTION
HVAC: HEAT, VENTALATION, & AIR CONDITIONING
HWH:HOT WATER HEATER
ID: INSIDE DIAMETER
INCL:INCLUDE(D), (ING)
INT: INTERIOR
JB: JUNCTION BOX
JAN: JANITOR'S CLOSET
LAM: LAMINATED
LAV: LAVATORY
LB: POUND
LF: LINEAR FEET
LLH: LONG LEG HORIZONTAL
LLV: LONG LEG VERTICAL
LP: LIGHTING PANEL
LSL: LAMINATED STRAND LUMBER
LVL: LAMINATED VENEER LUMBER
MAX: MAXIMUM
MECH: MECHANICAL
MTL: METAL
MFR: MANUFACTURER
MIN: MINIMUM
MISC: MISCELLANEOUS
MO: MASONRY OPENING
MR: MOISTURE RESISTANT
MTD: MOUNTED
N/A: NOT APPLICABLE
N: NORTH
NIC: NOT IN CONTRACT
NPS: NOMINAL PIPE SIZE
NTS: NOT TO SCALE
OC: ON CENTER
OCC: OCCUPANCY
OF: OVER FLOW
OD: OUTSIDE DIAMETER
OH: OPPOSITE HAND
OH. OVERHEAD
OPP: OPPOSITE
OSB: ORIENTED STRAND BOARD
OZ: OUNCE
PA: PUBLIC ADDRESS
PART: PARTIAL
PERP:PERPENDICULAR
PL: PLATE/PROPERTY LINE
PLAM: PLASTIC LAMINATE
PLYWD: PLYWOOD
POL: POLISHED
PREFAB: PREFABRICATED
PSI: POUNDS PER SQUARE INCH
PSL: PARALLEL STRAND LUMBER
PTD: PAINTED
PT: PRESSURE TREATED
PVC: POLYVINYL CHLORIDE CONDUIT
PVMT: PAVEMENT
QT: QUARRY TILE
QTY: QUANTITY
R: RISER, RADIOUS
RCP: REFLECTED CEILING PLAN
RCP: REINFORCED CONCRETE PIPE
RD: ROOF DRAIN
RE: REFERENCE
REBAR: REINFORCING BAR
RCPT: RECEPTACLE
REINF: REINFORCE(D),(ING)
REQ: REQUIRED
REV: REVISION
RM: ROOM
RMV: RADON MITIGATION VENT
RO: ROUGH OPENING
RPM: REVOLUTIONS PER MINUTE
RTU: ROOFTOP UNIT
RS: ROLLER SHADE
RV: ROOF VENT
RWL: RAIN WATER LEADER
S: SOUTH
SAN: SANITARY
SAPMP: SOUND ABSORBING PERFORATED METAL PANEL
SCHED: SCHEDULE
SD: SCHEMATIC DESIGN
SDCP: SOUND DIFFUSING CEILING PANEL
SDWP: SOUND DIFFUSING WALL PANEL
SF: SQUARE FOOT, FEET
SHM: SECURITY HOLLOW METAL
SHT: SHEET
SIM: SIMILAR
SOG: SLAB ON GRADE
SPECS: SPECIFICATIONS
SQ: SQUARE
SS: STAINLESS STEEL
ST: STORM/STORAGE
STC: SOUND TRANSMISSION CLASS
STD: STANDARD
STL: STEEL
STOR: STORAGE
STRUCT: STRUCTURAL
SYS: SYSTEM
T: TREAD
T&B: TOP & BOTTOM
T&G: TONGUE & GROOVE
T/: TOP OF
T/F: TOP OF FRAME
T/M: TOP OF MASONRY
T/S: TOP OF STEEL
T/W: TOP OF WALL
TEL: TELEPHONE
TEMP: TEMPORARY
TPO: THERMOPLASTIC POLYOEFIN ROOFING
TYP: TYPICAL
TV: TELEVISION
UH: UNIT HEATER
UON: UNLESS OTHERWISE NOTED
UV: UNIT VENTILATOR
V: VOLT
VCT: VINYL COMPOSITION TILE
VERT: VERTICAL
VIF: VERIFY IN FIELD
VIN: VINYL
W: WEST
W/: WITH
W/O: WITHOUT
WC: WATER CLOSET
WD: WOOD
WM: WIRE MESH
WR: WATER RESISTANT
WT: WEIGHT
WWF: WELDED WIRE FABRIC
YD: YARD DRAIN

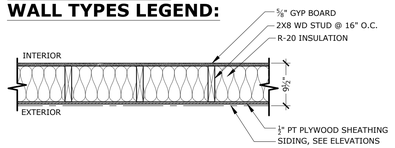
RHODE ISLAND COMMERCIAL ENERGY CODE CLIMATE ZONE 5

USE GROUP	ROOFS			WALLS ABOVE GRADE				BELOW GRADE WALL	FLOORS		SLAB ON GRADE		OPAQUE DOORS	VERTICAL FENESTRATION				SKYLIGHT U-FACTOR	SKYLIGHT SHGC
	INSULATION ENTIRELY ABOVE ROOF DECK	METAL BUILDINGS (W/ R-5 THERMAL BLOCKS)	ATTIC & OTHER	MASS	METAL BUILDING	METAL FRAMED	WOOD FRAMED & OTHER		MASS FLOOR	JOIST/ FRAMING STEEL/ WOOD	UNHEATED SLABS	HEATED SLABS	SWINGING	ROLL-UP OR SLIDING	FIXED U-FACTOR	OPERABLE U-FACTOR	ENTRANCE DOORS U-FACTOR	VERTICAL SHGC		
ALL OTHERS	R-25CI	R-19 + R-11LS	R-38	R-11.4 CI	R13 + R-13CI	R-13 + R-7.5 CI	R-13 + R-3.8 CI OR R-20	R-7.5 CI	R-10CI	R-30	R-10 FOR 24" BELOW GRADE	R-15 FOR 36" BELOW GRADE	U-0.37	R-4.75	0.38	0.45	0.77	0.40	0.50	0.40

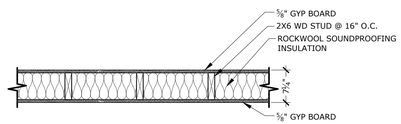
ENERGY/AIR SEALING NOTES:

1. ALL "MANDATORY" PROVISIONS OF CHAPTER 4 OF SBC-8 SHALL BE MET
2. ALL MECHANICAL HEATING AND COOLING CALCULATIONS SHALL BE BASED ON ACCA MANUAL 'J'
3. ALL EQUIPMENT SHALL BE SIZED AS PER ACCA MANUAL 'S'
4. ALL DUCTWORK AND RELATED COMPONENTS SHALL BE DESIGN AS PER ACCA MANUAL 'D'
5. INSTALL ALL EQUIPMENT AND COMPONENTS AS PER MAN. SPECIFICATIONS
6. BUILDING CAVITIES SHALL NOT BE USED AS DUCTS OF PLENUMS
7. VENTED ATTICS WITH AIR PERMEABLE INSULATION SHALL HAVE FOAM AIR BAFFLE ADJACENT TO SOFFIT AND EAVE VENTS THAT EXTEND OVER INSULATION
8. ALL AIR BARRIERS AND THERMAL BARRIER COMPONENTS SHALL BE INSTALLED AS PERMANUFACTURER'S INSTRUCTIONS.
9. EXTERIOR THERMAL ENVELOPE INSULATION FOR FRAMED WALLS SHALL BE INSTALLED IN SUBSTANTIAL CONTACT & CONTINUOUS ALIGNMENT WITH BUILDING ENVELOPE AIR BARRIER.
10. BREAKS OR JOINTS IN THE AIR BARRIER SHALL BE FILLED OR REPAIRED.
11. ALL WALL, FLOOR, AND CEILING INSULATION SHALL BE INSTALLED AS PER MANU'S INSTRUCTIONS.
12. PROVIDE AIR SEALING GASKET OR CAULK AT JUNCTIONS BETWEEN CEILING AND WALLS WHEN GYPSUM BOARD IS INSTALLED.
13. U-FACTORS OF FENESTRATION PRODUCTS SHALL BE DETERMINED IN ACCORDANCE WITH NFRC 100. SHGC AND VT SHALL BE DETERMINED IN ACCORDANCE W/ NFRC 200.
14. ALL FENESTRATION PRODUCTS SHALL BE LABELED WITH U-FACTOR, SHGC, AND VT.
15. CODE COMPLIANT ENERGY COMPLIANCE CERTIFICATE SHALL BE POSTED BY THE BUILDER ON THE OUTSIDE OF THE ELECTRICAL PANEL OR APPROVED LOCATION AS PER CODE.

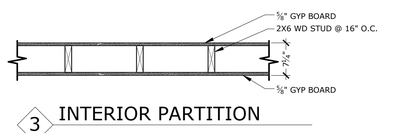
ARCHITECTURAL WALL TYPES LEGEND:



1 EXTERIOR WALL- TYPICAL



2 INTERIOR PARTITION - UL305 ONE-HOUR RATING



3 INTERIOR PARTITION

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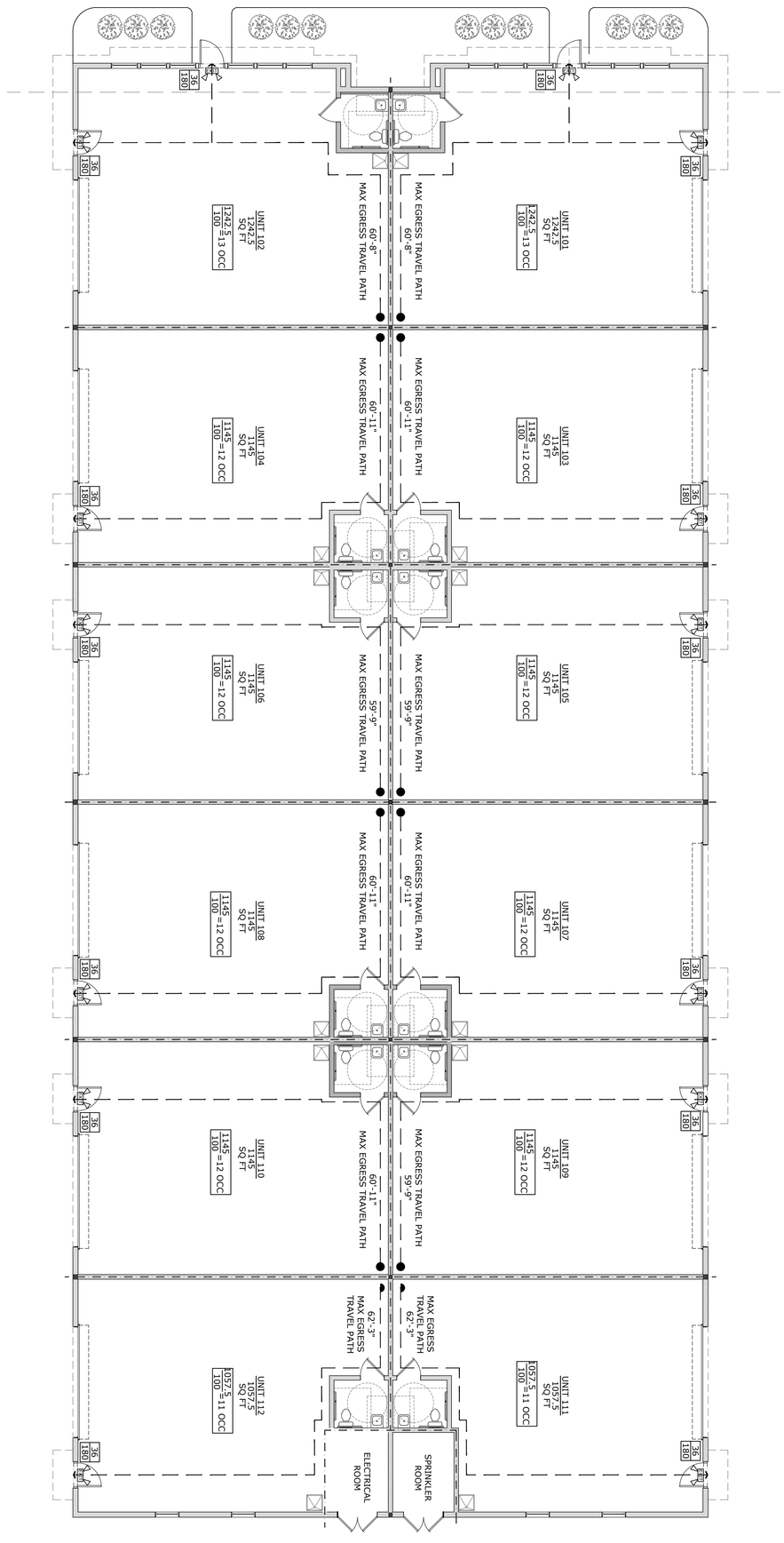
CordtsenDesign.com
401.619.4689

REVISIONS:

DESCRIPTION: GENERAL NOTES & CODE REVIEW
SCALE: N/A
DATE: NOVEMBER 22, 2024

CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

A0.1



1 BUILDING 1: TRAVEL DISTANCE FLOOR PLAN

Scale: 1/8" = 1'-0"

A0.2

CODDINGTON COVE COMMONS

300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

DESCRIPTION: TRAVEL DISTANCE FLOOR PLAN

SCALE: 1/8"=1'-0"

DATE: NOVEMBER 22, 2024

REVISIONS:

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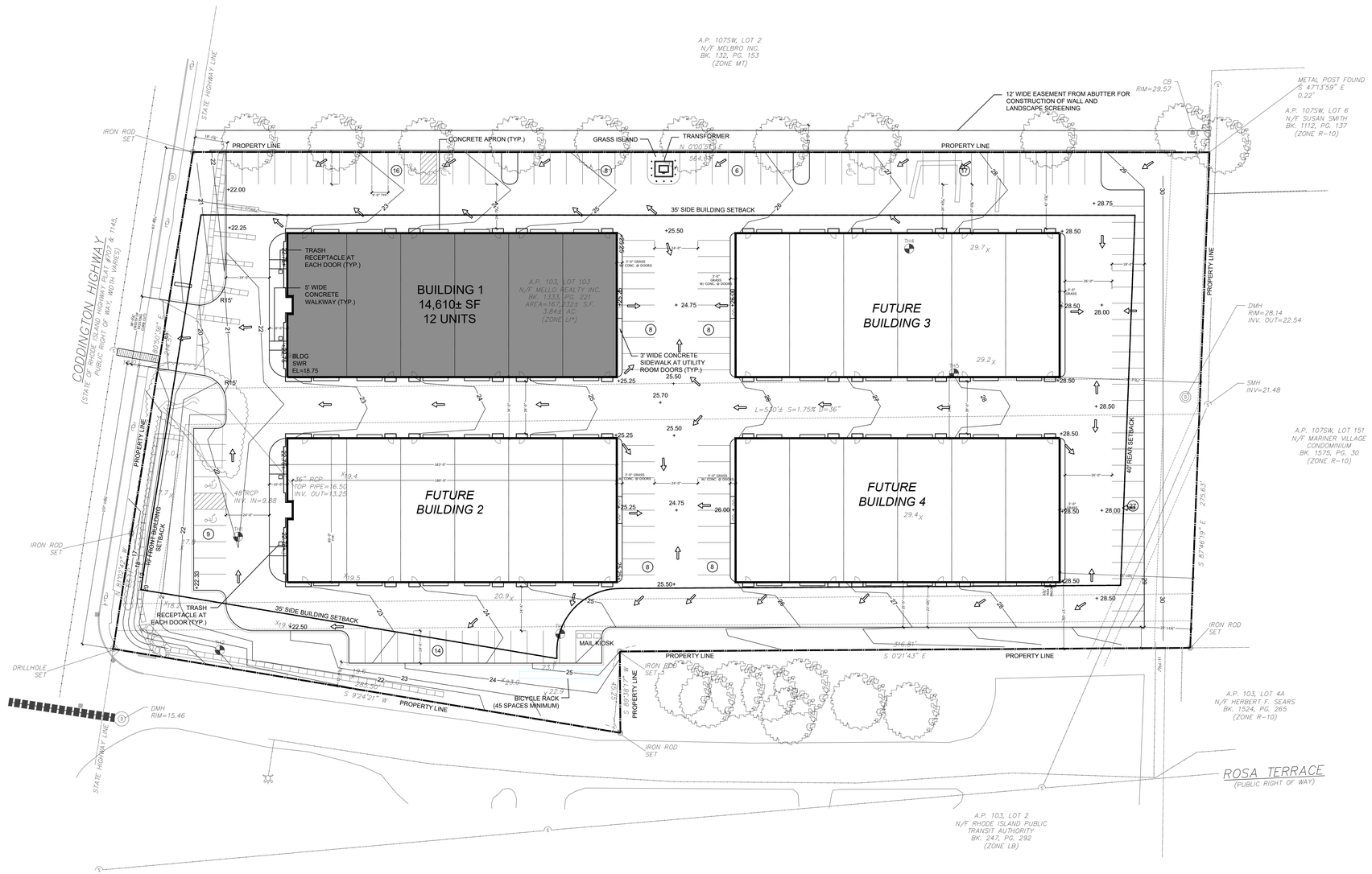

FOR REFERENCE ONLY:
SEE DRAWINGS BY NORTHEAST ENGINEERS FOR CIVIL DRAWINGS

1 ARCHITECTURAL SITE PLAN
Scale: 1/32"= 1'-0"

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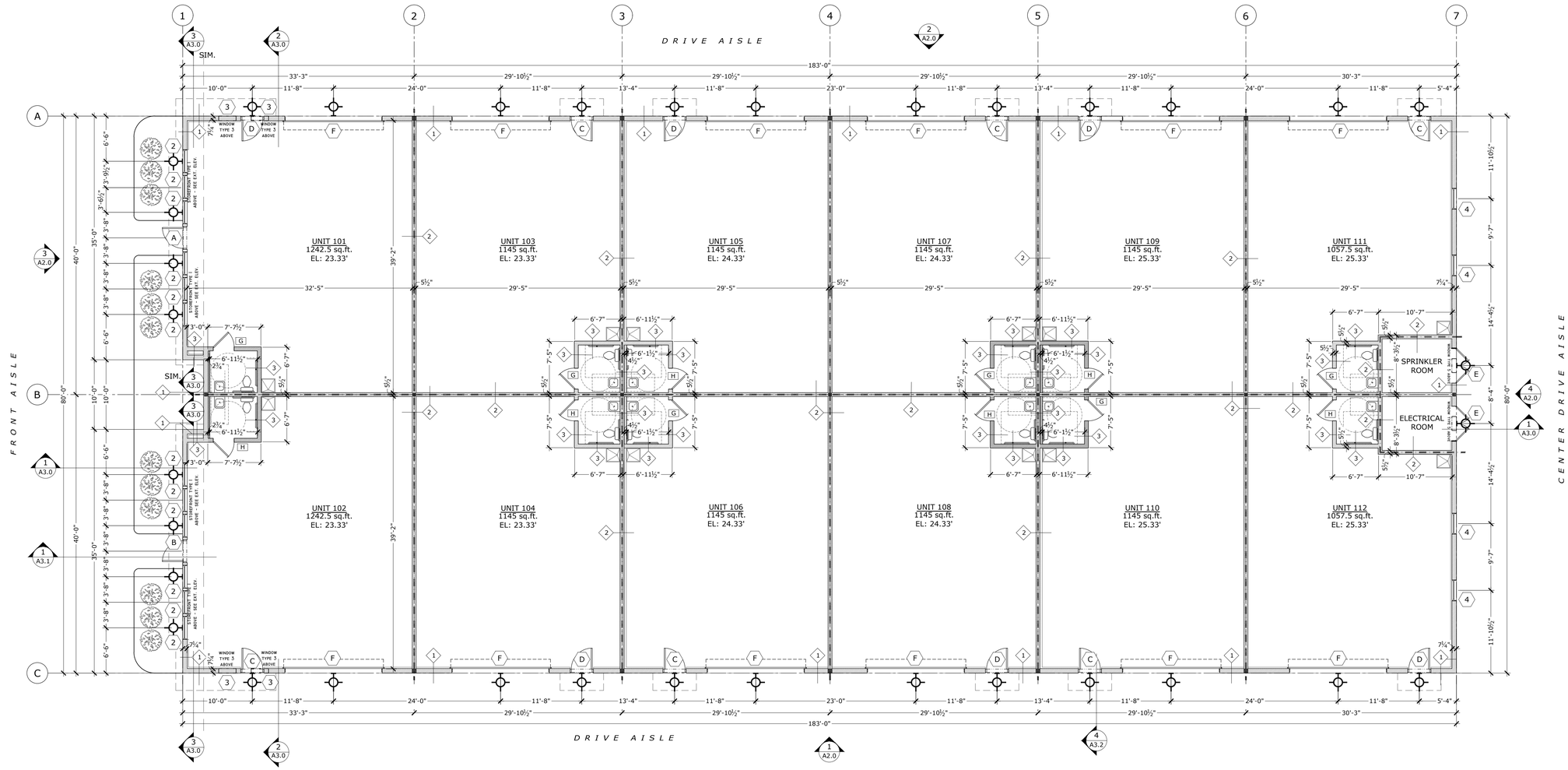
REVISIONS:

DESCRIPTION: ARCHITECTURAL SITE PLAN
SCALE: 1/32"=1'-0"
DATE: NOVEMBER 22, 2024

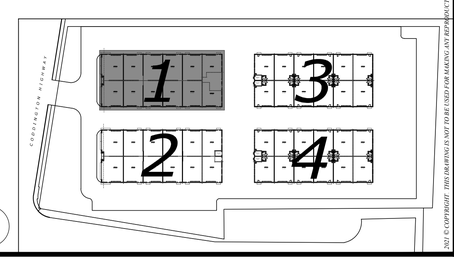
CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

A0.3



1 BUILDING 1: FLOOR PLAN
Scale: 1/8"= 1'-0"

GENERAL NOTES:
1. ALL DIMENSIONS FROM EITHER SIDE OF FACE OF STUD.
2. OVERALL EXTERIOR DIMENSIONS TO EXTERIOR FACE OF STUD.



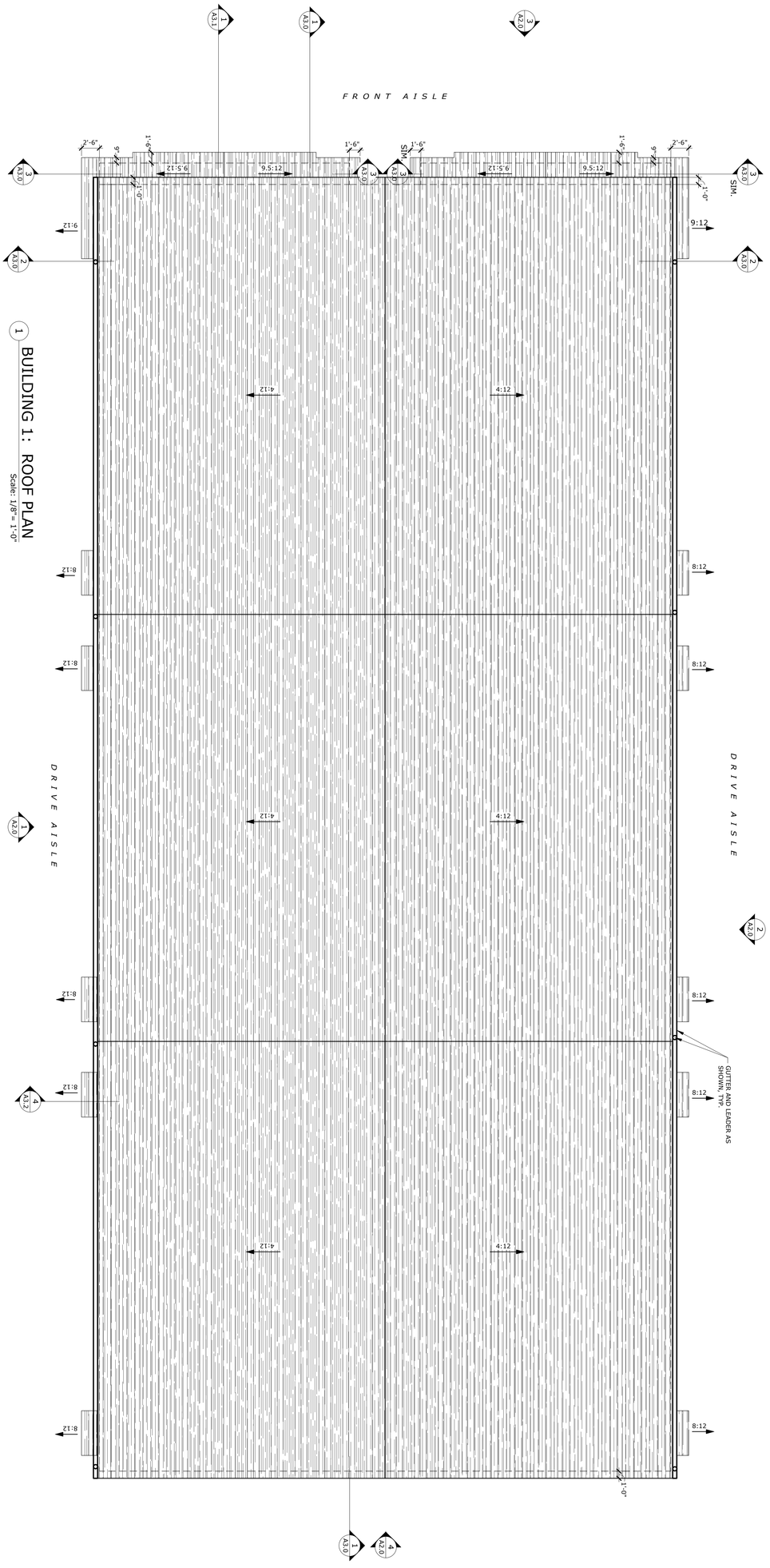
CORDISEN DESIGN ARCHITECTURE
42 West Main Road
Middletown, RI 02842
CordisenDesign.com
401.619.4489

REVISIONS:

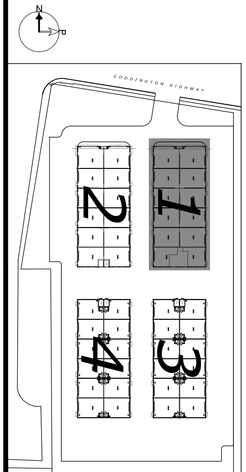
DESCRIPTION: BUILDING 1: FLOOR PLAN
SCALE: 1/8"=1'-0"
DATE: NOVEMBER 22, 2024

CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

A1.0



1 BUILDING 1: ROOF PLAN
Scale: 1/8" = 1'-0"



A1.1

CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

DESCRIPTION: BUILDING 1: ROOF PLAN
SCALE: 1/8"=1'-0"
DATE: NOVEMBER 22, 2024

REVISIONS:

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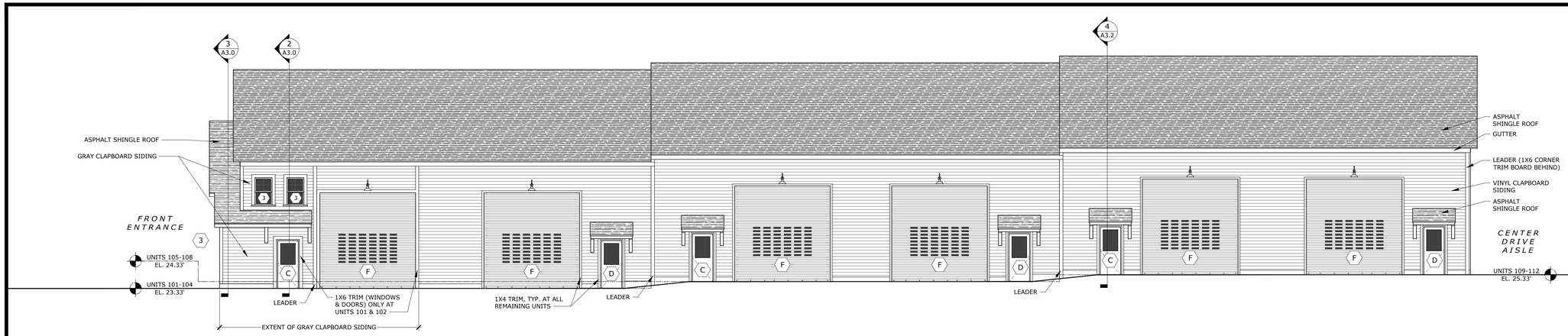
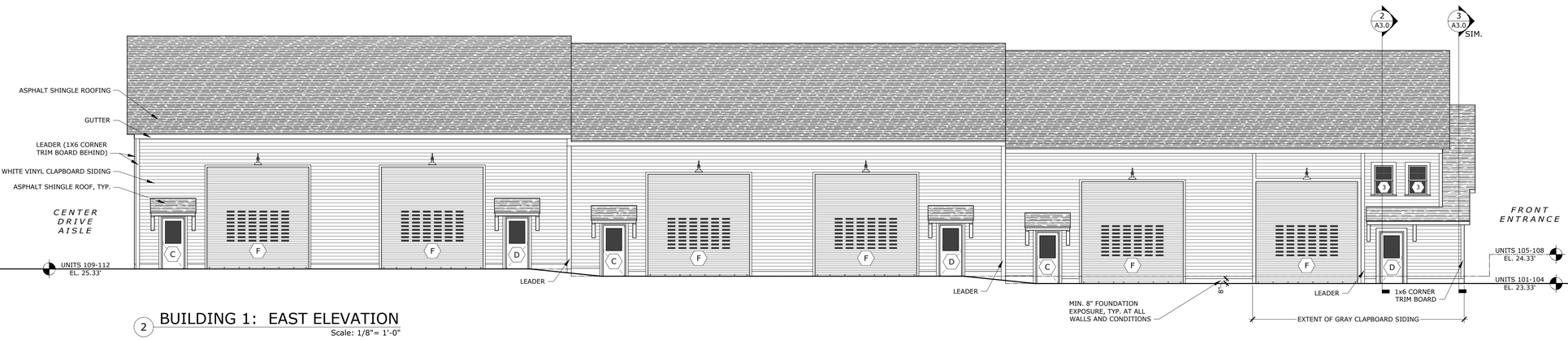


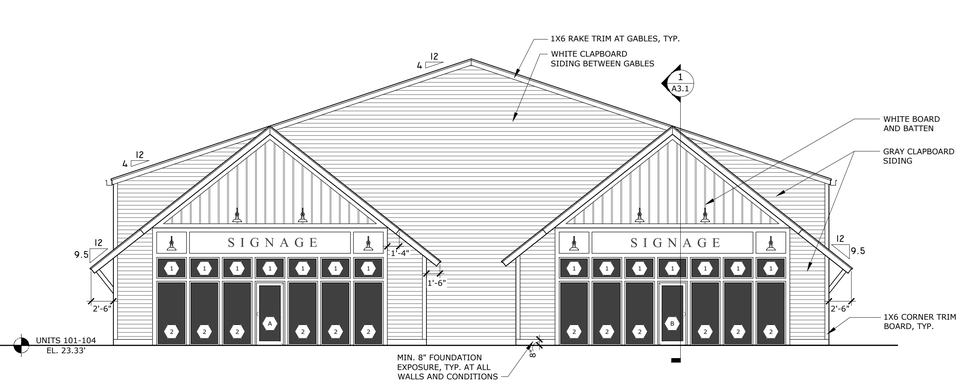
1 BUILDING 1: WEST ELEVATION

Scale: 1/8"= 1'-0"



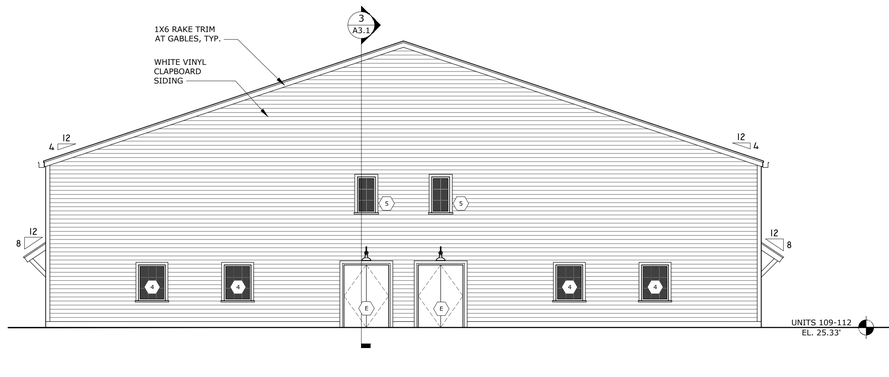
2 BUILDING 1: EAST ELEVATION

Scale: 1/8"= 1'-0"



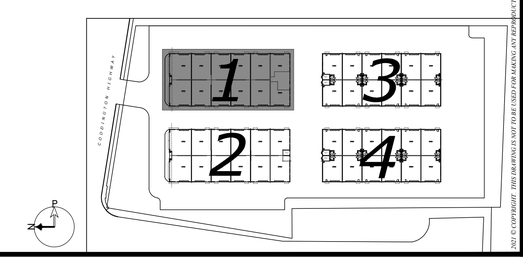
3 BUILDING 1: NORTH ELEVATION

Scale: 1/8"= 1'-0"



4 BUILDING 1: SOUTH ELEVATION

Scale: 1/8"= 1'-0"



CORDISEN DESIGN ARCHITECTURE
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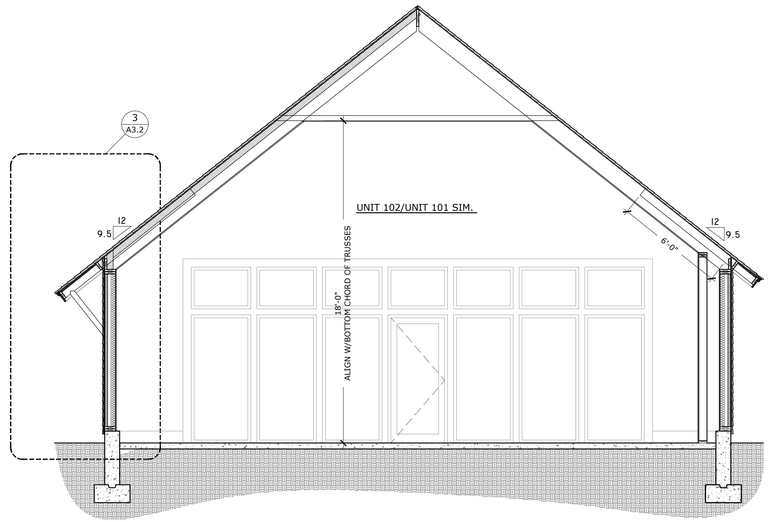
REVISIONS:

DESCRIPTION: BUILDING 1: EXTERIOR ELEVATIONS
SCALE: 1/8"= 1'-0"
DATE: NOVEMBER 22, 2024

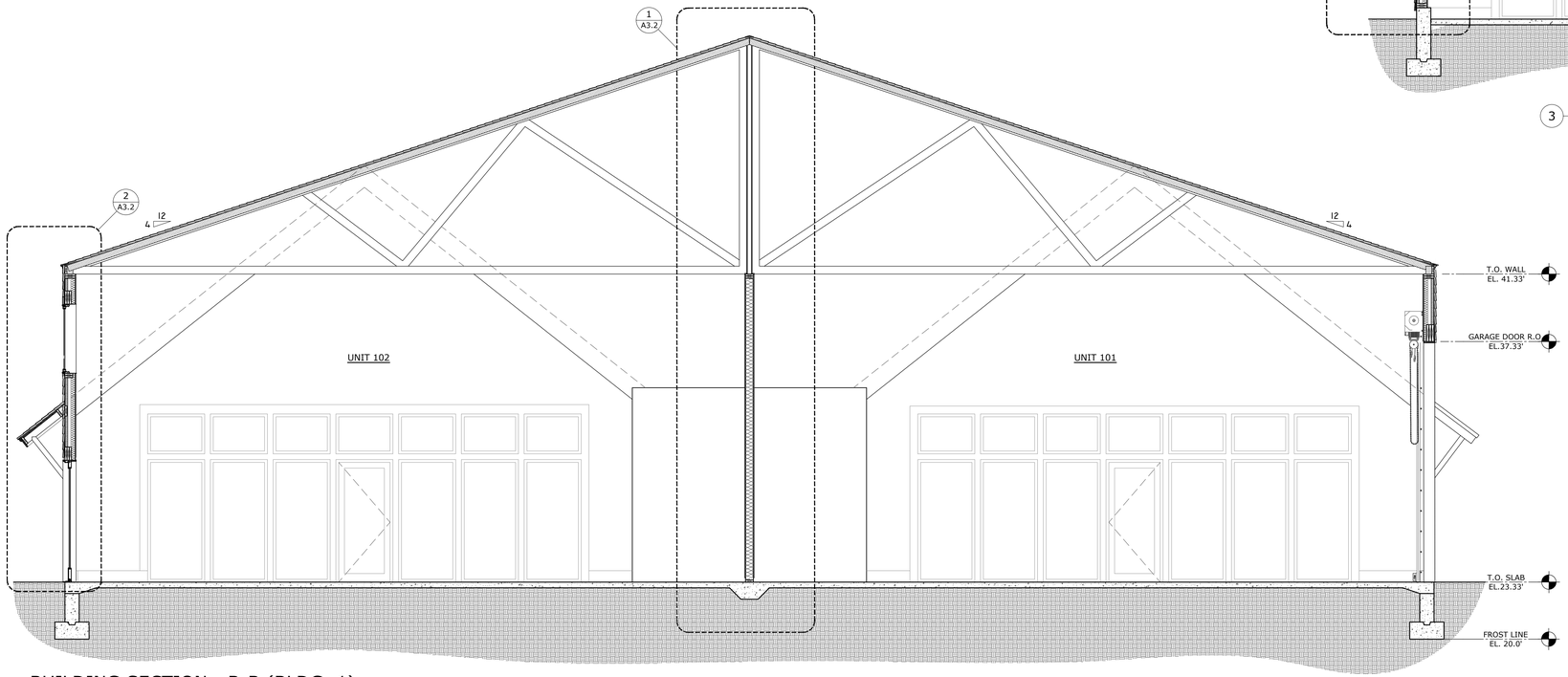
CODDINGTON COVE COMMONS

300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

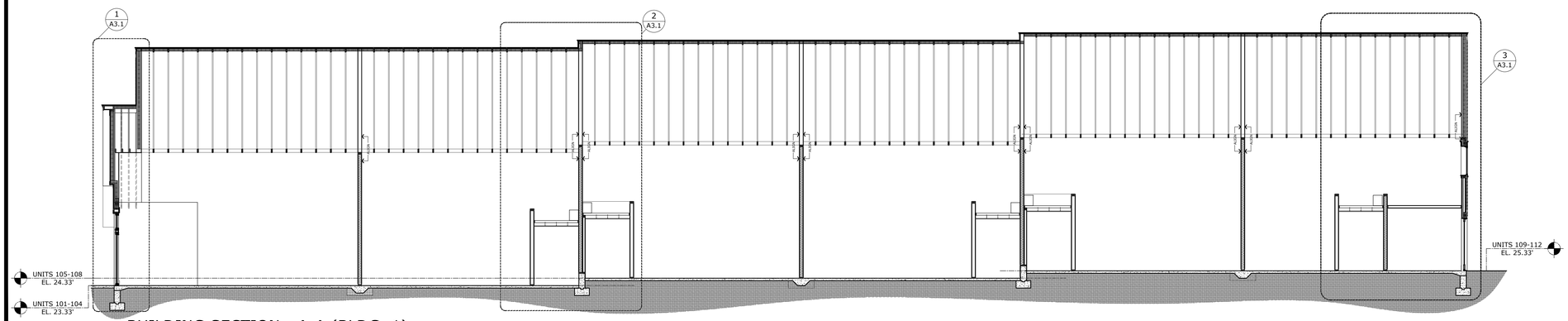
A2.0



3 BUILDING SECTION: C-C (BLDG. 1)
Scale: 1/4"= 1'-0"



2 BUILDING SECTION: B-B (BLDG. 1)
Scale: 1/4" = 1'-0"



1 BUILDING SECTION: A-A (BLDG. 1)
Scale: 1/8"= 1'-0"

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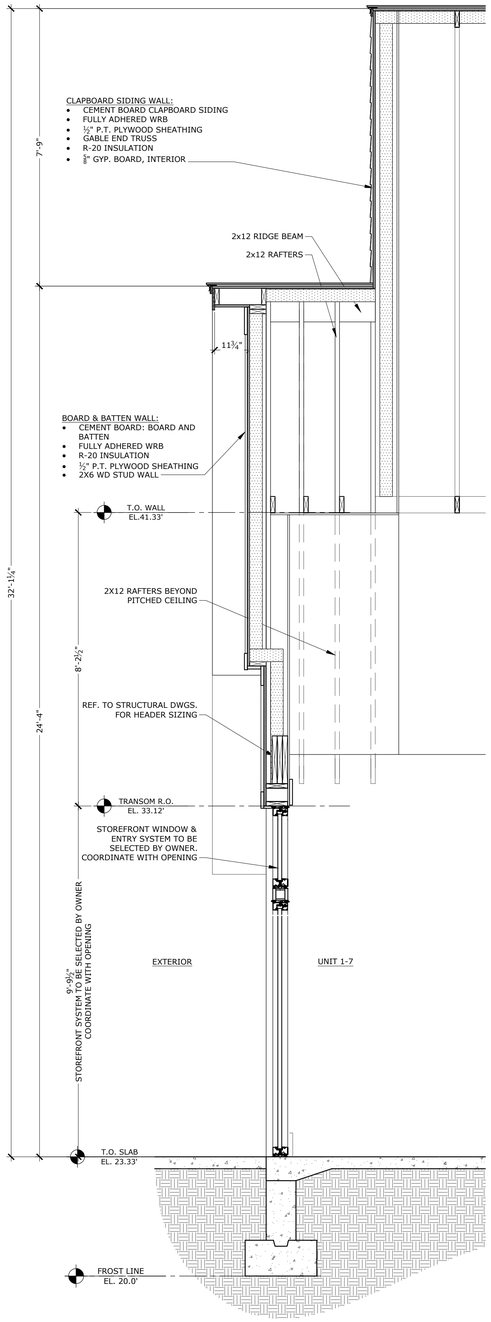
REVISIONS:

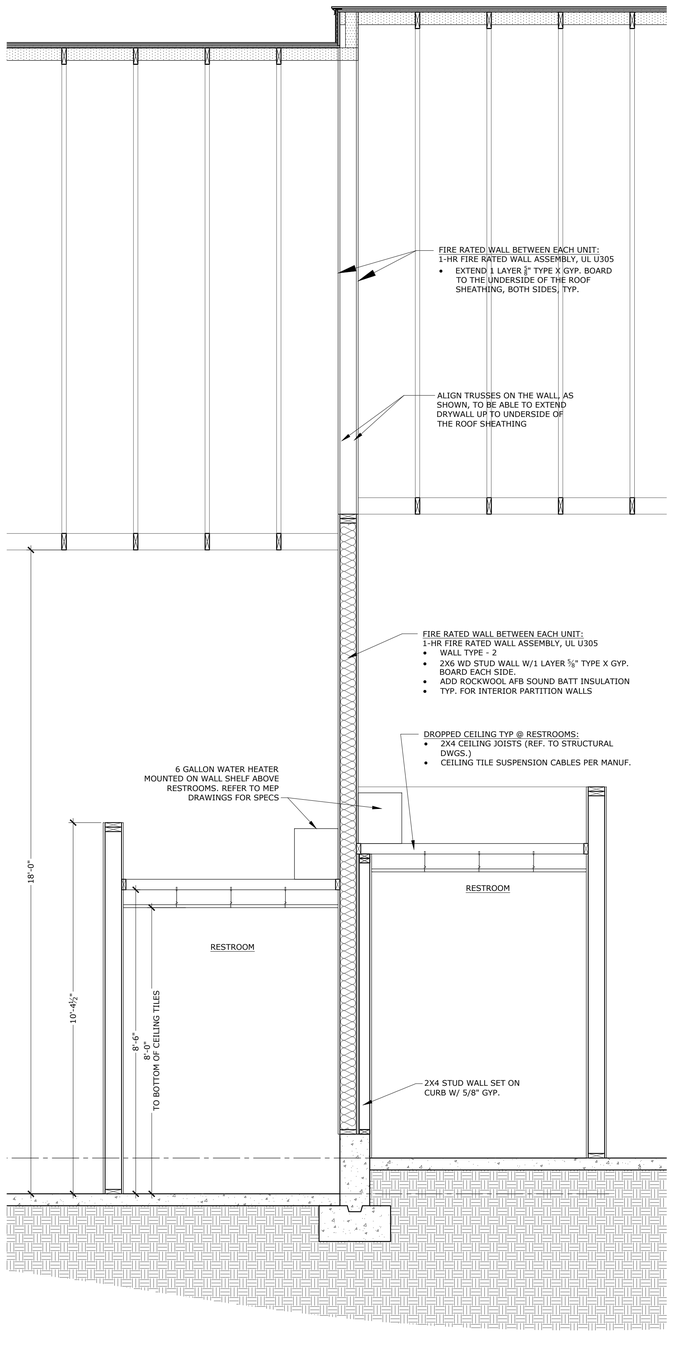
DESCRIPTION: BUILDING SECTIONS
SCALE: 1/4"=1'-0"
DATE: NOVEMBER 22, 2024

CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

A3.0



1 BUILDING SECTION
Scale: 1/2"= 1'-0"



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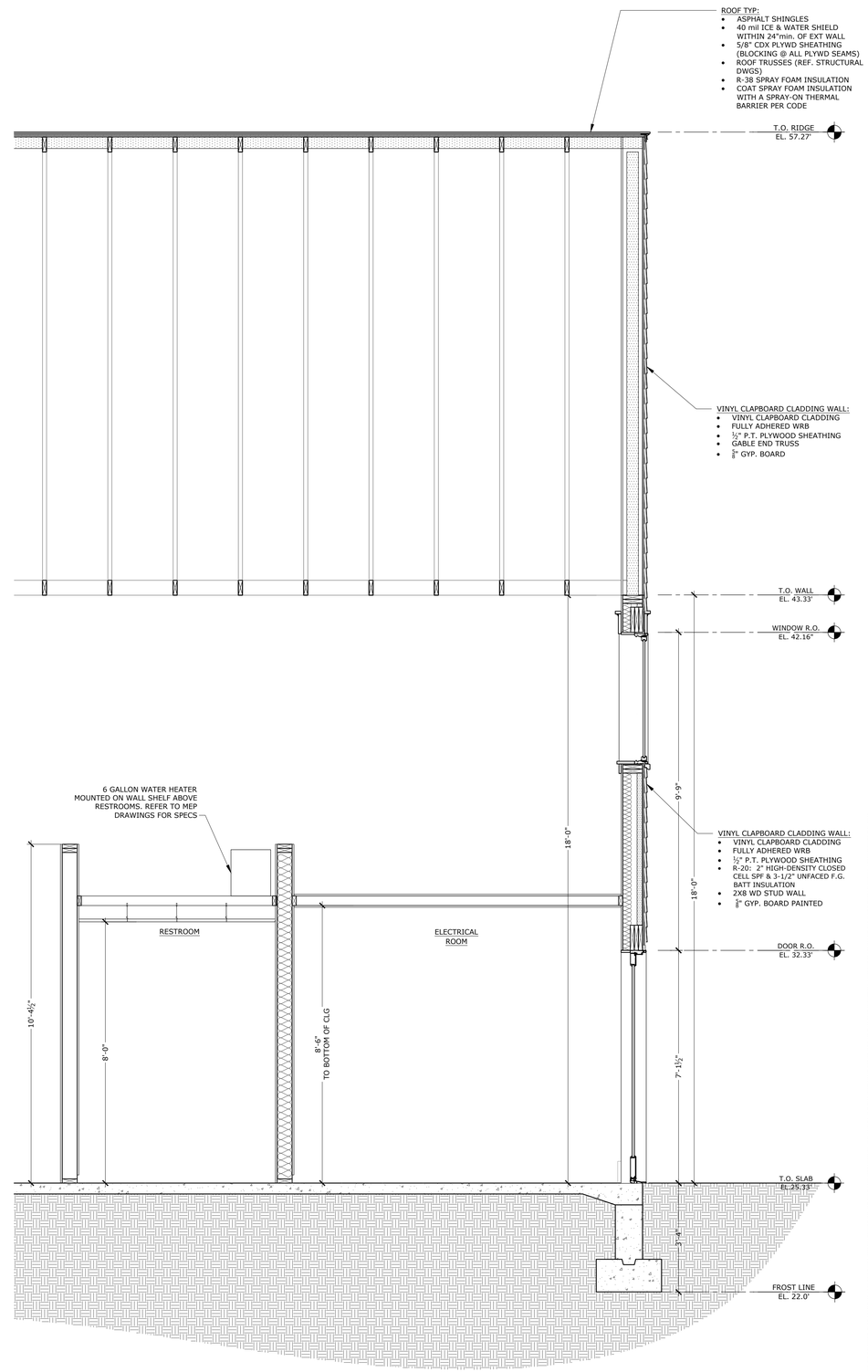
Scale: 1/2"= 1'-0"



3 BUILDING SECTION
Scale: 1/2"= 1'-0"

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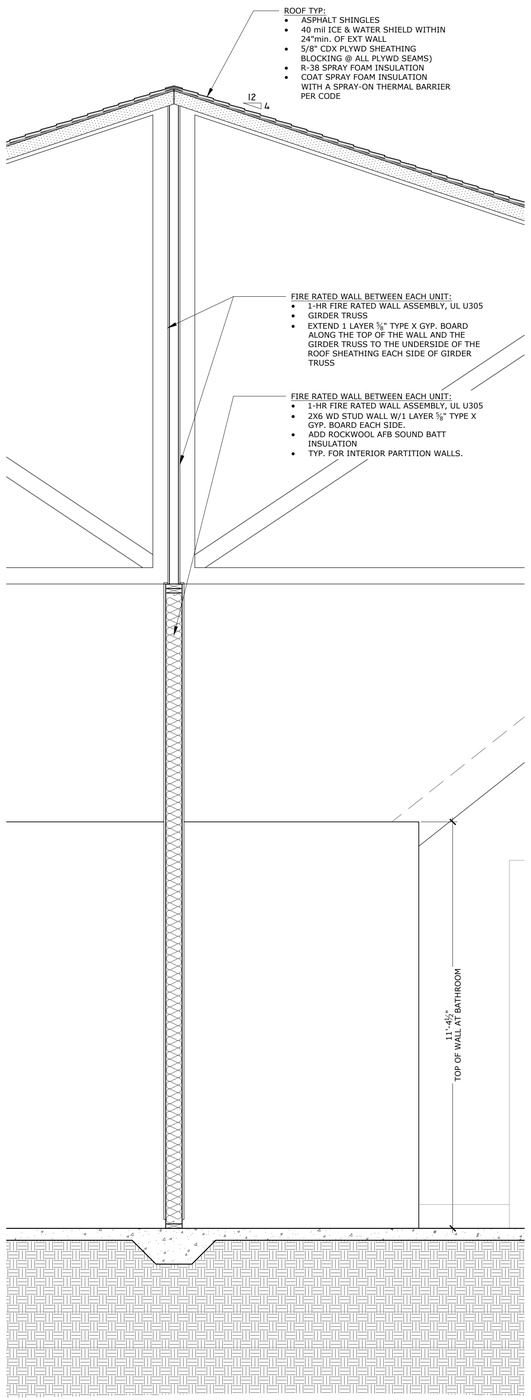
REVISIONS:

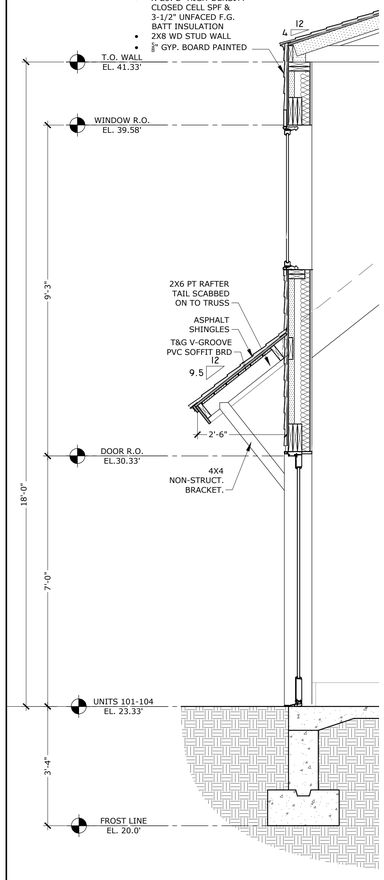
DESCRIPTION: BUILDING SECTIONS
SCALE: 1/4"=1'-0"
DATE: NOVEMBER 22, 2024

CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

A3.1



1 BUILDING SECTION
Scale: 1/2"= 1'-0"



2 BUILDING SECTION
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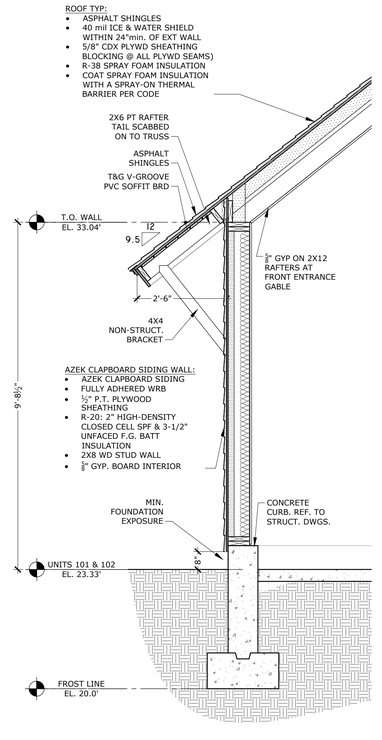

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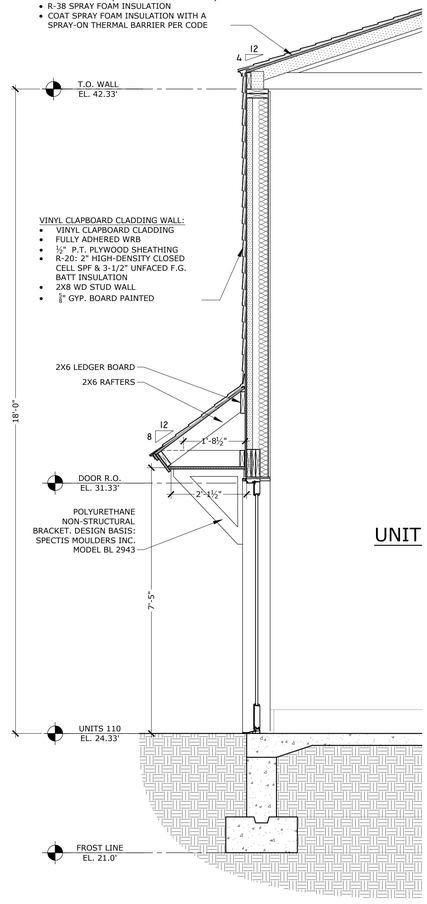
Scale: 1/2"= 1'-0"



4 BUILDING SECTION
Scale: 1/2"= 1'-0"

UNIT

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REVISIONS:

DESCRIPTION: BUILDING SECTIONS
SCALE: 1/4"= 1'-0"
DATE: NOVEMBER 22, 2024

CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

A3.2

EXTERIOR WINDOW SCHEDULE

- TYPICAL B.O. HEADER ABOVE SUBFLOOR FOR UNITS W/O TRANSOM UNIT IS 6'-11" AT GROUND FLOOR, FIRST FL, AND SECOND FL, UNLESS NOTED OTHERWISE ON PLANS/ELEV/SEC OR BY MANUFACTURER -
- REFERENCE PLANS FOR JAMB DEPTH - ALL WINDOWS & DOORS SHALL MEET & BE LABELED AAMA/ WDMA/ CSA 101/ I,S,2/ A440 - ALL GLAZING SHALL MEET & BE LABELED NFRC STANDARDS -

NOTATION	CALL NO. & OPERATION	TYPE	MAKE / MODEL	UNIT SIZE WxH (R.O. AS PER MANU.)	TEMPERED GLASS (C)	EXT / INT COLOR	GRILLE PATTERN(D)	HARDWARE / FINISH
1		STOREFRONT		3'-4" x 2'-4"	YES	BLACK/BLACK	SPEC. EQ. LT	N/A
2		STOREFRONT		3'-4" x 7'-2"	YES	BLACK/BLACK	SPEC. EQ. LT	OWNER TO SELECT
3		STOREFRONT (DOUBLE HUNG LOOK)		2'-6" x 4'-0"	NO	BLACK/BLACK	SPEC. EQ. LT	OWNER TO SELECT
4		STOREFRONT WINDOW		3'-0" x 4'-0"	NO	BLACK/BLACK	SPEC. EQ. LT	OWNER TO SELECT
5		STOREFRONT WINDOW		2'-0" x 4'-0"	NO	BLACK/BLACK	SPEC. EQ. LT	N/A

(A) GLASS TYPE TO BE DOUBLE IG, ARGON FILLED, HIGH PERFORMANCE LOW-E4 OR BETTER.
(B) EMERGENCY ESCAPE OPENINGS AS PER SECTION R310 OF SBC-2: - NET CLEAR OPENING = 5.7 S.F. (5.0 S.F. FOR GRADE FLOOR WINDOWS) - NET CLEAR HEIGHT = 24" - NET CLEAR WIDTH = 20" - MAXIMUM SILL HEIGHT = 44"
(C) GLAZING INSTALLED IN HAZARDOUS LOCATIONS AS DEFINED IN SECTION R308.4 OF SBC-2 SHALL BE SAFETY GLAZING.
(D) GRILLES TO BE PERMANENT 7/8" SIMULATED DIVIDED LIGHTS UNLESS NOTED OTHERWISE.
(E) PROVIDE WINDOW OPENING CONTROL DEVICES (W.O.C.D.)THAT COMPLY WITH ASTM F2090 FOR OPERABLE UNITS W/ SILLS MORE THAN 72" ABOVE GRADE AND LESS THAN 24" A.F.F.
(F) PROVIDE CORROSION RESISTANT HARDWARE SUITABLE FOR COSTAL ENVIRONMENT

*** ALL WINDOWS AND DOORS W/GLAZING MUST BE IMPACT RATED ***

EXTERIOR DOOR SCHEDULE

- TYPICAL B.O. HEADER ABOVE SUBFLOOR FOR UNITS W/O TRANSOM UNIT IS 6'-11" AT GROUND FLOOR, FIRST FL, AND SECOND FL, UNLESS NOTED OTHERWISE ON PLANS/ELEV/SEC OR BY MANUFACTURER -
- REFERENCE PLANS FOR JAMB DEPTH - ALL WINDOWS & DOORS SHALL MEET & BE LABELED AAMA/ WDMA/ CSA 101/ I,S,2/ A440 - ALL GLAZING SHALL MEET & BE LABELED NFRC STANDARDS -

NOTATION	CALL NO.	DOOR SWING	TYPE / PANEL STYLE	MAKE / MODEL(E)	UNIT SIZE WxH	TEMPERED GLASS (C)	EXT / INT COLOR	HARDWARE / FINISH
A		RH	OUTSWING STOREFRONT		3'-0" x 7'-0"	YES	BLACK/BLACK	OWNER TO SELECT
B		LH	OUTSWING STOREFRONT		3'-0" x 7'-0"	YES	BLACK/BLACK	OWNER TO SELECT
C		LH	INSWING W/ HALF LITE		3'-0" x 7'-0"	YES	GRAY/GRAY	OWNER TO SELECT
D		RH	INSWING W/ HALF LITE		3'-0" x 7'-0"	YES	GRAY/GRAY	OWNER TO SELECT
E		N/A	DOUBLE DOORS - NO LITE		2'-6" x 7'-0"	NO	GRAY/GRAY	OWNER TO SELECT
F		N/A	GARAGE DOOR		14'-0" x 14'-0"	NO	GRAY/GRAY	OWNER TO SELECT

(A) GLASS TYPE TO BE DOUBLE IG, ARGON FILLED, HIGH PERFORMANCE LOW-E4 OR BETTER.
(B) EMERGENCY ESCAPE OPENINGS AS PER SECTION R310 IN SBC-2: - NET CLEAR OPENING = 5.7 S.F. (5.0 S.F. FOR GRADE FLOOR WINDOWS) - NET CLEAR HEIGHT = 24" - NET CLEAR WIDTH = 20" - MAXIMUM SILL HEIGHT = 44"
(C) GLAZING INSTALLED IN HAZARDOUS LOCATIONS AS DEFINED IN SECTION R308.4 OF SBC-2 SHALL BE SAFETY GLAZING.
(D) GRILLES TO BE PERMANENT 7/8" SIMULATED DIVIDED LIGHTS UNLESS NOTED OTHERWISE.
(E) FOR OVERHEAD GARAGE DOORS PROVIDE 'LIFTMASTER, ELITE SERIES 3585 BELT DRIVE' WITH REMOTE CONTROL AUTOMATIC OPENER, EXTERIOR TOUCH KEY PADS, TRACKS AND WEATHER-STRIPPING FOR A COMPLETE OPERATIONAL SYSTEM. PROVIDE SHOP DRAWINGS TO ARCHITECT FOR REVIEW.
(F) PROVIDE CORROSION RESISTANT HARDWARE SUITABLE FOR COSTAL ENVIRONMENT

*** ALL WINDOWS AND DOORS W/GLAZING MUST BE IMPACT RATED ***

INTERIOR DOOR SCHEDULE

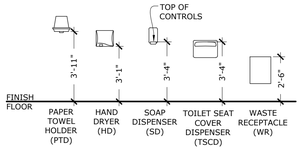
REFERENCE PLANS FOR SWING DIRECTION & JAMB DEPTH

NOTATION	SIZE / CALL NO.	TYPE	MAKE / MODEL	HARDWARE / FINISH
1 1.1 1	3'-0" x 7'-0"	SOLID CORE, LH OUTSWING, WD PANEL DOOR		OWNER TO SELECT
1 1.1 1	3'-0" x 7'-0"	SOLID CORE, RH OUTSWING, WD PANEL DOOR		OWNER TO SELECT
1 1.1 1	3'-0" x 7'-0"	SOLID CORE, RH OUTSWING, WD PANEL DOOR		OWNER TO SELECT
1 1.1 1	3'-0" x 7'-0"	SOLID CORE, LH OUTSWING, WD PANEL DOOR		OWNER TO SELECT

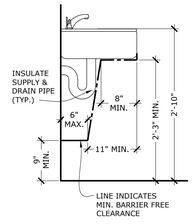
(A) AS PER SECTION 302.5.1 IN SBC-2, OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL BE EQUIPPED WITH SOLID WOOD DOORS NOT LESS THAN 1 3/8" THICK, SOLID OR HONEYCOMB-CORE STEEL DOORS NOT LESS THAN 1 3/8" THICK, OR 20-MINUTE FIRE RATED DOORS, EQUIPPED WITH A SELF CLOSING DEVICE
(B) DOORS BETWEEN THE GARAGE AND RESIDENCE SHALL BE WEATHER-STRIPPED ON ALL FOUR EDGES.
(C) DOORS BETWEEN THE UNCONDITIONED AND RESIDENCE SHALL BE WEATHER-STRIPPED ON ALL FOUR EDGES.
(D) CONTRACTOR TO COORDINATE INTERIOR DOOR SIZE, LOCATIONS, & QUANTITIES w. OWNERS SELECTION FOR TRIM WORK, AND CABINETRY
(E) PROVIDE (3) HINGES PER DOOR, DOOR STOP, LATCH SET w. KNOB
(F) PROVIDE PRIVACY LOCK SETS ON ALL BATHROOM AND BEDROOM DOORS. DOUBLE INTERIOR DOORS TO HAVE ROLLER BALL CATCH LATCH AND DUMMY KNOBS. POCKET DOORS TO HAVE RECESSED PULLS.
(G) CONTRACTOR TO COORDINATE STYLES AND FINISHES w. OWNER PRIOR TO ORDERING ALL HARDWARE AND DOORS
(H) COORDINATE ELEVATOR DOOR W. ELEVATOR SPECS. AND LOCAL CODE REQUIREMENTS. REFERENCE ASME A17.1 5.3.1.9.3 CLEARANCE BETWEEN HOISTWAY DOORS AND CAR DOORS OR GATES
(I) JAMB SHALL BE HELD 6" FROM NEAREST WALL UNLESS OTHERWISE NOTED

EXTERIOR WINDOW & DOOR INSTALLATION NOTES:
ALL WINDOWS & DOORS SHALL BE INSTALLED EXPLICITLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS FOR **DRAINAGE METHOD WATER MANAGEMENT.**

1. ALL WINDOWS AND DOORS TO HAVE A CONTINUES ACRYLIC FORMABLE SILL FLASHING/PAN. WINDOW SILL **FLASHING SHALL BE INSTALLED OVER A SLOPING SILL** (USE CEDAR CLAPBOARD SET ON THE ROUGH SILL) TO PROVIDE POSITIVE DRAINAGE TO THE EXTERIOR. PRE-FORMED WINDOW OR DOOR SILL PANS (I.E. MARVIN SILLGUARD OR EQUAL) MAY ALSO BE USED IN PLACE OF MEMBRANE FLASHING
2. WRAP BOTH SIDES & TOP OF ALL WINDOW & DOOR ROUGH OPENINGS WITH AN ACRYLIC PEEL & STICK MEMBRANE FLASHING TAPE (SUCH AS MADE BY GRACE, CARLISLE, VYCOR PLUS OR TYVEK FLEX WRAP). APPLY DIRECTLY TO SHEATHING PRIOR TO INSTALLING WINDOW.
3. NAILING FLANGES TO BE EMBEDDED IN CAULK EXCEPT FOR THE BOTTOM FLANGE.
4. ALL NAILING FLANGES TO BE COVERED W/ 6" WIDE FLASHING TAPE
5. ALL VOIDS (SHIM SPACE) AROUND WINDOW FRAMES WITHIN THE ROUGH OPENINGS TO BE SEALED W/ LOW-EXPANDING, SPRAY FOAM INSULATION. DO NOT FILL VOID.



