

1. MECHANICAL CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF MECHANICAL COMPONENTS AND EQUIPMENT WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS PRIOR TO PERFORMING WORK.
2. CONTRACTOR TO CUT AND PATCH AS REQUIRED TO PERFORM THE WORK.
3. ACCESS DOORS ARE REQUIRED FOR ANY COMPONENT REQUIRING ACCESS ABOVE HARD LID CEILINGS. COORDINATE SIZE, LOCATION AND FINISH WITH ARCHITECT PRIOR TO PERFORMING WORK.
4. REFER TO THE DIAGRAMS THAT APPLY TO THIS SHEET WHICH PROVIDE GENERAL GUIDANCE FOR INSTALLATION THOUGH NOT ALL COMPONENTS AND ACCESSORIES MAY BE SHOWN.
5. PRIOR TO INSTALLATION, CONFIRM SPECIFIC LOCATION FOR ALL THERMOSTATS / SENSORS WITH ARCHITECT. MOUNT AT 48" A.F.F. OR IN ACCORDANCE WITH ADA REQUIREMENTS. PROVIDE LOGGING COVERS.
6. COORDINATE AND CONFIRM BORDER, FRAME, FINISH, AND LOCATION WITH ARCHITECT PRIOR TO ORDERING.
7. ANY PENETRATIONS THROUGH WALL STUDS, FLOOR JOISTS, OR ROOF TO BE IN ACCORDANCE WITH THE LATEST ADOPTED BUILDING CODE.
8. DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
9. CONTRACTOR TO CONFIRM ADEQUATE RETURN AIR PATH BACK TO MAIN AIR HANDLING UNIT.

ADDRESS:

ALL DRAWINGS AND WRITTEN MATERIALS
APPEARING HEREIN CONSTITUTE THE
ORIGINAL AND UNPUBLISHED WORK OF THE
DESIGNER AND THE SAME MAY NOT BE
DUPLICATED, USED OR DISCLOSED WITHOUT
CONSENT OF THE DESIGNER.

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2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DESIGNER, ENGINEER OR SPECIALIST DRAWINGS AND SPECIFICATIONS.
3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING WORK.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

| CPC 2016 - TABLE 614.3: | |
|--|-------------------------------------|
| MINIMUM CONDENSATE PIPE SIZE EQUIPMENT CAPACITY IN TONS OF REFRIGERATION | MINIMUM CONDENSATE PIPE (inches) |
| Up to 20 | 3/4" |
| 21 - 40 | 1" |
| 41 - 90 | 1-1/4" |
| 91 - 125 | 1-1/2" |
| 126 - 250 | 2" |

Ducts conveying explosive or flammable vapors, fumes, or dusts shall terminate not less than 30 feet (9144 mm) from a property line, 10 feet (3048 mm) from openings into the building, 6 feet (1829 mm) from exterior walls or roofs, 30 feet (9144 mm) from combustible walls or openings into the building that are in the direction of the exhaust discharge, and 10 feet (3048 mm) above adjoining grade.

Other product-conveying outlets shall terminate not less than 10 feet (3048 mm) from a property line, 3 feet (914 mm) from exterior walls or roofs, 10 feet (3048 mm) from openings into the building, and 10 feet (3048 mm) above adjoining grade.

Fire and smoke dampers shall be provided with an approved means of access large enough to allow inspection and maintenance of the damper and its operating parts. The access shall not affect the integrity of the fire-resistance-rated assembly. The access openings shall not reduce the fire-resistance rating of the assembly.

Access shall not require the use of tools. Access doors in ducts shall be tight fitting and approved for the required duct construction. Access points shall be permanently identified on the exterior by a label with letters not less than 1/2 of an inch (12.7 mm) in height reading as one of the following:

1- Smoke Damper
2- Fire Damper
3- Fire/Smoke Damper

AC-03 (E) / CARRIER - 48HJD006 CAN OPERATE UP TO 25% OA FROM THE SUPPLY FLOW.
THE NOMINAL AC-03 (E) FLOW RATE IS 1960 CFM
MAX. OA THE RTU CAN DELIVER IS = $1960 \times 0.25 = 490$ CFM
490 CFM > 288 CFM (req. OA)

* RTU-01 WILL BE EQUIPPED WITH ECONOMIZER FOR VENTILATION.

| | | |
|--------------------------|-----------------------|-------------------|
| CEC 2019 -TABLE 150.2-A: | | |
| DUCT INSULATION R-VALUE | | |
| Climate Zone | 1 through 10, 12 & 13 | 11, 14 through 16 |
| Duct R-Value | R-6 | R-8 |

ALL DUCTS INSULATION SHALL NOT BE LESS R6 |
CEC2019-150.2A
ALL DUCTS ARE GALVANIZED STEEL G90.

CMC 2019 - 603.4.1 Length Limitation:

[Not permitted for OSHPD 1, 1R, 2, 3, 4 & 5]

Factory-made flexible air ducts and connectors shall be not more than 5 feet (1524 mm) in length and shall not be used in lieu of rigid elbows or fittings. Flexible air ducts shall be permitted to be used as an elbow or a terminal device.

CMC 2019 - 605.1 Smoke Dampers:

Smoke dampers shall comply with UL 555S, and shall be installed in accordance with the manufacturer's installation instructions where required by the California Building Code or California Residential Code.

AC-04 (E) / CARRIER - 48HJD006 CAN OPERATE UP TO 25% OA FROM THE SUPPLY FLOW.
THE NOMINAL AC-04 (E) FLOW RATE IS 1960 CFM
MAX. OA THE RTU CAN DELIVER IS = $1960 \times 0.25 = 490$ CFM
490 CFM > 250 CFM (req. OA)

| | |
|--|-----|
| (N) AC-06 - TOTAL VENTILATION REQUIRED (CFM) | 419 |
|--|-----|

AC-06 (N) / CARRIER - 48HJD006 CAN OPERATE UP TO 25% OA FROM THE SUPPLY FLOW
THE NOMINAL AC-06 (N) FLOW RATE IS 1960 CFM
MAX. OA THE RTU CAN DELIVER IS = $1960 \times 0.25 = 490$ CFM
 $490 \text{ CFM} > 419 \text{ CFM (req. OA)}$

Installed filters shall be clearly labeled by the manufacturer indicating the MERV 13 rating.
CMC 2019 - 401.2.1

CMV 2019-603.10.1 Duct Leakage Test:
 Ductwork shall be leak-tested in accordance with the SMACNA HVAC Air Duct Leakage Test Manual. Representative sections totaling not less than 10 percent of the total installed duct area shall be tested. Where the tested 10 percent fail to comply with the requirements of this section, then 40 percent of the total installed duct area shall be tested. Where the tested 40 percent fail to comply with the requirements of this section, then 100 percent of the total installed duct area shall be tested. Sections shall be selected by the building owner or designated representative of the building owner. Positive pressure leakage testing shall be permitted for negative pressure ductwork. The permitted duct leakage shall be not more than the following:

| | | |
|-------------|--|---------------------|
| $L_{max} =$ | $CLx(P)^{0.65}$ | (Equation 603.10.1) |
| Where: | | |
| L_{max} = | maximum permitted leakage, (ft ³ /min)/100 square feet [0.0001 (m ³ /s)/m ²] duct surface area. | |
| CL = | six, duct leakage class, (ft ³ /min)/100 square feet [0.0001 (m ³ /s)/m ²] duct surface area at 1 inch water column (0.2 kPa). | |
| P = | test pressure, which shall be equal to the design duct pressure class rating, inch water column (KPa). | |

$$L_{\max} = CLx(P)^{0.65} \quad (\text{Equation 603.10.1})$$

Where:

Lmax = maximum permitted leakage, (ft³/min)/100 square feet [0.0001 (m³/s)/m²] duct surface area.

CL = six, duct leakage class, (ft³/min)/100 square feet [0.0001 (m³/s)/m²] duct surface area at 1 inch water column (0.2 kPa).

P = test pressure, which shall be equal to the design duct pressure class rating, inch water column (kPa).

| REV. NO. | DESCRIPTION | DATE | BY |
|----------|-------------|------|----|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

PROJECT:

TITLE: MECH. SECOND FLOOR,
E.S & VENTIL. CALC.

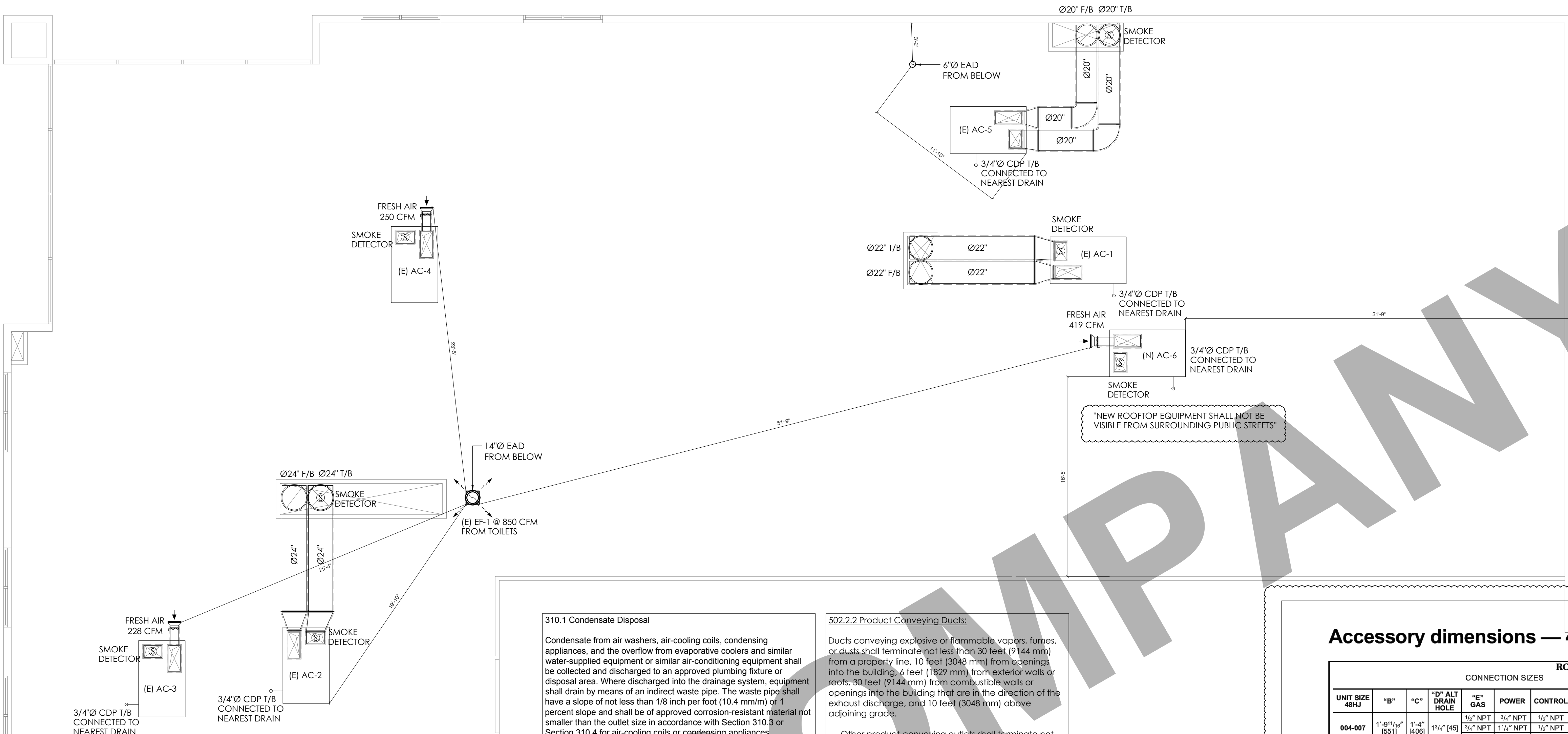
| | | |
|-----------|-------------|----------------|
| PROJ. NO. | PROJ. ENGR. | SCALE @ 24X36: |
|-----------|-------------|----------------|

| | | |
|--|--|-------------|
| | | 3/16"=1'-0" |
|--|--|-------------|

DRAWING NO.

M 1 . 0 0

ROOF PLAN



310.1 Condensate Disposal

Condensate from air washers, air-cooling coils, condensing appliances, and the overflow from evaporative coolers and similar water-supplied equipment or similar air-conditioning equipment shall be collected and discharged to an approved plumbing fixture or disposal area. Where discharged into the drainage system, equipment shall drain by means of an indirect waste pipe. The waste pipe shall have a slope of not less than 1/8 inch per foot (10.4 mm/m) or 1 percent slope and shall be of approved corrosion-resistant material not smaller than the outlet size in accordance with Section 310.3 or Section 310.4 for air-cooling coils or condensing appliances, respectively. Condensate or wastewater shall not drain over a public way.

CPC 2016 - TABLE 614.3: MINIMUM CONDENSATE PIPE SIZE EQUIPMENT CAPACITY IN TONS OF REFRIGERATION

| TONS OF REFRIGERATION | MINIMUM CONDENSATE PIPE (inches) |
|-----------------------|-------------------------------------|
| Up to 20 | 3/4" |
| 21 - 40 | 1" |
| 41 - 90 | 1-1/4" |
| 91 - 125 | 1-1/2" |
| 126 - 250 | 2" |

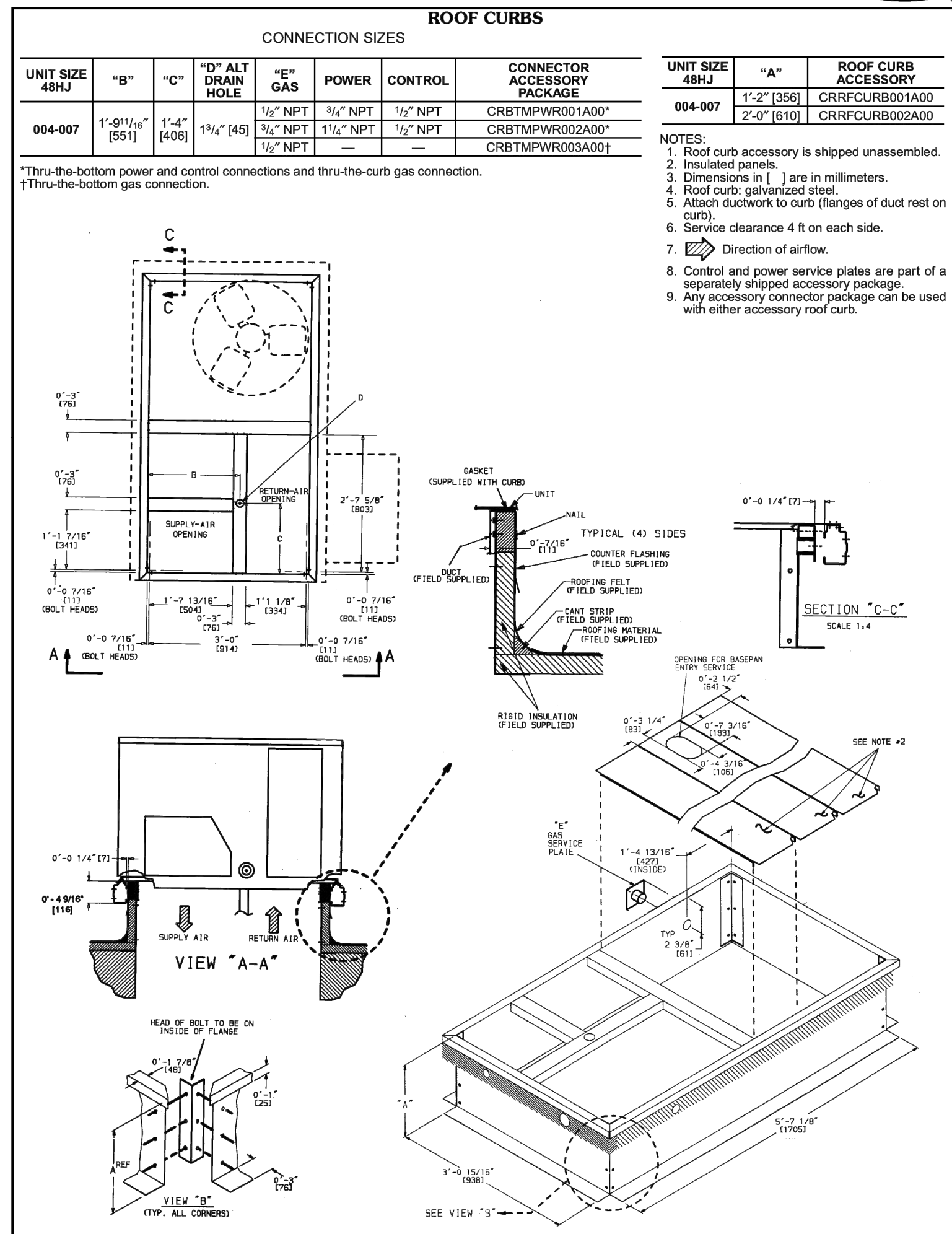
Installed filters shall be clearly labeled by the manufacturer indicating the MERV 13 rating.
CMC 2019 - 401.2.1

502.2.2 Product Conveying Ducts:

Ducts conveying explosive or flammable vapors, fumes, or dusts shall terminate not less than 30 feet (9144 mm) from a property line, 10 feet (3048 mm) from openings into the building, 6 feet (1829 mm) from exterior walls or roofs, 30 feet (9144 mm) from combustible walls or openings into the building that are in the direction of the exhaust discharge, and 10 feet (3048 mm) above adjoining grade.

Other product-conveying outlets shall terminate not less than 10 feet (3048 mm) from a property line, 3 feet (914 mm) from exterior walls or roofs, 10 feet (3048 mm) from openings into the building, and 10 feet (3048 mm) above adjoining grade.

Accessory dimensions — 48HJ004-007



InnoRez

94566

n

om

CLIENT:

ADDRESS:

76021 COMERCENTER DRIVE
CA 92630

CONFIDENTIALITY STATEMENT:

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| REV. NO. | DESCRIPTION | DATE | BY |
|----------|--------------|----------|----|
| 01 | FOR APPROVAL | 07/22/AB | |
| 00 | FOR APPROVAL | 05/22/AB | |

VELCO TENANT IMPROV.

TITLE:
MECH. ROOF LAYOUT.

| PROJ. NO. | PROJ. ENGR. | SCALE @ 24X36: |
|-----------|-------------|----------------|
| | | 3/16"=1'-0" |

DRAWING NO.

REV.

M 1 . 1

Design Weather Parameters & MSHGs

04/19/2022
01:15AM

Design Parameters:

City Name
Location
Latitude
Longitude
Elevation
Summer Design Dry-Bulb
Summer Coincident Wet-Bulb
Summer Daily Range
Winter Design Dry-Bulb
Winter Design Wet-Bulb
Atmospheric Cleanliness Number
Average Ground Reflectance
Soil Conductivity
Local Time Zone (GMT +/- N hours)
Consider Daylight Savings Time
Simulation Weather Data
Current Date is
Design Cooling Months

Lake Forest
California
33.9 Deg
117.3 Deg
1539.0 ft
101.0 °F
66.0 °F
29.0 °F
34.0 °F
28.5 °F
1.05
0.800 BTU/(hr-ft²-F)
8.0 hour
No
N/A
User Modified
January to December

Design Day Maximum Solar Heat Gains

(The MSHG values are expressed in BTU/(hr·ft²))

| Month | N | NNE | NE | ENE | E | ESE | SE | SSE | S |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| January | 23.5 | 23.5 | 23.5 | 106.4 | 180.1 | 232.0 | 262.5 | 266.0 | 269.8 |
| February | 27.8 | 27.8 | 68.0 | 146.7 | 216.0 | 251.0 | 262.2 | 248.5 | 235.8 |
| March | 32.3 | 32.3 | 117.8 | 186.6 | 232.4 | 254.1 | 236.0 | 209.5 | 191.1 |
| April | 36.8 | 80.4 | 153.8 | 210.9 | 236.0 | 230.1 | 200.3 | 154.8 | 130.2 |
| May | 39.9 | 113.9 | 175.1 | 219.7 | 231.6 | 208.6 | 168.0 | 112.2 | 86.2 |
| June | 51.5 | 124.4 | 183.0 | 221.0 | 226.1 | 188.0 | 152.6 | 84.5 | 70.5 |
| July | 40.9 | 110.9 | 175.5 | 216.5 | 225.3 | 205.2 | 163.0 | 107.9 | 82.9 |
| August | 36.5 | 77.0 | 151.4 | 203.8 | 225.7 | 223.1 | 192.4 | 148.7 | 125.3 |
| September | 33.6 | 33.6 | 106.3 | 178.6 | 219.9 | 241.5 | 230.1 | 202.9 | 187.4 |
| October | 28.8 | 28.8 | 64.1 | 144.7 | 201.0 | 244.6 | 250.4 | 239.4 | 230.9 |
| November | 24.1 | 24.1 | 29.6 | 86.3 | 178.0 | 230.4 | 251.4 | 260.3 | 258.0 |
| December | 21.8 | 21.8 | 21.8 | 86.0 | 164.6 | 219.1 | 257.6 | 267.1 | 265.3 |
| Month | SSW | SW | WSW | W | WNW | NW | NNW | NDR | Mult |
| January | 266.0 | 262.8 | 231.7 | 189.3 | 106.2 | 23.6 | 23.5 | 172.2 | 1.00 |
| February | 248.0 | 261.5 | 252.8 | 215.2 | 143.5 | 69.4 | 27.8 | 216.9 | 1.00 |
| March | 210.2 | 239.2 | 254.0 | 234.2 | 184.0 | 118.1 | 32.3 | 255.7 | 1.00 |
| April | 155.2 | 199.1 | 232.7 | 234.7 | 207.3 | 156.7 | 78.3 | 279.4 | 1.00 |
| May | 111.9 | 165.4 | 212.1 | 228.1 | 218.9 | 179.3 | 111.9 | 287.7 | 1.00 |
| June | 93.9 | 160.9 | 201.0 | 222.4 | 220.7 | 185.9 | 122.5 | 287.4 | 1.00 |
| July | 107.6 | 161.8 | 206.5 | 222.8 | 216.0 | 178.7 | 109.6 | 283.0 | 1.00 |
| August | 146.8 | 191.8 | 224.3 | 226.3 | 200.5 | 162.3 | 71.8 | 273.4 | 1.00 |
| September | 204.5 | 231.8 | 238.9 | 225.0 | 176.6 | 109.7 | 34.3 | 249.0 | 1.00 |
| October | 240.3 | 251.9 | 243.7 | 202.1 | 145.7 | 61.7 | 28.8 | 214.9 | 1.00 |
| November | 259.7 | 255.0 | 231.8 | 174.9 | 103.4 | 27.0 | 24.1 | 173.7 | 1.00 |
| December | 266.0 | 252.9 | 224.0 | 159.6 | 88.5 | 21.8 | 21.8 | 154.4 | 1.00 |

Mult. = User-defined solar multiplier factor.

Air System Sizing Summary for AC-03 (E)

04/19/2022
01:08AM

Air System Information

Air System Name
Equipment Class
Air System Type

AC-03 (E)
PKG ROOF
SZCAV

Number of zones
Floor Area
Location

1
2640.0 ft²
Lake Forest, California

Sizing Calculation Information

Calculation Months
Sizing Data

Jan to Dec
User-Modified

Zone CFM Sizing
Space CFM Sizing

Sum of space airflow rates
Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load
Total coil load
Sensible coil load
Coil CFM at Jul 1400
Max block CFM
Sum of peak zone CFM
Sensible heat ratio
CFM/Ton
RT/Ton
BTU/(hr·ft²)
Water flow @ 10.0 °F rise

4.1 Tons
48.1 MBH
46.3 MBH
1960 CFM
1960 CFM
1960 CFM
0.892
46 %
650.0
18.2
N/A

Load occurs at
OA DB / WB
Entering DB / WB
Leaving DB / WB
Coil ADP
Bypass Factor
Resulting RH
Design supply temp.
Zone T-stat Check
Max zone temperature deviation

Jul 1400
100.1 / 67.7 °F
79.9 / 63.9 °F
55.5 / 54.0 °F
52.4 °F
0.100
46 %
1.04 °F
0.0 °F

Central Heating Coil Sizing Data

Max coil load
Coil CFM at Des Htg
Max coil CFM
Water flow @ 20.0 °F drop

13.1 MBH
1960 CFM
1960 CFM
N/A

Load occurs at
Des Htg
Ent. DB / Lvg DB

Des Htg
65.5 / 72.0 °F

Supply Fan Sizing Data

Actual max CFM
Standard CFM
Actual max CFM/m²

1960 CFM
1853 CFM
0.74 CFM/m²

Fan motor BHP
Fan motor kW

2.00 BHP
1.66 kW

Outdoor Ventilation Air Data

Design airflow CFM
CFM/m²

228 CFM
0.90 CFM/m²

CFM/person

14.93 CFM/person

Hourly Analysis Program 5.10

Page 1 of 17

Zone Sizing Summary for AC-03 (E)

04/19/2022
01:08AM

Air System Information

Air System Name
Equipment Class
Air System Type

AC-03 (E)
PKG ROOF
SZCAV

Number of zones
Floor Area
Location

1
2640.0 ft²
Lake Forest, California

Sizing Calculation Information

Calculation Months
Sizing Data

Jan to Dec
User-Modified

Zone CFM Sizing
Space CFM Sizing

Sum of space airflow rates
Individual peak space loads

Zone Terminal Sizing Data

| Zone Name | Design Supply Airflow (CFM) | Minimum Supply Airflow (CFM) | Zone CFM/m² | Reheat Coil Load (MBH) | Reheat Coil Water gpm @ 20.0 °F | Zone Htg Unit Coil Load (MBH) | Zone Htg Unit Water gpm @ 20.0 °F | Mixing Box Fan Airflow (CFM) |
|-----------|-----------------------------|------------------------------|-------------|------------------------|---------------------------------|-------------------------------|-----------------------------------|------------------------------|
| Zone 1 | 1960 | 1960 | 0.74 | 0.0 | - | 0.0 | - | 0 |

Zone Peak Sensible Loads

| Zone Name | Zone Cooling Sensible Load (MBH) | Time of Peak Sensible Cooling Load | Zone Heating Load (MBH) | Zone Floor Area (ft²) |
|-----------|----------------------------------|------------------------------------|-------------------------|-----------------------|
| Zone 1 | 32.8 | Aug 1300 | 10.7 | 2640.0 |

Space Loads and Airflows

| Zone Name / Space Name | Mult. | Cooling Sensible Load (MBH) | Time of Peak Sensible Load | Air Flow (CFM) | Heating Load (MBH) | Floor Area (ft²) | Space CFM/m² |
|------------------------|-------|-----------------------------|----------------------------|----------------|--------------------|------------------|--------------|
| Zone 1 | | | | | | | |
| 1.00-STORAGE | 1 | 7.8 | Jul 1400 | 453 | 2.3 | 676.0 | 0.87 |
| 2.00-EMPLOYEE TRAINING | 1 | 9.6 | Sep 1300 | 553 | 2.9 | 633.0 | 0.87 |
| 2.02-CORRIDOR | 1 | 1.8 | Jul 1300 | 101 | 0.6 | 206.0 | 0.49 |
| 2.04-EXECUTIVE OFFICE | 1 | 3.8 | Sep 1300 | 220 | 1.1 | 291.0 | 0.87 |
| 2.05-EXECUTIVE OFFICE | 1 | 4.8 | Sep 1300 | 281 | 1.6 | 302.0 | 0.93 |
| 2.10-CORRIDOR B | 1 | 2.4 | Jul 1300 | 139 | 0.6 | 296.0 | 0.47 |
| 2.12-CORRIDOR C | 1 | 3.2 | Jul 1400 | 184 | 1.6 | 276.0 | 0.67 |

Hourly Analysis Program 5.10

Page 2 of 17

Air System Sizing Summary for AC-04 (E)

04/19/2022
01:07AM

Air System Information

Air System Name
Equipment Class
Air System Type

AC-04 (E)
PKG ROOF
SZCAV

Number of zones
Floor Area
Location

1
2338.9 ft²
Lake Forest, California

Sizing Calculation Information

Calculation Months
Sizing Data

Jan to Dec
User-Modified

Zone CFM Sizing
Space CFM Sizing

Sum of space airflow rates
Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load
Total coil load
Sensible coil load
Coil CFM at Jul 1500
Max block CFM
Sum of peak zone CFM
Sensible heat ratio
CFM/Ton
RT/Ton
BTU/(hr·ft²)
Water flow @ 10.0 °F rise

4.4 Tons
52.4 MBH
49.4 MBH
1960 CFM
1960 CFM
1960 CFM
0.943
46.2
623.5
22.5
N/A

Load occurs at
OA DB / WB
Entering DB / WB
Leaving DB / WB
Coil ADP
Bypass Factor
Resulting RH
Design supply temp.
Zone T-stat Check
Max zone temperature deviation

Jul 1500
101.0 / 68.0 °F
79.8 / 63.1 °F
55.2 / 53.8 °F
52.4 °F
0.100
46 %
640.0
0 of 1 °F
0.2 °F

Central Heating Coil Sizing Data

Max coil load
Coil CFM at Des Htg
Max coil CFM
Water flow @ 20.0 °F drop

16.0 MBH
1960 CFM
1960 CFM
N/A

Load occurs at
Des Htg
Ent. DB / Lvg DB

Des Htg
65.3 / 73.3 °F

Supply Fan Sizing Data

Actual max CFM
Standard CFM
Actual max CFM/m²

1960 CFM
1853 CFM
0.84 CFM/m²

Fan motor BHP
Fan motor kW

2.00 BHP
1.66 kW

Outdoor Ventilation Air Data

Design airflow CFM
CFM/m²

259 CFM
0.11 CFM/m²

CFM/person

11.56 CFM/person

Hourly Analysis Program 5.10

Page 1 of 17

Zone Sizing Summary for AC-04 (E)

04/19/2022
01:07AM

Air System Information

Air System Name
Equipment Class
Air System Type

AC-04 (E)
PKG ROOF
SZCAV

Number of zones
Floor Area
Location

1
2338.9 ft²
Lake Forest, California

Sizing Calculation Information

Calculation Months
Sizing Data

Jan to Dec
User-Modified

Zone CFM Sizing
Space CFM Sizing

Sum of space airflow rates
Individual peak space loads

Zone Terminal Sizing Data

| Zone Name | Design Supply Airflow (CFM) | Minimum Supply Airflow (CFM) | Zone CFM/m² | Reheat Coil Load (MBH) | Reheat Coil Water gpm @ 20.0 °F | Zone Htg Unit Coil Load (MBH) | Zone Htg Unit Water gpm @ 20.0 °F | Mixing Box Fan Airflow (CFM) |
|-----------|-----------------------------|------------------------------|-------------|------------------------|---------------------------------|-------------------------------|-----------------------------------|------------------------------|
| Zone 1 | 1960 | 1960 | 0.84 | 0.0 | - | 0.0 | - | 0 |

Zone Peak Sensible Loads

| Zone Name | Zone Cooling Sensible Load (MBH) | Time of Peak Sensible Cooling Load | Zone Heating Load (MBH) | Zone Floor Area (ft²) |
|-----------|----------------------------------|------------------------------------|-------------------------|-----------------------|
| Zone 1 | 35.7 | Jul 1500 | 12.1 | 2338.9 |

Space Loads and Airflows

| Zone Name / Space Name | Mult. | Cooling Sensible Load (MBH) | Time of Peak Sensible Load | Air Flow (CFM) | Heating Load (MBH) | Floor Area (ft²) | Space CFM/m² |
|------------------------|-------|-----------------------------|----------------------------|----------------|--------------------|------------------|--------------|
| Zone 1 | | | | | | | |
| 2.01-CORRIDOR | 1 | 1.4 | Jun 1300 | 82 | 0.3 | 168.0 | 0.49 |
| 2.03-OFFICE | 1 | 12.4 | Sep 1500 | 714 | 5.7 | 398.0 | 1.79 |
| 2.06-CORR OFFICE | 1 | 1.6 | Jun 1300 | 84 | 1.3 | 78.0 | 0.87 |
| 2.09-AD OFFICE | 1 | 3.5 | Jul 1500 | 203 | 1.1 | 188.0 | 1.07 |
| 2.10-AD OFFICE | 1 | 3.9 | Jul 1500 | 224 | 1.1 | 228.0 | 0.96 |
| 2.11-AD OFFICE | 1 | 2.8 | Jul 1500 | 161 | 0.6 | 184.0 | 0.86 |
| 2.12-CORRIDOR A | 1 | 4.2 | Jul 1400 | 240 | 2.0 | 425.0 | 0.96 |

Hourly Analysis Program 5.10

Page 2 of 17

Air System Sizing Summary for AC-06 (N)

04/19/2022
01:12AM

Air System Information

Air System Name
Equipment Class
Air System Type

AC-06 (N)
PKG ROOF
SZCAV

Number of zones
Floor Area
Location

1
2254.0 ft²
Lake Forest, California

Sizing Calculation Information

Calculation Months
Sizing Data

Jan to Dec
User-Modified

Zone CFM Sizing
Space CFM Sizing

Sum of space airflow rates
Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load
Total coil load
Sensible coil load
Coil CFM at Jul 1500
Max block CFM
Sum of peak zone CFM
Sensible heat ratio
CFM/Ton
RT/Ton
BTU/(hr·ft²)
Water flow @ 10.0 °F rise

5.8 Tons
68.0 MBH
63.9 MBH
1960 CFM
1960 CFM
1960 CFM
0.892
46 %
391.7
24.5
N/A

Load occurs at
OA DB / WB
Entering DB / WB
Leaving DB / WB
Coil ADP
Bypass Factor
Resulting RH
Design supply temp.
Zone T-stat Check
Max zone temperature deviation

Jul 1500
101.0 / 68.0 °F
81.9 / 64.3 °F
55.2 / 53.6 °F
52.2 °F
0.100
46 %
6.2 °F

Central Heating Coil Sizing Data

Max coil load
Coil CFM at Des Htg
Max coil CFM
Water flow @ 20.0 °F drop

16.3 MBH
1960 CFM
1960 CFM
N/A

Load occurs at
Des Htg
Ent. DB / Lvg DB

Des Htg
62.8 / 75.1 °F

Supply Fan Sizing Data

Actual max CFM
Standard CFM
Actual max CFM/m²

1960 CFM
1853 CFM
0.87 CFM/m²

Fan motor BHP
Fan motor kW

2.00 BHP
1.66 kW

Outdoor Ventilation Air Data

Design airflow CFM
CFM/m²

419 CFM
0.19 CFM/m²

CFM/person

8.63 CFM/person

Hourly Analysis Program 5.10

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Zone Sizing Summary for AC-06 (N)

04/19/2022
01:12AM

Air System Information

Air System Name
Equipment Class
Air System Type

AC-06 (N)
PKG ROOF
SZCAV

Number of zones
Floor Area
Location

1
2254.0 ft²
Lake Forest, California

Sizing Calculation Information

Calculation Months
Sizing Data

Jan to Dec
User-Modified

Zone CFM Sizing
Space CFM Sizing

Sum of space airflow rates
Individual peak space loads

Zone Terminal Sizing Data

| Zone Name | Design Supply Airflow (CFM) | Minimum Supply Airflow (CFM) | Zone CFM/m² | Reheat Coil Load (MBH) | Reheat Coil Water gpm @ 20.0 °F | Zone Htg Unit Coil Load (MBH) | Zone Htg Unit Water gpm @ 20.0 °F | Mixing Box Fan Airflow (CFM) |
|-----------|-----------------------------|------------------------------|-------------|------------------------|---------------------------------|-------------------------------|-----------------------------------|------------------------------|
| Zone 1 | 1960 | 1960 | 0.87 | 0.0 | - | 0.0 | - | 0 |

Zone Peak Sensible Loads

| Zone Name | Zone Cooling Sensible Load (MBH) | Time of Peak Sensible Cooling Load | Zone Heating Load (MBH) | Zone Floor Area (ft²) |
|-----------|----------------------------------|------------------------------------|-------------------------|-----------------------|
| Zone 1 | 35.3 | Jul 1400 | 7.4 | 2254.0 |

Space Loads and Airflows

| Zone Name / Space Name | Mult. | Cooling Sensible Load (MBH) | Time of Peak Sensible Load | Air Flow (CFM) | Heating Load (MBH) | Floor Area (ft²) | Space CFM/m² |
|------------------------|-------|-----------------------------|----------------------------|----------------|--------------------|------------------|--------------|
| Zone 1 | | | | | | | |
| 2.13-OPEN OFFICE | 1 | 9.9 | Jul 1300 | 571 | 2.1 | 823.0 | 0.89 |
| 2.14-RAD | 1 | 4.2 | Jul 1400 | 240 | 0.4 | 194.0 | 1.24 |
| 2.15-BREAK ROOM | 1 | 5.0 | Jul 1500 | 285 | 0.8 | 232.0 | 1.25 |
| 2.16-OFFICE | 1 | 2.1 | Jul 1400 | 121 | 0.5 | 139.0 | 0.91 |
| 2.17-OFFICE | 1 | 2.3 | Jul 1500 | 132 | 0.5 | 147.0 | 0.90 |
| 2.18-CONFERENCE | 1 | 6.7 | Jul 1400 | 387 | 1.6 | 380.0 | 1.91 |
| 2.19-OFFICE | 1 | 2.4 | Jul 1400 | 141 | 0.6 | 171.0 | 0.83 |
| 2.20-OFFICE | 1 | 2.7 | Jul 1400 | 156 | 0.9 | 171.0 | 0.91 |

Hourly Analysis Program 5.10

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| REV. NO. | DESCRIPTION | DATE | BY |
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PROJECT:

TITLE:
MECHANICAL LOADS
CALCULATIONS REPORTS.

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:
NTS

DRAWING NO. REV.

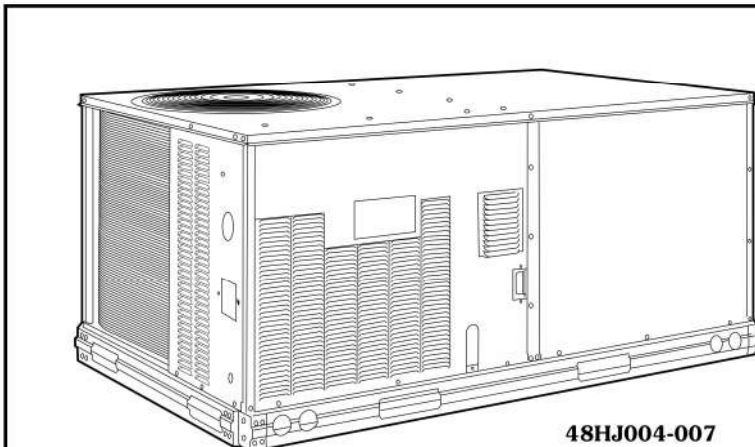
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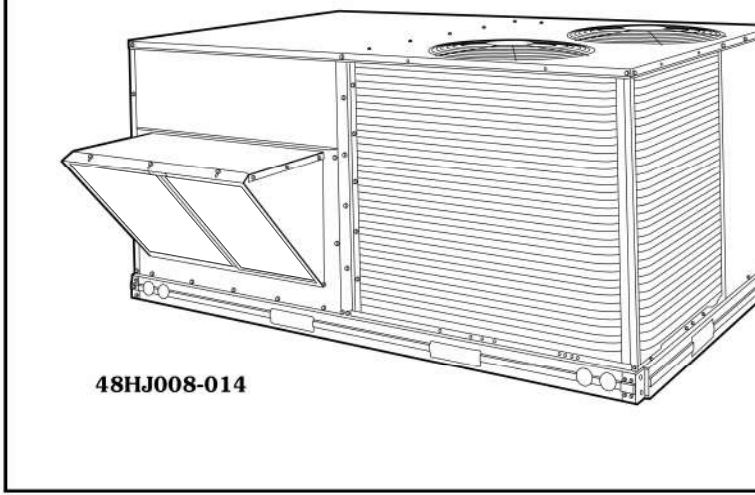
Product Data

48HJD/HJE/HJF
Single-Package Rooftop Units
High-Efficiency Electric Cooling/
Gas Heating

3 to 12 1/2 Nominal Tons



48HJ004-007



48HJ008-014

Copyright 1999 Carrier Corporation

Carrier has designed the Weather-master series based on customer needs and requests to be the most efficient and reliable rooftop unit ever made.

Features/Benefits

- Most efficient rooftop line for cooling using scroll compressor technology
- Most efficient rooftop line for heating using dimpled heat exchangers on all units
- High reliability — non-corrosive condensate pans, pre-painted cabinets and primed interior panels, and all units are fully protected by internal safeties
- Quietest operation — all compressors mounted on independent vibration isolators. Standard, belt-driven evaporator fan motors on all units
- Ease of maintenance achieved by self diagnostics on the integrated Gas Controller (IGC), optional direct digital controls, standard size filters, tool-less filter access, simple compressor access, permanently lubricated fan motors, optional disconnect switch, optional 115-v convenience outlet, and optional hinged access panels
- Exclusive MoistureMiser dehumidification package — a result of recent advances by Carrier in controlling comfort levels. This factory-installed option significantly improves the dehumidification capability of the rooftop unit and helps control humidity levels in the building.

Form 48HJ-11PD

ARI* capacities

| UNIT | NOMINAL TONS | STANDARD CFM | COOLING (Btu/h) | TOTAL kW | SEER† | EER | SOUND RATING (Bels) | IPLV |
|---------|--------------|--------------|-----------------|----------|-------|-------|---------------------|------|
| EF004 | 3 | 1200 | 30,000 | 3.21 | 13.0 | 11.20 | 7.6 | ** |
| DE/F005 | 4 | 1450 | 47,000 | 4.25 | 13.0 | 11.05 | 7.6 | ** |
| DE/F006 | 5 | 1750 | 61,000 | 5.55 | 13.0 | 11.00 | 8.0 | ** |
| DE/F007 | 6 | 2100 | 74,000 | 6.70 | — | 11.00 | 8.0 | — |
| DE/F008 | 7.5 | 3000 | 90,000 | 8.18 | — | 11.00 | 8.2 | 11.6 |
| DE/F009 | 8.5 | 3000 | 102,000 | 9.44 | — | 10.80 | 8.2 | 10.9 |
| DE/F012 | 10 | 3200 | 120,000 | 10.91 | — | 11.00 | 8.4 | 9.7 |
| DE14 | 12.5 | 4300 | 139,000 | 14.04 | — | 9.5 | 8.6 | 9.8 |
| DE14 | 12.5 | 4300 | 139,000 | 14.04 | — | 9.5 | 8.6 | 9.4 |

LEGEND
Bels — Sound Levels (1 bel = 10 decibels)
EER — Energy Efficiency Ratio
IPLV — Integrated Part-Load Value
SEER — Seasonal Energy Efficiency Ratio

*Air-Conditioning & Refrigeration Institute.
†Applies only to units with capacity of 65,000 Btu/h or less.
**The IPLV is not applicable to single-compressor units.

NOTES:
1. Rated in accordance with ARI Standard 210/240 (004-012 units) or 360 (014 units) and 270 (004-014 units).
2. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80 F db, 67 F wb indoor entering-air temperature and 95 F db outdoor entering-air temperature.
Heating Standard: 80 F db, 67 F wb indoor entering-air temperature and 80 F db outdoor entering-air temperature.



Sizes 004-012 Only



Size 014 Only

| HEATING CAPACITIES AND EFFICIENCIES | | | | | | | | | |
|-------------------------------------|--------------------------|--------------------------|--|---------------------------------------|-----------------------|----------|-----------------------------|------------------------------------|--|
| UNIT | HEATING INPUT (Btu/h) | | OUTPUT CAPACITY (Btu/h) | | TEMPERATURE RISE (°F) | AFUE (%) | STEADY STATE EFFICIENCY (%) | CALIFORNIA SEASONAL EFFICIENCY (%) | |
| | First Stage/Second Stage | First Stage/Second Stage | Single-Phase Unit/First Stage/Second Stage | 3-Phase Unit/First Stage/Second Stage | | | | | |
| 48HJ004 | 40,000/57,100 | 40,000/57,100 | 40,000/57,100 | 40,000/57,100 | 15-45 | 82 | 82 | 78.7 | |
| 48HJ004 | 82,000/115,000 | 63,500/89,000 | 65,600/92,000 | 55-85 | 80 | 80 | 77.3 | | |
| 48HJ005 | 50,000/72,000 | 41,000/59,040 | 41,000/59,040 | 15-45 | 82 | 82 | 78.7 | | |
| 48HJ005 | 82,000/115,000 | 65,600/92,000 | 66,400/93,100 | 35-65 | 81 | 81 | 77.7 | | |
| 48HJ005 | 120,000/150,000 | 94,400/118,000 | 96,000/120,000 | 50-80 | 80 | 80 | 76.9 | | |
| 48HJ006 | 50,000/72,000 | 40,000/57,100 | 41,000/59,040 | 15-45 | 82 | 82 | 78.7 | | |
| 48HJ006 | 82,000/115,000 | 66,400/93,100 | 66,400/93,100 | 35-65 | 81 | 81 | 77.8 | | |
| 48HJ006 | 120,000/150,000 | 94,400/118,000 | 96,000/120,000 | 50-80 | 80 | 80 | 76.9 | | |
| 48HJ007 | 50,000/72,000 | — | 41,000/59,040 | 15-45 | 82 | 82 | 78.7 | | |
| 48HJ007 | 82,000/115,000 | — | 66,400/93,100 | 35-65 | 81 | 81 | 77.8 | | |
| 48HJ007 | 120,000/150,000 | — | 96,000/120,000 | 50-80 | 80 | 80 | 76.9 | | |

| UNIT | HEATING INPUT (Btu/h) | | OUTPUT CAPACITY (Btu/h) | | TEMPERATURE RISE (°F) | AFUE (%) | STEADY STATE EFFICIENCY (%) | CALIFORNIA SEASONAL EFFICIENCY (%) | |
|----------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------|----------|-----------------------------|------------------------------------|--|
| | First Stage/Second Stage | First Stage/Second Stage | First Stage/Second Stage | First Stage/Second Stage | | | | | |
| 48HJ008 | 90,000/120,000 | 72,000/100,000 | 72,000/100,000 | 35-65 | 82 | 82 | 77.5 | | |
| 48HJ008 | 120,000/180,000 | 98,400/147,600 | 98,400/147,600 | 50-80 | 80 | 80 | 76.4 | | |
| 48HJ008 | 180,000/224,000 | 147,600/183,700 | 147,600/183,700 | 45-75 | 82 | 82 | 76.4 | | |
| 48HJ009 | 90,000/120,000 | 72,000/100,000 | 72,000/100,000 | 35-65 | 82 | 82 | 78.4 | | |
| 48HJ009 | 120,000/180,000 | 98,400/147,600 | 98,400/147,600 | 50-80 | 80 | 80 | 76.4 | | |
| 48HJ009 | 180,000/224,000 | 147,600/183,700 | 147,600/183,700 | 45-75 | 82 | 82 | 76.4 | | |
| 48HJ012 | 90,000/180,000 | 72,000/140,000 | 72,000/140,000 | 35-65 | 82 | 82 | 78.4 | | |
| 48HJ012 | 180,000/224,000 | 147,600/183,700 | 147,600/183,700 | 45-75 | 82 | 82 | 76.4 | | |
| 48HJ014, HJ012 | 200,000/250,000 | 160,000/200,000 | 160,000/200,000 | 45-75 | 80 | 80 | 76.4 | | |

LEGEND
Bhp — Annual Fuel Utilization Efficiency
*Single-phase units are rated for output capacity in accordance with U.S. Government Standard Tests.
†Three-phase units are rated for output capacity in accordance with ANSI Z21.47 Standard for gas-fired, central furnaces.

NOTES:
1. NoX levels are 40 nanograms/pulse, with accessory kit.
2. UL US

Physical data

| BASE UNIT 48HJ | EF004 | DE/F005 | DE/F006 | DE/F007 |
|---|---|-----------|----------------------|-----------|
| NOMINAL CAPACITY | 3 | 4 | 5 | 6 |
| OPERATING WEIGHT (lb) | 530 | 540 | 560 | 615 |
| Unit | 34 | 40 | 34 | 35 |
| Durablade Economizer | 47 | 47 | 47 | 47 |
| EconoMiser | 18 | 18 | 18 | 18 |
| MoistureMiser Dehumidification Package | 115 | 115 | 115 | 115 |
| Roof Curbs | — | — | — | — |
| COMPRESSOR | 1 | 1 | 1 | 1 |
| Quantity | 42 | 53 | 60 | 60 |
| Oil (oz) | — | — | — | — |
| REFRIGERANT TYPE | 5-8 | 6-6 | 10-0 | 9-10 |
| Operating Charge (lb-oz) | 8-13 | 11-2 | 12-13 | 13-6 |
| Standard Unit | — | — | — | — |
| Unit With MoistureMiser Dehumidification Package | — | — | — | — |
| CONDENSER FAN | 1.22 | 1.22 | Propeller | 1.22 |
| Quantity - Diameter (in.) | 3503 | 3550 | 4100 | 4100 |
| Nominal Cfm | 1/4, 825 | 1/4, 825 | 1/4, 1100 | 1/4, 1100 |
| Motor Hp - Rpm | 180 | 180 | 320 | 320 |
| Watts Input (Total) | — | — | — | — |
| CONDENSER COIL | Enhanced Copper Tubes, Aluminum Lanced Fins | — | — | — |
| Standard Unit | 1.17 | 2.17 | 2.17 | 2.17 |
| Rows - Fins/in. | 14.6 | 16.5 | 16.5 | 16.5 |
| Total Face Area (sq ft) | 1.17 | 1.17 | 1.17 | 1.17 |
| Unit With MoistureMiser Dehumidification Package | 1.17 | 1.17 | 1.17 | 1.17 |
| Rows - Fins/in. | 3.9 | 3.9 | 3.9 | 3.9 |
| Total Face Area (sq ft) | — | — | — | — |
| EVAPORATOR FAN | 1.10 x 10 | 1.10 x 10 | 1.10 x 10 | 1.10 x 10 |
| Quantity - Size (in.) | 1200 | 1650 | 2000 | 2400 |
| Nominal Cfm | 1.20 | 1.20 | 1.30/2.40* | 2.40 |
| Motor Continuous Bhp | 2.40 | 2.40 | 2.90 | 2.90 |
| Motor Frame Size | 56 | 56 | 56 | 56 |
| Fan Rpm Range | 840-1080 | 840-1080 | 1020-1440/1650-1585* | 1100-1585 |
| Motor Bearing Type | Ball | Ball | Ball | Ball |
| Maximum Fan Rpm | 2100 | 2100 | 2100 | 2100 |
| Motor Pulley Pitch Diameter A/B (in.) | 1.92/3 | 1.92/3 | 2.4/3.4 | 2.4/3.4 |
| Nominal Motor Shaft Diameter (in.) | 2.8/3.8 | 2.8/3.8 | 3.4/4.4 | 3.4/4.4 |
| Fan Pulley Pitch Diameter (in.) | 1/4 | 1/4 | 1/4 | 1/4 |
| Belt — Quantity - Type - Length (in.) | 1/4 | 1/4 | 1/4 | 1/4 |
| Pulley Center Line Distance (in.) | 4.0 | 4.0 | 4.0 | 4.0 |
| Speed Change Per Full Turn of Movable Pulley Flange (rpm) | 1. A, 33 | 1. A, 33 | 1. A, 33 | 1. A, 33 |
| Movable Pulley Maximum Full Turns from Closed Position | 10.0-12.4 | 10.0-12.4 | 14.7-15.5 | 14.7-15.5 |
| Factory Speed Setting (rpm) | 840 | 840 | 840 | 840 |
| Fan Shaft Diameter at Pulley (in.) | 1 | 1 | 1 | 1 |

LEGEND
Bhp — Brake Horsepower
*Single-Phase 3-Phase.
†Indicates automatic reset.
48HJ008-007 and 48HJ004 (72,000 Btu/h heat input) units have 2 burners.
48HJ005-007 and 48HJ006 (115,000 Btu/h heat input) units have 3 burners.
48HJ005-007 (150,000 Btu/h heat input) units have 3 burners.
††An LP Conversion Kit is available as an accessory.