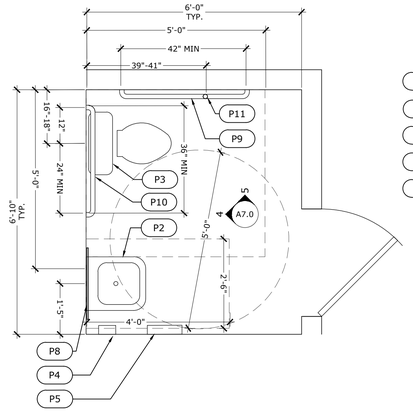
1 ACCESSIBLE MOUNTING HEIGHTS
NOTE: VERIFY HEIGHTS WITH LOCAL CODES
Scale: 1/4"= 1'-0"



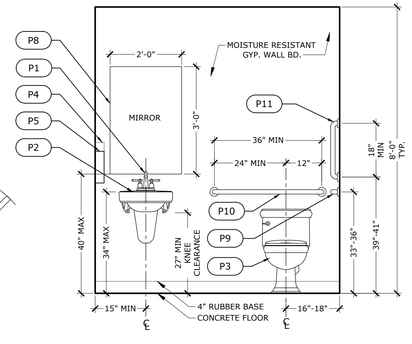
2 TYP. ADA VANITY
Scale: 3/4"= 1'-0"

TOILET ROOM KEY NOTES	
P1	FAUCET
P2	SINK
P3	TOILET
P4	SOAP DISPENSER
P5	HAND DRYER
P6	TOILET PAPER HOLDER
P7	NAPKIN DISPOSAL
P8	MIRROR
P9	42" GRAB BAR
P10	36" GRAB BAR
P11	18" GRAB BAR

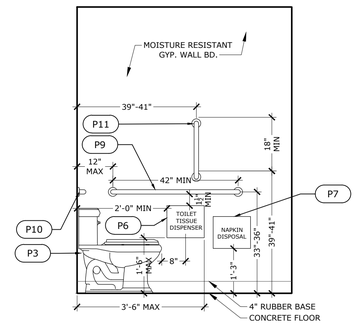
CONTRACTOR TO VERIFY ALL SELECTIONS W/ OWNER PRIOR TO ORDERING.



3 TOILET - TYPICAL ENLARGED PLAN
Scale: 1/2"= 1'-0"



4 TOILET - INTERIOR ELEV. TYP.
Scale: 1/2"= 1'-0"



5 TOILET - INTERIOR ELEV. TYP.
Scale: 1/2"= 1'-0"

CDA
CORDISEN DESIGN ARCHITECTURE
42 West Main Road
Middletown, RI 02842
CordisenDesign.com
401.619.4689

REVISIONS:

DESCRIPTION: SCHEDULES & TOILET ENLARGED PLANS
SCALE: N/A
DATE: NOVEMBER 22, 2024

CODDINGTON COVE COMMONS
300 CODDINGTON HIGHWAY
MIDDLETOWN, RHODE ISLAND, 02842

A6.0

GENERAL

1. *CODES AND ORDINANCES:* CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE INTERNATIONAL CODE COUNCIL DOCUMENTS, INCLUDING, BUT NOT LIMITED TO, THE INTERNATIONAL BUILDING CODE AND THE INTERNATIONAL RESIDENTIAL CODE (IF APPLICABLE), ALL APPLICABLE CODES AND ORDINANCES, DRAWINGS, AND MANUFACTURERS' RECOMMENDED INSTALLATION AND OTHER SPECIFICATIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLANS / SPECIFICATIONS AND APPLICABLE CODES AND ORDINANCES THE MORE STRINGENT PROVISION SHALL APPLY. ALL REFERENCED STANDARDS, MANUALS AND PUBLICATIONS REFERENCED HEREIN SHALL BE THE LATEST EDITION.

2. *DESIGN CODES:* ALL WORK SHALL CONFORM TO THE 2019 RHODE ISLAND ONE AND TWO FAMILY DWELLING CODE, SBC-2, 12th EDITION (BASED ON THE IRC 2015).

3. *GEOTECHNICAL REPORT:* A GEOTECHNICAL REPORT HAS NOT BEEN PREPARED FOR THIS PROJECT.

4. *PERMITS:* THE GENERAL CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS.

5. *DRAWINGS SCOPE:* THESE DRAWINGS ARE INTENDED TO SHOW ONLY STRUCTURAL PLANS AND DETAILS. SEE APPROPRIATE DRAWINGS FROM OTHER DISCIPLINES SUCH AS ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND CIVIL FOR THE DESIGN, LOCATION AND SIZE OF DROPS, OPENINGS, SLEEVES, DRIVEWAYS, PATIOS, POOLS, ETC.

6. *VERIFY DIMENSIONS:* CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DROPS, SLOPES, AND DETAILS OF THESE DRAWINGS WITH THOSE OF THE ARCHITECTURAL DESIGN PLANS, AND CONTRACTOR SHALL REPORT DISCREPANCIES TO ENGINEER IN WRITING AND ARCHITECT/DESIGNER PRIOR TO THE START OF CONSTRUCTION.

7. *CONTRACTOR FIELD VERIFICATION:* DURING CONSTRUCTION THE CONTRACTOR MAY ENCOUNTER EXISTING CONDITIONS THAT WERE UNKNOWN DURING DESIGN AND VARY FROM THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING PRIOR TO PROCEEDING WITH THE WORK OF ALL DISCOVERIES THAT INTERFERE WITH PROPER EXECUTION OF THE WORK AND/OR JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE STRUCTURE.

8. *ADDITIONAL DETAILS:* IF CONTRACTOR REQUIRES ADDITIONAL DETAILS OR INFORMATION NOT FOUND ON THE DRAWINGS OR IN THE SPECIFICATIONS, CONTRACTOR SHALL REQUEST THIS INFORMATION FROM ENGINEER IN WRITING **PRIOR** TO THE START OF CONSTRUCTION.

9. *REQUESTED CHANGE:* ANY REQUESTED MODIFICATION TO THESE DRAWINGS AND/OR SPECIFICATIONS SHALL BE SUBMITTED TO ENGINEER IN WRITING. CONTRACTOR SHALL NOT PROCEED WITH REQUESTED MODIFICATIONS UNLESS ENGINEER APPROVES REQUESTED MODIFICATIONS IN WRITING.

10. *REVISED INFORMATION:* THESE DRAWINGS ARE BASED ON CERTAIN ASSUMPTIONS AND THE ENGINEER RESERVES THE RIGHT TO REVISE THESE DOCUMENTS IF OTHER INFORMATION BECOMES AVAILABLE.

11. *STRUCTURAL STABILITY DURING CONSTRUCTION:* THE DRAWINGS ILLUSTRATE THE COMPLETED STRUCTURE WITH ALL ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PROVIDE PROPER SHORING AND BRACING AS NECESSARY DURING CONSTRUCTION TO ACHIEVE THE FINAL COMPLETED STRUCTURE.

12. *SHOP DRAWING SUBMITTALS:* THE TRADE CONTRACTORS SHALL SUBMIT SHOP AND ERECTION DRAWINGS (COLLECTIVELY KNOWN HEREIN AS "SHOP DRAWINGS") FOR REVIEW PRIOR TO PROCEEDING WITH FABRICATION AND/OR CONSTRUCTION.

    12.1. THE SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH THE LATEST EDITION OF THE RESPECTIVE TRADES' CODES OF STANDARD PRACTICE. ALL SHOP DRAWINGS SHALL BE FULLY DEVELOPED BY THE TRADE CONTRACTORS OR BY AGENTS OF THE CONTRACTORS. CAD FILES, PHOTOCOPIES, OR OTHER REPRODUCTIONS OF THE CONTRACT DRAWINGS IN WHOLE OR IN PART SHALL NOT BE USED BY THE TRADE CONTRACTORS OR THEIR AGENTS FOR THE PREPARATION AND DEVELOPMENT OF SHOP DRAWINGS WITHOUT THE EXPRESSED WRITTEN CONSENT OF NORTHEAST ENGINEERS & CONSULTANTS, INC.

    12.2. ELECTRONIC SUBMISSIONS OF SHOP DRAWINGS WILL BE ACCEPTABLE. ELECTRONIC SUBMITTALS MAY BE IN PDF FORMAT AND TRANSMITTED VIA EMAIL OR OTHER FILE TRANSFER METHODS AT THE CONTRACTOR'S DESCRETION.

DESIGN LOADS: SELECT DESIGN LOADS ARE NOTED BELOW:

1. GENERAL DESIGN REQUIREMENTS
    1.1. BUILDING CATEGORY..... I
2. LIVE LOAD (ROOF).....20 PSF
3. SNOW LOAD
    3.1. GROUND SNOW LOAD (P_g)..... 30 PSF
    3.2. SNOW EXPOSURE FACTOR (C_e)..... 1.0
    3.3. THERMAL FACTOR (C_t)..... 1.1
    3.4. IMPORTANCE FACTOR (I)..... 1.0
4. WIND LOAD
    4.1. BASIC WIND VELOCITY (V_{ult}, PER SBC-1).....128 MPH
    4.2. WIND EXPOSURE CATEGORY..... C

FOUNDATIONS

1. *FOOTING DEPTHS:* THE BOTTOM OF ALL EXTERIOR FOOTING SHALL BE A MINIMUM OF 3'-4" BELOW FINISH GRADE. FOOTING DEPTHS SHOWN IN THE PLANS, SECTIONS, DETAILS OR SCHEDULES ARE THE MINIMUM DEPTHS REQUIRED. THE ACTUAL CONSTRUCTED DEPTH MAY BE MORE IN ORDER TO SATISFY THE GEOMETRY OF THE SITE AND FOUNDATION AS WELL AS OTHER STANDARDS, DETAILS, NOTES AND SPECIFICATIONS. FOOTINGS SHALL BE STEPPED AT A MAXIMUM SLOPE OF 2 HORIZONTAL TO 1 VERTICAL UNLESS NOTED OTHERWISE.

2. *CONTINUOUS POUR:* CONCRETE SHALL BE PLACED IN A CONTINUOUS POUR, UNLESS OTHERWISE APPROVED BY ENGINEER IN WRITING. IN NO CASE SHALL ADJACENT CONCRETE BE PLACED MORE THAN 30 MINUTES APART IN ORDER TO PREVENT THE FORMATION OF A COLD JOINT. IF AN UNPLANNED DELAY AND POSSIBLE COLD JOINT OCCURS FOR ANY REASON, VIBRATE THE FRESH CONCRETE AND CONTACT THE ENGINEER PROMPTLY FOR INSTRUCTIONS ON HOW TO PROCEED.

3. *ADDING WATER:* MAXIMUM WATER ADDED TO CONCRETE AT THE JOBSITE, WITHOUT WRITTEN PERMISSION FROM THE CONCRETE SUPPLIER, IS 1½ GALLONS PER CUBIC YARD OF CONCRETE. CONCRETE TICKETS SHOWING TIME OF MIX, TIME OF DELIVERY, YARDS DELIVERED AND TOTAL WATER ADDED SHALL BE COLLECTED FROM EACH DRIVER AND RETAINED BY CONTRACTOR.

4. *PENETRATIONS:* PIPING AND ELECTRICAL SHALL BE UNDER THE SLAB AND ALL PENETRATIONS THROUGH GRADE BEAMS SHALL BE SLEEVED. FOR SLAB ON GRADE FOUNDATIONS, TRENCHES FOR PLUMBING SHALL NOT BE LOCATED BOTH DIRECTLY UNDER AND PARALLEL TO GRADE BEAMS. UNDER SLAB PLUMBING SHALL BE LOCATED BETWEEN GRADE BEAMS AND CROSS UNDER OR THROUGH GRADE BEAMS. WHERE PLUMBING PENETRATES FROM UNDER THE FOUNDATION INTO THE ADJACENT GRADE, THE AREA AROUND THE PLUMBING SHALL BE SEALED WITH A CLAY PLUG (OR EQUAL) THAT WILL PREVENT MOISTURE FROM MIGRATING UNDER THE FOUNDATION. IN THE EVENT OF TRENCH SLOUGHING OR OTHER EVENTS THAT CAUSE A BEAM TO EXCEED THE PLANNED WIDTH, THE SLEEVE MUST BE LENGTHENED SO THAT IT WILL PERFORM AS INTENDED DURING THE ACTUAL POUR TO PREVENT CONCRETE FROM ENTERING THE ENDS OF THE SLEEVE OR COMING INTO CONTACT WITH THE SLEEVED COMPONENT.

5. *ANCHOR BOLTS:* ANCHOR BOLTS SHALL BE A MINIMUM OF 1/2" DIAMETER J-BOLT OR APPROVED EQUAL, MINIMUM TWO J-BOLTS PER SOLE (BOTTOM) PLATE PER ASTM F-1554 GRADE 55 WITH STANDARD WASHERS WITH NUTS AND SHALL BE EMBEDDED AS SHOWN ON THE PLANS. ANCHOR BOLTS SHALL BE SPACED A MAXIMUM OF 4'-0" O.C. AND LOCATED WITHIN 12" FROM THE ENDS OF EACH PLATE SECTION. ANCHOR BOLTS SHALL NOT BE PLACED IN DOORWAYS. **ANCHOR BOLTS SHALL BE COATED IN ACCORDANCE WITH THE PRESSURE TREATED WOOD MANUFACTURER'S RECOMMENDATIONS.**

6. *HOLD-DOWN AND OTHER ANCHORAGES:* ALL HOLD-DOWNS AND OTHER ANCHORAGES SHALL BE CAST-IN-PLACE. CONTRACTOR SHALL ENSURE THAT HOLD-DOWNS AND OTHER ANCHORAGES SHALL NOT INTERFERE WITH CONCRETE REINFORCEMENT.

7. *SHRINKAGE CRACKS:* THIS FOUNDATION MAY SUSTAIN NORMAL TEMPERATURE AND SHRINKAGE CRACKS AS A RESULT OF THE CONCRETE CURING PROCESS.

8. *MOISTURE RETARDER:* A MOISTURE RETARDER, SUCH AS TWO LAYERS OF 15# FELT OR ONE LAYER OF 30# FELT, AND HOT-MOPPED OR APPROVED EQUIVALENT FOUNDATION MEMBRANE SHALL BE APPLIED TO EXTERIOR WALL SURFACES BELOW GRADE. SEAL TIE HOLES, VOIDS AND HONEYCOMBED AREAS WITH SEALANT BEFORE DAMP PROOFING.

9. *FRENCH DRAIN:* INSTALL CONTINUOUS FRENCH DRAIN AROUND THE PERIMETER OF THE BOTTOM OF BASEMENT FOUNDATIONS LOCATED BELOW GRADE, UNLESS NOTED OTHERWISE ON THE DRAWINGS. FRENCH DRAINS SHALL BE A MINIMUM 4" IN DIAMETER. COVER FRENCH DRAIN WITH AT LEAST 12" OF COARSE, CLEAN ROCK OR GRAVEL AND SLOPE TO DRAIN. EITHER CONNECT THE FRENCH DRAIN TO A MINIMUM 20-GALLON SUMP PIT WITH SUFFICIENT DEPTH FOR PROPER SUMP PUMP OPERATION OR DRAIN BY GRAVITY TO AN OUTLET A MINIMUM OF 10 FEET AWAY FROM THE FOUNDATION. SUMP SYSTEM SHOULD INCLUDE AN APPROPRIATE CHECK VALVE ON THE OUTLET LINE, LOCATED WITHIN 12" OF THE PUMP, TO PREVENT BACKFLOW OF WATER INTO THE SUMP.

10. *BACKFILL:* THE FOUNDATION WALL SHALL BE BRACED PRIOR TO PLACING BACKFILL AGAINST THE WALL. IF CRACKING OR BOWING OF THE FOUNDATION WALL OCCURS THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR POSSIBLE CORRECTIVE ACTION. CONTRACTOR SHALL NOT BACKFILL AN UNSUPPORTED STRAIGHT RUN OF WALL OVER 20 FEET IN LENGTH BETWEEN CORNERS AND CROSS WALL UNLESS ADEQUATE BRACING IS PROVIDED OR THE FLOOR FRAMING HAS BEEN SET AND NAILED IN PLACE AND ANCHOR BOLTS TIGHTENED. CONTRACTOR SHALL NOT BACKFILL ANY WALL BEFORE 7 DAYS AFTER CONCRETE PLACEMENT TO ALLOW THE WALL TO GAIN SUFFICIENT STRENGTH TO SUPPORT THE IMPOSED LOADS.

11. ALL FORMS SHALL BE PROPERLY BRACED TO WITHSTAND THE PLACEMENT OF FRESH CONCRETE.

12. FOOTING EXCAVATIONS SHALL BE CLEAN AND FREE FROM LOOSE DEBRIS, STANDING WATER, OR UN-COMPACTED MATERIAL AT THE TIME OF CONCRETE PLACEMENT.

13. TRENCHES AND EXCAVATIONS UNDER OR ADJACENT TO FOUNDATIONS OR SLABS SHALL BE PROPERLY BACKFILLED AND COMPACTED. UTILITY TRENCHING PARALLEL TO THE FOUNDATION SHALL BE LOCATED A MINIMUM DISTANCE EQUAL TO THE DEPTH OF THE TRENCH FROM THE FOUNDATION. THE TRENCH MAY APPROACH THE FOUNDATION AT 90 DEGREES TO THE STRUCTURE AND MAY NOT EXCEED 2.5 FEET WIDE. THE TRENCH APPROACH TO THE FOUNDATION MAY NOT BE LOCATED CLOSER THAN 8 FEET FROM A CORNER OF THE STRUCTURE.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 AND 301 REQUIREMENTS. THIS SHALL INCLUDE PROPORTIONING OF CONCRETE MIX, CONCRETE TESTING, PLACEMENT OF CONCRETE, AND CURING PROCEDURES.

2. CONCRETE SHALL HAVE THE FOLLOWING 28 DAY COMPRESSIVE STRENGTH:

    2.1. ALL CONCRETE.....3000 PSI

3. PROVIDE TOTAL AIR ENTRAINMENT OF 6% (+) FOR ALL CONCRETE EXPOSED TO WEATHER.

4. MAXIMUM WATER/CEMENT RATIO FOR 3000 PSI CONCRETE - W/C = 0.45. PROVIDE A HIGH-RANGE WATER REDUCING ADMIXTURE IF REQUIRED TO INCREASE WORKABILITY OF THE CONCRETE.

5. ALL REINFORCING STEEL SHALL BE IN CONFORMANCE WITH ASTM A615 AND SHALL HAVE A MINIMUM TENSILE YIELD STRENGTH OF 60 KSI, U.N.O.

6. WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185.

7. ADDITIONAL REFERENCED STANDARDS FOR REINFORCEMENT:

8. WELDABLE REINFORCING STEEL: ALL REINFORCING STEEL TO BE WELDED OR DESIGNATED AS "WELDABLE" SHALL CONFORM TO BOTH ASTM A615 (BILLET-STEEL) AND ASTM A706 (LOW-ALLOY STEEL) WITH A MINIMUM YIELD STRENGTH OF 60 KSI. THE WELDING OF REINFORCING BARS SHALL CONFORM TO THE ANSI/AWS D1.4 WELDING CODE.

9. EPOXY-COATED REINFORCING STEEL: ALL REINFORCING STEEL DESIGNATED AS "EPOXY-COATED" SHALL CONFORM TO ASTM A775 "SPECIFICATION FOR EPOXY-COATED STEEL REINFORCING BARS" OR ASTM A934 "STANDARD SPECIFICATION FOR EPOXYCOATED PREFABRICATED STEEL REINFORCING BARS".

10. EPOXY-COATED WELDED WIRE REINFORCEMENT: ALL WELDED WIRE REINFORCEMENT DESIGNATED AS "EPOXY-COATED" SHALL CONFORM TO ASTM A884 "EPOXY-COATED STEEL WIRE AND WELDED WIRE REINFORCEMENT

11. ALL STIRRUPS AND TIES SHALL BE CLOSED TYPE UNLESS OTHERWISE NOTED

12. CONCRETE SHALL MEET THE FOLLOWING MINIMUM PERCENTAGES OF ITS 28 DAY COMPRESSIVE STRENGTH (F'c) PRIOR TO REMOVING FORMS AND/OR SHORES:

    12.1. WALLS.....40%

13. REINFORCING LAP SPLICES SHALL BE IN ACCORDANCE WITH ACI-318-11 FOR TENSION LAP SPLICES, CLASS B, UNLESS NOTED OTHERWISE.

14. PROVIDE CORNER BARS AT ALL WALL CORNERS & INTERSECTIONS MATCHING HORIZONTAL REINFORCEMENT WITH 2' -6" MINIMUM LAPS.

15. PLACE ALL SLABS PER ACI 301 AND ACI 302.1R04 SPECIFICATIONS. UNLESS NOTED OTHERWISE, PROVIDE A MINIMUM FLOOR FLATNESS FF = 25, AND, AT SLABS ON GRADE, A MINIMUM FLOOR LEVELNESS FL=25.

16. NOT ALL OPENINGS AND PENETRATIONS THROUGH CONCRETE WALLS AND SLABS ARE SHOWN ON STRUCTURAL DRAWINGS. COORDINATE ALL PENETRATIONS WITH ARCHITECT, MEP, AND OTHER TRADES PRIOR TO CONSTRUCTION.

17. SET AND TIE ALL REINFORCEMENT PRIOR TO PLACING CONCRETE. SETTING OF DOWELS AND REINFORCEMENT INTO WET CONCRETE SHALL NOT BE PERMITTED.

18. PROVIDE BAR SUPPORTS, SPACERS, AND ACCESSORIES RECOMMENDED IN THE LATEST EDITION OF THE ACI DETAILING MANUAL, PUBLICATION SP-66. ALL ACCESSORIES IN CONTACT WITH EXPOSED SURFACES SHALL BE PLASTIC-COATED.

19. DETAILING OF REINFORCEMENT SHALL BE ACCORDING TO THE LATEST EDITION OF THE ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".

STRUCTURAL STEEL

1. ALL WORK SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATIONS AND ITS CODE OF STANDARD PRACTICE (AISC).

2. MATERIAL SPECIFICATIONS:
    2.1. W, WT SHAPES.....ASTM A992 (FY=50 KSI)
    2.2. S, M, HP, C, MC SHAPES.....ASTM A572, GRADE 50
    2.3. SQUARE & RECTANGULAR HSS.....ASTM A500, GRADE B (FY=46 KSI)
    2.4. L SHAPES, MISC. PLATES & BARS.....ASTM A36
    2.5. THREADED RODS, THREADED FASTENERS.....ASTM A36
    2.6. BOLTS.....ASTM A325 OR A490
    2.7. ANCHOR RODS.....ASTM F1554, GRADE 36

3. ALL WELDING OPERATIONS SHALL BE PERFORMED BY AWS CERTIFIED WELDERS IN CONFORMANCE WITH ALL APPLICABLE REQUIREMENTS. USE E-70XX WELDING ELECTRODES.

4. STRUCTURAL STEEL CONNECTIONS SHALL DEVELOP (1/2) OF MEMBERS' TOTAL UNIFORM LOAD CAPACITY AS DETERMINED FROM THE AISC STEEL CONSTRUCTION MANUAL, 13TH ED *LRFD*.

5. ALL BOLTED CONNECTIONS SHALL USE ASTM A325 BOLTS OR A490 BOLTS (3/4" DIA. MINIMUM), UNLESS NOTED OTHERWISE. BOLTED CONNECTIONS SHALL BE DESIGNED PER THE AISC STEEL CONSTRUCTION MANUAL, 13TH EDITION *LRFD* AND THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS *LRFD*.

6. ALL NEW STRUCTURAL STEEL SHALL BE GIVEN ONE COAT OF AN APPROVED SHOP PRIMER APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, UNLESS NOTED OTHERWISE. SURFACE PREPARATION OF STEEL PRIOR TO SHOP PAINTING SHALL CONFORM TO SSPC SP6.

7. AFTER ERECTION IS COMPLETE, TOUCH-UP ALL SHOP PRIMED COATS DAMAGED DURING TRANSPORTATION AND ERECTION, AND PRIME ALL FIELD WELDS USING THE SAME PAINT USED FOR SHOP PRIMING.

8. ALL STRUCTURAL STEEL TO RECEIVE SPRAY-ON FIREPROOFING SHALL BE FABRICATED WITHOUT ANY PRIMER COATINGS (COORDINATE WITH ARCHITECT).

9. ALL EXPOSED STRUCTURAL STEEL AND CONNECTIONS SHALL BE HOT-DIP GALVANIZED, OR MAY BE PRIMED AND PAINTED WITH AN APPROVED EPOXY PAINT SYSTEM. TOUCH UP ALL CONNECTIONS AND DAMAGED SURFACES WITH THE SAME PAINT SYSTEM.

10. STRUCTURAL STEEL FRAME SHALL BE LEVEL AND PLUMB PRIOR TO COMPLETING CONNECTIONS.

11. SUBMIT STEEL FABRICATION SHOP DRAWINGS FOR REVIEW TO THE ENGINEER.

STRUCTURAL LUMBER

1. ALL WORK SHALL BE IN CONFORMANCE WITH THE STANDARDS, SPECIFICATIONS, & REQUIREMENTS OF THE AMERICAN FOREST & PAPER ASSOCIATION (AF&PA) AND THE ENGINEERED WOOD ASSOCIATION (APA).

2. ALL LUMBER USED IN A STRUCTURAL CAPACITY SHALL BE S-P-F NO.1/NO.2 OR BETTER FOR ALL APPLICATIONS.

3. ANY WOOD IN DIRECT CONTACT WITH CONCRETE OR EXPOSED TO THE EXTERIOR SHALL BE PRESERVATIVE-TREATED.
4. THE QUANTITY, SIZE, & PATTERN OF ALL FASTENERS USED FOR FASTENING STRUCTURAL FRAMING (INCLUDING SHEATHING) SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE STATE BUILDING CODE, AT A MINIMUM. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL FASTENING REQUIREMENTS.

5. ALL CONNECTORS AND FASTENERS EXPOSED TO THE WEATHER AND/OR IN DIRECT CONTACT WITH PRESERVATIVE-TREATED LUMBER SHALL BE STAINLESS STEEL, UNLESS AN ALTERNATE PROTECTIVE COATING IS RECOMMENDED BY THE CONNECTOR/FASTENER MANUFACTURER BASED UPON THE SPECIFIC TYPE OF PRESERVATIVE TREATMENT & WEATHER EXPOSURE CONDITIONS FOR THE PROJECT. SUBMIT PRODUCT DATA FOR REVIEW & APPROVAL.

6. ALL NAIL SIZES INDICATED WITHIN THE STRUCTURAL DOCUMENTS ARE "COMMON WIRE NAIL" SIZES (AS DEFINED BY THE AF&PA), UNLESS SPECIFICALLY NOTED OTHERWISE. ALTERNATE NAIL SIZES MAY NOT BE USED WITHOUT PRIOR WRITTEN APPROVAL.

7. ALL BEAM TO BEAM CONNECTIONS SHALL BE PERFORMED USING APPROVED GALVANIZED TOP FLANGE HANGERS. SUBMIT PRODUCT DATA FOR REVIEW.

8. ALL WOOD CONNECTORS (JOIST & BEAM HANGERS, POST CAPS & BASES, HURRICANE STRAPS, ETC.) SHALL BE GALVANIZED STEEL CONNECTORS AS MANUFACTURED BY "SIMPSON STRONG-TIE" OF PLEASANTON, CA (OR AN APPROVED EQUAL).

9. ALL ENGINEERED LUMBER SHALL BE AS MANUFACTURED BY "ILEVEL" BY WEYERHAEUSER" OF BOISE, IDAHO.

    9.1. PSL: PARALLAM-PSL (PARALLEL STRAND LUMBER) NOTE: PSL MEMBERS MAY BE USED IN LIEU OF LVL MEMBERS.

    9.2. LVL: MICROLLAM-LVL (LAMINATED VENEER LUMBER) NOTE: LVL MEMBERS MAY NOT BE USED IN LIEU OF PSL MEMBERS

10. ALL PRESSURE TREATED PARALLAM BEAMS AND POSTS SHALL BE "WOLMANIZED PARALLAMS", DESIGNED AND MANUFACTURED BY "ILEVEL BY WEYERHAEUSER" OF BOISE, IDAHO. EXCEPTION: PRESERVATIVE-TREATED GLUED- LAMINATED (GLU-LAM) MEMBERS MAY BE USED IN LIEU OF WOLMANIZED PARALLAM MEMBERS PROVIDED THAT THE DECAY RESISTANCE AND STRUCTURAL PROPERTIES OF ALL GLU- LAM BEAMS MUST BE EQUAL TO OR BETTER THAN THOSE OF THE SPECIFIED WOLMANIZED PARALLAM MEMBERS. ALL PRODUCT SUBSTITUTIONS MUST BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION.

11. BORED OR CUT HOLES SHALL NOT EXCEED MORE THAN ONE-THIRD (1/3) OF THE DEPTH OF ANY UNREINFORCED STRUCTURAL WALL STUD. EDGES OF ALL HOLES SHALL NOT BE LOCATED ANY CLOSER THAN 5/8" FROM THE EDGE OF STUD. STRUCTURAL STUDS MAY HAVE BORED OR CUT HOLES UP TO ONE-HALF (1/2) OF THE STUD DEPTH ONLY IF DOUBLED OR REINFORCED WITH A SIMPSON STRONG-TIE TYPE-SS1.5 STUD-SHOE (OR APPROVED EQUAL). HOLES SHALL NOT BE ALLOWED IN POSTS OR COLUMNS UNLESS CLEARLY INDICATED ON THE STRUCTURAL DRAWINGS.

12. ALL LOAD-BEARING WALLS SHALL BE CAPPED WITH DOUBLE TOP PLATES INSTALLED TO PROVIDE OVERLAPPING CORNERS AND INTERSECTIONS. TOP PLATE JOINTS SHALL BE OFFSET NOT LESS THAN 48 INCHES.

13. PROVIDE A MINIMUM OF 3 STUDS AT ALL CORNERS IN LOAD-BEARING AND/OR SHEAR WALLS, U.N.O. SEE TYPICAL DETAILS.

14. PROVIDE PLYWOOD SPACERS IN ALL MULTIPLE 2X HEADERS WITHIN 2X6 EXTERIOR AND/OR LOAD BEARING WALLS TO MAKE UP DIFFERENCE OF WALL THICKNESS. (TYPICAL THROUGHOUT, UNLESS OTHERWISE NOTED.)

15. ALL ROOF & EXTERIOR WALL SHEATHING SHALL BE CONSTRUCTED OF APA RATED WOOD STRUCTURAL PANELS (EXPOSURE 1) WHICH MEASURE NOT LESS THAN FOUR FEET BY EIGHT FEET (4' X 8'), EXCEPT AT BOUNDARIES AND CHANGES IN FRAMING. SEE TYPICAL DETAILS FOR ADDITIONAL PANEL & FASTENING REQUIREMENTS.

PLATE-CONNECTED WOOD ROOF TRUSS SYSTEM

1. TRUSS DESIGN, FABRICATION, AND ERECTION SHALL BE IN CONFORMANCE WITH THE TRUSS PLATE INSTITUTE'S (TPI) SPECIFICATIONS AND RECOMMENDATIONS, AS WELL AS IN CONFORMANCE WITH THE ICC APPROVAL REPORT REQUIREMENTS.

2. DURING THE ERECTION PROCESS, TEMPORARY LATERAL BRACING OF THE TOP & BOTTOM CHORDS AND WEB MEMBERS SHALL BE INSTALLED PER THE TRUSS PLATE INSTITUTE GUIDELINES. ALL LATERAL BRACING INSTALLED DURING THE ERECTION PROCESS SHALL REMAIN IN PLACE, AND BE MADE A PART OF THE PERMANENT BRACING SYSTEM.

3. THE WOOD ROOF TRUSS FABRICATOR SHALL DESIGN AND FABRICATE THE ENTIRE ROOF AS A SYSTEM WITH LOADS INDICATED ON THE ROOF LOADING PLANS AND GENERAL NOTES. THIS SHALL INCLUDE ALL STICK FRAMED SECTIONS, OVERHANGS, ROOF OPENING FRAMING (IF APPLICABLE), AND ALL REQUIRED CONNECTIONS. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ALL DETAILS AND DIMENSIONS NOT A PART OF STRUCTURAL DRAWINGS.

4. THE WOOD ROOF MEMBERS INDICATED ON THESE DRAWINGS REPRESENT THE MINIMUM FRAMING REQUIREMENTS, AND THE FINAL DESIGN USED SHALL BE BASED ON THE APPROVED SUBMITTED ROOF DESIGN.

5. ALL BEARING LINES SHALL BE INDICATED ON THE ROOF FRAMING LAYOUT TO BE SUBMITTED FOR APPROVAL.

6. ALL WOOD TRUSS CONNECTION PLATES SHALL BE ICC APPROVED.

7. ALL WOOD TRUSSES MUST BE LATERALLY BRACED DURING CONSTRUCTION. ALL INSTALLATION WORK SHALL CONFORM TO "BCSI- 08 - GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING, & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES" , PRODUCED JOINTLY BY THE WOOD TRUSS COUNCIL OF AMERICA (WTCA) AND THE TRUSS PLATE INSTITUTE (TPI).

8. ALL TRUSS BRACING (STRONG-BACKS, VERTICAL X-BRACING, ETC.) INDICATED IN THESE DOCUMENTS (DRAWINGS, NOTES, & SPECIFICATIONS) IS MANDATORY PERMANENT TRUSS BRACING. IT MUST BE INSTALLED IN ADDITION TO ANY ERECTION BRACING OR INDIVIDUAL TRUSS MEMBER BRACING THAT IS REQUIRED BY THE ROOF TRUSS DESIGNER/MANUFACTURER OR BY THE WOOD TRUSS INDUSTRY(WTCA, TPI, ETC.).

9. MINIMUM PERMANENT TRUSS BRACING REQUIREMENTS:

    9.1. BOTTOM CHORDS: CONTINUOUS 2X6 BRACING AT 10'-0" O.C. MAX. FASTENED TO WALLS, TRUSSES, OR OTHER FRAMING MEMBERS AT TERMINAL ENDS.

    9.2. TOP CHORDS: CONTINUOUS PLYWOOD SHEATHING. PLYWOOD SHEATHING MUST BE INSTALLED BELOW ALL VALLEY TRUSSES, BUILT-UP GABLE ROOFS, ECT. IN ORDER TO PROVIDE BRACING TO THE ROOF TRUSSES BELOW.

    9.3. GABLE END WALLS, TRUSSES: 2X6 VERTICAL CROSS BRACES @ 10'-0" O.C. MAX. FASTENED TO EACH INTERSECTING ROOF TRUSS. PROVIDE ADDITIONAL VERTICAL TRUSS MEMBERS AS REQUIRED TO ALLOW FOR MEMBER FASTENING. AT LEAST ONE BRACE MUST BE LOCATED AT THE TRUSS/WALL PEAK. BRACES SHALL BE SET AS REQUIRED TO ACHIEVE AN ANGLE OF APPROXIMATELY 45 DEGREES.

10. ALL TEMPORARY BRACING, INDIVIDUAL TRUSS MEMBER BRACING (SPECIFIED AND LOCATED ON THE TRUSS DESIGNER'S SHOP DRAWINGS), AND CONTINUOUS PERMANENT TRUSS BRACING (I.E. STRONGBACKS) MUST BE DIAGONALLY BRACED AT TERMINAL ENDS AND INTERMEDIATELY AT 20'-0" O.C. MAX. SEE "BCSI-08 - GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING, & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES" FOR MORE INFORMATION.

11. DESIGN ROOF STRUCTURE FOR THE FOLLOWING DESIGN CRITERIA:

    11.1. TYPICAL ROOF SNOW LOAD.....SEE "DESIGN LOADS" ABOVE
    11.2. TRUSS TOP CHORD DEAD LOAD.....15 PSF
    11.3. TRUSS BOTTOM CHORD DEAD LOAD.....10 PSF
    11.4. TRUSS BOTTOM CHORD LIVE LOAD*.....20 PSF
    11.5. * ATTIC LOAD - ONLY APPLICABLE AT LOCATIONS WHERE 42" OR MORE CLEAR HEIGHT EXISTS BETWEEN MEMBERS.

12. SUBMIT SHOP DRAWINGS FOR APPROVAL. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:

13. WOOD ROOF FRAMING LAYOUT, DEVELOPED BY THE TRUSS MANUFACTURER (COPIES OF CONTRACT ROOF FRAMING PLANS WILL NOT BE ALLOWED). ALL MEMBERS SHALL BE LABELED AND CROSS REFERENCED TO ANY OTHER SHOP DRAWINGS SUBMITTED FOR APPROVAL. ALL DRAWINGS AND TRUSS DESIGN SHEETS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF RHODE ISLAND.

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MATERIALS TESTING
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WWW.NORTHEASTENGINEERS.COM

PROJECT TITLE:

New Construction:

Coddington Cove Commons
300 Coddington Hgwy
Middletown, RI 02842

CLIENT/OWNER:

DESIGNED BY: AED

DRAWN BY: AED

CHECKED BY: SWO

DATE: September 4, 2024

REVISION HISTORY:

NO.	DATE	ISSUED FOR
1	10-2-24	REV PER ARCH
2	11-7-24	REVISED GRADES

STEVEN W. OTTEN
No. 8429
REGISTERED PROFESSIONAL ENGINEER

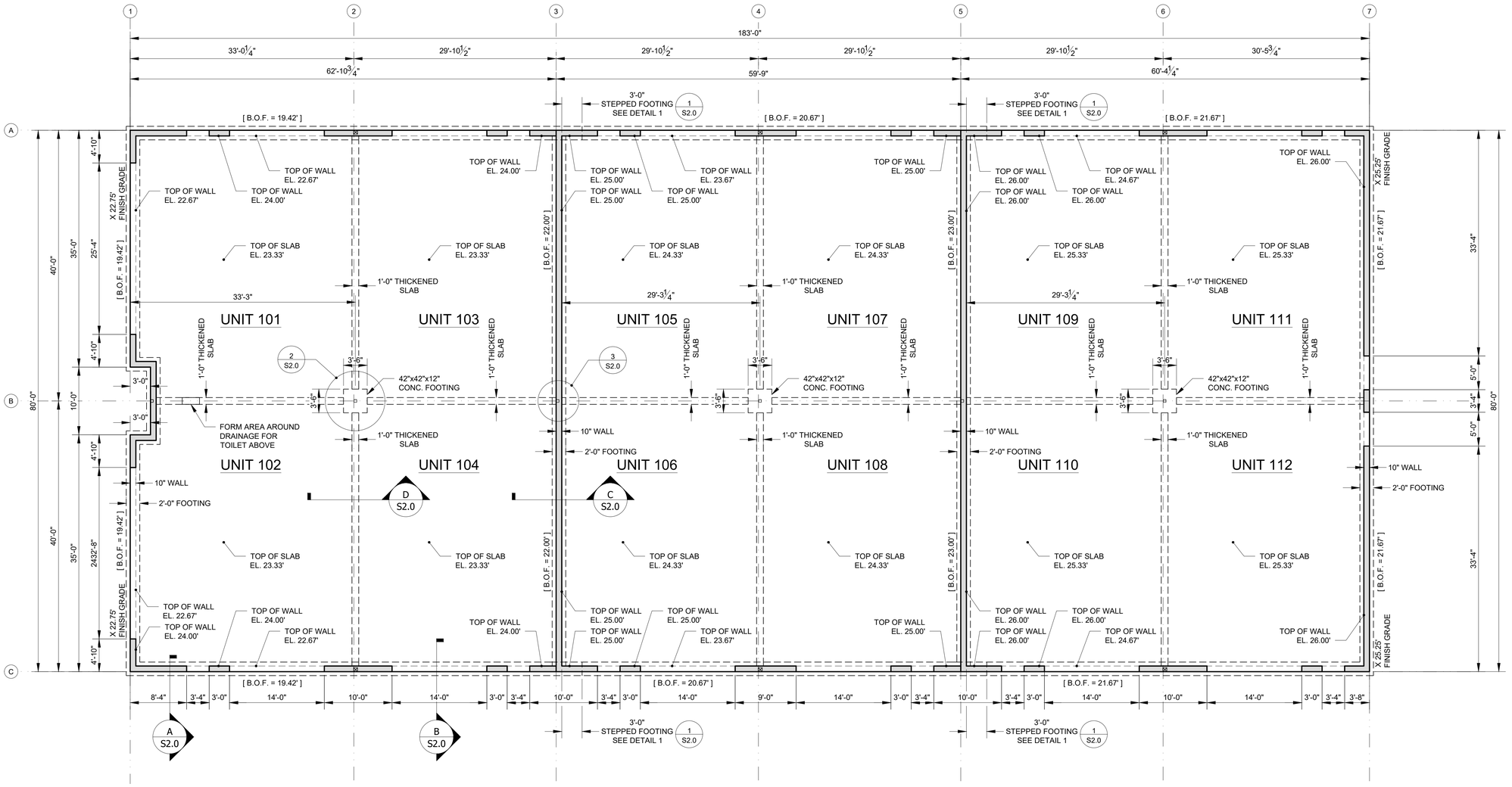
PROJECT NUMBER: 23099.3

SCALE: AS NOTED

DRAWING TITLE: General Notes

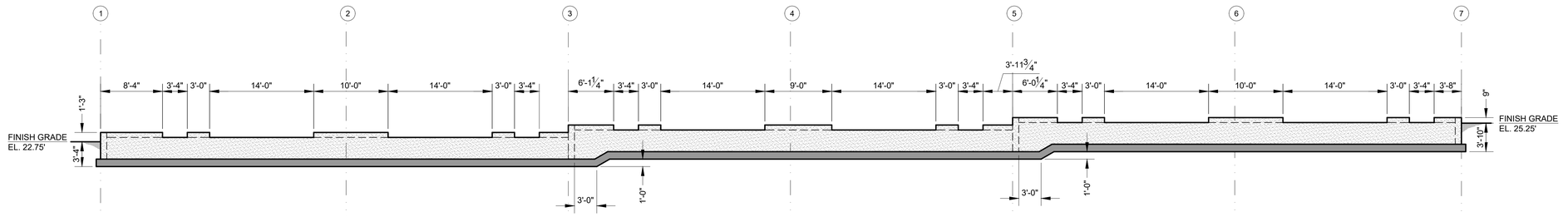
DRAWING NUMBER: GN1.0

SHEET 1 OF 5



BUILDING 1: FOUNDATION PLAN

SCALE: ⅛" = 1'-0"



BUILDINGS 1 & 2: FOUNDATION ELEVATION (WEST)

SCALE: ⅛" = 1'-0"

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STEVEN W. OTTEN
No. 8429
REGISTERED PROFESSIONAL ENGINEER

PROJECT NUMBER: 23099.3

SCALE: AS NOTED

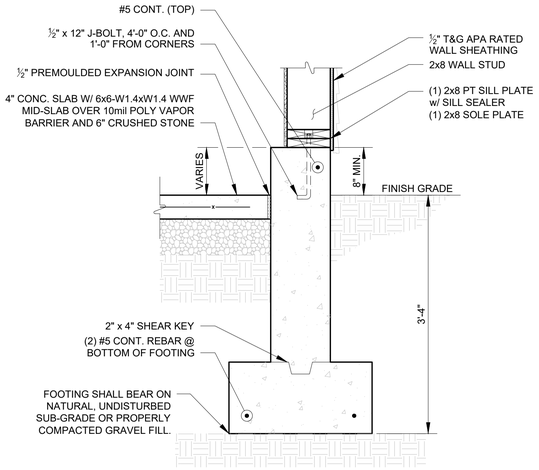
DRAWING TITLE:

Building 1
Foundation Plan

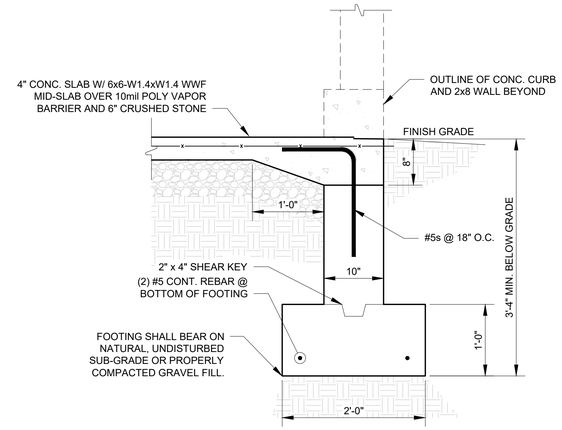
DRAWING NUMBER:

S1.0

SHEET 2 OF 5



SECTION A
SCALE: 1" = 1'-0"
S1.0



SECTION B
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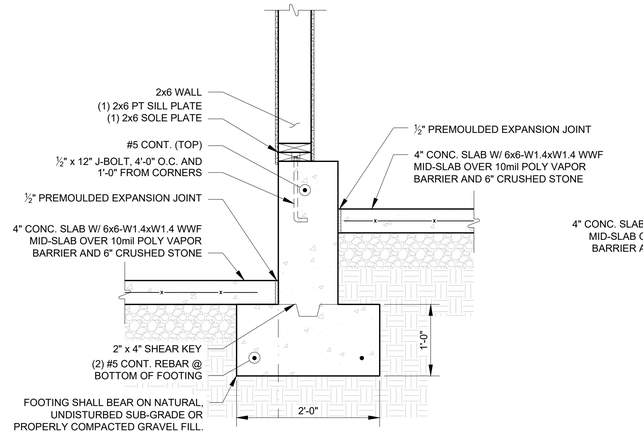
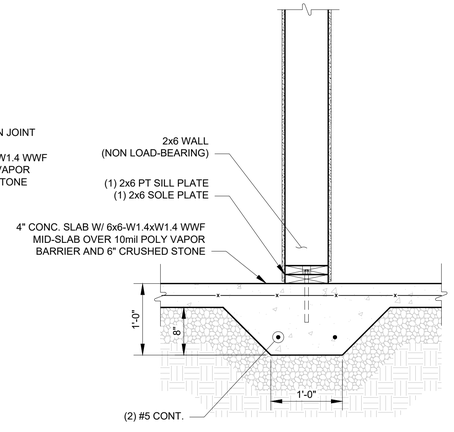
S1.0

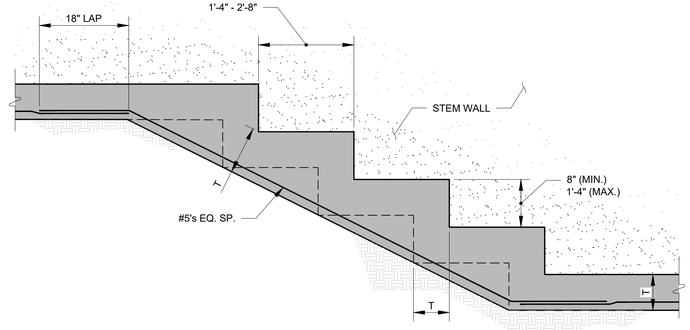


SECTION C
SCALE: 1" = 1'-0"
S1.0

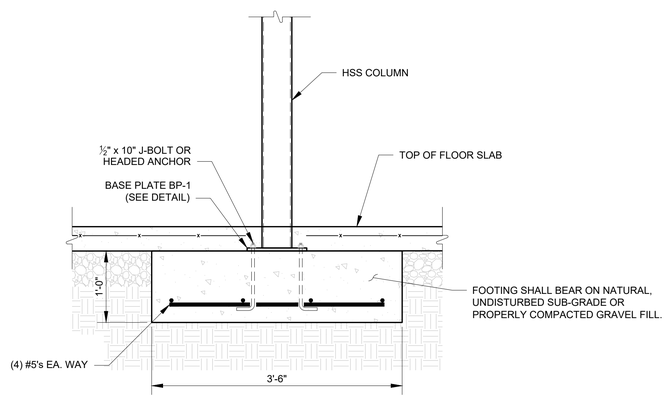


SECTION D
SCALE: 1" = 1'-0"
S1.0

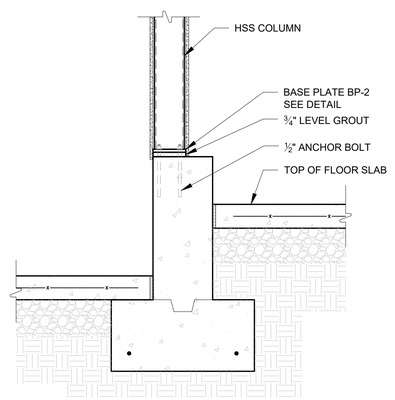
NOTE:
BUILDINGS 1 & 2 WILL HAVE AN 8" INTERIOR CURB DUE TO EXTERIOR GRADING
BUILDINGS 3 & 4 WILL HAVE A 4" INTERIOR CURB DUE TO EXTERIOR GRADING



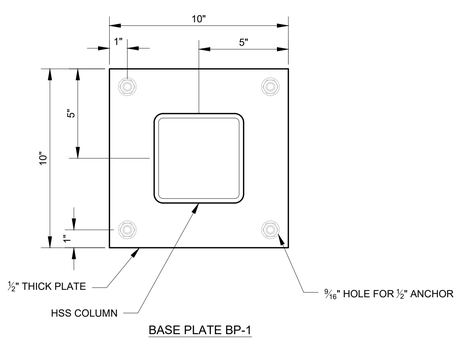
STEPPED FOOTING DETAIL (TYP.)
SCALE: ½" = 1'-0"
1
S1.0



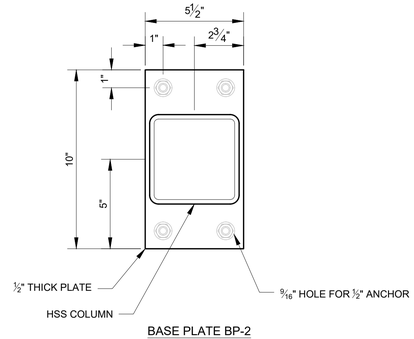
COLUMN FOOTING DETAIL (TYP.)
SCALE: 1" = 1'-0"
2
S1.0



COLUMN DETAIL (TYP.)
SCALE: 1" = 1'-0"
3
S1.0



BASE PLATE BP-1
SCALE: 3" = 1'-0"



BASE PLATE BP-2
SCALE: 3" = 1'-0"

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No. 8429
REGISTERED PROFESSIONAL ENGINEER

PROJECT NUMBER: 23099.3

SCALE: AS NOTED

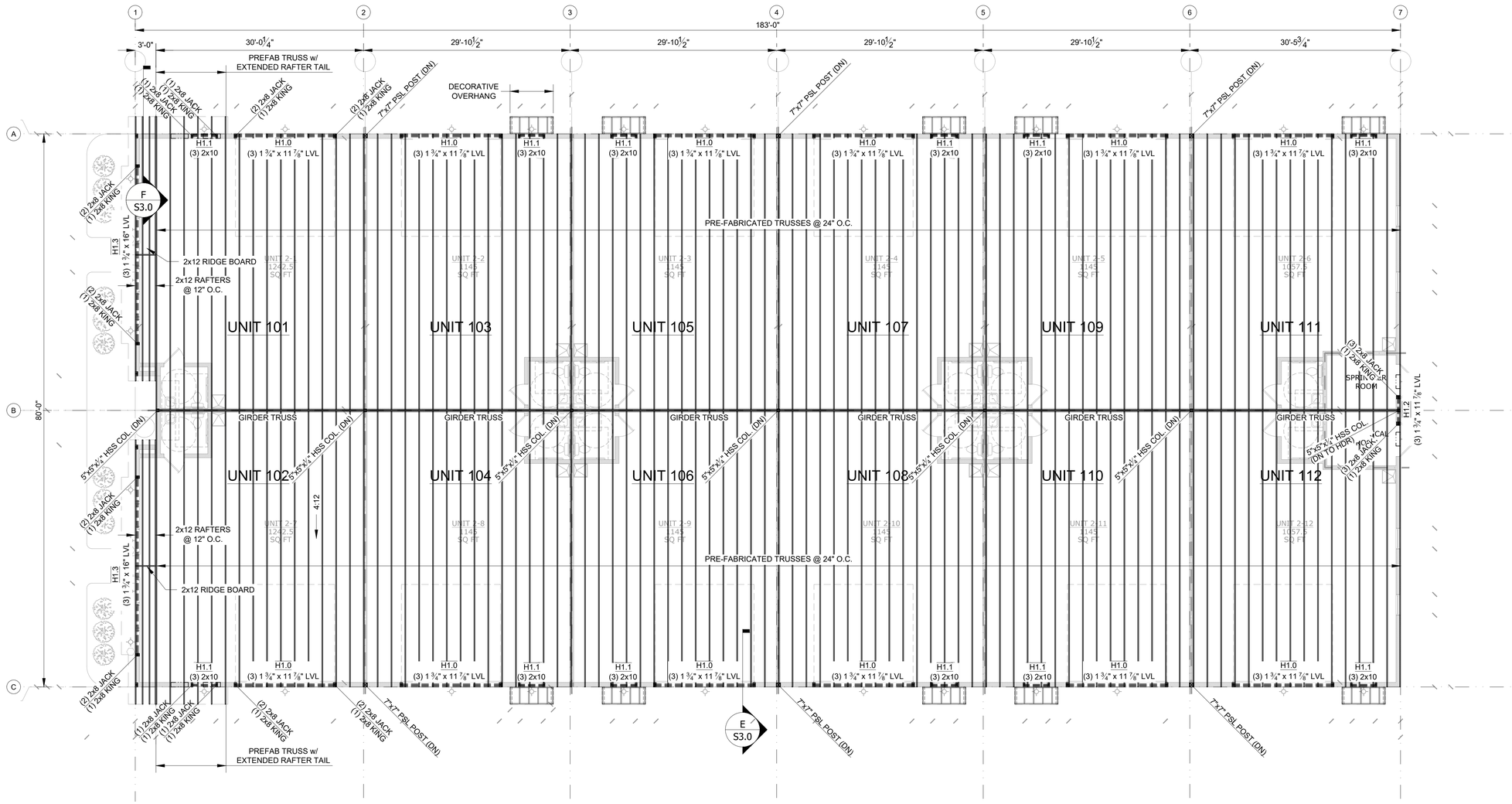
DRAWING TITLE:

Foundation Sections and Details

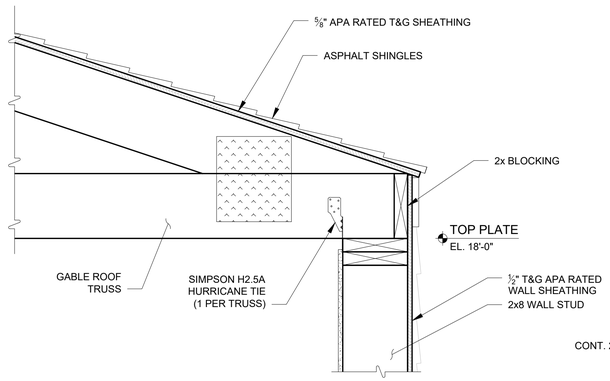
DRAWING NUMBER:

S2.0

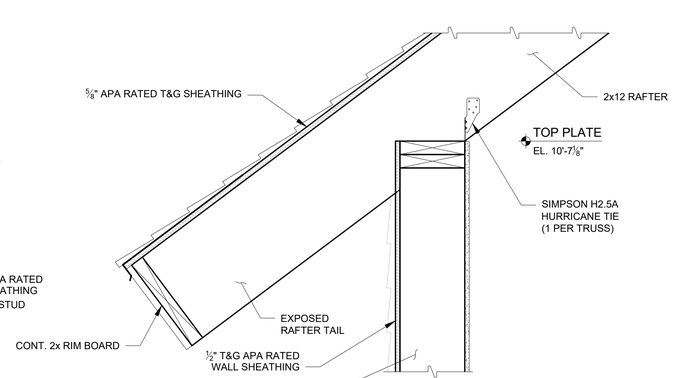
SHEET 3 OF 5



BUILDING 1: ROOF FRAMING PLAN
SCALE: ⅛" = 1'-0"



SECTION E S3.0
SCALE: 1½" = 1'-0"



SECTION F S3.0
SCALE: 1½" = 1'-0"

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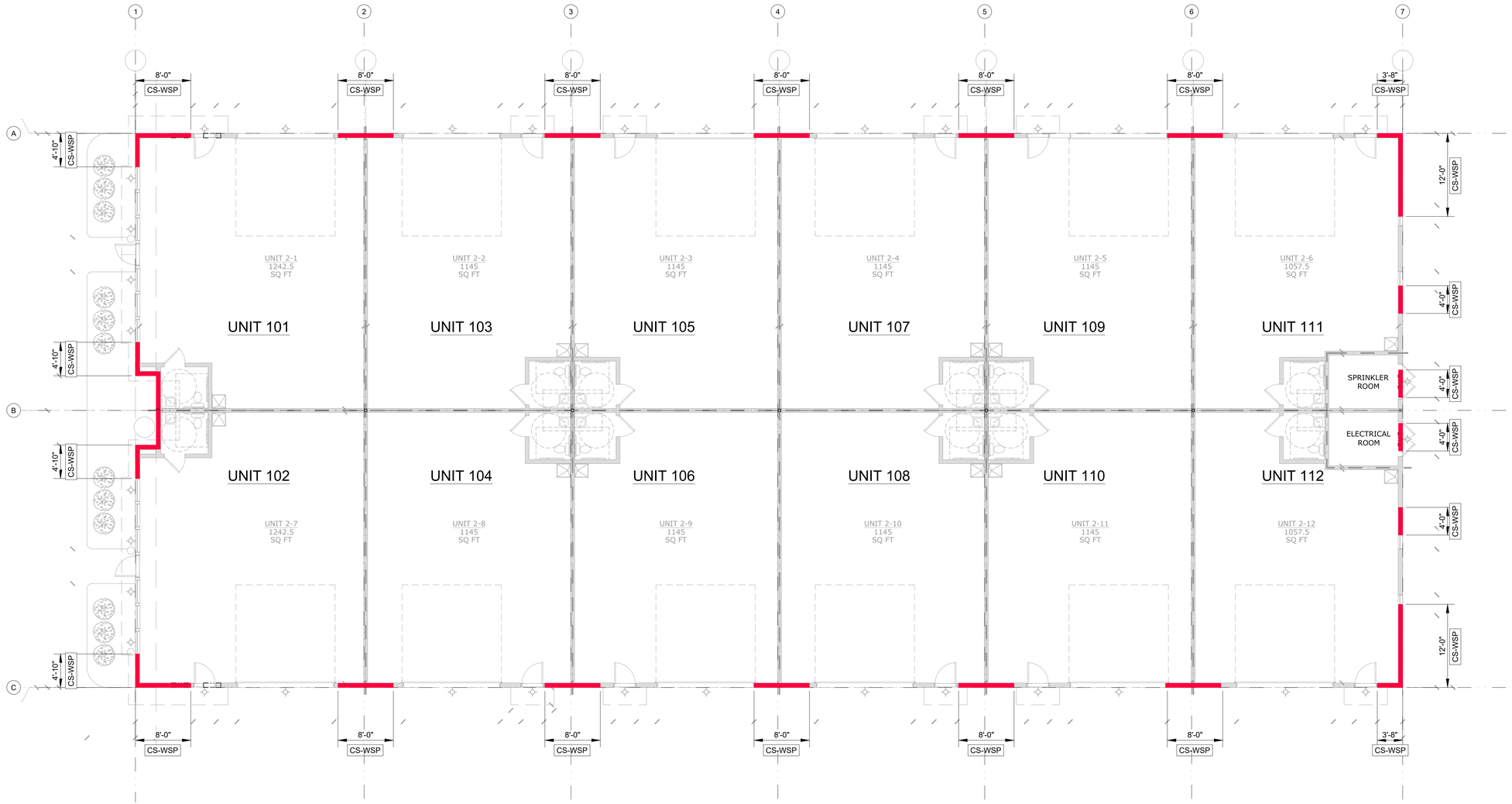
PROJECT NUMBER: 23099.3

SCALE: AS NOTED

DRAWING TITLE: Building 1 Roof Framing Plan

DRAWING NUMBER: S3.0

SHEET 4 OF 5



BUILDING 1 & 2: BRACED WALL PLAN
SCALE: ⅛" = 1'-0"

Bracing Wall Methods

References Table R602.3(1), R602.3(3), R602.10.4, R602.10.6.1

Method	Mark	Exterior Sheathing Assembly			Interior Assembly			Hold Down
		Type	Fastener	Fastening Pattern (edge:field) (in)	Type	Fastener	Fastener Edge Spacing (edge:field) (in)	Device
Continuous Sheathing	CS-WSP (Wood Structural Panel)	⅜" (Min.) APA Rated Sheathing	6d Common	6 : 12	½" Gypsum	No. 6 Type S or W drywall screw (1¼" long)	7 : 7	See Plans

NOTES:

1. CONTINUOUS SHEATHING METHODS REQUIRE STRUCTURAL PANEL SHEATHING TO BE USED ON ALL EXTERIOR SHEATHALBLE SURFACES INCLUDING AREAS BEYOND DESIGNATED BRACED PANELS SHOWN (i.e. AREAS BETWEEN PANELS, AREAS ABOVE AND BELOW OPENINGS, AND GABLE ENDS).
2. ALL VERTICAL PANEL JOINTS SHALL OCCUR OVER, AND BE FASTENED TO COMMON STUDS (R602.10.10).
3. ALL HORIZONTAL PANEL JOINTS (WITHIN BRACED PANEL) SHALL OCCUR OVER, AND BE FASTENED TO COMMON BLOCKING OF MINIMUM 1½" NOMINAL THICKNESS.
4. CRIPPLE WALL WITH A STUD HEIGHT LESS THAN 14-INCHES SHALL BE CONTINUOUSLY SHEATHED ON ONE SIDE WITH WOOD STRUCTURAL PANELS FASTENED TO BOTH THE TOP AND BOTTOM PLATES IN ACCORDANCE WITH TABLE R602.3(1), OR THE CRIPPLE WALLS SHALL BE CONSTRUCTED OF SOLID BLOCKING.

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STEVEN W. OTTEN
No. 8429
REGISTERED PROFESSIONAL ENGINEER

PROJECT NUMBER: 23099.3

SCALE: AS NOTED

DRAWING TITLE: Building 1 Braced Wall Plan

DRAWING NUMBER: S4.0

SHEET 5 OF 5

GAS FIRED UNIT HEATER SCHEDULE

GENERAL		PERFORMANCE									ELECTRICAL				PHYSICAL		REMARKS			
		FURNACE					FAN													
TAG	LOCATION	INPUT MBH	OUTPUT MBH	EFFICIENCY (%)	LAT (°F)	STAGES	CFM	ESP (IN WG)	RPM	SPEED	HP	MCA	VOLTAGE	PHASE	MOUNTING HEIGHT (FT)	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
GUH-1	TYPICAL UNIT	200	166.0	83.0	107.0	1	3,200	–	1,050	HIGH	1/3	9.5	120	1	10'-0"	STERLING XF-200	①	①	1 2 3	①②

① TUBULAR GAS FIRED UNIT HEATER, SEPARATED COMBUSTION.

① ETL LISTED

1 CONCENTRIC VENT KIT
2 STAINLESS STEEL HEAT EXCHANGER
3 LOW VOLTAGE, PROGRAMMABLE THERMOSTAT

① INSTALL PER MANUFACTURERS RECOMMENDATIONS
② INSTALL AT MINIMUM 10'-0" ABOVE FINISHED FLOOR

FAN SCHEDULE

GENERAL			PERFORMANCE				ELECTRICAL			PHYSICAL		REMARKS			
TAG	LOCATION	SERVICE	CFM	ESP (IN WG)	FAN RPM	DB	WATTS	VOLTAGE	PHASE	WEIGHT (LBS)	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
EF-1	SEE PLANS	TOILET ROOM EXHAUST	75	.50	3,024	–	150	120	1	10.0	FANTECH FG 6XL	①	①②	1 2 3 4	①②
EF-2	SEE PLANS	EMERGENCY EXHAUST	1,000	.50	1,662	81.0	450	120	1	43.0	FANTECH FKD 12XL	①	①②	1 2 3 4	①③

① INLINE DUCT FAN

① AIR PERFORMANCE CERTIFIED IN ACCORDANCE TO AMCA 211
② SOUND PERFORMANCE CERTIFIED IN ACCORDANCE TO AMCA 311

1 UNIT MOUNTED SPEED CONTROLLER
2 BACKDRAFT DAMPER
3 DISCONNECT SWITCH
4 MOUNTING CLAMPS

① INSTALL PER MANUFACTURERS INSTRUCTIONS
② FAN SHALL RUN CONTINUOUSLY
③ FAN SHALL ENERGIZE/DE-ENERGIZE UPON ACTIVATION/DE-ACTIVATION OF WALL MOUNTED SWITCH PROVIDED BY ELECTRICAL CONTRACTOR.

ELECTRIC UNIT HEATER SCHEDULE

GENERAL		PERFORMANCE					ELECTRICAL			PHYSICAL	REMARKS			
TAG	LOCATION	KW	STAGES	MBH	CFM	FAN SPEED	AMPS	VOLTAGE	PHASE	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
EUH-1	BUILDING #1 ELECTRIC ROOM	1.5	1	5.1	70	HIGH	12.5	120	1	KING WHFC1215W	①	①	1 2 3	①②
EUH-2	BUILDING #1 SPRINKLER ROOM	1.5	1	5.1	70	HIGH	12.5	120	1	KING WHFC1215W	①	①	1 2 3	①②

① FAN FORCED, ELECTRIC CEILING HEATER

① cULus (E41422)

1 WALL MOUNTED THERMOSTAT
2 DISCONNECT SWITCH
3 WHITE GRILLE

① INSTALL PER MANUFACTURERS RECOMMENDATIONS
② A WALL MOUNTED THERMOSTAT WILL ENERGIZE THE FAN AND THE HEATING COIL TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 70° (ADJ.).

DIFFUSER AND GRILLE SCHEDULE

GENERAL	PHYSICAL				REMARKS		
TAG	SIZE (IN)	BLOW PATTERN	BRANCH DUCT (IN)	MANUFACTURER MODEL	TYPE	FEATURES	INSTALL
E-1	SEE PLANS	–	SEE PLANS	TITUS 355FL	①	1	①
E-2	SEE PLANS	–	SEE PLANS	AIR CONCEPTS RSD	②	2 3	–

① EXHAUST GRILLE, 45° FIXED BLADES ON 3/4" CENTERS, BLADES PARALLEL TO LONG DIMENSION, ALUMINUM, WHITE

② ROUND, SINGLE DEFLECTION, DUCT MOUNTED. COLOR AND FINISH TO BE CHOSEN BY ARCHITECT.

1 REFER TO ARCHITECTURAL RCP PLANS FOR MOUNTING TYPE
2 FOAM GASKET
3 RADIAL BLADE DAMPER

① PROVIDE A DUCT MOUNTED VOLUME DAMPER OR CONSTANT AIRFLOW REGULATOR WHETHER OR NOT A DUCT MOUNTED VOLUME DAMPER IS INDICATED ON PLAN. EXCEPTIONS:
- TRANSFER AIR APPLICATIONS (GRILLE IS NOT CONNECTED BY A DUCTWORK SYSTEM TO A FAN)
- EXHAUST AND RETURN GRILLES WHERE ONLY ONE GRILLE SERVES THE FAN/AIR HANDLING SYSTEM

TAG LEGEND
T## – SIZE
(###) – TAG
– BALANCE TO ### CFM

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AP	ACCESS PANEL
AHJ	AUTHORITY HAVING JURISDICTION
ATC	AUTOMATIC TEMPERATURE CONTROL
BHP	BREAK HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
COP	COEFFICIENT OF PERFORMANCE
DN	DOWN
EA	EXHAUST AIR
E.C.	ELECTRICAL CONTRACTOR
EER	ENERGY EFFICIENCY RATIO
ESP	EXTERNAL STATIC PRESSURE
°F	DEGREES FAHRENHEIT
FT	FEET
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
G.C.	GENERAL CONTRACTOR
HP	HORSEPOWER
MAX	MAXIMUM
MBH	THOUSANDS OF BTU / HOUR
M.C.	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MOP	MAXIMUM OVERCURRENT PROTECTION
NTS	NOT TO SCALE
OA	OUTSIDE AIR
PH	PHASE
PSIG	POUNDS PER SQUARE INCH GAUGE
RPM	REVOLUTIONS PER MINUTE
SP	STATIC PRESSURE
SPD	STATIC PRESSURE DROP
TYP	TYPICAL
UOI	UNLESS OTHERWISE INDICATED
VD	VOLUME DAMPER

TAG LEGEND

EQUIPMENT (REQUIRING POWER)	EQUIPMENT DESIGNATION / NUMBER
REGISTERS, GRILLES & DIFFUSERS	T– SIZE / DESIGNATION / BALANCE TO CFM INDICATED

GENERAL MECHANICAL NOTES

1. MECHANICAL EQUIPMENT AND SUCH OTHER APPARATUS AS MAY REQUIRE MAINTENANCE AND OPERATION FROM TIME TO TIME SHALL BE MADE EASILY ACCESSIBLE. ALTHOUGH THE EQUIPMENT MAY BE SHOWN ON THE DRAWINGS IN CERTAIN LOCATIONS, THE CONSTRUCTION MAY DISCLOSE THAT SUCH LOCATIONS DO NOT MAKE ITS POSITION READILY ACCESSIBLE. IN SUCH CASES, THE OWNER OR HIS REPRESENTATIVE SHALL BE NOTIFIED BEFORE ADVANCING THE CONSTRUCTION TO A STAGE WHERE A CHANGE WILL REFLECT ADDITIONAL EXPENSE.
2. THE DRAWINGS SHOW THE LAYOUT OF THE MECHANICAL SYSTEMS AND INDICATE THE APPROXIMATE LOCATIONS OF DUCTWORK, BRANCHES AND ELBOWS, AND EQUIPMENT. THE RUNS AND QUANTITY OF DUCTWORK, OFFSETS AND ELBOWS AS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT ROUTING OF QUANTITY DUCTWORK, OFFSETS AND ELBOWS SHALL BE DETERMINED BY THE STRUCTURAL CONDITIONS, AND POSSIBLE OBSTRUCTIONS. THIS SHALL NOT BE CONSTRUED TO MEAN THAT THE DESIGN OF THE SYSTEMS MAY BE CHANGED, BUT REFERS ONLY TO EXACT RUNS BETWEEN GIVEN POINTS.
3. IT SHALL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR TO STUDY ALL DRAWINGS AND DETAILS SO THAT THE INSTALLATION OF ALL NEW WORK CAN BE FULLY COORDINATED. COORDINATE WITH ALL TRADES TO AVOID INTERFERENCE OF EQUIPMENT.
4. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EQUIPMENT, DUCTS OR PIPES INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED.
5. PRODUCTS REQUIRED BY CONSTRUCTION BUT NOT SPECIFICALLY DESCRIBED HEREIN SHALL BE AS SELECTED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE A/E.
6. PROVIDE ALL MATERIALS, LABOR, AND ACCESSORIES FOR A COMPLETE AND OPERABLE SYSTEMS AND AS REQUIRED BY THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
7. INSTALL ALL MATERIALS, ACCESSORIES AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR A COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS MANUFACTURERS INSTRUCTIONS.
8. ALL MISCELLANEOUS STRUCTURAL SUPPORTS REQUIRED FOR HVAC EQUIPMENT INSTALLATION SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.
9. ALL CEILING MOUNTED EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY THAT LIGHTS, PIPING, AND DUCTWORK DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.
10. EXACT ELEVATION FOR REGISTERS AND GRILLES SHALL BE APPROVED BY THE ARCHITECT BEFORE INSTALLATION.
11. INSTALL ROOM THERMOSTATS OR SENSORS 54" (MAXIMUM) ABOVE FINISHED FLOOR, 48" ABOVE FINISHED FLOOR FOR ANY ADA COMPLIANT RESIDENCE, OR AS OTHERWISE DIRECTED BY THE ARCHITECT.

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	DUCTWORK (DOUBLE LINE)
	DUCTWORK WITH ACOUSTICAL LINING (DOUBLE LINE)
	DUCTWORK (SINGLE LINE)
	DUCTWORK WITH ACOUSTICAL LINING (SINGLE LINE)
	FLEXIBLE DUCTWORK
	DUCTWORK, PIPING AND EQUIPMENT TO BE DEMOLISHED
	RECTANGULAR/ROUND SUPPLY AIR DUCTWORK UP
	RECTANGULAR/ROUND RETURN AIR DUCTWORK UP
	RECTANGULAR/ROUND EXHAUST AIR DUCTWORK UP
	RECTANGULAR/ROUND SUPPLY AIR DUCTWORK DOWN
	RECTANGULAR/ROUND RETURN AIR DUCTWORK DOWN
	RECTANGULAR/ROUND EXHAUST AIR DUCTWORK DOWN
	VOLUME DAMPER
	CONTROL DAMPER
BD	GRAVITY BACKDRAFT DAMPER
	CONNECT TO EXISTING
	AIR ENTERING OPENING
	AIR LEAVING OPENING
CO2	CO2 SENSOR
T	THERMOSTAT OR TEMPERATURE SENSOR
	CONTROL CONNECTION

ELECTRIC BASEBOARD

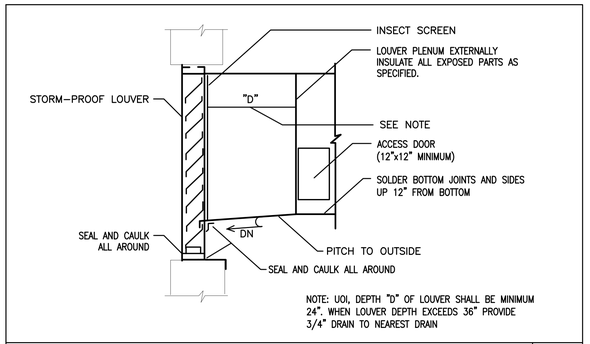
GENERAL		PERF.	ELECTRICAL			PHYSICAL		REMARKS			
TAG	LOCATION	BTUH	WATTS	AMPS	VOLTS	LENGTH (IN)	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
EBB-1	BUILDING #1 UNIT 101 BATHROOM	2,559	750	6.3	120	36.0	KING 3K1207BW	①	①	1	①②
EBB-2	BUILDING #1 UNIT 102 BATHROOM	2,559	750	6.3	120	36.0	KING 3K1207BW	①	①	1	①②

① ELECTRIC BASEBOARD HEATER

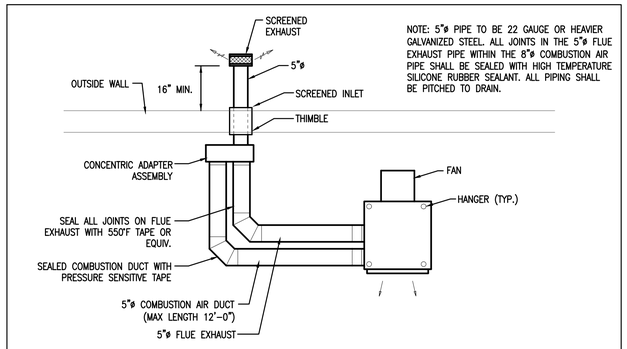
① UL LISTED

1 BUILT-IN SINGLE POLE THERMOSTAT

① INSTALL PER MANUFACTURERS RECOMMENDATIONS
② A BUILT-IN THERMOSTAT WILL ENERGIZE THE HEATING COIL TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 70° (ADJ.).



LOUVER CONNECTION DETAIL | NTS



SEALED COMBUSTION GAS UNIT HEATER DETAIL | NTS

PERMIT SET
DATE 11/15/2024

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DAVID J. KNIGHT
No. 12602
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

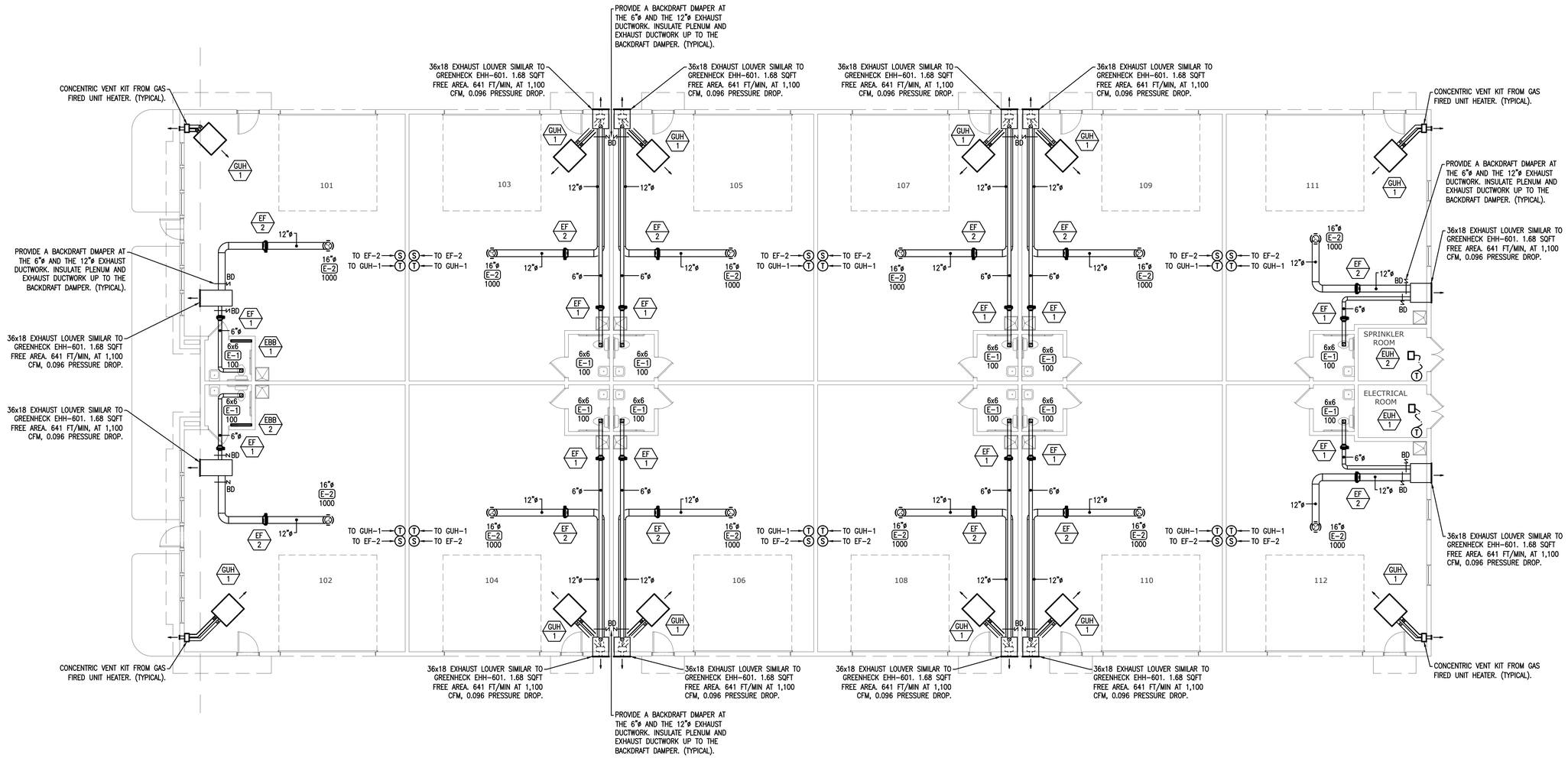
REVISIONS:

DESCRIPTION: MECHANICAL LEGENDS, NOTES, SCHEDULES & DETAILS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

M0.0

BER # 24134



1 BUILDING 1: FLOOR PLAN - MECHANICAL

Scale: 1/8"= 1'-0"

MECHANICAL NOTES

BASE BID: CONTRACTOR SHALL PROVIDE AND INSTALL A NEW 100 CFM EXHAUST FAN (EF-1), NEW 6"ø EXHAUST DUCTWORK FROM A NEW EXHAUST GRILLE IN BATHROOM TO THE EXHAUST PLENUM AT A NEW 36x18 EXHAUST LOUVER AT THE EXTERIOR OF THE BUILDING. PROVIDE AND INSTALL A NEW BACKDRAFT DAMPER IN THE NEW 12"ø EXHAUST DUCT AS CLOSE TO THE EXHAUST PLENUM AS POSSIBLE. INSULATE EXHAUST PLENUM FROM LOUVER TO BACKDRAFT DAMPER WITH MINIMUM R-8 DUCT INSULATION.

UNIT PRICE:

1. CONTRACTOR SHALL PROVIDE A UNIT PRICE FOR A NEW 1,000 CFM EXHAUST FAN (EF-2), NEW 12"ø EXHAUST DUCTWORK FROM A NEW EXHAUST GRILLE IN GARAGE BAY AREA TO THE 36x18 EXHAUST LOUVER THAT WAS INSTALLED AS PART OF THE BASE BID. PROVIDE AND INSTALL A NEW BACKDRAFT DAMPER IN THE NEW 12"ø EXHAUST DUCT AS CLOSE TO THE EXHAUST PLENUM AS POSSIBLE.

2. CONTRACTOR SHALL PROVIDE A UNIT PRICE FOR A CARBON MONOXIDE GAS DETECTION SYSTEM. INCLUDING ALL SENSORS, INTERLOCKING WIRING, AUDIBLE ALARMS AND CONTROL PANELS AS REQUIRED. GAS DETECTION SYSTEM SHALL BE SIMILAR TO TOXALERT GVU-1. GAS DETECTION SYSTEM SHALL BE INTERLOCKED WITH THE EXHAUST FAN (EF-2) IN LIEU OF THE WALL SWITCH.

PERMIT SET
DATE 11/15/2024

B|E|R
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DAVID J. KNIGHT
No. 12602
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

REVISIONS:

DESCRIPTION: BUILDING 1: FLOOR PLAN - MECHANICAL
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons

300 Coddington Highway
Middletown, Rhode Island, 02842

M1.0

BER # 24134

PART 1 – GENERAL

1.0 GENERAL REQUIREMENTS:

A. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND SERVICES NECESSARY TO FURNISH, FABRICATE AND INSTALL ALL WORK SPECIFIED HEREIN. REFER TO THE DRAWINGS FOR FURTHER DEFINITION OF LOCATION, EXTENT AND DETAILS OF THE WORK.
B. WHERE THE SPECIFICATIONS REFER TO THREE (3) PRODUCTS, BY NAME, CATALOG NUMBER AND/OR MANUFACTURER, IT IS THE INTENT OF THE SPECIFICATION THAT THE CONTRACTOR SHALL SUBMIT ONE (1) TO THE ENGINEER FOR APPROVAL.
C. WHERE THE SPECIFICATIONS REFER TO LESS THAN THREE (3) PRODUCTS BY NAME, CATALOG NUMBER AND/OR MANUFACTURER, UNLESS OTHERWISE SPECIFIED, THE INTENT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT BE CONSTRUED AS LIMITING COMPETITION; IN SUCH CASES, THE CONTRACTOR MAY, WITH THE PERMISSION OF THE ENGINEER, SUBMIT DETAILED INFORMATION TO THE ARCHITECT FOR HIS REVIEW. IF, IN THE JUDGMENT OF THE ENGINEER, THE SUBMISSION IS ACCEPTABLE, THE ENGINEER WILL TRANSMIT HIS APPROVAL IN WRITING TO THE CONTRACTOR.

1.1 WORK INCLUDED:

A. THE INTENTION OF THE SPECIFICATIONS AND PLANS IS TO PROVIDE FOR FURNISHED SYSTEMS, PROPERLY TESTED, BALANCED AND READY FOR OPERATION, INCLUDING NECESSARY MINOR DETAILS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE, EVEN THOUGH SUCH ITEMS MAY NOT BE EXPRESSLY SHOWN OR SPECIFIED.
B. THE WORK COVERED BY THIS SECTION OF THE SPECIFICATION INCLUDES THE FURNISHING OF ALL LABOR AND MATERIALS AND IN PERFORMING ALL OPERATIONS IN CONNECTION WITH THE INSTALLATION OF THE HVAC WORK SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN AND SHALL BE INTERPRETED AS WORK TO BE DONE BY THIS CONTRACTOR. WORK TO BE PERFORMED BY OTHER TRADES WILL ALWAYS BE SPECIFICALLY REFERENCED TO A PARTICULAR CONTRACTOR AND/OR SECTION.
C. CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWINGS AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED.

1.2 REGULATORY REQUIREMENTS, CODES, ORDINANCES AND PERMITS

A. ALL WORK PERFORMED UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND ORDINANCES.
B. ALL MATERIALS AND WORK PROVIDED SHALL BE IN ACCORDANCE WITH, BUT NOT LIMITED TO, THE FOLLOWING:
   1. ASSOCIATED AIR BALANCE COUNCIL (AABC)
   2. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
   3. AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)
   4. AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS (ASHRAE)
   5. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
   6. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
   7. INTERNATIONAL MECHANICAL CODE (IMC)
   8. NATIONAL ELECTRICAL CODE (NEC)
   9. NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)
   10. NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB)
   11. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
   12. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
   13. SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA)
C. WHERE CODE REFERENCES ARE GIVEN, THE LATEST ISSUE OF THAT CODE IN EFFECT AT THE TIME OF BIDDING SHALL BE USED.
D. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND FILING ALL PLANS, SPECIFICATIONS AND OTHER DOCUMENTS, PAY ALL REQUISITE FEES AND SECURE ALL PERMITS, INSPECTIONS AND APPROVALS NECESSARY FOR THE LEGAL INSTALLATION AND OPERATION OF THE SYSTEM AND/OR EQUIPMENT FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS.
E. THIS CONTRACTOR SHALL FRAME UNDER GLASS ALL PERMITS, SECURED BY HIM, ADJACENT TO THE RESPECTIVE SYSTEM AND/OR EQUIPMENT AND REQUIRED TO BE DISPLAYED BY CODE, LAW AND ORDINANCE. THOSE PERMITS SECURED BUT NOT REQUIRED TO BE DISPLAYED SHALL BE INCLUDED IN THE OWNER'S MAINTENANCE MANUAL.

1.3 SUBMITTALS:

A. PROVIDE SHOP DRAWINGS FOR ALL EQUIPMENT AND RECORD DRAWINGS FOR ALL WORK PROVIDED UNDER THIS CONTRACT TO THE ARCHITECT/ENGINEER FOR HIS REVIEW AND APPROVAL PRIOR TO ORDERING, FABRICATING OR INSTALLING.

1.4 COORDINATION:

A. WORK SHALL BE PERFORMED IN COOPERATION WITH OTHER TRADES ON THE PROJECT AND SO SCHEDULED AS TO ALLOW SPEEDY AND EFFICIENT COMPLETION OF THE WORK.
B. FURNISH TO OTHER TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF ALL FRAMES, BOXES, SLEEVES AND OPENINGS NEEDED FOR THEIR WORK, AND ALSO FURNISH INFORMATION AND SHOP DRAWINGS NECESSARY TO PERMIT TRADES AFFECTED BY THE WORK TO INSTALL SAME PROPERLY AND WITHOUT DELAY.
C. IF ANY HVAC WORK HAS BEEN INSTALLED BEFORE COORDINATION WITH OTHER TRADES SO AS TO CAUSE INTERFERENCE WITH THE WORK OF SUCH TRADES, ALL NECESSARY ADJUSTMENTS AND CORRECTIONS SHALL BE MADE BY THE HVAC TRADES INVOLVED WITHOUT EXTRA COST TO THE OWNER.
D. PROTECT ALL MATERIALS AND WORK OF OTHER TRADES FROM DAMAGE WHICH MAY BE CAUSED BY THE HVAC WORK, AND REPAIR ALL DAMAGES WITHOUT EXTRA COST TO THE OWNERS.
E. MECHANICAL EQUIPMENT AND SUCH OTHER APPARATUS AS MAY REQUIRE MAINTENANCE AND OPERATION FROM TIME TO TIME SHALL BE MADE EASILY ACCESSIBLE. ALTHOUGH THE EQUIPMENT MAY BE SHOWN ON THE DRAWINGS IN CERTAIN LOCATIONS, THE CONSTRUCTION MAY DISCLOSE THAT SUCH LOCATIONS DO NOT MAKE ITS POSITION READILY ACCESSIBLE. IN SUCH CASES, THE OWNER OR HIS REPRESENTATIVE SHALL BE NOTIFIED BEFORE ADVANCING THE CONSTRUCTION TO A STAGE WHERE A CHANGE WILL REFLECT ADDITIONAL EXPENSE.
F. IT SHALL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR TO STUDY ALL DRAWINGS AND DETAILS SO THAT THE INSTALLATION OF ALL NEW WORK CAN BE FULLY COORDINATED. COORDINATE WITH ALL TRADES TO AVOID INTERFERENCE OF EQUIPMENT.
G. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EQUIPMENT, DUCTS OR PIPES INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. HVAC CONTRACTOR SHALL COORDINATE ALL WALL, CEILING, FLOOR, ROOF AND BEAM PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER.
H. THIS CONTRACTOR SHALL OBTAIN DETAILED PRINTED INFORMATION FROM THE MANUFACTURER OF EQUIPMENT WHICH HE IS TO PROVIDE FOR THE PROPER METHODS OF INSTALLATION. HE SHALL ALSO OBTAIN ALL INFORMATION FROM THE GENERAL CONTRACTOR AND OTHER CONTRACTORS WHICH MAY BE NECESSARY TO FACILITATE HIS WORK AND THE COMPLETION OF THE WHOLE PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
I. THE WORK TO BE ACCOMPLISHED UNDER THIS SECTION INCLUDES WORK WITHIN EXISTING AREAS ADJACENT TO THE SITE OF NEW CONSTRUCTION. CONTINUITY OF SERVICES WITHIN EXISTING AREAS SHALL BE MAINTAINED. ANY INTERRUPTION OF SERVICES NECESSARY TO ACCOMPLISH THE WORK SHALL BE MADE ONLY WITH THE CONSENT OF THE GENERAL CONTRACTOR AND AT SUCH TIME(S) AS THE OWNER DESIGNATES.
J. THIS CONTRACTOR SHALL NOT UNNECESSARILY DISTURB OR INTERFERE WITH THE OWNER'S USE OF THE FACILITIES ASSOCIATED WITH OR ADJACENT TO THIS CONTRACT. WHEN INTERFERENCE IS NECESSARY, PERMISSION SHALL BE OBTAINED FROM THE GENERAL CONTRACTOR BEFORE ANY OPERATION OR SERVICE LINE IS DISTURBED OR DISCONNECTED.
K. THIS CONTRACTOR SHALL INCLUDE UNDER COORDINATION WORK THE INSTALLATION OF ALL SYSTEMS IN CONFORMANCE WITH GOVERNING CODES. THIS CONTRACTOR IS ADVISED THAT NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH SUCH SPACES OR ROOMS PROVIDED FOR SWITCHBOARDS AND PANELBOARDS IN ACCORDANCE WITH ARTICLE 384 OF THE NATIONAL ELECTRICAL CODE.

1.5 INSTALLATION REQUIREMENTS:

A. THE ARRANGEMENT OF ALL HVAC WORK SHOWN ON THE DRAWINGS IS DIAGRAMMATIC ONLY AND INDICATES THE MINIMUM REQUIREMENTS OF THE WORK. CONDITIONS AT THE BUILDING INCLUDING ACTUAL MEASUREMENTS SHALL DETERMINE THE DETAILS OF THE INSTALLATION.
B. INSTALL ALL MATERIALS, ACCESSORIES AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR A COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS AND MANUFACTURERS INSTRUCTIONS.
C. ALL MISCELLANEOUS STRUCTURAL SUPPORTS REQUIRED FOR HVAC EQUIPMENT INSTALLATION SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. INSTALL ALL PIPING BELOW DUCTWORK UNLESS CLEARANCE CONDITION REQUIRES PIPING TO BE ABOVE.
D. WHERE DUCTWORK PENETRATES ANY SMOKE AND/OR FIRE RATED PARTITIONS PROVIDE UL LISTED DYNAMIC FIRE AND/OR SMOKE DAMPERS PER NFPH GUIDELINES. INSTALL PER MANUFACTURES INSTRUCTIONS. COORDINATE WITH ELECTRICAL CONTRACTOR TO PROVIDE 120V POWER AND TO TIE INTO FIRE ALARM SYSTEM FOR ALL MOTORIZED SMOKE DAMPERS.

1.6 GUARANTEE/WARRANTY

A. ALL NEW MATERIALS, ITEMS OR EQUIPMENT AND WORKMANSHIP FURNISHED UNDER THIS SECTION SHALL CARRY STANDARD WARRANTY AGAINST ALL DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF WORK. ANY FAULT DUE TO DEFECTIVE OR IMPROPER MATERIAL, EQUIPMENT, WORKMANSHIP OR MANUFACTURING DESIGN WHICH MAY DEVELOP WITHIN THAT PERIOD SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THIS CONTRACTOR, INCLUDING ALL OTHER DAMAGES DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM THIS FAILURE.
B. THIS CONTRACTOR SHALL GUARANTEE THAT ALL NEW ELEMENTS OF THE SYSTEMS MEET THE SPECIFIED PERFORMANCE REQUIREMENTS AS SET FORTH HEREIN OR AS INDICATED ON THE DRAWINGS.

1.7 MECHANICAL AND ELECTRICAL COORDINATION:

A. HEATING, VENTILATING, AND AIR CONDITIONING SUBCONTRACTOR SHALL FURNISH AND INSTALL VARIOUS ELECTRICAL ITEMS RELATING TO THE HVAC EQUIPMENT AND CONTROL APPARATUS. THE ELECTRICAL SUBCONTRACTOR SHALL BE REQUIRED TO CONNECT POWER WIRING TO THIS EQUIPMENT UNLESS NOTED OTHERWISE.
B. THE HVAC AND ELECTRICAL SUBCONTRACTOR SHALL COORDINATE THEIR RESPECTIVE PORTIONS OF THE WORK, AS WELL AS THE ELECTRICAL CHARACTERISTICS OF THE HVAC EQUIPMENT.
C. ALL POWER WIRING AND LOCAL DISCONNECT SWITCHES WILL BE PROVIDED BY THE ELECTRICAL SUBCONTRACTOR FOR THE LINE VOLTAGE POWER. ALL CONTROL AND INTERLOCKING WIRING SHALL BE THE RESPONSIBILITY OF THE HVAC SUBCONTRACTOR.
D. ALL STARTERS SHALL BE FURNISHED AND INSTALLED UNDER THE ELECTRICAL DIVISION EXCEPT THOSE FURNISHED AS AN INTEGRAL PART OF PACKAGED EQUIPMENT.

1.8 RECORD DRAWINGS

A. PROVIDE RECORD AS-BUILT DRAWINGS. THE CONTRACTOR SHALL KEEP DAILY UPDATED ACCURATE RECORDS OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK INDICATED ON THE CONTRACT DRAWINGS. WHEN WORK IS COMPLETED THIS CONTRACTOR SHALL PROVIDE TO THE OWNER ONE COMPLETE SET OF MARKED-UP ORIGINAL PRINTS, UPDATED CAD DRAWINGS AND A CD WITH CAD FILES.

B. VOLUME DAMPERS: DAMPERS SHALL BE NOT LESS THAN TWO GAUGES HEAVIER THAN DUCTWORK IN WHICH INSTALLED. WHERE DAMPERS ARE INACCESSIBLE, USE CONSTANT AIR FLOW REGULATORS AS SCHEDULED. BEARING COUPLING FOR BOTTOM DUCT CONTROL MAY BE USED FOR SHAFT ON VERTICAL BLADE DAMPERS. THE 3/8" ROD BETWEEN CEILING REGULATOR AND DAMPER SHALL BE PROVIDED BY CONTRACTOR.

B. DUCT ACCESS DOORS: ALL ACCESS DOORS SHALL BE OF DOUBLE CONSTRUCTION FROM THE SAME MATERIAL AS THE DUCTWORK WITH 1 INCH THICK FIBERGLASS BETWEEN THE TWO LAYERS. EACH LAYER SHALL NOT BE LIGHTER THAN 24-GAUGE. ALL ACCESS DOORS SHALL BE AIR-TIGHT AND SHALL BE FITTED WITH SPONGE RUBBER GASKETS AROUND THE ENTIRE PERIMETER.

C. FLEXIBLE CONNECTIONS: THE FLEXIBLE CONNECTIONS SHALL BE VENT-GLASS CONSTRUCTED OF NEOPRENE COATED TYPE AS MANUFACTURED BY VENTFABRICS, INC. OR APPROVED EQUAL. THE FLEXIBLE CONNECTIONS SHALL BE TIGHTLY SECURED WITH METAL BANDS. A MINIMUM 4 INCH SPACE AND A 1 INCH SLACK SHALL BE ALLOWED FOR THE FLEXIBLE CONNECTION AND THE CONNECTION SHALL NOT BE STRETCHED TIGHT. A FLEXIBLE CONNECTION SHALL BE INSTALLED ON THE SUCTION AND DISCHARGE CONNECTION OF AIR HANDLING UNITS, FAN COIL UNITS AND EXHAUST FANS.

D. DUCT SEALING: ALL TRANSVERSE SEAMS, JOINTS AND WHERE DUCTS CONNECT SHALL BE MADE AIR TIGHT BY GENEROUSLY COATING WITH DUCT SEALANT AS MANUFACTURED BY MINNESOTA MINING AND MANUFACTURING, DOW CORNING, BOSTIK CONSTRUCTION PRODUCTS OR APPROVED EQUAL. THE MAXIMUM ALLOWABLE DUCT LEAKAGE SHALL BE 5% OF THE RESPECTIVE SYSTEM TOTAL AIR QUANTITY.

PART 2 – PRODUCTS

2.0 DUCTWORK:

A. DUCTWORK: GALVANIZED STEEL SHEETS, REINFORCING AND COMPANION ANGLES, HANGERS, METAL SPECIFICATIONS, GAUGES AND CONSTRUCTION OF SEAMS, JOINTS AND REINFORCING SHALL BE ACCORDING TO THE LATEST SMACNA PUBLICATION – "HVAC DUCT CONSTRUCTION STANDARDS".
   1. UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS, SUPPLY AND RETURN DUCTWORK CONSTRUCTION SHALL MEET 3" CLASSIFICATION FOR THE FIRST 50' OF THE UNIT SUPPLY AND RETURN CONNECTION. ALL OTHER DUCTWORK SHALL MEET 2" CLASSIFICATION. 1" CLASSIFICATION FOR EXHAUST DUCTWORK
   2. ALL RECTANGULAR SHEET DEFINED AS ALL DUCTWORK, UNLESS OTHERWISE SPECIFIED, SHALL BE CONSTRUCTED WITH PITTSBURGH LONGITUDINAL SEAMS.
   3. TRANSVERSE JOINTS SHALL BE MADE UP WITH POCKET LOCKS AND CORNER CLOSURES.
   4. DUCT DIMENSIONS INDICATED ON DRAWINGS ARE CLEAR INSIDE DIMENSION. DUCTWORK SIZE SHALL INCREASE TO TO ALLOW FOR INTERNAL DUCT LINER THICKNESS.
   5. PROVIDE ALL REQUIRED OFFSETS, ELBOWS AND TRANSITION AS REQUIRED. WHEN MAKING OFFSETS AND TRANSFORMATIONS NECESSARY TO ACCOMMODATE STRUCTURAL CONDITIONS, PIPING OR EQUIPMENT, PRESERVE FULL CROSS-SECTIONAL AREA OF DUCTWORK SHOWN ON DRAWINGS.
   6. DUCTS WIDER THAN 19" WITH MORE THAN 10 SQUARE FEET OF UNBRACED PANEL SHALL BE BEADED OR CROSS-BROKEN.
   7. INTERNAL STIFFENING STRUTS SHALL ONLY BE USED UPON PRIOR WRITTEN APPROVAL OF THE ARCHITECT.
   8. MAKE CHANGES IN DUCT SIZE WITH TAPERED CONNECTIONS AS REQUIRED BY SMACNA. CHANGES SHALL NOT EXCEED 30° FROM LINE TO AIRFLOW.
   9. TAKE-OFFS TO THE DIFFUSERS SHALL BE 45 LEADING EDGE TYPE OR BELLMOUTH TYPE.
   10. EXPOSED ROUND DUCTWORK SHALL BE SPIRAL LOCK SEAMS CONSTRUCTION WITH MECHANICALLY FORMED SEAM LOCKING INDENTATION EVENLY SPACED ALONG THE SPIRAL SEAM WITH GASKET JOINT CONNECTIONS. THE GASKET SHALL CREATE A SEAL AGAINST THE INTERIOR OF THE SPIROAL DUCT. THE SYSTEM TIGHTNESS SHALL BE FACTORY WARRANTED TO THE MEET SMACNA'S LEAKAGE CLASS-3 PERFORMANCE. THICKNESS SHALL BE PER SMACNA STANDARDS. FOR DUCTWORK WHICH WILL BE PAINTED IN THE FIELD PROVIDE PAINTABLE FINISH; REFER TO ARCHITECTURAL DRAWINGS. PRODUCT SHALL BE MANUFACTURED BY LINDAB INC., MCGILL AIRFLOW LLC, SEMCO, SPIRAL MANUFACTURE CO OR EQUAL.

2.1 DUCT INSULATION:

A. INSULATION SHALL BE CERTAIN-TEED, KNAUF, MANVILLE OR OWENS CORNING. INSTALL INSULATION, MASTICS, ADHESIVES, COATINGS, COVERS, WEATHER-PROTECTION AND OTHER WORK EXACTLY AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS. MATERIALS SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND SMACNA.

B. APPLY INSULATION AFTER SYSTEMS HAVE BEEN TESTED, PROVED TIGHT AND APPROVED BY ARCHITECT. REMOVE DIRT, SCALE, OIL, RUST AND OTHER FOREIGN MATTER PRIOR TO INSTALLATION OF INSULATION. LEAKS IN VAPOR BARRIER OR VOIDS IN INSULATION WILL NOT BE ACCEPTED. ASTM E-84 MINIMUM FIRE HAZARD RATINGS SHALL BE 25 FLAME-SPREAD, 50 FUEL CONTRIBUTED AND 50 SMOKE DEVELOPED. WHERE DUCTS ARE INSULATED, FLEXIBLE CONNECTIONS TO DUCTS SHALL BE INSULATED. INSULATE STANDING SEAMS WITH SAME MATERIAL AND THICKNESS AS DUCT. INSULATION SHALL BE CONTINUOUS THROUGH WALL AND CEILING OPENINGS AND IN SLEEVES.

C. INSULATE EXHAUST PLENUM AND EXHAUST DUCTWORK UP TO BACKDRAFT DAMPER. INSULATION SHALL BE 2" THICK GLASS DUCT WRAP OR R-8 EQUIVALENT; WITH FOIL-KRAFT FLAME-RESISTANT VAPOR BARRIER. INSULATION DENSITY SHALL BE 3/4 LB./CF AND MAXIMUM K-FACTOR SHALL BE 0.30 AT 75° F MEAN TEMPERATURE.

D. IF INSULATION DOES NOT HAVE PRE-CUT LAP, MAKE LAPPED BUTT JOINTS BY CUTTING 2" STRIP OF INSULATION AWAY FROM VAPOR BARRIER. APPLY 6" STRIPS OF APPROVED ADHESIVE ON 16" CENTERS AND WRAP DUCT WITH INSULATION. STAPLE LAPPED JOINT WITH OUTWARD-CLINCHING STAPLES. SEAL STAPLED JOINTS AIRTIGHT WITH APPROVED MATCHING PRESSURE-SENSITIVE TAPE. FOR RECTANGULAR DUCT 24" OR LARGER IN ANY DIMENSION, AUGMENT APPLICATION METHOD SPECIFIED IN ITEM 3 WITH APPROVED MECHANICAL FASTENERS, SUCH AS WELD PINS WITH SPEED WASHERS, ON 18" CENTERS ON BOTTOM OF DUCT. COVER BREAKS IN VAPOR MATERIAL WITH PATCHES OF SAME MATERIAL, SECURED WITH ADHESIVE AND STAPLES. SEAL STAPLES WITH APPROVED PRESSURE SENSITIVE TAPE. FILL VOIDS IN INSULATION AT JACKET PENETRATIONS AND SEAL WITH PRESSURE SENSITIVE TAPE. SEAL AND FLASH TERMINATIONS AND PUNCTURES WITH FIBROUS GLASS CLOTH BETWEEN TWO (2) COATS OF PRESSURE SENSITIVE TAPE. TERMINATE VAPOR BARRIER AND EXTEND INSULATION AT STANDOFF BRACKETS.

2.2 REGISTERS, GRILLES AND DIFFUSERS:

A. REGISTERS, GRILLES AND DIFFUSERS SHALL BE OF ALUMINUM CONSTRUCTION IN THE MODEL SIZE AND CAPACITY SCHEDULED ON THE DRAWINGS. EQUIPMENT SHALL BE AS MANUFACTURED BY PRICE, METAL AIRE OR TITUS.
B. COORDINATE GRILLES WITH MOUNTED TYPE ON CEILING OR WALL CONSTRUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION, CEILING TYPE AND WALL CONSTRUCTION PRIOR TO ORDERING AND INSTALLATION OF EQUIPMENT.

2.3 AUTOMATIC TEMPERATURE CONTROL

A. GENERAL: FURNISH AND INSTALL CONTROL COMPONENTS FOR A COMPLETE CONTROL SYSTEM AS SPECIFIED HEREIN AND AS SHOWN ON THE PLANS. THE SYSTEM SHALL INCLUDE ALL THERMOSTATS, SENSOR, CONTROLLERS, DAMPER AND DAMPER ACTUATORS, AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION, AND ELECTRICAL WORK INCIDENTAL TO THE OPERATION OF THE CONTROL SYSTEM. POWER SOURCES WILL BE PROVIDED BY THE ELECTRICAL SUBCONTRACTOR AS SPECIFIED HEREIN. SYSTEM SHALL INCLUDE ALL HARDWARE TO OPERATE AS SPECIFIED. CONTRACTOR SHALL FIELD VERIFY ALL COMPONENTS REQUIRED FOR THE NEW SYSTEM.

B. WIRING: FURNISH AND INSTALL ALL ELECTRICAL WORK INCLUDING INTERLOCK AND CONTROL WIRING NECESSARY FOR THE CONTROL SYSTEM INTERFACE WIRING WITH THE VAV UNIT OPERATION. ANY STEP DOWN VOLTAGE TRANSFORMERS SHALL BE FURNISHED. ALL INTERLOCK WIRING SHALL BE PROVIDED BY THIS CONTRACTOR. THE WIRING AND RACEWAY SYSTEM SHALL COMPLY TO THE REQUIREMENTS OF "NEC" AND ELECTRICAL SPECIFICATIONS.

2.4 SEQUENCE OF OPERATIONS:

A. REFER TO THE MECHANICAL SCHEDULES ON DRAWING M0.0 FOR THE SEQUENCE OF OPERATIONS.

PART 3 – EXECUTION

3.0 MATERIALS AND WORKMANSHIP:

A. ALL MATERIALS INSTALLED IN THIS WORK SHALL BE NEW, UNLESS NOTED FOR REUSE, WITHOUT DAMAGED FUNCTIONAL OR AESTHETIC COMPONENTS. ALL EQUIPMENT FINISHED SHALL BE TOUCHED UP WITH MATCHING FINISHES WHERE SLIGHT SCRATCHES OCCUR. EQUIPMENT OR MATERIAL SUBJECT TO SEVERE DETERIORATION SHALL BE COMPLETELY REFINISHED OR REPLACED AS DIRECTED BY THE OWNER, ARCHITECT OR THE ENGINEER.

B. ALL LABOR UTILIZED IN THE INSTALLATION OF WORK SHALL BE EXPERIENCED IN THE RESPECTIVE TRADE REQUIRED. THE INSTALLATION OF EXPOSED FINISHED MATERIALS SHALL BE NEATLY DONE FLUSH, STRAIGHT AND/OR PLUMB, WITHOUT DISTORTION, MEETING THE BUILDING FINISHED SURFACES.

C. ALL HVAC MATERIALS AND EQUIPMENT SHALL CONFORM TO THE STANDARDS LISTED WITHIN THIS SECTION OF THE SPECIFICATIONS AND WHEREVER SUCH STANDARDS HAVE BEEN ESTABLISHED, ITEMS SHALL BEAR ITS RESPECTIVE LABEL.

D. WHERE LABOR TO BE FURNISHED MUST MEET SPECIFIC CODE REQUIREMENTS, ONLY INDIVIDUALS CERTIFIED TO DO SUCH SHALL BE USED.

E. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS WITH ADEQUATE CLEARANCE FOR ACCESS FOR MAINTENANCE.

3.1 COORDINATION:

A. THIS CONTRACTOR SHALL GIVE FULL COOPERATION TO OTHER TRADES AND TO THE GENERAL CONTRACTOR AND SHALL FURNISH ANY INFORMATION NECESSARY TO PERMIT THE WORK OF ALL TRADES TO BE INSTALLED SATISFACTORILY AND WITH LEAST POSSIBLE INTERFERENCE OR DELAY. IF THIS CONTRACTOR INSTALLS HIS WORK BEFORE COORDINATING WITH OTHER TRADES, HE SHALL MAKE THE NECESSARY CHANGES IN HIS WORK TO CORRECT THE CONDITION, WITHOUT EXTRA CHARGE. IN AREAS, IF DUE TO CONSTRUCTION CONDITIONS, MORE THAN ONE (1) TRADE IS REQUIRED TO USE COMMON OPENINGS IN BEAMS, CONDUITS, ETC., THIS CONTRACTOR MUST PLAN AND LOCATE THE POSITIONS OF THE ITEMS OF PIPING, DUCTS, CONDUITS, ETC., WHICH ARE UNDER THE SCOPE OF HIS CONTRACT WITH THAT OF ITEMS UNDER THE SCOPE OF OTHER CONTRACTORS, IN ORDER THAT ALL ITEMS ARE PROPERLY LOCATED AND MAY BE ACCOMMODATED WITHIN THE SPACE AVAILABLE. LOCATION AND POSITIONING SHALL BE DONE PRIOR TO INSTALLATION AND TO THE SATISFACTION OF THE ARCHITECT AND/OR ENGINEER.

3.2 HOISTING, SCAFFOLDING, STAGING, AND PLANKING

A. PROVIDE, SET-UP AND MAINTAIN ALL REQUIRED DERRICKS, HOISTING MACHINERY, SCAFFOLDS AND STAGING, PLANKING; AND PERFORM ALL HOISTING REQUIRED TO COMPLETE THE WORK OF THIS FILED SUB-BID AS INDICATED AND SPECIFIED.

B. SCAFFOLDS SHALL HAVE SOLID BACKS AND FLOORS TO PREVENT DROPPING MATERIALS THERE FROM TO THE FLOORS OR GROUND.

3.3 SYSTEM START-UP AND OPERATION:

A. THIS CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS AND SERVICES NECESSARY FOR THE INITIAL STARTUP AND OPERATION OF ALL SYSTEMS AND EQUIPMENT FURNISHED AND INSTALLED UNDER THIS SECTION OF THE SPECIFICATIONS.

B. BALANCE SYSTEMS AND SYSTEM COMPONENTS TO WITHIN 10% OF SPECIFIED VALUES SHOWN ON DRAWINGS. PROVIDE BALANCING REPORTS FOR EACH SYSTEM AND INDIVIDUAL SYSTEM COMPONENT UNDER EACH SYSTEM.

C. THIS CONTRACTOR SHALL PROVIDE THE SERVICES OF QUALIFIED FACTORY REPRESENTATIVES FOR ALL MAJOR EQUIPMENT PRE-START SETUP, STARTUP AND INITIAL OPERATION. SUCH PERIODS SHALL BE SUFFICIENT TO INSURE PROPER OPERATION OF SYSTEMS AND EQUIPMENT.

3.4 TESTING AND BALANCING

A. TOTAL SYSTEM BALANCE SHALL BE PERFORMED IN ACCORDANCE WITH AABC NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, TOTAL SYSTEM BALANCE OR ASHRAE SYSTEMS HANDBOOK.

B. PROVIDE THE FOLLOWING:

1. BEFORE COMMENCING WORK, VERIFY THAT SYSTEMS ARE COMPLETE AND OPERABLE. ENSURE THE FOLLOWING:
   a. EQUIPMENT IS OPERABLE AND IN A SAFE AND NORMAL CONDITION.
   b. TEMPERATURE CONTROL SYSTEMS ARE INSTALLED COMPLETE AND OPERABLE.
   c. PROPER THERMAL OVERLOAD PROTECTION IS IN PLACE FOR ELECTRICAL EQUIPMENT.
   d. FINAL FILTERS ARE CLEAN AND IN PLACE. IF REQUIRED, INSTALL TEMPORARY MEDIA IN ADDITION TO FINAL FILTERS.
   e. DUCT SYSTEMS ARE CLEAN OF DEBRIS.
   f. CORRECT FAN ROTATION.
   g. FIRE AND VOLUME DAMPERS ARE IN PLACE AND OPEN.
   h. ACCESS DOORS ARE CLOSED AND DUCT END CAPS ARE IN PLACE.
   i. AIR OUTLETS ARE INSTALLED AND CONNECTED.
   j. DUCT SYSTEM LEAKAGE HAS BEEN MINIMIZED.
2. REPORT ANY DEFECTS OR DEFICIENCIES NOTED DURING PERFORMANCE OF SERVICES TO THE DESIGNER.
3. PROMPTLY REPORT ABNORMAL CONDITIONS IN MECHANICAL SYSTEMS OR CONDITIONS WHICH PREVENT SYSTEM BALANCE.
4. IF, FOR DESIGN REASONS, SYSTEM CANNOT BE PROPERLY BALANCED, REPORT AS SOON AS OBSERVED.
5. BEGINNING OF WORK MEANS ACCEPTANCE OF EXISTING CONDITIONS.
6. PROVIDE ADDITIONAL BALANCING DEVICES AS REQUIRED.
7. ADJUST AIR HANDLING SYSTEMS TO PLUS OR MINUS 5 PERCENT FOR SUPPLY SYSTEMS AND PLUS OR MINUS 10 PERCENT FOR RETURN AND EXHAUST SYSTEMS FROM FIGURES INDICATED.
8. RECORDED DATA SHALL REPRESENT ACTUALLY MEASURED, OR OBSERVED CONDITION.
9. AFTER ADJUSTMENT, TAKE MEASUREMENTS TO VERIFY BALANCE HAS NOT BEEN DISRUPTED OR THAT SUCH DISRUPTION HAS BEEN RECTIFIED.
10. LEAVE SYSTEMS IN PROPER WORKING ORDER, REPLACING BELT GUARDS, CLOSING ACCESS DOORS, CLOSING DOORS TO ELECTRICAL SWITCH BOXES, AND RESTORING THERMOSTATS TO SPECIFIED SETTINGS.
11. AT FINAL INSPECTION, RECHECK RANDOM SELECTIONS OF DATA RECORDED IN REPORT. RECHECK POINTS OR AREAS AS SELECTED AND WITNESSED BY THE OWNER.
12. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE REQUIRED OR DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES.
13. MAKE AIR QUANTITY MEASUREMENTS IN DUCTS BY PITOT TUBE TRAVERSE OF ENTIRE CROSS SECTIONAL AREA OF DUCT.
14. MEASURE AIR QUANTITIES AT AIR INLETS AND OUTLETS.
15. ADJUST DISTRIBUTION SYSTEM TO OBTAIN UNIFORM SPACE TEMPERATURES FREE FROM OBJECTIONABLE DRAFTS AND NOISE.
16. USE VOLUME CONTROL DEVICES TO REGULATE AIR QUANTITIES ONLY TO EXTENT THAT ADJUSTMENTS DO NOT CREATE OBJECTI

LEGEND NOTES

MOUNTING HEIGHTS SHALL BE AS INDICATED UNLESS INDICATED OTHERWISE ON ELECTRICAL DRAWINGS OR ARCHITECTURAL ELEVATIONS

ALL SYMBOLS MAY NOT BE SHOWN ON PLANS

HOMERUNS

P-1 — HOMERUN TO PANELBOARD. "P" DENOTES PANEL, "1" DENOTES CIRCUIT NUMBER, 20 AMP, 1 POLE CIRCUIT BREAKER UNLESS INDICATED OTHERWISE. WIRING SHALL BE 2#12+1#12G IN 3/4"C AT MINIMUM.

30/3 P-2,4,6 2#10+1#10G IN 3/4"C — MULTI-POLE HOMERUN TO PANELBOARD. "P" DENOTES PANEL, "2,4,6" DENOTES CIRCUIT NUMBERS, "30/3" DENOTES 30 AMP 3 POLE CIRCUIT BREAKER. WIRING SHALL BE AS INDICATED.

RACEWAYS AND WIRING

- E — 2#10,#10G EMERGENCY ONLY WIRING
- CT — CABLE TRAY - REFER TO SPECIFICATIONS FOR REQUIREMENTS
- FLEXIBLE CONNECTION TO EQUIPMENT. RACEWAY AND CONDUCTOR RATING TO MATCH ASSOCIATED BRANCH CIRCUIT OR FEEDER.
- BRANCH CIRCUIT OR FEEDER CONCEALED IN FINISHED AREA.
- BRANCH CIRCUIT OR FEEDER CONCEALED UNDER FINISHED FLOOR.
- BRANCH CIRCUIT OR FEEDER TURNING UP TOWARDS OBSERVER.
- BRANCH CIRCUIT OR FEEDER TURNING DOWN AWAY FROM OBSERVER.
- CONDUIT STUBBED ABOVE CEILING.

LIGHTING FIXTURES

- A 2a — SURFACE OR RECESSED MOUNTED LIGHTING FIXTURE ON NORMAL CIRCUIT. "A" DENOTES FIXTURE TYPE, "2" DENOTES CIRCUIT NUMBER, "a" DENOTES SWITCH CONTROL.
- LIGHTING FIXTURE WIRED TO CONSTANT-ON OR NORMAL EMERGENCY CIRCUIT
- SURFACE OR RECESSED MOUNTED LINEAR LIGHTING FIXTURE
- PENDANT MOUNTED LINEAR LIGHTING FIXTURE
- ROUND RECESSED LIGHTING FIXTURE
- DECORATIVE PENDANT LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- WALL WASH OR DIRECTIONAL LIGHTING FIXTURE
- CEILING MOUNTED ILLUMINATED EXIT SIGN. SINGLE OR DOUBLE FACE, WITH OR WITHOUT ARROWS AS INDICATED ON DRAWINGS
- WALL MOUNTED ILLUMINATED EXIT SIGN - SHADING INDICATES FACE PLATE(S)
- SELF-CONTAINED EMERGENCY LIGHTING UNIT
- REMOTE EMERGENCY LIGHTING HEADS - SINGLE OR DOUBLE AS SHOWN.
- POLE MOUNTED SITE LIGHTING FIXTURE
- TRACK LIGHTING AND HEADS; LENGTH OF TRACK AND QUANTITY OF HEADS AS SHOWN ON FLOOR PLANS
- INV — INVERTER

LIGHTING CONTROLS

LIGHTING CONTROL DEVICES:
E.C. SHALL PROVIDE A WALL PLATES AS REQUIRED. COLOR OF DEVICES AND WALL PLATES BY ARCHITECT.

- Sa — SINGLE POLE TOGGLE SWITCH; SUBSCRIPT INDICATES LIGHTING FIXTURE CONTROL.
- S3a — THREE WAY TOGGLE SWITCH; SUBSCRIPT INDICATES LIGHTING FIXTURE CONTROL.
- S4a — FOUR WAY TOGGLE SWITCH; SUBSCRIPT INDICATES LIGHTING FIXTURE CONTROL.
- La — LINE VOLTAGE MOMENTARY ON/OFF WALL SWITCH; SENSORWORX# SWX-821-XX. SUBSCRIPT INDICATES LIGHTING FIXTURE CONTROL.
- TCa — SINGLE GANG WALLBOX ASTRONOMICAL TIMECLOCK; SENSORWORX #SWX-TIME-KIT / SWX-900-AX. SUBSCRIPT INDICATES LIGHTING FIXTURE CONTROL.
- PP — POWER PACK; SENSORWORX# SWX-900-AX. PROVIDE POWER PACK PER SWITCH LEG OR CIRCUIT AS REQUIRED.
- VS — LINE VOLTAGE 0-10V DIMMING WALL SWITCH PIR VACANCY SENSOR; SENSORWORX# SWX-103-D-XX.
- OS — LOW VOLTAGE CEILING MOUNTED SMALL MOTION DUAL TECH OCCUPANCY SENSOR; SENSORWORX# SWX-221-1.

RECEPTACLES AND POWER DEVICES

- IG 48" 2 WP — DUPLEX RECEPTACLE, "2" DENOTES CIRCUIT NUMBER, "48"" DENOTES MOUNTING HEIGHT (18" UNLESS OTHERWISE NOTED), "IG" DENOTES ISOLATED GROUND TYPE DEVICE, "WP" DENOTES WEATHER PROOF COVER
- DUPLEX RECEPTACLE MOUNTED 6" ABOVE COUNTER TOP OR AS INDICATED ON ARCHITECTURAL PLANS
- DOUBLE DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLE MOUNTED 6" ABOVE COUNTER TOP OR AS INDICATED ON THE ARCHITECTURAL PLANS
- DUPLEX RECEPTACLE ONE HALF SWITCH CONTROLLED
- EWC — DUPLEX RECEPTACLE FOR ELECTRIC WATER COOLER. PROVIDE DEDICATED 20A/1P GFCI CIRCUIT BREAKER UNLESS NOTED OTHERWISE.
- DUPLEX RECEPTACLE FLOOR MOUNTED
- L6-30 — SPECIAL PURPOSE RECEPTACLE, "L6-30" DENOTES TYPE, SEE POWER PLANS FOR EXACT TYPES USED.
- SINGLE RECEPTACLE
- DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
- CEILING MOUNTED DUPLEX RECEPTACLE
- U2 — DUPLEX RECEPTACLE WITH (2) USB TYPE A PORTS.
- 12 — FACTORY WIRED, FIELD ASSEMBLED UL LISTED, MULTIOUTLET ASSEMBLY, "12" DENOTES SINGLE RECEPTACLES MOUNTED ON 12" CENTERS
- FIELD WIRED, UL LISTED, OF MULTIOUTLET ASSEMBLY, QUANTITY AND TYPE DEVICES AS INDICATED
- SURFACE MOUNTED RACEWAY, DIVIDED RACEWAY WITH DATA AND DUPLEX RECEPTACLES AS INDICATED
- FB — FLOOR BOX WITH FLUSH MOUNTED DEVICES. FLOOR BOX SHALL BE EQUAL TO 'WIREMOLD' EVOLUTION SERIES. PROVIDE (2) DUPLEX RECEPTACLES VIA 3/4"C. (1) GANG FOR TELECOMMUNICATIONS VIA 1"C. AND (1) GANG FOR AV VIA 1-1/2"C. FINISH BY ARCHITECT. PROVIDE ALL REQUIRED BLANK COVER PLATES AND ACCESSORIES FOR A COMPLETE AND FULLY FUNCTIONAL INSTALLATION. COORDINATE EXACT REQUIREMENTS WITH OWNER AND THEIR TELCOM AND AV VENDOR PRIOR TO THE START OF ANY WORK.

POWER DISTRIBUTION SYSTEM

- DISTRIBUTION PANEL
- PANELBOARD, SURFACE MOUNTED
- PANELBOARD, FLUSH MOUNTED
- J — JUNCTION BOX, SIZED PER NEC
- 2 — MOTOR, "2" DENOTES HORSEPOWER
- STP — MANUAL MOTOR STARTER WITH THERMAL OVERLOAD. "P" DENOTES PILOT LIGHT
- MAGNETIC MOTOR STARTER WITH ENCLOSURE, MINIMUM SIZE NEMA 1
- 30/3 — NON-FUSED DISCONNECT SWITCH: "30/3" DENOTES 30 AMP/3 POLE SWITCH
- 30/20/3 — FUSED DISCONNECT SWITCH: "30/20/3" DENOTES 30 AMP/3 POLE SWITCH, 20 AMP FUSES
- COMBINATION MAGNETIC STARTER AND FUSED DISCONNECT SWITCH. SIZE OF STARTER, SWITCH AND FUSE AS REQUIRED
- T15 — DRY-TYPE DISTRIBUTION TRANSFORMER. "15" DENOTES SIZE.
- ATS — AUTOMATIC TRANSFER SWITCH
- KT2 — "K" FACTOR DRY TYPE TRANSFORMER. "2" DENOTES SIZE
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSION
- M — METER SOCKET AND UTILITY METER BY UTILITY COMPANY
- CB — ENCLOSED CIRCUIT BREAKER
- UPS — UNINTERRUPTIBLE POWER SUPPLY
- EGB — ELECTRICAL GROUNDING BUSBAR
- EMGB — ELECTRICAL MAIN GROUNDING BUSBAR
- GROUND

TELECOMMUNICATIONS

TELECOMMUNICATIONS:
E.C. SHALL PROVIDE A DOUBLE GANG BACK BOX WITH SINGLE GANG REDUCER, 1" CONDUIT AND PULLSTRING STUBBED OUT ABOVE ACCESSIBLE CEILING AT ALL LOCATIONS. ALL DEVICES SHALL BE MOUNTED AT 18" AFF UNLESS OTHERWISE NOTED.

- TELEPHONE OUTLET
- W — TELEPHONE OUTLET MOUNTED 54"AFF
- TELEPHONE OUTLET FLOOR MOUNTED
- COMPUTER SYSTEM OUTLET
- COMPUTER SYSTEM OUTLET, FLOOR MOUNTED
- COMBINATION TELEPHONE/DATA OUTLET
- WIRELESS ACCESS POINT
- PP T/D — COMBINATION TELEPHONE/DATA POWER POLE ASSEMBLY
- TGB — TELECOMMUNICATIONS GROUNDING BUSBAR
- TMGB — TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
- TELECOMMUNICATION TERMINAL BOARD, PROVIDE GRADE "A", 3/4" PLYWOOD COMPLETELY PAINTED WITH FIREPROOF PAINT AS REQUIRED PER CODE. COORDINATE PAINT COLOR WITH ARCHITECT.

ABBREVIATIONS

3R	NEMA 3R RATING
4X	NEMA 4X RATING
A/AMP	AMPERES
AC	ALTERNATING CURRENT
ADA	AMERICAN WITH DISABILITIES ACT
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AT	AMPERE TRIP
ARCH	ARCHITECT
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BFG	BELOW FINISHED GRADE
C	CONDUIT
C.T.	CURRENT TRANSFORMER
CAT	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TV SYSTEM
CD	CANDELA
CKT	CIRCUIT
CU	COPPER
dB	DECIBEL
DC	DIRECT CURRENT
DWG	DRAWING
E	WIRED ON EMERGENCY CIRCUIT
EC	ELECTRICAL CONTRACTOR
EM	EMERGENCY
F	FAHRENHEIT
FBA	FINISH BY ARCHITECT
FLA	FULL LOAD AMPERES
G	GROUND
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HH	HAND HOLE
HP	HORSE POWER
HVAC	HEATING, VENTILATION, AIR CONDITIONING CONTRACTOR
HZ	HERTZ
IG	ISOLATED GROUND
JB	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
KVA	KILOVOLT-AMPERES
KW	KILOWATTS
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVER-CURRENT PROTECTION
MH	MANHOLE
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NL	NIGHT LIGHT
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
Ø	PHASE
P	POLE
PC	PLUMBING CONTRACTOR
P.T.	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
SN	SOLID NEUTRAL
SM	SURFACE MOUNT
ST	SHUNT TRIP
T/D	TEL/DATA
TEL	TELEPHONE
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
W	WATT
WP	WEATHERPROOF
XFMR	TRANSFORMER

MISCELLANEOUS

- CP — CONTROL PANEL
- PB — PULL BOX - SIZED PER NEC FOR CONDUITS ENTERING AND LEAVING AS REQUIRED
- TV — CABLE TELEVISION OUTLET, WALL MOUNTED. E.C. SHALL PROVIDE 3/4" EMPTY CONDUIT WITH PULL STRING TO NEAREST ACCESSIBLE CEILING. PROVIDE FACEPLATE WITH TYPE "F" CONNECTOR AT BOX.
- DB — DISPLAY OUTLET BOX; REFER TO AUDIO VISUAL DRAWINGS FOR ADDITIONAL INFORMATION.
- GD — GARAGE DOOR 3 BUTTON CONTROL STATION.
- P — PUSHBUTTON AND PLATE
- C — 120 VOLT RECESSED CLOCK HANGER OUTLET
- CENTRAL SYSTEM CLOCK WIRED TO CORRECTIVE CLOCK WIRING SYSTEM 12" DIAMETER UNLESS OTHERWISE NOTED "SP" DENOTES SHATTER GUARD
- CS — CLOCK/SPEAKER COMBINATION
- MCP — MASTER CLOCK PANEL
- I — INTERCOM
- MIP — MASTER INTERCOM PANEL
- DOOR BELL/BUZZER, LOW VOLTAGE
- TL — LOW VOLTAGE TRANSFORMER
- MUSHROOM TYPE PUSHBUTTON STATION FOR ACTIVATION OF SHUNT-TRIP DEVICE ON INDICATED CIRCUIT BREAKER
- COAXIAL CABLE OUTLET
- # E### — PARTIAL PLAN/DETAIL CALL OUT TAG; TOP NUMBER INDICATES PLAN/DETAIL AND BOTTOM NUMBER INDICATES SHEET CONTAINING PLAN/DETAIL.
- FV — FLUSH VALVE/SENSOR FAUCET POWER CONNECTION TO ALL TRANSFORMERS FOR PLUMBING FIXTURES IN ROOM COORDINATE EXACT REQUIREMENTS AND LOCATIONS WITH PLUMBING CONTRACTOR.