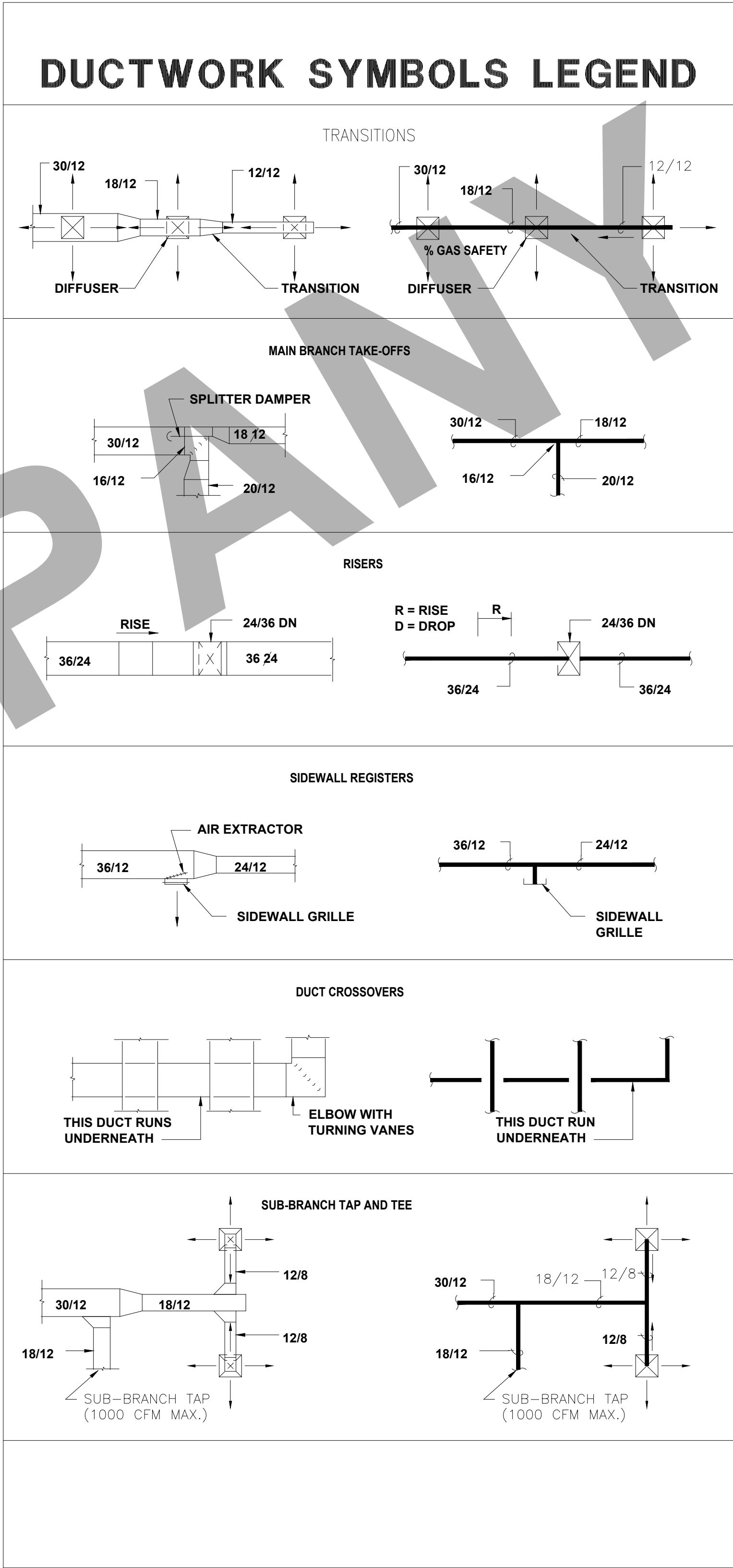
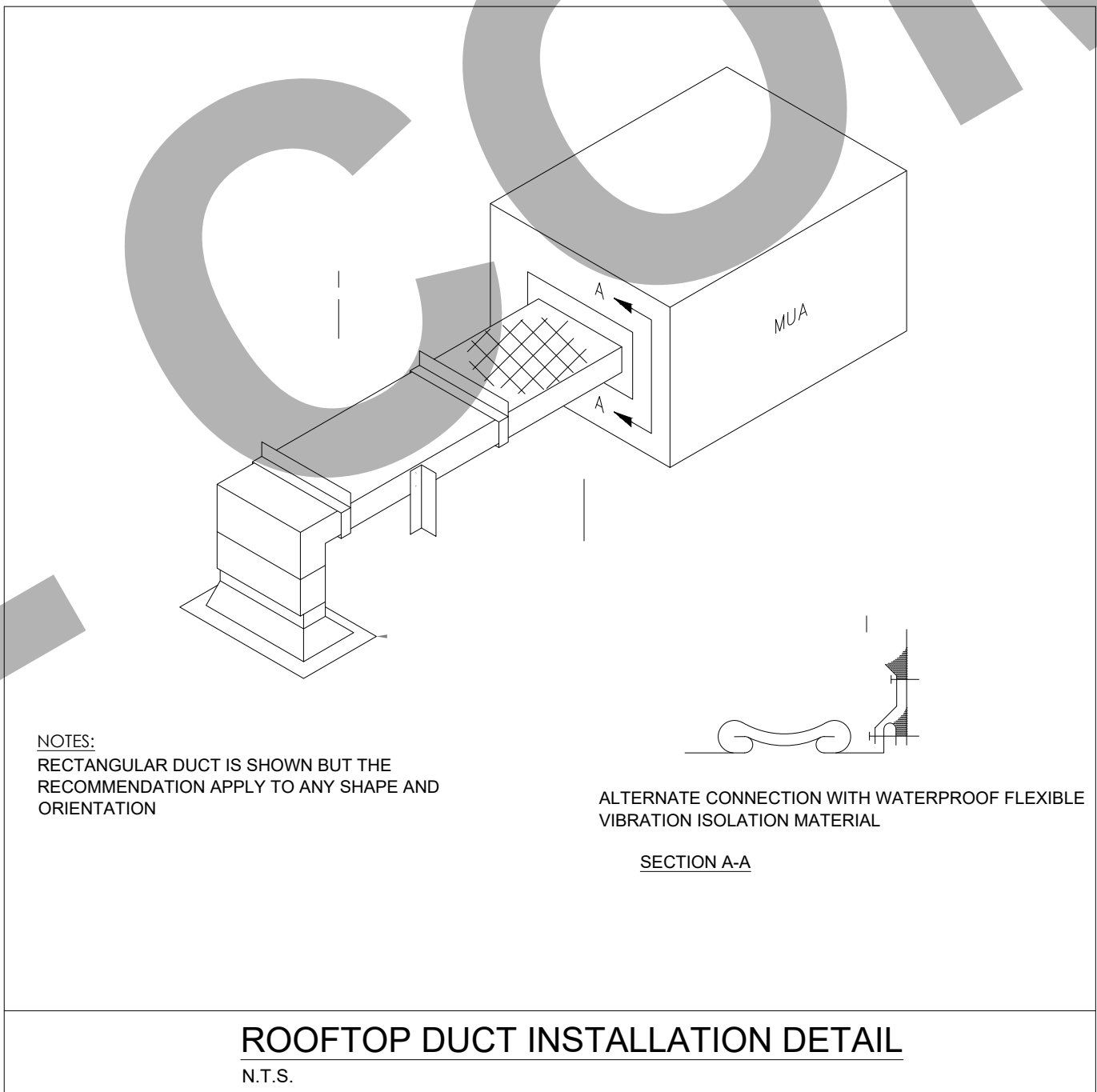
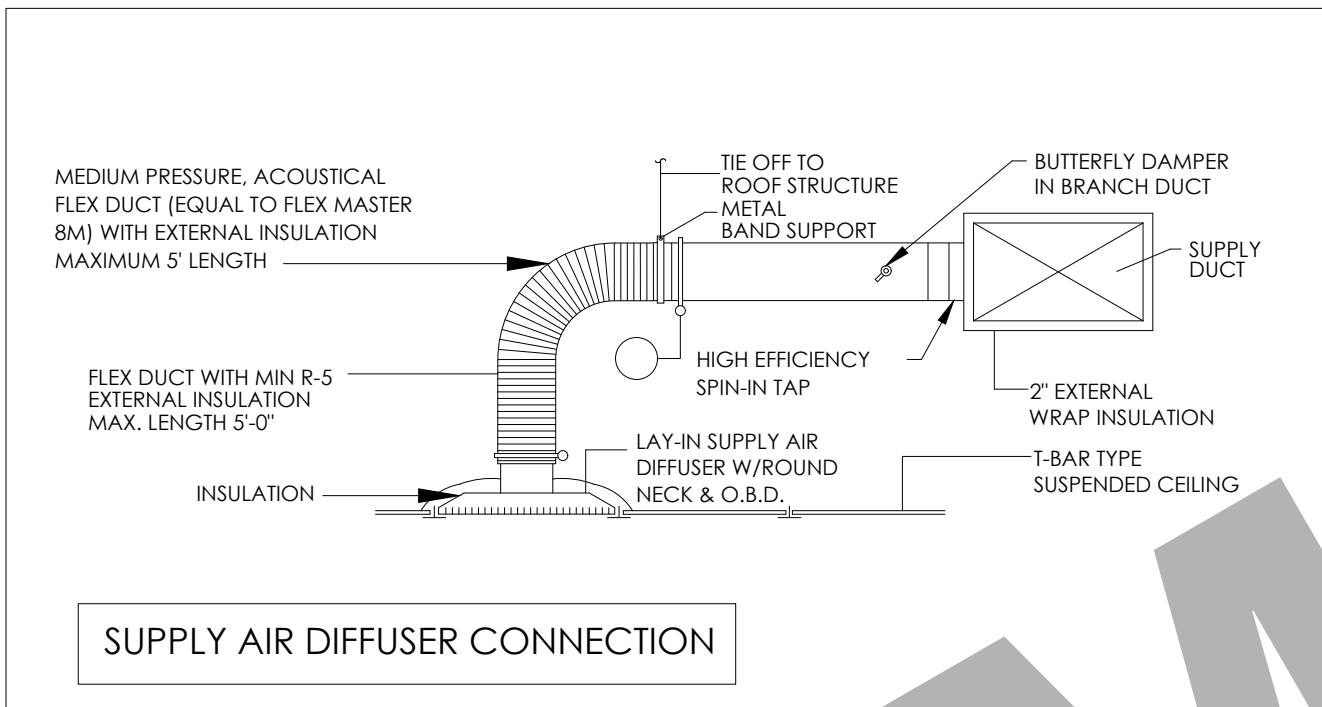
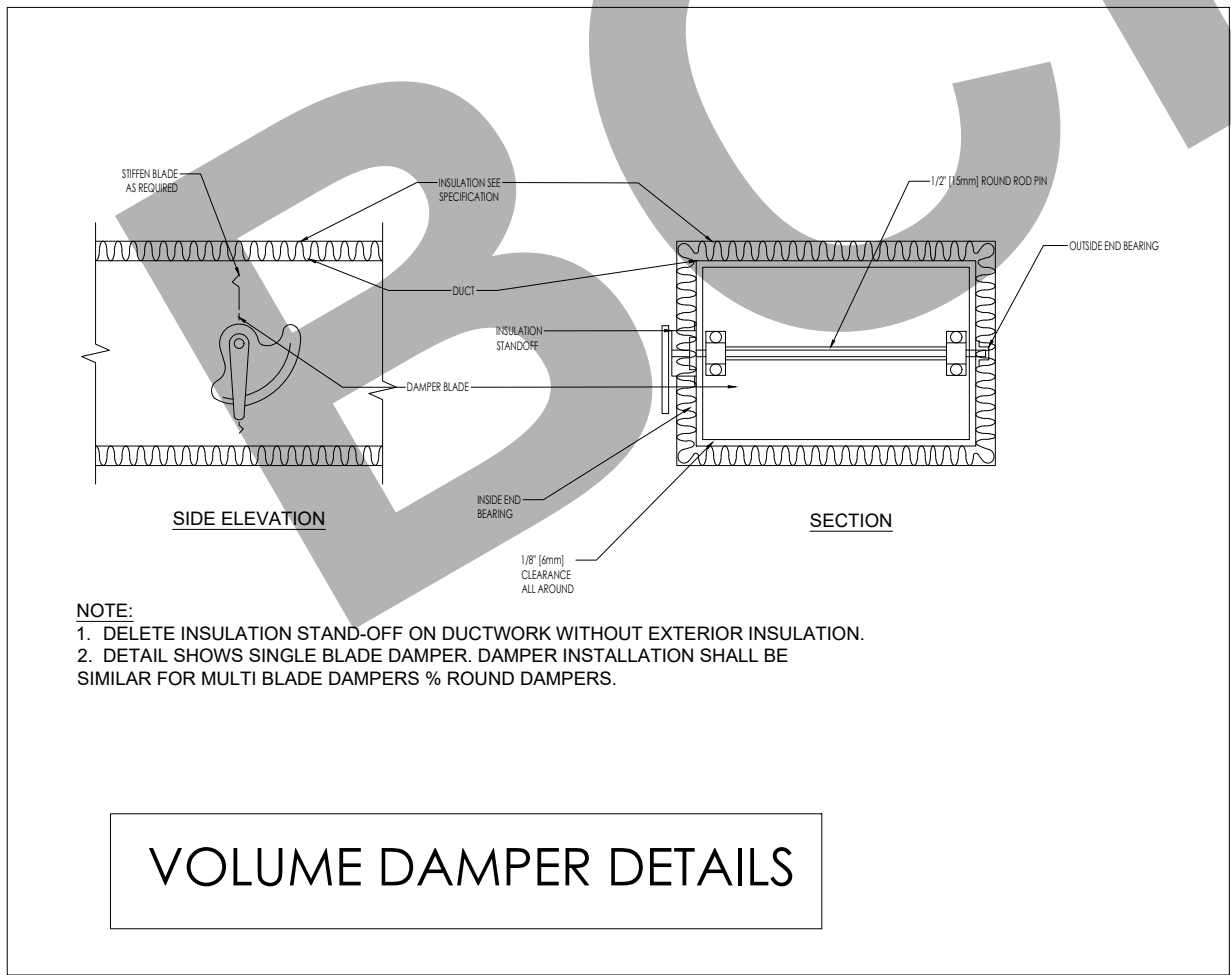
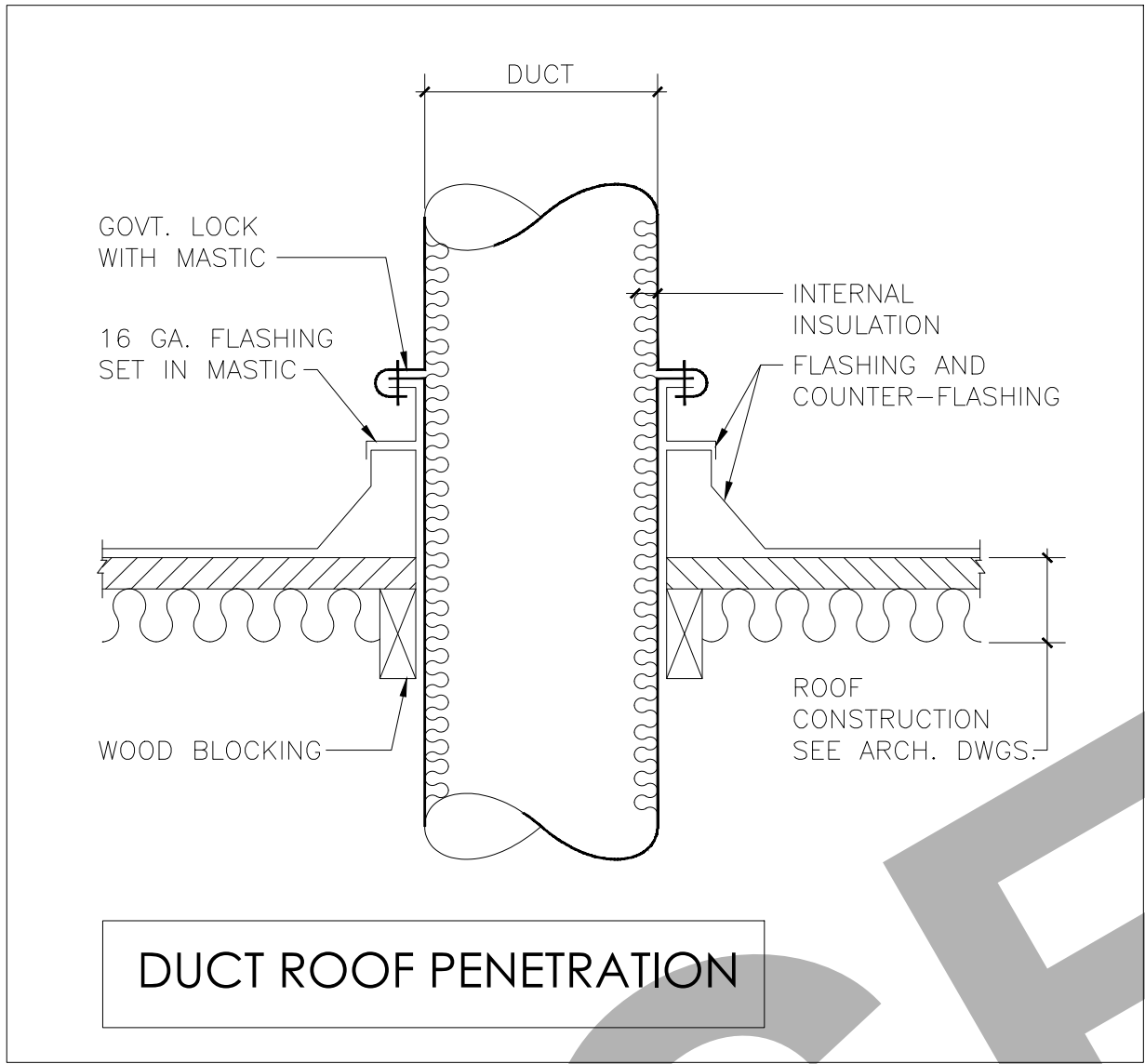
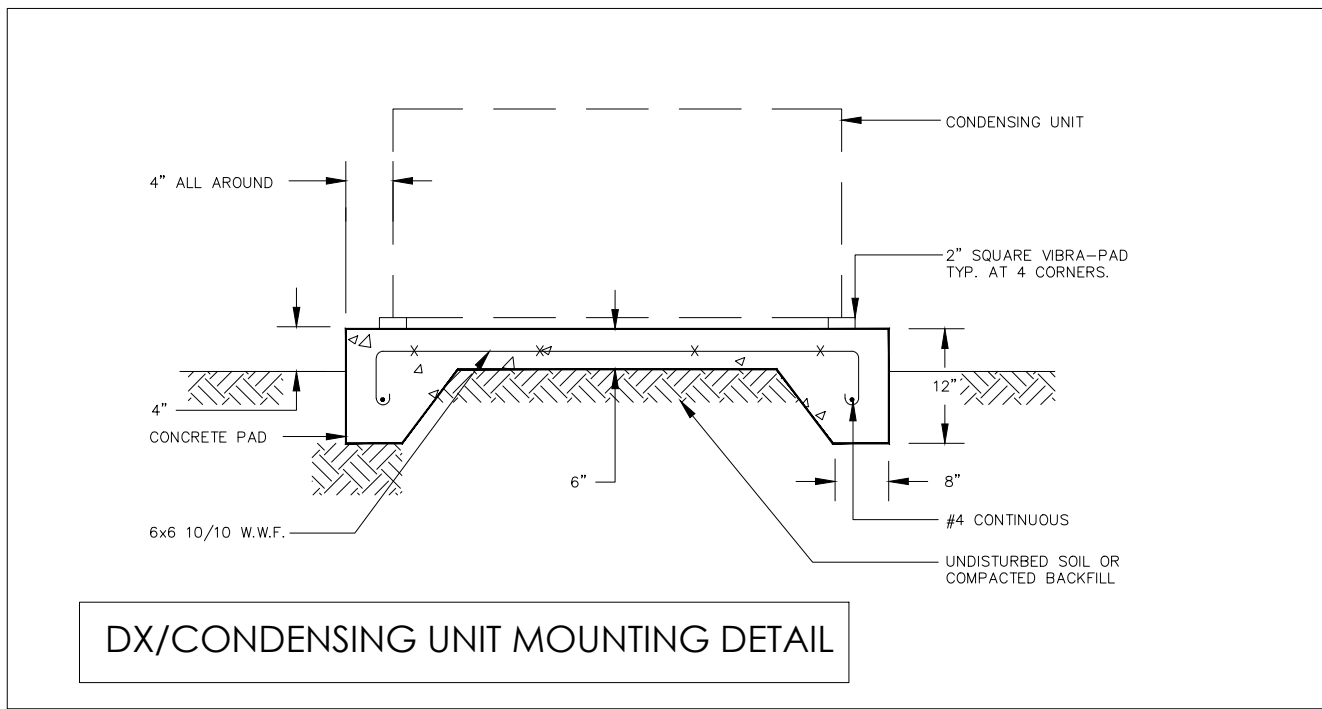
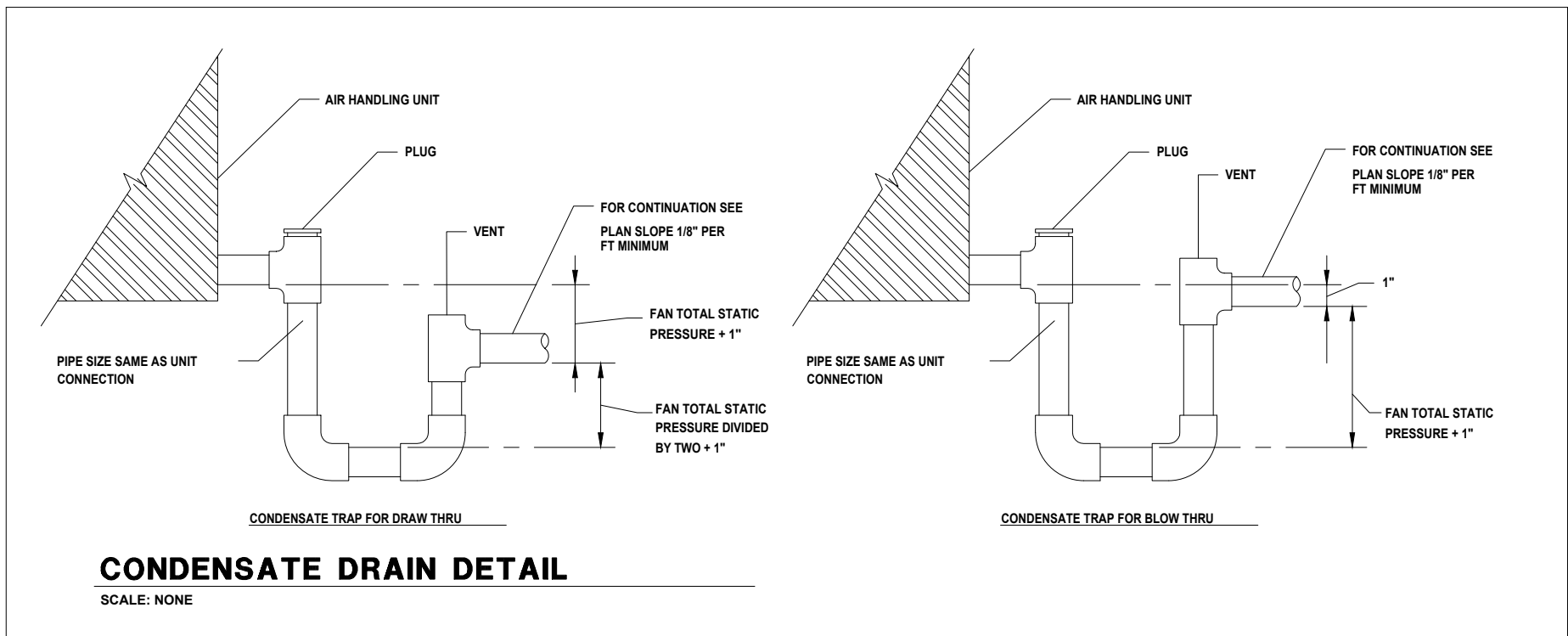
8

| BASE UNIT 48HJ | EF004 | DE/F005 | DE/F006 | DE/F007 |
|---|------------------------|--|-----------------------------|-----------------------------|
| EVAPORATOR COIL | 2, 15 | Enhanced Copper Tubes, Aluminum Double Wavy Fins, Acute™ Feed Face | 2, 15 | 2, 15 |
| Rows - Fins/in. | 5.5 | 5.5 | 5.5 | 5.5 |
| Total Face Area (sq ft) | — | — | — | — |
| FURNACE SECTION | 195 | 195 | 195 | 195 |
| Rollout Switch Cutout Temp (°F) | 115, 33 | 113, 30/113, 33/129, 30 | 113, 30/113, 33/129, 30 | 113, 30/113, 33/129, 30 |
| Burner Orifice Diameter (in. - drill size)* | 0.089, 43 | 0.089, 43/0.089, 43/102, 38 | 0.089, 43/0.089, 43/102, 38 | 0.089, 43/0.089, 43/102, 38 |
| Natural Gas — Std | — | — | — | — |
| Liquid Propane — AHT† | — | — | — | — |
| Thermostat Heat Anticipator Setting (amps) | 14 | 14 | 14 | 14 |
| 200/230V-2 | — | — | — | — |
| Gas Input (Btu/h) | 50,000/82,000/120,000 | 50,000/82,000/120,000 | 50,000/82,000/120,000 | 50,000/82,000/120,000 |
| First Stage | 72,000/115,000/150,000 | 72,000/115,000/150,000 | 72,000/115,000/150,000 | 72,000/115,000/150,000 |
| Second Stage | 60/80 | 60/80 | 60/80 | 60/80 |
| Efficiency (Steady State) (%) | 15-45/35-45 | 15-45/35-45/50-80 | 15-45/35-45/50-80 | 15-45/35-45/50-80 |
| Temperature Rise Range | — | — | — | — |
| Manifold Pressure (in. wg) | 3.5 | 3.5 | 3.5 | 3.5 |
| Natural Gas — Std | 1.9 | 1.9 | 1.9 | 1.9 |
| Liquid Propane — AHT† | 1/2 | 1/2 | 1/2 | 1/2 |
| Maximum Static Pressure (in. wg) | — | — | — | — |
| Field Gas Connection Size (in.) | — | — | — | — |
| HIGH-PRESSURE SWITCH (psig) | — | 450 ± 50 | — | — |
| Standard Compressor Internal Relief Cutout | — | 425 | — | — |
| Reset (Auto.) | — | 320 | — | — |
| LOSS-OF-CHARGE/LOW-PRESSURE SWITCH | — | — | — | — |
| (Liquid Line) (psig) | — | 7 ± 3 | — | — |
| Cutout | — | 22 ± 5 | — | — |
| FREEZE-PROTECTION THERMOSTAT | — | — | — | — |
| Opens (°F) | 30 ± 5 | — | — | — |
| Closes (°F) | 20 ± 5 | — | — | — |
| OUTDOOR-AIR INLET SCREENS | — | — | — | — |
| Quantity - Size (in.) | — | Clearance 20 x 25 x 1 | — | — |
| RETURN-AIR FILTERS | — | — | — | — |
| Quantity - Size (in.) | — | 2 - 16 x 25 x 2 | — | — |

LEGEND
Bhp — Brake Horsepower
*Single-Phase 3-Phase.
†Indicates automatic reset.
48HJ008-007 and 48HJ004 (72,000 Btu/h heat input) units have 2 burners.
48HJ005-007 and 48HJ006 (115,000 Btu/h heat input) units and 48HJ005-007 (150,000 Btu/h heat input) units have 3 burners.
††An LP Conversion Kit is available as an accessory.

Physical data (cont)

| BASE UNIT 48HJ | DE/F008 | DE/F009 | DE/F012 | DE014 |
|--|-------------|---|-------------|-------------|
| NOMINAL CAPACITY (tons) | 7 1/2 | 8 1/2 | 10 | 12 1/2 |
| OPERATING WEIGHT (lb) | 870 | 880 | 1035 | 1050 |
| Unit | 44 | 44 | 44 | 44 |
| Durablade Economizer | 62 | 62 | 62 | 62 |
| EconoMiser | 29 | 29 | 33 | 33 |
| MoistureMiser Dehumidification Package | 143 | 143 | 143 | 143 |
| Roof Curbs | | | | |
| COMPRESSOR | | | Scroll | |
| Quantity | 53 | 53 | 50 | 60 |
| Oil (oz) (each compr) | | | | |
| REFRIGERANT TYPE | | | R-22 | |
| Operating Charge (lb-oz) | | | | |
| Standard Unit | 7-10 | 7-14 | 9-3 | 9-8 |
| Circuit 1 | 8-2 | 8-5 | 10-3 | 9-8 |
| Unit with MoistureMiser Subcooling Option | 10-10 | 10-11 | 12-8 | 12-6 |
| Circuit 2 | 12-8 | 10-10 | 12-14 | 12-2 |
| CONDENSER FAN | | Propeller | | |
| Quantity - Diameter (in.) | 2, 22 | 2, 22 | 2, 22 | 2, 22 |
| Nominal Cfm | 6500 | 6500 | 7000 | 7000 |
| Motor Hp - Rpm | 1/4, 1100 | 1/4, 1100 | 1/4, 1100 | 1/4, 1100 |
| Watts Input (Total) | 650 | 650 | 650 | 650 |
| CONDENSER COIL | | Enhanced Copper Tubes, Aluminum Lanced Fins | | |
| Standard Unit | 2.17 | 2.17 | 2.17 | 2.17 |
| Rows - Fins/in. | 20.5 | 20.5 | 20.0 | 20.0 |
| Unit with MoistureMiser Dehumidification Package | 1.17 | 1.17 | 1.17 | 1.17 |
| Rows - Fins/in. | 6.3 | 6.3 | 8.4 | 8.4 |
| Total Face Area (sq ft) | | | | |
| EVAPORATOR FAN | | Centrifugal | | |
| Size (in.) | 15 x 15 | 15 x 15 | 15 x 15 | 15 x 15 |
| Type Drive | Ball | Ball | Ball | Ball |
| Quantity | 3000 | 3400 | 4000 | 5000 |
| Nominal Cfm | 2.90 | 2.90 | 3.70 | 5.25 |
| Maximum Continuous Bhp | 4.20 | 4.20 | 5.25 | — |
| Motor Frame | 56 | 56 | 56 | 56 |
| Fan Rpm Range | 840-1080 | 840-1080 | 860-1080 | 800-1200 |
| Motor Bearing Type | Ball | Ball | Ball | Ball |
| Maximum Fan Rpm | 2100 | 2100 | 2100 | 2100 |
| Motor Pulley Pitch Diameter | 3.4/4.4 | 3.4/4.4 | 4.0/5.0 | 2.8/3.8 |
| A/B (in.) | 4.9/5.0 | 4.9/5.0 | 2.8/3.8 | — |
| Nominal Motor Shaft Diameter (in.) | 7/8 | 7/8 | 7/8 | 7/8 |
| Fan Pulley Pitch Diameter (in.) | 1/4 | 1/4 | 1/4 | 1/4 |
| Pulley - Type - Length (in.) | A - 55 | A - 51 | A - 51 | AX - 46 |
| Ball - Center Line Distance (in.) | 16.75-19.25 | 16.75-19.25 | 15.65-17.50 | 15.65-17.50 |
| Factory Setting - Full Turn | 50 | 50 | 50 | 50 |
| Movable Pulley Flange (rpm) | 60 | 60 | 60 | 60 |
| Movable Pulley Maximum Full Turn | 5 | 5 | 5 | 5 |
| Turns from Closed Position | 5 | 5 | 5 | 5 |
| Factory Setting - Full Turns Open | 5 | 5 | 5 | 5 |
| Factory Speed Setting (rpm) | 840 | 840 | 860 | 960 |
| Fan Shaft Diameter at Pulley (in.) | 1 | 1 | 1 | 1 |
| EVAPORATOR COIL | | Enhanced Copper Tubes, Aluminum Double-Way Fins | | |
| Standard Unit | 3.15 | 3.15 | 3.15 | 4.15 |
| Total Face Area (sq ft) | 8.9 | 8.9 | 11.1 | 11.1 |



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| REV. NO. | DESCRIPTION | DATE | BY |
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PROJECT:

TITLE:
MÉCHANICAL GENERAL DETAILS.

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:
NTS

DRAWING NO. REV.

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PLUMBING SPECIFICATIONS

THE WORK INCLUDES MODIFICATION TO THE EXISTING PLUMBING SYSTEM AND PROVIDING NEW MATERIALS, FITTINGS AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. THE WORK ALSO INCLUDES ROUGH-IN AND FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT AND BEVERAGE DISPENSING EQUIPMENT PROVIDED BY OTHERS. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND/OR ORDINANCES AND IS SUBJECT TO INSPECTION.

HOOK-UP CHARGES, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE INCLUDED AS A PART OF THIS SECTION.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

PIPING SYSTEMS - GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING, PROVIDE AN ISOLATING DIALECTIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.

PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED.

FIXTURES/EQUIPMENT FURNISHED BY OTHERS: PLUMBING CONTRACTOR SHALL PROVIDE UTILITY CONNECTIONS REQUIRED SUCH AS WATER, GAS, AIR, SUPPLIES, WASTE OUTLET, TRAPS, ETC. AT ALL PLUMBING TYPE FIXTURES OR EQUIPMENT FURNISHED BY OWNER, GENERAL CONTRACTOR, FOOD SERVICE CONTRACTOR, EQUIPMENT SUPPLIER, ETC. INCLUDED ARE STOP VALVES, ESCUTCHEONS, AND CHROME PLATED BRASS TUBING WITH COMPRESSION FITTINGS.

SEWER AND WASTE PIPING: PROVIDE ALL DRAINS AND SEWERS WITHIN THE SPACE WITH CONNECTION TO THE EXISTING DRAINAGE SYSTEMS ON-SITE. SANITARY DRAINAGE PIPING ABOVE FLOOR SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE, FITTINGS AND CONNECTIONS. SANITARY DRAINAGE PIPING BELOW GRADE SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE WITH SOLVENT WELD FITTINGS MAY BE USED (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES). ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED, 1/4" PER FOOT UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON THE DRAWINGS.

VENTS: PROVIDE A COMPLETE SYSTEM OF STANDARD WEIGHT CAST IRON NO-HUB VENT RISERS WHERE THE CEILING SPACE IS USED AS A RETURN AIR PLENUM OR USE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES) WHERE THERE IS A DUCTED RETURN AIR SYSTEM. DO NOT USE PVC PIPE IN RETURN AIR PLENUM SPACES. THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.

CONDENSATE AND INDIRECT DRAIN PIPING: PIPING ABOVE FLOOR SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE, FITTINGS AND CONNECTIONS. PIPING BELOW GRADE SHALL BE CO-EXTRUDED PVC DWV(SCHEDULE 40) PIPE WITH SOLVENT WELD FITTINGS.

CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZE AS THE PIPES THEY SERVE, CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBSCURE FROM VIEW.

WATER DISTRIBUTION PIPING: LAYOUT WATER PIPING SO THAT THE ENTIRE SYSTEM CAN BE DRAINED. HOT AND COLD WATER PIPING SHALL BE 1/2" MIN. CPVC PIPE WITH SOLVENT FITTING. PROVIDE WATER HAMMER ARRESTERS AT EACH FIXTURE OR GROUP OF FIXTURES AS REQUIRED. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS).

PIPE INSULATION: INSULATE (AS ALLOWED BY CODE) ALL LISTED SERVICE PIPING AS FOLLOWS. DOMESTIC COLD/HOT WATER, HOT WATER RETURN, STORM WATER PIPING. PROVIDE 1" PREFORMED FIBERGLASS, AS/JSS-11, FLAME SPREAD 25, SMOKE DEVELOPED 50, ASTM C-547, FOR CONDENSATE PIPING PROVIDE 1/2" THICK INSULATION OF SAME CHARACTERISTICS AS LISTED FOR 1" ABOVE, WHERE PERMITTED BY LOCAL CODES. PROVIDE 1/2" SELF-ADHESIVE, UNICELLULAR FOAM PIPE INSULATION WITH PRE-FORMED PVC FITTING COVERS - EQUAL TO SELF-ADHESIVE ARMSTRONGS 2000 WITH K FACTOR OF 0.27 AT 75 DEGREES MEAN TEMPERATURE. INSULATE ANY EXPOSED CONDENSATE PIPING WITH WASTE TEMPERATURE BELOW 60 DEGREES F.

SHUTOFF VALVES, WITH UNIONS SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE, FOOD SERVICE EQUIPMENT ITEM OR OTHER EQUIPMENT ITEM, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. VALVES SHALL BE EQUAL TO JENKINS #902-T BALL VALVE, CHROME-FINISHED BRONZE, TEFLON SEATS AND PACKING, 400 LB. W.O.G., SOLDER END.

ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES, ETC. ARE CONCEALED WITHIN WALLS, WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE THROUGH LAY-IN SUSPENDED CEILINGS. ACCESS PANELS ARE NOT REQUIRED.

PIPING SYSTEM- PVC SCHEDULE 40, SCHEDULE 80 AND CPVC PIPE WITH SOLVENT FITTINGS SHALL BE USED WHERE PERMITTED BY CODE/LOCAL AUTHORITIES.

INSTALLATION: THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS TO EXCLUDE DIRT UNTIL FIXTURES ARE INSTALLED AND FINAL CONNECTIONS HAVE BEEN MADE. PROCEED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET FIXTURES LEVEL AND IN PROPER ALIGNMENT. INSTALL SUPPLIES IN PROPER ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN FIXTURES AND ADJACENT MATERIAL. FOR SANITARY JOINT, AND OMIT ESCUTCHEONS.

REPAIR EXISTING PLUMBING SYSTEM COMPONENTS DAMAGED BY CONSTRUCTION OPERATIONS AND RESTORE TO ORIGINAL CONDITIONS.

TEST WATER SYSTEM UNDER 150 PSIG HYDROSTATIC PRESSURE, FOR FOUR (4) HOURS MINIMUM. WHEN TESTING INDICATES MATERIALS OR WORKSMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NIRCA" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOFING WARRANTY.

GENERAL NOTES

1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE PLUMBING INSTALLATION AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.

2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE 2006 UNIFORM PLUMBING CODE, 2006 INTERNATIONAL BUILDING CODE, 2006 INTERNATIONAL ENERGY CONSERVATION CODE AND ALL OTHER APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.

3. COORDINATE ENTIRE INSTALLATION OF THE PLUMBING SYSTEM WITH THE WORK OF OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. REPORT ANY DISCREPANCIES, IN WRITING, TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.

4. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS.

5. PROVIDE ONE YEAR WARRANTY ON ALL PARTS AND LABOR.

6. THE DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW SCOPE. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES TO PROVIDE THE BEST ARRANGEMENT OF ALL DUCT, PIPE, CONDUIT, ETC.

7. ALL CUTTING AND PATCHING OF THE EXISTING STRUCTURE SHALL BE PROVIDED UNDER OTHER SECTIONS OF THE WORK. PROVIDE NECESSARY REQUIREMENTS TO THE PROJECT SUPERINTENDENT.

8. ALL HOT WATER PIPING AND RECIRCULATION PIPING (EXCEPT RUNOUTS 12 FT. OR SHORTER TO INDIVIDUAL FIXTURES) SHALL BE INSULATED TO MEET THE REQUIREMENTS OF THE 2006 INTERNATIONAL ENERGY CONSERVATION CODE

9. CONDENSATE DRAINS SHALL BE PROVIDED FOR EACH AIR CONDITIONING UNIT. HORIZONTAL CONDENSATE DRAINS ABOVE ANY CEILING SHALL BE INSULATED WITH MIN. 3/8" THICK CLOSED CELL INSULATION.

10. PIPING:
A. WASTE, VENT, AND STORM DRAIN PIPING SHALL BE CO-EXTRUDED PVC SCHEDULE 40) PIPE
B. WATER PIPE SHALL BE CPVC PIPE

C. CONDENSATE PIPING SHALL BE CO-EXTRUDED PVC (SCHEDULE 40) PIPE

D. INSIDE GAS PIPING SHALL BE BLACK IRON SCHEDULE 40 WITH MALLEABLE IRON FITTINGS. OUTSIDE SHALL BE GALVANIZED IRON SCHEDULE 40 WITH GALVANIZED FITTINGS. GAS LINE TO BE PAINTED GRAY IN COLOR. A 24 HOUR METERED GAS TEST SHALL BE REQUIRED.

E. ALL PIPING NOT ENCLOSED IN CONDITION SPACE OR AT EXTERIOR WALLS SHALL BE INSULATED.

F. PIPING: PVC SCHEDULE 40, SCHEDULE 80 AND CPVC PIPING WITH SOLVENT WELD FITTINGS SHALL BE USED WHERE PERMITTED BY CODE/LOCAL AUTHORITIES

11. ALL VENTS OR EXHAUSTS SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. ABOVE ANY WINDOW, DOOR, OPENING, OR AIR INTAKE.

12. CLEANOUTS SHALL BE INSTALLED PER THE UNIFORM PLUMBING CODE.

13. PROVIDE WATER TIGHT FLASHINGS WHEREVER PIPES PASS THROUGH EXTERIOR WALLS, ROOFS, OR FLOORS.

14. PROVIDE ISOLATION FOR ALL PIPES THAT COME IN CONTACT WITH THE STRUCTURE.

15. LOCATION OF EXISTING UTILITIES AND POINTS OF CONNECTION ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICES PRIOR TO STARTING WORK OF THIS SECTION. IF INDICATED POINTS OF CONNECTION CANNOT BE MADE TO EXISTING UTILITIES AS FOUND, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO INSTALLING ANY WORK WHICH MAY BE AFFECTED.

16. VALVES SHALL BE NIBCO, JENKINS, HAMMOND, RED & WHITE OR APPROVED EQUAL. SERVICE PRESSURE SHALL BE SUITABLE FOR SERVICE INTENDED. THE MAIN WATER SHUT OFF VALVE SHALL BE A FULL PORT BALL TYPE AND APPROVED FOR SERVICE INTENDED.

17. CONTRACTOR SHALL PROVIDE ALL SHUT OFF VALVES AS NECESSARY TO ISOLATE ANY EQUIPMENT, PLUMBING ITEMS, OR FIXTURES, THAT MAY NEED SERVICING OR ARE SUBJECT TO FAILURE WHETHER OR NOT SUCH VALVES ARE SHOWN ON THE DRAWINGS.

18. PROVIDE HANGERS AND SUPPORTS AS REQUIRED. PLUMBERS TAPE AND WIRE ARE NOT ACCEPTABLE.

19. CONTRACTOR IS RESPONSIBLE FOR HIS OWN TRENCHING, BACKFILL, AND COMPACTION OF TRENCHES NECESSARY TO COMPLETE HIS SCOPE OF WORK. BACKFILLED TRENCHES SHALL BE RETURNED TO THEIR ORIGINAL GRADE UNLESS NOTED OTHERWISE.

20. CONTRACTOR SHALL AFFIX A MAINTENANCE LABEL TO ALL EQUIPMENT REQUIRING ROUTINE MAINTENANCE AND SHALL PROVIDE MAINTENANCE AND OPERATIONAL MANUALS IN ACCORDANCE WITH THE SPECIFICATIONS.

21. ALL EQUIPMENT THAT REQUIRES KEYS OR SPECIAL TOOLS TO OPERATE SHALL SUPPLY THE OWNER WITH TWO OF ANY SUCH KEYS OR TOOLS FOR EACH PIECE OF EQUIPMENT THAT REQUIRE THE SAME.

25. ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE APPROVAL, IN WRITING, OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK.

26. ALL PLUMBING, ELECTRICAL, AND GAS LINES SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE TO AS GREAT EXTENT AS POSSIBLE. ALL LINES NOT CONCEALED SHALL BE SECURED 6" OFF THE FLOOR AND 3/4" FROM THE WALLS USING STANDOFF BRACKETS

27. AN APPROVED BACKFLOW PREVENTOR SHALL BE PROPERLY INSTALLED UPSTREAM OF ANY POTENTIAL HAZARD BETWEEN THE POTABLE WATER SUPPLY AND SOURCE OF CONTAMINATION.

28. WATER SUPPLY CARBONATORS SHALL BE PROTECTED BY AN APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR. THE RELIEF VALVE SHALL DRAIN DIRECTLY TO A FLOOR SINK WITH A 1" MIN. AIR GAP.

| PLUMBING LEGEND | | |
|-----------------|---------|----------------------------------|
| SYMBOL | ABBREV | DESCRIPTION |
| | SS or W | NEW SEWER OR WASTE |
| | V | NEW VENT |
| | CW | NEW COLD WATER |
| | HW | NEW HOT WATER |
| | G | NEW GAS |
| | CD | NEW CONDENSATE DRAIN |
| | CA | COMPRESSED AIR |
| | FCO | FLOOR CLEANOUT |
| | WCO | WALL CLEANOUT |
| | FD | FLOOR DRAIN |
| | FS | FLOOR SINK |
| | TP | TRAP PRIMER & TRAP PRIMER PIPING |
| | SOV | SHUT-OFF VALVE |
| | CV | CHECK VALVE |
| | PRV | BACKFLOW PREVENTER W SOV'S |
| | T & P | |
| | DN | PIPE DOWN |
| | UP | PIPE UP |
| | POC | POINT OF CONNECTION |
| | - | PLUMBING NOTE CALL-OUT |
| | ABV | ABOVE |
| | AFB | ABOVE FINISH FLOOR |
| | AP | ACCESS PANEL |
| | BEL | BELOW |
| | BLDG | BUILDING |
| | CLG | CEILING |
| | CONT | CONTINUATION |
| | EL | ELEVATION |
| | FIN | FINISH |
| | FL | FLOOR |
| | GR | GRADE |
| | NTS | NOT TO SCALE |
| | OC | ON CENTER |
| | S= % | SLOPE AT A PERCENTAGE |
| | SHT | SHEET |
| | TYP | TYPICAL |
| | VTR | VENT THRU ROOF |

PLUMBING / GENERAL NOTES

BATHTUBS AND WHIRLPOOL BATHTUBS. THE MAX. HOT WATER TEMPERATURE DISCHARGING SHALL BE LIMITED TO 120 DEGREES. CPC 414/2019

BATHTUBS WASTE OPENING IN FLOOR OVER CRAWL SPACES SHALL BE PROTECTED BY A METAL SCREEN NOT EXCEEDING 12" OR SOLID COVER. CPC 313.12.4 2019

SHOWERS AND TUB-SHOWERS COMBINATIONS IN ALL BUILDINGS SHALL BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE, THERMOSTATIC, OR COMBINATION OF BOTH THAT PROVIDE SCALD AND THERMAL SHOCK PROTECTION. VALVES SHALL BE ADJUSTED TO DELIVER A MAXIMUM MIXED WATER SETTING OF 120 DEGREES FAHRENHEIT. THE WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED A SUITABLE CONTROL FOR MEETING THIS PROVISION. 418.0 CPC/2019

VERIFY AND WHERE WATER PRESSURE EXCEEDS 80 PSI AN APPROVED PRESSURE REGULATOR PRECEDED BY AN ADEQUATE STRAINER SHALL BE INSTALLED 608.2 CJC / 2019

1-INSTALL TEMPERATURE AND PRESSURE RELIEF VALVE WITH MINIMUM 3/4" DRAIN PIPE AND TERMINATE TO THE EXTERIOR OF THE BUILDING OVER WINDOW, DOOR OR VISIBLE LOCATION. DISCHARGE FROM A RELIEF VALVE INTO A WATER HEATER PAN SHALL BE PROHIBITED CPC 608.5, 510.B.

2-PROVIDE (ON THE PLANS) A GAS PIPING DIAGRAM OF THE GAS PIPING SYSTEM THAT INCLUDES ALL PIPE SIZES, PIPE LENGTHS AND BTU RATINGS.

3-SUBMIT GAS LOAD CALCULATIONS IN ACCORDANCE WITH CPC TABLE 12-8 TO VERIFY THE PIPE SIZES ARE ADEQUATE FOR THE MAXIMUM DELIVERY CAPACITY OF CUBIC FEET OF GAS PER HOUR.

4- A WHOLE HOUSE GAS TEST IS REQUIRED UPON COMPLETION OF THE INSTALLATION, ALTERATION, OR REPAIR OF ANY GAS PIPING.

THE CITY SHALL BE NOTIFIED WHEN GAS PIPING IS READY FOR INSPECTION.

5- 2 GPM SHOWER FIXTURE, MAX. 1.5 GPM BATHROOM FAUCET, MAX. 2 GPM KITCHEN FAUCET, AND MAX 1.28 WATER CLOSET TO CONFORM TO CITY GREEN REQUIREMENTS.

BATHROOMS: PROVIDE AN EXHAUST FAN (AT LEAST 50 CFM) DUCTED TO THE OUTSIDE (MINIMUM 4" DIAMETER FLEX DUCT WITH A MAXIMUM LENGTH OF 70') WITH A MINIMUM VENTILATION RATE OF 100 CFM. IDENTIFY THE REQUIREMENT FOR A BACKDRAFT DAMPER ON THE DUCT. AN ENERGY STAR COMPLIANT EXHAUST FAN THAT IS CONTROLLED BY A HUMIDITY SENSOR THAT IS CAPABLE OF BEING ADJUSTED BETWEEN ≤ 50 PERCENT TO 80 PERCENT HUMIDITY; AND A SEPARATE SWITCH FROM THE LIGHT UNLESS THE FAN IS ALLOWED TO OPERATE WITH THE LIGHT SWITCHED OFF.

6-NOTE THAT ALL PLUMBING VENTS SHALL TERMINATE NOT LESS THAN 6" ABOVE ROOF NOR LESS THAN 1' FROM ANY VERTICAL SURFACE. VENTS SHALL TERMINATE NOT LESS THAN 10' FROM OR 3' ABOVE ANY WINDOW.

DOOR OPENING AIR INTAKE, OR VENT SHAFT NOR 3' FROM LOT LINE.

(2019 CPC 904) IF WATER PRESSURE EXCEEDS 80 PSI, AND EXPANSION TANK AND AN APPROVED PRESSURE REGULATOR SHALL BE INSTALLED. (2019 CPC 608.2)

NON-REMOVABLE BACK FLOW PRE-VENTER OR BIBB-TYPE VACUUM

BREAKER WILL BE INSTALLED ON ALL EXTERIOR HOSE BIBS. (2019 CPC 603.4.7)

HOT WATER RE-CIRCULATING SYSTEM IS INSTALLED, THE ENTIRE LENGTH

OF HOT WATER PIPES SHALL BE INSULATED. (2008 CALIFORNIA ENERGY REGULATIONS 150 (J))

HOT WATER PIPE FROM THE WATER HEATER TO THE KITCHEN WILL BE INSULATED. (2008 CALIFORNIA ENERGY REGULATIONS 151 (F)(8) D)

NOTES:

1-PROJECTS WHICH DISTURB LESS THAN ONE ACRE OF SOIL SHALL MANAGE STORM WATER DRAINAGE DURING CONSTRUCTION BY ONE OF THE FOLLOWING: A. RETENTION BASINS. B. WHERE STORM WATER IS CONVEYED TO A PUBLIC DRAINAGE SYSTEM, WATER SHALL BE FILTERED BY USE OF A BARRIER SYSTEM, WATTLE OR OTHER APPROVED METHOD.

2-SITE GRADING OR DRAINAGE SYSTEM WILL MANAGE ALL SURFACE WATER FLOWS TO KEEP WATER FROM ENTERING BUILDINGS (SWALES, WATER COLLECTION, FRENCH DRAINS, ETC.). CGC SECTION 4.106.3. EXCEPTION: ADDITIONS NOT ALTERING THE DRAINAGE PATH.

3-WHEN A SHOWER IS PROVIDED WITH MULTIPLE SHOWER HEADS, THE SUM OF FLOW TO ALL THE HEADS SHALL NOT EXCEED 1.8 GPM @ 80 PSI, OR THE SHOWER SHALL BE DESIGNED SO THAT ONLY ONE HEAD IS ON AT A TIME. CGC SECTION 4.303.1.3.2.

4-LANDSCAPE IRRIGATION WATER USE SHALL HAVE WEATHER OR SOIL BASED CONTROLLERS. CGC SECTION 4.304.1.

5-THE PLANTS THAT A MINIMUM OF 65% OF CONSTRUCTION WASTE IS TO BE RECYCLED. CGC SECTION 4.408.1.

6-THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION WASTE MANAGEMENT PLAN, PER CGC SECTION 4.408.2.

7-THE BUILDER IS TO PROVIDE AN OPERATION MANUAL (CONTAINING INFORMATION FOR MAINTAINING PER APPLIANCES, ETC.) FOR THE OWNER AT THE TIME OF FINAL INSPECTION. CGC SECTION 4.410.1.

8-THE GAS FIREPLACE(S) SHALL BE A DIRECT-VENT SEALED- COMBUSTION TYPE. WOODSTOVE OR PELLET STOVES MUST BE US EPA PHASE II RATED APPLIANCES. CGC SECTION 4.503.1.

WATER SAVING STANDARDS.

THE WATER SAVING PERFORMANCE STANDARDS FOR A PLUMBING FIXTURE ARE THOSE ESTABLISHED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), CURRENT REVISION, OR THE FOLLOWING STANDARDS, WHICHEVER ARE THE MORE RESTRICTIVE

1.THE MAXIMUM FLOW FROM A SINK OR LAVATORY FAUCET OR A FAUCET AERATOR SHALL NOT EXCEED 0.5 GALLONS OF WATER PER MINUTE AT A PRESSURE OF 60 POUNDS

PER SQUARE INCH WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES

2.THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A TOILET SHALL NOT EXCEED AN AVERAGE OF 1.28 GALLONS WHEN TESTED IN ACCORDANCE WITH ANSI TESTING

PROCEDURES

3. THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A URINAL AND THE ASSOCIATED FLUSH VALVE, IF ANY, SHALL NOT EXCEED AN AVERAGE OF ONE GALLON WHEN TESTED

IN ACCORDANCE WITH ANSI TESTING PROCEDURES

SPECIAL NOTICE TO CONTRACTORS

1. ALL CONTRACTORS (GENERAL CONTRACTOR AND SUB-CONTRACTORS) BIDDING THIS PROJECT ARE REQUIRED TO VISIT THE JOB SITE AND VERIFY THE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. CONTRACTORS ARE TO CAREFULLY REVIEW ALL CONSTRUCTION DOCUMENTS AND NOTE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED AT THE JOB SITE PRIOR TO SUBMISSION OF ANY BID. THE BUILDING OWNER REPRESENTATIVE LISTED BELOW MAY BE CONTACTED FOR ACCESS TO THE JOB SITE.

2. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING THE LOCATION AND CONDITION OF ALL POINTS OF CONNECTION, LOCATION AND CONDITION OF ALL BUILDING (ROOF/FLOOR/CEILING) PENETRATIONS, LOCATION AND CONDITION OF ALL UTILITIES AND BUILDING SYSTEMS INCLUDING, BUT NOT LIMITED TO, GAS, WATER, SEWER, VENT, ELECTRICAL, BUILDING MECHANICAL SYSTEMS, DUCT CONNECTIONS, EXHAUST/OUTSIDE AIR CONNECTIONS, SECURITY, FIRE ALARM, DATA, AND PHONE PRIOR TO SUBMISSION OF THEIR BID.

3. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED SHALL BE BROUGHT TO THE ATTENTION, IN WRITING, TO THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

CLIENT:

ADDRESS:

CONFIDENTIALITY STATEMENT:

ALL DRAWINGS AND WRITTEN MATERIALS

APPEARING HEREIN CONSTITUTE THE

ORIGINAL AND UNPUBLISHED WORK OF THE

DESIGNER AND THE SAME MAY NOT BE

DUPLICATED, USED OR DISCLOSED WITHOUT

CONSENT OF THE DESIGNER.

NOTES:

1. ALL DIMENSIONS HEREIN ARE IN IMPERIAL UNITS UNLESS STATED OTHERWISE.

2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DESIGNER, ENGINEER OR SPECIALIST DRAWINGS AND SPECIFICATIONS.

3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING WORK.