LIGHTING FIXTURE NOTES

1. PROVIDE ACCESSORIES AND MOUNTING HARDWARE FOR ALL FIXTURES.
2. COLORS AND FINISHES SHALL BE AS SELECTED BY ARCHITECT.
3. COORDINATE EXACT LOCATIONS OF ALL FIXTURES WITH ARCHITECT'S REFLECTED CEILING PLAN, ELEVATIONS, SECTIONS, AND THE WORK OF OTHER TRADES PRIOR TO ROUGH-IN.
4. SUPPORT EACH LIGHTING FIXTURE INDEPENDENTLY OF THE SUSPENDED CEILING SYSTEM AND COORDINATE LOCATIONS WITH REFLECTED CEILING PLAN AND OTHER TRADES TO AVOID CONFLICT.
5. E.C. SHALL ENSURE THAT ALL PROPOSED SWITCHES AND DIMMER SWITCHES ARE COMPATIBLE WITH THE LIGHT FIXTURE(S) INDICATED TO BE CONTROLLED. INSTALL ALL SWITCHES AND DIMMER SWITCHES PER MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.
6. ALL SELF CONTAINED EMERGENCY LIGHTING UNITS AND EXIT LIGHTING IN THE BUILDING SHALL BE CONNECTED TO THE NEAREST UN-SWITCHED LIGHTING CIRCUIT SERVING THE AREA WITH 2#12 & 1#12G, 3/4" CONDUIT UNLESS OTHERWISE NOTED.
7. LOCATIONS OF ALL SWITCHES SHALL COMPLY WITH ADA CRITERIA.
8. WHERE SWITCH CONTROLS ("a", "b", ETC.) ARE INDICATED, WIRE THE SWITCHES TO THE RESPECTIVE LIGHT FIXTURE. IF A FIXTURE HAS TWO OR MORE SWITCH DESIGNATIONS, WIRE FIXTURE SO THAT IT WILL BE CONTROLLED BY THE SWITCHES INDICATED.
9. WIRE EXIT SIGNS TO LIGHTING CIRCUIT SERVING THE AREA AHEAD OF ALL CONTROLS.
10. WIRE NIGHT LIGHTING FIXTURES FOR 24/7 OPERATION VIA UN-SWITCHED CIRCUIT AS INDICATED.
11. METAL ROOF DECKS SHALL NOT BE TAPPED FOR SUPPORT OF ANY LIGHTING FIXTURES OR ELECTRICAL EQUIPMENT. PROVIDE UNISTRUT OR OTHER SUPPLEMENTAL SUPPORT FITTINGS TO BE ATTACHED TO BUILDINGS STRUCTURAL FRAMING AS REQUIRED TO SUPPORT ALL LIGHTING FIXTURES AND ELECTRICAL EQUIPMENT.

BRANCH CIRCUIT WIRING NOTES

1. WIRING IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS.
2. WIRING AND CONDUIT SHALL BE REQUIRED BETWEEN ALL OUTLETS INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS.
3. ALL SWITCH CONTROLS SHALL BE PROVIDED WITH WIRING AND CONDUIT AS REQUIRED.
4. ALTHOUGH ALL BRANCH CIRCUIT WIRING AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.
5. A GREEN GROUNDING CONDUCTOR SHALL BE RUN WITH ALL CIRCUITS. VERIFY CONDUIT SIZE TO ENSURE IT CAN ACCOMMODATE ALL PHASE, NEUTRAL AND GROUND CONDUCTORS.
6. PROVIDE A NEUTRAL CONDUCTOR TO ALL NEW LIGHTING SWITCH BOXES PER NEC ARTICLE 404.2.
7. IN ALL NON-DWELLING TYPE OCCUPANCIES, ALL 125-VOLT THROUGH 250-VOLT RECEPTACLES SUPPLIED BY SINGLE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 50 AMPERES OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 100 AMPERES OR LESS, SHALL HAVE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL PER NEC ARTICLE 210.8(B)(2).

MECHANICAL/PLUMBING EQUIPMENT TAG

RTU 1 — MECHANICAL/PLUMBING EQUIPMENT TAG. "RTU" DENOTES EQUIPMENT TYPE, "1" DENOTES EQUIPMENT NUMBER. REFER TO "SCHEDULE FOR MECHANICAL/PLUMBING EQUIPMENT" FOR ALL CIRCUIT INFORMATION, INCLUDING BUT NOT LIMITED TO BRANCH CIRCUIT WIRING, CONDUIT SIZE, VOLTAGE, PHASE, DISCONNECT SWITCH, AND CIRCUIT BREAKER. REFER TO MECHANICAL, PLUMBING, AND FIRE PROTECTION PLANS FOR EXACT EQUIPMENT LOCATIONS AND EQUIPMENT TYPE ABBREVIATIONS. COORDINATE EXACT CONNECTIONS REQUIRED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION PLANS AND MANUFACTURER'S CUT SHEET/SPECIFICATIONS.

SITE LEGEND

- UTILITY POLE
- MH — MANHOLE; REFER TO DETAIL FOR ADDITIONAL INFORMATION.
- HH — HANDHOLE; REFER TO DETAIL FOR ADDITIONAL INFORMATION.
- T — PAD MOUNTED TRANSFORMER
- P — PRIMARY CONDUIT DUCT BANK
- S — SECONDARY CONDUIT DUCT BANK
- T — TELEPHONE SERVICE CONDUIT DUCT BANK
- CATV — CABLE TELEVISION CONDUIT DUCT BANK
- FA — FIRE ALARM CONDUIT DUCT BANK
- OPE — OVERHEAD PRIMARY ELECTRIC
- OSE — OVERHEAD SECONDARY ELECTRIC

PERMIT SET 11/15/2024 DATE:

BUILDING ENGINEERING RESOURCES, INC.
66 Main Street, N. Easton, MA 02356, T 508.230.0260, F 508.230.0265, ber@ber-engineering.com
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CORDISEN YESKEY DESIGN ARCHITECTURE
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CordisenDesign.com, 401.619.4689

DANIEL JAMES CARROLL — No. 8149 — REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

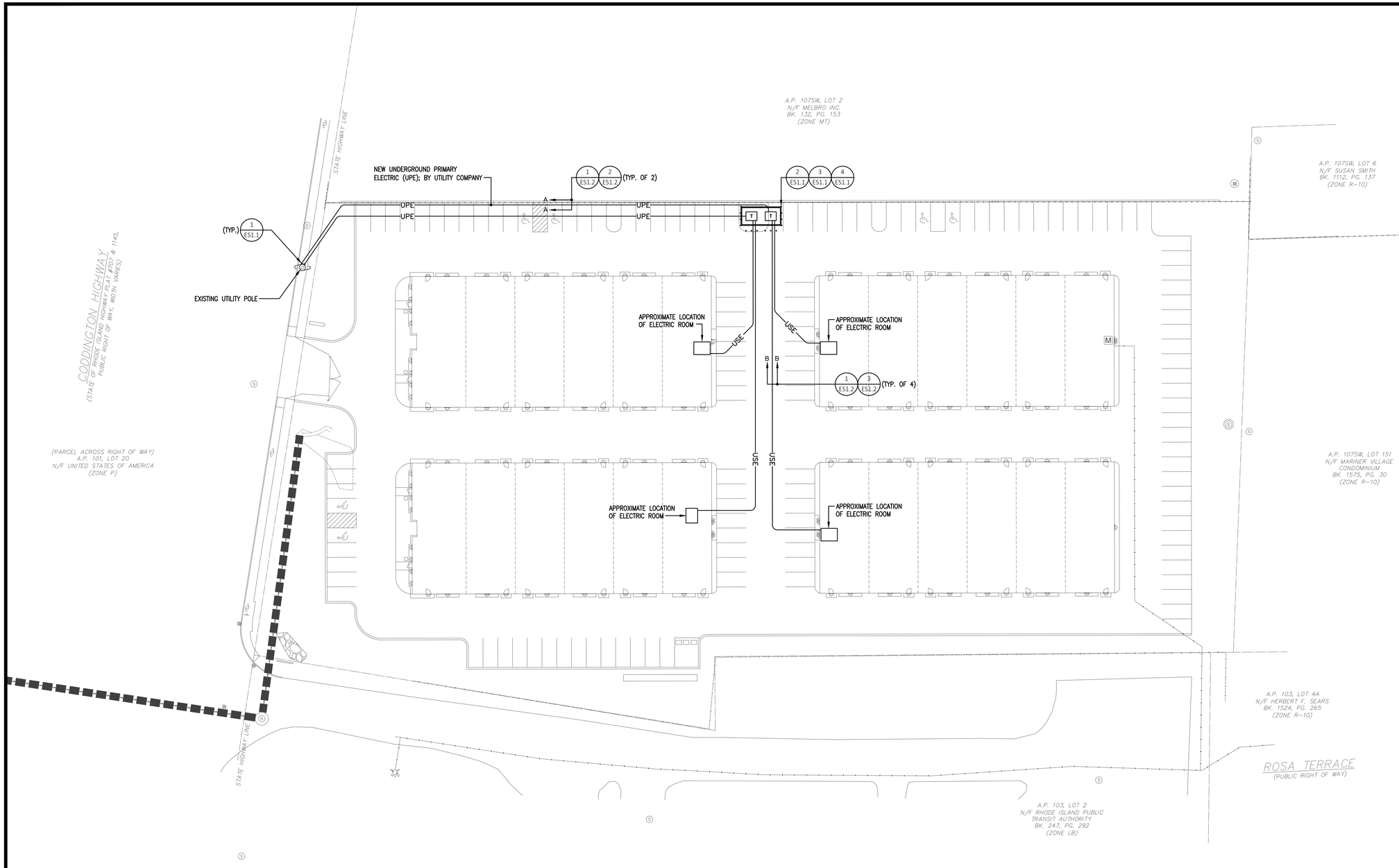
REVISIONS:

DESCRIPTION: ELECTRICAL SYMBOL LIST, ABBREVIATIONS, AND NOTES
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

E0.0

BER # 24134



1 SITE PLAN - ELECTRICAL
Scale: 1" = 30'

PERMIT SET
DATE: 11/15/2024

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DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

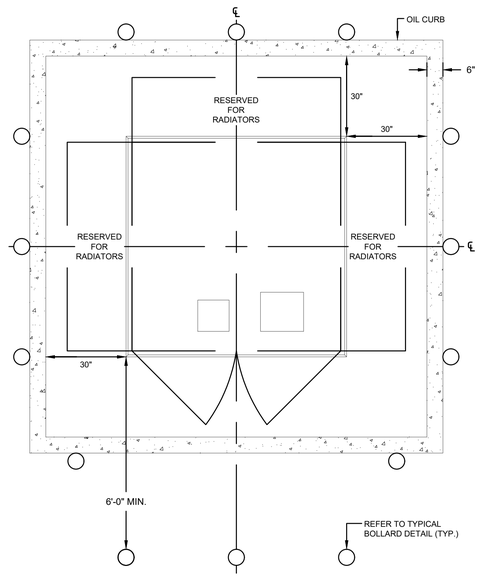
REVISIONS:

DESCRIPTION: ELECTRICAL LAYOUT & UTILITY PLAN
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

ESI.0

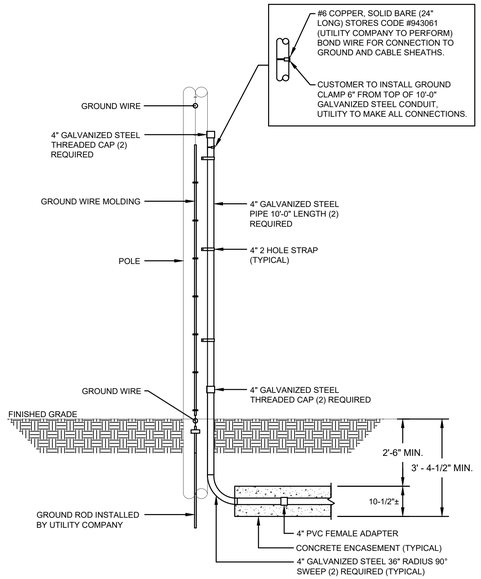
BER # 24134



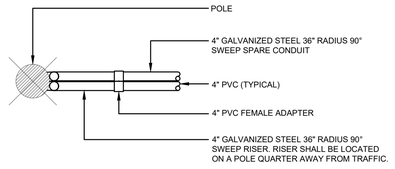
10'-0" MINIMUM CLEAR SPACE FROM FRONT OF PAD

NOTES:
1. UTILITY COMPANY DESIGN/PLANNING SHALL DESIGNATE THE NUMBER AND LOCATION OF BOLLARDS.
2. LOCATION OF BOLLARDS SHALL NOT IMPEDE A DOOR OPENING 100 DEGREES.
3. SPACING SHALL NOT EXCEED 5'-0" BETWEEN EACH BOLLARD.
4. THIS DETAIL IS FOR BIDDING PURPOSES ONLY. CONFORM TO UTILITY COMPANY DETAILS.

1 TRANSFORMER BOLLARD PLACEMENT DETAIL (OIL CURB) NTS



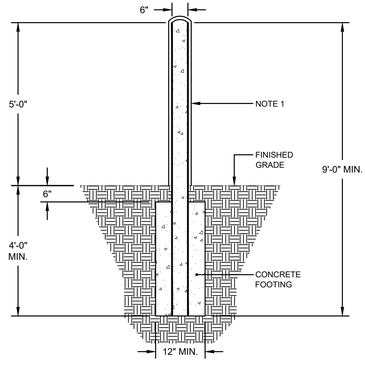
ELEVATION VIEW



PLAN VIEW

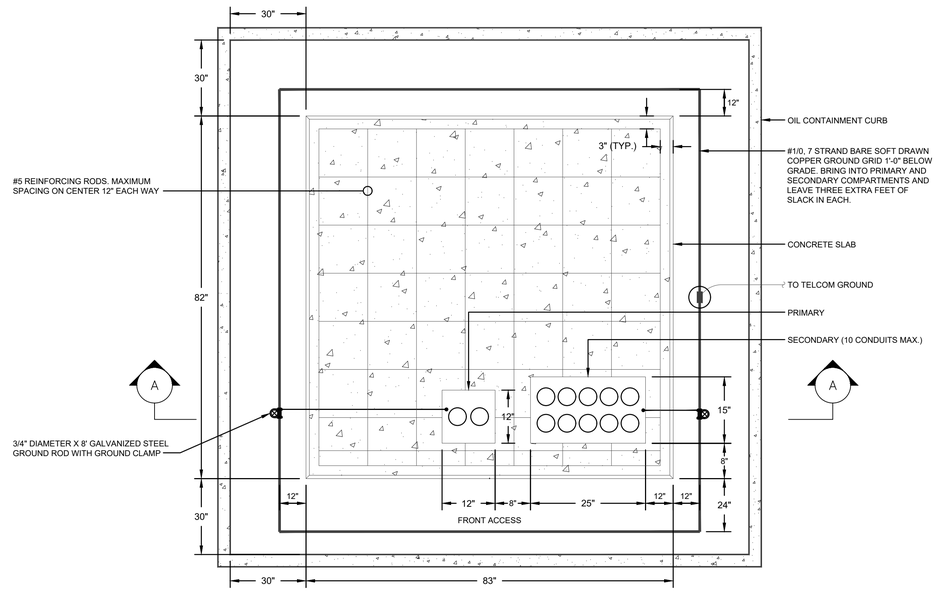
NOTES:
1. ALL TRENCHING, REINFORCING, CONCRETE WORK, BACKFILLING, GRADING, AND SURFACING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. REFER TO UTILITY SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. THIS DETAIL IS FOR BIDDING PURPOSES ONLY. CONFORM TO UTILITY COMPANY DETAILS.

2 ELECTRICAL SERVICE RISER POLE DETAIL NTS

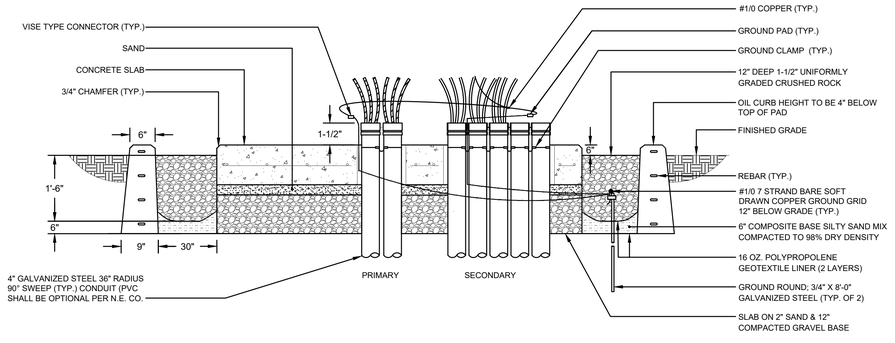


NOTES:
1. CONCRETE FILLED 6" RIGID GALVANIZED STEEL PIPE. CONCRETE SHALL BE CROWNED ON TOP OF ALL BOLLARDS. WHEN BOLLARDS CAN NOT BE PAINTED PROVIDE PROTECTIVE BOLLARD COVER EQUAL TO INNOPLAST #BC7601YW.
2. FOR BIDDING PURPOSES ONLY. CONFORM TO UTILITY COMPANY STANDARDS.

3 TYPICAL BOLLARD DETAIL NTS



PLAN VIEW



SECTION A-A

NOTES:
1. INSTALL CONDUITS AS INDICATED ON THE SITE PLAN AND ONE-LINE DIAGRAM BEFORE SLAB IS POURED. USE 36" RADIUS BENDS, WITH COUPLINGS, NIPPLES AND BUSHINGS AS REQUIRED. BENDS FOR PRIMARY CABLES SHALL BE GALVANIZED STEEL. TERMINATIONS AND BUSHINGS SHALL BE INSTALLED AFTER THE TRANSFORMER IS PLACED, AND BEFORE THE CABLES ARE PULLED.
2. INSTALL #1/0 7 STRAND BARE SOFT DRAWN COPPER WIRE LOOP 21" BELOW GRADE. BOND TO ALL EXPOSED METALLIC CONDUIT AND LEAVE 3'-0" OF WIRE ABOVE PAD FOR GROUNDING TRANSFORMER AT TWO OPPOSITE POINTS IN THE CABLE CONDUIT OPENINGS. INSTALL TWO 8" GALVANIZED STEEL (3/4") GROUND RODS AND APPROVED CONNECTORS BELOW GROUND. LEAVE GROUND GRID EXPOSED UNTIL INSPECTED BY THE UTILITY COMPANY. CONNECTIONS TO GROUND GRID TO BE MADE PER UTILITY COMPANY REQUIREMENTS. EXOTHERMIC WELDING ("CALDWELD") SHALL BE AN ACCEPTABLE ALTERNATE TO COMPRESSION BOLTED CONNECTIONS.
3. CRUSHED ROCK, GRAVEL AND SAND SHALL BE PLACED PER UTILITY COMPANY STANDARDS. THE GRAVEL, BEING THOROUGHLY COMPACTED, AND THE SAND THOROUGHLY WETTED, JUST BEFORE PLACING THE CONCRETE.
4. INSTALL CONCRETE SLAB IN ACCORDANCE WITH UTILITY COMPANY STANDARDS. ALL EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
5. REINFORCING RODS TO BE #5 AND SHALL CONFORM TO UTILITY COMPANY STANDARDS. REINFORCING RODS TO BE LOCATED IN CENTER OF THE SLAB,12" ON CENTER MINIMUM. WITH A MINIMUM OF 3" CLEARANCE FROM FACE OF CONCRETE.
6. UPON COMPLETION OF THE SLAB, AND THE INSTALLATION OF CONDUIT, FILL THE OPEN AREA AROUND THE CONDUITS WITH CONCRETE AND GROUT AROUND THE CONDUIT TO SEAL THIS AREA.
7. INSTALL CONCRETE OIL CURB IN ACCORDANCE WITH UTILITY COMPANY STANDARDS. REINFORCE WITH (4) 1/2" RODS, SIX INCHES ON CENTER AS SHOWN. BEND RODS AROUND CORNERS. FILL AREA BETWEEN SLAB AND CURB WITH A 1-1/2" UNIFORMLY GRADED CRUSHED ROCK AND LINE WITH 2 LAYERS OF GEOTEXTILE LINER AS SHOWN. GEOTEXTILE LINERS TO BE SEPARATED BY A 6" LAYER OF WELL COMPACTED, SILTY SAND AND GRAVEL MIX. GEOTEXTILE LINE SHALL BE 16 OZ. POLYPROPYLENE GEOTEXTILE - ALL SEAMS TO OVERLAP 12" MINIMUM.
8. MANDREL COMPLETED DUCTS BY PULLING THROUGH AN APPROVED FLEXIBLE MANDREL NO LESS THAN 1/4" SMALLER IN DIAMETER THAN THE INSIDE DIAMETER OF THE DUCT. 2,500 LB PULLING TAPE SHALL BE LEFT IN ALL THE DUCTS, INCLUDING LATERALS.
9. PROVIDE PHYSICAL PROTECTION FOR TRANSFORMER VIA 6" CONCRETE FILLED BOLLARDS 5' ABOVE GRADE, 4' BELOW GRADE. LOCATE BOLLARDS IN ACCORDANCE WITH UTILITY COMPANY STANDARDS.
10. THIS DETAIL IS FOR BIDDING PURPOSES ONLY. CONFORM TO UTILITY COMPANY DETAILS.

4 TRANSFORMER PAD (750-2500KVA) WITH OIL CURB DETAIL NTS

PERMIT SET
DATE 11/15/2024

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DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

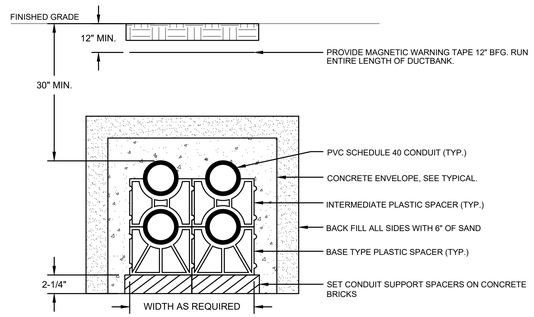
REVISIONS:

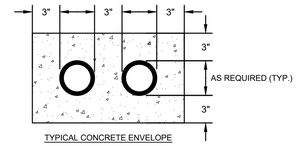
DESCRIPTION: ELECTRICAL SITE DETAILS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

ESI.1

BER # 24134

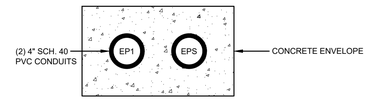




TYPICAL CONCRETE ENVELOPE

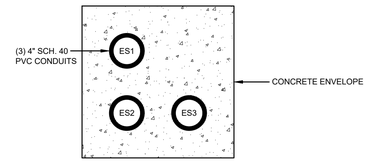
NOTES:
1. PRIOR TO INSTALLATION AND BACKFILL THE DUCTBANK CROSS SECTION AND TRENCH MUST BE COORDINATED, INSPECTED, AND APPROVED BY THE UTILITY COMPANY.
2. ALL TRENCHING, CONCRETE WORK, BACKFILLING, GRADING, AND RESURFACING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
3. ALL SWEEPS AT FOUNDATION AND RISER SHALL BE RIGID STEEL CONDUIT WITH A MINIMUM RADIUS OF 3'-0".
4. DIRECT-BURIED CONDUIT SHALL BE INSTALLED TO MEET THE MINIMUM COVER REQUIREMENTS OF NEC TABLE 300.5 AND 300.50.
5. THERE SHALL NOT BE MORE THAN THE EQUIVALENT OF FOUR 90° BENDS (360° TOTAL) BETWEEN PULL POINTS (NEC 352.26). BEND RADIUS SHALL NOT BE LESS THAN SHOWN IN TABLE 2, CHAPTER 9 OF THE NEC.
6. MINIMUM PITCH OF CONDUITS SHALL BE 3" PER ONE 100'-0". PITCH OF DUCTS SHALL CAUSE ALL DUCTS TO DRAIN TOWARD ONE END OR BOTH EQUIPMENT FOUNDATIONS OR PULL BOXES.
7. ALL BASE AND INTERMEDIATE PLASTIC SPACERS SHALL BE INTERLOCKING TYPE, CONSTRUCTED OF HIGH IMPACT PVC. SPACERS SHALL INSTALLED A MAXIMUM OF 5'-0" APART ALONG ENTIRE LENGTH OF RUN.
8. ELECTRIC UTILITY DUCTBANK SHALL NOT SHARE A CONCRETE ENCASEMENT WITH FOREIGN UTILITIES. ELECTRIC UTILITY CONDUIT SHALL NOT BE DIRECTLY ABOVE OR BELOW TELECOMMUNICATION CONDUIT OR WATER, GAS, AND SEWER UTILITIES EXCEPT WHEN CROSSING AT APPROXIMATELY RIGHT ANGLES. WHERE THE PATHS OF THESE UTILITIES CROSS, TELECOMMUNICATIONS CONDUIT SHALL BE SEPARATED BY A MINIMUM OF 3" OF CONCRETE AND THE MINIMUM VERTICAL SEPARATION OF WATER, GAS, AND SEWER UTILITIES SHALL BE 12". A MINIMUM SEPARATION OF 12" SHALL BE MAINTAINED WHEN TELECOMMUNICATIONS CONDUIT RUNS PARALLEL TO ELECTRIC UTILITY CONDUIT. A MINIMUM SEPARATION OF 24" SHALL BE MAINTAINED WHEN WATER, GAS, AND SEWER UTILITIES RUN PARALLEL TO ELECTRIC UTILITY CONDUIT.
9. ELECTRICAL CONTRACTOR SHALL MANDREL ALL PRIMARY CONDUITS TO ENSURE THEIR INTEGRITY AND PROVIDE PULL ROPE IN EACH CONDUIT RUN, INCLUDING RISERS AND SPARES. ALL SPARE CONDUITS SHALL BE PLUGGED.
10. DETAIL IS SHOWN FOR BIDDING PURPOSES ONLY. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND COORDINATE EXACT SPECIFICATIONS WITH THE UTILITY COMPANY.

1 TYPICAL DUCTBANK CONSTRUCTION DETAIL NTS



NOTES:
1. REFER TO "TYPICAL DUCTBANK CONSTRUCTION DETAIL".

2 DUCTBANK DETAIL "A-A" NTS



NOTES:
1. REFER TO "TYPICAL DUCTBANK CONSTRUCTION DETAIL".

3 DUCTBANK DETAIL "B-B" NTS

PERMIT SET
DATE: 11/15/2024

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DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

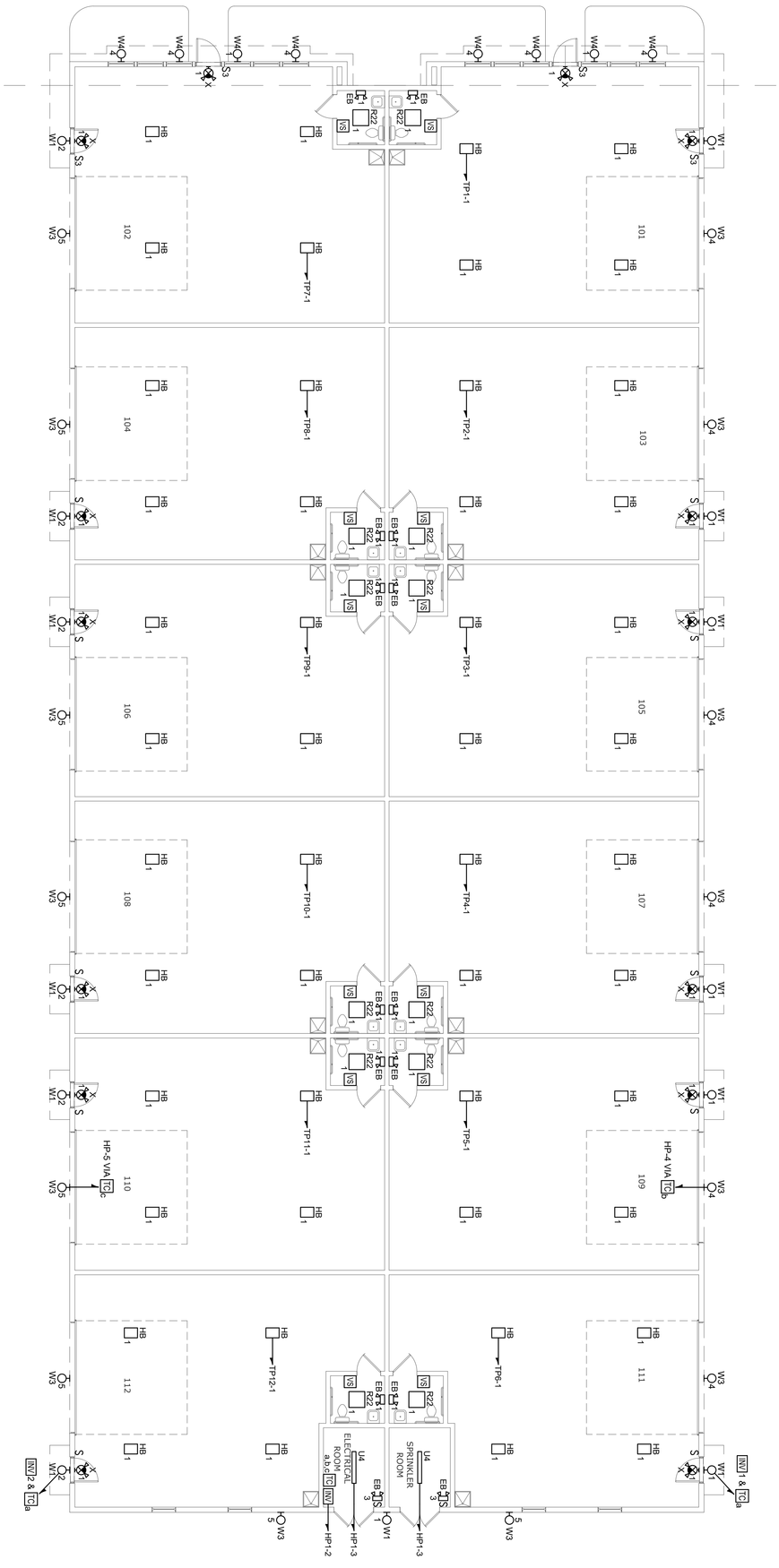
REVISIONS:

DESCRIPTION: ELECTRICAL SITE DETAILS II
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

ESI.2

BER # 24134



1 BUILDING 1: FLOOR PLAN - LIGHTING

Scale: 1/8" = 1'-0"

PERMIT SET
DATE 11/15/2024

B|E|R
BUILDING ENGINEERING RESOURCES, INC.
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E1.0

Coddington Cove Commons

300 Coddington Highway
Middletown, Rhode Island, 02842

DESCRIPTION: BUILDING 1: FLOOR PLAN - LIGHTING

SCALE: AS NOTED

DATE: NOVEMBER 15, 2024

REVISIONS:

DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

CORDTSEN DESIGN ARCHITECTURE
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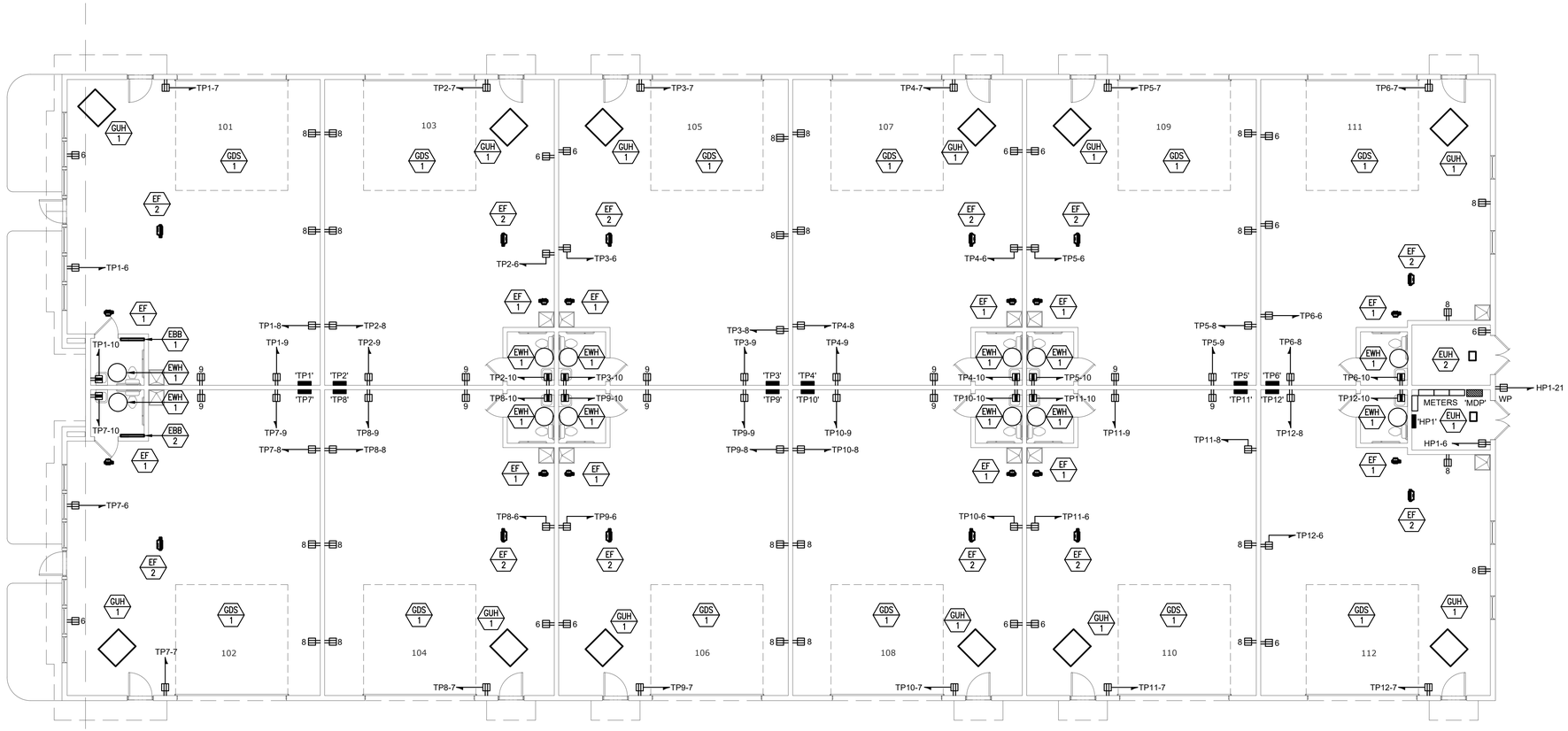
BER 13134

KEYED SHEET NOTES

1. E.C. SHALL PROVIDE 120V CONNECTION FOR MOTORIZED DAMPER VIA HP1-22. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR.



1 BUILDING 1: FLOOR PLAN - POWER
Scale: 1/8"= 1'-0"

CORDISEN DESIGN ARCHITECTURE
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DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

REVISIONS:

DESCRIPTION: BUILDING 1: FLOOR PLAN - POWER
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons

300 Coddington Highway
Middletown, Rhode Island, 02842

E2.0

PERMIT SET
DATE: 11/15/2024

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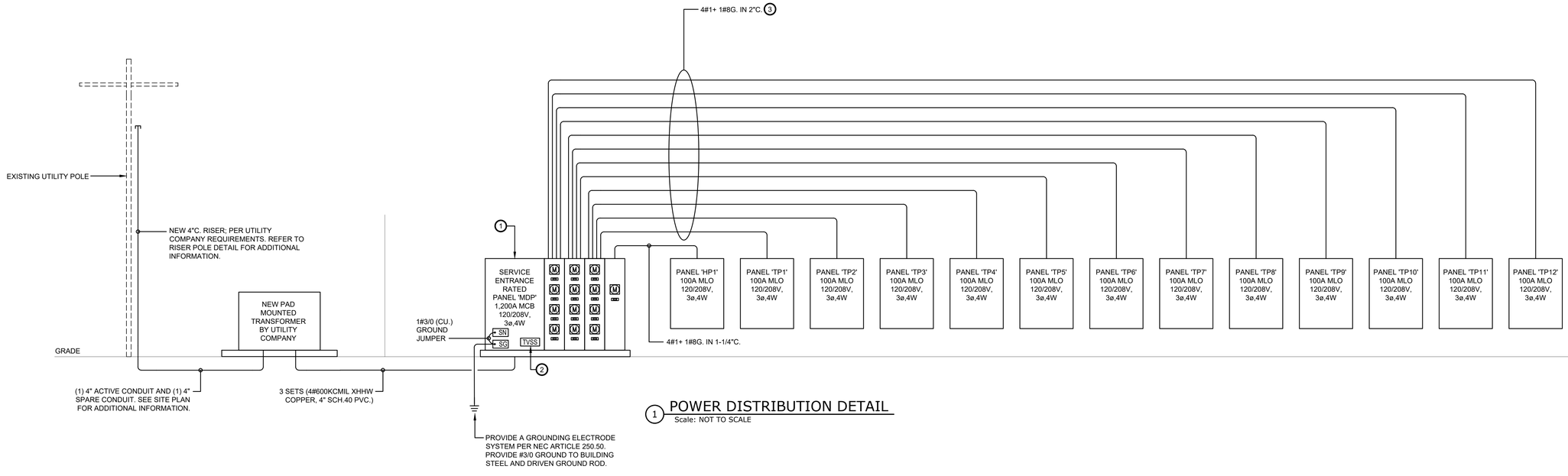
BER # 24134

KEYED SHEET NOTES

1. 1,200A/3P SERVICE ENTRANCE RATED, 100% RATED MCB WITH LSIG AND ARC FAULT MAINTENANCE SWITCH.
2. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE WITH MEDIUM EXPOSURE LEVEL (160KA) EQUAL TO EATON#SPD-160-K. MANUFACTURER OF SURGE PROTECTION DEVICE (SPD) SHALL MATCH THE PANELBOARD MANUFACTURER. PROVIDE 4#6+1#10G. 1"C. VIA 60A/3P CIRCUIT BREAKER TO SPD. EXACT LOCATION SHALL BE DETERMINED IN FIELD. PROVIDE WORKING CLEARANCES IN ACCORDANCE WITH THE NEC.
3. CONDUIT OVERSIZED SO LARGER CONDUCTORS MAY BE PULLED IN THE FUTURE.



1 POWER DISTRIBUTION DETAIL
Scale: NOT TO SCALE

CORDISEN DESIGN ARCHITECTURE
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DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

REVISIONS:

DESCRIPTION: ELECTRICAL RISER DIAGRAM
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

E3.0

PERMIT SET
DATE 11/15/2024

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BER # 24134

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL NUMBER / SERIES	VOLTS	SOURCE				NOTES
					TYPE	WATTS	LUMENS	COLOR / TEMP.	
INTERIOR FIXTURES									
HB	SURFACE MOUNTED HIGH BAY FIXTURE WITH INTEGRAL BATTERY AND OC SENSOR	WILLIAMS	GS-2-L180-8-40-CA-AVI-LVFA-PIR-ELB	120	LED	116	18,002	4,000K	- -
R22	2' X 2' RECESSED TROFFER FIXTURE	WILLIAMS	LT-22-L39-8-40-AF	120	LED	33.1	3,934	4,000K	- -
U4	4' LINEAR UTILITY FIXTURE	WILLIAMS	7SS-4-L50-8-40	120	LED	33	4,867	4,000K	- -
EXTERIOR FIXTURES									
W1	WALL PACK FIXTURE	RAB	WPLED5Y	120	LED	5.3	128	3,000K	REFER TO RAB DARK SKY COMPLIANCE PLANS FOR MOUNTING HEIGHT
W2	WALL PACK FIXTURE	RAB	SLIM-12-3000	120	LED	15	2,006	3,000K	REFER TO RAB DARK SKY COMPLIANCE PLANS FOR MOUNTING HEIGHT
W3	WALL PACK FIXTURE	RAB	SLIM-18-3000	120	LED	20.9	2,695	3,000K	REFER TO RAB DARK SKY COMPLIANCE PLANS FOR MOUNTING HEIGHT
W4	GOOSENECK FIXTURE	RAB	GN5LED26YSTW	120	LED	28.9	1,348	3,000K	REFER TO RAB DARK SKY COMPLIANCE PLANS FOR MOUNTING HEIGHT
EMERGENCY FIXTURES									
	LED EXIT SIGN WITH EMERGENCY HEADS AND INTEGRAL BATTERY BACK-UP	WILLIAMS	EXIT/EM/LED-R-WHT-HL-D	120	LED	5.5	N/A	RED	- -
	EMERGENCY BATTERY UNIT	WILLIAMS	EMER/LED-WHT	120	LED	1.8	N/A	N/A	- -
INV	INVERTER	MYERS	LV-1-R-1-B2004-F-HH-LVST	120	N/A	175	N/A	N/A	- -

MAIN DISTRIBUTION PANEL "MDP"

VOLTAGE: 120/208V
BUS RATING (CU): 1,200 AMPS
MAINS: 1,200A MAIN CIRCUIT BREAKER
PHASE: 3
WIRE: 4
AIC: 42K

CKT NO	OVERCURRENT DEVICE (AMP)			DESCRIPTION OF LOAD	REMARKS	CONNECTED LOAD (kW)
	FRAME	TRIP	POLES			
1	225	100	3	TENANT PANEL 'TP1'	-	-
2	225	100	3	TENANT PANEL 'TP2'	-	-
3	225	100	3	TENANT PANEL 'TP3'	-	-
4	225	100	3	TENANT PANEL 'TP4'	-	-
5	225	100	3	TENANT PANEL 'TP5'	-	-
6	225	100	3	TENANT PANEL 'TP6'	-	-
7	225	100	3	TENANT PANEL 'TP7'	-	-
8	225	100	3	TENANT PANEL 'TP8'	-	-
9	225	100	3	TENANT PANEL 'TP9'	-	-
10	225	100	3	TENANT PANEL 'TP10'	-	-
11	225	100	3	TENANT PANEL 'TP11'	-	-
12	225	100	3	TENANT PANEL 'TP12'	-	-
13	225	100	3	HOUSE PANEL 'HP1'	-	-
14	225	-	-	SPACE AND HARDWARE	-	-
15	250	-	-	SPACE AND HARDWARE	"FOR FUTURE SOLAR PROVISIONS"	-

PANELBOARD SCHEDULE

PANEL DESIGNATION	ELECTRICAL CHARACTERISTICS							BRANCH DEVICES										TOTAL POLES	MOUNTING S: SURFACE F: FLUSH	GROUND BUS	TVSS DEVICE	ADDITIONAL BRANCH CIRCUIT BREAKERS	NOTES
	VOLTS	Ø	WIRE	AIC	BUS SIZE	MAIN		BKR. POLES	CIRCUIT BREAKER AMPS														
						MCB AMPS	MLO AMPS		15	20	25	30	35	40	45	50	60	70						
HP1	120/208	3	4	35K	100	-	100	1	1	14	1	1	-	-	-	-	-	-	30	S	✓	✓	2 - 20A/1P GFCI	BUILDING 1
								2	1	1	-	-	-	-	-	-	-	-					
								3	-	-	-	-	-	-	-	-	-	-					
HP1	120/208	3	4	35K	100	-	100	1	-	12	-	-	-	-	-	-	-	-	30	S	✓	✓	-	TYPICAL OF 3; BUILDINGS 2-4
								2	-	-	-	-	-	-	-	-	-	-					
								3	-	-	-	-	-	-	-	-	-	-					
TPX	120/208	3	4	22K	100	-	100	1	5	12	-	-	-	-	-	-	-	-	30	S	✓	✓	-	SEE NOTE 1
								2	-	-	-	-	-	-	-	-	-	-					
								3	-	-	-	-	-	-	-	-	-	-					

NOTES:
1. TYPICAL OF (4) FOUR BUILDINGS, FOR (12) TWELVE PANELS 'TP1-TP12' IN EACH BUILDING.

SCHEDULE OF MECHANICAL AND PLUMBING EQUIPMENT

XX / X TAG	DESCRIPTION	EQUIPMENT CHARACTERISTICS							PANEL / CIRCUIT	CIRCUIT BREAKER	FEEDER AND CONDUIT	TYPE OF CONNECTION REQUIRED												NOTES
		FLA	MCA	MOCP	HP	KW	VOLTS	Ø					CP	VFD								DISCONNECT CONFIGURATION	WP	
MECHANICAL EQUIPMENT																								
EF-1	EXHAUST FAN	-	-	-	-	0.15	120	1	TPX-3	15A/1P	2#12 + 1#12G. IN 3/4"C.	✓										-		FAN SHALL RUN CONTINUOUSLY
EF-2	EXHAUST FAN	-	-	-	-	0.450	120	1	TPX-4	15A/1P	2#12 + 1#12G. IN 3/4"C.	✓						✓				-		SEE NOTE 1
EBB-1	ELECTRIC BASEBOARD	-	-	-	-	0.75	120	1	TP7-2 BUILDING 1	15A/1P	2#12 + 1#12G. IN 3/4"C.	✓						✓				-		-
EBB-2	ELECTRIC BASEBOARD	-	-	-	-	0.75	120	1	TP1-5 BUILDING 1	15A/1P	2#12 + 1#12G. IN 3/4"C.	✓						✓				-		-
EUH-1	ELECTRIC UNIT HEATER	-	-	-	-	1.5	120	1	HP1-14 BUILDING 1	20A/1P	2#12 + 1#12G. IN 3/4"C.	✓						✓				-		
EUH-2	ELECTRIC UNIT HEATER	-	-	-	-	1.25-2.75	120	1	HP1-15 BUILDING 1	30A/1P	2#10 + 1#10G. IN 3/4"C.	✓						✓				-		-
GUH-1	GAS FIRED UNIT HEATER	-	9.5	-	1/3	-	120	1	TPX-11	15A/1P	2#12 + 1#12G. IN 3/4"C.	✓						✓				-		-
GDS-1	GAS DETECTION SYSTEM	-	-	-	-	-	120	1	TPX-13	20A/1P	2#12 + 1#12G. IN 3/4"C.	✓										-		SEE NOTE 2
PLUMBING EQUIPMENT																								
EWH-1	ELECTRIC WATER HEATER	-	-	-	-	2	120	1	HP1-16	25A/1P	2#10 + 1#10G. IN 3/4"C.	✓						✓				-		-
																						-		-

NOTES:
1. ELECTRICAL CONTRACTOR SHALL PROVIDE A UNIT PRICE TO WIRE EXHAUST FAN (EF-2) AND ASSOCIATED TOGGLE SWITCH. TOGGLE SWITCH ONLY REQUIRED IF THERE IS NO GAS DETECTION SYSTEM. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. WIRE GAS DETECTOR PER MANUFACTURER'S RECOMMENDATIONS. ELECTRICAL CONTRACTOR SHALL PROVIDE A UNIT PRICE TO WIRE A CARBON MONOXIDE GAS DETECTION SYSTEM. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

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REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

REVISIONS:

DESCRIPTION: ELECTRICAL SCHEDULES
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
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E4.0

PERMIT SET
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ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. THESE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS UPON WHICH THE CONTRACTOR SHALL SUBMIT A PRICE FOR MATERIAL AND LABOR PROVISIONS.

B. IT IS NOT INTENDED THAT THE PLANS OR SPECIFICATION SHOW OR STATE EVERY DETAILED REQUIREMENT OF THE WORK, BUT RATHER THAT THEY FURNISH ADEQUATE INFORMATION FOR AN EXPERIENCED CONTRACTOR TO PROVIDE A COMPLETELY ACCEPTABLE INSTALLATION. THE GENERAL CONDITIONS FORM A PART OF THESE SPECIFICATIONS WHETHER ATTACHED HERETO OR NOT, SHALL BE CAREFULLY EXAMINED BEFORE SUBMITTING A PROPOSAL. WHERE GENERAL CONDITIONS CLAUSES ARE REPEATED IN THIS SECTION, IT SHALL BE UNDERSTOOD AS CALLING SPECIAL ATTENTION TO THEM, OR AS A FURTHER QUALIFICATION, AND SHALL NOT BE ASSUMED AS OMITTING ANY OTHER CLAUSES. NO GENERAL CONDITIONS REFERRING TO THE WORK INCLUDED HEREIN SHALL BE CONSIDERED AS WAIVED UNLESS SPECIFICALLY STATED HEREIN.

C. BEFORE SUBMITTING PROPOSAL, EXAMINE ALL PLANS RELATING TO THIS WORK, VERIFY ALL GOVERNING CONDITIONS AT THE SITE, BECOME FULLY INFORMED AS TO THE EXTENT AND CHARACTER OF THE WORK REQUIRED AND ITS RELATION TO THE WORK OF OTHER TRADES. SUBMISSION OF A COST PROPOSAL (BID) WILL BE JUDGED AS EVIDENCE THAT THE SITE EXAMINATION HAS BEEN MADE. NO CONSIDERATION WILL BE GRANTED FOR ANY ALLEGED MISUNDERSTANDING OF THE MATERIALS TO BE FURNISHED FOR WORK TO BE DONE. IT BEING UNDERSTOOD THAT THE SUBMISSION OF A PROPOSAL IS AN AGREEMENT TO ALL CONDITIONS REFERRED TO HEREIN OR INDICATED ON THE PLANS.

D. PROPOSAL MUST INCLUDE EVERYTHING REQUIRED TO PROVIDE A COMPLETE INSTALLATION AS CONTEMPLATED IN A SPECIFICATIONS AND PLANS, WHETHER SPECIFICALLY SHOWN OR SPECIFIED OR NOT. INCLUDED ARE LABOR, MATERIALS, EQUIPMENT, LIGHTS, TOOLS, SCAFFOLDING, ETC. NECESSARY TO COMPLETE INSTALLATION OF EVERYTHING DESCRIBED, SHOWN OR REASONABLY IMPLIED.

E. ANY DISCREPANCIES BETWEEN THESE SPECIFICATIONS AND THE ACCOMPANYING PLANS, OR THESE SPECIFICATIONS AND PLANS AND THE SPECIFICATIONS OF OTHER TRADES, SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE SUBMISSION OF THE BID. FAILURE TO COMPLY WITH THE ABOVE SHALL ALLOW THE ARCHITECT TO MAKE A FINAL AND BINDING DECISION AT A LATER DATE AND NO ALLOWANCE WILL BE GIVEN IF THE MORE EXPENSIVE OF THE ITEM IN QUESTION IS SELECTED.

F. THE WORK CALLED FOR IN THESE PLANS AND SPECIFICATIONS SHALL BE COORDINATED WITH THE STRUCTURE, WORK OF ALL RELATED TRADES, AND SHALL BE SO ARRANGED THAT THERE WILL BE NO DELAY IN THE PROPER INSTALLATION AND COMPLETION OF ANY PART OF EACH RESPECTIVE WORK. WHEREIN IT MAY BE INTERRELATED WITH THIS CONTRACT ALL WORK CAN PROCEED IN ITS NATURAL SEQUENCE WITHOUT UNNECESSARY DELAY. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL COST AND DELAYS IN THE WORK RESULTING FROM SUBSTITUTION UNDER THIS DIVISION: INCLUDING, BUT NOT LIMITED TO, ANY CHANGES, INDECISION, INSTALLATION OR THE WORK OF OTHER TRADES.

G. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC (EXCEPT WHERE DIMENSIONED) AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEM AND WORK. FOLLOW ARCHITECTURAL, STRUCTURAL, AND MANUFACTURER'S SHOP DRAWINGS FOR GREATER ACCURACY. CONSULT ENGINEER IN CASE OF DOUBT OR CONFLICT, UNLESS, NOTED, FIXED DIMENSIONS ARE BASED ON THE PRODUCT OF ONE MANUFACTURER, VERIFY DIMENSIONS WITH THE SHOP DRAWINGS OF THE MATERIAL ACTUALLY APPROVED OR PURCHASED.

H. EXACT LOCATION OF ALL EQUIPMENT, PANELS, PULL BOXES, FEEDERS, FIXTURES, ETC., SHALL BE APPROVED BY THE ARCHITECT, AND OWNER PRIOR TO THE INSTALLATION OF THE SAME.

I. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS, AND ACCESSORIES TO FULFILL APPLICABLE CODES, REGULATIONS, AND THE BEST PRACTICES OF THE TRADE FOR INSTALLATION OF ALL ELECTRICAL WORK.

J. EXPOSED CONDUITS CAN BE INSTALLED BUT IN NO CASE SHALL BE INSTALLED LESS THAN NINE FEET ABOVE THE FINISHED FLOOR OR AS NOTED. CONDUITS INSTALLED IN THE AREA WHERE HUNG CEILING OR OTHER FURRED SPACES ARE INDICATED SHALL BE INSTALLED CONCEALED. SHOULD ANY WORK REQUIRE SUBSEQUENT MODIFICATION OR RELOCATION TO AVOID INTERFERENCE OR CONFLICTS WITH OTHER WORK, SUCH CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.

K. ANY NECESSARY ELECTRICAL SERVICE INTERRUPTIONS SHALL BE AT A TIME CONVENIENT TO THE BUILDING OWNER.

L. ALL PENETRATIONS THROUGH SLABS AND FIRE RATED PARTITIONS SHALL BE FIRE STOPPED USING APPROVED METHOD TO MAINTAIN THE FIRE RESISTANCE RATING.

M. THE E.C. SHALL CALL FOR A FINAL PUNCH-LIST WHEN ALL ELECTRICAL WORK IS COMPLETE. IN THE EVENT REPRESENTATIVES OF THIS OFFICE ARRIVE AT THE SITE AND DEEM WORK IS NOT SUFFICIENTLY COMPLETE, NO REVIEW/PUNCH-LIST WILL OCCUR. THE E.C. WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH RESCHEDULING THE PUNCH-LIST.

1.02 SCOPE OF WORK

A. WITHOUT INTENDING TO LIMIT AND/OR RESTRICT THE SCOPE OF WORK REQUIRED AND SOLELY FOR THE CONVENIENCE OF THE CONTRACTOR, THE WORK OF THIS DIVISION SHALL, IN GENERAL COMPRISE THE FOLLOWING:

1. FURNISHING AND INSTALLING NEW LIGHTING FIXTURES, LAMPS, AND LIGHTING CONTROLS.
2. FURNISHING AND INSTALLING NEW FEEDERS, CONDUITS, BRANCH CIRCUIT WIRING, ETC.
3. FURNISHING AND INSTALLING NEW RACEWAYS, OUTLET BOXES, WIRING AND CONNECTIONS FOR LIGHTING FIXTURES, SWITCHES, AND RECEPTACLES.
4. PROVIDE CONNECTIONS TO ALL ELECTRICAL EQUIPMENT FURNISHED BY OTHER TRADES OR BY THE OWNER.
5. POWER WIRING FOR ALL MOTORS, INCLUDING INSTALLING ALL REQUIRED DISCONNECT SWITCHES AND MOUNTING OF STARTERS.
6. FURNISHING AND INSTALLING ALL TELEPHONE/DATA SYSTEM CONDUITS, SLEEVES AND BOXES.
7. TEMPORARY LIGHT AND POWER.
8. GROUNDING.
9. CUTTING, CHANNELING, AND PATCHING.
10. FIRE ALARM SYSTEM MODIFICATIONS.
11. REMOVAL OF ELECTRICAL SYSTEM AS REQUIRED AND AS INDICATED ON PLANS.

1.03 WORK NOT INCLUDED

A. FURNISHING MOTORS, MOTOR STARTER AND CONTROL DEVICES CONNECTED TO EQUIPMENT FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS. HOWEVER, ELECTRICAL CONTRACTOR WILL ERECT AND WIRE SAME, FURNISH AUXILIARY MOTOR DISCONNECTS AS REQUIRED BY DRAWINGS OR CODE.

B. FINISH PAINTING.

C. TELEPHONE/DATA WIRING AND DEVICES.

1.04 CODES, PERMITS, AND INSPECTIONS

A. ELECTRICAL WORK SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STATE ELECTRICAL CODE, LOCAL ORDINANCES, AND OTHER AUTHORITIES EXERCISING JURISDICTION OVER ALL ELECTRICAL CONSTRUCTION WORK AND THE PROJECT.

B. NOTHING CONTAINED IN THESE SPECIFICATIONS OR PLANS SHALL BE SO CONSTRUED AS TO CONFLICT WITH ANY LOCAL, MUNICIPAL, AND NATIONAL BOARD OF THE FIRE UNDERWRITERS REGULATIONS GOVERNING THE INSTALLATION OF WORK SPECIFIED HEREIN. ALL SUCH LAWS, ORDINANCES, AND REGULATIONS, WHERE THEY APPLY TO THIS WORK, ARE HEREBY INCORPORATED INTO AND MADE A PART OF THE SPECIFICATIONS. ALL SUCH REQUIREMENTS SHALL BE SATISFIED AT NO ADDITIONAL EXPENSE TO THE OWNER.

C. ALL REQUIRED PERMITS AND INSPECTION CERTIFICATES SHALL BE OBTAINED, PAID FOR, AND MADE AVAILABLE AT THE COMPLETION OF THE WORK.

D. COORDINATE ALL SERVICE WORK WITH THE LOCAL UTILITY COMPANIES. ALL WORK INCLUDING BUT NOT LIMITED TO, PRIMARY ELECTRIC DUCT BANKS, TRANSFORMER PADS, MANHOLES/ PULL BOXES, METERING, PROTECTION BOLLARDS AND TELEPHONE/CABLE TV SERVICE DUCT BANKS SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL UTILITY COMPANIES.

1.05 GUARANTEES AND CERTIFICATIONS

A. ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECTS, DEFECTIVE MATERIALS OR WORKMANSHIP, AS WELL AS DAMAGE TO THE WORK OF ANY/ALL TRADES RESULTING FROM THE SAME, SHALL BE REPLACED OR REPAIRED AS DIRECTED FOR DURATION OF ONE YEAR, FROM THE DATE OF ACCEPTANCE.

B. THE DATE OF ACCEPTANCE SHALL BE THE DATE OF THE FINAL PAYMENT FOR THE WORK OR THE DATE OF A FORMAL NOTICE OF ACCEPTANCE, WHATEVER IS EARLIER.

C. NON-DURABLE ITEMS, SUCH AS ELECTRIC LAMPS, SHALL BE REPLACED UP TO THE DATE OF ACCEPTANCE, SUCH THAT THEY SHALL HAVE HAD NO MORE THAN 100 HOURS USE PRIOR TO THIS DATE.

1.06 SHOP DRAWINGS AND EQUIPMENT SUBMISSIONS

A. PRIOR TO PURCHASING ANY EQUIPMENT OR MATERIAL, A LIST OF THEIR MANUFACTURERS SHALL BE SUBMITTED FOR APPROVAL.

B. PRIOR TO ASSEMBLING OR INSTALLING THE WORK, CATALOG INFORMATION AND FACTORY ASSEMBLY DRAWINGS, AS REQUIRED FOR A COMPLETE EXPLANATION AND DESCRIPTION OF ALL FIXTURES, DEVICES, DEVICES AND ITEMS OF EQUIPMENT, SHALL BE SUBMITTED FOR APPROVAL.

C. FIELD INSTALLATION DRAWINGS AS REQUIRED TO EXPLAIN FULLY ALL PROCEDURES INVOLVED IN ERECTING, MOUNTING AND CONNECTING ALL ITEMS OF EQUIPMENT.

D. NO EQUIPMENT SHALL BE FABRICATED, DELIVERED, ERECTED, OR RECONNECTED THAN FROM DRAWINGS APPROVED BY THE ENGINEER. SHOP DRAWING IN THE NUMBER DIRECTED SHALL BE SUBMITTED FOR THE FOLLOWING:

1. LIGHTING FIXTURES AND CONTROL DEVICES
2. WIRING DEVICES AND PLATES.
3. CONDUIT, BOXES, AND FITTINGS.
4. WIRE AND CABLE
5. PANEL BOARDS AND CIRCUIT BREAKERS
6. SAFETY SWITCHES AND MOTOR STARTERS
7. FIRE ALARM SYSTEM INCLUDING BATTERY CALCULATIONS AND WIRING DIAGRAMS.

E. IT SHALL BE UNDERSTOOD THAT APPROVAL OF DRAWINGS WILL NOT BIND THE ENGINEER OR THE OWNER TO THE FINAL ACCEPTANCE OF SUCH EQUIPMENT AS THE COMPLETED INSTALLATION AND TEST OF EQUIPMENT AS A WHOLE MUST BE PROVIDED AND GUARANTEED HEREIN AS SPECIFIED.

1.07 SAMPLES

A. UPON REQUEST BY ARCHITECT OR OWNER, SUBMIT FOR APPROVAL ONE SAMPLE OF EACH OF THE FOLLOWING:

1. EACH TYPE OF LIGHTING FIXTURE.
2. EACH TYPE OF WIRING DEVICE.
3. EACH TYPE OF WIRING DEVICE PLATE.

1.08 AS-BUILT DRAWINGS

A. THE CONTRACTOR SHALL, WITHIN 15 DAYS OF THE COMPLETION OF THE PROJECT AND PRIOR TO REQUESTING FINAL PAYMENT, SUBMIT AS-BUILT DRAWINGS OF THE ACTUAL INSTALLATION OF THE ELECTRICAL WORK. THREE (3) PAPER SETS OF DRAWINGS, SAME SCALE AS THE DESIGN SET UNLESS OTHERWISE INDICATED IN THE SPECIFICATIONS, AND THREE (3) CD DISKS WITH AutoCAD 2007 OR LATER VERSIONS OF THE AS-BUILTS ARE REQUIRED FOR SUBMISSION TO THE ARCHITECT ENGINEER.

1.09 TESTS

A. BEFORE AN APPLICATION FOR THE FINAL ACCEPTANCE OF THE WORK WILL BE CONSIDERED, ALL TESTS DEEMED NECESSARY BY THE ARCHITECT TO SHOW PROPER EXECUTION OF THE WORK SHALL HAVE BEEN PERFORMED AND COMPLETED IN THE PRESENCE OF AN ARCHITECT'S REPRESENTATIVE. SCHEDULE OF ALL TESTING PROCEDURES SHALL BE ARRANGED TO SUIT THE CONVENIENCE OF THE ARCHITECT.

B. ANY DEFECTS OR DEFICIENCIES DISCOVERED IN ANY OF THE ELECTRICAL WORK SHALL BE CORRECTED.

1.10 IDENTIFICATION

A. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TYPEWRITTEN DIRECTORIES BEHIND TRANSPARENT PLASTIC COVERS IN METAL FRAMES, IN ALL NEW AND EXISTING PANELS INDICATING TYPE AND LOCATION OF LOAD BEING SERVED BY INDIVIDUAL CIRCUIT BREAKERS.

B. ALL PARTS OF EQUIPMENT, SUCH AS PANELS, JUNCTION BOXES, SAFETY SWITCHES, MOTOR STARTER, CIRCUIT BREAKERS, CONDUCTORS AND SIMILAR ITEMS SHALL BE IDENTIFIED BY NAME, AT SUPPLY END, "LOAD SUPPLIED", AND AT LOAD END "LOAD SUPPLIED FROM".

PART 2 - PRODUCTS

2.01 EQUIPMENT AND MATERIALS

A. ALL EQUIPMENT AND MATERIALS FOR PERMANENT INSTALLATION SHALL BE THE PRODUCTS OF RECOGNIZED MANUFACTURERS AND SHALL BE NEW.

B. NEW EQUIPMENT AND MATERIALS SHALL:

1. WHERE NORMALLY SUBJECTED TO UNDERWRITER'S LABORATORY INC. LISTING OR LABELING SERVICES, BE SO LISTED OR LABELED.
2. BE WITHOUT BLEMISH OR DEFECT.
3. NOT TO BE USED FOR TEMPORARY LIGHT AND POWER PURPOSES WITHOUT ARCHITECT'S AUTHORIZATION.
4. BE IN ACCORDANCE WITH THE LATEST APPLICABLE N.E.M.A. STANDARD.
5. BE APPROVED BY BUILDING MANAGER OR OWNER.

C. FOR ITEMS WHICH ARE TO BE INSTALLED BUT NOT PURCHASED AS PART OF THE ELECTRICAL WORK, THE ELECTRICAL WORK SHALL INCLUDE:

1. THE COORDINATION OF THEIR DELIVERY.
2. THEIR FIELD MAKE-UP AND INTERNAL WIRING AS MAY BE NECESSARY FOR THEIR OPERATION.

D. ELECTRICAL RACEWAY AND SUPPORTING SYSTEMS SHALL BE FURNISHED AND INSTALLED COMPLETE, WITH ALL MATERIALS, FITTINGS, CONNECTIONS AND ACCESSORIES NECESSARY TO PROVIDE IN EACH INSTANCE A COMPLETE OPERATING INSTALLATION, AS DESCRIBED HEREIN, AS INDICATED ON THE DRAWINGS, AND/OR AS APPROVED BY THE BUILDING MANAGER OR OWNER.

E. THE DRAWINGS ARE DIAGRAMMATIC AND GENERALLY INDICATIVE OF THE WORK TO BE INSTALLED, BUT DO NOT SHOW ALL BENDS, FITTINGS, AND BOXES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE JOB CONDITIONS INCLUDING STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL HIS WORK AND ARRANGE THE SAME ACCORDINGLY, FURNISHING SUCH FITTINGS, BOXES AND SIMILAR ITEMS AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.

2.02 WIRING MATERIALS

A. WIRE AND CABLE SHALL BE COPPER, RATED FOR 600 VOLTS, TYPE THHN FOR BRANCH CIRCUITS AND XHHW FOR FEEDERS.

B. WIRE #10 AWG AND SMALLER SHALL BE SOLID, WIRE #8 AWG AND LARGER SHALL BE STRANDED.

C. WIRING SHALL BE CONSISTENTLY COLOR CODED THROUGHOUT. FOR 120/208 VOLT SYSTEMS, UTILIZE RED, BLUE, BLACK FOR LINE (PHASE) CONDUCTORS AND WHITE FOR NEUTRAL CONDUCTOR, SWITCH LEG SHALL BE SEPARATELY IDENTIFIED. GROUND CONDUCTOR SHALL BE GREEN. FOR 277/480V SYSTEMS, UTILIZE BROWN, ORANGE, YELLOW FOR LINE (PHASE) CONDUCTORS, AND GREY FOR NEUTRAL CONDUCTOR. GROUND CONDUCTOR SHALL BE GREEN WITH YELLOW TRACER.

D. MINIMUM SIZE:

1. LIGHTING AND POWER: #12 AWG, UNLESS OTHERWISE INDICATED.
2. CONTROL: #14 AWG.
3. 120 VOLT CIRCUITS OVER 100 FEET IN LENGTH AND 277 VOLT CIRCUITS OVER 200 FEET IN LENGTH FROM THE POINT OF SUPPLY TO THE FIRST OUTLET SHALL BE #10 AWG.

E. SPLICES IN BRANCH CIRCUIT WORK SHALL BE MADE BY MEANS OF TYPE 'R' "SCOTCHLOCK" ELECTRICAL TYPE.

F. ELECTRICAL INSULATION TAPE SHALL BE VINYL PLASTIC TYPE WITH PRESSURE ADHESIVE "SCOTCH" ELECTRICAL TYPE.

G. BRANCH CIRCUITRY NUMBERS INDICATED ON THE DRAWINGS ON MULTI-CIRCUIT HOMERUNS ARE FOR IDENTIFICATION OF DEVICES OR EQUIPMENT THEY ARE CONNECTED TO AND DO NOT NECESSARILY REFER TO PANELBOARD CIRCUIT NUMBERS. ASSIGNMENT OF BRANCH CIRCUIT NUMBERS SHALL BE PART OF THIS WORK AND INDICATED ON PANEL DIRECTORIES. BRANCH CIRCUITS SHALL BE CONNECTED TO CIRCUITS ON PANELBOARDS SO AS TO SECURE A REASONABLE BALANCE ON THE THREE PHASES. WHERE MORE THAN ONE CIRCUIT WITH A COMMON NEUTRAL IS INSTALLED IN THE SAME CONDUIT, EACH PHASE WIRE SHALL BE CONNECTED TO A DIFFERENT LEG OF THE SYSTEM.

H. ALL CONDUCTORS SHALL BE COLOR CODED THROUGHOUT AND NUMBERED AND TAGGED AT EACH JUNCTION BOX, PULL BOX, PANEL, AND DEVICE WITH SUITABLE FIREPROOF TAGS OR ADHESIVE IDENTIFICATION BANDS.

2.03 CONDUITS AND RACEWAYS

A. LIQUID TIGHT FLEXIBLE, GALVANIZED STEEL CONDUIT WITH CONTINUOUS COPPER BONDING CONDUCTOR, SHALL BE USED FOR CONNECTIONS TO MOTORS AND AT OTHER LOCATIONS WHERE VIBRATION MOVEMENT IS ENCOUNTERED.

B. UNLESS OTHERWISE INDICATED OR SPECIFIED ALL WIRING SHALL BE INSTALLED CONCEALED IN CEILINGS, WALLS, SLABS, PIPE CHASES AND FURRED SPACES WHENEVER POSSIBLE.

C. CONDUIT AND FITTINGS SHALL CONFORM TO LATEST ACCEPTABLE STATE CODE AND ALL OTHER CODES HAVING JURISDICTION.

D. CONDUIT SHALL BE 3/4" TRADE SIZE MINIMUM. UNLESS OTHERWISE INDICATED OR SPECIFIED.

E. ALL CONDUITS WHICH ARE TO REMAIN EMPTY FOR FUTURE INTRODUCTION OF CONDUCTORS SHALL BE PROVIDED WITH A PULL LINE WITH IDENTIFICATION BAND AT BOTH ENDS.

F. STEEL JACKETED METAL CLAD CABLE CAN BE USED FOR LIGHTING AND APPLIANCE BRANCH CIRCUITRY IN VOIDS OF CEILING AND PARTITIONS, PROVIDED THAT THIS TYPE OF WIRING IS ACCEPTABLE TO THE LOCAL BUILDING OFFICIAL OR HIS REPRESENTATIVE.

G. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL CONFORM TO UL 6. FITTINGS SHALL BE THREADED.

H. INTERMEDIATE METALLIC CONDUIT (IMC) SHALL CONFORM TO UL 1242. FITTINGS SHALL BE THREADED.

I. ELECTRICAL METALLIC TUBING (EMT) SHALL CONFORM TO UL 797. FITTINGS SHALL BE GLAND AND RING COMPRESSION TYPE.

J. FLEXIBLE METALLIC CONDUIT SHALL CONFORM TO UL1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL CONFORM TO UL 360.

K. ALL CONDUIT FITTINGS AND CONNECTORS SHALL BE STEEL WITH INSULATED THROATS. DIE-FORMED ZINC FITTINGS ARE NOT ACCEPTABLE. BUSHINGS SHALL BE PROVIDED AT ALL CONDUIT TERMINATIONS. BUSHINGS LARGER THAN 1" SHALL BE GROUNDING TYPE. PVC BUSHINGS MAY BE UTILIZED ONLY FOR 3/4" BRANCH CIRCUIT CONDUITS TERMINATING AT PANELBOARDS.

2.04 JUNCTION BOXES

A. JUNCTION BOX AND PULL BOXES SHALL BE PROVIDED WHERE INDICATED OR SPECIFIED AND WHERE NECESSARY TO FACILITATE THE INSTALLATION OF EQUIPMENT OR WIRING.

B. ALL BOXES SHALL BE SIZED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE.

2.05 OUTLET BOXES

A. OUTLET, PULL AND JUNCTION BOXES SHALL BE FABRICATED FROM STEEL AND CONFORM TO UL 50, UL 514, AND NEMA OS1. BOXES FOR INTERIOR LOCATIONS SHALL BE CODE GAUGE, GALVANIZED SHEET STEEL.

B. BOXES SHALL CONTAIN SUITABLE KNOCKOUTS. BARRIERS SHALL BE FURNISHED AS REQUIRED BY CODE.

C. BOXES SHALL BE SIZED AS REQUIRED BY CODE FOR NUMBER AND GAUGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER. THE MINIMUM BOX SIZE SHALL BE 4" SQUARE BE 1 1/2" DEEP. COVERS GREATER THAN 50LBS. SHALL BE DIVIDED INTO MULTIPLE SECTIONS.

D. WHERE REQUIRED AND APPROVED BY THE ENGINEER, EXTRA DEEP OR EXTRA SHALLOW OUTLET BOXES SHALL BE USED TO FACILITATE THE INSTALLATION OF THE CONDUIT SYSTEM.

2.06 FASTENINGS, SUPPORTS, AND HANGERS

A. ALL PARTS OF THE ELECTRICAL INSTALLATION SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING CONSTRUCTION USING APPROVED CLAMP SCREWS WITH THE INSERTS OF EXPANSION ANCHORS, EXPANSION BOLTS AND TOGGLE BOLTS. "IN NO CASE SHALL THE HUNG CEILING MEMBERS OR WIRES BE USED TO SUPPORT CONDUIT".

B. ALL FASTENING, SUPPORTS, CLAMPS, ANCHORS, AND SIMILAR ITEMS SHALL BE OF TYPE SUITABLE FOR THE PURPOSE.

2.07 WIRING DEVICES

A. ALL DEVICES SHALL BE SPECIFICATION GRADE, U.L. APPROVED.

B. SINGLE POLE SWITCH, 20 AMP, 120/277 VOLTS. HUBBELL OR APPROVED EQUAL.

C. RECEPTACLE, 20 AMP, 2 POLE, 3 WIRE DUPLEX, 125 VOLT, GROUND TYPE. HUBBELL OR APPROVED EQUAL.

D. COLOR AND TYPE OF ALL DEVICE PLATES SHALL BE APPROVED BY ARCHITECT PRIOR TO PURCHASE/INSTALLATION.

2.08 GROUNDING

A. ALL ENCLOSURES AND NON CURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS AND EQUIPMENT GROUND BUSES SHALL BE EFFECTIVELY GROUNDED TO THE BUILDING GROUNDING SYSTEMS THROUGH THE SYSTEM GROUND CONDUCTORS. METALLIC CONDUITS AND OTHER RACEWAYS AND ENCLOSURES FOR CONDUCTORS SHALL BE METALLIC ALLOY JOINED TOGETHER INTO A CONTINUOUS ELECTRICAL CONDUCTOR, AS TO PROVIDE EFFECTIVE ELECTRICAL CONTINUITY.

B. GROUND CONTINUITY SHALL BE MAINTAINED THROUGHOUT.

2.09 LIGHTING FIXTURES

A. ALL LIGHTING FIXTURES SHALL COMPLY WITH THE STATE ELECTRIC CODE AND SHALL BE U.L. APPROVED.

B. ALL LIGHTING FIXTURES SHALL BE APPROVED PRIOR TO PURCHASE.

C. ALL LIGHTING FIXTURES SHALL BE FURNISHED AND INSTALLED COMPLETE WITH NECESSARY COMPONENTS, ACCESSORIES, AND LAMPS OF CORRECT TYPE AND RATING AS INDICATED ON ELECTRICAL DRAWINGS.

D. FIXTURES SHALL BE CAREFULLY SUPPORTED AND ALIGNED WITH NECESSARY HANGERS, SUPPORTING MEMBERS, AND FRAMES FOR PROPER INSTALLATION, ALL AS REQUIRED AND AS APPROVED.

E. ALL FIXTURES SHALL BE PROPERLY WIRED AND CONNECTED TO BRANCH CIRCUITS, TESTED AND LEFT READY FOR OPERATION.

F. FOR TYPE, MAKE, AND QUANTITIES OF LIGHTING FIXTURES REQUIRED, SEE ELECTRICAL DRAWINGS AND SPECIFICATIONS.

G. FIXTURES AND/OR FIXTURE OUTLET BOXES SHALL BE PROVIDED WITH HANGERS TO ADEQUATELY SUPPORT THE COMPLETE WEIGHT OF THE FIXTURE. PROVIDE SUPPLEMENTAL SUPPORTS PER ALL LOCAL AND STATE CODES.

H. ALL FLUORESCENT LIGHTING FIXTURES SHALL HAVE ENERGY SAVING LAMPS AND SOLID STATE ELECTRONIC ENERGY SAVING CLASS "P" BALLASTS.

I. THE E.C. SHALL BE RESPONSIBLE FOR THE COST OF ALL PROGRAMMING AND COMMISSIONING OF THE LIGHTING CONTROLS AND LIGHTING CONTROLS SYSTEM(S). PROGRAMMING AND COMMISSIONING SHALL BE PERFORMED BY THE LIGHTING CONTROLS MANUFACTURER. THE E.C. SHALL BE RESPONSIBLE FOR THE COST OF PROVIDING (4) HOURS OF TRAINING BY THE LIGHTING CONTROLS MANUFACTURER TO THE TENANT. ALL LIGHTING CONTROLS SHALL BE FULLY PROGRAMMED AT TIME OF FINAL PUNCH LIST.

2.10 TELEPHONE SYSTEM

A. PROVIDE EMPTY CONDUIT WITH PULL LINE 3/4" MINIMUM AT EACH TEL/DATA OUTLET LOCATION. EXTEND IT UP TO 12" ABOVE HUNG CEILING AND TERMINATE WITH PLASTIC BUSHING.

B. PROVIDE 5/8" THICK, 4'-0" WIDE AND 8'-0" HIGH FIRE RETARDANT PLYWOOD BACKBOARD IN TELEPHONE CLOSET. COORDINATE SIZE WITH OWNER'S TELEPHONE SYSTEM VENDOR.

C. ALL TELEPHONE/DATA WIRING, JACKS, COVERPLATES, PUNCH DOWN BLOCKS, ETC., ARE FURNISHED AND INSTALLED BY OWNER'S PRIVATE VENDOR.

2.11 PANEL BOARDS

A. PANEL BOARDS SHALL CONSIST OF FACTORY COMPLETED DEADFRONT ASSEMBLIES OF BACK PANS, MAIN BUSSES, OVER CURRENT AND SWITCHING UNITS, SHEET METAL CABINETS AND TRIMS. THEY SHALL BE SO DESIGNED THAT SWITCHING AND OVER CURRENT DEVICES CAN BE REPLACED WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT REMOVING THE MAIN BUS CONNECTORS, SO THAT CIRCUITS MAY BE CHANGED WITHOUT MACHINING, DRILLING, OR TAPPING.

B. BUS BARS FOR THEIR MAINS SHALL BE OF COPPER HAVING CURRENT CAPACITIES AS INDICATED AND SIZED FOR SUCH CAPACITIES IN ACCORDANCE WITH UNDERWRITER LABORATORY STANDARDS. UNLESS OTHERWISE NOTED, FULL SIZE NEUTRAL BARS SHALL BE INCLUDED. BUS BAR TAPS FOR PANELS WITH SINGLE POLE BRANCHES SHALL BE ARRANGED FOR SEQUENCE PHASING OF THE BRANCH CIRCUIT DEVICES. BUSSING SHALL BE BRACED THROUGHOUT TO CONFORM TO INDUSTRY STANDARD PRACTICE GOVERNING SHORT CIRCUIT STRESSES IN PANELBOARDS. PHASE BUSSING SHALL BE FULL HEIGHT WITHOUT REDUCTION.

C. A GROUND BUS SHALL BE PROVIDED FOR EACH PANEL. EACH GROUND BUS SHALL BE OF THE SAME MATERIAL AS THE PHASE AND NEUTRAL BUSES.

D. PANEL BOARDS SHALL COMPLY WITH THE FOLLOWING INDUSTRY STANDARDS:

1. UL STANDARDS
   a. PANEL BOARDS - UL67
   b. CABINET & BOXES - UL50
2. NEMA STANDARD - PB1

E. CIRCUIT BREAKERS FOR PANEL OR INDIVIDUAL MOUNTING SHALL BE MOLDED CASE TYPE, QUICK-MAKE, QUICK-BREAK, OR MANUAL OR AUTOMATIC OPERATION.

F. AMPERE RATING AND NUMBER OF POLES SHALL BE AS INDICATED ON THE DRAWINGS.

G. BREAKERS SHALL BE TYPE AS MANUFACTURED BY SQUARE D OR APPROVED EQUAL. MINIMUM CIRCUIT BREAKER INTERRUPTING CAPACITY SHALL MATCH EXISTING SYSTEM, BUT IN NO CASE SHALL BE LESS THAN 22,000 SYM RMS AMPERES.

2.11 FIRE ALARM EXISTING EQUIPMENT

A. THE EXISTING FACILITY IS EQUIPPED WITH A FIRE ALARM SYSTEM WHICH IS TO BE EXPANDED IN THE WORK AREA. ALL NEW EQUIPMENT SHALL BE OF THE SAME MANUFACTURER AS OF THE EXISTING SYSTEM, INCLUDING PULL STATIONS, SMOKE DETECTORS, DUCT SMOKE DETECTORS, AND AUDIBLE/VISUAL SIGNALS, ETC. ALL NEW HORN/STROBES SHALL BE SYNCHRONIZED WITH EXISTING APPLIANCES.

B. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO REVIEW THE SCOPE OF WORK AND PROPOSED EQUIPMENT WITH THE SUPERINTENDENT OF FIRE ALARMS FOR THE CITY PRIOR TO PURCHASE AND INSTALLATION. THE E.C. SHALL ALSO NOTIFY THE LOCAL FIRE DEPARTMENT AND THE OWNER AT LEAST 48 HOURS IN ADVANCE OF ANY MODIFICATIONS, POSSIBLE DISRUPTION TO, OR ASSOCIATED WORK ON THE EXISTING FIRE ALARM SYSTEM.

C. THE EXISTING FIRE ALARM SYSTEM SHALL BE REPROGRAMMED AS REQUIRED TO INDICATE THE RENOVATED AREAS, REVIEW ZONING WITH THE OWNER'S REPRESENTATIVE AND LOCAL FIRE MARSHALL. THE E.C. SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THIS WORK.

D. THE E.C. SHALL BE RESPONSIBLE FOR ALL POWER SUPPLIES REQUIRED DUE TO THE NEW DEVICES/APPLIANCES PROVIDED UNDER THIS CONTRACT.

E. THE E.C. SHALL FURNISH BATTERY CALCULATIONS WHICH INCORPORATE ALL EXISTING EQUIPMENT IN ADDITION TO ALL NEW APPLIANCES/DEVICES.

F. PROVIDE ALL FIRE ALARM WIRING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

G. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT. ALL CONDUIT SHALL HAVE A RED STRIPE PAINTED EVERY 10'-0". ALL JUNCTION BOXES AND COVERS SHALL BE PAINTED RED. FIRE ALARM RATED "MC" CABLE MAY BE USED WHERE RUN CONCEALED IF ACCEPTABLE TO THE LOCAL FIRE DEPARTMENT.

2.12 FIRESTOPPING, SMOKEPROOFING AND WATERPROOFING

A. PROVIDE FIRESTOP OR SMOKESTOP BETWEEN SLEEVES AND CONDUIT MANUFACTURED BY BIO FIRE SHIELD, INC., OR DOW CORNING CORP. AS FOLLOWS:

1. DOW CORNING SILICONE RTV FOAM.
2. DOW CORNING 96-081 RTV SILICONE ADHESIVE SEALANT.
3. MINERAL FIBER BOARD, MATTING AND PUTTY.

B. PROVIDE WATERPROOFING OF ALL MATERIALS WHICH PENETRATE A FLOOR, EXTERIOR WALL

PART 3 - EXECUTION

3.1 BASIC REQUIREMENTS

A. ADHERE TO BEST INDUSTRY PRACTICE AND THE FOLLOWING:

1. ALL WORK SHALL BE CONCEALED.
2. ROUTE CIRCUITRY RUNS EMBEDDED IN CONCRETE TO COORDINATE WITH STRUCTURAL REQUIREMENTS.
3. EQUIP EACH RACEWAY INTENDED FOR THE FUTURE INSTALLATION OF WIRE OR CABLE WITH A NYLON PULLING CORD 3/16" IN DIAMETER AND CLEARLY IDENTIFY BOTH ENDS OF THE RACEWAY.
4. PROVIDE ALL OUTLET BOXES, JUNCTION BOXES, AND PULL BOXES FOR PROPER WIRE PULLING AND DEVICE INSTALLATION. INCLUDE THOSE OMITTED FROM THE DRAWINGS DUE TO SYMBOLIC METHODS OF NOTATION.
5. UTILIZE LUGS OF THE LIMITED TYPE TO MAKE CONNECTIONS AT BOTH ENDS OF CABLES INSTALLED ON THE LINE SIDE OF MAIN SERVICE OVERCURRENT AND SWITCHING DEVICES. PROVIDE CABLE LIMITERS FOR EACH END OF EACH SERVICE ENTRANCE CABLE.
6. NO SPLICING OF WIRES WILL BE PERMITTED IN FIRE ALARM SYSTEM.
7. BUNDLE WIRING PASSING THROUGH PULL BOXES AND PANELBOARDS IN A NEAT AND ORDERLY MANNER.
8. TURN BRANCH CIRCUITS AND AUXILIARY SYSTEM WIRING OUT OF WIRING GUTTERS AT 90 DEGREES TO CIRCUIT BREAKERS AND TERMINAL LUGS.

3.2 TESTING REQUIREMENTS & INSTRUCTIONS

A. THE ELECTRICAL SUBCONTRACTOR SHALL PROVIDE SUPERVISION, LABOR, MATERIALS, TOOLS, TEST INSTRUMENTS AND ALL OTHER EQUIPMENT OR SERVICES AND EXPENSES REQUIRED TO TEST, ADJUST, SET, CALIBRATE, AND OPERATIONALLY CHECK WORK AND COMPONENTS OF THE ELECTRICAL SYSTEMS AND CIRCUITRY THROUGHOUT THE ELECTRICAL WORK.

B. THE ELECTRICAL SUBCONTRACTOR SHALL PAY FOR ALL TESTS SPECIFIED IN THE ELECTRICAL SCOPE OF WORK, INCLUDING EXPENSES INCIDENT TO RETESTS OCCASIONED BY DEFECTS AND FAILURES OF EQUIPMENT TO MEET SPECIFICATIONS, AT NO ADDITIONAL COST TO THE OWNER. ANY DEFECTS OR DEFICIENCIES DISCOVERED IN ANY OF THE ELECTRICAL WORK SHALL BE CORRECTED.

1. THE ELECTRICAL SUBCONTRACTOR SHALL:
   a. REPLACE WIRING AND EQUIPMENT FOUND DEFECTIVE (DEFINED AS FAILING TO MEET SPECIFIED REQUIREMENTS) AT NO ADDITIONAL COST TO THE OWNER.
   b. SUBMIT THREE (3) COPIES OF TEST RESULTS TO THE ENGINEER.
2. DO NOT VOID EQUIPMENT WARRANTIES OR GUARANTEES BY TESTING AND CHECKOUT WORK. CHECKS AND TESTS SHALL BE SUPPLEMENTAL TO AND COMPATIBLE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

C. MOTORS:

1. BEFORE ENERGIZING ANY MACHINE, VISUALLY INSPECT FOR SERVICEABILITY. CHECK MANUFACTURER'S INSTRUCTION MANUAL FOR CORRECT LUBRICATION AND VENTILATION. ALIGN MOTOR WITH DRIVEN EQUIPMENT. CHECK NAMEPLATE FOR ELECTRICAL POWER REQUIREMENTS.
2. TEST RUN MOTORS UNCOUPLED OR UNLOADED, BEFORE PLACING INTO OPERATION. CHECK THE MOTOR FOR ROTATION, SPEED, CURRENT AND TEMPERATURE RISE UNDER NORMAL LOAD AND RECORD THE RESULTS. MAINTAIN THE PROPER COLOR CODES FOR PHASE IDENTIFICATIONS. THIS MAY REQUIRE SWAPS AT THE MOTOR FOR PROPER ROTATION. USE MOTOR PHASE ROTATION METER PRIOR TO LEAD CONNECTION AT MOTOR IN ORDER TO MINIMIZE LATER SWAPS.

D. GROUNDING SYSTEMS:

1. WIRE AND CABLE: (ALL CONDUCTORS ORIGINATING FROM MAIN SWITCHBOARD AND DISTRIBUTION PANELS).
   a. BEFORE ENERGIZING ANY CABLE OR WIRE, MEGGER THE INSULATION RESISTANCE OF EVERY EXTERNAL CIRCUIT WIRE TO EACH OTHER AND TO GROUND. TESTS SHALL BE CONDUCTED AT VOLTAGES OF 500 VOLTS OR LOWER. CONTINUITY TEST EACH WIRE AND CABLE TO VERIFY THE FIELD-APPLIED TAG PER CONDUCTOR. CONTINUITY TEST EACH WIRE AND CABLE TO VERIFY THE FIELD-APPLIED TAG PER CONDUCTOR. MINIMUM INSULATION RESISTANCE VALVES SHALL NOT BE LESS THAN TWO (2) MEGOHMS.
   b. TAKE INSULATION RESISTANCE MEASUREMENTS FOR MOTOR FEEDERS. WITH MOTORS DISCONNECTED, MEASURE INSULATION RESISTANCE FROM LOAD SIDE OF CONTACTORS OR CIRCUIT BREAKERS.
   c. CHECK CABLES AND WIRES FOR THE PROPER IDENTIFICATION NUMBERING AND/OR COLOR CODING.
   d. INSPECT CABLES FOR PHYSICAL DAMAGE AND PROPER CONNECTION IN ACCORDANCE WITH SINGLE LINE DIAGRAM.

3.3 BRANCH CIRCUITRY

A. FOR ALL LIGHTING AND APPLIANCE BRANCH CIRCUITRY, RACEWAY SIZES SHALL CONFORM TO INDUSTRY STANDARD MAXIMUM PERMISSIBLE OCCUPANCY REQUIREMENTS EXCEPT WHERE THESE ARE EXCEEDED BY OTHER REQUIREMENTS SPECIFIED ELSEWHERE.

B. CIRCUITS SHALL BE BALANCED ON PHASES AT THEIR SUPPLY AS EVENLY AS POSSIBLE.

C. FEEDER CONNECTIONS SHALL BE IN THE PHASE ROTATION WHICH ESTABLISHES PROPER OPERATION FOR ALL EQUIPMENT SUPPLIED.

D. REDUCED SIZE CONDUCTORS INDICATED FOR ANY FEEDERS SHALL BE TAKEN AS THEIR GROUNDING CONDUCTORS.

E. FEEDERS CONSISTING OF MULTIPLE CABLES AND RACEWAYS SHALL BE ARRANGED SUCH THAT EACH RACEWAY OF THE FEEDER CONTAINS ONE (1) CABLE FOR EACH LEG AND ONE (1) NEUTRAL CABLE, IF ANY.

F. FOR CIRCUITRY INDICATED AS BEING PROTECTED AT 20 AMPS OR LESS, ABIDE BY THE FOLLOWING:

1. ALL 20 AMP, 120/208 VOLT, 3-PHASE, 4-WIRE COMBINED BRANCH CIRCUIT HOMERUNS SHALL BE PROVIDED WITH A #8 AWG NEUTRAL CONDUCTOR.
2. MINIMUM CONDUCTOR SIZE SHALL BE NO. 12 AWG COPPER.
3. CONDUCTORS OPERATING AT 120 VOLTS EXTENDING IN EXCESS OF 100 FT. OR AT 277 VOLTS EXTENDING IN EXCESS OF 200 FT., OR THE LAST OUTLET OR FIXTURE TAP SHALL BE NO. 10 AWG COPPER THROUGHOUT.
4. LIGHTING FIXTURES AND RECEPTACLES SHALL NOT BE CONNECTED TO THE SAME CIRCUIT.
5. CIRCUITS SHALL BE BALANCED ON PHASES AT THEIR SUPPLY POINT AS EVENLY AS POSSIBLE.

G. TYPE MC CABLE INSTALLATION:

1. WHERE CABLE IS PERMITTED UNDER THE PRODUCTS SECTION, THE INSTALLATION OF SAME SHALL BE DONE IN ACCORDANCE WITH CODE AND THE FOLLOWING:
   a. CABLE SHALL BE SUPPORTED IN ACCORDANCE WITH CODE. TIE WIRE IS NOT AN ACCEPTABLE MEANS OF SUPPORT. CABLE SUPPORTS SUCH AS CADDY WMX-6, MX-3, AND CLAMPS SUCH AS CADDY 449 SHALL BE USED. WHERE CABLES ARE SUPPORTED BY THE STRUCTURE AND ONLY NEED SECURING IN PLACE, THEN TY-RAPS WILL BE ACCEPTABLE. TY-RAPS ARE NOT ACCEPTABLE AS A MEANS OF SUPPORT. ALL FITTINGS, HANGERS, AND CLAMPS FOR SUPPORT AND TERMINATION OF CABLES SHALL BE OF TYPE SPECIFICALLY DESIGNED FOR USE WITH CABLE, I.E., ROMEX CONNECTORS NOT ACCEPTABLE.
   b. ARMOR OF CABLE SHALL BE REMOVED WITH ROTARY CUTTER DEVICE EQUAL TO ROTO-SPLIT BY SEATEK CO.; NOT WITH A HACKSAW.
   c. USE SPLIT "INSULINER" SLEEVES AT TERMINATIONS.

3.4 REQUIREMENTS GOVERNING ELECTRICAL WORK IN DAMP OR WET LOCATIONS

A. OUTLETS AND OUTLET SIZE BOXES SHALL BE OF GALVANIZED CAST FERROUS METAL ONLY.

B. THE FINISH OF THREADED STEEL CONDUIT SHALL BE GALVANIZED ONLY.

C. WIRES FOR PULLING INTO RACEWAYS FOR LIGHTING AND APPLIANCE BRANCH CIRCUITRY SHALL BE LIMITED TO "THWN".

D. WIRES FOR PULLING INTO RACEWAYS FOR FEEDERS SHALL BE LIMITED TO "THWN".

E. PLATES FOR TOGGLE SWITCHES AND RECEPTACLES SHALL HAVE GASKETED SNAP SHUT COVERS SUITABLE FOR WET LOCATIONS WHILE IN USE.

F. FINAL CONNECTIONS OF FLEXIBLE CONDUIT SHALL BE NEOPRENE SHEATHED.

G. APPLY ONE (1) LAYER OF HALF LOOPED PLASTIC ELECTRIC INSULATING TAPE OVER WIRE NUTS USED FOR JOINING THE CONDUCTORS OF WIRES.

H. ENCLOSURES, JUNCTION BOXES, PULL BOXES, CABINETS, CABINET TRIMS, WIRING TROUGHS AND THE LIKE, SHALL BE FABRICATED OF GALVANIZED SHEET METAL, SHALL CONFORM TO THE FOLLOWING:

1. THEY SHALL BE CONSTRUCTED WITH CONTINUOUSLY WELDED JOINTS AND SEAMS.
2. THEIR EDGES AND WELD SPOTS SHALL BE FACTORY TREATED WITH COLD GALVANIZING COMPOUND.
3. THEIR CONNECTION TO CIRCUITRY SHALL BE BY MEANS OF WATERTIGHT HUB CONNECTORS WITH SEALING RINGS.

I. ENCLOSURES FOR INDIVIDUALLY MOUNTED SWITCHING AND OVERCURRENT DEVICES SHALL BE NEMA CLASS IV WEATHERPROOF CONSTRUCTION.

J. THE COVERS, DOORS AND PLATES AND TRIMS USED IN CONJUNCTION WITH ALL ENCLOSURES, PULL BOXES, OUTLET BOXES, JUNCTION BOXES, CABINETS AND THE LIKE SHALL BE EQUIPPED WITH GASKETS.

K. PANELS SHALL BE EQUIPPED WITH DOORS WITHOUT EXCEPTION.

L. THE FOLLOWING SHALL BE INTERPRETED AS DAMP OR WET LOCATIONS WITHIN BUILDING CONFINES:

1. SPACES WHERE ANY DESIGNATIONS INDICATING WEATHERPROOF (WP) OR VAPOR PROOF APPEAR ON THE DRAWINGS.
2. BELOW WATERPROOFING IN SLABS APPLIED DIRECTLY ON GRADE.
3. SPACES DEFINED AS WET OR DAMP LOCATIONS BY ARTICLE 100 OF THE NATIONAL ELECTRIC CODE.

3.5 REQUIREMENTS GOVERNING ELECTRIC WORK IN AIR HANDLING SPACES

A. WITHIN AIR HANDLING PLENUMS:

1. ABIDE BY THE REQUIREMENTS SPECIFIED FOR ELECTRIC WORK IN DAMP LOCATIONS WITHIN BUILDING CONFINES.
2. ALL CABLING AND ELECTRICAL EQUIPMENT INSTALLED WITHIN PLENUMS SHALL BE LISTED FOR PLENUM USE.
3. EXCLUDE THE INSTALLATION OF TYPE NM OR NMC CABLE.

B. IN SPACES WITHIN SUSPENDED CEILINGS USED FOR AIR HANDLING PURPOSES, ABIDE BY THE REQUIREMENTS SPECIFIED FOR NORMAL ELECTRIC WORK CONDITIONS EXCEPT:

1. LIGHTING FIXTURES RECESSED INTO THE CEILINGS SHALL BE CERTIFIED AS BEING SUITABLE FOR THIS PURPOSE.

3.6 IDENTIFICATION AND TAGGING

A. IDENTIFY INDIVIDUALLY:

1. EACH SWITCH AND CIRCUIT BREAKER.
2. EACH FEEDER, WIRE OR CABLE OR ALL SYSTEMS.
3. EACH END OF NYLON PULLWIRE IN EMPTY CONDUIT.

B. EACH WIRE OR CABLE IN A FEEDER SHALL BE IDENTIFIED AT ITS TERMINAL POINTS OF CONNECTION AND IN EACH PULLBOX, JUNCTION BOX AND PANEL GUTTER THROUGH WHICH IT PASSES.

C. THE NOMENCLATURE USED TO IDENTIFY PANELBOARDS OR LOAD CENTER SHALL DESIGNATE THE NUMBERS ASSIGNED TO THEM.

D. THE NOMENCLATURE USED TO IDENTIFY SWITCHES OR CIRCUIT BREAKERS SHALL:

1. WHERE THEY DISCONNECT MAINS OR SERVICES DESIGNATE THIS FACT.
2. WHERE THEY CONTROL FEEDERS, DESIGNATE THE FEEDER NUMBER AND THE NAME OF THE LOAD SUPPLIED.
3. WHERE THEY CONTROL LIGHTING AND APPLIANCE BRANCH CIRCUITRY, DESIGNATE THE NAME OF THE SPACE AND THE LOAD SUPPLIED.

E. THE NOMENCLATURE USED TO IDENTIFY FEEDER WIRES AND CABLES SHALL DESIGNATE THE FEEDER NUMBER.

F. IDENTIFICATION FOR PANELBOARDS OR LOAD CENTERS SHALL BE BY MEANS OF ENGRAVED LAMACOID NAMEPLATES SHOWING 1/4" HIGH WHITE LETTERING ON A BLACK BACKGROUND FASTENED TO THE OUTSIDE FACE OF THE FRONT.

G. IDENTIFICATION FOR SWITCHES OR CIRCUIT BREAKERS SHALL BE BY MEANS OF THE FOLLOWING:

1. WHERE INDIVIDUALLY ENCLOSED - ENGRAVED LAMACOID NAMEPLATES SHOWING 1/8" HIGH WHITE LETTERING ON A BLACK BACKGROUND FASTENED ON THE OUTSIDE FRONT FACE OF THE ENCLOSURE.
2. WHERE IN PANELBOARDS OR LOAD CENTERS WITHOUT DOORS - SAME AS FOR INDIVIDUALLY ENCLOSED.
3. WHERE IN PANELBOARDS OR LOAD CENTERS WITH DOORS - TYPEWRITTEN DIRECTORIES MOUNTED BEHIND TRANSPARENT PLASTIC COVERS, IN METAL FRAMES FASTENED ON THE INSIDE FACE OF THE DOORS.

H. IDENTIFICATION FOR WIRES AND CABLES SHALL BE BY MEANS OF WRAP AROUND "BRADY" TYPE LABELS.

I. DEVICE PLATES FOR LOCAL TOGGLE SWITCHES, TOGGLE SWITCH TYPE MOTOR STARTERS, PILOT LIGHTS AND THE LIKE, WHOSE FUNCTION IS NOT READILY APPARENT SHALL BE ENGRAVED WITH 1/8" HIGH LETTERS SUITABLY DESCRIBING THE EQUIPMENT CONTROLLED OR INDICATED.

J. IDENTIFY EACH OUTLET BOX, JUNCTION BOX, AND CABINET USED IN CONJUNCTION WITH EMPTY RACEWAY FOR WIRES OF A FUTURE SYSTEM BY MEANS OF INDELIBLE MARKINGS ON THE INSIDE DENOTING THE SYSTEM.

3.7 LIMITING NOISE PRODUCED BY ELECTRICAL INSTALLATION

A. PERFORM THE FOLLOWING WORK IN ACCORDANCE WITH FIELD INSTRUCTIONS ISSUED BY THE ARCHITECT TO ASSURE THAT MINIMAL NOISE IS PRODUCED BY ELECTRICAL INSTALLATIONS DUE TO EQUIPMENT FURNISHED AS PART OF THE ELECTRICAL WORK.

B. CHECK AND TIGHTEN THE FASTENINGS OF SHEET METAL PLATES, COVERS, DOORS AND TRIMS USED IN THE ENCLOSURES OF ELECTRICAL EQUIPMENT.

C. REMOVE AND REPLACE ANY INDIVIDUAL DEVICE CONTAINING ONE OR MORE MAGNETIC FLUX PATH METALLIC CORES (E.G., DISCHARGE LAMP BALLAST, TRANSFORMER, REACTOR, DIMMER, SOLENOID) WHICH IS FOUND TO HAVE A NOISE OUTPUT EXCEEDING THAT OF OTHER IDENTICAL DEVICES INSTALLED AT THE PROJECT.

D. MAINTAIN ALL SPLICES AND JOINTS IN REMOVABLE COVER BOXES OR CABINETS WHERE THEY MAY BE EASILY INSPECTED.

E. LOCATE EACH COMPLETED CONDUCTOR SPLICE OR JOINT IN THE OUTLET BOX, JUNCTION BOX, OR PULL BOX CONTAINING IT, SO THAT IT IS ACCESSIBLE FROM THE REMOVAL COVER SIDE OF THE BOX.

F. JOIN SOLID CONDUCTORS NO. 8 AWG AND SMALLER BY SECURELY TWISTING THEM TOGETHER AND SOLDERING, OR BY USING INSULATED COILED STEEL SPRING "WIRE NUT" TYPE CONNECTORS. EXCLUDE "WIRE NUTS" EMPLOYING NON-EXPANDABLE SPRINGS. TERMINATE CONDUCTORS NO. 8 AWG AND SMALLER BY MEANS OF A NEAT AND FAST HOLDING APPLICATION OF THE CONDUCTORS DIRECTLY TO THE BINDING SCREWS OR TERMINALS OF THE EQUIPMENT OR DEVICES TO BE CONNECTED.

3.8 SUPPORTS AND FASTENINGS

A. SUPPORT WORK IN ACCORDANCE WITH BEST INDUSTRY STANDARDS, LOCAL ELECTRIC CODE AND THE FOLLOWING:

1. INCLUDE SUPPORTING FRAMES OR RACKS FOR EQUIPMENT, INTENDED FOR VERTICAL SURFACE MOUNTING, WHICH IS REQUIRED IN A FREESTANDING POSITION.
2. SUPPORTING FRAMES OR RACKS SHALL BE OF STANDARD ANGLE, STANDARD CHANNEL OR SPECIALTY SUPPORT SYSTEM STEEL MEMBERS. THEY SHALL BE RIGIDLY BOLTED OR WELDED TOGETHER AND ADEQUATELY BRACES TO FORM A SUBSTANTIAL STRUCTURE. RACKS SHALL BE OF AMPLE SIZE TO ASSURE A WORKMANLIKE ARRANGEMENT OF ALL EQUIPMENT MOUNTED ON THEM.
3. NO WORK INTENDED FOR EXPOSED INSTALLATION SHALL BE MOUNTED DIRECTLY ON ANY BUILDING SURFACE IN SUCH LOCATIONS, FLAT BAR MEMBERS OR SPACES SHALL BE USED TO CREATE A MINIMUM OF ¼" AIR SPACE BETWEEN THE BUILDING SURFACES AND THE WORK. PROVIDE ¼" THICK EXTERIOR GRADE PLYWOOD PAINTED WITH TWO (2) COATS OF FIRE-RETARDANT GRAY PAINT FOR MOUNTING OF PANELBOARDS.
4. NOTHING (INCLUDING OUTLET, PULL AND JUNCTION BOXES AND FITTINGS) SHALL DEPEND ON ELECTRIC CONDUITS, RACEWAYS OR CABLES FOR SUPPORT.
5. NOTHING SHALL REST ON, OR DEPEND FOR SUPPORT ON, SUSPENDED CEILING MEDIA.
6. SUPPORT LESS THAN 2" TRADE SIZE, VERTICALLY RUN, CONDUITS AT INTERVALS NO GREATER THAN 8'. SUPPORT SUCH CONDUITS, 2-1/2" TRADE SIZE OR LARGER, AT INTERVALS NO GREATER THAN THEY STORY HEIGHT, OR 15', WHICHEVER IS SMALLER.
7. WHERE THEY ARE NOT EMBEDDED IN CONCRETE, SUPPORT LESS THAN 1" TRADE SIZE, HORIZONTALLY RUN, CONDUITS AT INTERVALS NO GREATER THAN 7'. SUPPORT SUCH CONDUITS, 1" TRADE SIZE OR LARGER, AT INTERVALS NO GREATER THAN 10'.
8. SUPPORT ALL LIGHTING FIXTURES DIRECTLY FROM STRUCTURAL SLAB, INTERMEDIATE DECKING OR FRAMING MEMBER AS DIRECTED BY THE ARCHITECT. NO LIGHT FIXTURES SHALL BE SUPPORTED DIRECTLY FROM THE ROOF DECK.
9. WHERE FIXTURES AND CEILINGS ARE SUCH AS TO REQUIRE FIXTURE SUPPORT FROM CEILING OPENINGS FRAMES, INCLUDE IN THE ELECTRIC WORK THE MEMBERS NECESSARY TO TIE BACK THE CEILING OPENING FRAMES TO CEILING SUSPENSION MEMBERS OR SLABS SO AS TO PROVIDE ACTUAL SUPPORT FOR THE FIXTURES NOTED ABOVE.
10. SUPPORT ALL RUNS OF CONDUIT AND/OR CIRCUITRY DIRECTLY FROM STRUCTURAL SLABS, INTERMEDIATE DECKING OR FRAMING MEMBERS.
11. FASTEN ELECTRIC WORK TO BUILDING STRUCTURE IN ACCORDANCE WITH THE BEST INDUSTRY PRACTICE.
12. FLOOR MOUNTED EQUIPMENT SHALL NOT BE HELD IN PLACE SOLELY BY ITS OWN DEAD WEIGHT. INCLUDE FLOOR ANCHOR FASTENINGS IN ALL CASES.
13. FOR ITEMS WHICH ARE SHOWN AS BEING CEILING MOUNTED AT LOCATIONS WHERE FASTENINGS TO THE BUILDING CONSTRUCTION ELEMENT ABOVE IS NOT POSSIBLE, PROVIDE SUITABLY AUXILIARY CHANNEL OR ANGLE IRON BRIDGING TYING TO BUILDING STRUCTURAL ELEMENTS.

3.9 SPLICING AND TERMINATING WIRES AND CABLES

A. MAINTAIN ALL SPLICES AND JOINTS IN REMOVABLE COVER BOXES OR CABINETS WHERE THEY MAY BE EASILY INSPECTED.

B. LOCATE EACH COMPLETED CONDUCTOR SPLICE OR JOINT IN THE OUTLET BOX, JUNCTION BOX, OR PULL BOX CONTAINING IT, SO THAT IT IS ACCESSIBLE FROM THE REMOVAL COVER SIDE OF THE BOX.

C. JOIN SOLID CONDUCTORS NO. 8 AWG AND SMALLER BY SECURELY TWISTING THEM TOGETHER AND SOLDERING, OR BY USING INSULATED COILED STEEL SPRING "WIRE NUT" TYPE CONNECTORS. EXCLUDE "WIRE NUTS" EMPLOYING NON-EXPANDABLE SPRINGS. TERMINATE CONDUCTORS NO. 8 AWG AND SMALLER BY MEANS OF A NEAT AND FAST HOLDING APPLICATION OF THE CONDUCTORS DIRECTLY TO THE BINDING SCREWS OR TERMINALS OF THE EQUIPMENT OR DEVICES TO BE CONNECTED.

D. JOIN, TAP AND TERMINATE STANDARD CONDUCTORS NO. 6 AWG AND LARGER BY MEANS OF SOLDER SLEEVES, TAPS, AND LUGS WITH APPLIED SOLDER OR BY MEANS OF BOLTED SADDLE TYPE OR PRESSURE INDENT TYPE CONNECTORS, TAPS AND LUGS. EXCLUDE CONNECTORS AND LUGS OF THE TYPES WHICH APPLY SET SCREWS DIRECTLY TO CONDUCTORS. WHERE EQUIPMENT OR DEVICES ARE EQUIPPED WITH SET SCREW TYPE TERMINALS WHICH ARE IMPOSSIBLE TO CHANGE, REPLACE THE FACTORY SUPPLIED SET SCREWS WITH A TYPE HAVING A BALL BEARING TIP. APPLY PRESSURE INDENT TYPE CONNECTORS, TAPS AND LUGS UTILIZING TOOLS MANUFACTURED SPECIFICALLY FOR THE PURPOSE AND HAVING FEATURES PREVENTING THEIR RELEASE UNTIL THE FULL PRESSURE HAS BEEN EXERTED ON THE LUG OR CONNECTOR.

E. EXCEPT WHERE WIRE NUTS ARE USED, BUILD UP INSULATION OVER CONDUCTOR JOINTS TO A VALUE, EQUAL BOTH IN THICKNESS AND DIELECTRIC STRENGTH, TO THAT OF THE FACTORY APPLIED CONDUCTOR INSULATION. INSULATION OF CONDUCTOR TAPS AND JOINTS SHALL BE BY MEANS OF HALF-LAPPED LAYERS OF RUBBER TAPE, WITH AN OUTER LAYER OF FRICTION TAPE; BY MEANS OF HALF-LAPPED LAYERS OF APPROVED PLASTIC ELECTRIC INSULATING TAPE; OR BY A MEANS OF SPLIT INSULATING CASINGS MANUFACTURED SPECIFICALLY TO INSULATE THE PARTICULAR CONNECTOR AND CONDUCTOR, AND FASTENED WITH STAINLESS STEEL OR NON-METALLIC SNAPS OR CLIPS.

F. EXCLUDE SPLICING PROCEDURES FOR NEUTRAL CONDUCTORS IN LIGHTING AND APPLIANCE BRANCH CIRCUITRY WHICH UTILIZE DEVICE TERMINALS AS THE SPLICING POINTS.

G. EXCLUDE JOINTS OR TERMINATIONS UTILIZING SOLDER IN ANY CONDUCTORS USED FOR GROUNDING OR BONDING PURPOSES.

H. EXCLUDE ALL BUT SOLDER OR PRESSURE INDENT TYPE JOINTS IN CONDUCTORS USED FOR SIGNALING OR COMMUNICATION PURPOSES.

I. LUGS FOR CONDUCTORS USED TO MAKE PHASE LEG CONNECTIONS ON THE LINE SIDE OF THE MAIN SERVICE OVERCURRENT AND SWITCHING DEVICE SHALL BE OF THE LIMITER TYPE.

3.10 PULLING WIRES INTO CONDUITS AND RACEWAYS

A. DELAY PULLING WIRES OR CABLES IN UNTIL THE PROJECT HAS PROGRESSED TO A POINT WHEN GENERAL CONSTRUCTION PROCEDURES ARE NOT LIABLE TO INJURE WIRES AND CABLES, AND WHEN MOISTURE IS EXCLUDED FROM RACEWAYS.

B. UTILIZE NYLON SNAKES OR METALLIC FISH TAPES WITH BALL TYPE HEADS TO SET UP FOR PULLING. IN RACEWAYS 2" TRADE SIZE AND LARGER, UTILIZE A PULLING ASSEMBLY AHEAD OF WIRES CONSISTING OF A SUITABLE BRUSH FOLLOWED BY A 3-1/2" DIAMETER BALL MANDREL.

C. LEAVE SUFFICIENT SLACK ON ALL RUNS OF WIRE AND CABLE TO PERMIT THE SECURE CONNECTION OF DEVICES AND EQUIPMENT.

D. INCLUDE CIRCULAR WEDGE-TYPE CABLE SUPPORTS FOR WIRES AND CABLES AT THE TOP OF ANY VERTICAL RACEWAY LONGER THAN 20 FEET. ALSO INCLUDE ADDITIONAL SUPPORTS SPACED AT INTERVALS WHICH ARE NO GREATER THAN 10'. SUPPORTS SHALL BE LOCATED IN ACCESSIBLE PULL BOXES. SUPPORTS SHALL BE OF A NON-DETERIORATING INSULATING MATERIAL MANUFACTURED SPECIFICALLY FOR THE PURPOSE.

E. PULLING LUBRICANTS SHALL BE USED. THEY SHALL BE PRODUCTS MANUFACTURED SPECIFICALLY FOR THE PURPOSE.

F. SLACK ON WIRES AND CABLES LOCATED IN CABINETS AND PULL BOXES SHALL BE FORMED AND SET IN PLACE IN GROUPINGS CORRESPONDING TO THEIR OCCUPANCY OF RACEWAYS. THEY SHALL ALSO BE ARRANGED, WITH INSULATORS AND SUPPORTS PROVIDED WHERE NECESSARY, SUCH THAT CABLE SHIMS OR OTHER SUCH TEMPORARY EXPEDIENTS DO NOT HAVE TO BE LEFT PERMANENTLY IN PLACE TO PREVENT THE WIRES AND CABLES FROM SHIFTING WHEN COVERS OR TRIMS ARE REMOVED.

3.11 REQUIREMENTS FOR THE INSTALLATION OF JUNCTION BOXES, OUTLET BOXES AND PULL BOXES

A. FLUSH WALL-MOUNTED OUTLET BOXES SHALL NOT BE SET BACK TO BACK BUT SHALL BE OFFSET AT LEAST 12" HORIZONTALLY REGARDLESS OF ANY INDICATION ON THE DRAWINGS.

B. LOCATE ALL BOXES SO THAT THEIR REMOVABLE COVERS ARE ACCESSIBLE WITHOUT NECESSITATING THE REMOVAL OF PARTS OF PERMANENT BUILDING STRUCTURE, INCLUDING PIPING, DUCTWORK, AND OTHER PERMANENT MECHANICAL ELEMENTS.

C. IN CONJUNCTION WITH CONCEALED CIRCUITRY, ABIDE BY ONE OF THE FOLLOWING INSTRUCTIONS (AS MAY BE APPLICABLE TO THE CONDITIONS) IN ORDER TO ASSURE THE AFOREMENTIONED ACCESSIBILITY. (NOT REQUIRED FOR CIRCUITRY CONCEALED BY REMOVABLE SUSPENDED CEILING TILES.)

1. FOR A SMALL (OUTLET SIZE) BOX ON CIRCUITRY CONCEALED IN A PARTITION OR WALL, LOCATE BOX OR FITTING SO THAT ITS REMOVABLE COVER SIDE (OR THE FACE OF ANY APPLIED RAISED COVER) PENETRATES THROUGH TO WITHIN 1/8" OF THE EXPOSED SURFACE OF THE BUILDING MATERIALS CONCEALING THE CIRCUITRY AND APPLY A BLANK OR DEVICE PLATE TO SUIT THE FUNCTIONAL REQUIREMENTS.
2. FOR A LARGE BOX ON CIRCUITRY CONCEALED IN A PARTITION, SUSPENDED CEILING, OR WALL, LOCATE BOX TOTALLY HIDDEN BUT WITH ITS REMOVABLE COVER DIRECTLY BEHIND AN ARCHITECTURAL ACCESS DOOR OR PANEL (INCLUDED FOR THE PURPOSE, SEPARATE FROM THE ELECTRIC WORK) IN THE BUILDING CONSTRUCTION WHICH CONCEALS THE CIRCUITRY.
3. FOR A SMALL (OUTLET SIZE) BOX ON CIRCUITRY CONCEALED ABOVE AND INTENDED AS AN OUTLET FOR A SURFACE MOUNTED LIGHTING FIXTURE OR OTHER SUCH ELECTRICAL ITEM, LOCATE BOX SO THAT ITS REMOVABLE COVER SIDE PENETRATES THROUGH TO THE EXPOSED SURFACE OF THE BUILDING MATERIALS CONCEALING THE CIRCUITRY. ARRANGE THE MOUNTING OF THE LIGHTING FIXTURE OR OTHER ITEM SO THAT IT COMPLETELY COVERS THE OPENING IN THE BUILDING CONSTRUCTION CAUSED BY THE BOX.
4. FOR A SMALL (OUTLET SIZE) BOX ON CIRCUITRY CONCEALED IN A SUSPENDED CEILING, AND INTENDED AS AN OUTLET FOR A NON-DEMOUNTABLE TYPE OF RECESSED LIGHTING FIXTURES OR OTHER SUCH ELECTRICAL ITEMS, LOCATE BOX TOTALLY HIDDEN BUT WITH ITS REMOVABLE COVER NOT MORE THAN 1' AWAY FROM THE BUILDING CONSTRUCTION OPENING OCCUPIED BY THE DEMOUNTABLE ITEMS.

D. APPLY JUNCTION AND PULL BOXES IN ACCORDANCE WITH THE FOLLOWING:

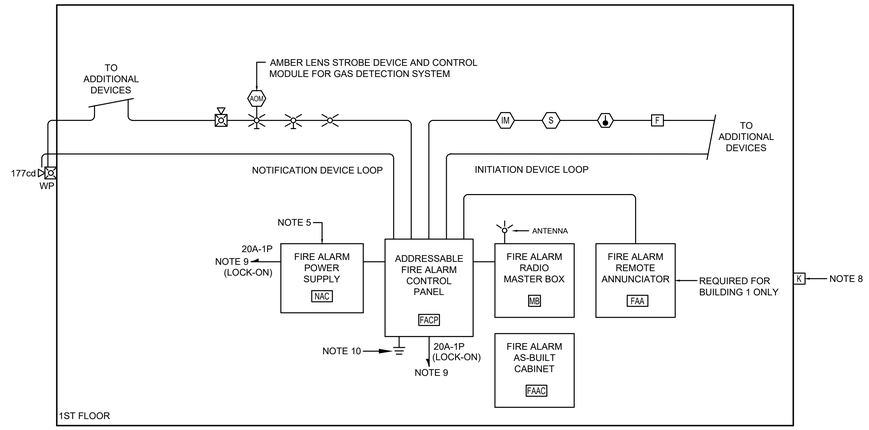
1. INCLUDE ALL PULL BOXES IN LONG STRAIGHT RUNS OF RACEWAY TO ASSURE THAT CABLES ARE NOT DAMAGED WHEN THEY ARE PULLED IN.
2. INCLUDE JUNCTION AND PULL BOXES TO ASSURE A NEAT AND WORKMANLIKE INSTALLATION OF RACEWAYS.
3. INCLUDE JUNCTION AND PULL BOXES TO FULFILL REQUIREMENTS PERTAINING TO THE LIMITATIONS TO THE NUMBER OF BENDS PERMITTED IN RACEWAY BETWEEN CABLE ACCESS POINTS, THE ACCESSIBILITY OF CABLE JOINTS AND SPLICES, AND THE APPLICATION OF CABLE SUPPORTS.
4. INCLUDE ALL REQUIRED JUNCTION AND PULL BOXES REGARDLESS OF INDICATIONS ON THE DRAWINGS (WHICH, DUE TO SYMBOLIC METHODS OF NOTATION, MAY OMIT TO SHOW SOME OF THEM).

E. APPLY OUTLET BOXES IN ACCORDANCE WITH THE FOLLOWING:

1. UNLESS NOTED BELOW OR OTHERWISE SPECIFICALLY INDICATED, INCLUDE A SEPARATE OUTLET BOX FOR EACH INDIVIDUAL WIRING DEVICE, LIGHTING FIXTURE AND SIGNAL OR COMMUNICATION SYSTEM OUTLET COMPONENT. OUTLET BOXES SUPPLIED ATTACHED TO LIGHTING FIXTURES SHALL NOT BE USED AS REPLACEMENTS FOR THE BOXES SPECIFIED HEREIN.
2. A CONTINUOUS ROW OF FIXTURES OF THE END-TO-END CHANNEL TYPE, DESIGNED FOR "THROUGH WIRING", AND WIRED IN ACCORDANCE WITH THE SPECIFICATION HEREINAFTER PERTAINING TO CIRCUITRY THROUGH A SERIES OF LIGHTING FIXTURES, MAY BE SUPPLIED THROUGH A SINGLE OUTLET BOX.
3. A SERIES OF SEPARATE FIXTURES, DESIGNED FOR "THROUGH WIRING", SPACED NOT MORE THAN 4' APART, AND INTER-CONNECTED WITH CONDUIT OR RACEWAY AND CIRCUITRY WHICH IS IN ACCORDANCE WITH THE SPECIFICATIONS HEREINAFTER PERTAINING TO CIRCUITRY THROUGH A SERIES OF LIGHTING FIXTURES, MAY BE SUPPLIED THROUGH A SINGLE OUTLET BOX.
4. CONNECTION TO RECESSED CEILING FIXTURES SUPPLIED WITH PIGTAILS MAY BE ARRANGED SO THAT MORE THAN ONE (1), BUT NOT MORE THAN FOUR (4) SUCH FIXTURES ARE CONNECTED INTO A SINGLE OUTLET BOX. WHEN ADOPTING THIS PROCEDURE:
   a. UTILIZE AN OUTLET BOX NO SMALLER THAN 5" SQUARE BY 2-1/2" DEEP.
   b. ALLOW NO FIXTURE TO BE SUPPLIED FROM AN OUTLET BOX IN ANOTHER ROOM.
5. MULTIPLE LOCAL SWITCHES INDICATED AT A SINGLE LOCATION SHALL BE GANG-MOUNTED IN A SINGLE OUTLET BOX.
6. INCLUDE ALL REQUIRED OUTLET BOXES REGARDLESS OF INDICATIONS ON THE DRAWINGS (WHICH DUE TO SYMBOLIC METHODS OF NOTATION, MAY OMIT TO SHOW SOME OF THEM).

F. INSTALL JUNCTION BOXES, PULL BOXES AND OUTLET BOXES IN CONJUNCTION WITH CONCEALED CIRCUITRY.

1. EXCLUDE SURFACE-MOUNTED OUTLET BOXES IN CONJUNCTION WITH CONCEALED CIRCUITRY.
2. EXCLUDE UNUSED CIRCUITRY OPENINGS IN JUNCTION AND PULL BOXES. IN LARGER BOXES EACH SUCH OPENING SHALL BE CLOSED WITH A GALVANIZED SHEET



FIRE ALARM RISER NOTES:

1. REFER TO FLOOR PLANS FOR EXACT QUANTITIES AND LOCATIONS OF ALL DEVICES.
2. THE FIRE ALARM SYSTEM SHALL CONFORM WITH THE REQUIREMENTS OF THE RHODE ISLAND FIRE SAFETY CODE AND THE CITY OF MIDDLETOWN FIRE DEPARTMENT. SHOP DRAWINGS SHALL BE SUBMITTED TO THE FIRE DEPARTMENT FOR APPROVAL.
3. PROVIDE A NEW ADDRESSABLE FIRE ALARM SYSTEM AS MANUFACTURED BY EST OR APPROVED EQUAL. THE PANEL SHALL BE E3 SERIES. ALL DEVICES SHALL BE NEW AND MANUFACTURED BY EST OR APPROVED EQUAL. ALL FIRE ALARM WIRING SHALL BE CLASS A PER FCI RECOMMENDATIONS OR APPROVED EQUAL AND SHALL BE INSTALLED IN MINIMUM 3/4" EMT CONDUIT.
4. ALL FIRE ALARM WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF NFPA, STATE, AND LOCAL BUILDING CODES AND THE AMERICANS WITH DISABILITIES ACT (ADA).
5. PROVIDE REMOTE BOOSTER POWER SUPPLY PANELS AS REQUIRED.
6. PROVIDE FAULT ISOLATION MODULES ON THE SIGNAL LINE CIRCUIT TO PROTECT THE SYSTEM FROM LINE TO LINE FAULTS. MODULES SHALL BE PROVIDED AS REQUIRED, WITH A MINIMUM OF (1) MODULE PER EVERY 25 DEVICES.
7. RADIO MASTER BOX TO BE IN ACCORDANCE WITH THE CITY OF MIDDLETOWN FIRE DEPARTMENT REQUIREMENTS.
8. FIRE ALARM KNOX BOX. COORDINATE EXACT MODEL AND LOCATION WITH LOCAL AHJ.
9. PROVIDE DEDICATED 120 VOLT CIRCUIT AND 20A/1P CIRCUIT BREAKER WITH LOCK-ON DEVICE VIA 2#12+1#12G IN 3/4"C. AS REQUIRED.
10. GROUND FIRE ALARM EQUIPMENT PER NEC ARTICLE 250 AS REQUIRED.
11. ALL STROBES SHALL BE SYNCHRONIZED. EXACT METHOD FOR SYNCHRONIZATION SHALL BE SPECIFIC TO EACH FIRE ALARM MANUFACTURER. PROVIDE EVIDENCE OF SYNCHRONIZATION IN FIRE ALARM SUBMITTAL.
12. AUDIBLE FIRE ALARM NOTIFICATION DEVICES SHALL BE A MINIMUM OF 15 DECIBELS ABOVE AVERAGE AMBIENT SOUND LEVELS PER NFPA 72.

1 BUILDING 1: FIRE ALARM RISER DIAGRAM

Scale: NOT TO SCALE

FIRE ALARM GENERAL NOTES

1. SMOKE ALARMS AND SMOKE DETECTORS SHALL NOT BE INSTALLED WITHIN 36 INCHES HORIZONTAL PATH FROM THE TIP OF THE BLADE OF A CEILING/ SUSPENDED PADDLE FAN.
2. DO NOT INSTALL SMOKE DETECTORS WITHIN UNFINISHED ATTICS OR GARAGES OR IN OTHER PLACES WHERE TEMPERATURES CAN FALL BELOW 40°F OR EXCEED 100°F.
3. SMOKE DETECTORS SHALL NOT BE INSTALLED WITHIN A 36 INCHES HORIZONTAL PATH FROM THE SUPPLY REGISTERS OF A FORCED AIR HEATING OR COOLING SYSTEM AND SHALL BE INSTALLED OUTSIDE OF THE DIRECT AIRFLOW FROM THOSE REGISTERS.
4. FOR TRAY-SHAPED CEILINGS (COFFERED CEILINGS), SMOKE DETECTORS SHALL BE INSTALLED ON THE HIGHEST PORTION OF THE CEILING OR ON THE SLOPED PORTION OF THE CEILING WITHIN 12 INCHES VERTICALLY DOWN FROM THE HIGHEST POINT.
5. SMOKE DETECTORS INSTALLED IN ROOM WITH JOIST OR BEAMS SHALL COMPLY WITH THE REQUIREMENTS OF NFPA AND IBC 2021.
6. PROVIDE ALL WIRING PER THE MANUFACTURER'S SPECIFICATIONS.
7. THIS FIRE ALARM RISER DIAGRAM IS TYPICAL; WIRE TO ALL DEVICES ON ALL ZONES AND CIRCUITS. REFER TO FLOOR PLANS FOR TYPES AND QUANTITIES OF DEVICES.
8. ALL FIRE ALARM WIRING SHALL BE RUN CONTINUOUS FROM DEVICE TO DEVICE.
9. OUTGOING AND RETURN CONDUCTORS MUST BE RUN IN SEPARATE RACEWAYS. PROVIDE MINIMUM SEPARATION OF ONE FOOT WHERE THE CABLE IS RUN VERTICALLY AND A FOUR FEET SEPARATION WHERE THE CABLE IS RUN HORIZONTALLY (REFER TO NFPA FOR MORE INFORMATION).
10. PROVIDE ANY ADDITIONAL REMOTE FIRE ALARM POWER SUPPLIES, DEVICES, WIRING, ETC. AS REQUIRED TO SERVE NEW FIRE ALARM NOTIFICATION DEVICES SHOWN ON THE DRAWINGS.
11. PROVIDE ADDITIONAL SMOKE DETECTORS AS NECESSARY PER NFPA.
12. PROVIDE HARDWARE AND PROGRAMMING SUCH THAT DURING ALARM, ALL HVAC UNITS WITH CFM >2000 WILL BE SHUTDOWN.
13. PROVIDE INTERMEDIATE RELAYS AS NEEDED.
14. SYNCHRONIZE ALL STROBE LIGHTS.
15. VERIFY WIRING TYPE FOR INITIATING LOOP.
16. WHEN CONNECTING AN ADDRESSABLE MODULE TO MONITOR A CONVENTIONAL SMOKE DETECTOR, A SEPARATE 24 VOLT AUXILIARY POWER SOURCE, ORIGINATING FROM THE FIRE ALARM CONTROL PANEL IS REQUIRED.
17. VERIFY ADDITIONAL WIRING WITH SPECIFIED MANUFACTURER (E.G. 24V POWER FOR MODULES).
18. NOTIFY OWNER, FIRE DEPARTMENT, AND POLICE DEPARTMENT PRIOR TO EXECUTING ANY WORK ON THE FIRE ALARM SYSTEM.
19. PROVIDE ISOLATION MODULES AS REQUIRED IN ACCORDANCE WITH THE STATE FIRE SAFETY CODE AND IBC. PROVIDE A MINIMUM OF ONE ISOLATION MODULE PER FLOOR, AND ONE ISOLATION MODULE FOR EVERY 25 INITIATING DEVICES.
20. ALL FIRE ALARM EQUIPMENT INCLUDING AND NOT LIMITED TO FIRE ALARM CONTROL PANELS, CABINETS, ANNUNCIATORS, PULL STATIONS, ETC. SHALL BE LOCKABLE TYPE. PROVIDE KEY ALIKE LOCKABLE EQUIPMENT AS REQUIRED.
21. COLOR CODE ALL FIRE ALARM WIRING PER THE REQUIREMENTS OF THE STATE FIRE SAFETY CODE.
22. FIRE SEAL ALL CONDUIT PENETRATIONS MADE THROUGH FIRE RATED WALLS, ELECTRICAL /TELECOMMUNICATION ROOMS AND CLOSETS.
23. FIRE SEAL ALL PENETRATIONS THROUGH FLOORS.
24. PROVIDE 25% SPARE CAPACITY ON INITIATION AND NOTIFICATION LOOPS.
25. REFER TO FIRE PROTECTION DRAWINGS FOR QUANTITIES AND LOCATIONS OF TAMPER AND FLOW SWITCHES.
26. TYPICALLY FIRE ALARM SYSTEM POWER CONDUCTORS SHALL BE #14 AWG, TYPE THHN SOLID, MINIMUM. ELECTRICAL CONTRACTOR SHALL SIZE AND PROVIDE FIRE ALARM POWER CONDUCTORS TO ACCOMMODATE FUTURE LOW FREQUENCY HORN/STROBES WITHIN ALL DWELLING UNIT "ROOMS" FOR THE POSSIBILITY THAT ANY ROOM MAY BE CONVERTED TO AN ACCESSIBLE UNIT IN THE FUTURE.
27. SMOKE DETECTORS SHALL BE INSTALLED A MINIMUM OF 20' HORIZONTAL DISTANCE FROM A PERMANENTLY INSTALLED COOKING APPLIANCE. SMOKE DETECTORS INSTALLED WITHIN 6-20' FROM A PERMANENTLY INSTALLED COOKING APPLIANCE SHALL BE LISTED FOR RESISTANCE TO COMMON NUISANCE SOURCES FROM COOKING PER NFPA 72.
28. SMOKE DETECTORS SHALL BE INSTALLED NOT LESS THAN 3 FEET HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE DETECTOR REQUIRED BY NFPA 72.