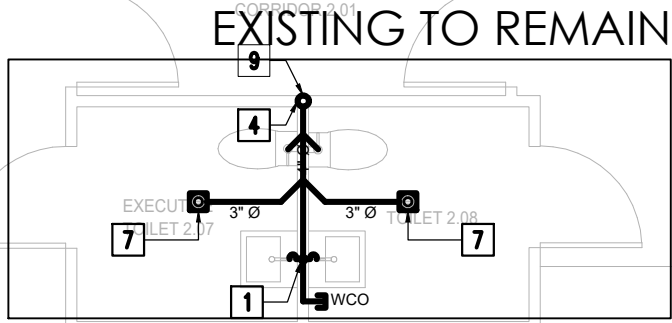
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

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PROJECT:

TITLE:
PLUMBING LIST OF SYMBOLS
& GENERAL NOTES

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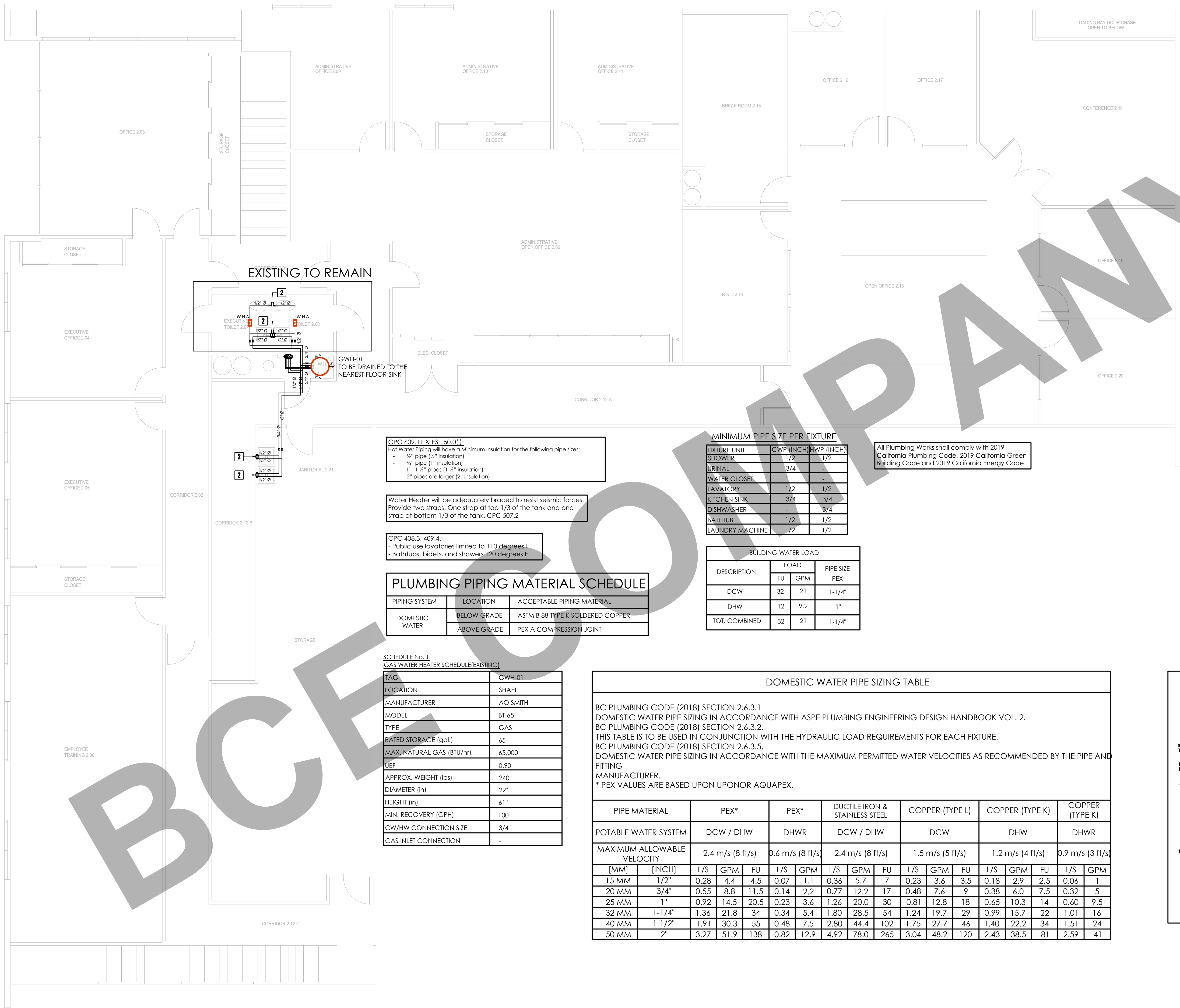
1. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
2. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
3. REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES.
5. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED CUTTING AND PATCHING.
6. ALL NOTCHING, BORING, AND CUTTING OF HOLES IN WALL STUDS AND FLOOR JOISTS SHALL BE PERFORMED BASED ON THE LATEST ADOPTED AND APPROVED EDITION OF THE BUILDING CODE.
7. ALL PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
8. ALL WATER PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
9. CONTRACTOR SHALL PROVIDE VALVES LOCATED ABOVE LAY-IN CEILING OR 24"x24" CEILING ACCESS PANEL COORDINATE FINES FOR LOCATION AND SIZE WITH ARCHITECT. PROVIDE BALANCING VALVES FOR HOT WATER RETURN SYSTEM AS REQUIRED.
10. ALL SANITARY DRAINAGE PIPING 3" AND SMALLER SHALL BE SLOPED AT $\frac{1}{8}$ " PER FOOT. PIPING 4" AND LARGER SHALL BE SLOPED AT $\frac{1}{8}$ " PER FOOT.
11. ALL CONDENSATE DRAIN PIPING SHALL BE SLOPED AT $\frac{1}{8}$ " PER FOOT AND PROVIDE ACCESSIBLE CLEANOUTS AT ALL CHANGES OF DIRECTION.
12. VENTS THAT TERMINATE AT THE ROOF SHALL BE A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
13. REFER TO THE PLUMBING DIAGRAMS FOR GUIDANCE OF INSTALLATION INTENT. CONTRACTOR IS TO PROVIDE ALL COMPONENTS NECESSARY TO MEET THE DESIGN INTENT, WHETHER SHOWN IN DIAGRAM OR NOT.

- 1 — WASTE DROP AND 2" VENT RISE.
- 2 — 2" VENT RISE TO HIGH LEVEL.
- 3 — 1-1/2" VENT RISE TO HIGH LEVEL.
- 4 — 3" VENT STACK TO ABOVE TERMINATED NOT LESS THAN 6 INCHES ABOVE THE ROOF NOR LESS THAN 1 FOOT FROM A VERTICAL SURFACE.
- 5 — 4" FLOOR CLEAN-OUT.
- 6 — OUTDOOR FLOOR CLEAN-OUT. REFER TO DWG FOR PIPE SIZE.
- 7 — 3" FLOOR DRAIN.
- 8 — 4" WASTE DROP FROM FLOOR ABOVE
- 9 — 4" WASTE DROP TO FLOOR BELOW
- 10 — 3" ROOF VENT CAP
- 11 — 2" FROM FLOOR SINK
- 12 — 3" WASTE DROP TO FLOOR BELOW

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4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

| | | |
|---|-------------|--------------------------------------|
| PROJECT: | | |
| TITLE: SANITARY LAYOUT. SECOND FLOOR. | | |
| PROJ. NO. | PROJ. ENGR. | SCALE @ 24X36: 3/16"=1'-0" |
| DRAWING NO. | | REV. |
| P 1 . 0 | | |



GENERAL NOTES:

1. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
2. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
3. REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES.
5. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED CUTTING AND PATCHING.
6. ALL NOTCHING, BORING, AND CUTTING OF HOLES IN WALL STUDS AND FLOOR JOISTS SHALL BE PERFORMED BASED ON THE LATEST ADOPTED AND APPROVED EDITION OF THE BUILDING CODE.
7. ALL PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
8. ALL WATER PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
9. CONTRACTOR SHALL PROVIDE VALVES LOCATED ABOVE LAY-IN CEILING OR 24"x24" CEILING ACCESS PANEL COORDINATE FINAL LOCATION AND SIZE WITH ARCHITECT. PROVIDE BALANCING VALVES FOR HOT WATER RETURN SYSTEM AS REQUIRED.
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PLUMBING SHEET NOTES

SHEET NOTES:

- 1 → DCW/DHW/DHWR TO ABOVE FLOOR.
- 2 → DCW & DHW DROP IN WALL.
- 3 → DCW/DHW/DHWR FROM BELOW FLOOR.
- 4 → DCW/DHW/DHWR TO BELOW FLOOR.

CPC 609.11 & ES 150.000:

Hot Water Piping will have a Minimum Insulation for the following pipe sizes:

- 1/2" pipe (1/2" insulation)
- 3/4" pipe (1" insulation)
- 1" - 1 1/4" pipes (1 1/2" insulation)
- 2" pipes are larger (2" insulation)

Water Heater will be adequately braced to resist seismic forces. Provide two straps. One strap at top 1/3 of the tank and one strap at bottom 1/3 of the tank. CPC 507.2

CPC 408.3, 409.4.

- Public use lavatories limited to 110 degrees F
- Bathtubs, bidets, and showers: 120 degrees F

PLUMBING PIPING MATERIAL SCHEDULE

| PIPING SYSTEM | LOCATION | ACCEPTABLE PIPING MATERIAL |
|----------------|-------------|----------------------------------|
| DOMESTIC WATER | BELOW GRADE | ASTM B 88 TYPE K SOLDERED COPPER |
| | ABOVE GRADE | PEX A COMPRESSION JOINT |

SCHEDULE No. 1
GAS WATER HEATER SCHEDULE (EXISTING)

| | |
|---------------------------|----------|
| TAG | GWH-01 |
| LOCATION | SHAFT |
| MANUFACTURER | AO SMITH |
| MODEL | BT-65 |
| TYPE | GAS |
| RATED STORAGE (gal.) | 65 |
| MAX. NATURAL GAS (BTU/hr) | 65,000 |
| UEF | 0.90 |
| APPROX. WEIGHT (lbs) | 240 |
| DIAMETER (in) | 22" |
| HEIGHT (in) | 61" |
| MIN. RECOVERY (GPH) | 100 |
| CW/HW CONNECTION SIZE | 3/4" |
| GAS INLET CONNECTION | - |

MINIMUM PIPE SIZE PER FIXTURE

| FIXTURE UNIT | CWP (INCH) | HWP (INCH) |
|-----------------|------------|------------|
| SHOWER | 1/2 | 1/2 |
| URINAL | 3/4 | - |
| WATER CLOSET | 1 | - |
| LAVATORY | 1/2 | 1/2 |
| KITCHEN SINK | 3/4 | 3/4 |
| DISHWASHER | - | 3/4 |
| BATHTUB | 1/2 | 1/2 |
| LAUNDRY MACHINE | 1/2 | 1/2 |

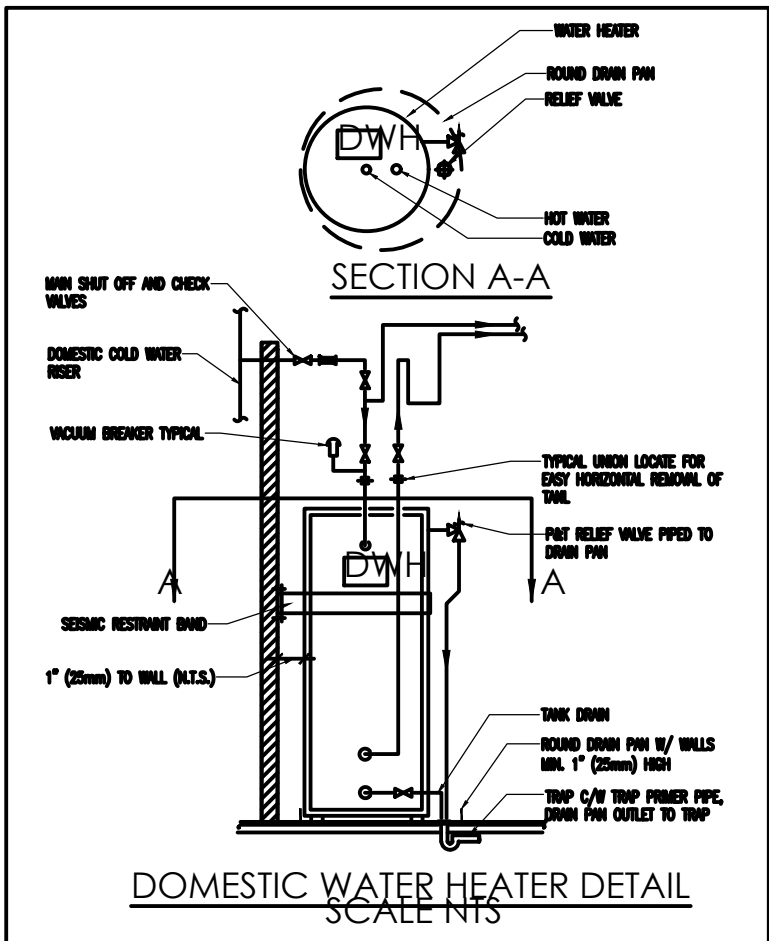
All Plumbing Works shall comply with 2019 California Plumbing Code, 2019 California Green Building Code and 2019 California Energy Code.

| DESCRIPTION | LOAD | | PIPE SIZE |
|---------------|------|-----|-----------|
| | FU | GPM | PEX |
| DCW | 32 | 21 | 1-1/4" |
| DHW | 12 | 9.2 | 1" |
| TOT. COMBINED | 32 | 21 | 1-1/4" |

DOMESTIC WATER PIPE SIZING TABLE

BC PLUMBING CODE (2018) SECTION 2.6.3.1
DOMESTIC WATER PIPE SIZING IN ACCORDANCE WITH ASPE PLUMBING ENGINEERING DESIGN HANDBOOK VOL. 2.
BC PLUMBING CODE (2018) SECTION 2.6.3.2.
THIS TABLE IS TO BE USED IN CONJUNCTION WITH THE HYDRAULIC LOAD REQUIREMENTS FOR EACH FIXTURE.
BC PLUMBING CODE (2018) SECTION 2.6.3.5.
DOMESTIC WATER PIPE SIZING IN ACCORDANCE WITH THE MAXIMUM PERMITTED WATER VELOCITIES AS RECOMMENDED BY THE PIPE AND FITTING MANUFACTURER.
* PEX VALUES ARE BASED UPON UPONOR AQUAPEX.

| PIPE MATERIAL | PEX* | | DUCTILE IRON & STAINLESS STEEL | | COPPER (TYPE L) | | COPPER (TYPE K) | | COPPER (TYPE K) | |
|----------------------------|------------------|------------------|--------------------------------|------|------------------|------|------------------|------|------------------|------|
| | DCW / DHW | DHWR | DCW / DHW | | DCW | | DHW | | DHWR | |
| POTABLE WATER SYSTEM | DCW / DHW | DHWR | DCW / DHW | | DCW | | DHW | | DHWR | |
| MAXIMUM ALLOWABLE VELOCITY | 2.4 m/s (8 ft/s) | 0.6 m/s (8 ft/s) | 2.4 m/s (8 ft/s) | | 1.5 m/s (5 ft/s) | | 1.2 m/s (4 ft/s) | | 0.9 m/s (3 ft/s) | |
| [MM] | [INCH] | L/S | GPM | FU | L/S | GPM | FU | L/S | GPM | FU |
| 15 MM | 1/2" | 0.28 | 4.4 | 4.5 | 0.07 | 1.1 | 0.36 | 5.7 | 7 | 0.23 |
| 20 MM | 3/4" | 0.55 | 8.8 | 11.5 | 0.14 | 2.2 | 0.77 | 12.2 | 17 | 0.48 |
| 25 MM | 1" | 0.92 | 14.5 | 20.5 | 0.23 | 3.6 | 1.26 | 20.0 | 30 | 0.81 |
| 32 MM | 1-1/4" | 1.36 | 21.8 | 34 | 0.34 | 5.4 | 1.80 | 28.5 | 54 | 1.24 |
| 40 MM | 1-1/2" | 1.91 | 30.3 | 55 | 0.48 | 7.5 | 2.80 | 44.4 | 102 | 1.75 |
| 50 MM | 2" | 3.27 | 51.9 | 138 | 0.82 | 12.9 | 4.92 | 78.0 | 265 | 3.04 |



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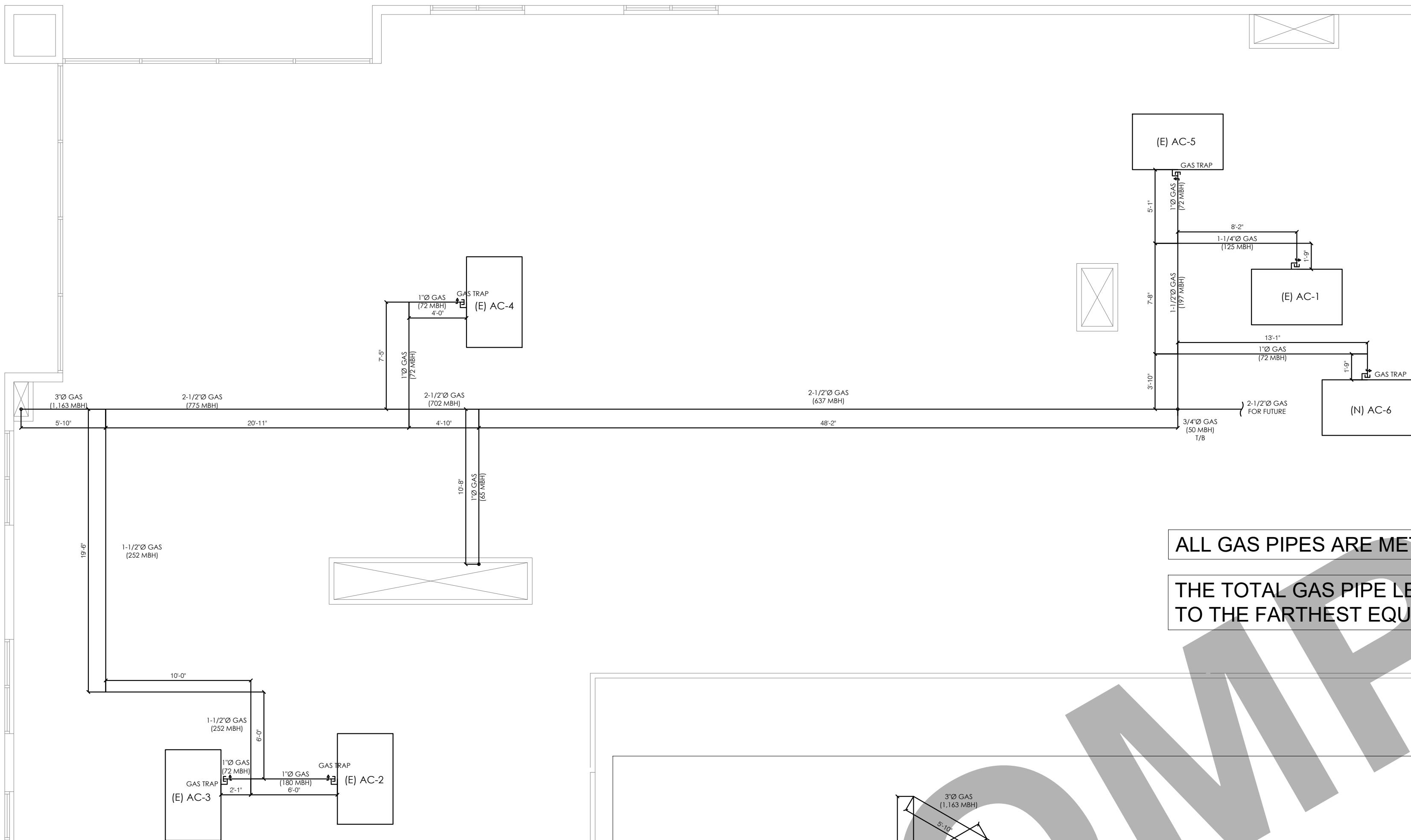
PROJECT:

TITLE:
**WATER SUPPLY LAYOUT.
SECOND FLOOR.**

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:
3/16"=1'-0"

DRAWING NO. REV.

P 2 . 0

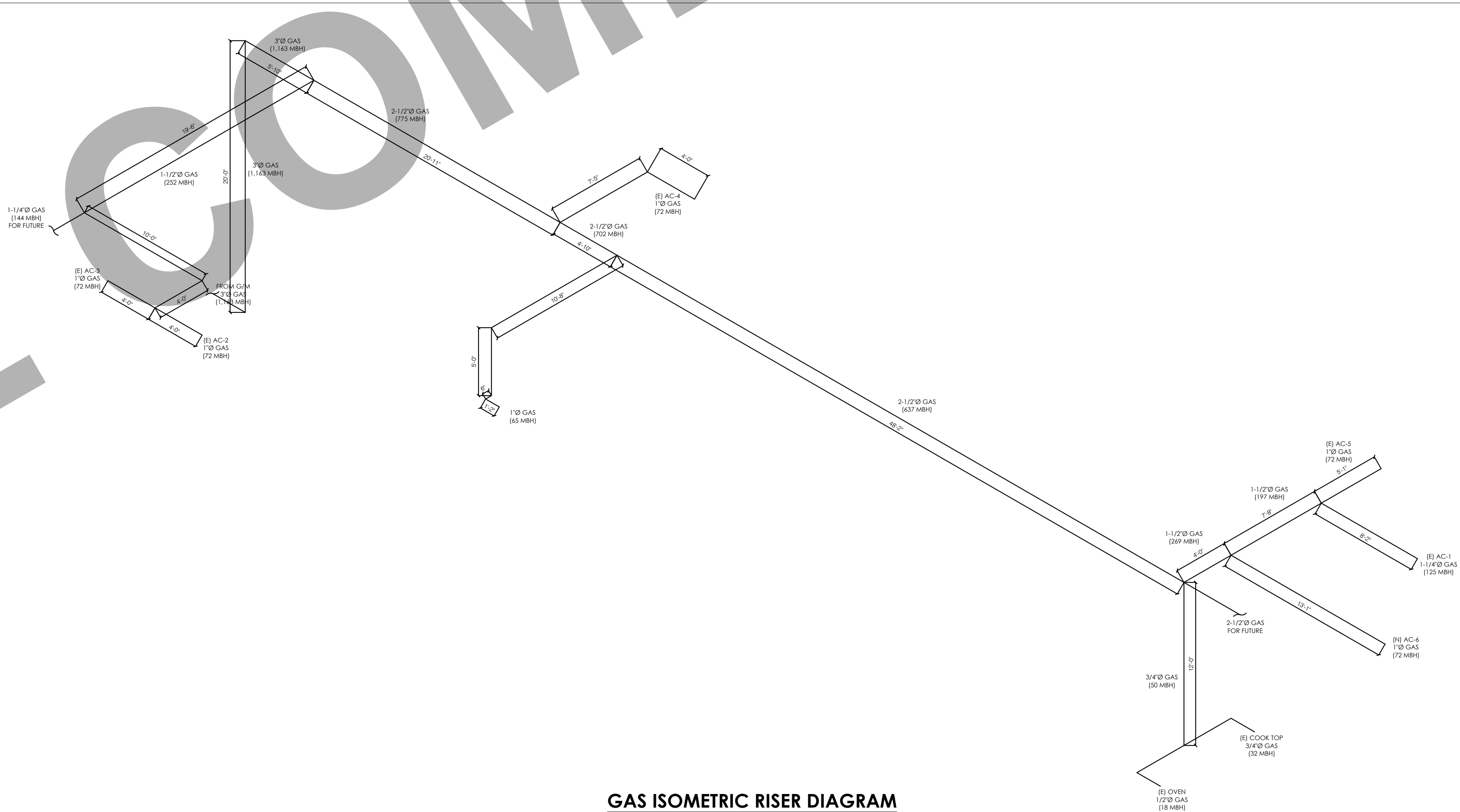


ALL GAS PIPES ARE METALLIC SCHEDULE 40

THE TOTAL GAS PIPE LENGTH FROM GAS METER TO THE FARTHEST EQUIPMENT IS APPRX. 200 FEET.

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GAS ISOMETRIC RISER DIAGRAM

ROOF PLAN

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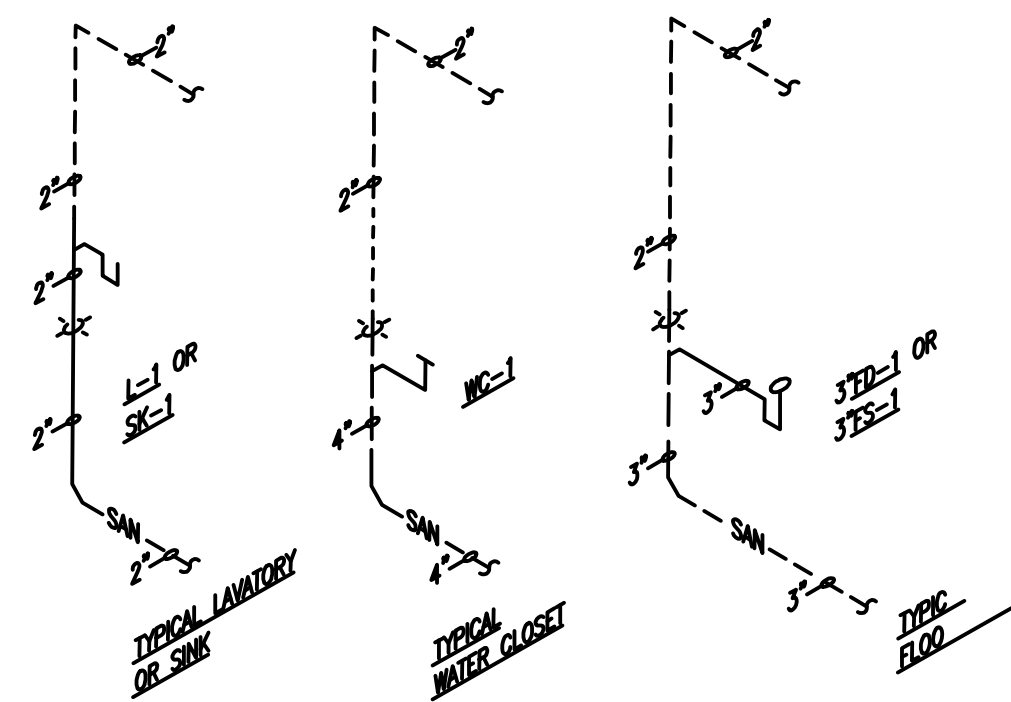
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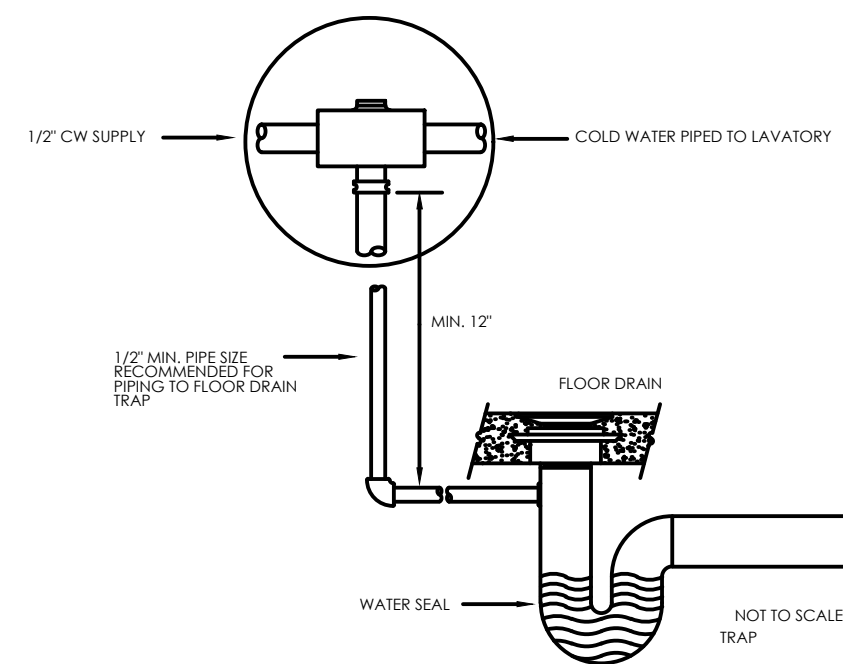
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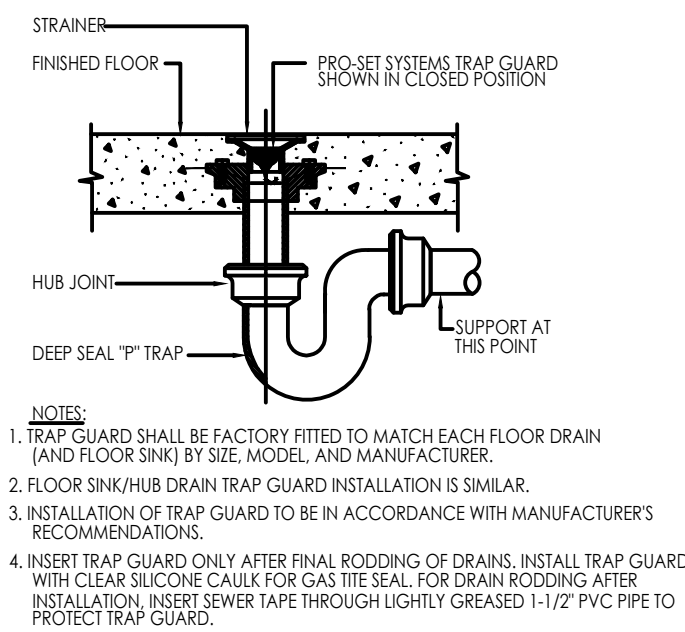
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| PROJECT: | | | |
| TITLE: ROOF GAS LAYOUT & RISER DIAGRAM | | | |
| PROJ. NO. | PROJ. ENGR. | SCALE @ 24X36: 3/16"=1'-0" | |
| DRAWING NO. | | REV. | |
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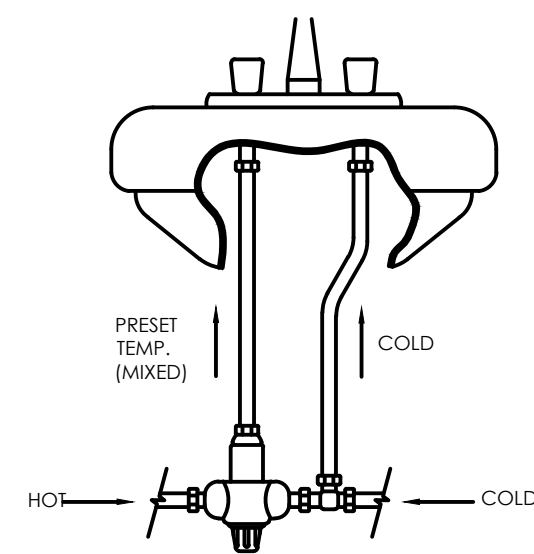
1 TYPICAL WASTE AND VENT RISERS
SCALE: NONE