FIRE ALARM SYSTEM

FIRE ALARM SYSTEM:
ALL NOTIFICATION DEVICES SHALL BE MOUNTED 80" AFF, UNLESS OTHERWISE NOTED. THE FOLLOWING DESIGNATIONS SHALL APPLY TO ALL FIRE ALARM DEVICES:

AC = ABOVE CEILING
C = CEILING MOUNTED
LF = LOW FREQUENCY
WG = WIRE GUARD
WP = WEATHERPROOF

- F — MANUAL PULL STATION; MOUNTED 48" AFF
- K — ACCESS FEATURE-FIRE DEPARTMENT KEY REPOSITORY.
- R — INTERMEDIATE RELAY, PROVIDE AS NEEDED.
- A — RADIO MASTER BOX ANTENNA, MOUNT AT HIGHEST POINT ON BUILDING EXTERIOR.
- FAA — FIRE ALARM ANNUNCIATOR
- FAC — FIRE ALARM COMMUNICATOR
- BATT — BATTERY CABINET
- FACP — FIRE ALARM CONTROL PANEL
- FATC — FIRE ALARM TERMINAL CABINET
- FAGM — FIRE ALARM GRAPHIC MAP
- FAAC — FIRE ALARM AS-BUILT CABINET
- NAC — NOTIFICATION APPLIANCE CIRCUIT POWER SUPPLY SIZE PER MANUFACTURERS SYSTEM CALCULATIONS.
- S — SMOKE DETECTOR/SENSOR - BASIC SHAPE ORIENTATION NOT TO BE CHANGED.
- SS — SMOKE DETECTOR - SINGLE STATION, 120V WITH BATTERY BACKUP.
- S — DUCT MOUNTED SMOKE DETECTOR, INSTALLED BY MECHANICAL CONTRACTOR, WIRED AND FURNISHED BY ELECTRICAL CONTRACTOR.
- SSB — SOUNDER BASE
- HEAT DETECTOR/SENSOR - BASIC SHAPE ORIENTATION NOT TO BE CHANGED.
- H_R — HEAT DETECTOR/SENSOR, RATE-OF-RISE.
- H_F — HEAT DETECTOR/SENSOR, FIXED TEMPERATURE (135°) F.
- H_F — HEAT DETECTOR/SENSOR, FIXED TEMPERATURE (190°) F.
- $H_{R/F}$ — HEAT DETECTOR/SENSOR, COMBINATION RATE-OF-RISE AND FIXED TEMPERATURE (135°) F.
- CO — CARBON MONOXIDE DETECTOR
- CO_2 — CARBON DIOXIDE DETECTOR
- S CO_2 CO — SMOKE/CARBON MONOXIDE DETECTOR COMBINATION
- S R — SMOKE/HEAT DETECTOR/SENSOR COMBINATION
- S R CO — SMOKE/HEAT DETECTOR/CARBON MONOXIDE DETECTOR
- 15cd — VISIBLE ONLY (STROBE) - CEILING MOUNT CD=CANDELA RATING/SETTING
- 15cd — VISIBLE ONLY (STROBE) - WALL MOUNT CD=CANDELA RATING/SETTING
- F H — HORN ONLY
- F M — MINI-HORN
- S — SPEAKER ONLY, WALL MOUNT
- 15cd — COMBINATION HORN/VISIBLE CD= CANDELA RATING/SETTING
- 15cd — COMBINATION SPEAKER/VISIBLE CD= CANDELA RATING/SETTING
- RI — REMOTE ALARM INDICATOR; CEILING MOUNT
- RI — REMOTE ALARM INDICATOR; WALL MOUNT
- ROTATING BEACON
- F — FIRE BELL, FURNISHED AND INSTALLED BY FIRE PROTECTION SUBCONTRACTOR, WIRED BY THE ELECTRICAL SUBCONTRACTOR
- RTS — REMOTE ALARM INDICATING AND TEST SWITCH; MOUNTED 7'-0" AFF.
- AOM — ADDRESSABLE OUTPUT CONTROL MODULE
- AIM — ADDRESSABLE INPUT MONITOR MODULE
- AIO 4 — ADDRESSABLE INPUT/OUTPUT MODULE. # DENOTES NUMBER OF INPUTS AND OUTPUTS.
- IM — ADDRESSABLE OUTPUT CONTROL MODULE
- MB — FIRE ALARM MASTER BOX
- DH — MAGNETIC DOOR HOLD OPEN DEVICE
- MF — FLOW SWITCH (WATER), FURNISHED AND INSTALLED BY FIRE PROTECTION SUBCONTRACTOR, WIRED BY THE ELECTRICAL SUBCONTRACTOR.
- TS — TAMPER SWITCH, FURNISHED AND INSTALLED BY FIRE PROTECTION SUBCONTRACTOR, WIRED BY THE ELECTRICAL SUBCONTRACTOR.
- PS — PRESSURE SWITCH, FURNISHED AND INSTALLED BY FIRE PROTECTION SUBCONTRACTOR, WIRED BY THE ELECTRICAL SUBCONTRACTOR.
- DK — FIRE ALARM DRILL KEY

PERMIT SET
DATE: 11/15/2024

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DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

REVISIONS:

DESCRIPTION: FIRE ALARM SYMBOL LIST, RISER DIAGRAM, AND NOTES
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

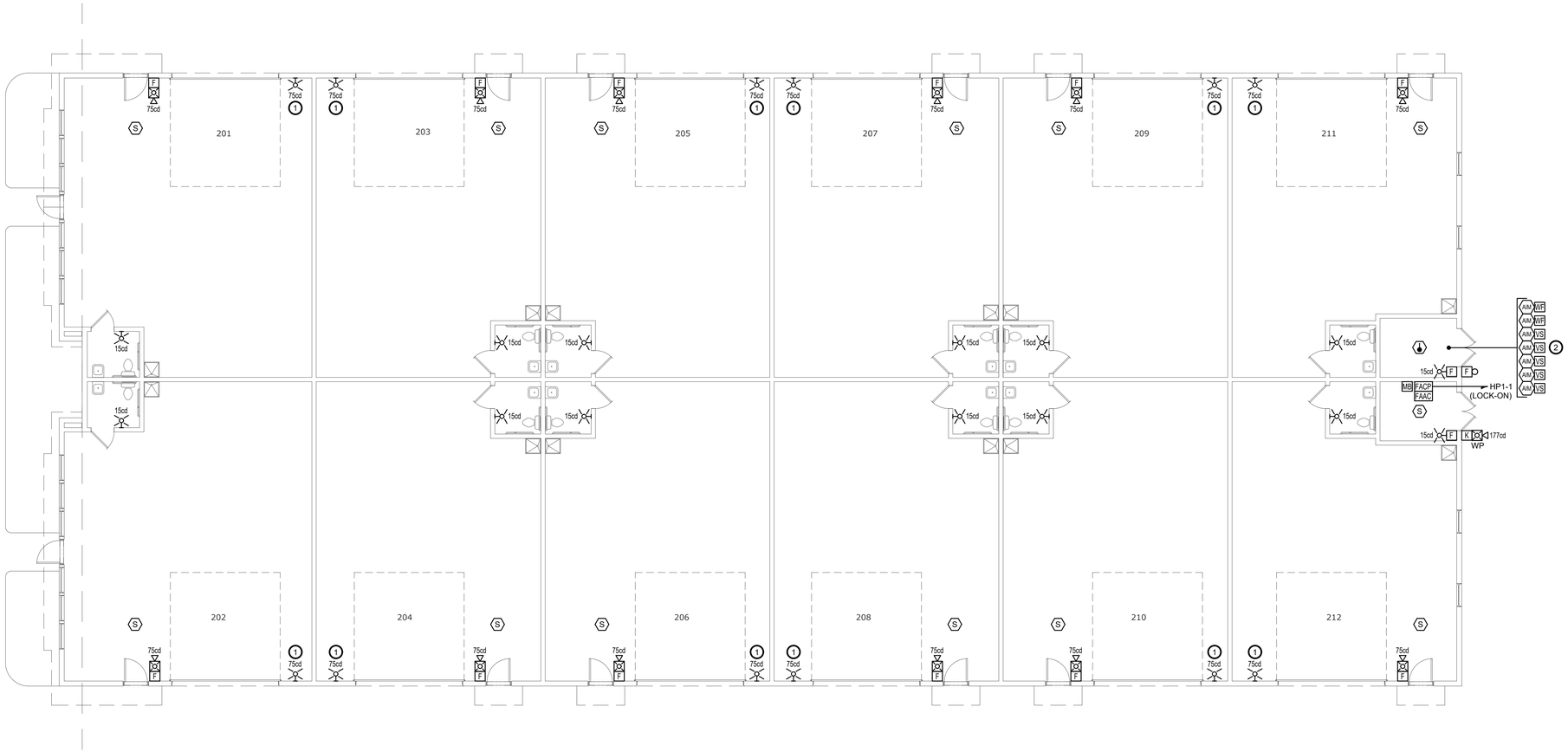
Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

FA0.0

BER # 24134

KEYED SHEET NOTES

1. E.C. SHALL PROVIDE UNIT PRICE FOR CONTROL MODULE AND AMBER LENS STROBE DEVICE FOR GAS DETECTION SYSTEM. COORDINATE WITH MECHANICAL CONTRACTOR AND REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. COORDINATE FINAL LOCATION AND QUANTITY OF TAMPER AND FLOW SWITCHES WITH THE FIRE PROTECTION CONTRACTOR PRIOR TO SUBMISSION OF BID PRICE AND START OF WORK.



1 BUILDING 1: FLOOR PLAN - FIRE ALARM
Scale: 1/8"= 1'-0"

PERMIT SET
DATE 11/15/2024

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DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

REVISIONS:

DESCRIPTION: BUILDING 1: FLOOR PLAN - FIRE ALARM
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

FA1.0

BER # 24134

2.17 FIRE ALARM SYSTEM

A. DESCRIPTION:

1. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND PLACE IN OPERATING CONDITION, A COMPLETE FIRE ALARM SYSTEM AS SPECIFIED IN THIS SECTION, TO INCLUDE THE FURNISHING OF ALL LABOR, EQUIPMENT, MATERIALS AND THE PERFORMANCE OF ALL OPERATIONS ASSOCIATED WITH THE INSTALLATION OF THE FIRE ALARM SYSTEM, AS SHOWN ON THE CONTRACT DRAWINGS AND HEREIN SPECIFIED.

2. THE COMPLETE SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE NATIONAL FIRE SAFETY CODE, THE (ADA) AMERICAN DISABILITIES ACT, THE NATIONAL ELECTRICAL CODE, REQUIREMENTS, AND ALL THE REQUIREMENTS OF THE LOCAL FIRE DEPARTMENT.

3. THE REQUIREMENTS OF THE GENERAL CONDITIONS AND THE SUPPLEMENTARY CONDITIONS OF THE CONTRACT DOCUMENTS SHALL APPLY TO ALL WORK SPECIFIED IN THIS SECTION.

4. THE WORK COVERED UNDER THIS SECTION OF THE CONTRACT SPECIFICATIONS SHALL BE COORDINATED WITH ALL OTHER WORK SPECIFIED IN THE OTHER SECTIONS OF THE CONTRACT SPECIFICATIONS.

5. EQUIPMENT SHALL BE MANUFACTURED BY GAMEWELL-FCI, NOTIFIER, OR EDWARDS (UTC).

6. THE FIRE ALARM SYSTEM DESCRIBED HEREIN AND AS SHOWN ON THE PLANS; SHALL BE WIRED, CONNECTED, TESTED AND LEFT IN FIRST CLASS OPERATING CONDITION. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE PROPER CONTROL EQUIPMENT, CONTROL INTERFACE ANNUNCIATORS, ALARM INITIATING DEVICES, ALARM NOTIFICATION APPLIANCES, WIRING, TERMINATIONS, ELECTRICAL BOXES, AND ALL OTHER NECESSARY MATERIALS FOR A COMPLETE OPERATING SYSTEM.

7. THE FIRE ALARM SYSTEM SHALL BE A MICROPROCESSOR - BASED SYSTEM ALLOWING FOR EDITING OF THE SOFTWARE PROGRAM FOR CHANGES IN SYSTEM OPERATION. THE SYSTEM SHALL BE CAPABLE OF ON-SITE PROGRAMMING TO ACCOMMODATE SYSTEM CHANGES AND/OR SYSTEM EXPANSIONS. ALL SOFTWARE OPERATIONS SHALL BE STORED IN NON-VOLATILE, FLASH PROM MEMORY. LOSS OF THE SYSTEM'S PRIMARY AND/OR SECONDARY POWER SOURCES SHALL NOT RESULT IN A LOSS OF THE SYSTEM SOFTWARE PROGRAMS. FIELD PROGRAMMING SHALL NOT BE LOST IN THE EVENT OF MAIN AND/OR BATTERY POWER LOSS.

8. FULL FLEXIBILITY FOR SELECTIVE INPUT-OUTPUT CONTROL FUNCTIONS BASED ON ANDING, ORING, NOTING, TIMING, AND SPECIAL CODED OPERATIONS SHALL ALSO BE INCORPORATED IN THE RESIDENT SOFTWARE PROGRAM OF THE SYSTEM.

B. SYSTEM OPERATION

1. THE SYSTEM OPERATION SUBSEQUENT TO THE ACTIVATION OF ANY MANUAL OR AUTOMATIC ALARM INITIATING DEVICE SHALL BE AS FOLLOWS:

   A. ALL AUDIBLE VISUAL ALARM INDICATING APPLIANCES SHALL SOUND AT THE NEW FIRE ALARM PANEL AND AT THE REMOTE ANNUNCIATOR UNTIL SILENCED BY THE ALARM SILENCE SWITCH.

   B. THE ALARM SHALL BE DISPLAYED ON AN 80-CHARACTER LCD DISPLAY. THE TOP LINE OF 40 CHARACTERS SHALL BE THE POINT LABEL, AND THE SECOND LINE SHALL BE THE DEVICE TYPE IDENTIFIER. THE SYSTEM ALARM LED SHALL FLASH ON THE CONTROL PANEL UNTIL THE ALARM HAS BEEN ACKNOWLEDGED. ONCE ACKNOWLEDGED, THIS SAME LED SHALL LATCH ON. A SUBSEQUENT ALARM RECEIVED FROM ANOTHER ZONE SHALL FLASH THE SYSTEM ALARM LED ON THE CONTROL PANEL. THE LCD DISPLAY SHALL SHOW THE NEW ALARM INFORMATION, AT THE CONTROL PANEL.

   C. TRANSMIT A SIGNAL FROM THE CONTROL PANEL VIA AN RS232 SERIAL PORT, TO PRINT THE SYSTEM STATUS CHANGES ON THE REMOTE SYSTEM PRINTER.

   D. ACTIVATE THE MUNICIPAL CONNECTION VIA THE RADIO MASTER BOX.

   E. ACTIVATE CONTROL RELAYS LOCATED WITHIN AN EXTERNAL CONTROL CABINET LOCATED NEXT TO THE FIRE ALARM CONTROL PANEL SPECIFIED. IN ADDITION TO BUILDING EVACUATION THE FOLLOWING AUXILIARY CONTROL AND INTERFACE FUNCTIONS SHALL BE PROVIDED BY THE SPECIFIED SYSTEM.
      1. SELECTIVE AUTOMATIC HVAC FAN SHUTDOWN AND MANUAL (HOA) OVERRIDE.
      2. RELEASE OF MAGNETIC DOOR HOLDER.
      3. CAPTURE AN ALTERNATE FLOOR RECALL OF SPECIFIED ELEVATORS.

C. SYSTEM SUPERVISION:

1. THE SYSTEM SHALL BE PROVIDED WITH STYLE 6 (SLC) ADDRESSABLE DEVICE COMMUNICATION CIRCUITS, STYLE D (IDC) INITIATING DEVICE CIRCUITS AND (STYLE Z) NOTIFICATION APPLIANCE CIRCUITS. ALL SYSTEM FAULTS SHALL BE INDICATED AND DISPLAYED AT THE CONTROL PANEL.

2. THE SYSTEM SHALL BE PROVIDED WITH A STANDBY BATTERY SET OR SETS, WITH SUFFICIENT CAPACITY TO OPERATE THE ENTIRE SYSTEM UPON LOSS OF NORMAL OPERATING POWER, FOR A TIME PERIOD OF (60) HOURS IN SUPERVISORY MODE, WITH (15) MINUTES OF ALARM AT THE END OF THE (60) HOUR TIME PERIOD. THE STANDBY BATTERY SET SHALL BE CHARGED, LOAD TESTED AND MONITORED FOR EITHER A DISCONNECTED OR LOW BATTERY STATUS CONDITION BY THE SYSTEM. ANY FAULT DETECTED WITH THE STANDBY BATTERIES SHALL BE INDICATED AND DISPLAYED AT THE CONTROL PANEL.

D. FIRE ALARM CONTROL PANEL

1. CONTROL PANEL SHALL HAVE SOLID STATE, MICROPROCESSOR BASED ELECTRONICS USING SURFACE MOUNT TECHNOLOGY. THROUGH-PUT TECHNOLOGY WILL NOT BE ALLOWED. IT SHALL DISPLAY ONLY THOSE PRIMARY CONTROLS AND DISPLAYS ESSENTIAL TO OPERATION DURING A FIRE ALARM CONDITION. KEYBOARDS OR KEYPADS SHALL NOT BE REQUIRED TO OPERATE THE SYSTEM DURING THE FIRE ALARM CONDITIONS. THE UNIT SHALL HAVE 9 AMP POWER SUPPLY MINIMUM.

2. A LOCAL AUDIBLE DEVICE SHALL SOUND DURING ALARM, TROUBLE OR SUPERVISORY CONDITIONS. THIS AUDIBLE DEVICE SHALL SOUND DIFFERENTLY DURING EACH CONDITION TO DISTINGUISH ONE CONDITION FROM ANOTHER WITHOUT HAVING A VIEW THE PANEL. THIS AUDIBLE DEVICE SHALL ALSO SOUND DURING EACH KEY PRESS TO PROVIDE AN AUDIBLE FEEDBACK TO ENSURE THAT THE KEY HAS BEEN PRESSED PROPERLY.

3. THE FOLLOWING PRIMARY CRYSTAL DISPLAYS:

   A. INDIVIDUAL RED SYSTEM ALARM LED
   B. INDIVIDUAL YELLOW SUPERVISORY SERVICE LED
   C. INDIVIDUAL YELLOW TROUBLE LED
   D. GREEN "POWER ON" LED
   E. ALARM ACKNOWLEDGE KEY
   F. TROUBLE ACKNOWLEDGE KEY
   G. ALARM SILENCE KEY
   H. SYSTEM RESET KEY

4. PRIMARY, KEYS, LED'S AND LCD DISPLAY.

5. THE CONTROL PANEL SHALL HAVE A 2-LINE X 40 CHARACTER LIQUID CRYSTAL DISPLAY WHICH SHALL BE BACK LIGHTED FOR ENHANCED READABILITY. SO AS TO CONSERVE BATTERY STANDBY, POWER IT SHALL NOT BE LIT DURING AN AC POWER FAILURE, UNLESS AN ALARM CONDITION OCCURS OR THERE IS KEYPAD ACTIVITY.

6. THE DISPLAY SHALL SUPPORT BOTH UPPER AND LOWER CASE LETTERS. LOWER CASE LETTERS SHALL BE USED FOR SHORT TITLES AND PROMPTING THE USER. UPPERCASE LETTERS SHALL BE USED FOR SYSTEM STATUS INFORMATION. A CURSOR SHALL BE VISIBLE WHEN ENTERING INFORMATION. SYSTEMS USING UPPERCASE LETTERS ONLY WILL NOT OFFER CLEAR DISTINCTION BETWEEN ALARMS AND PROGRAMMING AND ARE NOT ACCEPTABLE.

7. ANY SUPPLEMENTAL NOTIFICATION CONTROL PANELS SHALL BE CAPABLE OF OPERATING ALL CONNECTED NOTIFICATION APPLIANCE DEVICES THROUGHOUT THE BUILDING, AND 25 % SPARE CAPACITY FOR VISUAL AND THE HORN CIRCUITS. THEY SHALL HAVE AT A MINIMUM 12 AMPS OF AVAILABLE NAC POWER.

E. ISOLATE MODULES

1. PROVIDE FIELD MOUNTED ISOLATE MODULES FOR EVERY 20 DEVICES TO PROTECT CIRCUIT INTEGRITY IN THE EVENT OF A WIRING FAULT & ENSURE STYLE 6 WIRING CONVENTIONS.

F. RESET SYSTEM

1. THE SYSTEM RESET BUTTON SHALL BE USED TO RETURN THE SYSTEM TO ITS NORMAL STATE AFTER AND ALARM CONDITION HAS BEEN REMEDIED. THE LCD DISPLAY SHALL STEP THE USER THROUGH THE RESET PROCESS WITH SIMPLE ENGLISH LANGUAGE MESSAGES. MESSAGE "SYSTEM RESET IN PROGRESS" WILL FIRST BE DISPLAYED, FOLLOWED BY THE MESSAGE "SYSTEM RESET COMPLETED," AND FINALLY "SYSTEM IS NORMAL," SHOULD ALL ALARM CONDITIONS BE CLEARED. IN ORDER TO MAINTAIN CONSISTENCY WITH OTHER EXISTING PANELS, NO DEVIATION FROM THESE MESSAGES CAN BE ACCEPTED.

2. SHOULD AN ALARM CONDITION CONTINUE TO EXIST, THE MESSAGE "SYSTEM RESET IN PROGRESS" WILL BE FOLLOWED BY THE MESSAGE "SYSTEM RESET ABORTED," AND THE SYSTEM WILL REMAIN IN AN ABNORMAL STATE. SYSTEM CONTROL RELAYS SHALL NOT RESET. THE SONALERT AND THE ALARM LED WILL BE ON. THE DISPLAY WILL INDICATE THE TOTAL NUMBER OF ALARMS AND TROUBLES PRESENT IN THE SYSTEM, ALONG WITH A PROMPT TO USE THE ACK KEYS TO REVIEW THE POINTS. THESE POINTS WILL NOT REQUIRE ACKNOWLEDGMENT IF THEY WERE PREVIOUSLY ACKNOWLEDGED.

G. H.O.A. SWITCHTES

1. PROVIDE KEY PAD POSITION SWITCH AS SHOWN ON CONTRACT DRAWINGS.

H. SILENT WALKTEST WITH HISTORY LOGGING

1. THE SYSTEM SHALL BE CAPABLE OF BEING TESTED BY ONE PERSON. WHILE IN THE TESTING MODE, THE ALARM ACTIVATION OF AN INITIATING DEVICE CIRCUIT SHALL BE SILENTLY LOGGED AS AN ALARM CONDITION IN THE HISTORICAL DATA FILE. THE PANEL SHALL AUTOMATICALLY RESET ITSELF AFTER LOGGING OF THE ALARM. THE SYSTEM SHALL SIGNAL THE DEVICE ZONE NUMBER THROUGH THE BUILDING AUDIBLE UNITS, FOR IMMEDIATE VERIFICATION BY THE TEST TECHNICIAN. DUE TO THE CRITICAL NATURE OF THE TEST PROCEDURES, NO DEVIATION FROM THIS SECTION CAN BE ACCEPTED.

I. LED SUPERVISION

1. ALL SLAVE MODULE LEDS SHALL BE SUPERVISED FOR BURNOUT OR DISARRANGEMENT. SHOULD A PROBLEM OCCUR, THE LCD SHALL DISPLAY THE MODULE AND LED LOCATION NUMBERS TO FACILITATE LOCATION OF THE LED. DUE TO THE CRITICAL NATURE OF THE PANEL LCD FUNCTIONS, NO DEVIATION FROM THIS REQUIREMENT CAN BE ACCEPTED.

J. SYSTEM TROUBLE REMINDER

1. SHOULD A TROUBLE CONDITION BE PRESENT WITHIN THE SYSTEM AND THE AUDIBLE TROUBLE SIGNAL SILENCED, THE TROUBLE SIGNAL SHALL RESOUND AT PREPROGRAMMED TIME INTERVALS TO ACT AS REMINDER THAT THE FIRE ALARM SYSTEM IS NOT 100% OPERATIONAL. BOTH THE TIME INTERVAL AND THE TROUBLE REMINDER SIGNALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE BUILDING CODE AND NFPA 72 AS REFERENCED.

K. MULTIPLE ADDRESSABLE PERIPHERAL NETWORK

1. PROVIDE ADDRESSABLE CIRCUITS FOR COMMUNICATION WITH ADDRESSABLE DEVICES. SYSTEM SHALL HAVE AN INDEPENDENT ISOLATED ADDRESSABLE LOOPS, UP TO 318 ADDRESSABLE DEVICES.

2. THE SYSTEM MUST PROVIDE COMMUNICATION WITH INITIATING AND CONTROL DEVICES INDIVIDUALLY. ALL OF THESE DEVICES WILL BE INDIVIDUALLY ANNUNCIATED AT THE CONTROL PANEL.

3. ANNUNCIATION SHALL INCLUDE THE FOLLOWING CONDITIONS FOR EACH POINT.

   A. ALARM
   B. TROUBLE
   C. OPEN
   D. SHORT
   E. DEVICE MISSING/FAILED

4. ALL ADDRESSABLE DEVICES SHALL HAVE THE CAPABILITY OF BEING DISABLED OR ENABLED INDIVIDUALLY.

5. UP TO 318 ADDRESSABLE DEVICES ON A CLASS A CIRCUIT. SYSTEMS THAT REQUIRE FACTORY RE-PROGRAMMING TO ADD OR DELETE SERVICES ARE UNACCEPTABLE.

6. IDENTIFICATION OF ADDRESSABLE DEVICES.

L. PHOTOELECTRIC DETECTOR HEAD

1. PROVIDE PHOTOELECTRIC TYPE DETECTORS. WHERE INDICATED OR REQUIRED. THEY SHALL BE A PLUG-IN UNIT WHICH MOUNTS TO A TWISTLOCK BASE, AND SHALL BE UL APPROVED.

2. THE DETECTORS SHALL BE OF THE SOLID STATE PHOTOELECTRIC TYPE AND SHALL CONTAIN NO RADIOACTIVE MATERIAL. THEY WILL USE A REFRACTED INFRARED LED LIGHT SOURCE AND BE SEALED AGAINST REAR AIR FLOW ENTRY.

3. THE DETECTOR SHALL FIT INTO A BASE THAT IS COMMON WITH BOTH THE HEAT DETECTOR AND IONIZATION TYPE DETECTOR AND SHALL BE COMPATIBLE WITH OTHER ADDRESSABLE DETECTORS, ADDRESSABLE MANUAL STATIONS, AND ADDRESSABLE ZONE ADAPTER MODULES ON THE SAME CIRCUIT. DEVICE ADDRESSES SHALL BE CONTAINED IN THE BASE OF THE DETECTOR. THOSE SYSTEMS WHICH PROVIDE ADDRESSING IN THE HEAD, SHALL PROVIDE AN ADDRESSABLE MONITOR MODULE AND A CONVENTIONAL DETECTOR ASSEMBLY TO ALLOW THE OWNER TO REPLACE A DETECTOR HEAD WITHOUT THE NEED OF VERIFYING DETECTOR ADDRESS.

4. THERE SHALL BE NO LIMIT TO THE NUMBER OF DETECTORS OR ZONE ADAPTER MODULES WHICH MAY BE ACTIVATED OR "IN ALARM" SIMULTANEOUSLY.

5. DUE TO THE REQUIREMENT FOR IMMEDIATE CHANGE OUT OF DETECTOR HEADS ADDRESS SETTING SWITCHES, JUMPERS ETC., MAY BE PROVIDED IN THE HEAD OR BEHIND THE DETECTOR BASE. DETECTORS WHICH USE DIP SWITCHES ARE NOT ACCEPTABLE.

6. PROVIDE A DUCT HOUSING WITH SENSOR, WITH RELAY. THE RELAY SHALL BE SOFTWARE PROGRAMMABLE TO ALLOW THE UNIT IN WHICH THE DETECTOR IS MOUNTED IN TO BE SHUT DOWN, OR ANY OTHER DEVICE TO BE CONTROLLED BY THIS PROGRAMMABLE RELAY. THE RELAY MAY BE A SEPARATE UNIT FROM THE DUCT HOUSING TO ALLOW FOR TROUBLESHOOTING AND DISCONNECTS.

7. PROVIDE SAMPLING TUBE AS REQUIRED FOR UNIT SIZE.

8. PROVIDE A REMOTE TEST UNIT FOR EACH DUCT SMOKE DETECTOR WITH LED ALARM INDICATOR AND TEST KEY SWITCH.

M. LCD ANNUNCIATOR

1. PROVIDE A VGA COLOR TOUCH SCREEN LCD ANNUNCIATOR AND STATIC GRAPHIC PLOT PLAN AS SHOWN ON THE CONTRACT DRAWINGS. SUBMIT A LAYOUT OF THIS UNIT TO THE ENGINEER FOR APPROVAL.

2. PROVIDE CITY CONNECTIONS TO THE LOCAL FIRE DEPARTMENT.

N. ADDRESSABLE THERMAL DETECTOR HEAD

1. PROVIDE THERMAL DETECTOR HEADS WHERE INDICATED OR REQUIRED.

2. THERMAL DETECTOR HEADS MUST BE UL LISTED. SHALL BE A COMBINATION RATE-OF-USE AND FIXED TEMPERATURE (135 F) TYPE, AUTOMATICALLY RESTORABLE.

3. PROVIDE REMOTE LED ALARM INDICATORS, AS INDICATED ON PLANS.

O. ADDRESSABLE PULL STATIONS

1. PROVIDE ADDRESSABLE PULL STATIONS WHICH CONTAIN ELECTRONICS THAT COMMUNICATE THE STATION'S STATUS (ALARM, NORMAL) TO THE CONTROL PANEL OVER ONE TWISTED PAIR. THE ADDRESS WILL SET ON THE STATION. THEY WILL BE MANUFACTURED FROM HIGH IMPACT RED LEXAN. STATION WILL MECHANICALLY LATCH UPON OPERATION AND REMAIN SO UNTIL MANUALLY RESET BY OPENING WITH A KEY COMMON TO ALL SYSTEM LOCKS. PULL STATIONS WILL BE DOUBLE ACTION AND AS IDENTIFIED BY A SCHEDULE ON THE PRINTS.

2. THE FRONT OF THE STATION IS TO BE HINGED TO A BACKPLATE ASSEMBLY AND MUST BE OPENED WITH A KEY TO RESET THE STATION. THE KEY SHALL BE COMMON WITH THE CONTROL PANELS. STATIONS WHICH USE ALLEN WRENCHES OR SPECIAL TOOLS TO RESET WILL NOT BE ACCEPTED. THE STATION SHALL CONSIST OF HIGH IMPACT LEXAN PLASTIC, RED IN COLOR.

3. THE ADDRESSABLE MANUAL STATION SHALL BE CAPABLE OF FIELD PROGRAMMING OF ITS "ADDRESSABLE" LOCATION ON AN ADDRESSABLE INITIATING CIRCUIT.

4. THERE SHALL BE NO LIMIT TO THE NUMBER OF STATIONS, DETECTORS OR ZONE ADAPTER MODULES, WHICH MAY BE ACTIVATED OR "IN ALARM" SIMULTANEOUSLY.

5. THE ADDRESSABLE MANUAL STATION SHALL BE UNDERWRITER'S LABORATORIES INC. LISTED.

6. PROVIDE PROTECTIVE COVERS, EQUAL TO STOPPEE II, WHERE REQUIRED BY THE AHJ.

P. ZONE ADAPTER MODULES

1. ZONE ADAPTER MODULES SHALL BE USED FOR MONITORING OF WATERFLOW, VALVE TAMPER, HALON CONTROL PANELS, NON-ADDRESSABLE DETECTORS, AND FOR CONTROL OF EVACUATION INDICATING APPLIANCES AND AHU SYSTEMS.

2. AN ADDRESSABLE INTERFACE MODULE SHALL BE PROVIDED FOR INTERFACING NORMALLY OPEN DIRECT CONTACT DEVICES TO AN ADDRESSABLE INITIATING CIRCUIT.

3. ADDRESSABLE MODULES WILL BE CAPABLE OF MOUNTING IN A STANDARD ELECTRIC OUTLET BOX. ZAMS WILL INCLUDE COVER PLATES TO ALLOW SURFACE OR FLUSH MOUNTING. ZAMS WILL RECEIVE THEIR 24 VDC POWER FROM A SEPARATE TWO WIRE PAIR RUNNING FROM AN APPROPRIATE POWER.

4. THERE SHALL BE TWO TYPES OF DEVICES:
   TYPE 1: MONITOR MODULE
   TYPE 2: CONTROL MODULE

5. ADDRESSABLE DEVICE SUPERVISION.
   A. ALL DEVICES SHALL BE SUPERVISED FOR TROUBLE CONDITION. THE SYSTEM CONTROL PANEL WILL BE CAPABLE OF DISPLAYING THE TYPE OF TROUBLE CONDITION (OPEN, SHORT, DEVICE MISSING/FAILED). SHOULD A DEVICE FAIL, IT WILL NOT HINDER THE OPERATION OF OTHER DEVICES.

6. SPRINKLER FLOW, AND TAMPER SWITCHES ARE TO BE SUPPLIED AND INSTALLED BY THE SPRINKLER CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR AS REQUIRED BY THE LOCAL FIRE DEPARTMENT. EACH DEVICE SHALL BE AN ADDRESS ON THE FIRE ALARM PANEL, SO THAT THEY MAY BE PROGRAMMED AS EITHER ALARMS OR TROUBLES. PROGRAM ALL AS ALARMS ON THIS PROJECT.

Q. AUDIBLE/VISUAL UNIT (XENON STROBE)

1. PROVIDE MULTI-CANDELA HORN/STROBE UNITS COMPRISED OF A HORN AND XENON FLASH TUBE ENTIRELY SOLID STATE. THE UNIT TO CONFORM TO ITS REQUIREMENTS.

2. VISUAL FLASHING LAMPS (XENON STROBE)

3. VISUAL INDICATING APPLIANCES SHALL BE COMPRISED OF A XENON FLASH TUBE AND BE ENTIRELY SOLID STATE. THIS UNIT SHALL MOUNT TO A SINGLE GANG BOX AND PLATE FOR SURFACE MOUNT. MINIMUM OF 75 CD LIGHT OUTPUT TO CONFORM TO A.D.A. ALL STROBES SHALL BE SYNCHRONIZED.

R. MINI-HORNS

1. PROVIDE RED, MINI HORN WHERE INDICATED ON CONTRACT DRAWINGS. THE UNIT SHALL MOUNT TO A SINGLE, DEEP GANG BOX.

S. STROBE LIGHT

1. PROVIDE A MULTI-CANDELA STROBE APPLIANCE.

T. MAGNETIC DOOR HOLDERS

1. PROVIDE SEMI-FLUSH WALL MOUNTED, 120 V.A.C AND 24 V.D.C. WITH LONG CATCH PLATE.

U. BATTERIES AND BATTERY CABINET

1. PROVIDE MAINTENANCE - FREE BATTERIES.

V. RELAY MODULE

1. PROVIDE ADDRESSABLE RELAY TO PROVIDE SUPERVISED CONTROL OF AUXILIARY CIRCUITS (AHU's, DOOR HOLDER's, ETC) VIA SLC ADDRESSABLE LOOP. RELAY SHALL PROVIDE SUPERVISED OUTLET FOR 3AMPS @ 30VDC OR 0.5AMPS AT 120VAC. WHERE CURRENT EXCEEDS LIMITATIONS PROVIDE ISOLATION RELAY RATED FOR REQUIRED LOAD.

W. INSTALLATION FIRE ALARM WIRING

1. ALL FIRE ALARM WIRING SHALL CONFORM TO THE APPLICABLE STATE AND LOCAL FIRE SAFETY CODES.

2. WIRING SHOWN ON DRAWINGS IS FOR ESTIMATING PURPOSED ONLY. THE FINAL WIRING REQUIREMENTS SHALL BE PER THE EQUIPMENT MANUFACTURER'S WIRING DIAGRAMS AND NO INCREASE IN CONTRACT PRICE WILL BE ALLOWED FOR ANY ADDITIONAL WIRES THAT MAY BE SHOWN ON THE MANUFACTURER'S DRAWINGS.

3. DETAILED ONE-LINE SCHEMATIC WIRING DIAGRAMS OF EACH SPECIFIED DEVICE BETWEEN ALL SYSTEMS. THESE CONNECTION DRAWINGS ARE TO INDICATE ROUTING OF CONDUCTORS VIA THE FLOOR TERMINAL BOXES.

X. SHUTDOWNS OF ANY EXISTING SYSTEMS

1. THIS CONTRACTOR SHALL COORDINATE ALL REQUIRED SHUTDOWNS OF THE EXISTING FIRE ALARM SYSTEM DURING THE DURATION OF THIS CONTRACT. ALL SYSTEM SHALL BE COORDINATED WITH THE OWNER AND THE FIRE DEPARTMENT. THE FIRE ALARM SYSTEMS SHALL BE RETURNED TO A NORMAL MODE OF OPERATION BY THE END OF EACH WORKDAY. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL COSTS INCURRED FOR A FIRE WATCH IF THE SYSTEM IS NOT OPERATIONAL AT THE END OF A WORKDAY.

Y. PROGRAMMING OF SYSTEM

1. THIS CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN APPROVED ZONE AND DEVICE CUSTOM LABELS, THAT WILL BE PROGRAMMED INTO THE SYSTEM FOR ZONE AND DEVICE IDENTIFICATION PURPOSES. THE SUBJECT CUSTOM LABELS SHALL BE APPROVED BY OWNERS REPRESENTATIVE AND THE FIRE DEPT. BEFORE THEY ARE PROGRAMMED INTO THE SYSTEM.

Z. TRAINING:

1. THE ELECTRICAL CONTRACTOR AND SYSTEM MANUFACTURER SHALL PROVIDE A MINIMUM OF ONE (1) ON-SITE TRAINING SESSIONS FOR THE OWNER'S REPRESENTATIVES. EACH SESSION SHALL BE A MINIMUM OF 1 HOUR.

2. DUE TO THE CRITICAL NATURE OF PROPER SYSTEM OPERATION, TRAINING MUST BE CONDUCTED BY PERSONNEL IN THE DIRECT EMPLOY OF THE MANUFACTURER OF THE FIRE ALARM CONTROL PANEL. A THIRD PARTY INSTRUCTOR IS NOT ACCEPTABLE.

AA. WARRANTY:

1. THE CONTRACTOR SHALL WARRANT THE COMPLETE FIRE ALARM SYSTEM WIRING AND EQUIPMENT TO BE FREE FROM INHERENT MECHANICAL AND ELECTRICAL DEFECTS FOR A PERIOD OF (3) THREE YEARS FROM THE DATE OF THE COMPLETED AND CERTIFIED TEST OR FROM THE DATE OF FIRST BENEFICIAL USE.

2. THE EQUIPMENT MANUFACTURE SHALL MAKE AVAILABLE TO THE OWNER A MAINTENANCE CONTRACT PROPOSAL TO PROVIDE A MINIMUM OF TWO (2) INSPECTIONS AND TEST PER YEAR IN COMPLIANCE WITH NFPA-72H GUIDELINES.

BB. SUBMITTALS

1. PROVIDE COMPLETE SETS OF DOCUMENTATION TO INCLUDE THE FOLLOWING:
   A. A COMPLETE POINT TO POINT RISER DIAGRAM OF THE FIRE ALARM SYSTEM SHOWING ALL DEVICES AND EQUIPMENT AND SIZE, TYPE AND NUMBERS OF ALL CONDUCTORS.

   B. BATTERY STANDBY AND POWER SUPPLY CALCULATIONS SHOWING TOTAL POWER REQUIRED TO MEET THE SPECIFIED SYSTEM REQUIREMENTS INCLUDING SPARE CAPACITY ALLOWANCES. CALCULATIONS SHALL INCLUDE A COMPLETE LIST OF CURRENT REQUIREMENTS DURING NORMAL, SUPERVISORY, TROUBLE AND ALARM CONDITIONS. CALCULATIONS SHALL ALSO DEMONSTRATE PROPER CONSIDERATION OF CURRENT REQUIREMENTS, WIRE SIZE, WIRE LENGTH AND VOLTAGE DROP CHARACTERISTICS.

   C. MANUFACTURER'S ORIGINAL CATALOG DATA SHEETS SHALL BE SUPPLIED FOR ALL OF THE EQUIPMENT TO BE SUPPLIED. ALL EQUIPMENT SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER AND NO EQUIPMENT SHALL BE ORDERED WITHOUT PRIOR APPROVAL.

   D. LARGE SCALE DRAWINGS OF THE MAIN CONTROL PANEL AND EACH REMOTE PANEL DEPICTING OVERALL MECHANICAL DIMENSIONS, LAYOUT INCLUDING FUTURE ALLOWANCES, AND FIELD WIRING IN FULL DETAIL.

   E. DOCUMENTATION OF THE SUPPLIER'S QUALIFICATIONS INDICATING YEARS IN BUSINESS SERVICE POLICIES, WARRANTY DEFINITIONS, AND A LIST OF SIMILAR INSTALLATIONS IN THE LOCAL MUNICIPALITY.

   F. PROVIDE A COMPLETE DETAILED DESCRIPTION OF THE SYSTEM OPERATION.

   G. ADDRESSES FOR ALL FIELD DEVICES SHALL BE SHOWN ON FLOOR PLANS SUPPLIED WITH THIS SUBMITTAL.

CC. DOCUMENTATION:

1. AT THE COMPLETION OF THE PROJECT A COMPLETE SET OF OPERATING/MAINTENANCE MANUALS, THE FIRE ALARM SUBMITTAL BOOK, POINT-TO-POINT WIRING DIAGRAMS, A TERMINAL STRIP CABINET CONNECTION POINT DIAGRAM FOR EACH TERMINAL CABINET, A COMPLETE POINT ADDRESS LISTING BY DEVICE, AND A FINAL TEST REPORT SHALL BE GIVEN TO THE OWNER.

PERMIT SET
DATE: 11/15/2024

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DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

REVISIONS:

DESCRIPTION: FIRE ALARM SPECIFICATIONS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

FA2.0

BER # 24134

DRAIN SCHEDULE

SYMBOL	TYPE	MANUFACTURER	MODEL	OUTLET	STRAINER	REMARKS
FD-1	FLOOR DRAIN	WATTS	FD-100-B-5-60	4"	8"ϕ NICKEL BRONZE	PVC BODY, NO-HUB, ADJUSTABLE STRAINER, VANDAL RESISTANT, SEDIMENT BUCKET.

NOTES:
1. ALL FLOOR DRAINS SHALL HAVE TRAP SEAL GASKETS EQUAL TO "SURE SEAL".
2. INSTALLATIONS SHALL BE IN COMPLETE ACCORDANCE WITH STATE & LOCAL CODES.

EXPANSION TANK SCHEDULE

SYMBOL	MANUFACTURER	MODEL #	CAPACITY	MAX. ACCEPT. FACTOR	CW SUPPLY	REMARKS
ET-1	AMTROL	ST-5	2.0 GALLONS	0.45	3/4"	THERM-X-TROL, IN-LINE, ASME, MAX. OPERATING TEMPERATURE - 200°F, MAX. WORKING PRESSURE - 150 PSIG, 55 PSIG-PRECHARGE, CHARGE TO CITY WATER PRESSURE. CONFIRM TANK SIZE WITH INCOMING STREET PRESSURE. PRIOR TO INSTALLATION.

NOTES:
1. INSTALL PER ALL RI CODE AND MANUFACTURER'S INSTALLATION REQUIREMENTS.

ELECTRIC WATER HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL #	CAPACITY	RECOVERY		WATER SUPPLY		ELECTRICAL					REMARKS
				GPH	ΔT	CW	HW	AMPS	KW	VOLTS	PHASE	HZ	
EWH-1	STATE	PCE 10 10MSA-2	10 GALLONS	8	100°	½"	½"	-	2	120	1	60	ELECTRIC TANK TYPE WATER HEATER. WALL MOUNTED ON SHELF. PROVIDE & INSTALL COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE DRAIN PAN. PIPE DRAIN LINE TO SERVICE SINK.

NOTES:
1. INSTALL PER ALL RI CODE AND MANUFACTURER'S INSTALLATION REQUIREMENTS.

PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	FIXTURE				FIXTURE			SERVICES					REMARKS
		MANUFACTURER	MODEL	TYPE	SIZE	MANUFACTURER	MODEL	TYPE	S/W	V	CW	HW	TW	
P-1	WATER CLOSET	AMERICAN STANDARD	215AA.104	FLOOR MOUNT	1.28 GPF	-	-	MANUAL	4"	2"	1/2"	-	-	VITREOUS CHINA, ELONGATED, LOW CONSUMPTION MANUAL FLUSH TANK. PROVIDE OPEN FRONT SEAT AMERICAN STANDARD #5321.110 OR EQUAL. PROVIDE HEAVY DUTY CHROME PLATED SUPPLY & STOP. BARRIER FREE, ADA COMPLIANT AS REQUIRED.
P-2	LAVATORY	AMERICAN STANDARD	0356.041	WALL HUNG	20⅛"x18⅛"	AMERICAN STANDARD	6053.105	SENSOR	1-1/2"	1-1/2"	1/2"	1/2"	-	VITREOUS CHINA, SINGLE CENTER FAUCET HOLE, 0.5 GPM MANUAL FAUCET, PROVIDE DRAIN. PROVIDE OFFSET P-TRAP & TRUEBRO LAVGUARD INSULATION ON EXPOSED PIPING. PROVIDE & INSTALL AMERICAN STANDARD #605XTMV1070 MIXING VALVE. PROVIDE WALL CARRIER. BARRIER FREE, ADA COMPLIANT AS REQUIRED.
P-3	SERVICE SINK	FIAT	FL-1	FLOOR MOUNTED	23"x21½"x33½"	CHICAGO	540-LD897SGCCP	MANUAL	3"	2"	1/2"	1/2"	-	FLOOR MOUNTED, MOLDED STONE. WALL MOUNTED, CHROME PLATED, LEVER FAUCET, VACUUM BREAKER. PROVIDE SPLASH GUARDS AT ALL WALL INTERSECTIONS, MOP & HOSE BRACKETS.
P-4	SINK - BREAK	ELKAY	LRAD252165	DROP-IN	25"x21¼"x6½"	GROHE	3134900E	MANUAL	2"	2"	1/2"	1/2"	-	STAINLESS STEEL DROP-IN, 1-BOWL: 21"x15¾"x6⅝"DEEP, 1.5 GPM, POLISHED CHROME GOOSENECK FAUCET W/ PULL DOWN SPRAY. PROVIDE GRID STRAINER. PROVIDE CHROME PLATED HEAVY DUTY P-TRAP W/ CLEANOUT, FUNNEL FOR INDIRECT WASTE & DISHWASHER CONNECTIONS AS REQUIRED. SUPPLIES & STOPS. PROVIDE TRUEBRO LAVGUARD INSULATION ON EXPOSED PIPING. BARRIER FREE, ADA COMPLIANT.
HB-1	HOSE BIBB	JR SMITH	5670-H-CP	WALL MOUNTED	3⅝"x2¾"	-	-	-	-	-	1/2"	-	-	BRASS BODY, VACUUM BREAKER AND REMOVABLE WHEEL HANDLE.

NOTES:
1. PROVIDE AND INSTALL ALL HANDICAPPED ACCESSIBLE FIXTURES PER ALL STATE & LOCAL CODES AND ADA REQUIREMENTS.
2. INSTALL ALL FIXTURES & EQUIPMENT PER MANUFACTURER'S INSTALLATION REQUIREMENTS.

PLUMBING GENERAL NOTES

1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL PLUMBING DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC; DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD. DO NOT SCALE DRAWINGS.
3. NEITHER ACCURACY NOR COMPLETION OF UTILITY LOCATIONS SHOWN ON DRAWINGS IS GUARANTEED. 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.
4. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE PRESIDING PLUMBING CODE AND ALL APPLICABLE LOCAL CODES.
5. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE WORK WITH THAT OF ALL OTHER TRADES, INCLUDING (BUT NOT LIMITED TO), ELECTRICAL, HVAC, PROCESS PIPING, FIRE PROTECTION, STRUCTURAL AND GENERAL ARCHITECTURE.
6. ANY INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR, AND/OR THE OWNER'S REPRESENTATIVE, AND RESOLVED PRIOR TO THE INSTALLATION OF THE WORK INVOLVED.
7. ALL PIPING PENETRATING CEILINGS AND WALLS SHALL BE INSTALLED WITH CHROME (STAINLESS WHERE NOTED) PLATED ESCUTCHEONS AT THE PENETRATION. ALL PIPING PENETRATING EXTERIOR WALLS AND ROOFS SHALL BE FLASHED IN AN APPROVED MANNER AND SHALL BE SEALED WEATHERTIGHT. PIPING PENETRATING RATED PARTITIONS SHALL BE PROTECTED WITH UL LISTED SEALS OF EQUAL RATING AND AS REQUIRED BY LOCAL CODE AUTHORITY.
8. MANUFACTURERS' MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.
9. ALL PRODUCT INSTALLATION SHALL ADHERE TO THE MANUFACTURERS' RECOMMENDATIONS.
10. PROVIDE ACCESS PANELS FOR ALL EQUIPMENT THAT REQUIRES PERIODIC SERVICE AND FOR ALL VALVES.
11. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL PLUMBING EQUIPMENT WITH THE ELECTRICAL DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN HEREIN.
12. ALL PLUMBING EQUIPMENT, PIPING, INSULATION, ETC., INSTALLED IN HVAC PLENUM SPACES SHALL MEET CODE REQUIREMENTS FOR SMOKE AND COMBUSTIBILITY.
13. PROVIDE SHUTOFF VALVES ON ALL BRANCH PIPING AND SUPPLIES TO INDIVIDUAL FIXTURES AND EQUIPMENT. PROVIDE BALL VALVES ON ALL WATER MAIN BRANCHES IN CORRIDORS AND WHERE INDICATED ON DRAWINGS. ALL VALVES SHALL BE ACCESSIBLE.
14. ALL SLEEVES THROUGH CONCRETE FLOORS AND ALL CORE DRILLING OF CONCRETE FLOORS AND WALLS SHALL BE BY THIS CONTRACTOR. CONCRETE PADS AND PLATFORMS FOR WORK OF THIS SECTION WILL BE PROVIDED BY GENERAL CONTRACTOR. PROVIDE INFORMATION AS NECESSARY TO COORDINATE WORK.
15. RUN PIPING CONCEALED WHERE POSSIBLE, UNLESS SPECIFIED OTHERWISE.
16. STRUCTURAL WELDING SHALL BE 1/4-INCH FILLET UNLESS REQUIRED OTHERWISE.
17. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
18. PROVIDE BALANCING VALVES AT SYSTEM LOOP RETURNS AND AT RETURN RISERS, PROVIDE SHUTOFF VALVES AT SYSTEM LOOP SUPPLIES AND SUPPLY RISERS.
19. PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.
20. PROVIDE GAUGE FITTINGS AND THERMOMETER WELLS AT HOT WATER SUPPLY AND RETURN BRANCHES AND AT PUMP INLETS AND OUTLETS.
21. VERIFY EXACT SIZES, LOCATIONS, INVERTS AND ELEVATIONS PRIOR TO RUNNING ANY PIPING. REFER TO ARCHITECTURAL DRAWINGS AND FOOD SERVICE DRAWINGS FOR EXACT LOCATIONS OF ALL FIXTURES AND EQUIPMENT.
22. PIPE SUPPORTS FOR PLUMBING IN BUILDING SHAFTS ARE BY THIS CONTRACTOR. CAREFULLY COORDINATE WITH PLACEMENT OF STEEL GRATE SUPPORT BEAMS. SHAFT PIPE SUPPORT SHALL BEAR FROM WALL AND FROM FLOOR SUPPORT BEAMS.
23. GENERAL FLOOR CONTROL VALVES OF PIPED SERVICES SHALL BE IN THE PIPE SHAFTS UNLESS OTHERWISE INDICATED.
24. OBTAIN GAS PERMITS AND DEFRAY ALL COSTS INCIDENTAL TO THE GAS PIPING SYSTEM. CONTRACTORS WORK SHALL COMMENCE ON THE HOUSE SIDE OF THE UTILITY COMPANY METER.
25. A SUITABLE DRIP OF CONDENSATE POCKET SHALL BE INSTALLED AT THE BOTTOM OF ALL GAS RISERS.
26. ALL GAS PIPING TO COMPLY WITH LOCAL AND STATE CODES.
27. GAS PIPING AND SAFETY DEVICES SHALL CONFORM TO REQUIREMENTS OF NFPA 54 AND SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE AUTHORITY HAVING JURISDICTION.
28. PROVIDE A SUITABLE GAS COCK VALVE AT EACH BRANCH RUNOUT FROM THE MAIN SERVING GAS OUTLETS AND INDIVIDUAL GAS FIXTURES.
29. GAS PIPING SHALL BE TESTED ACCORDING TO THE STATE FUEL GAS CODE AND NATIONAL CODE PROVISIONS OF THE LOCAL PLUMBING INSPECTOR. IF INSPECTION OF THE TEST SHOWS DEFECTS, SUCH DEFECTIVE WORK AND MATERIAL SHALL BE REPLACED AND INSPECTION AND TEST SHALL BE REDONE.
30. PLUMBING CONTRACTOR IS RESPONSIBLE FOR EXTENDING ALL REGULATOR VENTS TO ATMOSPHERE. REGULATORS ARE PART OF EQUIPMENT GAS TRAIN. PIPE ALL GAS TRAN VENTS FROM HVAC BOILERS TO ATMOSPHERE.
31. NO PIPING SHALL RUN OVER ELECTRICAL PANELS.
32. ALL PIPING THAT PENETRATES FLOORS OR FIRE RATED WALLS SHALL BE FIRE STOPPED W/ HILTI CAULKING PER MANUFACTURERS RECOMMENDATIONS.
33. ELECTRICAL SUB CONTRACTOR IS RESPONSIBLE FOR PROVIDING POWER TO ALL EQUIPMENT AND CONTROLS WITHIN THE PLUMBING SYSTEMS FOR THIS PROJECT.
34. PC TO ORGANIZE/LOCATE CUT OUTS FOR PIPING/CONDUITS RUNNING PERPENDICULAR TO THE FLOOR JOISTS W/ GC. COORDINATE AND VERIFY IN FIELD.
35. COORDINATE ALL CEILING AND WALL MOUNTED FIXTURES AND EQUIPMENT WITH ARCHITECTURAL DRAWING. LOCATE FIXTURES AND EQUIPMENT AS INDICATED ON ARCHITECTURAL DRAWINGS WHERE ACCEPTABLE BY CODE.
36. ALL SLEEVES THROUGH CONCRETE FLOORS AND FIRE RATED WALLS OR PARTITIONS SHALL BE FIRE STOPPED WITH UL RATED ASSEMBLIES OF EQUAL FIRE RATING.

PLUMBING LEGEND

——— - ———	CW	COLD WATER
——— CW ———	CW	COLD WATER BELOW FLOOR OR BURIED
——— - - ———	HW	HOT WATER
———	S / W	SOIL OR WASTE
——— S/W ———	S / W	SOIL OR WASTE BELOW FLOOR OR BURIED
- - - - - - -	V	VENT
- - - - V - - -	V	VENT BELOW FLOOR OR BURIED
——— G ———	G	NATURAL OR PROPANE GAS
———		CONTINUATION
———⊗	UP / RISER	PIPE RISER
———○	DR / DN	PIPE DROP OR DOWN
———	TEE	PIPE TEE
		BALL VALVE
		GATE VALVE
		SOLENOID VALVE
	VIV	VALVE IN VERTICAL
	CV	CHECK VALVE
		GAS SHUT-OFF VALVE
———∞	W & T	WASTE & TRAP
———|	CO, WCO	CLEANOUT PLUG OR WALL CLEANOUT
		STRAINER
———⊘	FCO	FLOOR CLEANOUT
———⊘	DCO	DANDY CLEANOUT
———⌋		CAPPED PIPE
———►		ARROW INDICATES DIRECTION OF FLOW
.01 ►		ARROW INDICATES DIRECTION OF SLOPE
———‖———		UNION
	WTS	WATERTIGHT SLEEVE
———+	HB	HOSE BIBB
———‖	WH	WALL HYDRANT
	FD	FLOOR DRAIN
	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
Ⓦ	WM	WATER METER
Ⓖ	GM	GAS METER
	T	THERMOMETER
	PG	PRESSURE GAUGE WITH PETCOCK
	T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
		VACUUM RELIEF VALVE
	VTR	VENT THRU ROOF
	VIF	VERIFY EXACT LOCATION, SIZE & LOCATION IN FIELD
	I.E.	INVERT ELEVATION
	TYP	TYPICAL
	NTS	NOT TO SCALE
	AFF	ABOVE FINISHED FLOOR
	FFE	FINISHED FLOOR ELEVATION
	LPC	LIMIT OF PLUMBING CONTRACT
	GC	GENERAL CONTRACTOR
	FPC	FIRE PROTECTION CONTRACTOR
	PC	PLUMBING CONTRACTOR
	EC	ELECTRICAL CONTRACTOR
	HVAC	HVAC CONTRACTOR
	S=.01	SLOPE = 1/8" PER FOOT
	S=.02	SLOPE = 1/4" PER FOOT

PERMIT SET
DATE 11/15/2024

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DAVID J. KNIGHT
No. 12602
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

REVISIONS:

DESCRIPTION: PLUMBING LEGEND, NOTES, AND SCHEDULES
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

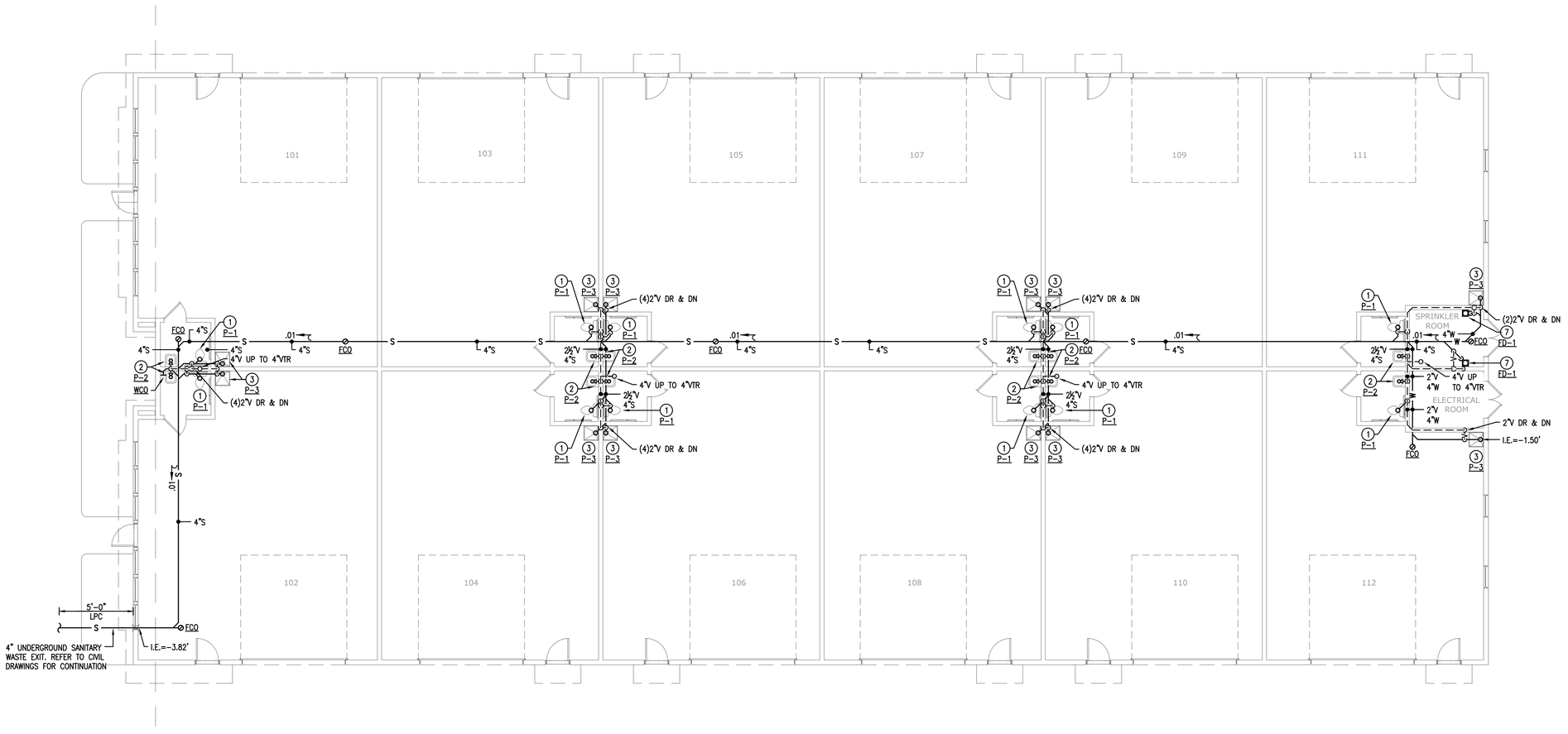
P0.1

BER # 24134

PLUMBING KEY NOTES

1. NEW FLOOR MOUNTED WATERCLOSET W/ FLUSH TANK: 1/2"CW DR, 4"S DN & 2"V DR
2. NEW WALL HUNG LAVATORY & FAUCET: 1/2"CW DR, 1/2"HW DR, 1½"W DN, 1½"V DR
3. NEW FLOOR MOUNTED UTILITY SINK & FAUCET: 1/2"CW DR, 1/2"HW DR, 3"W DN, 1½"V DR
4. NEW COUNTER MOUNTED SINK & FAUCET: 1/2"CW DR, 1/2"HW DR, 2"W DN, 1½"V DR
5. NEW WALL MOUNTED HOSE BIBB: 1/2"CW DR
6. NEW 10 GALLON ELECTRIC WATER HEATER: ½"CW DR, ½"HW DR
7. NEW 4" FLOOR DRAIN: 4"W DN, 2"V DN

NOTE:
CONNECT ALL DOMESTIC WATER, SANITARY WASTE & VENT SUPPLY PIPING FROM NEW FIXTURES & EQUIPMENT TO RESPECTIVE MAIN LINES. COORDINATE EXACT LOCATIONS IN FIELD PRIOR TO INSTALLATION. TRENCH PIPING AS REQUIRED.



1 BUILDING 1: FLOOR PLAN - SANITARY, WASTE & VENT
Scale: 1/8"= 1'-0"

PERMIT SET
DATE: 11/15/2024

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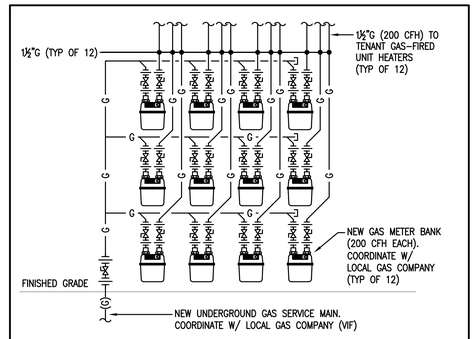
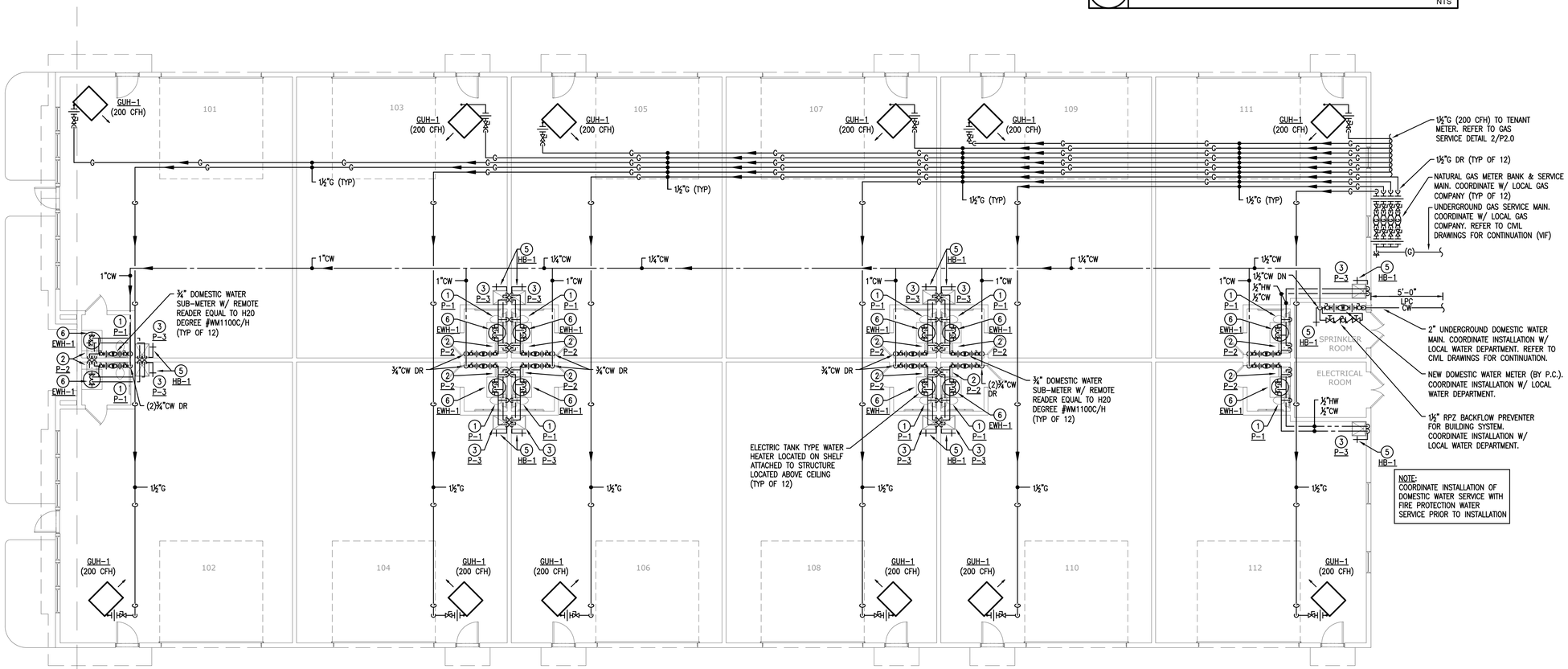
NOTE:
CONNECT ALL DOMESTIC WATER, SANITARY WASTE & VENT SUPPLY PIPING FROM NEW FIXTURES & EQUIPMENT TO RESPECTIVE MAIN LINES. COORDINATE EXACT LOCATIONS IN FIELD PRIOR TO INSTALLATION. TRENCH PIPING AS REQUIRED.



2 GAS METER INSTALLATION DIAGRAM
NTS



1 BUILDING 1: FLOOR PLAN - DOMESTIC WATER & GAS
Scale: 1/8"= 1'-0"

PERMIT SET
DATE 11/15/2024

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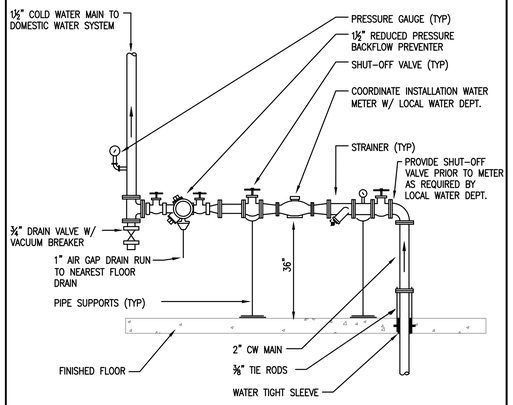
REVISIONS:

DESCRIPTION: BUILDING 1: FLOOR PLAN - DOMESTIC WATER & GAS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

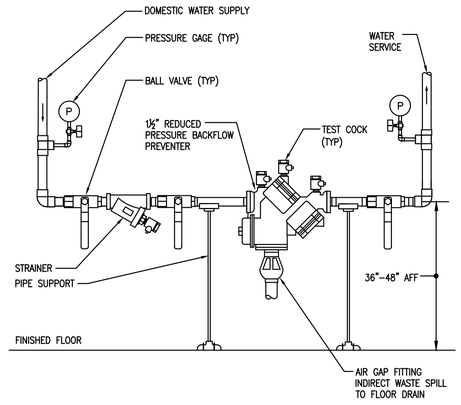
Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

P2.0

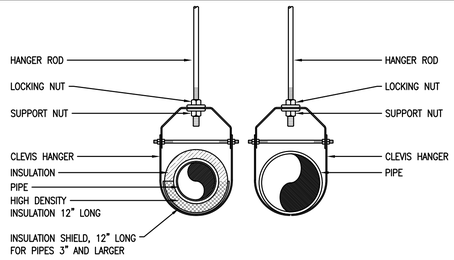
BER # 24134



1 DOMESTIC WATER SERVICE NTS



2 REDUCED PRESSURE BACKFLOW PREVENTER NTS

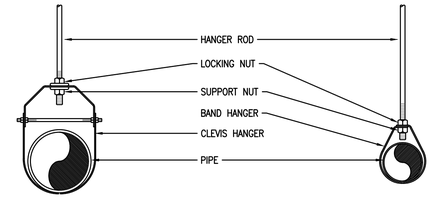


HANGER ROD SCHEDULE	
PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.
2 1/2" THRU 3"	1/2" DIA.
4" AND 5"	5/8"
6" – 8"	3/4"
10 & 12"	7/8"

HANGER ROD SPACING	
PIPE SIZE	MAX. ALLOWABLE SPACING
1"	7'
1 1/4"	8'
1 1/2"	9'
2"	10'
2 1/2"	11'
3" – 12"	12'

INSULATED AND NON INSULATED PLUMBING SYSTEMS

3 CLEVIS PIPE HANGER/ROD INSTALLATION NTS

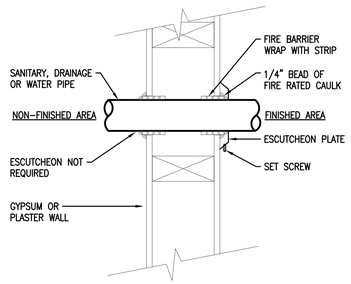


HANGER ROD SCHEDULE	
PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.
2 1/2" & 3"	1/2" DIA.
4" AND 5"	5/8"
6" – 8"	3/4"
10 & 12"	7/8"

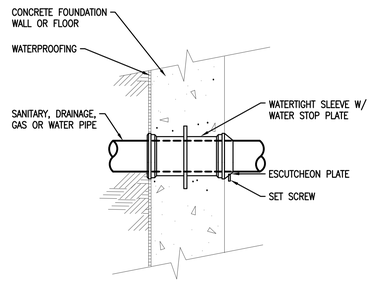
HANGER ROD SPACING	
PIPE SIZE	MAX. ALLOWABLE SPACING
1"	7'
1 1/4"	8'
1 1/2"	9'
2"	10'
2 1/2"	11'
3" – 12"	12'

4 CLEVIS-BAND HANGER/ROD INSTALLATION NTS

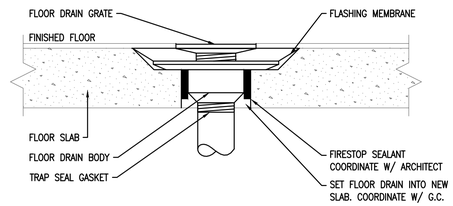
NOTE:
FIRESTOP SEALANTS AND PIPING PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL COMPLY WITH THE UL FIRE RESISTANCE DIRECTORY.



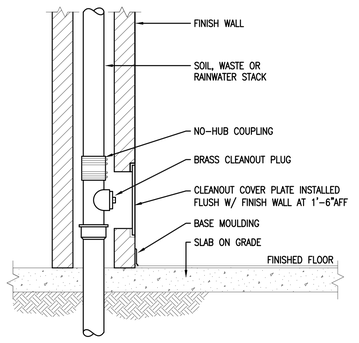
5 STUD WALL FIRE RATED SLEEVE NTS



6 EXTERIOR WALL WATER TIGHT SLEEVE NTS

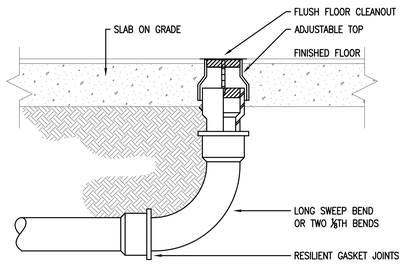


7 FLOOR DRAIN INSTALLATION - NEW SLAB NTS



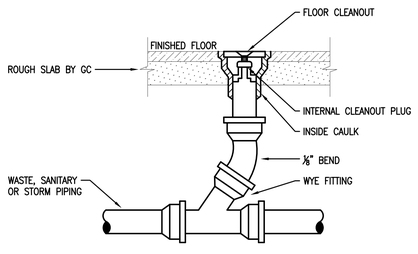
NOTE:
REFER TO CONTRACT SPECIFICATIONS FOR CLEANOUT TYPE

8 FLUSH WALL CLEANOUT DIAGRAM NTS



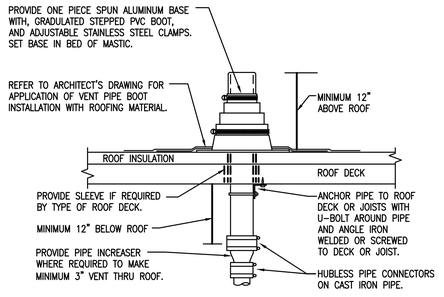
NOTE:
REFER TO CONTRACT SPECIFICATIONS FOR CLEANOUT TYPE

9 END OF RUN FCO INSTALLATION NTS



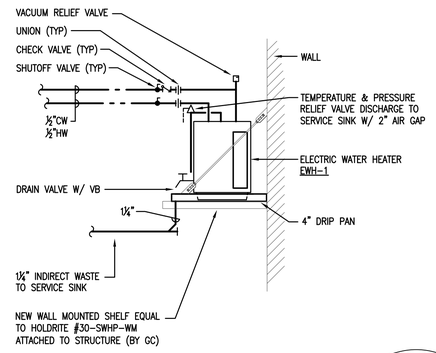
NOTE:
REFER TO CONTRACT SPECIFICATIONS FOR CLEANOUT TYPE

10 IN THE RUN CLEANOUT NTS



NOTE:
REFER TO PLANS FOR VTR PIPE SIZES AND LOCATIONS. LOCATE VENT THRU ROOF MINIMUM TEN FEET HORIZONTAL OR THREE FEET VERTICAL ABOVE ANY BUILDING OPENING OR FRESH AIR INTAKE, AND ONE FOOT FROM ANY VERTICAL SURFACE. PROVIDE 1" FIBERGLASS INSULATION WITH ALL-SERVICE JACKET ON VENT PIPE INSIDE BUILDING WITHIN SIX FEET OF VENT THRU ROOF LOCATION. VERIFY FLASHING AND COUNTER FLASHING WITH ROOFING CONTRACTOR.

11 VENT THRU ROOF DETAIL NTS



12 WALL MOUNTED EWH DIAGRAM NTS

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DATE 11/15/2024

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REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

REVISIONS:

DESCRIPTION: PLUMBING DETAILS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
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BER # 24134

PLUMBING SPECIFICATIONS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS:

A. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND SERVICES NECESSARY TO FURNISH, FABRICATE AND INSTALL ALL WORK SPECIFIED HEREIN. REFER TO THE DRAWINGS FOR FURTHER DEFINITION OF LOCATION, EXTENT AND DETAILS OF THE WORK.

B. WHERE THE SPECIFICATIONS REFER TO PRODUCTS, BY NAME, CATALOG NUMBER AND/OR MANUFACTURER, IT IS THE INTENT OF THE SPECIFICATION THAT THE CONTRACTOR SHALL SUBMIT THE SPECIFIED PRODUCTS TO THE ARCHITECT/ENGINEER FOR APPROVAL.

1.02 WORK INCLUDED:

A. THE INTENTION OF THE SPECIFICATIONS AND PLANS IS TO PROVIDE FOR FURNISHED SYSTEMS, PROPERLY TESTED, BALANCED AND READY FOR OPERATION, INCLUDING NECESSARY MINOR DETAILS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE, EVEN THOUGH SUCH ITEMS MAY NOT BE EXPRESSLY SHOWN OR SPECIFIED.

B. THE WORK COVERED BY THIS SECTION OF THE SPECIFICATION INCLUDES THE FURNISHING OF ALL LABOR AND MATERIALS AND IN PERFORMING ALL OPERATIONS IN CONNECTION WITH THE INSTALLATION OF THE PLUMBING WORK SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN AND SHALL BE INTERPRETED AS WORK TO BE DONE BY THIS CONTRACTOR. WORK TO BE PERFORMED BY OTHER TRADES WILL ALWAYS BE SPECIFICALLY REFERENCED TO A PARTICULAR CONTRACTOR AND/OR SECTION.

C. CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWINGS AND/OR SITE CONDITIONS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED.

D. WITHOUT LIMITING GENERALITY, PROVIDED ALL LABOR, MATERIAL, AND EQUIPMENT FOR A COMPLETE PLUMBING SYSTEM AS DESCRIBED BELOW:

1. DOMESTIC HOT & COLD WATER PIPING SYSTEMS
2. SANITARY, WASTE AND VENT PIPING SYSTEMS.
3. NATURAL GAS PIPING SYSTEMS
4. PLUMBING FIXTURES, TRIM & TOILET ROOM ACCESSORIES.
5. PIPE INSULATION, SLEEVING AND FIRESTOPPING.
6. HANGERS, SUPPORTS, ACCESS PANELS.
7. CORE DRILLING, CUTTING, AND PATCHING.
8. FLUSHING, DISINFECTING, TESTING AND BALANCING.
9. FURNISHING OF ACCESS PANELS.
10. PERMITS AND FEES.

1.03 REGULATORY REQUIREMENTS, CODES, ORDINANCES AND PERMITS

A. ALL PLUMBING WORK SHALL BE PERFORMED BY A STATE LICENSED PLUMBER IN STRICT ACCORDANCE WITH AUTHORITY HAVING JURISDICTION (AHJ), STATE & LOCAL CODES, LAWS AND ORDINANCES.

B. WHERE CODE REFERENCES ARE GIVEN, THE LATEST ISSUE OF THAT CODE IN EFFECT AT THE TIME OF BIDDING SHALL BE USED.

C. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND FILING ALL PLANS, SPECIFICATIONS AND OTHER DOCUMENTS, PAY ALL REQUISITE FEES AND SECURE ALL PERMITS, INSPECTIONS AND APPROVALS NECESSARY FOR THE LEGAL INSTALLATION AND OPERATION OF THE SYSTEM AND/OR EQUIPMENT FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS.

D. THIS CONTRACTOR SHALL FRAME UNDER GLASS ALL PERMITS, SECURED BY THEM, ADJACENT TO THE RESPECTIVE SYSTEM AND/OR EQUIPMENT AND REQUIRED TO BE DISPLAYED BY CODE, LAW AND ORDINANCE. THOSE PERMITS SECURED BUT NOT REQUIRED TO BE DISPLAYED SHALL BE INCLUDED IN THE OWNER'S MAINTENANCE MANUAL.

1.04 SUBMITTALS:

A. PROVIDE SHOP DRAWINGS FOR ALL FIXTURES AND EQUIPMENT FOR ALL WORK PROVIDED UNDER THIS CONTRACT TO THE ARCHITECT/ENGINEER FOR THEIR REVIEW AND APPROVAL PRIOR TO ORDERING, FABRICATING OR INSTALLING.

1.05 COORDINATION:

A. WORK SHALL BE PERFORMED IN COOPERATION WITH OTHER TRADES ON THE PROJECT AND SO SCHEDULED AS TO ALLOW SPEEDY AND EFFICIENT COMPLETION OF THE WORK.

B. FURNISH TO OTHER TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF ALL FRAMES, BOXES, SLEEVES AND OPENINGS NEEDED FOR THEIR WORK, AND ALSO FURNISH INFORMATION AND SHOP DRAWINGS NECESSARY TO PERMIT TRADES AFFECTED BY THE WORK TO INSTALL SAME PROPERLY AND WITHOUT DELAY.

C. IF ANY PLUMBING WORK HAS BEEN INSTALLED BEFORE COORDINATION WITH OTHER TRADES SO AS TO CAUSE INTERFERENCE WITH THE WORK OF SUCH TRADES, ALL NECESSARY ADJUSTMENTS AND CORRECTIONS SHALL BE MADE BY THE PLUMBING TRADES INVOLVED WITHOUT EXTRA COST TO THE OWNER.

D. PROTECT ALL MATERIALS AND WORK OF OTHER TRADES FROM DAMAGE WHICH MAY BE CAUSED BY THE PLUMBING WORK, AND REPAIR ALL DAMAGES WITHOUT EXTRA COST TO THE OWNERS.

E. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWINGS AND/OR SITE CONDITIONS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED.

F. PLUMBING EQUIPMENT AND SUCH OTHER APPARATUS THAT MAY REQUIRE MAINTENANCE AND OPERATION SHALL BE MADE EASILY ACCESSIBLE. ALTHOUGH THE EQUIPMENT MAY BE SHOWN ON THE DRAWINGS IN CERTAIN LOCATIONS, THE CONSTRUCTION MAY DISCLOSE THAT SUCH LOCATIONS DO NOT MAKE ITS POSITION READILY ACCESSIBLE. IN SUCH CASES, THE OWNER OR THEIR REPRESENTATIVE SHALL BE NOTIFIED BEFORE ADVANCING THE CONSTRUCTION TO A STAGE WHERE A CHANGE WILL REFLECT ADDITIONAL EXPENSE.

G. IT SHALL BE THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO STUDY ALL DRAWINGS AND DETAILS SO THAT THE INSTALLATION OF ALL NEW WORK CAN BE FULLY COORDINATED. COORDINATE WITH ALL TRADES TO AVOID INTERFERENCE OF EQUIPMENT.

H. PLUMBING WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EQUIPMENT, DUCTS OR PIPES INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. PLUMBING CONTRACTOR SHALL COORDINATE ALL WALL, CEILING, FLOOR, ROOF AND BEAM PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER.

I. THIS CONTRACTOR SHALL OBTAIN DETAILED PRINTED INFORMATION FROM THE MANUFACTURER OF EQUIPMENT WHICH THEY ARE TO PROVIDE FOR THE PROPER METHODS OF INSTALLATION. THEY SHALL ALSO OBTAIN ALL INFORMATION FROM THE GENERAL CONTRACTOR AND OTHER CONTRACTORS WHICH MAY BE NECESSARY TO FACILITATE THEIR WORK AND THE COMPLETION OF THE WHOLE PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

J. THE WORK TO BE ACCOMPLISHED UNDER THIS SECTION INCLUDES WORK WITHIN EXISTING AREAS ADJACENT TO THE SITE OF NEW CONSTRUCTION. CONTINUITY OF SERVICES WITHIN EXISTING AREAS SHALL BE MAINTAINED. ANY INTERRUPTION OF SERVICES NECESSARY TO ACCOMPLISH THE WORK SHALL BE MADE ONLY WITH THE CONSENT OF THE GENERAL CONTRACTOR AND AT SUCH TIME(S) AS THE OWNER DESIGNATES.

K. THIS CONTRACTOR SHALL NOT UNNECESSARILY DISTURB OR INTERFERE WITH THE OWNER'S USE OF THE FACILITIES ASSOCIATED WITH OR ADJACENT TO THIS CONTRACT. WHEN INTERFERENCE IS NECESSARY, PERMISSION SHALL BE OBTAINED FROM THE GENERAL CONTRACTOR BEFORE ANY OPERATION OR SERVICE LINE IS DISTURBED OR DISCONNECTED.

L. THIS CONTRACTOR SHALL INCLUDE UNDER COORDINATION WORK THE INSTALLATION OF ALL SYSTEMS IN CONFORMANCE WITH GOVERNING CODES. THIS CONTRACTOR IS ADVISED THAT NO PIPING OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH SUCH SPACES OR ROOMS PROVIDED FOR SWITCHBOARDS AND PANELBOARDS IN ACCORDANCE WITH ARTICLE 384 OF THE NATIONAL ELECTRICAL CODE.

1.06 PLUMBING AND ELECTRICAL COORDINATION:

A. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL VARIOUS ELECTRICAL ITEMS RELATING TO THE PLUMBING EQUIPMENT AND CONTROL APPARATUS. THE ELECTRICAL SUBCONTRACTOR SHALL BE REQUIRED TO CONNECT POWER WIRING TO THIS EQUIPMENT UNLESS NOTED OTHERWISE.

B. THE PLUMBING AND ELECTRICAL SUBCONTRACTOR SHALL COORDINATE THEIR RESPECTIVE PORTIONS OF THE WORK, AS WELL AS THE ELECTRICAL CHARACTERISTICS OF THE PLUMBING EQUIPMENT.

C. ALL POWER WIRING AND LOCAL DISCONNECT SWITCHES WILL BE PROVIDED BY THE ELECTRICAL SUBCONTRACTOR FOR THE LINE VOLTAGE POWER. ALL CONTROL AND INTERLOCKING WIRING SHALL BE THE RESPONSIBILITY OF THE PLUMBING SUBCONTRACTOR.

D. 120V POWER WIRING SOURCES EXTENDED AND CONNECTED TO HEATING AND VENTILATING CONTROL PANELS, TRANSFORMERS AND SWITCHES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL SUBCONTRACTOR. ALL LOW VOLTAGE THERMOSTAT, ZONE VALVE AND ANY SWITCH WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL SUBCONTRACTOR.

E. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE ELECTRICAL DIVISION.

F. ALL STARTERS SHALL BE FURNISHED AND INSTALLED UNDER THE ELECTRICAL DIVISION EXCEPT THOSE FURNISHED AS AN INTEGRAL PART OF PACKAGED EQUIPMENT.

1.07 INSTALLATION REQUIREMENTS:

A. THE ARRANGEMENT OF ALL PLUMBING WORK SHOWN ON THE DRAWINGS IS DIAGRAMMATIC ONLY AND INDICATES THE MINIMUM REQUIREMENTS OF THE WORK. CONDITIONS AT THE BUILDING INCLUDING ACTUAL MEASUREMENTS SHALL DETERMINE THE DETAILS OF THE INSTALLATION.

B. INSTALL ALL MATERIALS, ACCESSORIES AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR A COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS AND MANUFACTURERS INSTRUCTIONS.

C. ALL MISCELLANEOUS STRUCTURAL SUPPORTS REQUIRED FOR PLUMBING EQUIPMENT INSTALLATION SHALL BE PROVIDED BY PLUMBING CONTRACTOR. INSTALL ALL PIPING BELOW DUCTWORK UNLESS CLEARANCE CONDITION REQUIRES PIPING TO BE ABOVE.

D. ONCE WORK IS COMPLETE THE CONTRACTOR SHALL FLUSH, FILL, TEST AND BALANCE ALL SYSTEMS.

1.08 RECORD DRAWINGS

A. PROVIDE RECORD AS-BUILT DRAWINGS. THE CONTRACTOR SHALL KEEP DAILY UPDATED ACCURATE RECORDS OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK INDICATED ON THE CONTRACT DRAWINGS. WHEN WORK IS COMPLETED THIS CONTRACTOR SHALL PROVIDE TO THE OWNER ONE COMPLETE SET OF MARKED-UP ORIGINAL PRINTS, UPDATED CAD DRAWINGS AND A USB STORAGE DEVICE WITH CAD FILES.

1.09 GUARANTEE/WARRANTY

A. ALL NEW MATERIALS, ITEMS OR EQUIPMENT AND WORKMANSHIP FURNISHED UNDER THIS SECTION SHALL CARRY STANDARD WARRANTY AGAINST ALL DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF WORK. ANY FAULT DUE TO DEFECTIVE OR IMPROPER MATERIAL, EQUIPMENT, WORKMANSHIP OR MANUFACTURING DESIGN WHICH MAY DEVELOP WITHIN THAT PERIOD SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THIS CONTRACTOR, INCLUDING ALL OTHER DAMAGES DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM THIS FAILURE.

B. THIS CONTRACTOR SHALL GUARANTEE THAT ALL NEW ELEMENTS OF THE SYSTEMS MEET THE SPECIFIED PERFORMANCE REQUIREMENTS AS SET FORTH HEREIN OR AS INDICATED ON THE DRAWINGS.

1.10 APPROVALS AND SUBSTITUTIONS:

A. IT IS THE INTENT OF THESE SPECIFICATIONS THAT WHEREVER A MANUFACTURER IS SPECIFIED AND SUBSTITUTIONS ARE ALLOWED, THEY SHALL CONFORM IN ALL RESPECTS TO THE SPECIFIED ITEM CRITERIA AS DELINEATED, SPECIFIED EQUIPMENT SHALL BE TERPRETED AS MINIMUM PERFORMANCE REQUIREMENTS.

B. SUBSTITUTED EQUIPMENT WHERE PERMITTED MUST CONFORM TO SPACE REQUIREMENTS. ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUIREMENTS, WHETHER APPROVED OR NOT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY MODIFICATION OF RELATED SYSTEMS OR ADDITIONAL COSTS THAT RESULT FROM SUBSTITUTED EQUIPMENT SHALL BE BORNE BY THIS CONTRACTOR.

C. IT SHALL BE MANDATORY FOR THIS CONTRACTOR TO SUBMIT THEIR BID PRICE BASED ON SPECIFIED MANUFACTURERS OR SUPPLIERS OF MATERIALS OR SERVICES. IF THE CONTRACTOR DESIRES TO SUBSTITUTE OTHER THAN SPECIFIED, THEY SHALL SUBMIT SEPARATE PRICES FOR EACH OF THESE ITEMS FOR ADDITIONS OR DEDUCTIONS TO THE BID PRICE, FOR ACCEPTANCE OR REJECTION AT THE TIME BIDS ARE DUE. SHOULD THESE SUBSTITUTIONS BE REJECTED, THE CONTRACTOR SHALL BE OBLIGED TO PROVIDE SPECIFIED MATERIALS AND SERVICES.

PART II – PRODUCTS

2.01 PIPING:

A. WATER PIPING ABOVE SLAB, AT VALVES, GAUGES, FITTINGS AND OTHER APPURTENANCES, SHALL BE TYPE "L" COPPER ASTM-B-88 WITH 95-5 TIN-ANTIMONY SOLDERED JOINTS & WROUGHT FITTINGS. WATER PIPING BELOW SLAB, SHALL BE TYPE "K" SOFT COPPER TUBING "ONE PIECE-WITHOUT JOINTS".

B. ALL EXPOSED WASTE AND WATER PIPING IN FINISHED AREAS SHALL BE CHROME PLATED.

C. NEW SANITARY WASTE & VENT AND STORM PIPING SHALL BE SOLID CORE PVC DWV PIPE, ASTM D 2665, SOCKET TYPE, MADE TO ASTM D 3311, DRAIN, WASTE AND VENT PATTERNS. CELLULAR "FOAM" CORE PVC PIPING SHALL NOT BE INSTALLED.

D. GAS MAIN PIPING ABOVE GRADE SHALL BE SCHEDULE 40 SEAMLESS BLACK STEEL, ASTM A53 GRADE A WITH MALLEABLE IRON FITTINGS CONFORMING TO ANSI/ASME B16.3. GAS (2" AND SMALLER): – SCHEDULE 40 BLACK STEEL PIPE WITH STANDARD WEIGHT MALLEABLE IRON FITTINGS JOINED WITH THREADED CONNECTIONS. GAS (LARGER THAN 2"): – SCHEDULE 40 BLACK STEEL PIPE WITH BEVELED ENDS WITH STANDARD WEIGHT CARBON STEEL BEVELED END FITTINGS JOINED BY WELDING IN ACCORDANCE WITH LOCAL CODES.

E. PROVIDE ALL NECESSARY SUPPORTS, HANGERS, BRACES, ANCHORS, PADS AND ALL ELSE NECESSARY FOR THE ENTIRE INSTALLATION AND TO MEET THE INTENT OF THE SYSTEMS FOR PROPER OPERATION.

F. PIPE AND EQUIPMENT SUSPENSION SHALL BE SUCH AS TO PREVENT EXCESSIVE STRESS, EXCESSIVE VARIATION IN SUPPORTING FORCE, POSSIBLE RESONANCE WITH IMPOSED VIBRATION WHILE THE SYSTEM IS IN OPERATION CREEPING, SAGGING, BUCKLING, OR MISALIGNMENT.

G. SYSTEMS SHALL OPERATE UNDER ALL CONDITIONS OF LOAD WITHOUT ANY OBJECTIONAL SOUND OR VIBRATION.

H. OPENINGS IN EXTERIOR WALLS OR ROOF SHALL BE KEPT PROPERLY PLUGGED AND CAULKED AT ALL TIMES, EXCEPT WHEN BEING WORKED ON TO PRECLUDE THE POSSIBILITY OF FLOODING DUE TO STORM OR OTHER CAUSES. AFTER COMPLETION OF WORK, OPENINGS SHALL BE PERMANENTLY SEALED AND CAULKED IN A MANNER APPROVED BY THE ENGINEER OR ARCHITECT.

I. PROVIDE DI-ELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

2.02 INSULATION:

A. ALL INSULATION WHEN INSTALLED SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM-E-84, NFPA-255, AND UL-723, NOT EXCEEDING A FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50 WHEN COMPARED WITH RED OAK AS 100, AS APPROVED UNDER NFPA AND NBFU PAMPHLET NO. 90A AND NO. 90B STANDARDS.

B. DOMESTIC WATER PIPING ABOVE GROUND SHALL BE INSULATED WITH FIBERGLASS INSULATION WITH FACTORY-APPLIED ALL-SERVICE JACKET SECURED IN PLACE WITH SELF SEALING LAPS. FITTINGS SHALL BE INSULATED WITH PREMOLDED PVC COVERS SECURED IN PLACE WITH STAINLESS STEEL TACKS. DOMESTIC WATER PIPING BELOW GROUND SHALL BE INSULATED WITH 1" THICK "ARMAFLEX" ELASTOMERIC UNICELLULAR SEAMLESS INSULATION.

C. PIPING INSULATION MATERIALS AS MANUFACTURED BY GUSTIN-BACON, JOHNS MANVILLE, OWENS-CORNING, KNAUF, OR CERTAIN TEED.

D. ABOVE GROUND PIPING INSULATION THICKNESS:

1. COLD WATER (UP TO 1¼") : ½"
2. COLD WATER (1½" & GREATER) : 1"
3. HOT WATER SUPPLY & RECIRCULATION (UP TO 1¼") : 1"
4. HOT WATER SUPPLY & RECIRCULATION (1½" & GREATER) : 1½"

E. WASTE, COLD WATER AND HOT WATER BENEATH HANDICAPPED LAVATORIES SHALL BE INSULATED WITH BROCAR PRODUCTS SERIES 500 INSULATION KIT FOR P TRAP ASSEMBLY AND HOT WATER AND COLD WATER ANGLE VALVE ASSEMBLY. KIT SHALL BE WHITE FLEXIBLE VINYL INSULATION SECURED WITH NYLON FASTENERS SUPPLIED, FOAM INSERTS, ANTIMICROBIAL.

F. ALL PVC PIPE AND FITTINGS (IF APPROVED FOR INSTALLATION) LOCATED IN PLENUM CEILING SPACE SHALL BE INSULATED WITH UL LISTED 25/50 RATED PLENUM RATED INSULATION EQUAL TO FYRE WRAP INSULFRAX THERMAL INSULATION. EDGES SHALL BE SEALED WITH ALUMINUM FOIL TAPE. PROVIDE 1" PERIMETER OVERLAP OUTSIDE OF PLENUM SPACE.

2.03 VALVES:

A. ALL SHUT OFF VALVES ON COLD WATER AND HOT WATER PIPING FROM ¾ INCH UP TO AND INCLUDING 2 INCH SHALL BE APOLLO SERIES 77-200, SOLDER END, BRONZE BODY BALL VALVE, CHROME-PLATED BRONZE BALL, 600 PSI WOG, FULL PORT BALL VALVE.

B. ALL SHUT OFF VALVES ON COLD WATER AND HOT WATER PIPING ½ INCH, 2-1/2 INCH AND 3 INCH SHALL BE APOLLO SERIES 70-200, SOLDER END, BRONZE BODY BALL VALVE, CHROME-PLATED BRONZE BALL, 600 PSI WOG.

C. ALL CHECK VALVES ON COLD WATER, HOT WATER AND PIPING THREE INCHES AND LESS IN SIZE SHALL BE NIBCO FIGURE NO. S-413-W, SOLDER END, BRONZE BODY SWING CHECK, BRONZE DISC, 200 PSI WOG.

D. ALL DRAIN VALVES SHALL BE ½ INCH APOLLO MODEL 78-103 WITH WATTS NO. 8A HOSE CONNECTION VACUUM BREAKER, CAP WITH CHAIN OF LENGTH AS REQUIRED.

E. ALL SHUT-OFF VALVES ON NATURAL GAS SYSTEM 2 INCHES AND SMALLER SHALL BE APOLLO SERIES 70-100-07, THREADED BRONZE BALL VALVE, 600 PSI WOG. ALL SHUTOFF VALVES ON NATURAL GAS SYSTEMS 2-1/2 INCHES AND LARGER SHALL BE ROCKWELL FIG. 143, SEMI-STEEL, LUBRICATED PLUG VALVES, FLANGED ENDS, WRENCH OPERATED, 200 PSI WOG.

F. ALL BALL VALVES FOR INSTALLATION IN INSULATED PIPING SHALL HAVE VALVE EXTENSIONS TO SUIT INSULATION THICKNESS.

G. BACKFLOW PREVENTERS 2 INCHES AND SMALLER SHALL BE REDUCED PRESSURE PRINCIPLE, ALL BRONZE, WATTS SERIES U-009-QTS FOR COLD WATER AND HOT WATER INCLUDING BRONZE STRAINER, VALVES, AIR GAP FITTINGS TEST COCKS AND SPARE PARTS KIT. BACKFLOW PREVENTER LARGER THAN 2 INCHES SHALL BE WATTS SERIES 909 OR SERIES 909HW INCLUDING STRAINER, VALVES, AIR GAP FITTINGS TEST COCKS AND SPARE PARTS KIT. EACH BACKFLOW PREVENTER AND SHUTOFF VALVES SHALL BE INSTALLED BETWEEN 3 AND 4 FEET ABOVE THE FLOOR AND A MINIMUM OF 12 INCHES FROM ANY WALL. SUPPORT THE ASSEMBLY FROM THE FLOOR OR THE WALL. RUN VENT TO NEAREST FLOOR DRAIN OR SIMILAR OPEN RECEPTOR. PRESSURE GAUGES SHALL BE INSTALLED ON THE SUPPLY AND DISCHARGE SIDE OF EACH BACKFLOW PREVENTER ASSEMBLY. EACH PRESSURE GAUGE ASSEMBLY SHALL INCLUDE TRERICE 600-C GAUGE, 0-160 PSI DIAL RANGE, 735-2 VALVE AND 872-1 SNUBBER. FURNISH TO THE OWNER ONE WATTS TK-9 MODEL A TEST KIT. THIS CONTRACTOR SHALL ACT AS THE OWNER'S AGENT IN SEEKING APPROVAL FROM THE DEPARTMENT OF ENVIRONMENTAL PROTECTION OR THEIR DESIGNEE. THIS CONTRACTOR SHALL SUBMIT ALL PLANS, SPECIFICATIONS, AND APPLICATIONS REQUIRED FOR APPROVAL AND SHALL PAY ALL FEES. APPROVALS SHALL BE SECURED PRIOR TO THE PURCHASE AND INSTALLATION OF BACKFLOW PREVENTERS. TEST AND CERTIFY BACKFLOW PREVENTER.

2.04 MAIN WATER METER:

A. PROVIDE COMPOUND WATER METERS THAT MEET AWWA C701-70 REQUIREMENTS FOR COLD WATER METERS AND THE MUNICIPAL WATER AUTHORITY.

B. REGISTERS SHALL BE STRAIGHT READING, HERMETICALLY SEALED CALIBRATED IN CUBIC FEET AND SHALL MEET SECTION 9.3 OF AWWA STANDARD REQUIREMENTS. PROVIDE CENTER SWEPT TEST HANDS.

C. METER SHALL REGISTER AT LEAST 98% AND NO MORE THAN 102% OF WATER ACTUALLY PASSING THROUGH METER AT ANY RATE OF FLOW, WITHIN RANGE OF 15 GPM TO 800 GPM.

D. MAIN CASING SHALL BE BRONZE. BOLTS SHALL BE STAINLESS STEEL.

E. METER SHALL PERMIT EASY REMOVAL OF INTERIOR PARTS WITHOUT DISTURBING METER CONNECTIONS TO PIPELINE.

F. PROVIDE MAGNETIC COUPLINGS TO TRANSMIT MOTION FROM MEASURING CHAMBER TO REGISTER UNIT.

G. PROVIDE REMOTE REGISTER. REMOTE REGISTER PLUG/JACK TO CONFORM TO AND BE COMPATIBLE WITH OWNER'S STANDARD BUILDING AUTOMATED SYSTEM.

H. MEASURING CHAMBER SHALL BE REMOVABLE FROM MAIN LINE CASE FOR REPAIR AND RE-CALIBRATION.

I. METER SHALL BE BY ROCKWELL, HERSEY OR NEPTUNE PRODUCTS, AND SHALL BE APPROVED BY LOCAL WATER AND SEWER AUTHORITY.

2.05 TENANT SUB-METER:

A. GENERAL WIRELESS SYSTEM DESCRIPTION

1. FURNISH AND INSTALL A COMPLETE WIRELESS SUB METERING AND MONITORING SYSTEM (WSMMS) AS DETAILED ON THE DRAWINGS AND AS DESCRIBED IN THIS SPECIFICATION. THE SYSTEM SHALL BE DESIGNED TO INTEGRATE WITH WIRELESS DEVICES FOR WATER METERING, ELECTRIC METERING, THERMOSTAT METERING, BTU METERING, AND GAS METERING.

2. THE WSMMS SHALL UTILIZE LORAWAN PROTOCOL TO GATHER DATA FROM THE METERING DEVICES.

3. THE WSMMS GATEWAYS MUST UTILIZE SECURED STANDARD IP CONNECTIONS THAT ALLOW ACCESS TO THE NETWORK SERVER WHILE END-DEVICES USE SINGLE-HOP LORA OR FSK COMMUNICATION TO ONE OR MANY GATEWAYS. ALL COMMUNICATION IS GENERALLY BI-DIRECTIONAL, ALTHOUGH UPLINK COMMUNICATION FROM AN END DEVICE TO THE NETWORK SERVER IS EXPECTED TO BE THE PREDOMINANT TRAFFIC. COMMUNICATION BETWEEN END-DEVICES AND GATEWAYS IS SPREAD OUT ON DIFFERENT FREQUENCY CHANNELS AND DATA RATES. THE SELECTION OF THE DATA RATE IS A TRADE-OFF BETWEEN COMMUNICATION RANGE AND MESSAGE DURATION, COMMUNICATIONS WITH DIFFERENT DATA RATES DO NOT INTERFERE WITH EACH OTHER. LORA DATA RATES RANGE FROM 0.3KBPS TO 50KBPS. TO MAXIMIZE BOTH BATTERY LIFE OF THE END-DEVICES AND OVERALL NETWORK CAPACITY, THE LORA NETWORK INFRASTRUCTURE CAN MANAGE THE DATA RATE AND RF OUTPUT FOR EACH END-DEVICE INDIVIDUALLY BY MEANS OF AN ADAPTIVE DATA RATE(ADR) SCHEME.

B. WIRELESS METERS FOR SUBMETERING

1. A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:

a. H2O DEGREE, HTTP://H2ODEGREE.COM
b. APPROVED EQUAL.

2. DESCRIPTION: FURNISH FOR INSTALLATION A WM1100C/H PULSE WATER METER METER AND WIRELESS RADIO (P/N L54215 WIRELESS PULSE RADIO). WM1100C/H PULSE WATER METER METERS AND WIRELESS RADIOS SHALL BE INSTALLED AT EACH MAIN DOMESTIC COLD-WATER AND HOT-WATER SUPPLY LOCATION IN EACH APARTMENT.

3. MATERIALS: THE WM1100C/H PULSE WATER METER METER SHALL BE MADE OF REINFORCED POLYMER, AND BE RATED FOR MOIST, HUMID ENVIRONMENTS, AND BE CAPABLE OF OPERATING AT MAXIMUM OF 105°F, AND 160°F RESPECTIVELY.

THE L54215 WIRELESS PULSE RADIO SHALL BE ENCLOSED IN AN IP54 RATED WITH A UL94-HB RATING.

4. DATA: DATA SHALL BE AVAILABLE ON A WEB PLATFORM, MOBILE APP, REST API, FTP, OR PROVIDED IN A DAILY EMAIL.

5. MEASUREMENTS: WM1100C/H PULSE WATER METERS AND L54215 WIRELESS PULSE RADIO SHALL RECORD GALLONS.

6. DISPLAY: THE L54215 WIRELESS PULSE RADIO SHALL HAVE AN LED INDICATOR TO PROVIDE DIAGNOSTIC DETAILS SUCH AS WHEN THE DEVICE IS AWAKE, AND JOINED TO A NETWORK.

7. RANGE: THE WM1100C/H PULSE WATER METER SHALL BE CAPABLE OF RECORDING FLOWS BETWEEN 0.25 AND 25 GPM.

8. COMMUNICATION BETWEEN THE SENSOR AND THE GATEWAY SHALL BE VIA A LORAWAN PROTOCOL.

C. INSTALLATIONS

1. QR CODE TAG MUST BE COLLECTED FROM INSTALLED DEVICES, AND ASSIGNED TO THE APARTMENT IT IS MONITORING.

2. GATEWAYS SHALL BE PLUGGED INTO ELECTRICAL OUTLETS, PROVIDED BY OTHERS, AND WALL MOUNTED. ETHERNET SHALL BE PROVIDED AS APPLICABLE.

PERMIT SET
DATE 11/15/2024

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DAVID J. KNIGHT
No. 12602
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

REVISIONS:

DESCRIPTION: PLUMBING SPECIFICATIONS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

P4.0

BER # 24134

PLUMBING SPECIFICATIONS (CONTINUED)

2.05 FLOOR DRAINS:

A. FLOOR DRAINS SHALL BE CAST IRON BODY WITH WEEPHOLES AND FLASHING COLLAR. GRATES SHALL BE POLISHED CHROME-PLATED BRASS IN FINISHED AREAS AND COATED CAST IRON IN UNFINISHED AREAS.

2.06 WATER HEATER:

A. THE WATER HEATER SHALL BE AS INDICATED IN THE EQUIPMENT SCHEDULES. ELECTRICAL: 120 V, 1 PH. THE HEATER SHALL INCLUDE AN APPROVED TEMPERATURE AND PRESSURE RELIEF VALVE AND A DIELECTRIC COUPLINGS ON PIPING CONNECTIONS OF DISSIMILAR METALS. HEATER SHALL HAVE A MINIMUM THREE (3) YEAR WARRANTY.

2.07 PLUMBING FIXTURES:

A. IN GENERAL, ALL PLUMBING FIXTURES SHALL BE WALL HUNG, WHITE VITREOUS CHINA WITH CHROME-PLATED FAUCETS, STOPS AND TRAPS. ALL SUPPLY STOP VALVES SHALL BE BRASS BODY AND STEM AND HAVE THREADED OR SWEAT SOLDER INLET. PROVIDE WALL ESCUTCHEONS. FIXTURES AND TRIM SHALL BE OF THE SAME MANUFACTURER SIMILAR TO AMERICAN STANDARD, TOTO OR ZURN.

B. FIXTURES DESIGNATED FOR BARRIER FREE USE SHALL BE MOUNTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AS WELL AS STATE AND LOCAL CODES. WATER CLOSET FLUSH VALVES SHALL BE MOUNTED ON THE WIDE SIDE OF THE TOILET AREAS.

C. ALL LAVATORY CONTROLS, WHERE APPLICABLE, SHALL BE ADJUSTED BY INSTALLING PLUMBER PRIOR TO THE FINAL INSPECTION. CONTROLS SHALL BE SET TO DELIVER WATER AT A MAXIMUM TEMPERATURE OF 110 DEGREES F. A THERMOSTATIC MIXING VALVE SHALL BE PROVIDED AT ALL FIXTURES TO ACHIEVE MAXIMUM TEMPERATURE AS REQUIRED.

2.08 CLEANOUTS:

A. CLEANOUTS SHALL BE IRON BODY WITH HEAVY BRASS PLUG AND RAISED NUT, SAME SIZE AS PIPE FOR PIPING UP TO FOUR INCHES AND NOT LESS THAN FOUR INCHES IN SIZE FOR PIPING LARGER THAN FOUR INCHES AND CLOSED GAS TIGHT. FLOOR CLEANOUTS IN CARPETED AREAS SHALL HAVE CARPET CLEANOUT MARKERS. FLOOR CLEANOUTS SHALL NOT BE LOCATED BENEATH PARTITIONS, CASEWORK, NON-PORTABLE EQUIPMENT OR SIMILAR INSTALLATION CONDITIONS. END CLEANOUTS ON NO HUB CAST IRON SHALL BE JOSAM SERIES 58900-20. END CLEANOUTS ON COPPER WASTE SHALL BE NIBCO 816. FLUSH FLOOR CLEANOUT SHALL BE JOSAM SERIES 56000-2-22-41 IN CONCRETE FLOORS. THE LAST FLUSH FLOOR CLEANOUT BEFORE EXITING THE BUILDING SHALL BE JOSAM SERIES 56010-2-22-41. EXPOSED DANDY CLEANOUTS ON NO HUB CAST IRON SHALL BE JOSAM SERIES 58910-20. WALL CLEANOUTS AND CONCEALED DANDY CLEANOUTS ON NO HUB CAST IRON SHALL BE JOSAM SERIES 58910-19 WITH SERIES 58890 CLEANOUT PLUG WITH CENTER SCREW LENGTH AS REQUIRED. END CLEANOUTS ON POLYPROPYLENE PIPING SHALL BE FUSEAL FITTING CLEANOUT ADAPTER WITH THREADED PLUG.

2.09 WATER HAMMER ARRESTORS (SHOCK ABSORBERS):

A. MAINTENANCE-FREE WATER HAMMER ARRESTORS SHALL BE FURNISHED AND INSTALLED IN ACCESSIBLE LOCATIONS AT ALL LOCATIONS IN THE WATER SYSTEMS WHERE QUICK ACTING VALVES ARE INSTALLED AS WELL AS WHEREVER HAMMER MAY OCCUR.
B. WATER HAMMER ARRESTORS SHALL BE SIMILAR TO THE FOLLOWING JAY R. SMITH MODEL NUMBERS. SIZING AND PLACEMENT SHALL BE IN ACCORDANCE WITH PDI STANDARD PDI-WH-201 AND THE MANUFACTURER'S RECOMMENDATIONS.

TYPE	FIXTURE UNIT RATINGS	MODEL
SA-A	1-11	JAY R. SMITH 5005
SA-B	12-32	JAY R. SMITH 5010
SA-C	33-60	JAY R. SMITH 5020

2.10 ACCESS PANELS:

A. FURNISH ALL ACCESS PANELS FOR WALLS AND CEILINGS. COORDINATE THE ACCESS PANEL LOCATION WITH GENERAL ACTOR. PIPING SHALL BE LAID OUT IN SUCH A MANNER AS TO MINIMIZE THE NUMBER OF ACCESS PANELS REQUIRED. MILCOR PRODUCTS, VENTLOCK, KNAPP. MINIMUM SIZE: 12" X 18".

B. PROVIDE ACCESS PANELS FOR ALL CLEANOUTS, VALVES, AND OTHER CONCEALED ACCESSORIES REQUIRING ACCESS SUCH AS SHOCK ABSORBERS, CONTROL VALVES, PRESSURE REDUCERS, AIR ARRESTORS, ETC.

2.11 IDENTIFICATION, MARKING AND TAGGING:

A. EQUIPMENT IDENTIFICATION:

1. MANUFACTURER'S NAMEPLATES OR TRADEMARK SHALL BE PERMANENTLY AFFIXED TO ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THIS DIVISION. MANUFACTURER'S NAMEPLATES SHALL INCLUDE ALL PERTINENT DATA RELATIVE TO THE PIECE OF EQUIPMENT INCLUDING MODEL NUMBER, SERIAL NUMBER, AND OPERATING CHARACTERISTICS AS APPLICABLE.
2. MARKERS SHALL BE OF RIGID BLACK BAKELITE OR PHENOLIC CONSTRUCTION WITH WHITE ENGRAVED OR INCISED LETTERS.
3. LETTERING ON EQUIPMENT MARKERS SHALL BE OF ADEQUATE SIZE TO BE LEGIBLE FROM FLOOR LEVELS. MARKER LETTERING SHALL NO BE LESS THAN 1 INCH HIGH.
4. MOUNT EQUIPMENT IDENTIFICATION NAMEPLATES IN A CONSPICUOUS PLACE ON ON THE EQUIPMENT.
5. FOR EQUIPMENT ABOVE THE FLOOR LEVEL, MOUNT IDENTIFICATION NAMEPLATE SO THAT CAN BE SEEN FROM FLOOR LEVEL.
6. ATTACH NAMEPLATES WITH RIVETS.

B. PIPING SYSTEM IDENTIFICATION:

1. PIPING SYSTEMS SHALL BE IDENTIFIED AS INDICATED HEREIN OR AS REQUIRED BY APPLICABLE CODES AND/OR OFFICIALS HAVING JURISDICTION.
2. PIPE MARKERS SHALL BE COLOR CODED ACCORDING TO "TABLE 2: CLASSIFICATION OF MATERIALS AND DESIGNATIONS TO COLORS" – ANSI A13.1-1981.
3. PIPE MARKERS SHALL INDICATE DIRECTION OF FLOW, SYSTEM, OPERATING PRESSURE AND TEMPERATURE.
4. PIPE MARKERS SHALL BE OF THE PRESSURE SENSITIVE TYPE AS MANUFACTURED BY THE SETON NAMEPLATE CORP. (F10-CODE)
5. PIPE MARKERS SHALL BE INSTALLED AT EVERY POINT OF ENTRY AND EXIT THROUGH FLOORS, WALLS, CEILINGS OR OTHER CEALMENT, ON EACH RISER, TAKE-OFF AND BRANCH AND AT EACH PIECE OF EQUIPMENT.
6. INSTALL PIPE MARKERS AT A DISTANCE OF NOT LESS THAN 25 FEET APART IN CONTINUOUS LENGTHS OF PIPE LINES AND ORIENTED SO THAT MARKERS ARE CLEARLY VISIBLE. WHEN PIPE LINES ARE LOCATED ABOVE THE NORMAL LINE OF VISION, THE MARKER SHALL BE PLACED BELOW THE HORIZONTAL CENTERLINE OF THE PIPE.

C. VALVE IDENTIFICATION:

1. PROVIDE LAMINATED PLASTIC NAMEPLATES ON ALL VALVES INSTALLED UNDER DIVISION 15, EXCEPT STOP VALVES IN SUPPLIES TO FIXTURES. TAGS SHALL BE CONSTRUCTED OF 0.125 INCHES THICK MELAMINE PLASTIC CONFORMING TO FED. SPEC. L-P-387. SURFACE SHALL BE MATTE FINISH. ACCURATELY ALIGN LETTERING AND ENGRAVE INTO WHITE CORE. NAMEPLATES SHALL BE TO 2 INCHES ROUND OR HEXAGONAL. LETTERING SHALL BE MINIMUM OF 0.375 INCH HIGH NORMAL BLOCK LETTERING. KEY THE NAMEPLATES TO A CHART AND SCHEDULE FOR EACH SYSTEM UNDER GLASS AND PLACE WHERE DIRECTED IN MECHANICAL ROOM. FURNISH FOUR COPIES OF EACH CHART AND SCHEDULE. EACH INSCRIPTION SHALL IDENTIFY IT'S FUNCTION. ATTACH NAMEPLATES WITH "S" HOOKS AND CHAIN TO EACH VALVE. VALVE NAMEPLATES SHALL BE NUMBERED AND "KEYED" AS FOLLOWS:

a. PLUMBING NAMEPLATES SHALL BE RED IN COLOR AND INDICATE:
1. "CW" COLD WATER
2. "HW" HOT WATER-INDICATE DESIGN TEMPERATURE OF WATER

b. CHART AND SCHEDULE SHALL INDICATE THE FOLLOWING INFORMATION:
1. MANUFACTURER, TYPE, AND MODEL NUMBER
2. CAPACITY OR SIZE
3. SYSTEM IN WHICH IT IS INSTALLED
4. SYSTEM OR EQUIPMENT WHICH IT CONTROLS
5. LOCATION KEYED INTO VALVE NUMBER

c. VALVE TAGS AND CHAIN SHALL BE SECURELY ATTACHED TO THE VALVE SO THAT NORMAL OPERATION OF THE VALVE OR TAMPERING WILL NOT ALLOW IT TO BE REMOVED.

2.12 SLEEVES, INSERTS AND ESCUTCHEONS:

A. PROVIDE SLEEVES FOR ALL WORK PASSING THROUGH FLOOR, WALL, AND CEILING CONSTRUCTION. MAINTAIN ALL RATINGS.

B. LOCATE AND PROVIDE SLEEVES AND INSERTS BEFORE THE FLOOR, WALL OR CEILING IS CONSTRUCTED. IF THIS CONTRACTOR DOES NOT COMPLY WITH THE ABOVE, THEY SHALL BEAR ALL COSTS INCURRED FOR CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF SLEEVES AND INSERTS. HOLES REQUIRED FOR SLEEVES IN EXISTING WALLS AND FLOORS, OR TO CONFORM TO THE ABOVE, SHALL BE SAW CUT OR CORE DRILLED. THIS CONTRACTOR SHALL PROVIDE ALL DRILLING REQUIRED FOR THE INSTALLATION OF HANGERS.

C. PIPE SLEEVES THROUGH OUTSIDE WALLS AND SLAB-ON-GRADE FLOOR SHALL BE SCHEDULE 80 BLACK STEEL PIPE WITH 150 LB. BLACK STEEL SLIP-ON WELDED FLANGES WELDED AT THE CENTER OF THE OUTSIDE. EXTEND SLEEVES 1/2 INCHES BEYOND EACH SIDE OF THE WALL. PACK THE SPACE BETWEEN SLEEVE AND PIPE WITH OAKUM TO WITHIN 2 INCHES OF EACH FACE OF THE WALL. PACK THE REMAINING SPACE AND MAKE WATERTIGHT WITH AN APPROVED WATERPROOF COMPOUND. (INSIDE FACE OF SLAB ON GRADE FLOOR.) FOR EXISTING WALL CONSTRUCTION, CENTER FLANGE WILL NOT BE REQUIRED.

D. PIPE SLEEVES THROUGH CONCRETE FLOORS OR INTERIOR MASONRY WALLS SHALL BE SCHEDULE 40 BLACK STEEL PIPE, SET FLUSH WITH FINISHED WALL OR CEILING SURFACES, BUT EXTENDING 2 INCHES ABOVE FINISHED FLOORS. PLASTIC, PVC, OR LIGHT METAL SLEEVES SHALL NOT BE INSTALLED.

E. PROVIDE INDIVIDUAL OR STRIP TYPE INSERTS PRESSED STEEL CONSTRUCTION WITH ACCOMMODATION FOR REMOVABLE NUTS AND THREADED RODS UP TO 3/4 INCH DIAMETER, PERMITTING LATERAL ADJUSTMENT. INDIVIDUAL INSERTS SHALL HAVE AN OPENING AT THE TOP TO ALLOW REINFORCING RODS TO 1/2 INCH DIAMETER TO BE PASSED THROUGH THE INSERT BODY AND SHALL BE SIMILAR TO FEE AND MASON MANUFACTURING COMPANY FIGURE 178. STRIP INSERTS SHALL HAVE ATTACHED RODS WITH HOODED ENDS TO ALLOW FASTENING TO REINFORCING RODS SHALL BE SIMILAR TO FEE AND MASON MANUFACTURING COMPANY.

F. WHERE PIPE MOTION DUE TO EXPANSION AND CONTRACTION WILL OCCUR, MAKE SLEEVES OF SUFFICIENT DIAMETER TO PERMIT FREE MOVEMENT OF PIPE. WHERE ALL SLEEVES PASS INSULATED PIPES, THE SLEEVES SHALL BE LARGE ENOUGH TO PASS THE PIPE AND THE INSULATION. CHECK FLOOR AND WALL CONSTRUCTION FINISHES TO DETERMINE PROPER LENGTH OF SLEEVES FOR VARIOUS LOCATIONS.

G. ESCUTCHEON PLATES SHALL BE PROVIDED FOR ALL EXPOSED UNINSULATED PIPES PASSING THROUGH WALLS, FLOORS, AND CEILINGS. PLATES SHALL BE NICKEL PLATED, OF THE SPLIT RING TYPE, OF SIZE TO MATCH THE PIPE. WHERE PLATES ARE PROVIDED FOR PIPES PASSING THROUGH SLEEVES WHICH EXTEND ABOVE THE FLOOR SURFACE, PROVIDE DEEP RECESSED PLATES TO CONCEAL PIPE SLEEVES.

H. FASTEN SLEEVES SECURELY IN FLOORS, WALLS, ETC. SO THAT THEY WILL NOT BECOME DISPLACED WHEN CONCRETE IS POURED OR WHEN CONSTRUCTION IS BUILT AROUND THEM. TAKE PRECAUTIONS TO PREVENT CONCRETE, PLASTER, OR OTHER MATERIALS BEING FORCED INTO THE SPACE BETWEEN PIPE AND SLEEVE DURING CONSTRUCTION.

PART III – EXECUTION

3.01 WATER:

A. PIPING SHALL BE RUN PARALLEL WITH THE LINES OF THE BUILDING; WELL SUPPORTED FROM THE STRUCTURE: FREE FROM POCKETS AND SAGS; PITCHED TO DRAIN POINTS; AND INSTALLED WITH PIPE EXPANSION LOOPS, MECHANICAL EXPANSION JOINTS, PIPE GUIDES, OFFSETS AND ANCHORS TO ADEQUATELY PROVIDE FOR THERMAL EXPANSION.

B. ABOVE GROUND PIPING SHALL BE INSTALLED TO PROVIDE NOT LESS THAN 3/4" SPACING FROM FINISHED COVERING TO OTHER COVERING OR SURFACES OF OTHER CONSTRUCTION. PIPING SHALL NOT MAKE CONTACT WITH OTHER PIPE, CONDUIT REINFORCING STEEL OR CONCRETE.

C. ALL PIPING SHALL BE PROTECTED FROM WATER HAMMER OR SHOCKS BY APPROVED WATER HAMMER ARRESTORS.

D. VALVES SHALL BE INSTALLED ON BRANCHES AND AT SINGLE FIXTURES WHEN TRIM DOES NOT INCLUDE STOPS. PROVIDE CHICAGO MODEL NO. 1018 HEAVY DUTY STOPS OR APPROVED EQUAL.

E. FINAL CONNECTIONS SHALL BE MADE TO ALL EQUIPMENT WITH PROPER CONNECTION WHETHER FURNISHED BY THIS CONTRACTOR OR BY OTHERS. THIS CONTRACTOR SHALL PROVIDE FAUCETS, TRAPS, STRAINERS AND SUPPLIES.

3.02 WASTE, VENT & DRAINAGE:

A. THE INTERIOR WASTE, VENT & DRAINAGE SYSTEMS SHALL BE CONSTRUCTED USING MATERIALS AND METHODS AS SPECIFIED AND/OR INDICATED.

B. PROVIDE PROPERLY TRAPPED AND VENTED WASTE CONNECTION TO FIXTURES, FLOOR DRAINS, AND SPECIAL EQUIPMENT.

C. DRAIN PIPING SHALL BE UNIFORMLY PITCHED TO CONFORM WITH STATE AND LOCAL PLUMBING CODE.

D. TRAPS OF MATERIAL AND DESIGN APPROVED BY THE LATEST ADDITION OF THE APPLICABLE PLUMBING CODE SHALL BE FURNISHED & INSTALLED BY THE PLUMBING CONTRACTOR FOR ALL EQUIPMENT AND APPLIANCES. ALL TRAPS SHALL HAVE THE BOTTOM CLEANOUTS WHERE ACCESS CAN BE PROVIDED.

E. CAREFULLY INSPECT FOR DAMAGED MATERIALS. RUN PIPING AS SHOWN ON THE DRAWINGS, MAKE CHANGES IN DIRECTION WITH LONG SWEEP 1/8 OR 1/16 BENDS. CONNECTIONS TO STACKS MAY BE WITH SANITARY T-FITTINGS.

3.03 NATURAL GAS:

A. PROVIDE A COMPLETE SYSTEM OF GAS PIPING TO ALL OUTLETS AND EQUIPMENT REQUIRING GAS, INCLUDING REGULATOR GAS VENTS TO THE EXTERIOR.

B. PROVIDE ALL NECESSARY GAS VALVES AND PIPING FOR A COMPLETE SYSTEM.

C. THIS CONTRACTOR SHALL INCLUDE IN THEIR BID PRICE ALL CHARGES LEVIED BY THE LOCAL GAS SUPPLIER, FOR THE INSTALLATION OF THE GAS SYSTEM INDICATED ON DRAWINGS AND SHALL BE ENTIRELY RESPONSIBLE FOR ALL INCIDENTAL CHARGES OCCURED FROM THE INSTALLATION OF THE SYSTEM.

D. PROVIDE INDIVIDUAL GAS SHUT-OFF VALVES AT EACH ITEM OF EQUIPMENT AND AT EACH BRANCH OFF THE HEADERS. DO NOT LOCATE VALVES ABOVE CEILINGS.

E. PROVIDE INDIVIDUAL PRESSURE REGULATING VALVES AT EACH ITEM OF EQUIPMENT IF NOT SUPPLIED WITH EQUIPMENT. IT SHALL BE THIS CONTRACTORS RESPONSIBILITY TO VERIFY AND CONFIRM THIS REQUIREMENT. ALL GAS REGULATORS SHALL BE PROVIDED WITH TEST GAUGE PORTS ON THE INLET SIDE AND THE DISCHARGE SIDE OF THE REGULATOR TO TEST THE INLET AND OUTLET PRESSURE AT THE EQUIPMENT.

F. DELIVERED GAS SYSTEM PRESSURE SHALL NOT EXCEED 11" W.C. CONTRACTOR TO VERIFY & ADJUST AS REQUIRED. 5" W.C. SHALL BE SUPPLIED BY GAS COMPANY, UNLESS EQUIPMENT REQUIRING MORE PRESSURE IS SUBMITTED TO GAS COMPANY. CONTRACTOR SHALL APPLY FOR GAS METER MODIFICATIONS AND INCLUDE ANY CHARGES LEVIED THRU APPLICATION.

G. PAINT ALL EXTERIOR GAS PIPING WITH TWO COATS OF RUST INHIBITIVE ENAMEL.

3.04 STERILIZATION:

A. THE POTABLE WATER DISTRIBUTION SYSTEM SHALL BE THOROUGHLY FLUSH CLEANED, DISINFECTED AND TESTED AS PER THE STATE PLUMBING CODE.

B. THE MEDICAL GAS DISTRIBUTION SYSTEM SHALL BE THOROUGHLY FLUSH CLEANED, DISINFECTED AND TESTED AS PER NFPA 99.

3.05 COMPLETION:

A. PROVIDE PROPERLY EXECUTED CERTIFICATE OF INSPECTION FROM THE LOCAL PLUMBING INSPECTORS OFFICE.

B. VERIFY THAT PROJECT RECORD DOCUMENTS ARE COMPLETE AS SPECIFIED UNDER SUBMITTALS AND RECORD DOCUMENTS.

3.06 TESTING:

A. ALL PLUMBING SYSTEMS LOCATED IN THE SCOPE OF THE PROJECT SHALL BE TESTED & REPAIRED BY THIS CONTRACTOR. TESTING OF ALL SYSTEMS SHALL BE DONE AT THE EXPENSE OF THE PLUMBING CONTRACTOR, AND WITH EQUIPMENT FURNISHED BY THEM. TESTING SHALL BE IN THE PRESENCE OF DULY AUTHORIZED INSPECTORS AND THE OWNER'S REPRESENTATIVE WITH 48-HOUR NOTICE GIVEN TO THESE AUTHORITIES. ALL SYSTEMS SHALL BE REPAIRED AND RETESTED UNTIL REQUIREMENTS ARE MET, WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

B. NEW WATER, WASTE & VENT PIPING SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH LOCAL PLUMBING INSPECTORS REQUIREMENTS AND AS PER THE STATE PLUMBING CODE.