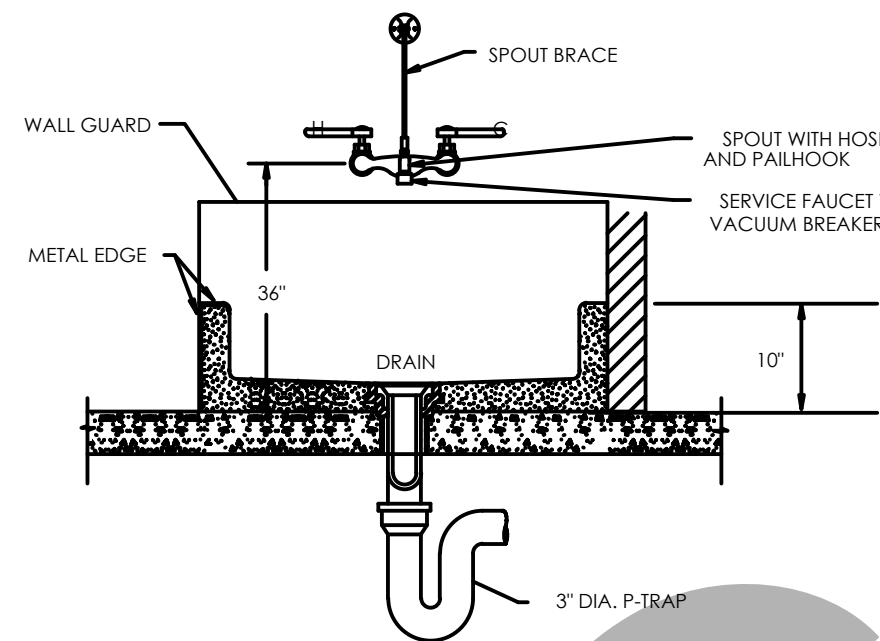
2 TRAP PRIMER
SCALE: NONE



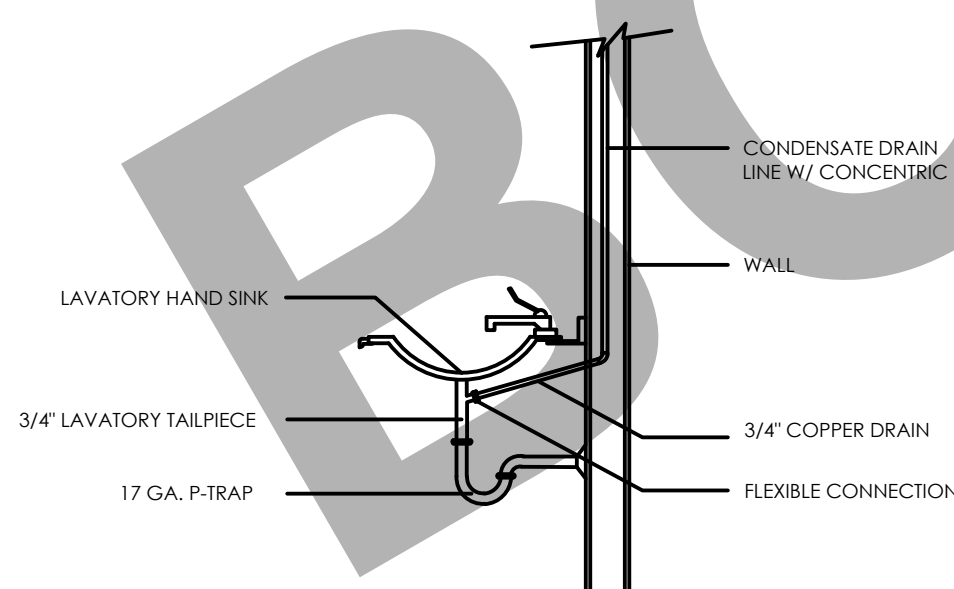
3 FLOOR DRAIN WITH TRAP SEAL PROTECTION
SCALE: NONE



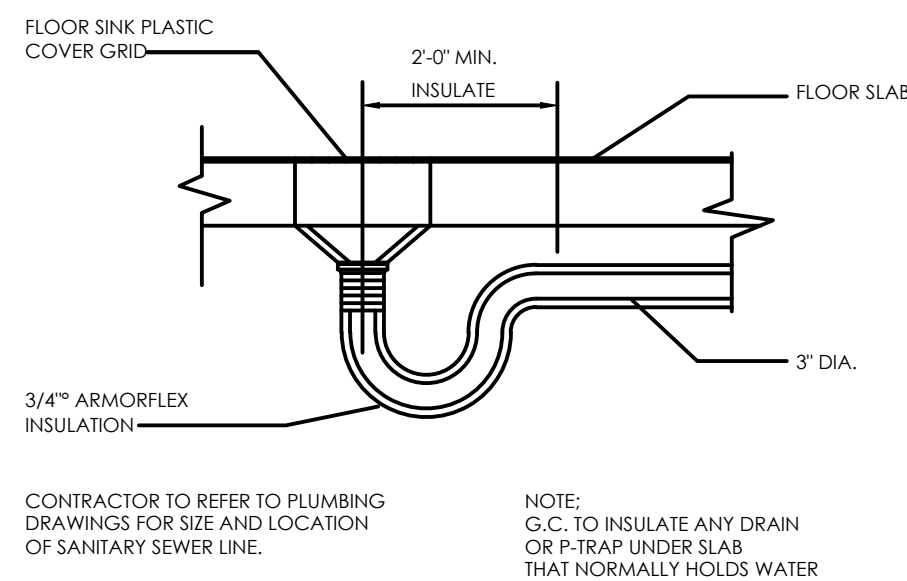
ANTI-SCALD MIXING VALVE
NO SCALE



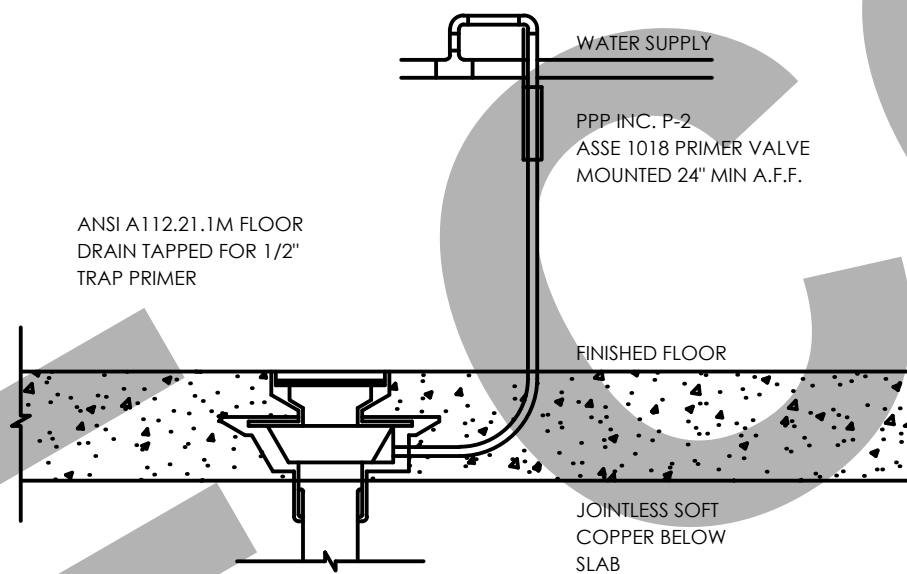
MOP SINK DETAIL
NO SCALE



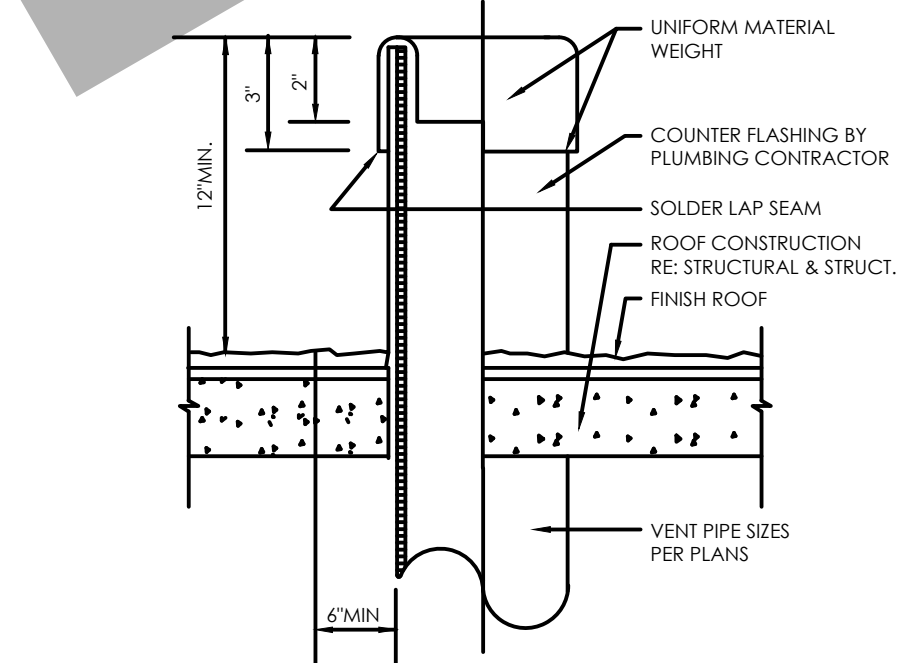
CONDENSATE DETAIL
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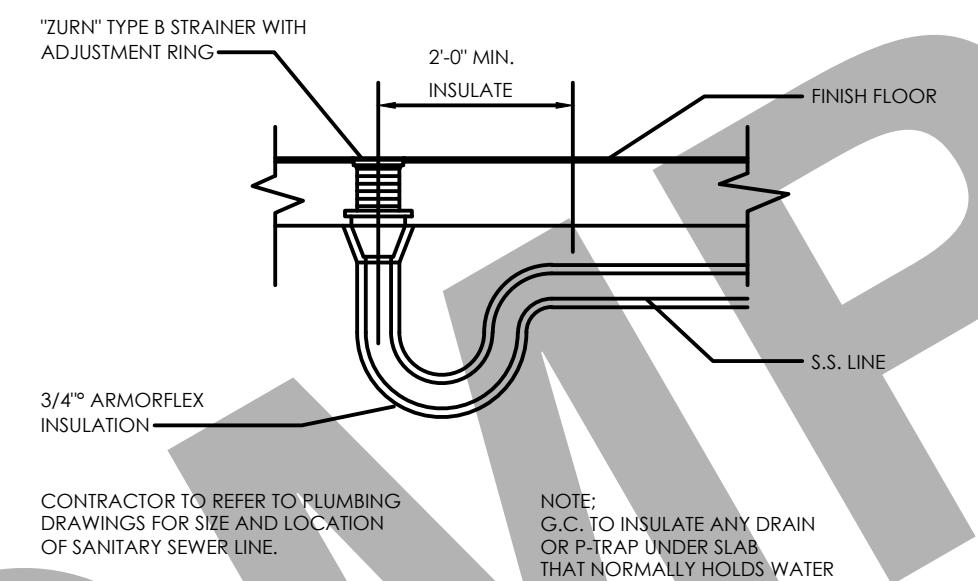
FLOOR SINK DETAIL
NO SCALE



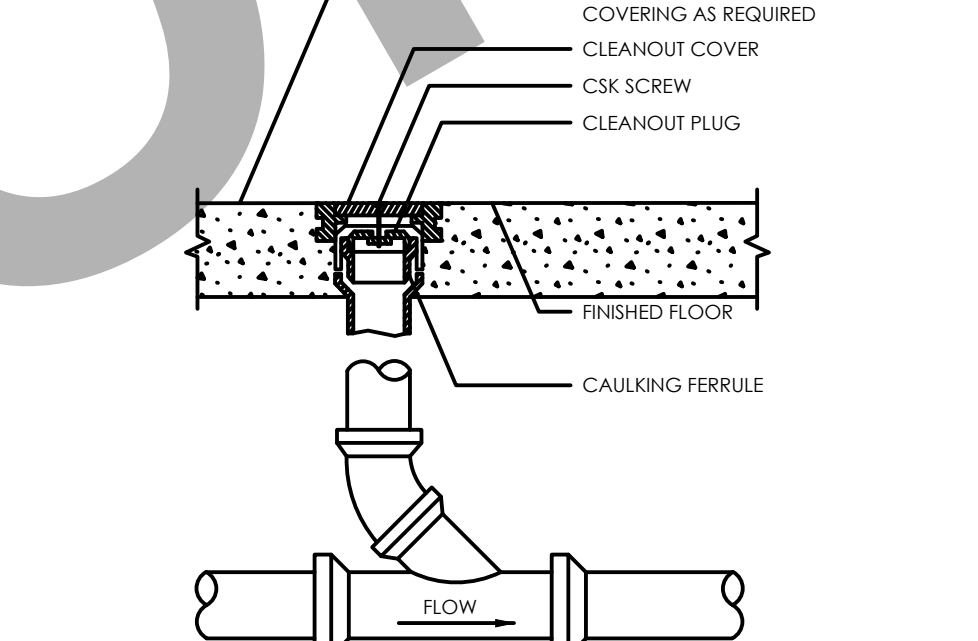
TRAP PRIMER DETAIL
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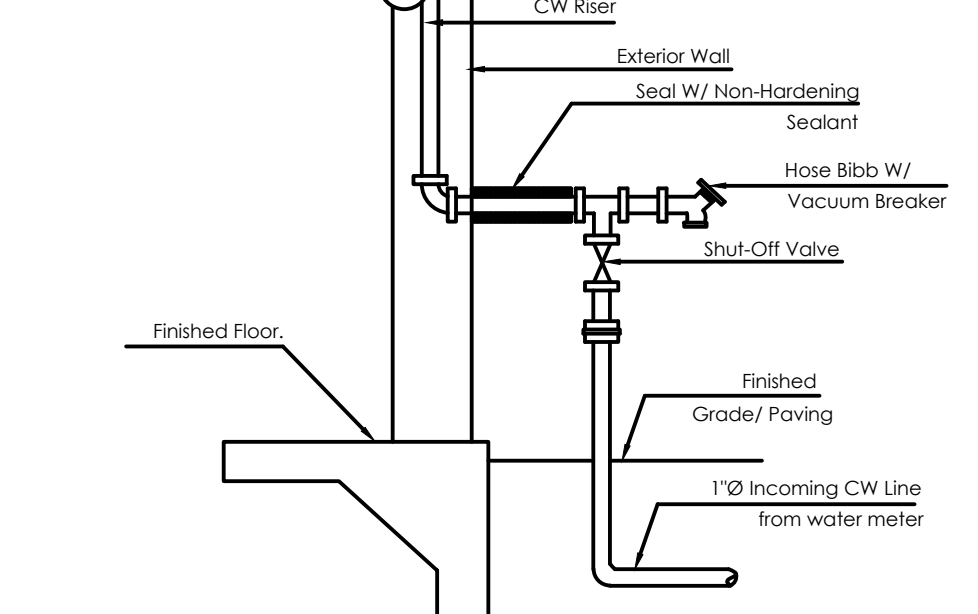
VENT THRU ROOF DETAIL
NO SCALE



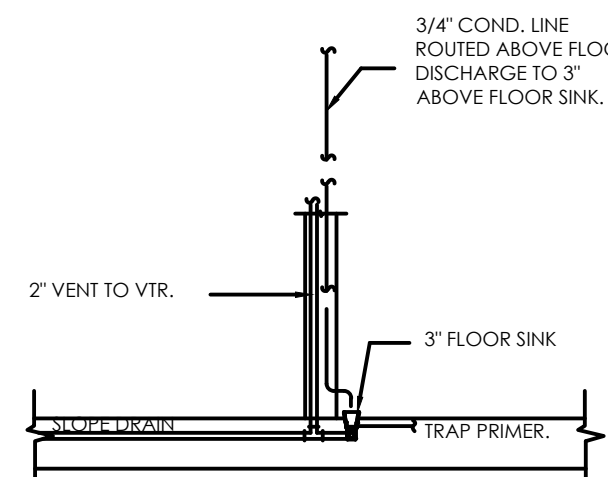
FLOOR DRAIN DETAIL
NO SCALE



FLOOR CLEANOUT DETAIL
NO SCALE



WATER ENTRY DETAIL
NO SCALE



COND. ON FLOOR SINK DETAIL
NO SCALE

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PROJECT:

TITLE: **PLUMBING GENERAL DETAILS.**

PROJ. NO. PROJ. ENGR. SCALE @ 24X36: **NIS**

DRAWING NO. REV.

P 4 . 0

ELECTRICAL SPECIFICATIONS

ELECTRICAL LEGEND

1.ELECTRICAL GENERAL NOTES

- A. GC SHALL VERIFY ANY THIRD PARTY INSPECTIONS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO BIDDING THIS PROJECT.
- B. ALL LOW VOLTAGE WIRING TO BE IN CONDUIT UNLESS APPROVED OTHERWISE BY AUTHORITY HAVING JURISDICTION.
- C. ALL EMERGENCY LIGHTS & EXIT SIGNS ARE TO BE CONNECTED TO THE UNSWITCHED PORTION OF THE ADJACENT LIGHTING CIRCUIT. ALL EMERGENCY FIXTURES TO REMAIN ACTIVE FOR 90 MINUTE MINIMUM.
- D. ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE LABELED AND LISTED BY A CERTIFIED TESTING LABORATORY OR AGENCY.
- E. ALL LIGHTING, DUCTWORK, SOFFITS, AND CEILING COMPONENT HEIGHTS ARE TO BE COORDINATED WITH THE ARCHITECT.
- F. ATTENTION LIGHTING SUPPLIER AND CONTRACTOR: ENSURE ALL LIGHTING EXPOSED TO PLENUM IS PLENUM RATED.
- G. COORDINATE THE MOUNTING OF ALL HIGH-BAY FIXTURES AND CEILING FANS WITH ARCHITECT PRIOR TO INSTALLATION.
- H. . VERIFY MOUNTING HEIGHTS OF ALL FIXTURES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
- I. FIRE ALARM CONTRACTOR SHALL VERIFY ALL BUILDING AND FIRE DEPARTMENT REQUIREMENTS REGARDING SHUT OFF OF ANY NECESSARY COMPONENTS UPON ACTIVATION OF THE FIRE ALARM. THIS INCLUDES, BUT IS NOT LIMITED TO:
- a. AUDIO/MUSIC SYSTEM(S)
 - b. ROOFTOP UNITS
 - c. TANNING EQUIPMENT
 - d. EXERCISE FANS
- J. PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR (SIZE PER NEC) IN PVC TYPE CONDUIT, POWER CIRCUITS, ISOLATED GROUND CIRCUITS, OR AS SHOWN ON PLANS. CONDUIT SHALL BE SIZED PER NEC BASED ON THIN 600 VOLT COPPER SINGLE CONDUCTORS, PLUS THE EQUIPMENT GROUNDING CONDUCTOR. WIRING SHALL INCLUDE FINAL CONNECTION TO ALL EQUIPMENT IN CONFORMANCE WITH EQUIPMENT SUPPLIER WIRING DIAGRAMS.
- L. CONTRACTOR IS RESPONSIBLE FOR PROVIDING COMPLETE PANELBOARD IDENTIFICATION SCHEDULES.
- M. BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG UNLESS NOTED OTHERWISE IN SCHEDULES. WHERE 20A BRANCH CIRCUITS HAVE #8 AND LARGER WIRE SPECIFIED, #10 AWG WIRE SHALL BE USED FOR THE FINAL CONNECTION (15 FOOT MAXIMUM).
- N. WHERE BRANCH CIRCUITS ARE GROUPED, SIZE CONDUIT AND DERATE CURRENT CARRYING CONDUCTORS PER NEC.
- O. PROVIDE HANDLE TIES ON ALL MULTIWIRE BRANCH CIRCUITS TO MEET NEC REQUIREMENTS.
- P. SUPPORT FROM STRUCTURE: NO ATTACHMENT OF ANY TYPE SHALL BE MADE TO BRIDGING OR JOIST WEB MEMBERS. UTILIZE ONLY THE TOP AND BOTTOM CHORDS FOR SUPPORTING THE ELECTRICAL SYSTEM INSTALLATIONS. REFER TO STRUCTURAL PLANS.
- Q. WHERE GROUPED CONDUITS ARE INSTALLED WITHIN THE JOIST SPACE, COORDINATE WITH SPRINKLER CONTRACTOR PRIOR TO INSTALLATION IN ORDER TO MAINTAIN REQUIRED CLEARANCES FROM SPRINKLERS.
- R. SEAL PENETRATIONS IN FIRE RATED WALLS PER NEC 300.21.
- S. ELECTRICAL EQUIPMENT, FIXTURES, DEVICES, AND OTHER ITEMS SHOWN IN THESE PLANS IN GREY HALFTONE ARE EITHER EXISTING TO REMAIN OR PART OF LANDLORD SHELL PACKAGE.
- T. PROVIDE ARC-FLASH COORDINATION STUDY PER NEC.
- U. PROVIDE (1) 1/2" CONDUIT AND (1) 4" SQUARE BOX WITH SINGLE GANG DEVICE RING FOR ALL THERMOSTAT LOCATIONS INDICATED ON MECHANICAL DRAWINGS. ROUTE CONDUIT FROM BOX TO ACCESSIBLE CEILING CAVITY. PROVIDE PLASTIC BUSHING ON EXPOSED CONDUIT ENDS. PROVIDE PULL STRING IN ALL EMPTY CONDUIT SYSTEMS. COORDINATE EXACT LOCATIONS AND MOUNTING HEIGHTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
- V. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE LOW VOLTAGE CONTRACTOR TO CLARIFY SCOPE OF WORK BEFORE BID OR INSTALLATION
- W. WIRING DEVICES: DEVICE MOUNTING HEIGHTS ARE FROM FINISHED FLOOR TO CENTER OF OUTLET BOX UNLESS NOTED OTHERWISE ON PLANS. COORDINATE THE STANDARD MOUNTING HEIGHTS WITH MASONRY:
- a. SWITCHES 42 " AFF
 - b. RECEPTACLES 18" AFF
 - c. VOICE/DATA 18" AFF

2. ELECTRICAL POWER NOTES

- A. ALL REQUIRED DOCUMENTATION REGARDING THE DESIGN OF FIRE DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS AND THE PROCEDURES FOR MAINTENANCE, INSPECTION, AND TESTING OF FIRE DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS SHALL BE MAINTAINED AT AN APPROVED, SECURED LOCATION FOR THE LIFE OF THE SYSTEM PER IFC 901.6.2.1.
- B. THE FIRE ALARM CONTROL PANEL DISCONNECTING MEANS SHALL HAVE A RED MARKING, SHALL ONLY BE ACCESSIBLE TO AUTHORIZED PERSONNEL, AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT". THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE IDENTIFIED AT THE FIRE ALARM CONTROL UNIT PER NFPA 72 4.4.1.4.2.2 AND 4.4.1.4.2.3.
- C. ROUTE ALL CONDUIT TIGHT TO DECK IN ACCORDANCE TO NEC 300.4(E)
- D. FIRE ALARM SYSTEM SHALL BE INSTALLED PER CURRENT NFPA STANDARDS.
- E. ALL ELECTRICAL THAT MAY NEED TO BE MAINTAINED WHILE ENERGIZED SHALL BE FIELD MARKED WITH ARC FLASH LABELING AND BE FULLY VISIBLE TO QUALIFIED PERSONNEL PRIOR TO EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF EQUIPMENT.
- F. SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. THE FIELD MARKINGS SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATIONS WERE PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
- G. FIRE ALARM DEVICE LOCATIONS ARE SHOWN FOR REFERENCE ONLY. THE ELECTRICAL CONTRACTOR SHALL INCLUDE A PRICE IN THE ELECTRICAL BID FOR A LANDLORD APPROVED FIRE ALARM SYSTEM, INCLUDING PLANS AND ALL ASSOCIATED DOCUMENTATION REQUIRED. THESE PLANS SHALL BE SUBMITTED TO THE LOCAL AUTHORITIES HAVING JURISDICTION BY A QUALIFIED AND LICENSED DESIGN-BUILD FIRE ALARM CONTRACTOR FOR A COMPLETE AND APPROVED FIRE ALARM SYSTEM. THE PLANS SHALL BE SIGNED AND SEALED BY THEIR LOCAL DESIGN ENGINEER AND SUBMITTED FOR PLAN REVIEW PRIOR TO RECEIVING SPECIFIC PERMITS FOR THIS WORK. THE FIRE ALARM CONTRACTOR SHALL ALSO SUBMIT ALL SHOP DRAWINGS, BATTERY CALCULATIONS, SPECIFICATION SHEETS, ETC. AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION TO THEIR LOCAL DESIGN ENGINEER FOR REVIEW AND APPROVAL.
- H. COORDINATE WITH MECHANICAL INSTALLER TO PROVIDE AND INSTALL CONDUIT AND JUNCTION BOXES FOR MECHANICAL THERMOSTATS.