C. NEW SANITARY WASTE & VENT PIPING SHALL BE TESTED IN ACCORDANCE WITH LOCAL PLUMBING INSPECTORS REQUIREMENTS AND AS PER THE STATE PLUMBING CODE.

D. NEW GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH NFPA 54 AND LOCAL PLUMBING INSPECTORS REQUIREMENTS AND AS PER THE STATE PLUMBING CODE THE PIPING SYSTEM SHALL WITHSTAND A PRESSURE OF AT LEAST SIX INCHES OF MERCURY OR 3 POUNDS GAUGE FOR A PERIOD OF AT LEAST TEN MINUTES WITHOUT SHOWING A DROP IN PRESSURE.

3.07 CUTTING AND PATCHING:

A. PROVIDE ALL CUTTING AND PATCHING NECESSARY TO INSTALL THE WORK SPECIFIED IN THIS DIVISION. PATCHING SHALL MATCH ADJACENT SURFACES.

B. SAW CUT, CHANNEL, CHASE, AND CORE-DRILL FLOORS, WALLS, PARTITIONS, CEILINGS, AND OTHER SURFACES NECESSARY FOR PLUMBING INSTALLATION. PERFORM CUTTING BY SKILLED MECHANICS OF THE TRADE INVOLVED. REPAIR CUT SURFACES TO MATCH ADJACENT SURFACES.

C. FIRESTOP ALL PENETRATIONS BETWEEN FLOORS & FIRE RATED WALLS.

D. NO STRUCTURAL MEMBERS SHALL BE CUT WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER, & ALL SUCH CUTTING SHALL BE ACCOMPLISHED IN A MANNER DIRECTED BY THE STRUCTURAL ENGINEER.

E. THE CONTRACTOR SHALL ARRANGE AND CONDUCT OPERATING TESTS ON ALL EQUIPMENT IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. THE COMPONENT PARTS OF SYSTEMS AND THE VARIOUS SYSTEMS SHALL BE DEMONSTRATED TO OPERATE IN ACCORDANCE WITH THE REQUIREMENTS AND INTENT OF THIS SPECIFICATION. ANY NON-COMPLYING OR DEFECTIVE MATERIALS OR WORKMANSHIP DISCLOSED AS A RESULT OF THE INSPECTION AND TESTS SHALL BE CORRECTED PROMPTLY BY THE CONTRACTOR, AND THE TESTS REPEATED AS OFTEN AS NECESSARY UNTIL APPROVED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE.

3.08 CLEANING AND TESTS:

A. THE CONTRACTOR SHALL KEEP THE BUILDING AND SITE CLEAN FROM THEIR OWN RUBBISH AND/OR WASTE MATERIALS AND, UPON COMPLETION OF THEIR CONTRACT, SHALL LEAVE THE BUILDING, SITE AND INSTALLATION IN A CLEAN CONDITION COMPLETELY ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.

B. CLEAN AND TEST ALL NEW PLUMBING SYSTEMS, FIXTURES AND EQUIPMENT.

C. IF ANY PART OF A SYSTEM SHOULD BE STOPPED BY ANY FOREIGN MATTER AFTER BEING PLACED IN OPERATION, CLEAN AND RE-ENERGIZE SYSTEM.

3.09 OPERATING AND MAINTENANCE INSTRUCTIONS:

A. AFTER FINAL TESTS AND ADJUSTMENTS FULLY INSTRUCT OWNER'S OPERATING PERSONNEL IN ALL DETAILS OF OPERATIONS FOR EQUIPMENT INSTALLED. A SIGNED RECEIPT WHICH SHALL BE OBTAINED FROM THE OPERATOR SHALL BE CONSTRUED AS EVIDENCE THAT INSTRUCTIONS WERE SATISFACTORY.

B. FURNISH THREE (3) COPIES OF WRITTEN DESCRIPTIONS OF ALL SYSTEMS COVERING ALL MANUAL OPERATING PROCEDURES, AUTOMATIC CONTROL DESCRIPTIONS AND AUTOMATIC TEMPERATURE & PRESSURE SETTINGS WRITTEN DESCRIPTIONS SHALL INCLUDE LUBRICATION SCHEDULES, PARTS LIST, PERFORMANCE SERVICES FOR EQUIPMENT, FILTER SIZE/QUANTITY SCHEDULE, ETC. WHEN MANUFACTURER STANDARD INSTRUCTIONS ARE UTILIZED, THEY SHALL BE CLEARLY MARKED AS TO INDICATED APPLICABILITY.

C. AT THE END OF THE PROJECT, THE PLUMBING CONTRACTOR SHALL FURNISH THE FOLLOWING: APPROVED OPERATING INSTRUCTIONS FOR EACH PRINCIPAL ITEM OF EQUIPMENT FOR THE USE OF THE OPERATION AND MAINTENANCE PERSONNEL. THE OPERATING INSTRUCTIONS SHALL INCLUDE WIRING DIAGRAMS, CONTROL DIAGRAMS, AND CONTROL SEQUENCE FOR EACH PRINCIPAL ITEM OF EQUIPMENT. OPERATING INSTRUCTIONS SHALL BE PRINTED OR ENGRAVED, AND SHALL BE FRAMED UNDER GLASS OR IN AN APPROVED LAMINATED PLASTIC & POSTED WHERE DIRECTED BY ENGINEER. OPERATING INSTRUCTIONS SHALL BE ATTACHED TO OR POSTED ADJACENT TO EACH PRINCIPAL ITEM OF EQUIPMENT. INCLUDE START UP, PROPER ADJUSTMENT, OPERATING, LUBRICATION, SHUT-DOWN, SAFETY-PRECAUTIONS, PROCEDURE IN THE EVENT OF EQUIPMENT FAILURE, AND OTHER ITEMS OF EQUIPMENT. OPERATING INSTRUCTIONS EXPOSED TO THE WEATHER SHALL BE WEATHER PROTECTED. OPERATING INSTRUCTIONS SHALL NOT FADE WHEN EXPOSED TO SUNLIGHT & SHALL BE SECURED TO PREVENT REMOVAL OR PEELING.

D. PROVIDE VALVE TAGS & CHARTS.

3.10 ELECTRICAL WORK:

A. ELECTRICAL COMPONENTS OF PLUMBING EQUIPMENT AND SYSTEMS, SUCH AS MOTORS, FACTORY MOUNTED STARTERS, FACTORY MOUNTED DISCONNECTS AND CONTROL EQUIPMENT SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR.

B. RELAYS AND WIRING REQUIRED FOR INTERLOCKING SYSTEMS SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR. POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

3.11 SAFETY:

A. COMPLY WITH ALL OF THE SAFETY REQUIREMENTS OF OSHA THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT.

B. FURNISH, PLACE AND MAINTAIN PROPER GUARDS FOR PREVENTION OF ACCIDENTS AND ANY OTHER NECESSARY CONSTRUCTION REQUIRED TO SECURE SAFETY OF LIFE AND/OR PROPERTY.

PERMIT SET
DATE: 11/15/2024

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DAVID J. KNIGHT
No. 12602
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

REVISIONS:

DESCRIPTION: PLUMBING SPECIFICATIONS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

P4.1

BER # 24134

1. OCCUPANCY CLASSIFICATION: LIGHT HAZARD
AREAS: OFFICES
RESTROOMS

DENSITY 0.10 GPM/FT^2
AREA OF APPLICATION 1500 FT^2
COVERAGE PER SPRINKLER 225 FT^2
INSIDE HOSE STREAM 0 GPM
OUTSIDE HOSE STREAM 100 GPM

2. OCCUPANCY CLASSIFICATION: ORDINARY HAZARD GROUP 1
AREAS: WATER SERVICE ROOM
ELECTRICAL ROOMS
STORAGE CLOSETS
TENANT SPACES

DENSITY 0.15 GPM/FT^2
AREA OF APPLICATION 1500 FT^2
COVERAGE PER SPRINKLER 130 FT^2
INSIDE HOSE STREAM 0 GPM
OUTSIDE HOSE STREAM 250 GPM

3. OCCUPANCY CLASSIFICATION: ORDINARY HAZARD GROUP 2
AREAS: MECHANICAL ROOMS
STORAGE ROOMS

DENSITY 0.20 GPM/FT^2
AREA OF APPLICATION 1500 FT^2
COVERAGE PER SPRINKLER 130 FT^2
INSIDE HOSE STREAM 0 GPM
OUTSIDE HOSE STREAM 250 GPM

GOVERNING PARTIES
INSURANCE UNDERWRITER (VERIFY W/ OWNER)
AUTHORITY HAVING JURISDICTION MIDDLETOWN FIRE MARSHALL

1 HYDRAULIC DESIGN CRITERIA

FIRE PROTECTION GENERAL NOTES:

1. THE WORK COVERED CONSISTS OF FURNISHING ALL LABOR AND MATERIALS NECESSARY TO INSTALL, COMPLETE AND READY FOR CONTINUOUS OPERATION, THE FIRE PROTECTION SYSTEMS, APPARATUS AND EQUIPMENT FOR THIS PROJECT, AS SHOWN ON DRAWING, PLUS AS REQUIRED BY NFPA-13, NFPA-24, AS REFERENCED IN THE STATE & LOCAL BUILDING & FIRE CODES AND THE AUTHORITY HAVING JURISDICTION.
2. ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THE FIRE PROTECTION SUBCONTRACT, LABOR AND TESTING PERFORMED HEREIN SHALL BE IN COMPLETE ACCORDANCE WITH THE STATE & LOCAL BUILDING & FIRE CODES.
3. ANY AND ALL PERMITS REQUIRED FOR INSTALLATION OF ANY MATERIAL SHALL BE OBTAINED AS PART OF THE WORK INCLUDING ALL FEES OR EXPENSES INCURRED.
4. UNLESS OTHERWISE NOTED, IT IS THE INTENT OF THESE DOCUMENTS THAT THIS AREA SHALL BE 100% SPRINKLERED.
5. ALL SPRINKLERS PROTECTING LIGHT HAZARD AREAS SHALL BE QUICK RESPONSE.
6. THE SPRINKLER CONTRACTOR SHALL PERFORM A HYDRANT FLOW TEST AND SHALL BASE THEIR HYDRAULIC CALCULATIONS ON THEIR TEST RESULTS.
7. THE SPRINKLER CONTRACTOR SHALL PREPARE THEIR OWN FABRICATION/WORKING DRAWINGS OF THE SPRINKLER WORK AND OBTAIN APPROVALS FROM AUTHORITIES HAVING JURISDICTION PRIOR TO INSTALLATION, AND SUBMIT TO THE ARCHITECT FOR APPROVAL.
8. SPRINKLERS SHALL BE LOCATED ABOVE AND BELOW ALL DUCTWORK GREATER THAN 4'-0".
9. ROUTING OF SPRINKLER MAINS, BRANCHES AND SPRINKLERS SHALL BE THOROUGHLY COORDINATED WITH OTHER TRADES AND BUILDING STRUCTURE PRIOR TO SUBMISSION OF COORDINATED SHOP DRAWINGS. FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR COORDINATING, PREPARING, AND SUBMITTING COORDINATION DRAWINGS FOR APPROVAL.
10. ALL SLEEVES THROUGH CONCRETE FLOORS AND FIRE RATED WALLS OR PARTITIONS SHALL BE FIRE STOPPED WITH UL RATED ASSEMBLIES OF EQUAL FIRE RATING.
11. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, STORAGE AND CUTTING OF ANY CEILING TILES TO ACCOMMODATE SPRINKLERS. THEY SHALL ALSO REINSTALL THE CEILING TILES AND REPLACE ANY DAMAGED TILES.
12. SPRINKLERS IN AREAS WITH NO FINISHED CEILING SHALL BE LOCATED AS HIGH AS POSSIBLE. SPRINKLERS SUBJECT TO PHYSICAL DAMAGE SHALL BE INSTALLED WITH PROTECTIVE CAGES.
13. PATCH PIPE CORES WHERE FIRE PROTECTION PIPING HAS BEEN INSTALLED. PAINT PATCH WORK TO MATCH SURFACES.
14. THESE DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO SHOW EACH AND EVERY OFFSET WITH REGARD TO THE PIPING THAT IS TO BE INSTALLED. THE CONTRACTOR SHALL VISIT THE SITE, READ ALL DRAWINGS, AND MAKE DETAILED NOTES OF ALL NECESSARY OFFSETS REQUIRED WITH THE INSTALLATION OF THEIR WORK. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE AND PROJECT CONDITIONS.
15. THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE TO PROVIDE A COMPLETE SET OF SHOP DRAWINGS AND HYDRAULIC CALCULATIONS WHICH SHALL BEAR THE SEAL OF A FIRE PROTECTION ENGINEER DULY LICENSED IN THE STATE WHERE WORK IS PERFORMED.
16. CONTRACTOR IS TO CLEAN/FLUSH ENTIRE SYSTEM BACK TO THE STREET WATER MAIN.
17. AT THE COMPLETION, TEST ENTIRE SYSTEM PER NFPA-13, NFPA-24, AND NFPA-25. FILE ALL REPORTS AND CERTIFICATIONS. SUBMIT TO OWNER COPIES OF ALL REPORTS AND CERTIFICATIONS, TOGETHER WITH A COPY OF NFPA-25.
18. INSTRUCT THE OWNER ON MAINTENANCE PROCEDURES AND SYSTEM OPERATION.
19. SUBMIT ACCURATE AS-BUILT DRAWINGS.
20. PROVIDE PROPER SEISMIC RESTRAINTS FOR ALL REQUIRED FIRE PROTECTION PIPING PER NFPA AND LOCAL BUILDING CODES.
21. PRESSURE TEST ALL PIPING AND ALARMS PER NFPA.
22. WHERE ALL SPRINKLER PIPING IS EXPOSED, COORDINATE PAINTING PIPING AND SPRINKLERS WITH ARCHITECT. SPRINKLER HEADS SHALL BE FACTORY PAINTED AND NOT FIELD PAINTED.
23. EXTERIOR CANOPIES CONSTRUCTED OF NON-COMBUSTIBLE CONSTRUCTION DO NOT REQUIRE SPRINKLER PROTECTION PER NFPA-13. WHERE EXTERIOR CANOPIES REQUIRE SPRINKLER PROTECTION PER NFPA, PROVIDE DRY TYPE SPRINKLERS OFF OF WET SPRINKLER SYSTEM.
24. INSTALL ALL PENDENT SPRINKLERS LOCATED ON SUSPENDED CEILINGS ON CENTER OF CEILING TILES BOTH WAYS. IF SPRINKLERS ARE LOCATED IN GYPSUM CEILINGS, INSTALL AND ALIGN HORIZONTALLY AND VERTICALLY WITH LIGHT FIXTURES AS MUCH AS POSSIBLE SPACING REQUIREMENTS ALLOW.

FIRE PROTECTION LEGEND

	NEW WORK PIPING (INDICATED AS HEAVY LINE)
F	FIRE SERVICE BELOW GRADE OR BURIED
WS	WET SPRINKLER PIPE
DS	DRY SPRINKLER PIPE
D	SPRINKLER DRAIN
FDC	FIRE DEPARTMENT CONNECTION PIPE
	PIPE TEE LOOKING UP
	PIPE TEE LOOKING DOWN
UP/RISE	PIPE RISER
DN/DR	PIPE ELBOW DOWN OR DROP
	CONTINUATION
	FLOW IN DIRECTION OF ARROW
UN	UNION
PG	PRESSURE GAUGE WITH PETCOCK
FS	FLOW SWITCH
PS	PRESSURE SWITCH
CV	CHECK VALVE
OS&Y	OS&Y GATE VALVE
BV	BALL VALVE
VIV	VALVE IN VERTICAL
WACV	ALARM CHECK VALVE (WET SYSTEM)
DACV	ALARM CHECK VALVE (DRY SYSTEM)
DCVA	HORIZONTAL DOUBLE CHECK VALVE ASSEMBLY
WTS	WATER TIGHT SLEEVE
DV	DRAIN VALVE WITH HOSE END
FDC	SIAMESE FIRE DEPARTMENT CONNECTION
U	UPRIGHT WET SPRINKLER
P	PENDENT WET SPRINKLER
UG	UPRIGHT W/ GUARD
S	SIDEWALL SPRINKLER
#	PIPE NODE NUMBER
#	SPRINKLER NODE NUMBER
EB / WMG	ELECTRIC BELL / WATER MOTOR GONG
TYP	TYPICAL
NC	NORMALLY CLOSED
TS	TAMPER SWITCH
AFF	ABOVE FINISHED FLOOR
FFE	FINISHED FLOOR ELEVATION
AFG	ABOVE FINISHED GRADE
LFPC	LIMIT OF FIRE PROTECTION CONTRACT
NFPC	NOT IN FIRE PROTECTION CONTRACT
GC	GENERAL CONTRACTOR
FPC	FIRE PROTECTION CONTRACTOR
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
HVAC	HVAC CONTRACTOR

PERMIT SET
DATE 11/15/2024

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No. 12602
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

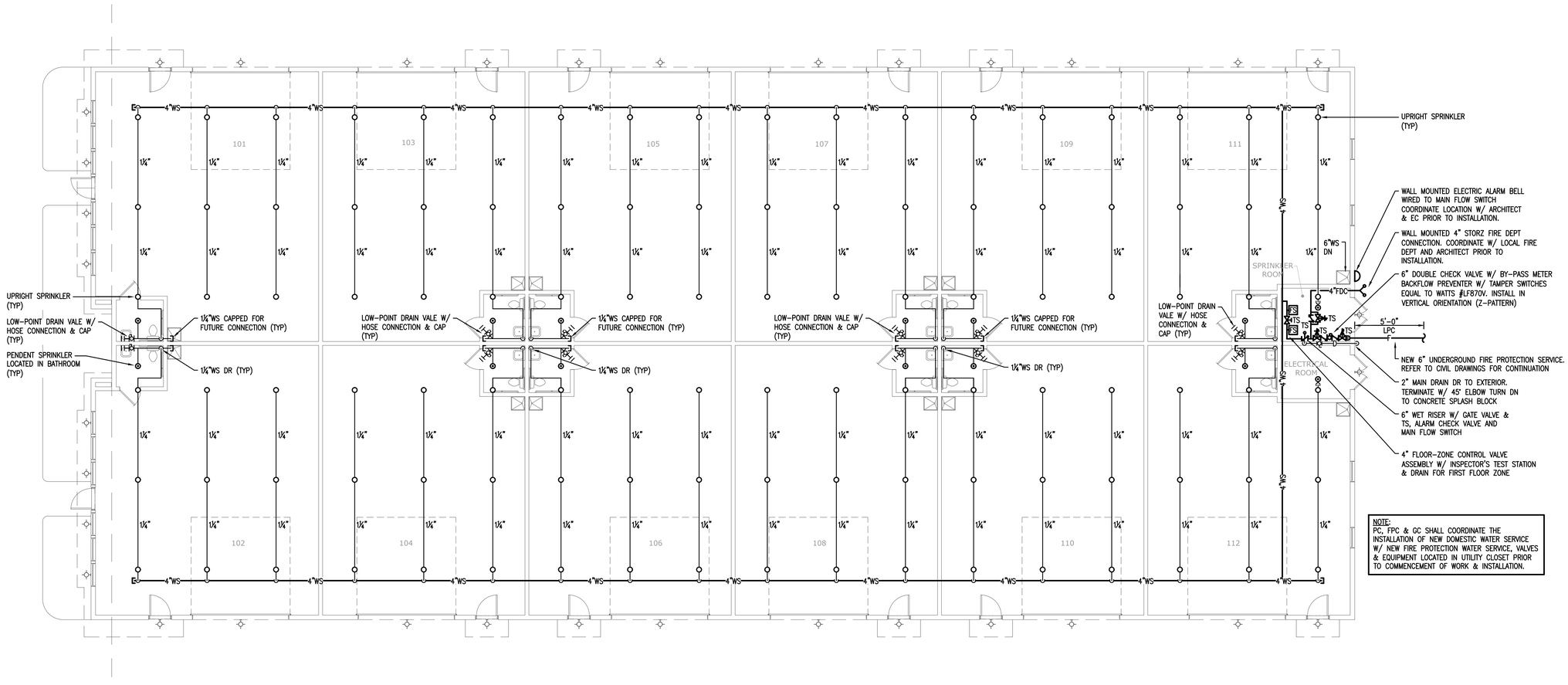
REVISIONS:

DESCRIPTION: FIRE PROTECTION LEGEND, NOTES, AND DETAILS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

FP0.1

BER # 24134



NOTE:
PC, FPC & GC SHALL COORDINATE THE INSTALLATION OF NEW DOMESTIC WATER SERVICE W/ NEW FIRE PROTECTION WATER SERVICE, VALVES & EQUIPMENT LOCATED IN UTILITY CLOSET PRIOR TO COMMENCEMENT OF WORK & INSTALLATION.

1 BUILDING 1: FLOOR PLAN - FIRE PROTECTION
Scale: 1/8"= 1'-0"

PERMIT SET
DATE 11/15/2024

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FPI.0

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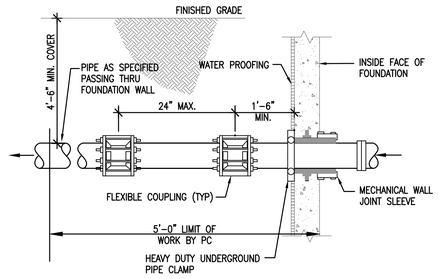
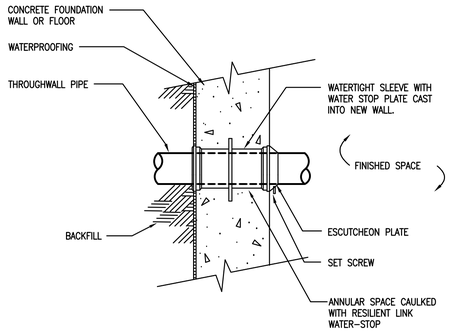
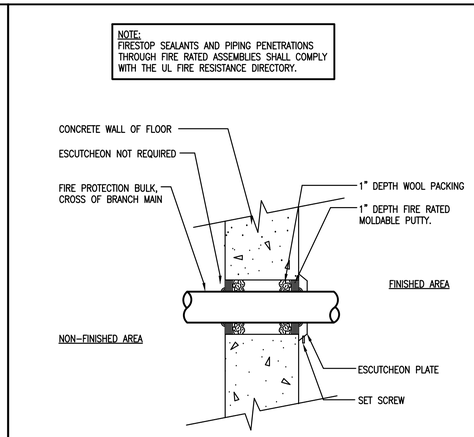


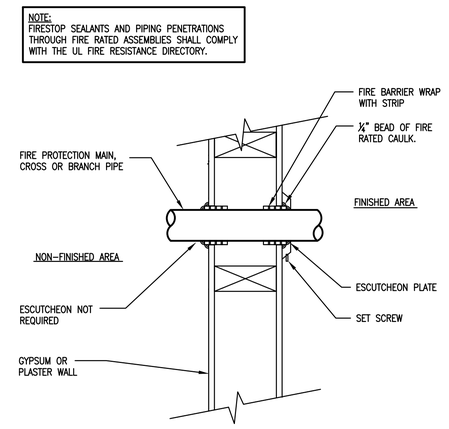
1 TYPICAL SLEEVE THRU FOUNDATION WALL NTS



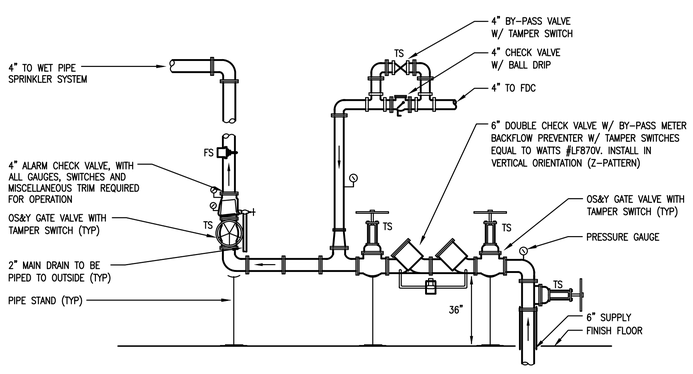
2 WATER TIGHT SLEEVE DIAGRAM NTS



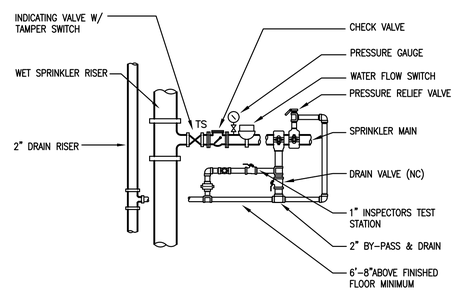
3 MASONRY WALL FIRE RATED SLEEVE NTS



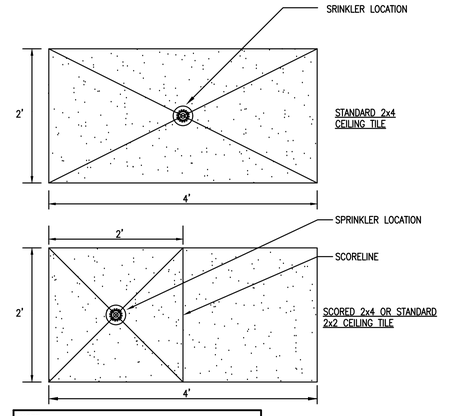
4 STUD WALL FIRE RATED SLEEVE DIAGRAM NTS



5 COMBINATION WET & DRY SPRINKLER RISER ASSEMBLY DIAGRAM NTS



6 FLOOR ZONE CONTROL VALVE ASSEMBLY NTS



7 SPRINKLER LOCATION IN CEILING TILES NTS

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DAVID J. KNIGHT
No. 12602
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

REVISIONS:

DESCRIPTION: FIRE PROTECTION DETAILS
SCALE: AS NOTED
DATE: NOVEMBER 15, 2024

Coddington Cove Commons
300 Coddington Highway
Middletown, Rhode Island, 02842

FP2.0

PERMIT SET
DATE 11/15/2024

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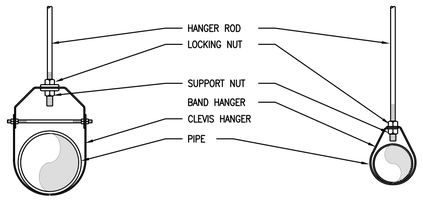


5-INCH AND LARGER

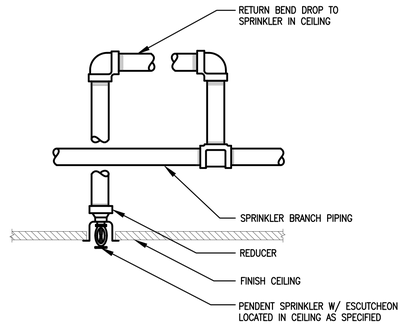
4-INCH AND SMALLER

HANGER ROD SCHEDULE	
PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.
2-1/2" & 3"	1/2" DIA.
4" AND 5"	5/8"
6" - 8"	3/4"
10 & 12"	7/8"

HANGER ROD SPACING	
PIPE SIZE	MAX. ALLOWABLE SPACING
1"	7'
1-1/4"	8'
1-1/2"	9'
2"	10'
2-1/2"	11'
3" - 12"	12'

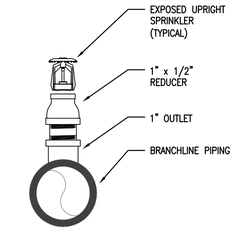
FIRE PROTECTION SYSTEMS

1 TYPICAL PIPE HANGER DIAGRAM NTS



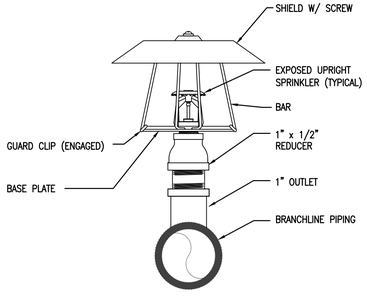
NOTE:
1. REFER TO SPECIFICATIONS FOR SPRINKLER TYPES AND LOCATION REQUIREMENTS.

2 RECESSED SPRINKLER RETURN BEND DROP NTS



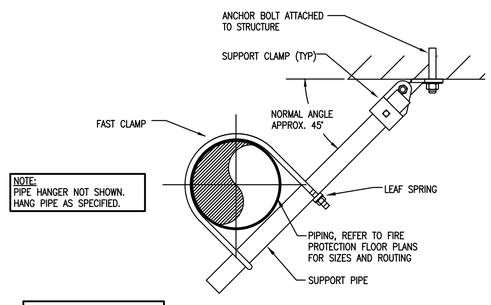
NOTE:
1. REFER TO SPECIFICATIONS FOR SPRINKLER TYPES AND LOCATION REQUIREMENTS.

3 EXPOSED UPRIGHT SPRINKLER NTS

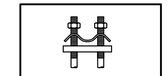


NOTE:
1. REFER TO SPECIFICATIONS FOR SPRINKLER TYPES AND LOCATION REQUIREMENTS.
2. SPRINKLERS INSTALLED ON DRY SPRINKLER SYSTEMS SHALL BE LISTED FOR DRY USE.

4 UPRIGHT SPRINKLER W/ GUARD NTS

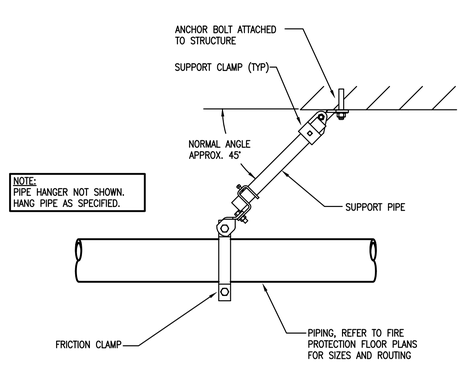


NOTE:
PIPE HANGER NOT SHOWN. HANG PIPE AS SPECIFIED.



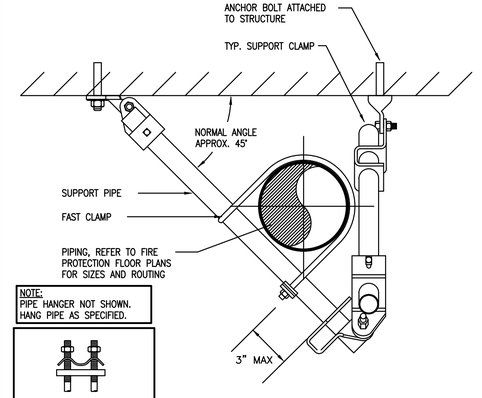
LEAF SPRING CONFIGURATION AND ORIENTATION BEFORE NUTS ARE TIGHTENED

5 LATERAL SEISMIC BRACING DIAGRAM NTS



NOTE:
PIPE HANGER NOT SHOWN. HANG PIPE AS SPECIFIED.

6 LONGITUDINAL SEISMIC BRACING DIAGRAM NTS



NOTE:
PIPE HANGER NOT SHOWN. HANG PIPE AS SPECIFIED.

LEAF SPRING CONFIGURATION AND ORIENTATION BEFORE NUTS ARE TIGHTENED

7 4-WAY LONGITUDINAL SEISMIC BRACING NTS

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FIRE PROTECTION SPECIFICATIONS

PART I GENERAL

1.01 GENERAL REQUIREMENTS:

A. THE WORK COVERED CONSISTS OF FURNISHING ALL LABOR AND MATERIALS NECESSARY TO INSTALL, COMPLETE AND READY FOR CONTINUOUS OPERATION, THE FIRE PROTECTION SYSTEMS, APPARATUS AND EQUIPMENT FOR THE CODDINGTON COVE COMMONS, MIDDLETOWN, RI.

B. THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS UPON WHICH THE CONTRACTOR SHALL SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR PROVISIONS.

C. WHEN CONFLICTS OCCUR IN THE SPECIFICATIONS OR ON THE DRAWINGS, OR BETWEEN EITHER, THE ITEMS OF GREATER QUANTITY OR HIGHER COST SHALL BE PROVIDED.

D. THE CONTRACTOR SHALL PROVIDE ALL ITEMS OF LABOR OR MATERIALS NOT SPECIFICALLY INDICATED, BUT REQUIRED TO COMPLETE THE INTENDED INSTALLATION.

E. THE CONTRACTOR SHALL COORDINATE THEIR WORK OR ADJUST SAME TO THAT OF OTHER TRADES, IN ORDER THAT CONFLICTS IN SPACE LOCATIONS DO NOT OCCUR.

F. THE WORK UNDER THIS CONTRACT SHALL BE PERFORMED SIMULTANEOUSLY WITH WORK OF OTHER TRADES, SO AS NOT TO DELAY THE OVERALL PROGRESS OF WORK.

G. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY ITEMS WITH SAME, WHICH MAY BE DAMAGED, LOST OR STOLEN, WITHOUT ADDITIONAL COST TO THE OWNER.

1.02 WORK INCLUDED:

A. THE INTENTION OF THE SPECIFICATIONS AND PLANS IS TO PROVIDE FOR FURNISHED SYSTEMS, PROPERLY TESTED, BALANCED AND READY FOR OPERATION, INCLUDING NECESSARY MINOR DETAILS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE, EVEN THOUGH SUCH ITEMS MAY NOT BE EXPRESSLY SHOWN OR SPECIFIED.

B. THE WORK COVERED BY THIS SECTION OF THE SPECIFICATION INCLUDES THE FURNISHING OF ALL LABOR AND MATERIALS AND IN PERFORMING ALL OPERATIONS IN CONNECTION WITH THE INSTALLATION OF THE FIRE PROTECTION WORK SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN AND SHALL BE INTERPRETED AS WORK TO BE DONE BY THIS CONTRACTOR. WORK TO BE PERFORMED BY OTHER TRADES WILL ALWAYS BE SPECIFICALLY REFERENCED TO A PARTICULAR CONTRACTOR AND/OR SECTION.

C. CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWINGS AND/OR SITE CONDITIONS, THE FIRE PROTECTION CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED.

D. WITHOUT LIMITING GENERALITY, PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT FOR A COMPLETE SPRINKLER SYSTEM AS DESCRIBED BELOW:

1. WET SPRINKLER SYSTEM PIPING INCLUDING SHOP DRAWINGS.
2. SPRINKLERS, NIPPLES AND BRANCH PIPING.
3. CORING, SLEEVING, FIRESTOPPING, CUTTING, AND PATCHING.
4. HANGERS, SUPPORTS, ACCESS DOORS.
5. SEISMIC BRACING, DRAWINGS & CALCULATIONS.
6. VALVE IDENTIFICATION SIGNS & HYDRAULIC DESIGN NAMEPLATES.
7. FLUSHING, INSPECTIONS & TESTING.
8. PERMITS AND FEES.
9. PAINTING OF EXPOSED PIPE – (COORDINATE W/ ARCHITECTURAL DOCUMENTS).
10. HYRDANT FLOW TEST ACCORDING TO NFPA 291.
11. HYDRAULIC CALCULATIONS.
12. FLOW AND TAMPER SWITCHES.
13. INSPECTOR'S TEST STATIONS.

1.03 REGULATORY REQUIREMENTS, CODES, ORDINANCES AND PERMITS

A. ALL FIRE PROTECTION WORK SHALL BE PERFORMED BY A STATE LICENSED CONTRACTOR IN STRICT ACCORDANCE WITH AUTHORITY HAVING JURISDICTION (AHJ), STATE & LOCAL CODES, LAWS AND ORDINANCES.

B. ALL WORK SHALL MEET OR EXCEED LATEST REQUIREMENTS OF THE STATE BUILDING CODES NFPA STANDARD 1, 13, 24 & 101, STATE & LOCAL CODES, BUILDINGS INSURANCE COMPANY, AND AUTHORITIES HAVING JURISDICTION OVER THE WORK OF THIS PROJECT. WHERE CODE REFERENCES ARE GIVEN, THE LATEST ISSUE OF THAT CODE IN EFFECT AT THE TIME OF BIDDING SHALL BE USED.

C. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND FILING ALL PLANS, SPECIFICATIONS AND OTHER DOCUMENTS, PAY ALL REQUISITE FEES AND SECURE ALL PERMITS, INSPECTIONS AND APPROVALS NECESSARY FOR THE LEGAL INSTALLATION AND OPERATION OF THE SYSTEM AND/OR EQUIPMENT FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS.

D. THIS CONTRACTOR SHALL FRAME UNDER GLASS ALL PERMITS, SECURED BY THEM, ADJACENT TO THE RESPECTIVE SYSTEM AND/OR EQUIPMENT AND REQUIRED TO BE DISPLAYED BY CODE, LAW AND ORDINANCE. THOSE PERMITS SECURED BUT NOT REQUIRED TO BE DISPLAYED SHALL BE INCLUDED IN THE OWNER'S MAINTENANCE MANUAL.

1.04 SUBMITTALS:

A. PROVIDE SHOP DRAWINGS FOR ALL FIXTURES AND EQUIPMENT FOR ALL WORK PROVIDED UNDER THIS CONTRACT TO THE ARCHITECT/ENGINEER FOR THEIR REVIEW AND APPROVAL PRIOR TO ORDERING, FABRICATING OR INSTALLING.

1.05 COORDINATION:

A. WORK SHALL BE PERFORMED IN COOPERATION WITH OTHER TRADES ON THE PROJECT AND SO SCHEDULED AS TO ALLOW EFFICIENT COMPLETION OF THE WORK.

B. FURNISH TO OTHER TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF ALL FRAMES, BOXES, SLEEVES AND OPENINGS NEEDED FOR THEIR WORK, AND ALSO FURNISH INFORMATION AND SHOP DRAWINGS NECESSARY TO PERMIT TRADES AFFECTED BY THE WORK TO INSTALL SAME PROPERLY AND WITHOUT DELAY.

C. IF ANY FIRE PROTECTION WORK HAS BEEN INSTALLED BEFORE COORDINATION WITH OTHER TRADES SO AS TO CAUSE INTERFERENCE WITH THE WORK OF SUCH TRADES, ALL NECESSARY ADJUSTMENTS AND CORRECTIONS SHALL BE MADE BY THE FIRE PROTECTION TRADES INVOLVED WITHOUT EXTRA COST TO THE OWNER.

D. PROTECT ALL MATERIALS AND WORK OF OTHER TRADES FROM DAMAGE WHICH MAY BE CAUSED BY THE FIRE PROTECTION WORK, AND REPAIR ALL DAMAGES WITHOUT EXTRA COST TO THE OWNERS.

E. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWINGS AND/OR SITE CONDITIONS, THE FIRE PROTECTION CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED.

F. FIRE PROTECTION EQUIPMENT AND SUCH OTHER APPARATUS AS MAY REQUIRE MAINTENANCE AND OPERATION FROM TIME TO TIME SHALL BE MADE EASILY ACCESSIBLE. ALTHOUGH THE EQUIPMENT MAY BE SHOWN ON THE DRAWINGS IN CERTAIN LOCATIONS, THE CONSTRUCTION MAY DISCLOSE THAT SUCH LOCATIONS DO NOT MAKE ITS POSITION READILY ACCESSIBLE. IN SUCH CASES, THE OWNER OR HIS REPRESENTATIVE SHALL BE NOTIFIED BEFORE ADVANCING THE CONSTRUCTION TO A STAGE WHERE A CHANGE WILL REFLECT ADDITIONAL EXPENSE.

G. IT SHALL BE THE RESPONSIBILITY OF THE FIRE PROTECTION CONTRACTOR TO STUDY ALL DRAWINGS AND DETAILS SO THAT THE INSTALLATION OF ALL NEW WORK CAN BE FULLY COORDINATED. COORDINATE WITH ALL TRADES TO AVOID INTERFERENCE OF EQUIPMENT.

H. FIRE PROTECTION WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EQUIPMENT, DUCTS OR PIPES INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. FIRE PROTECTION CONTRACTOR SHALL COORDINATE ALL WALL, CEILING, FLOOR, ROOF AND BEAM PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER.

I. THIS CONTRACTOR SHALL OBTAIN DETAILED PRINTED INFORMATION FROM THE MANUFACTURER OF EQUIPMENT WHICH THEY ARE TO PROVIDE FOR THE PROPER METHODS OF INSTALLATION. THIS CONTRACTOR SHALL ALSO OBTAIN ALL INFORMATION FROM THE GENERAL CONTRACTOR AND OTHER CONTRACTORS WHICH MAY BE NECESSARY TO FACILITATE THEIR WORK AND THE COMPLETION OF THE WHOLE PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

J. THE WORK TO BE ACCOMPLISHED UNDER THIS SECTION INCLUDES WORK WITHIN EXISTING AREAS ADJACENT TO THE SITE OF NEW CONSTRUCTION. CONTINUITY OF SERVICES WITHIN EXISTING AREAS SHALL BE MAINTAINED. ANY INTERRUPTION OF SERVICES NECESSARY TO ACCOMPLISH THE WORK SHALL BE MADE ONLY WITH THE CONSENT OF THE GENERAL CONTRACTOR AND AT SUCH TIME(S) AS THE OWNER DESIGNATES.

K. THIS CONTRACTOR SHALL NOT UNNECESSARILY DISTURB OR INTERFERE WITH THE OWNER'S USE OF THE FACILITIES ASSOCIATED WITH OR ADJACENT TO THIS CONTRACT. WHEN INTERFERENCE IS NECESSARY, PERMISSION SHALL BE OBTAINED FROM THE GENERAL CONTRACTOR BEFORE ANY OPERATION OR SERVICE LINE IS DISTURBED OR DISCONNECTED.

L. THIS CONTRACTOR SHALL INCLUDE UNDER COORDINATION WORK THE INSTALLATION OF ALL SYSTEMS IN CONFORMANCE WITH GOVERNING CODES. THIS CONTRACTOR IS ADVISED THAT NO PIPING OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH SUCH SPACES OR ROOMS PROVIDED FOR SWITCHBOARDS AND PANELBOARDS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

1.06 FIRE PROTECTION AND ELECTRICAL COORDINATION:

A. FIRE PROTECTION CONTRACTOR SHALL FURNISH AND INSTALL VARIOUS ELECTRICAL AND FIRE ALARM ITEMS RELATING TO THE FIRE PROTECTION EQUIPMENT AND CONTROL APPARATUS. THE ELECTRICAL SUBCONTRACTOR SHALL BE REQUIRED TO CONNECT POWER WIRING TO THIS EQUIPMENT UNLESS NOTED OTHERWISE.

B. THE FIRE PROTECTION AND ELECTRICAL SUBCONTRACTOR SHALL COORDINATE THEIR RESPECTIVE PORTIONS OF THE WORK, AS WELL AS THE ELECTRICAL AND FIRE ALARM CHARACTERISTICS OF THE FIRE PROTECTION EQUIPMENT.

C. ALL POWER WIRING AND LOCAL DISCONNECT SWITCHES WILL BE PROVIDED BY THE ELECTRICAL SUBCONTRACTOR FOR THE LINE VOLTAGE POWER. ALL CONTROL AND INTERLOCKING WIRING SHALL BE THE RESPONSIBILITY OF THE FIRE PROTECTION SUBCONTRACTOR.

D. 120V POWER WIRING SOURCES EXTENDED AND CONNECTED TO HEATING AND VENTILATING CONTROL PANELS, TRANSFORMERS AND SWITCHES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL SUBCONTRACTOR. ALL LOW VOLTAGE THERMOSTAT, ZONE VALVE AND ANY SWITCH WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL SUBCONTRACTOR.

E. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE ELECTRICAL DIVISION.

F. ALL STARTERS SHALL BE FURNISHED AND INSTALLED UNDER THE ELECTRICAL DIVISION EXCEPT THOSE FURNISHED AS AN INTEGRAL PART OF PACKAGED EQUIPMENT.

1.07 INSTALLATION REQUIREMENTS:

A. THE ARRANGEMENT OF ALL FIRE PROTECTION WORK SHOWN ON THE DRAWINGS IS DIAGRAMMATIC ONLY AND INDICATES THE MINIMUM REQUIREMENTS OF THE WORK. CONDITIONS AT THE BUILDING INCLUDING ACTUAL MEASUREMENTS SHALL DETERMINE THE DETAILS OF THE INSTALLATION.

B. INSTALL ALL MATERIALS, ACCESSORIES AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR A COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS AND MANUFACTURERS INSTRUCTIONS.

C. ALL MISCELLANEOUS STRUCTURAL SUPPORTS REQUIRED FOR FIRE PROTECTION EQUIPMENT INSTALLATION SHALL BE PROVIDED BY FIRE PROTECTION CONTRACTOR. INSTALL ALL PIPING BELOW DUCTWORK UNLESS CLEARANCE CONDITION REQUIRES PIPING TO BE ABOVE.

D. CONTRACTOR SHALL DRAIN SYSTEM AS REQUIRED TO PERFORM NEW WORK AND CONNECTIONS. ONCE WORK IS COMPLETE THE CONTRACTOR SHALL FLUSH, FILL, TEST AND BALANCE ALL SYSTEMS.

1.08 RECORD DRAWINGS

A. PROVIDE RECORD AS-BUILT DRAWINGS. THE CONTRACTOR SHALL KEEP DAILY UPDATED ACCURATE RECORDS OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK INDICATED ON THE CONTRACT DRAWINGS. WHEN WORK IS COMPLETED THIS CONTRACTOR SHALL PROVIDE TO THE OWNER ONE COMPLETE SET OF MARKED-UP ORIGINAL PRINTS, UPDATED CAD DRAWINGS AND A CD WITH CAD FILES.

1.09 GUARANTEE/WARRANTY

A. ALL NEW MATERIALS, ITEMS OR EQUIPMENT AND WORKMANSHIP FURNISHED UNDER THIS SECTION SHALL CARRY STANDARD WARRANTY AGAINST ALL DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF WORK. ANY FAULT DUE TO DEFECTIVE OR IMPROPER MATERIAL, EQUIPMENT, WORKMANSHIP OR MANUFACTURING DESIGN WHICH MAY DEVELOP WITHIN THAT PERIOD SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THIS CONTRACTOR, INCLUDING ALL OTHER DAMAGES DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM THIS FAILURE.

B. THIS CONTRACTOR SHALL GUARANTEE THAT ALL NEW ELEMENTS OF THE SYSTEMS MEET THE SPECIFIED PERFORMANCE REQUIREMENTS AS SET FORTH HEREIN OR AS INDICATED ON THE DRAWINGS.

C. CERTIFICATION SHALL BE SUBMITTED BY THE CONTRACTOR ATTESTING TO THE FACT THAT SPECIFIED PERFORMANCE CRITERIA ARE MET BY NEW SYSTEM.

1.10 APPROVALS AND SUBSTITUTIONS:

G. IT IS THE INTENT OF THESE SPECIFICATIONS THAT WHEREVER A MANUFACTURER IS SPECIFIED AND SUBSTITUTIONS ARE ALLOWED, THEY SHALL CONFORM IN ALL RESPECTS TO THE SPECIFIED ITEM CRITERIA AS DELINEATED, SPECIFIED EQUIPMENT SHALL BE INTERPRETED AS MINIMUM PERFORMANCE REQUIREMENTS.

H. SUBSTITUTED EQUIPMENT WHERE PERMITTED MUST CONFORM TO SPACE REQUIREMENTS. ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUIREMENTS, WHETHER APPROVED OR NOT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY MODIFICATION OF RELATED SYSTEMS OR ADDITIONAL COSTS THAT RESULT FROM SUBSTITUTED EQUIPMENT SHALL BE BORNE BY THIS CONTRACTOR.

I. IT SHALL BE MANDATORY FOR THIS CONTRACTOR TO SUBMIT THEIR BID PRICE BASED ON SPECIFIED MANUFACTURERS OR SUPPLIERS OF MATERIALS OR SERVICES. IF THE CONTRACTOR DESIRES TO SUBSTITUTE OTHER THAN SPECIFIED, THEY SHALL SUBMIT SEPARATE PRICES FOR EACH OF THESE ITEMS FOR ADDITIONS OR DEDUCTIONS TO THE BID PRICE, FOR ACCEPTANCE OR REJECTION AT THE TIME BIDS ARE DUE. SHOULD THESE SUBSTITUTIONS BE REJECTED, THE CONTRACTOR SHALL BE OBLIGED TO PROVIDE SPECIFIED MATERIALS AND SERVICES.

PART II PRODUCTS

2.01 SPRINKLER SYSTEM PIPING, SPRINKLERS & ACCESSORIES:

A. EXTERIOR WATER SERVICE: MECHANICAL JOINT DUCTILE IRON, CLASS 52, WITH MECHANICAL JOINT DUCTILE IRON FITTINGS; PIPE AND FITTINGS SHALL BE 350 PSI RATED. PIPE AND FITTINGS SHALL BE COATED ON THE OUTSIDE, CEMENT LINED ON THE INSIDE. ALL CHANGES IN DIRECTION SHALL HAVE TIE RODS AND CLAMPS ANCHORED TO THRUST BLOCKS.

B. SERVICE ENTRANCE INTO BUILDING: CAST IRON FLANGED PIPE AND FITTINGS; PIPE SHALL CONFORM TO FEDERAL SPECIFICATION WW-P-421, CLASS 150; FLANGES FACED AND DRILLED FOR 125 PSI SERVICE. PIPE AND FITTINGS SHALL BE COATED ON THE OUTSIDE, CEMENT LINED ON THE INSIDE.

C. ABOVE GROUND PIPING WHERE MAKING CONNECTIONS TO FLANGED VALVES AND TO UNDERGROUND ENTRANCE: SCHEDULE 40 BLACK STEEL PIPE, BLACK CAST IRON SCREWED COMPANION FLANGES AND FLANGED CAST IRON FITTINGS, ALL SUITABLE FOR 175 PSI WORKING WATER PRESSURE.

D. ABOVE GROUND WET SPRINKLER AND STANDPIPE PIPING: SCHEDULE 40 FOR 1½" OR SMALLER, SCHEDULE 10 FOR 2" OR LARGER, BLACK STEEL ASTM A795, SEAMLESS FERROUS PIPE U.L. LISTED FOR FIRE PROTECTION SYSTEMS AND FULL F.M. APPROVAL. PIPING SHALL BE STAMPED WITH MANUFACTURERS NAME, U.L. AND F.M. APPROVAL. FITTINGS SHALL BE U. LISTED/F.M. APPROVED: CAST IRON ANSI B16.4, ANSI B16.1 OR MALLEABLE IRON ANSI B16.3. PIPE THROUGH EXTERIOR WALLS AND DRAIN PIPE SHALL BE GALVANIZED STEEL.

E. FITTINGS, COUPLINGS, UNION AND REDUCERS SHALL HAVE A WORKING PRESSURE OF NOT LESS THAN 175 PSIG AND U.L. LISTED FOR FIRE PROTECTION SYSTEMS. GROOVED END FITTINGS AND COUPLINGS SHALL BE COMPATIBLE FROM THE SAME MANUFACTURER. GASKETS SHALL BE EPDM STANDARD GASKET STYLE.

F. ABOVE GROUND DRY SPRINKLER SYSTEM PIPING AND FITTINGS SHALL BE GALVANIZED INSIDE AND OUT TO ASTM A795 REQUIREMENTS.

G. PROVIDE UL LISTED & FM APPROVED QUICK RESPONSE SPRINKLERS. SPRINKLERS SHALL BE GLASS BULB TYPE AND HAVE 1/2" ORIFICE. UPRIGHT SPRINKLERS SHALL HAVE BRASS PLATED FINISH. UPRIGHT, PENDENT AND SIDEWALL SPRINKLER TYPES SHALL BE AS INDICATED ON THE CONTRACT DRAWINGS. PROVIDE EXTENDED COVERAGE TYPE SPRINKLERS WHERE INDICATED IN THE CONTRACT DRAWINGS. PROVIDE UL LISTED & FM APPROVED DRY TYPE SPRINKLERS FOR DRY SYSTEM AND IN AREAS SUBJECT TO FREEZING. ALL ESCUTCHEONS SHALL BE CHROME FINISH. SPRINKLERS SHALL BE MANUFACTURED BY RELIABLE, TYCO, VICTAULIC OR VIKING.

H. SPRINKLERS SHALL BE ORDINARY TEMPERATURE CLASSIFICATION WITH A TEMPERATURE RATING OF 155°F, EXCEPT IN AREAS SUBJECT TO ABNORMAL HEATING CONDITIONS. SPRINKLERS IN MECHANICAL & ELECTRIC ROOMS AND SPRINKLERS NEAR UNIT HEATERS SHALL HAVE A TEMPERATURE RATING OF 200°F.

I. SPRINKLERS, IN GENERAL, SHALL BE AUTOMATIC CLOSED TYPE WITH TEMPERATURE RATINGS TO SUIT INSTALLED CONDITIONS. SPRINKLERS SHALL BE LOCATED IN THE CENTER OF THE CEILING TILES. WHEN THE CEILING TILE IS DIVIDED INTO SECTIONS BY GROOVED DEPRESSIONS, THE SPRINKLER SHALL BE LOCATED IN THE CENTER OF ONE OF THE PANELS.

J. SPARE SPRINKLERS, CABINET AND WRENCH SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13.

K. PROVIDE WALL MOUNTED FIRE DEPARTMENT CONNECTION WITH THREADS MATCHING LOCAL FIRE DEPARTMENT REQUIREMENTS. PROVIDE CHROME PLATED BODY AND TRIM LETTER "STANDPIPE & AUTOMATIC SPRINKLER."

L. HANGERS SHALL BE CARPENTER & PATTERSON, GRINNELL CLEVIS TYPE HEAVY DUTY STEEL AND HANGER RODS WITH MACHINE THREADS. SPACING AND SIZE OF RODS SHALL BE ACCORDING TO NFPA 13. INSTALL DOUBLE LOCK NUTS. HANGERS AND RODS SHALL BE GALVANIZED WHERE EXPOSED TO WEATHER OR HUMID ENVIRONMENTS.

M. PROVIDE SEISMIC BRACING DESIGNED TO WITHSTAND TENSION AND COMPRESSION ON SPRINKLER & STANDPIPE SYSTEMS. ACCEPTABLE MANUFACTURER SHALL BE TOLCO INC., OR APPROVED EQUAL. WHERE PRESSURES EXCEED 100 PSI, ABIDE BY NFPA 13.

2.02 VALVES & ACCESSORIES:

A. ALL VALVES SHALL BE U.L. LISTED & FM APPROVED AND STAMPED OR MARKED WITH MANUFACTURER'S NAME. VALVES SHALL BE INSTALLED WITH A 175 PSI PRESSURE RATING.

B. GATE VALVES 2 INCHES OR SMALLER SHALL BE BRONZE, WITH RISING STEM & SCREWED ENDS. GATE VALVES OVER 2 INCHES SHALL BE BRONZE MOUNTED, RESILIENT SEAT, IRON BODY, OUTSIDE SCREW & YOKE TYPE, FLANGED. GATE VALVES SHALL BE ABLE TO ACCOMMODATE A MONITOR SWITCH.

C. CHECK VALVES SHALL BE IRON BODY, BRONZE MOUNTED, SWING TYPE, WITH FLANGED ENDS ON PIPING OVER 2 INCHES. CHECK VALVES SHALL BE ALL BRONZE WITH SCREWED ENDS ON PIPING UNDER 2 INCHES. THE CHECK VALVE AT THE FIRE PUMP DISCHARGE SHALL BE GEM MODEL F512 WATER CHECK VALVE WITH CLASS 250 LB FLANGES.

D. BUTTERFLY VALVES SHALL BE EQUIPPED WITH A TAMPER SWITCH WITH TWO SETS OF CONTACTS.

E. DOUBLE CHECK VALVE ASSEMBLIES: U.L. LISTED AND FM APPROVED, DESIGN FOR HORIZONTAL AND VERTICAL INSTALLATION, ASTM A-536 EPOXY-COATED DUCTILE IRON BODY, STAINLESS STEEL, NORTYL OR BRONZE INTERNAL CHECK VALVES, STAINLESS STEEL SPRINGS, EPDAA OR BRONZE SEATS. PROVIDE OS&Y GATE VALVES. VALVES SHALL HAVE A 175-PSIG PRESSURE RATING.

F. PROVIDE SYSTEM DRAIN VALVES AND INSPECTORS TEST DRAINS AS PER NFPA 13 2002 EDITION AND AHJ. DRAINS SHALL BE PROVIDED AT LOW POINTS IN PIPING, AT BASE OF RISERS, AND WHEREVER NECESSARY FOR PROPER DRAINAGE.

G. WATERFLOW INDICATORS SHALL BE U.L. APPROVED CLOSED CIRCUIT WITH ADJUSTABLE RETARD AND TWO SETS OF CONTACTS.

H. SUPERVISORY SWITCHES SHALL BE U.L. APPROVED, TAMPER PROOF DIE CAST ALUMINUM HOUSING AND TWO SETS OF CONTACTS.

2.03 SMOKE AND FIRESTOPPING:

A. FIRESTOP ALL PIPING PASSING THROUGH FIRE RATED WALLS, SLABS, ETC. INSTALL STEEL, SCH. 40, SLEEVES EXTENDING 2" ABOVE FLOOR OR BEYOND WALL. THE SPACE BETWEEN THE PIPES AND THE SLEEVES SHALL BE PACKED WITH AN APPROVED FIRESTOPPING MATERIAL. THE SPACE BETWEEN PIPE SLEEVE AND FLOOR OR WALL SHALL BE FILLED WITH A SUITABLE FLOOR OR WALL MATERIAL. FIRESTOP MATERIAL SHALL BE MANUFACTURED BY HILTI FIRESTOP PRODUCTS AND SHALL BE FACTORY MUTUAL APPROVED, U.L. LISTED. SHEET METAL OR PVC SLEEVES SHALL NOT BE USED. SUBMIT SAMPLE OF FIRESTOP MATERIAL TO BE USED ON PROJECT TO THE LOCAL FIRE CHIEF AND ENGINEER FOR REVIEW AND APPROVAL BEFORE PLACING ORDER.

2.04 ACCESS PANELS:

A. FURNISH FIRE RATED ACCESS PANELS IN WALLS AND CEILINGS FOR VALVES. COORDINATE ACCESS PANEL LOCATIONS WITH EXISTING CONDITIONS. PIPING & VALVES SHALL BE LAID OUT IN SUCH A MANNER AS TO MINIMIZE THE NUMBER OF ACCESS PANELS REQUIRED. MILCOR PRODUCTS, VENTLOCK, KNAPP. MINIMUM SIZE: 12" x 12". PROVIDE ACCESS PANELS FOR ALL DRAIN VALVES AND INSPECTORS TEST VALVES AND ZONE CONTROL VALVES.

2.05 IDENTIFICATION, MARKING AND TAGGING:

A. EQUIPMENT IDENTIFICATION:

1. MANUFACTURER'S NAMEPLATES OR TRADEMARK SHALL BE PERMANENTLY AFFIXED TO ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THIS DIVISION. MANUFACTURER'S NAMEPLATES SHALL INCLUDE ALL PERTINENT DATA RELATIVE TO THE PIECE OF EQUIPMENT INCLUDING MODEL NUMBER, SERIAL NUMBER, AND OPERATING CHARACTERISTICS AS APPLICABLE.
2. MARKERS SHALL BE OF RIGID BLACK BAKELITE OR PHENOLIC CONSTRUCTION WITH WHITE ENGRAVED OR INCISED LETTERS.
3. LETTERING ON EQUIPMENT MARKERS SHALL BE OF ADEQUATE SIZE TO BE LEGIBLE FROM FLOOR LEVELS. MARKER LETTERING SHALL NO BE LESS THAN 1 INCH HIGH.
4. MOUNT EQUIPMENT IDENTIFICATION NAMEPLATES IN A CONSPICUOUS PLACE ON ON THE EQUIPMENT.
5. FOR EQUIPMENT ABOVE THE FLOOR LEVEL, MOUNT IDENTIFICATION NAMEPLATE SO THAT CAN BE SEEN FROM FLOOR LEVEL.
6. ATTACH NAMEPLATES WITH RIVETS.

B. PIPING SYSTEM IDENTIFICATION:

1. PIPING SYSTEMS SHALL BE IDENTIFIED AS INDICATED HEREIN OR AS REQUIRED BY APPLICABLE CODES AND/OR OFFICIALS HAVING JURISDICTION.
2. PIPE MARKERS SHALL BE COLOR CODED ACCORDING TO "TABLE 2: CLASSIFICATION OF MATERIALS AND DESIGNATIONS TO COLORS" – ANSI A13.1-1981.
3. PIPE MARKERS SHALL INDICATE DIRECTION OF FLOW, SYSTEM, OPERATING PRESSURE AND TEMPERATURE.
4. PIPE MARKERS SHALL BE OF THE PRESSURE SENSITIVE TYPE AS MANUFACTURED BY THE SETON NAMEPLATE CORP.
5. PIPE MARKERS SHALL BE INSTALLED AT EVERY POINT OF ENTRY AND EXIT THROUGH FLOORS, WALLS, CEILINGS OR OTHER CEALMENT, ON EACH RISER, TAKE-OFF AND BRANCH AND AT EACH PIECE OF EQUIPMENT.
6. INSTALL PIPE MARKERS AT A DISTANCE OF NOT LESS THAN 25 FEET APART IN CONTINUOUS LENGTHS OF PIPE LINES AND ORIENTED SO THAT MARKERS ARE CLEARLY VISIBLE. WHEN PIPE LINES ARE LOCATED ABOVE THE NORMAL LINE OF VISION, THE MARKER SHALL BE PLACED BELOW THE HORIZONTAL CENTERLINE OF THE PIPE.

C. VALVE IDENTIFICATION:

PROVIDE LAMINATED PLASTIC NAMEPLATES ON ALL VALVES INSTALLED UNDER DIVISION 15, EXCEPT STOP VALVES IN SUPPLIES TO FIXTURES. TAGS SHALL BE CONSTRUCTED OF 0.125 INCHES THICK MELAMINE PLASTIC CONFORMING TO FED. SPEC. L-P-387. SURFACE SHALL BE MATTE FINISH. ACCURATELY ALIGN LETTERING AND ENGRAVE INTO WHITE CORE. NAMEPLATES SHALL BE TO 2 INCHES ROUND OR HEXAGONAL. LETTERING SHALL BE MINIMUM OF 0.375 INCH HIGH NORMAL BLOCK LETTERING. KEY THE NAMEPLATES TO A CHART AND SCHEDULE FOR EACH SYSTEM UNDER GLASS AND PLACE WHERE DIRECTED IN MECHANICAL ROOM. FURNISH FOUR COPIES OF EACH CHART AND SCHEDULE. EACH INSCRIPTION SHALL IDENTIFY IT'S FUNCTION. ATTACH NAMEPLATES WITH "S" HOOKS AND CHAIN TO EACH VALVE.

2.06 SLEEVES, INSERTS AND ESCUTCHEONS:

A. PROVIDE SLEEVES FOR ALL WORK PASSING THROUGH FLOOR, WALL, AND CEILING CONSTRUCTION. MAINTAIN ALL RATINGS.

B. LOCATE AND PROVIDE SLEEVES AND INSERTS BEFORE THE FLOOR, WALL OR CEILING IS CONSTRUCTED. IF THIS CONTRACTOR DOES NOT COMPLY WITH THE ABOVE, THEY SHALL BEAR ALL COSTS INCURRED FOR CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF SLEEVES AND INSERTS. HOLES REQUIRED FOR SLEEVES IN EXISTING WALLS AND FLOORS, OR TO CONFORM TO THE ABOVE, SHALL BE SAW CUT OR CORE DRILLED. THIS CONTRACTOR SHALL PROVIDE ALL DRILLING REQUIRED FOR THE INSTALLATION OF HANGERS.

C. PIPE SLEEVES THROUGH OUTSIDE WALLS AND SLAB-ON-GRADE FLOOR SHALL BE SCHEDULE 80 BLACK STEEL PIPE WITH 150 LB. BLACK STEEL SLIP-ON WELDED FLANGES WELDED AT THE CENTER OF THE OUTSIDE. EXTEND SLEEVES 1/2 INCHES BEYOND EACH SIDE OF THE WALL. PACK THE SPACE BETWEEN SLEEVE AND PIPE WITH OAKUM TO WITHIN 2 INCHES OF EACH FACE OF THE WALL. PACK THE REMAINING SPACE AND MAKE WATERTIGHT WITH AN APPROVED WATERPROOF COMPOUND. (INSIDE FACE OF SLAB ON GRADE FLOOR.) FOR EXISTING WALL CONSTRUCTION, CENTER FLANGE WILL NOT BE REQUIRED.

D. PIPE SLEEVES THROUGH CONCRETE FLOORS OR INTERIOR MASONRY WALLS SHALL BE SCHEDULE 40 BLACK STEEL PIPE, SET FLUSH WITH FINISHED WALL OR CEILING SURFACES, BUT EXTENDING 2 INCHES ABOVE FINISHED FLOORS. PLASTIC, PVC, OR LIGHT METAL SLEEVES SHALL NOT BE INSTALLED.

E. PROVIDE INDIVIDUAL OR STRIP TYPE INSERTS PRESSED STEEL CONSTRUCTION WITH ACCOMMODATION FOR REMOVABLE NUTS AND THREADED RODS UP TO 3/4 INCH DIAMETER, PERMITTING LATERAL ADJUSTMENT. INDIVIDUAL INSERTS SHALL HAVE AN OPENING AT THE TOP TO ALLOW REINFORCING RODS TO 1/2 INCH DIAMETER TO B