3. NETWORK CABLING REQUIREMENTS

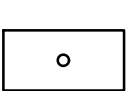



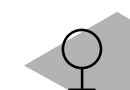





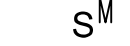

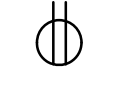
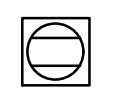
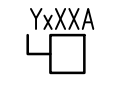


- A. EACH CAT 5 CABLE RUN MUST BE KEPT TO A MAXIMUM OF 295 FEET (90 METERS), INCLUDING PATCH CORDS, ENTIRE CHANNEL MAXIMUM LENGTH NOT TO EXCEED 328 FEET (100 METERS).
- B. MAINTAIN PAIR TWISTING AS CLOSE AS POSSIBLE TO FINAL TERMINATION POINTS WITH MAXIMUM UNTWISTED SEGMENT OF 1/2".
- C. WHERE NECESSARY, GRADUALLY BEND CABLE TO MAINTAIN THE MINIMUM BEND RADIUS OF 4 TIMES THE CABLE DIAMETER (APPROX. 1").
- D. USE LOW TO MODERATE PRESSURE TO DRESS CABLES NEATLY WITH CABLE TIES.
- E. USE LOW TO MODERATE FORCE WHEN PULLING CABLE. DO NOT EXCEED MAXIMUM OF 25 POUNDS OF FORCE.
- F. USE CABLE PULLING LUBRICANT FOR CABLE RUNS THAT MAY EXCEED 25 POUNDS OF FORCE WHEN PULLING.
- G. MAINTAIN 12" OF SEPARATION FROM POWER CABLES THAT MAY BE SOURCES OF EMI (ELECTRICAL CABLES, TRANSFORMERS, LIGHT FIXTURES, ETC.)
- H. INSTALL PROPER CABLE SUPPORTS WITH MAXIMUM OF 5 FEET OF SEPARATION.
- I. LEAVE EXCESS WIRE COILED IN THE CEILING OR NEAREST CONCEALED SPACE. MAINTAIN 5 FEET OF SLACK AT WORK OUTLET AND 10 FEET OF SLACK AT PATCH PANEL END.
- J. FURNISH AND INSTALL GROMMETS WHEN PASSING THROUGH METAL STUDS AND OTHER POTENTIAL HAZARDS.
- K. CONTRACTOR IS RESPONSIBLE FOR MEETING BOTH NATIONAL FIRE AND BUILDING CODES AND ANY LOCAL AMENDMENTS BY THE AUTHORITIES HAVING JURISDICTION AND MAINTAIN FIRESTOPS AT ALL CABLES THAT PENETRATE FIREWALLS. PLENUM RATED CABLES SHALL BE INSTALLED WHERE REQUIRED.
- L. DO NOT SPLICE OR BRIDGE CABLE AT ANY POINT.
- M. DO NOT INSTALL CABLE SUPPORTED FROM CEILING TILES.
- N. DO NOT OVER TIGHTEN (25 POUNDS PER SQUARE INCH MAXIMUM) WITH USING CABLE OR PLASTIC TIES.
- O. DO NOT USE OIL OR OTHER LUBRICANT NOT SPECIFICALLY DESIGNED FOR NETWORK CABLE PULLING.
- P. DO NOT SUPPORT CABLES DIRECTLY FROM ELECTRICAL CONDUITS OR FIXTURES

4. GENERAL FIRE ALARM NOTES

- A. THE INTENT OF THE FIRE ALARM SYSTEM DEVICES INDICATED ON THIS DRAWING ARE FOR PERFORMANCE SPECIFICATIONS AND LOCATIONS ONLY. THE SUCCESSFUL FIRE ALARM SYSTEM CONTRACTOR SHALL PROVIDE COMPLETE PERMIT DRAWINGS, INCLUDING WIRING MEANS AND METHODS, BATTERY CALCULATIONS, DEVICE CUT SHEETS, ETC. FOR THE EQUIPMENT THEY SHALL PROVIDE. PROVIDE 15% SPARE CAPACITY FOR NEW SYSTEMS. COORDINATE FINAL REQUIREMENTS WITH ALL AUTHORITIES HAVING JURISDICTION.
- B. THE FIRE ALARM SYSTEM SHALL BE MONITORED BY A UL LISTED CENTRAL STATION.
- C. FIRE ALARM CONTRACTOR SHALL SUBMIT FIRE ALARM SUBMITTALS TO THE OWNER'S REPRESENTATIVE WITHIN 30 DAYS AFTER CONTRACT IS AWARDED.
- D. WALL MOUNTED DEVICES SHALL BE 80" AFF TO BOTTOM OF DEVICE UNLESS NOTED OTHERWISE.
- E. SURFACE MOUNTING OF FIRE ALARM CONDUIT IS NOT PERMITTED IN FINISHED AREAS.
- F. BUILDING IS EQUIPPED WITH A FULLY AUTOMATIC SPRINKLER SYSTEM.
- G. REMOVE ALL EXISTING FIRE ALARM SYSTEMS FROM PREVIOUS TENANTS PRIOR TO INSTALLING NEW EQUIPMENT.
- H. ALL REQUIRED DOCUMENTATION REGARDING THE DESIGN OF FIRE DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS AND THE PROCEDURES FOR MAINTENANCE, INSPECTION, AND TESTING OF FIRE DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS SHALL BE MAINTAINED AT AN APPROVED, SECURED LOCATION FOR THE LIFE OF THE SYSTEM PER IFC 901.6.2.1.
- I. THE FIRE ALARM CONTROL PANEL DISCONNECTING MEANS SHALL HAVE A RED MARKING, SHALL ONLY BE ACCESSIBLE TO AUTHORIZED PERSONNEL, AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT". THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE IDENTIFIED AT THE FIRE ALARM CONTROL UNIT PER NFPA 72 4.4.1.4.2.2 AND 4.4.1.4.2.3.
- J. ROUTE ALL CONDUIT TIGHT TO DECK IN ACCORDANCE WITH NEC 300.4(E).
- K. FIRE ALARM SYSTEMS SHALL BE INSTALLED PER CURRENT NFPA STANDARDS.FIRE ALARM DEVICE LOCATIONS ARE SHOWN FOR REFERENCE ONLY. THE ELECTRICAL CONTRACTOR SHALL INCLUDE A PRICE IN THE ELECTRICAL BID FOR A LANDLORD APPROVED FIRE ALARM SYSTEM, INCLUDING PLANS AND ALL ASSOCIATED DOCUMENTATION REQUIRED. THESE PLANS SHALL BE SUBMITTED TO THE LOCAL AUTHORITIES HAVING JURISDICTION BY A QUALIFIED AND LICENSED DESIGN-BUILD FIRE ALARM CONTRACTOR FOR A COMPLETE AND APPROVED FIRE ALARM SYSTEM. THE PLANS SHALL BE SIGNED AND SEALED BY THEIR LOCAL DESIGN ENGINEER AND SUBMITTED FOR PLAN REVIEW PRIOR TO RECEIVING SPECIFIC PERMITS FOR THIS WORK. THE FIRE ALARM CONTRACTOR SHALL ALSO SUBMIT ALL SHOP DRAWINGS, BATTERY CALCULATIONS, SPECIFICATION SHEETS, ETC. AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION TO THEIR LOCAL DESIGN ENGINEER FOR REVIEW AND APPROVAL.

5.ELECTRICAL ABBREVIATIONS:

ABC ABOVE COUNTER
AFF ABOVE FINISHED FLOOR
CF CEILING FAN
CP CIRCULATING PUMP
EC ELECTRICAL CONTRACTOR
ECB ENCLOSED CIRCUIT BREAKER
EDF ELECTRIC DRINKING FOUNTAIN
EF EXHAUST FAN
GC GENERAL CONTRACTOR
GFCI GROUND FAULT CIRCUIT INTERRUPT
GR GROUND
HC HVAC CONTRACTOR
JB JUNCTION BOX
PC PLUMBING CONTRACTOR
TTB TELEPHONE TERMINATION BOARD
UC UNDERCOUNTER
UH UNIT HEATER
UNO UNLESS NOTED OTHERWISE
VIF VERIFY IN FIELD
WH WATER HEATER
WP WEATHER PROOF DEVICE
WR WEATHER RESISTANT DEVICE
GFCI GROUND FAULT CIRCUIT INTERRUPTER

-  LUCESCO: 2x4 LED Flat Panel Light, 4000K Cool White, 36V - White Frame, 4600 Lumens, 100-277V - UL & DLC-Qualified - 2 Pack (FOR DATA SHEET REFER TO DWG E1.01)
-  LED Lites USA: 4-Pack 1x4 36w LED Edge-Lit Flat Panel Slim, 4680 lumens, 130lm/W DLC 4.0, Drop Ceiling Light, w/ 4'x4' Junction Box, 0-10V Dimming, Fluorescent Replacement, No Flicker, UL, 4000K (FOR DATA SHEET REFER TO DWG E1.01)
-  RECESSED MOUNTED SPOT SIMILAR TO DN140B PS2D-E IP54 D162 1 xLED10S/840 C WITH POWER 11.5 WATT
-  EMERGENCY ILLUMINATION FIXTURE. SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN
-  LIGHTING OUTLET FOR WALL PACK W/PHOTOCELL @8FT A.F.F
-  HEAVY DUTY JUNCTION BOX, FLUSH IN CEILING FOR EXHAUST FANS
-  WALL MOUNTED EXIT SIGN WITH EMERGENCY LIGHT SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN
-  CEILING MOUNTED EXIT SIGN WITH EMERGENCY LIGHT SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN
-  ONE WAY LIGHTING SWITCH
-  TWO WAYS LIGHTING SWITCH
-  COMBINED WALL SWITCH/OCCUPANCY SENSOR
-  SELF CONTAINED SMOKE/CARBON MONOXIDE (120 W/BATTERY BACKUP) - CEILING MOUNTED
-  DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED GFCI DENOTES: GROUD FAULT PROTECTION
-  DUPLEX RECEPTACLE - FLOOR MOUNTED UNLESS NOTED GFCI DENOTES: GROUD FAULT PROTECTION
-  NON-FUSED NEMA-3R DISCONNECT SWITCH - SIZE AS INDICATED
-  TOGGLE SWITCH IN WEATHERPROOF HOUSING
-  OCCUPANCY SENSOR

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| 00 | FOR APPROVAL | 05/22 | AB |

PROJECT:
VELCO TENANT IMPROVEMENT

TITLE:
ELECTRICAL GEN
AND SPECIFICATIONS

| PROJ. NO. | PROJ. ENGR. | SCALE @ 24X36" |
|-----------|-------------|----------------|
| | | NTS |

DRAWING NO.
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REV.
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Inno

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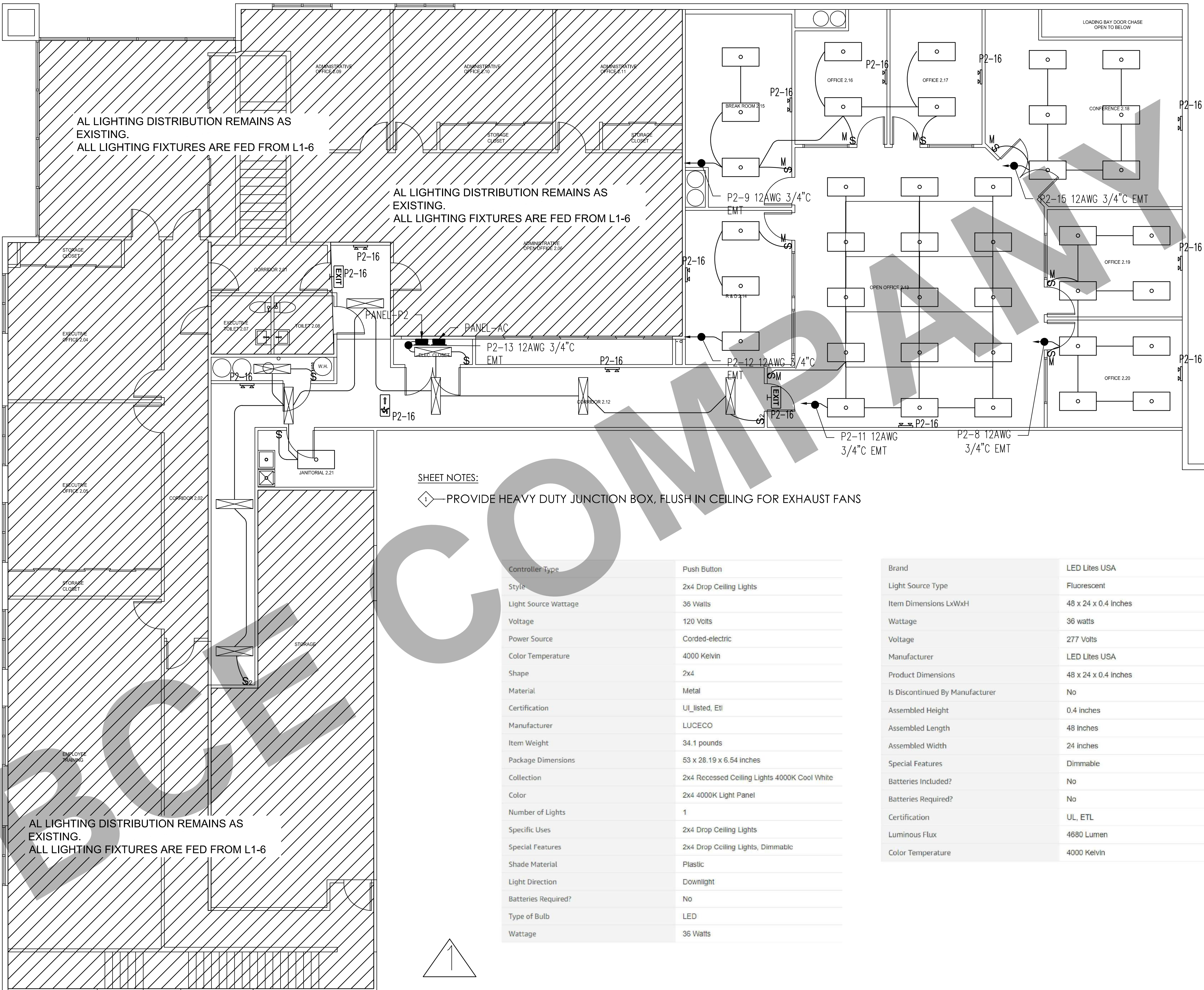
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PROJECT:
VELCO TENANT IMPROVEMENT

TITLE:
LIGHTING LAYC

PROJ. NO. PROJ. ENGR. SCALE @ 24X36
NTS

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AL LIGHTING DISTRIBUTION REMAINS AS
EXISTING.
ALL LIGHTING FIXTURES ARE FED FROM L1-6

AL LIGHTING DISTRIBUTION REMAINS AS
EXISTING.
ALL LIGHTING FIXTURES ARE FED FROM L1-6

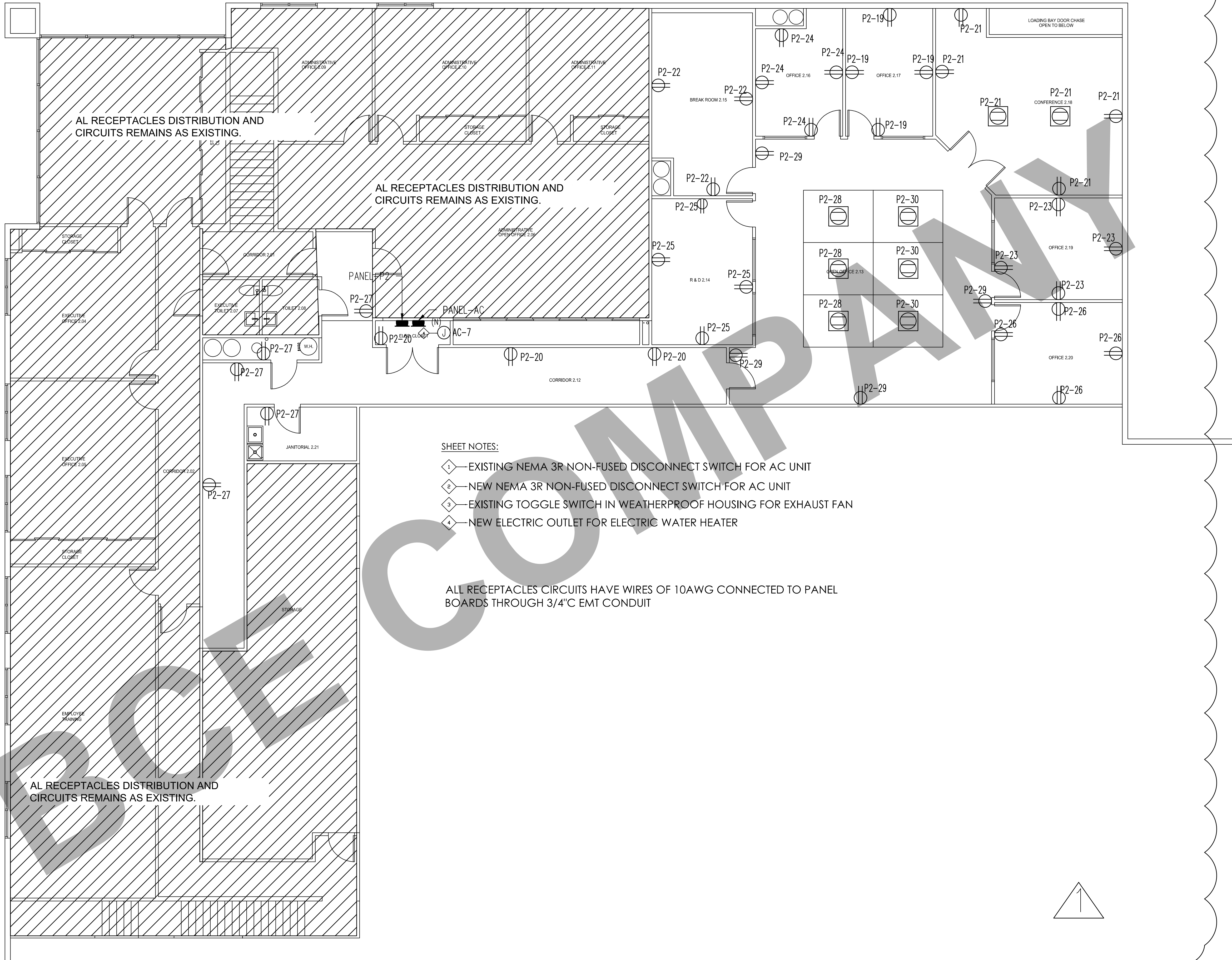
AL LIGHTING DISTRIBUTION REMAINS AS
EXISTING.
ALL LIGHTING FIXTURES ARE FED FROM L1-6

SHEET NOTES:

- 1- PROVIDE HEAVY DUTY JUNCTION BOX, FLUSH IN CEILING FOR EXHAUST FANS

| | |
|----------------------|--|
| Controller Type | Push Button |
| Style | 2x4 Drop Ceiling Lights |
| Light Source Wattage | 36 Watts |
| Voltage | 120 Volts |
| Power Source | Corded-electric |
| Color Temperature | 4000 Kelvin |
| Shape | 2x4 |
| Material | Metal |
| Certification | UL listed, Etl |
| Manufacturer | LUCECO |
| Item Weight | 34.1 pounds |
| Package Dimensions | 63 x 28.19 x 6.54 inches |
| Collection | 2x4 Recessed Ceiling Lights 4000K Cool White |
| Color | 2x4 4000K Light Panel |
| Number of Lights | 1 |
| Specific Uses | 2x4 Drop Ceiling Lights |
| Special Features | 2x4 Drop Ceiling Lights, Dimmable |
| Shade Material | Plastic |
| Light Direction | Downlight |
| Batteries Required? | No |
| Type of Bulb | LED |
| Wattage | 36 Watts |

| | |
|---------------------------------|----------------------|
| Brand | LED Lites USA |
| Light Source Type | Fluorescent |
| Item Dimensions LxWxH | 48 x 24 x 0.4 inches |
| Wattage | 36 watts |
| Voltage | 277 Volts |
| Manufacturer | LED Lites USA |
| Product Dimensions | 48 x 24 x 0.4 inches |
| Is Discontinued By Manufacturer | No |
| Assembled Height | 0.4 inches |
| Assembled Length | 48 inches |
| Assembled Width | 24 inches |
| Special Features | Dimmable |
| Batteries Included? | No |
| Batteries Required? | No |
| Certification | UL, ETL |
| Luminous Flux | 4680 Lumen |
| Color Temperature | 4000 Kelvin |



AL RECEPTACLES DISTRIBUTION AND
CIRCUITS REMAINS AS EXISTING.

AL RECEPTACLES DISTRIBUTION AND
CIRCUITS REMAINS AS EXISTING.

AL RECEPTACLES DISTRIBUTION AND
CIRCUITS REMAINS AS EXISTING.

SHEET NOTES:

- 1- EXISTING NEMA 3R NON-FUSED DISCONNECT SWITCH FOR AC UNIT
- 2- NEW NEMA 3R NON-FUSED DISCONNECT SWITCH FOR AC UNIT
- 3- EXISTING TOGGLE SWITCH IN WEATHERPROOF HOUSING FOR EXHAUST FAN
- 4- NEW ELECTRIC OUTLET FOR ELECTRIC WATER HEATER

ALL RECEPTACLES CIRCUITS HAVE WIRES OF 10AWG CONNECTED TO PANEL
BOARDS THROUGH 3/4" C EMT CONDUIT

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SUPPORT TO THE BUILDING AND ANY
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| 00 | FOR APPROVAL | 05/22 | AB |

PROJECT:

VELCO TENANT IMPROVEMENT

TITLE:

SECOND FLOOR

| PROJ. NO. | PROJ. ENGR. | SCALE @ 24X36" |
|-----------|-------------|----------------|
| | | 1/8"=1'-0" |

DRAWING NO.

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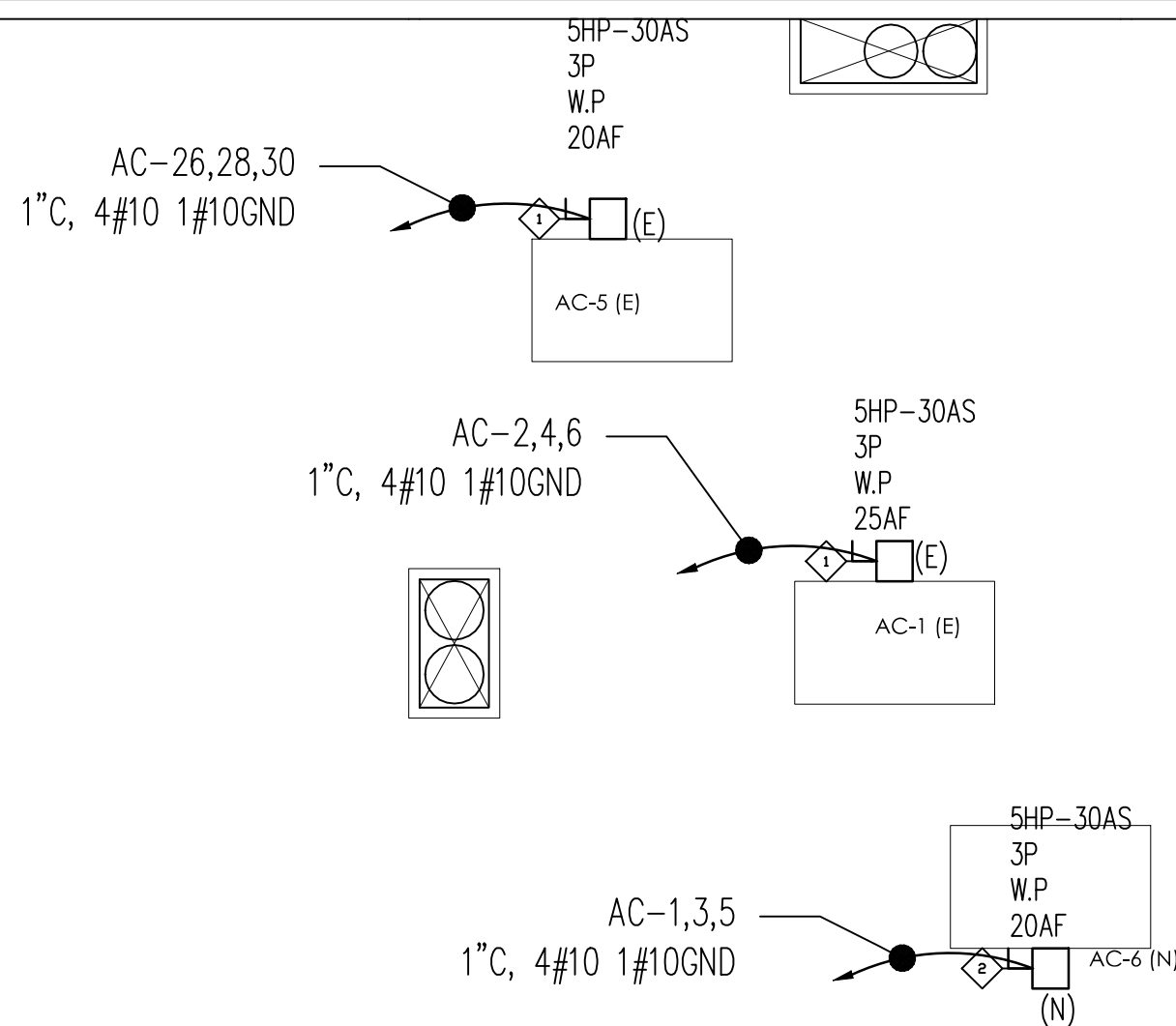
PROJECT:

VELCO TENANT IMPROVEMENT

TITLE:

ROOF FLOOR PC

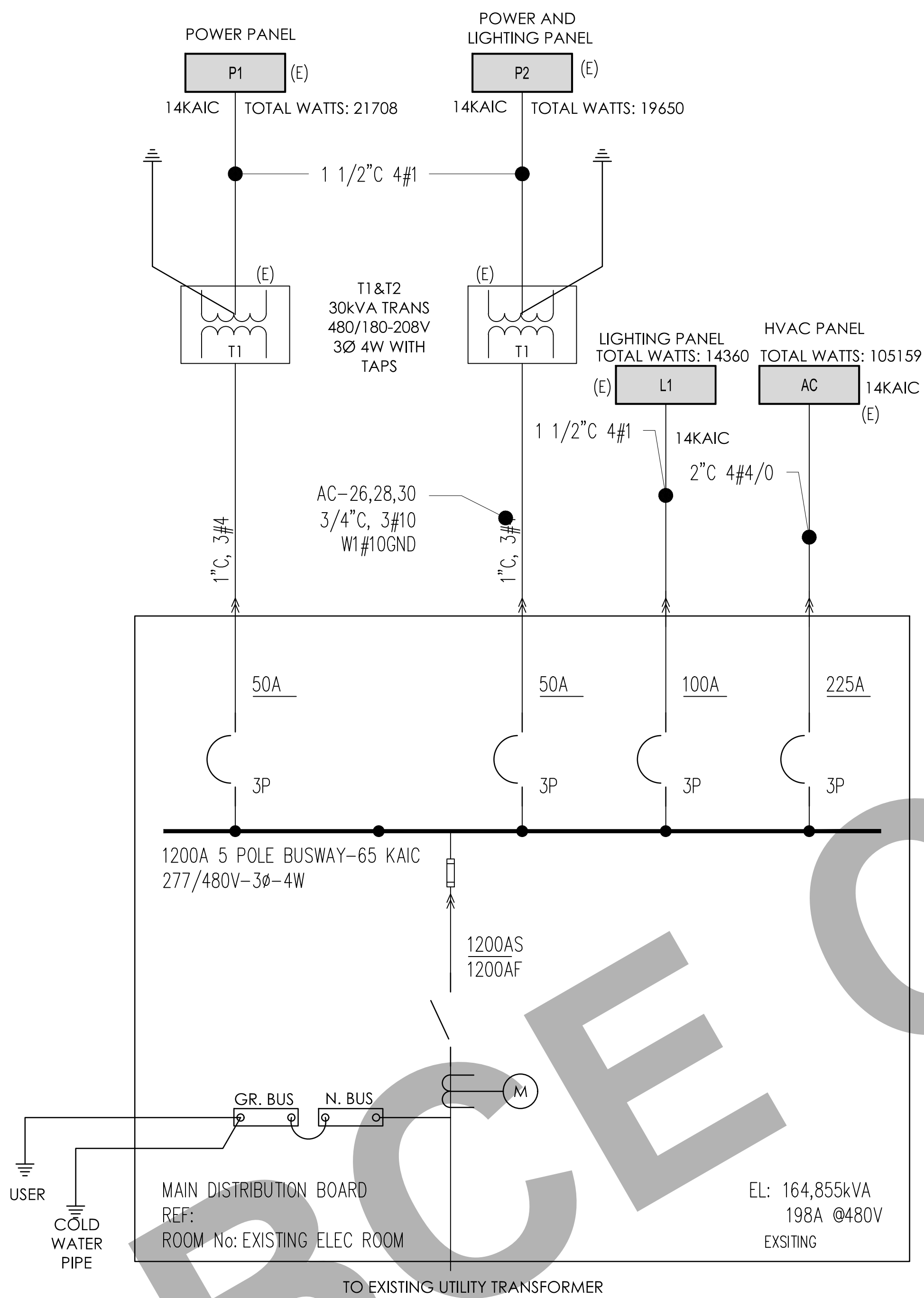
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| | | 1/8"=1'-0" |
| DRAWING NO. | | REV. |
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SHEET NOTES:

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- 2- NEW NEMA 3R NON-FUSED DISCONNECT SWITCH FOR AC UNIT
- 3- EXISTING TOGGLE SWITCH IN WEATHERPROOF HOUSING FOR EXHAUST FAN
- 4- NEW ELECTRIC OUTLET FOR ELECTRIC WATER HEATER

ALL RECEPTACLES CIRCUITS HAVE WIRES OF 10AWG CONNECTED TO PANEL
BOARDS THROUGH 3/4"C EMT CONDUIT



| | | | | | | | | | | | | | | | | |
|-------------------------------------|-----------------------------|---------------------|------|---|-------|-----------------------|-------|--|-------|------|-------|------|------------|---------------------|-----|---|
| Branch Panel: AC | | | | Volts: 277/480 THREE PHASE | | | | BUS RATING: 225A | | | | | | | | |
| Location:ELEC CLOSET | | | | Wires: 4+1 | | | | Mains Type: MCCB | | | | | | | | |
| Supply From: Main Switch Gear | | | | Feeder Size: 4-4/0AWG THHN, 1-#2/0 GND THHN IN 2" EMT | | | | Mains Rating: 225A | | | | | | | | |
| Mounting:Surface | | | | | | | | | | | | | | | | |
| Enclosure Type 1 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| CKT | CIRCUIT DESCRIPTION | WIRE | TRIP | POLES | A | | B | | C | | POLES | TRIP | WIRE | CIRCUIT DESCRIPTION | CKT | |
| 1 | AC#6 NEW | 6 | 40A | 3 | 6059 | 6059 | | | | | 3 | 40A | 3#6,1#6GND | AC#1 EXISTING | 2 | |
| 3 | | | | | | | 6059 | 6059 | | | | | | | | 4 |
| 5 | | | | | | | | | 6059 | 6059 | | | | | | |
| 7 | OUTLET FOR GAS WATER HEATER | 10 | 20A | 1 | 400 | 8079 | | | | | 3 | 60A | 3#6,1#6GND | AC#2 EXISTING | 8 | |
| 9 | | | | | | | | 8079 | | | | | | | 10 | |
| 11 | | | | | | | | | 8079 | | | | | | 12 | |
| 13 | | | | | | 4952 | | | | | 3 | 35A | 3#6,1#6GND | AC#3 EXISTING | 14 | |
| 15 | | | | | | | 4952 | | | | | | | | 16 | |
| 17 | | | | | | | | 4952 | | | | | | | 18 | |
| 19 | | | | | | 4952 | | | | | 3 | 35A | 3#6,1#6GND | AC#4 EXISTING | 20 | |
| 21 | | | | | | | 4952 | | | | | | | | 22 | |
| 23 | | | | | | | | 4952 | | | | | | | 24 | |
| 25 | | | | | | 4952 | | | | | 3 | 35A | 3#6,1#6GND | AC#5 EXISTING | 26 | |
| 27 | | | | | | | 4952 | | | | | | | | 28 | |
| 29 | | | | | | | | 4952 | | | | | | | 30 | |
| 31 | | | | | | | | | | | | | | | 32 | |
| 33 | | | | | | | | | | | | | | | 34 | |
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| 43 | | | | | | | | | | | | | | | 44 | |
| 45 | | | | | | | | | | | | | | | 46 | |
| 47 | | | | | | | | | | | | | | | 48 | |
| TOTAL CONNECTED LOAD (VA) | | | | | 35453 | | 35053 | | 35053 | | | | | | | |
| TOTAL CONNECTED CURRENT (A) | | | | | 128 | | 127 | | 127 | | | | | | | |
| Legend: | | | | | | | | | | | | | | | | |
| Load Classification | | Connected Load (VA) | | Demand Factor | | Estimated Demand (VA) | | Panels Totals | | | | | | | | |
| Lighting | | 0 | | 125.00% | | 0 | | | | | | | | | | |
| Receptacle | | 0 | | 40.00% | | 0 | | Total Conn. Load (kVA): | | | | | | | | |
| Kitchen Equipment Non Dwelling Unit | | 0 | | 60.00% | | 0 | | Total Est. Demand (kVA): | | | | | | | | |
| Mechanical Equipment | | 105559 | | 80.00% | | 84447.2 | | Total Conn. Current (A) Per 1 Phase: | | | | | | | | |
| | | | | | | | | Total Est. Demand Current (A) Per 1 Phase: | | | | | | | | |
| Notes | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|--|---------------------|--|---------------|--|-----------------------|-------|--|------|-------------|-------|------|------|---------------------|---------------------------------------|--|--|-----|----|
| Branch Panel: P2 | | | | | Volts: 120/208 | | | | | THREE PHASE | | | | | BUS RATING: 100A | | | | |
| Location:ELEC CLOSET | | | | | Wires: 4+1 | | | | | | | | | | Mains Type: MCCB | | | | |
| Supply From:STEP DOWN TRANSFORMER T1 | | | | | Feeder Size: 4-1AWG THHN, 1-4 GND THHN IN 1 1/2" EMT | | | | | | | | | | Mains Rating: 100A | | | | |
| Mounting:Surface | | | | | | | | | | | | | | | | | | | |
| Enclosure Type 1 | | | | | | | | | | | | | | | | | | | |
| CKT | CIRCUIT DESCRIPTION | | | | WIRE | TRIP | POLES | A | B | C | POLES | TRIP | WIRE | CIRCUIT DESCRIPTION | | | | CKT | |
| 1 | OFFICE 209,210,211 206-WC 207,212 EXISTING CIRCUIT | | | | 12 | 20 | 1 | 1440 | 900 | | | 1 | 20A | 12 | ROOM 202,203,204,205 EXISTING CIRCUIT | | | | 2 |
| 3 | OFFICE 209,210,211 206-WC 207,212 EXISTING CIRCUIT | | | | 12 | 20 | 1 | | 1440 | 900 | | 1 | 20A | 12 | ROOM 202,203,204,205 EXISTING CIRCUIT | | | | 4 |
| 5 | OFFICE 209,210,211 206-WC 207,212 EXISTING CIRCUIT | | | | 12 | 20 | 1 | | | 1440 | 1800 | 1 | 20A | 12 | ROOM 202,203,204,205 EXISTING CIRCUIT | | | | 6 |
| 7 | CP-1, CLOCK EXISTING CIRCUIT | | | | 10 | 20 | 1 | 500 | 288 | | | 1 | 15A | 12 | LIGHTING OFFICE 2.19&2.20 | | | | 8 |
| 9 | LIGHTING OFFICE 2.16&2.17 & BREAK ROOM | | | | 12 | 15A | 1 | | 252 | 528 | | 1 | 15A | 12 | EXHAUST FAN EF-01 | | | | 10 |
| 11 | LIGHTING OPEN OFFICE 2.13 | | | | 12 | 15A | 1 | | | 540 | 108 | 1 | 15A | 10 | LIGHTING E&D 2.14 | | | | 12 |
| 13 | LIGHTING CORRIDOR 2.01&2.02 | | | | 12 | 15A | 1 | 360 | | | | 1 | 15A | 10 | SPARE | | | | 14 |
| 15 | LIGHTING CONFERENCE 2.18 | | | | 12 | 15A | 1 | | 716 | 138 | | 1 | 15A | 12 | EMERGENCY AND EXIT LIGHTS | | | | 16 |
| 17 | LIGHTING CORRIDOR 2.12 | | | | 12 | 15A | 1 | | | 360 | 0 | 1 | 15A | 10 | SPARE | | | | 18 |
| 19 | RECEPTACLES OFFICE 2.17 | | | | 10 | 20A | 1 | 720 | 540 | | | 1 | 20A | 10 | RECEPTACLES CORRIDOR 2.02 | | | | 20 |
| 21 | RECEPTACLES CONFERENCE 2.18 | | | | 10 | 20A | 1 | | 1080 | 720 | | 1 | 20A | 10 | RECEPTACLES BREAK ROOM | | | | 22 |
| 23 | RECEPTACLES OFFICE 2.19 | | | | 10 | 20A | 1 | | | 720 | 720 | 1 | 20A | 10 | RECEPTACLES OFFICE 2.16 | | | | 24 |
| 25 | RECEPTACLES R&D | | | | 10 | 20A | 1 | 720 | 720 | | | 1 | 20A | 10 | RECEPTACLES OFFICE 2.20 | | | | 26 |
| 27 | RECEPTACLES CORRIDOR 2.02-JANITORIAL 2.21 | | | | 10 | 20A | 1 | | 900 | 540 | | 1 | 20A | 10 | RECEPTACLES OPEN OFFICE 2.13 | | | | 28 |
| 29 | RECEPTACLES OPEN OFFICE 2.13 | | | | 10 | 20A | 1 | | | 720 | 540 | 1 | 20A | 10 | RECEPTACLES OPEN OFFICE 2.13 | | | | 30 |
| TOTAL CONNECTED LOAD (VA) | | | | | 6188 | | | | | 6714 | | | | | 6748 | | | | |
| TOTAL CONNECTED CURRENT (A) | | | | | 52 | | | | | 56 | | | | | 56 | | | | |
| Legend | | | | | | | | | | | | | | | | | | | |
| Load Classification | | Connected Load (VA) | | Demand Factor | | Estimated Demand (VA) | | Panels Totals | | | | | | | | | | | |
| Lighting | | 2062 | | 125.00% | | 2577.5 | | | | | | | | | | | | | |
| Receptacle | | 17060 | | 40.00% | | 6824 | | Total Conn. Load (kVA): | | | | | | | | | | | |
| Kitchen Equipment Non Dwelling Unit | | 0 | | 60.00% | | 0 | | Total Est. Demand (kVA): | | | | | | | | | | | |
| Mechanical Equipment | | 528 | | 80.00% | | 422.4 | | Total Conn. Current (A) Per 1 Phase: | | | | | | | | | | | |
| | | | | | | | | Total Est. Demand Current (A) Per 1 Phase: | | | | | | | | | | | |
| | | | | | | | | 40.93291667 | | | | | | | | | | | |
| Notes | | | | | | | | | | | | | | | | | | | |

Inno

Address: Foxbroug Pleasant
Phone: (424) 41
Web site: www.innc
Email: hello@in

CLIENT:

ADDRESS:

26021 COMMERCE CENTER DRIVE
LAKE FOREST, CA 926

CONFIDENTIALITY STATEMENT:

ALL DRAWINGS AND WRITTEN MATERIALS
APPEARING HEREIN CONSTITUTE THE
ORIGINAL AND UNPUBLISHED WORK OF THE
DESIGNER AND THE SAME MAY NOT BE
DUPLICATED, USED OR DISCLOSED WITHOUT
CONSENT OF THE DESIGNER.

NOTES:

1. ALL DIMENSIONS HEREIN ARE IN IMPERIAL UNITS UNLESS STATED OTHERWISE.
2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DESIGNER, ENGINEER OR SPECIALIST DRAWINGS AND SPECIFICATIONS.
3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING WORK.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.



| REV. | NO. | DESCRIPTION | DATE | BY |
|------|-----|--------------|-------|----|
| | | | | |
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| 01 | | FOR APPROVAL | 07/22 | AB |
| 00 | | FOR APPROVAL | 05/22 | AB |

PROJECT:

VELCO TENANT IMPROVEMENT

TITLE:

PANEL BOARD S
AND POWER RISER DIAGRAM

PROJ. NO. PROJ. ENGR. SCALE @ 24X36
NTS

DRAWING NO.

E 3 . 0 1

REV.

0 0

| | | | |
|--|--|---------------------------------|---|
| Project Name: | 26021 Commercentre Dr Storage to Office Conversion | NRCC-PHF-01-E | Page 5 of 14 |
| Project Address: | 26021 Commercentre Dr Lake Forest 92630 | Calculation Date/Time: | 06:02, Fri, May 27, 2022 |
| Input File Name: | 2978_26021 Commercentre Dr, Lake Forest, CA 92630_Energy Analysis_V8.3.cbdt19x | | |
| H6. SYSTEM SPECIAL FEATURES | | | |
| 1 | 2 | 3 | 4 |
| System Name | Equipment Type | Window Interlocks per §140.6(a) | Other Special Features and Controls |
| (1) Water Heater-1 -SHW | Service Hot Water, Primary Only | NA | Flood Temperature Control |
| Notes: This table includes entries related to the performance only. No projects using the prescriptive path, mandatory and prescriptive controls requirements are documented on the NRCC-0401. | | | |
| H7. NONRESIDENTIAL VENTILATION | | | |
| 1 | 2 | 3 | 4 |
| Zone Name | Mechanical Ventilation | # of people | DCV or Occupant Sensor Control, or Both |
| 1-Janitorial 2.21 | Ventilation Function | Supply DA CFM | Exhaust CFM |
| 1-Janitorial 2.21 | Misc - All others General - Corridors | 0.91 | 37 |
| 2-Open Office 2.13_ | Office - Office space General - Break rooms General - Conference/meeting | 28.70 | 553 |
| H8. HIGH-RISE RESIDENTIAL DWELLING UNIT AND HOTEL/MOTEL VENTILATION | | | |
| This Section Does Not Apply | | | |
| H9. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY | | | |
| 1 | 2 | 3 | 4 |
| System ID | Zone Name | System Type | Qty |
| 1-Janitorial 2.21-Tm | 1-Janitorial 2.21 | Uncontrolled | 1 |
| 2-Open Office 2.13_ -Tm | 2-Open Office 2.13_ | Uncontrolled | 1 |
| H10. EVAPORATIVE COOLER SUMMARY | | | |
| This Section Does Not Apply | | | |

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| H11. HEAT RECOVERY SUMMARY | | | |
| This Section Does Not Apply | | | |
| IL. WATER HEATER EQUIPMENT SUMMARY | | | |
| 1 | 2 | 3 | 4 |
| Name | Heater Element Type | Tank Type | Qty |
| AO SMITH BT-65 Gal. Gas2 | Gas | Storage | 1 |
| K1. INDOOR CONDITIONED LIGHTING GENERAL INFO | | | |
| 1 | 2 | 3 | 4 |
| Occupancy Type ¹ | Conditioned Floor Area ² (ft ²) | Installed Lighting Power (Watts) | Lighting Control Credits (Watts) |
| Commercial/Industrial Storage (Warehouse) | 79 | 37 | 0 |
| Corridor Area | 167 | 204 | 0 |
| Office Area (<250 square feet) | 1,639 | 1,162 | 0 |
| Lounge, Breakroom, or Waiting Area | 232 | 123 | 0 |
| Convention, Conference, Multipurpose and Meeting Area | 383 | 234 | 0 |
| Building Totals: | 2,500 | 1,780 | 0 |

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| K2. INDOOR CONDITIONED LIGHTING SCHEDULE | | | |
| Luminaire Schedule (includes all permanent installed lighting in conditioned space, and portable lighting over 0.5 w/ft ² in office) | | | |
| 1 | 2 | 3 | 4 |
| Name or Item Tag | Complete Luminaire Description (i.e., 4-lamp fluorescent troffer, 4'x8', one dimmable electronic ballast) | Watts per luminaire | How Wattage is Determined |
| A | Exit Sign 1 W | 3 | According to §130.6(c) |
| B | Emergency Light 12 W | 12 | According to §130.6(c) |
| C | 2' x 4' Recessed LED light 37 W | 37 | According to §130.6(c) |
| D | Surface Mounted 1' x 4' LED light 18 W | 18 | According to §130.6(c) |
| K3. INDOOR CONDITIONED LIGHTING CREDITS | | | |
| Lighting Control Credits Schedule (includes all lighting controls installed in conditioned space for compliance credit per §140.6(a)(2) and Table 140.6-A) | | | |
| 1 | 2 | 3 | 4 |
| Area Description | Primary Function Area (must meet requirements of Table 140.6-A) | Type of Lighting Control | Power Adjustment Factor (PAF) |
| S-1-Janitorial 2.21 | Commercial/Industrial Storage (Warehouse) | NA | 0.00 |
| S-2-Corridor A 2.12_ | Corridor Area | NA | 0.00 |
| S-2-Corridor A 2.12_ | Corridor Area | NA | 0.00 |

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| K3. INDOOR CONDITIONED LIGHTING CONTROL CREDITS | | | |
| Lighting Control Credits Schedule (includes all lighting controls installed in conditioned space for compliance credit per §140.6(a)(2) and Table 140.6-A) | | | |
| 1 | 2 | 3 | 4 |
| Area Description | Primary Function Area (must meet requirements of Table 140.6-A) | Type of Lighting Control | Power Adjustment Factor (PAF) |
| S-2-Corridor A 2.12_ | Corridor Area | NA | 0.00 |
| S-3-Open Office 2.13_ | Office Area (<250 square feet) | NA | 0.00 |
| S-3-Open Office 2.13_ | Office Area (<250 square feet) | NA | 0.00 |
| S-4-R & D 2.14_ | Office Area (<250 square feet) | NA | 0.00 |
| S-4-R & D 2.14_ | Office Area (<250 square feet) | NA | 0.00 |
| S-5-Breakroom 2.15_ | Lounge, Breakroom, or Waiting Area | NA | 0.00 |

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| K3. INDOOR CONDITIONED LIGHTING CONTROL CREDITS | | | |
| Lighting Control Credits Schedule (includes all lighting controls installed in conditioned space for compliance credit per §140.6(a)(2) and Table 140.6-A) | | | |
| 1 | 2 | 3 | 4 |
| Area Description | Primary Function Area (must meet requirements of Table 140.6-A) | Type of Lighting Control | Power Adjustment Factor (PAF) |
| S-5-Breakroom 2.15_ | Lounge, Breakroom, or Waiting Area | NA | 0.00 |
| S-6-Office 2.16_ 2.17_ | Office Area (<250 square feet) | NA | 0.00 |
| S-6-Office 2.16_ 2.17_ | Office Area (<250 square feet) | NA | 0.00 |
| S-6-Office 2.16_ 2.17_ | Office Area (<250 square feet) | NA | 0.00 |
| S-6-Office 2.16_ 2.17_ | Office Area (<250 square feet) | NA | 0.00 |
| S-6-Office 2.16_ 2.17_ | Office Area (<250 square feet) | NA | 0.00 |
| S-7-Conference 2.18_ | Convention, Conference, Multipurpose and Meeting Area | NA | 0.00 |
| S-7-Conference 2.18_ | Convention, Conference, Multipurpose and Meeting Area | NA | 0.00 |

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| Input File Name: | 2978_26021 Commercentre Dr, Lake Forest, CA 92630_Energy Analysis_V8.3.cbdt19x | | |
| K3. INDOOR CONDITIONED LIGHTING CONTROL CREDITS | | | |
| Lighting Control Credits Schedule (includes all lighting controls installed in conditioned space for compliance credit per §140.6(a)(2) and Table 140.6-A) | | | |
| 1 | 2 | 3 | 4 |
| Area Description | Primary Function Area (must meet requirements of Table 140.6-A) | Type of Lighting Control | Power Adjustment Factor (PAF) |
| S-8-Office 2.19- 2.20 _ | Office Area (<250 square feet) | NA | 0.00 |
| S-8-Office 2.19- 2.20 _ | Office Area (<250 square feet) | NA | 0.00 |
| S-8-Office 2.19- 2.20 _ | Office Area (<250 square feet) | NA | 0.00 |
| S-8-Office 2.19- 2.20 _ | Office Area (<250 square feet) | NA | 0.00 |
| S-8-Office 2.19- 2.20 _ | Office Area (<250 square feet) | NA | 0.00 |
| S-8-Office 2.19- 2.20 _ | Office Area (<250 square feet) | NA | 0.00 |

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| K4. INDOOR CONDITIONED LIGHTING MANDATORY LIGHTING CONTROLS | | | |
| Building Level Controls | | | |
| Mandatory Demand Response §110.12(c) | | | |
| Shut-Off Controls §130.1(c) | | | |
| Area Level Controls (includes all lighting controls installed in conditioned space to meet mandatory requirements per §130.1) | | | |
| 1 | 2 | 3 | 4 |
| Area Description | Area Category Primary Function Area | Area Controls §130.1(a) | Multi-Level Controls §130.1(b) |
| Office 2.19- 2.20 | Office Area (<250 square feet) | Required | Required |
| Conference 2.18 | Convention, Conference, Multipurpose and Meeting Area | Required | Required |
| Office 2.16- 2.17 | Office Area (<250 square feet) | Required | Required |
| Breakroom 2.15 | Lounge, Breakroom, or Waiting Area | Required | Required |
| R & D 2.14 | Computer Room | Required | Required |
| Open Office 2.13 | Office Area (Open plan office) | Required | Required |
| Corridor 2.12 | Corridor Area | Required | Exempt |
| Janitorial 2.21 | General Commercial & Industrial Work Area (Precision) | Required | Required |

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| L. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION | | | |
| Table Instructions: Selections shall be made by Documentation Author to indicate which Certificates of Installation must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online at: https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRC/ | | | |
| Building Component | Form/Title | | |
| Mechanical | NRCC-MCH-01-E - Must be submitted for all buildings | | |
| Plumbing | NRCC-PLB-01-E - Must be submitted for all buildings | | |
| Indoor Lighting | NRCC-LIB-01-E - Must be submitted for all buildings | | |

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| M. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE | | | |
| Table Instructions: Selections shall be made by Documentation Author to indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRC/ | | | |
| Building Component | Form/Title | | |
| Indoor Lighting | NRCA-LI-02-A - Occupancy Sensors and Automatic Time Switch Controls | | |
| Mechanical | NRCA-MCH-02-A Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap NRCA-MCH-03-A Constant Volume Single Zone HVAC NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance | | |

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| DOCUMENTATION AUTHORS DECLARATION STATEMENT | | | |
| I certify that I am the author of this document and that the information provided is accurate and complete. | | | |
| Documentation Author Name: Viranchi Shah | Signature: <i>Viranchi Shah</i> | | |
| Company: www.gaffin24.com | Signature Date: 2022-05-27 | | |
| Address: 38950 Beach Blvd. | CSA/NRCS Certification Identification (if applicable): | | |
| City/State/Zip: La Mirada CA 90638 | | | |
| Phone: 7149894735 | | | |
| RESPONSIBLE PERSON'S DECLARATION STATEMENT | | | |
| I certify the following under penalty of perjury under the laws of the State of California: | | | |
| 1. The information provided on this Certificate of Compliance is true and correct. | | | |
| 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer). | | | |
| 3. The energy balance and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 2 of the California Code of Regulations. | | | |
| 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans, and specifications submitted to the enforcement agency for approval with this building permit application. | | | |
| 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy. | | | |
| Responsible Person's Declaration Name: Viranchi Shah | Signature: <i>Viranchi Shah</i> | | |
| Company: gaffin24.com | Signature Date: 2022-05-27 | | |
| Address: 38950 Beach Blvd. | CSA/NRCS Certification Identification (if applicable): | | |
| City/State/Zip: La Mirada CA 90638 | | | |
| Phone: 7149894735 | | | |

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| HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY | | | | | | | | | |
|--|--------|---------------------------------------|----------|--------|-----|-------------------|--|----------|--|
| Project Name 26021 Commercentre Dr Storage to Office Conversion | | | | | | Date 5/27/2022 | | | |
| System Name (E) HVAC System (AC-4) | | | | | | Floor Area 246 | | | |
| ENGINEERING CHECKS | | SYSTEM LOAD | | | | | | | |
| Number of Systems | | COIL COOLING PEAK | | | | COIL HTG. PEAK | | | |
| | | CFM | Sensible | Latent | CFM | Sensible | | | |
| Heating System | | | | | | | | | |
| Output per System | 50,000 | Total Room Loads | | | | | | | |
| Total Output (Btu/h) | 50,000 | 499 | 10,014 | 2,542 | 60 | 2,993 | | | |
| Output (Btu/h/ft²) | 203.3 | Return Return Fan | | | | | | | |
| Cooling System | | | | | | | | | |
| Output per System | 60,000 | Ventilation | | | | | | | |
| Total Output (Btu/h) | 60,000 | 281 | 5,675 | 0 | 281 | 11,996 | | | |
| Total Output (Tons) | 5.0 | Supply Fan | | | | | | | |
| Total Output (Btu/h/ft²) | 243.9 | Supply Air Ducts | | | | | | | |
| Total Output (seft/Ton) | 49.2 | TOTAL SYSTEM LOAD | | | | | | | |
| Air System | | 21,243 2,559 10,736 | | | | | | | |
| CFM per System | 1,960 | | | | | | | | |
| Airflow (cfm) | 1,960 | HVAC EQUIPMENT SELECTION | | | | | | | |
| Airflow (cfm/ft²) | 7.97 | CARRIER 48HJ006 | | | | | | | |
| Airflow (cfm/Ton) | 392.0 | 55,668 1,080 50,000 | | | | | | | |
| Outside Air (%) | 14.3% | Total Adjusted System Output | | | | | | | |
| Outside Air (cfm/ft²) | 1.14 | (Adjusted for Peak Design conditions) | | | | | | | |
| Note: values above given at ARI conditions | | 55,668 1,080 50,000 | | | | | | | |
| TIME OF SYSTEM PEAK | | | | | | | | | |
| | | | | | | Jul 2 PM | | Jan 1 AM | |
| HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak) | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |